

LETTING DATE

CONSTRUCTION PROJECT NO.

TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS DAVISS COUNTY GLOVER CARY BRIDGE (030B00118N) KY 2262 OVER OHIO RIVER REPAIR PLANS

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SPECIAL NOTES

- Special Note for Bridge Plans & Project Information
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- Special Note for Bridge Deck Removal
- Special Note for Bridge Restoration with Concrete Overlays
- Special Note for Use of Hydromodification Method
- Special Note for Joint Seal Replacement
- Special Note for Concrete Patching
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- Special Note for Epoxy Injection Crack Repairs
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- Special Note for Bearing Lubrication
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- Special Note for Coordination with Other Contracts
- Special Note for Contract Completion and Liquidated Damages
- Special Note for Concrete-Filled Steel Grid Deck Patching

SPECIAL PROVISIONS

STANDARD DRAWINGS

BGX-009-04	Bridge Restoration with Concrete Overlays
BJE-001	Armored Edges
BJE-003	Expansion Joint Replacement 1" - 3"
BJE-005	Expansion Joint Replacement General Notes
BJE-006	Expansion Joint Replacement 4" & 5"
BJE-006	Expansion Joint Replacement 4" & 5"

SPECIFICATIONS

- 2019 Standard Specifications for Road and Bridge Construction, with current supplemental specifications.
- 2002 AASHTO Standard Specifications for Highway Bridges.

ESTIMATE OF BRIDGE QUANTITIES

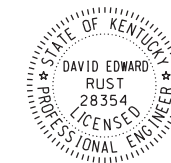
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BID ITEM	DEMOLITION	MOBILIZATION FOR CONCRETE SURFACE TREATMENT	STRINGER REPAIR	REM EPOXY BIT FOREIGN OVERLAY	CONCRETE OVERLAY - LATEX	PARTIAL DEPTH PATCHING	CONC CLASS M FULL DEPTH PATCH	EPOXY-SAND SLURRY	BLAST CLEANING	HYDRODEMOLITION	EXPANSION JOINT REPLACEMENT 1-1/2 IN	STEEL REPAIR (1) (2) (3) (4) (5)	CONCRETE CLASS M1	CONCRETE CLASS AA	REMOVE EXISTING DECK	FINGER DAM REPAIR	STEEL GRID DECK (6)	SALVAGE AND RE-INSTALL CONDUIT	STEEL REINFORCEMENT - EPOXY COATED	STEEL REINFORCEMENT - STAINLESS STEEL	STRUCTURAL STEEL *	JOINT SEAL REPLACEMENT	CONCRETE PATCHING REPAIR	EPOXY INJECT CRACK REPAIR	FRP WRAP	CONCRETE SEALING	BOLT/RIVET REPLACEMENT	BEARING LUBRICATION	ARMORED EDGE FOR CONCRETE
UNIT	LS	LS	EA	SQYD	CUYD	CUYD	CUYD	SQYD	SQYD	SQYD	LF	EA	CUYD	CUYD	LS	LS	SF	LF	LB	LB	LS	LF	SF	LF	SF	SF	EA	EA	LF
GENERAL	1	1																											
REPAIR 1: STRINGER REPAIR			21																										
REPAIR 2: STRINGER & FINGER EXPANSION JOINT REPAIR			5													1													
REPAIR 3: CONCRETE-FILLED STEEL GRID DECK REPLACEMENT														52	1		16045	1366			9714	1	44						
REPAIR 4: LATEX CONCRETE DECK OVERLAY			783	33	22	6	309	238	783										1000										
REPAIR 5: REINFORCED CONCRETE DECK REPLACEMENT											88			499	1				82772	65000	1								
REPAIR 6: JOINT REPLACEMENT																						506							
REPAIR 7: MISCELLANEOUS STEEL REPAIRS												13																	
REPAIR 8: REINFORCED CONCRETE SUBSTRUCTURE REPAIR													6										445	169	244	4725			
REPAIR 9: CURB/SIDEWALK REPAIR																							114						
REPAIR 10: MISSING RIVET/BOLT REPLACEMENT																										14			
REPAIR 11: CLEAN AND GREASE BEARINGS																												66	
REPAIR 12: GIRDER AND FLOORBEAM REPAIR												1	4						1251										22
REPAIR 13: GIRDER 1 CRACK REPAIR												1																	
REPAIR 14: CONCRETE-FILLED STEEL GRID DECK PATCHING						6	6																						
BRIDGE TOTALS	1	1	26	783	33	28	12	309	238	783	88	15	10	551	2	1	16045	1366	85023	74714	2	550	560	169	244	4725	14	66	22

MAINTENANCE OF TRAFFIC QUANTITIES

BID ITEM CODE	02014	02562	02650	02671
BID ITEM	BARRICADE-TYPE III	TEMPORARY SIGNS	MAINTAIN AND CONTROL TRAFFIC	PORTABLE CHANGEABLE MESSAGE SIGN
UNIT	EA	SQ FT	LS	EA
GENERAL	4	119	1	12
BRIDGE TOTALS	4	119	1	12

- * REPAIR 3: ESTIMATED WEIGHT OF STRUCTURAL STEEL = 39,142 LB. (STUDS = 6,860 LB.)
- * REPAIR 5: ESTIMATED WEIGHT OF STRUCTURAL STEEL = 48,200 LB. (STUDS = 7,545 LB.)

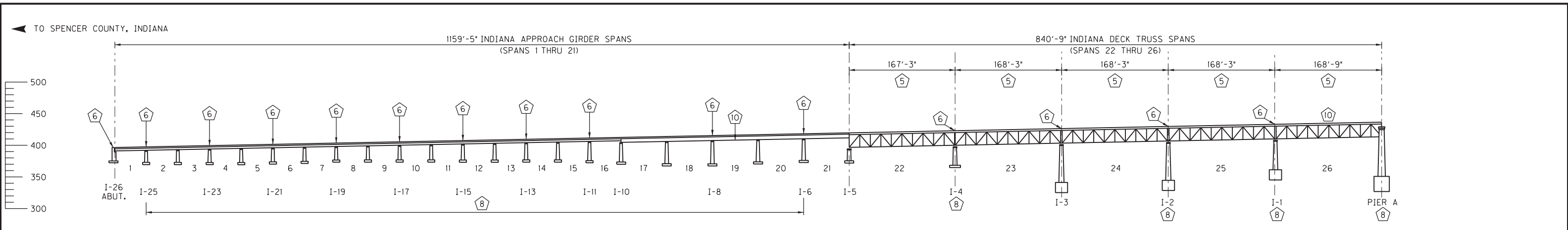
- SUPPLEMENTAL DESCRIPTIONS:
- (1) SLIDING PIN PLATE REPLACEMENT (QTY. = 6)
 - (2) WINDLOCK ANGLE REPLACEMENT (QTY. = 6)
 - (3) WELDED SLIDING PLATE REPAIR (QTY. = 1)
 - (4) GIRDER CRACK RETROFIT (QTY. = 1)
 - (5) GIRDER SPLICE/FLOORBEAM REPLACEMENT (QTY. = 1)
 - (6) CONCRETE FILLED



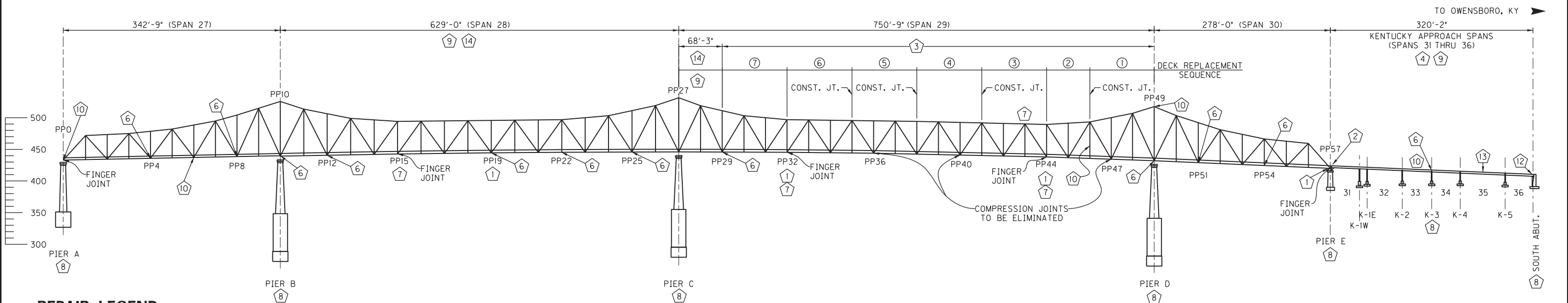
DAVID EDWARD RUST
P.E. 28354

David E. Rust
2024.12.13 19:17:58 -05'00'





ELEVATION - INDIANA APPROACH SPANS
(LOOKING UPSTREAM) (EAST)



ELEVATION - THROUGH TRUSS AND KY APPROACH SPANS
(LOOKING UPSTREAM) (EAST)

REPAIR LEGEND

- 1 STRINGER REPAIR
- 2 STRINGER & FINGER EXPANSION JOINT REPAIR
- 3 CONCRETE-FILLED STEEL GRID DECK REPLACEMENT
- 4 LATEX CONCRETE DECK OVERLAY
- 5 REINFORCED CONCRETE DECK REPLACEMENT
- 6 JOINT REPLACEMENT
- 7 MISCELLANEOUS STEEL REPAIRS
- 8 REINFORCED CONCRETE SUBSTRUCTURE REPAIR
- 9 CURB/SIDEWALK REPAIR
- 10 MISSING RIVET / BOLT REPLACEMENT - SEE TABLE FOR LOCATION & QUANTITIES
- 11 CLEAN AND GREASE BEARINGS - SEE TABLE FOR LOCATION & QUANTITIES
- 12 GIRDER AND FLOORBEAM REPAIR
- 13 GIRDER I CRACK REPAIR
- 14 CONCRETE-FILLED STEEL GRID DECK PATCHING

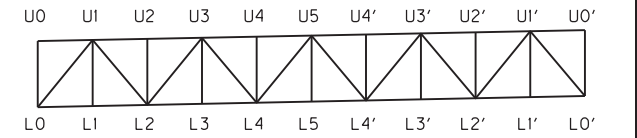
- 3** DECK REPLACEMENT SEQUENCE NOTES:
- FOR THROUGH TRUSS SPAN 29, REMOVE AND COMPLETELY REPLACE THE EXISTING LIGHTWEIGHT DECK FOR EACH NUMBERED SECTION IN THE SEQUENCE SHOWN PRIOR TO CONTINUING WITH THE NEXT SECTION IN THE SEQUENCE.
 - THE DECK REPLACEMENT SEQUENCE NOTED ABOVE MAY NOT BE MODIFIED UNLESS THE CONTRACTOR SUBMITS FOR THE WRITTEN APPROVAL OF THE ENGINEER, DRAWINGS, PLANS, DETAILS, AND CALCULATIONS PERFORMED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF KENTUCKY SHOWING THAT TRUSS MEMBER STRESSES, UPLIFT FORCES AT PIERS A AND E, AND ANY OTHER CONSTRUCTION CONCERNS OCCURRING AS A RESULT OF THE MODIFIED REPLACEMENT SEQUENCE HAVE BEEN ADDRESSED.
 - THE CONTRACTOR SHALL USE CARE IN REMOVING THE EXISTING DECK ADJACENT TO THE EXISTING FINGER DAMS. ANY DAMAGE CAUSED BY THE DECK REMOVAL IS TO BE REPLACED AT THE CONTRACTORS EXPENSE. THE EXISTING HARDWARE FOR THESE LOCATIONS IS TO BE REUSED. TEMPORARY SUPPORT MAY BE REQUIRED.
- 5** DECK REPLACEMENT SEQUENCE NOTES:
- FOR EACH DECK TRUSS SPAN (SPANS 22-26) REMOVE AND COMPLETELY REPLACE THE EXISTING REINFORCED CONCRETE DECK. THE NEW CONCRETE DECK SHOULD BE POURED ONE SPAN AT A TIME.
 - THE CONTRACTOR SHALL USE CARE IN REMOVING THE EXISTING DECK ADJACENT TO THE EXISTING FINGER DAM AT PIER A. ANY DAMAGE CAUSED BY THE DECK REMOVAL IS TO BE REPLACED AT THE CONTRACTORS EXPENSE. THE EXISTING HARDWARE FOR THIS LOCATION IS TO BE REUSED. TEMPORARY SUPPORT MAY BE REQUIRED.
- 14** SEE SPECIAL NOTE FOR "CONCRETE-FILLED STEEL GRID DECK PATCHING"

REPAIR 11

BEARING LUBRICATION	
PIER	NUMBER OF BEARINGS
I-25	4
I-23	4
I-21	4
I-19	4
I-17	4
I-15	4
I-13	4
I-11	4
I-9	2
I-8	4
I-6	4
I-4	2
I-3	2
I-2	2
I-1	2
A	4
E	2
K-1	2
K-2	2
K-3	2
K-4	2
K-5	2
TOTAL	66

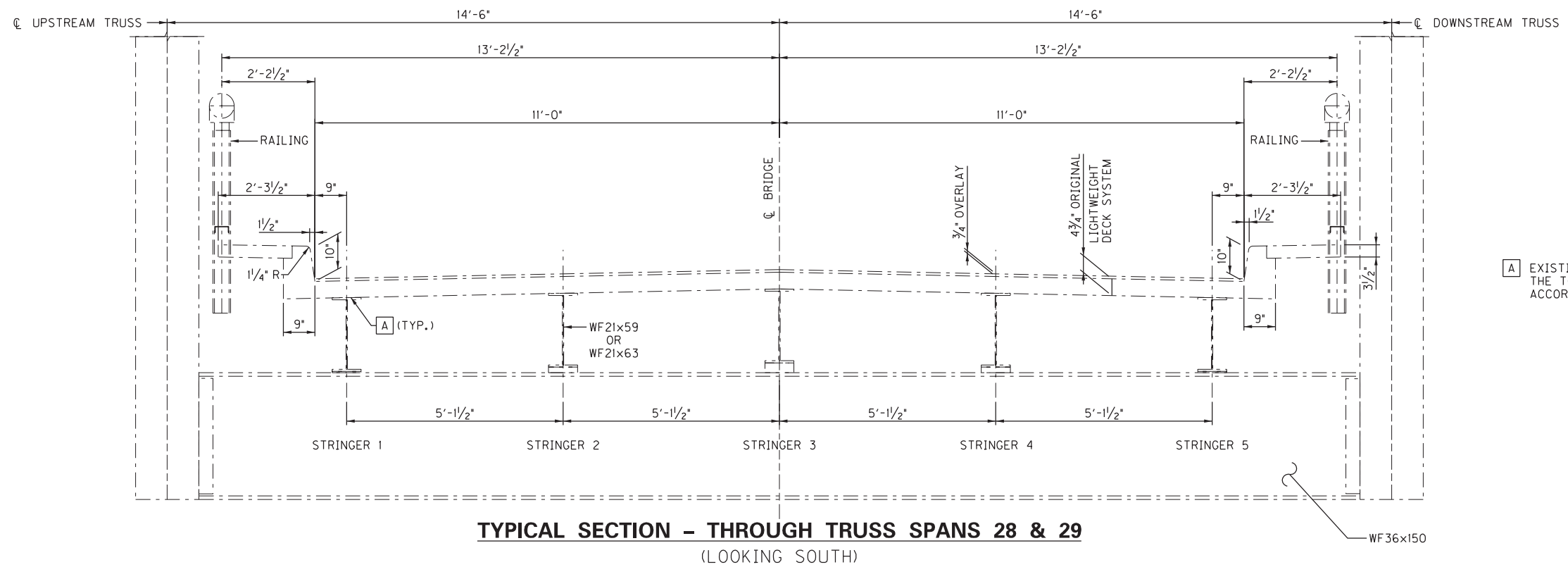
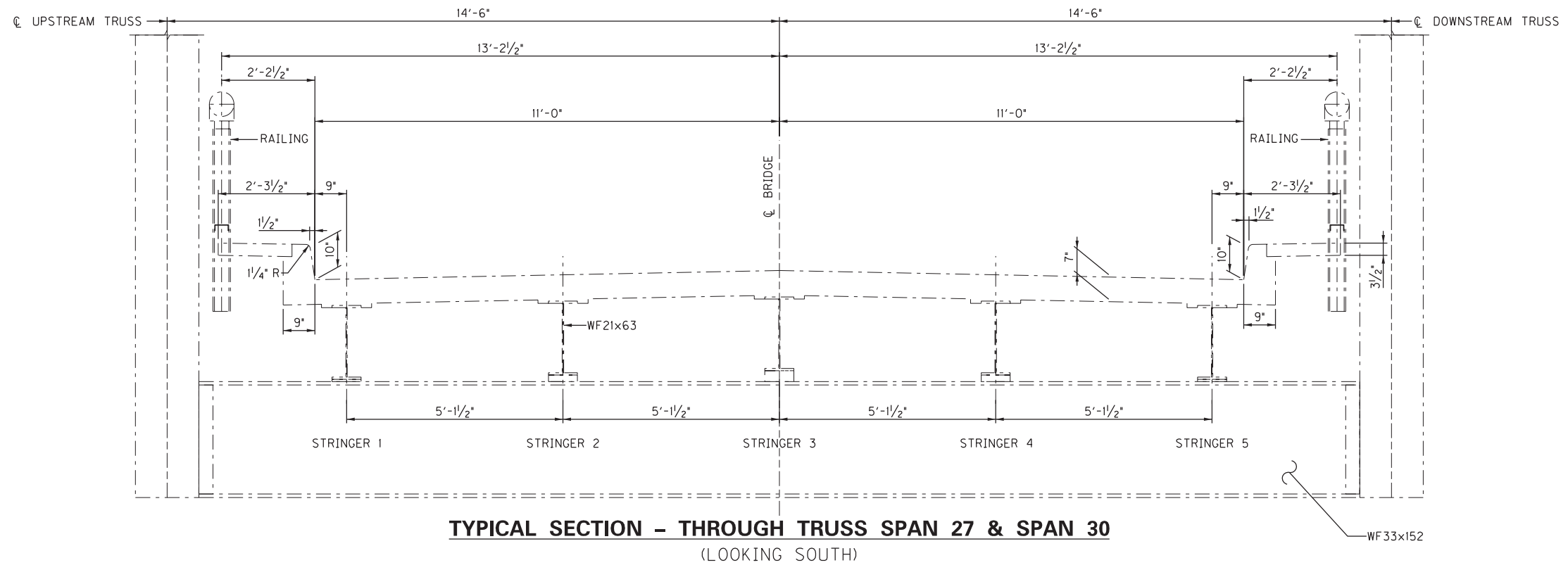
REPAIR 10

MISSING RIVET/BOLT REPLACEMENT			
SPAN	LOCATION	US/DS	NUMBER OF BOLTS
19	GIRDER 1 AT MIDSPAN	US	1
26	U3-U4, U3-U4, U1'-FB1	DS	8
27	L0-U1	US	1
27	L5	US	1
29	L46-U46	DS	1
29	U49	DS	1
33	GIRDER 2 AT FB 1	US	1

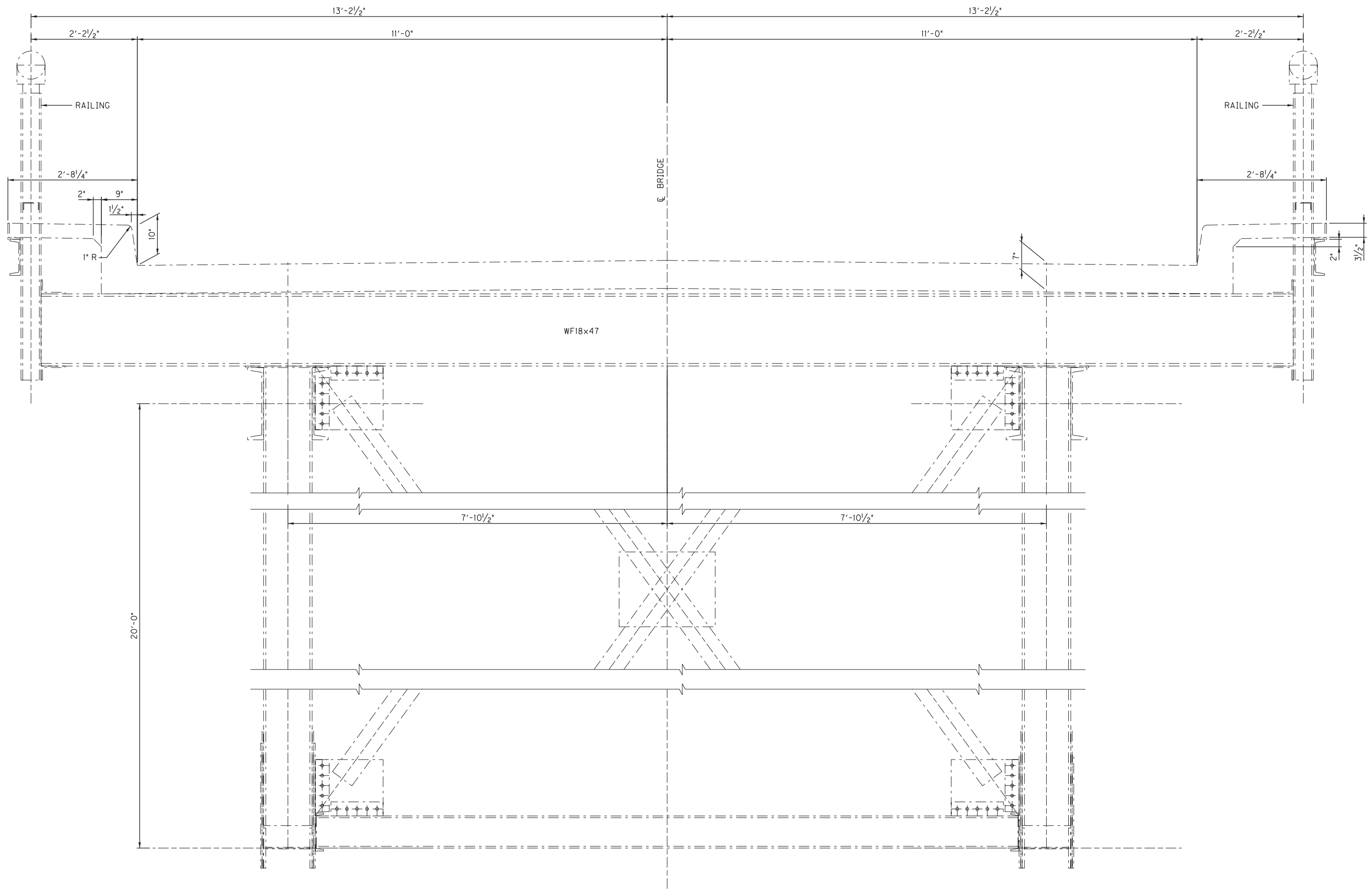


TYPICAL DECK TRUSS
(SPANS 22-26)

	REVISION	DATE	PREPARED BY 	DATE: DECEMBER, 2024	CHECKED BY: D.E. RUST	BRIDGE ELEVATION - REPAIR LOCATIONS CROSSING OHIO RIVER at OWENSBORO	ROUTE	ITEM NO.	COUNTY OF
				DESIGNED BY: J.P. MURRIN	D.E. RUST		KY 2262	2-10020.00	DAVIESS
				DETAILED BY: M.B. HAGGARD	D.E. RUST			SHEET NO.	DRAWING NUMBER
								S03	28812



A EXISTING LIGHTWEIGHT DECK IS WELDED TO THE TOP FLANGE OF THE STRINGERS ACCORDING TO THE ORIGINAL PLANS.



DECK TRUSS SPANS 22 - 26
(LOOKING SOUTH)

	REVISION	DATE	PREPARED BY 	DATE: DECEMBER, 2024	CHECKED BY:	EXISTING TYPICAL SECTIONS CROSSING OHIO RIVER at OWENSBORO	ROUTE	ITEM NO.	COUNTY OF
				DESIGNED BY: J.P. MURRIN	D.E. RUST		KY 2262	2-10020.00	DAVIESS
				DETAILED BY: M.B. HAGGARD	J.P. MURRIN		SHEET NO.	DRAWING NUMBER	
							S05	28812	

STRINGER 3 REPAIR AT PP19

BOLTED ANGLE RETROFIT SEQUENCE

1. REMOVE CORROSION AND PAINT FROM THE AREA AROUND THE CORROSION HOLE.
2. USE STUD GUN TO ATTACH 7/8" DIA. THREADED ARCH WELD STUDS (6 TOTAL) TO THE TOP FLANGE OF THE STRINGER. ALL WELDING AND WELDING MATERIALS SHALL CONFORM TO AWS SPECIFICATIONS.
3. DRILL HOLES THROUGH STRINGER WEB (4 TOTAL).
4. USE DEPICTED FILL PLATE WITH OVERSIZED HOLES TO AVOID FITTING ISSUES FROM WELDED THREADED STUDS.
5. ATTACH ANGLES WITH 7/8" Ø A325 BOLTS THROUGH THE STRINGER WEB.

CONTRACTOR SHALL TAKE EXTREME CARE NOT TO DAMAGE ANY MEMBERS AROUND THE REPAIR LOCATION. ANY DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

SEE "SPECIAL NOTE FOR PAINTING STRUCTURAL STEEL REPAIRS."

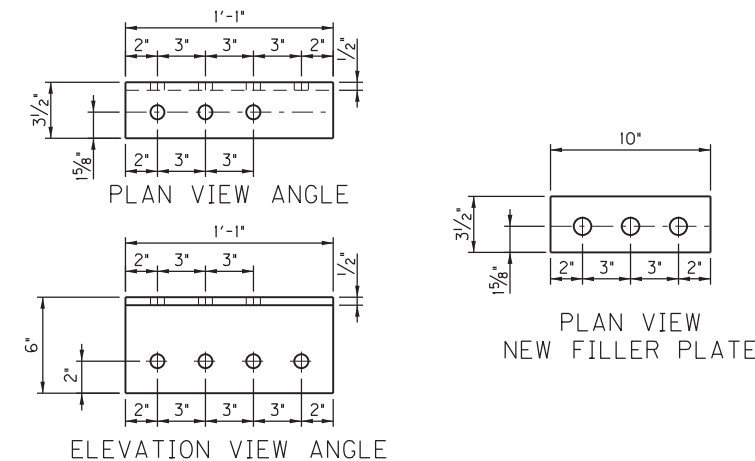
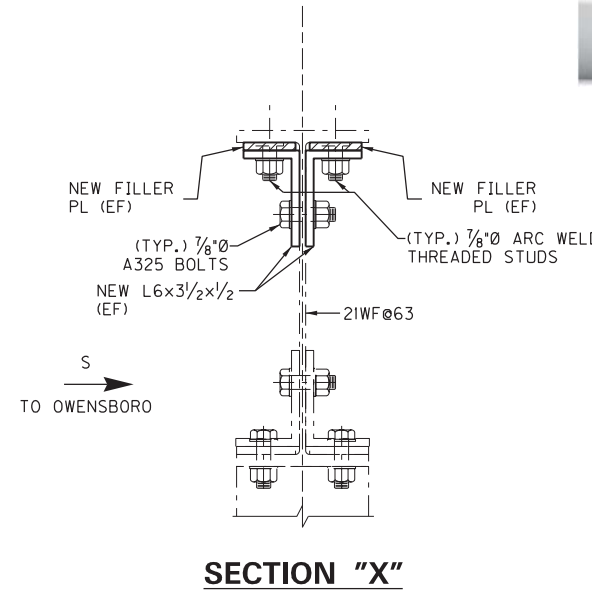
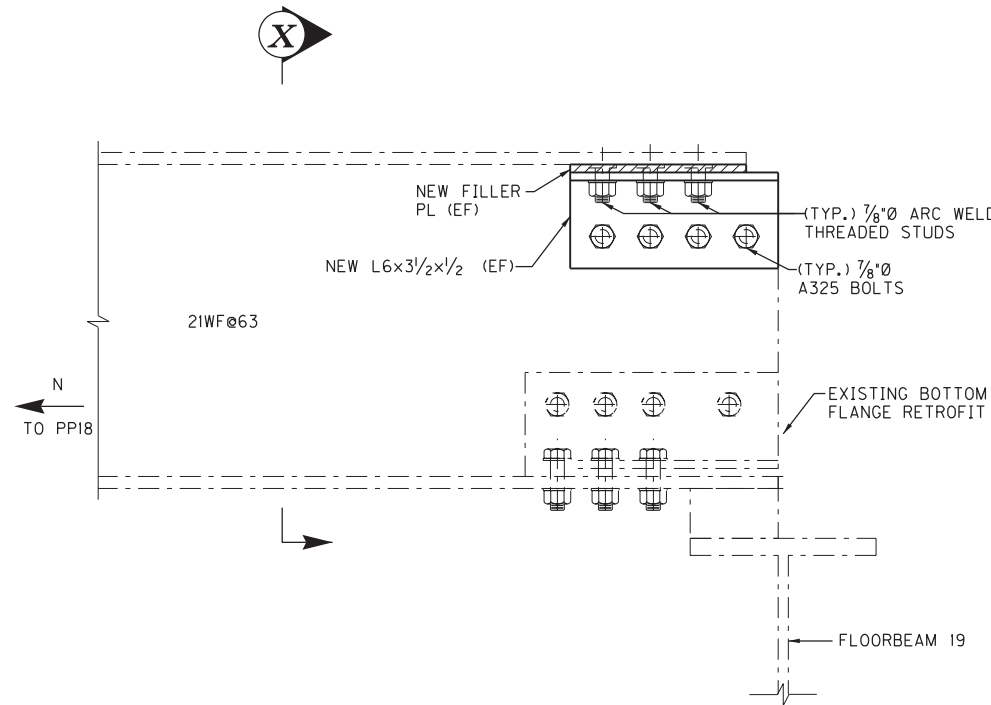
SEE "SPECIAL NOTE FOR STEEL REPAIRS."

NOTE: THE CONCRETE-FILLED STEEL GRID DECK TO BE LEFT IN PLACE FOR THE DURATION OF THIS REPAIR.



06/04/2024

LOOKING SOUTHEAST AT THE NORTH FACE OF FLOORBEAM 19



NEW L6 X 3 1/2\" X 12\" AND FILLER PLATE

STRINGER 3 REPAIR AT PP19

**PREPARATION – DISASSEMBLY OF EXPANSION JOINT
AND STRINGER ENDS AT PP44 (SEE SHEET 2 OF THIS REPAIR)**

- 1 REMOVE CONCRETE LIGHTWEIGHT DECK TO ALLOW ADEQUATE ACCESS TO STRINGER ENDS BELOW.
 - 2 DISPLACE JOINT SUPPORT CHANNELS BY REMOVING RIVETS ON CONNECTION ANGLES 3A AND 3C.
 - 2B REMOVE RIVETS ATTACHING FINGER JOINT CHANNELS TO CONNECTION ANGLES 3A AND 3C. 8 RIVETS EACH FACE OF STRINGER.
 - 2C REMOVE RIVETS THROUGH TOP FLANGE OF THE STRINGERS THAT IMPEDE CHANNEL SLIDING. 5 RIVETS EACH FACE OF STRINGER.
 - 2D REMOVE FILL PLATES BETWEEN BOOT (CUT CHANNEL) TOP FLANGE AND JOINT CHANNELS, 1 EACH FACE OF STRINGER.
 - 3 REMOVE CONNECTION ANGLES 3A AND 3C BY REMOVING RIVETS THROUGH THE STRINGER WEBS. 2 ANGLES EACH FACE OF STRINGER.
 - 3B REMOVE RIVETS ATTACHING ANGLES 3A AND 3C TO THE STRINGER WEBS, 6 RIVETS TOTAL.
- STEPS 1 THROUGH 3B SHOULD BE DONE TO ALL 5 STRINGER ENDS. THE FINGER PLATES SHOULD BE DISCONNECTED AND FREE TO SLIDE TO THE NORTH AND SOUTH ON TOP OF THE STRINGERS.
- 4 SLIDE SOUTH FINGER PLATE, WITH SUPPORT CHANNELS, ALONG EXISTING STRINGERS TO THE SOUTH IN ORDER TO ACHIEVE ENOUGH CLEARANCE TO REMOVE THE MIDDLE CHANNEL.
 - 5 SLIDE NORTH FINGER PLATE, WITH SUPPORT CHANNELS, ALONG EXISTING STRINGERS TO THE NORTH IN ORDER TO ACHIEVE ENOUGH CLEARANCE TO REMOVE THE MIDDLE CHANNEL.
 - 6 REMOVE MIDDLE CHANNEL BY REMOVING RIVETS ON CONNECTION ANGLE 6B.
 - 6B REMOVE RIVETS ATTACHING ANGLE 6B TO THE CHANNEL WEB (8 TOTAL). COMPLETE AT ALL 5 STRINGER ENDS AND THEN PULL OUT MIDDLE CHANNEL.
 - 6C REMOVE RIVETS ATTACHING ANGLE 6B TO THE STRINGER WEBS (6 TOTAL) AND REMOVE ANGLE 6B.
 - 7 SLIDE NORTH FINGER JOINT TO THE SOUTH SIDE OF THE FLOORBEAM TO ALLOW ENOUGH CLEARANCE FOR THE STRINGER END REPLACEMENTS TO THE NORTH AND BOOT REPLACEMENTS TO THE SOUTH.
 - 8 REMOVE DETERIORATED BOOTS (CUT CHANNELS) BY REMOVING RIVETS THROUGH WEB AND BOTTOM FLANGE OF STRINGER.
 - 8B REMOVE RIVETS THROUGH WEB AND BOTTOM FLANGE, (16 RIVETS TOTAL).
 - 9 REMOVE CRACKED STRINGER SECTION BY REMOVING BOLTS THROUGH FLOORBEAM AND CUT OUT DAMAGED SECTION OF STRINGER.
 - 9B REMOVE BOLTS HOLDING STRINGER TO FLOORBEAM. BEARING ASSEMBLY AND RIVETS MAY NEED TO BE REMOVED FOR CLEANING AND EASIER PLACEMENT OF NEW STRINGER.
 - 9C MECHANICALLY CUT OR USE A PLASMA TORCH TO REMOVE THE STRINGER, TO THE EXTENT SHOWN ON SHEET 4 OF THIS REPAIR. GRIND EDGE SMOOTH TO THE SATISFACTION OF THE ENGINEER. USE OF OXY-ACETYLENE TORCHES WILL NOT BE PERMITTED.

**REPAIR – STRINGER ENDS AND EXPANSION JOINT RE-ASSEMBLY
(SEE SHEETS 3 AND 4 OF THIS REPAIR)**

- A REPLACE CUT OUT SECTION OF STRINGER WITH NEW ROLLED SHAPE (W21x59).
- A1 BOLT NEW SHAPE TO FLOORBEAM 44 WITH NEW HIGH STRENGTH BOLTS AND TIGHTEN PER THE STANDARD SPECIFICATIONS.
- A2 INSTALL NEW SPLICE PLATES TO CONNECT THE NEW SHAPE TO THE EXISTING WF21x59. SEE SHEET 4 OF THIS REPAIR FOR SPLICE PLATE DIMENSIONS AND DETAILS.
- B INSTALL NEW MC18x45.8 BOOTS (CUT CHANNELS) WITH NEW HIGH STRENGTH BOLTS (1 BOOT EF OF STRINGER). SEE SHEET 4 OF THIS REPAIR FOR NEW BOOT (CUT CHANNELS) DIMENSIONS AND DETAILS.
- B1 INSTALL NEW HIGH STRENGTH BOLTS THROUGH THE WEB AND BOTTOM FLANGE AND TIGHTEN PER THE STANDARD SPECIFICATIONS (16 BOLTS TOTAL).
- C SLIDE NORTH FINGER PLATE WITH SUPPORT CHANNELS BACK TO THE NORTH SIDE OF FLOORBEAM 44. ALLOW FOR ENOUGH CLEARANCE TO RE-INSTALL THE MIDDLE CHANNEL.
- D RE-INSTALL THE MIDDLE CHANNEL AND ANGLE 6B.
- D1 INSTALL NEW HIGH STRENGTH BOLTS CONNECTING ANGLE 6B TO THE NEW STRINGER WEB AND TIGHTEN PER THE STANDARD SPECIFICATIONS. (6 BOLTS TOTAL).
- D2 INSTALL NEW HIGH STRENGTH BOLTS CONNECTING THE MIDDLE CHANNEL WEB TO ANGLE 6B AND TIGHTEN PER THE STANDARD SPECIFICATIONS (8 BOLTS TOTAL).
- E SLIDE NORTH FINGER PLATE WITH SUPPORT CHANNELS BACK INTO POSITION TO FASTEN OVER NEW STRINGER ON THE NORTH SIDE OF FLOORBEAM 44.
- F INSTALL NEW HIGH STRENGTH BOLTS TO ATTACH THE JOINT TO THE TOP FLANGE OF THE STRINGER AND TIGHTEN PER THE STANDARD SPECIFICATIONS (2 BOLTS EF OF STRINGER).
- G RE-INSTALL ANGLE 3A.
- G1 INSTALL NEW HIGH STRENGTH BOLTS THROUGH THE STRINGER AND CHANNEL WEBS AND TIGHTEN PER THE STANDARD SPECIFICATIONS (11 BOLTS TOTAL).
- H SLIDE SOUTH FINGER PLATE WITH SUPPORT CHANNELS BACK INTO POSITION TO FASTEN OVER NEW BOOT (CUT CHANNEL) ON THE SOUTH SIDE OF FLOORBEAM 44.
- H1 INSTALL NEW HIGH STRENGTH BOLTS TO ATTACH THE JOINT TO THE TOP FLANGE OF THE NEW BOOT (CUT CHANNEL) AND TIGHTEN TO THE STANDARD SPECIFICATIONS (3 BOLTS EF OF STRINGER).
- I RE-INSTALL ANGLE 3C.
- I1 INSTALL NEW HIGH STRENGTH BOLTS THROUGH THE STRINGER AND CHANNEL WEBS AND TIGHTEN PER THE STANDARD SPECIFICATIONS (11 BOLTS TOTAL).
- I2 PERFORM "PP44 STRINGER 1&5 CORROSION HOLE REPAIR" ON SHEET 5 OF THIS REPAIR. (2 LOCATIONS ONLY)
- J SEE SHEET S13 FOR LIGHTWEIGHT DECK REPLACEMENT TO BE COMPLETED AFTER REPAIRS TO THE SUPERSTRUCTURE ARE FINAL.

NOTES:

- 1. SOME STEPS SHOWN IN MULTIPLE VIEWS FOR CLARITY.
- 2. THE TOTAL NUMBER OF RIVETS OR BOLTS SHOWN IS THE TOTAL AT EACH INDIVIDUAL INTERIOR STRINGER LOCATION. EXTERIOR STRINGERS VARY.
- 3. TEMPORARY SHORING IS REQUIRED ON BOTH SIDES OF FB44 IN ORDER TO COMPLETE REPAIRS.
- 4. CONTRACTOR SHALL TAKE EXTREME CARE NOT TO DAMAGE ANY MEMBERS TO REMAIN. ANY DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- 5. 10 TOTAL STRINGER REPAIRS AT THIS LOCATION (PP4).

SEE "SPECIAL NOTE FOR PAINTING STRUCTURAL STEEL REPAIRS."

SEE "SPECIAL NOTE FOR STEEL REPAIRS."

** THIS REPAIR IS DESCRIBED AND DEPICTED ON SHEETS S07-S10 AS THE STRINGERS AS PP44. THE SAME REPAIR SHALL BE PERFORMED AT PP32. PP32 IS A MIRROR OF PP44.



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



REVISION

DATE

PREPARED BY



DATE: DECEMBER, 2024

CHECKED BY

DESIGNED BY: J.P. MURRIN

D.E. RUST

DETAILED BY: J.A. ROSE

J.P. MURRIN

REPAIR 1B - STRINGER REPAIRS PP32&PP44 - SHEET 1

ROUTE
KY 2262

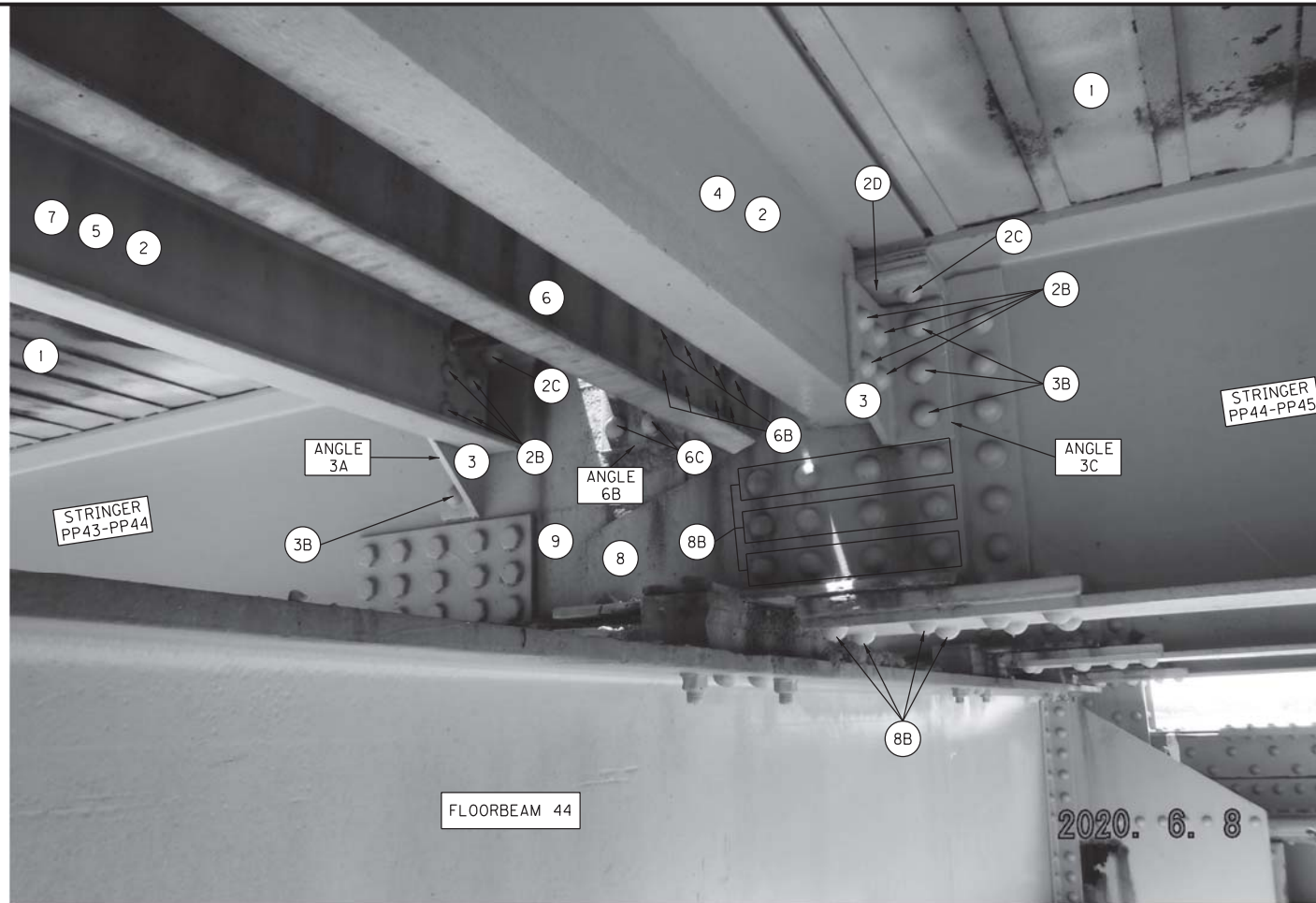
ITEM NO.
2-10020.00

SHEET NO.
S07

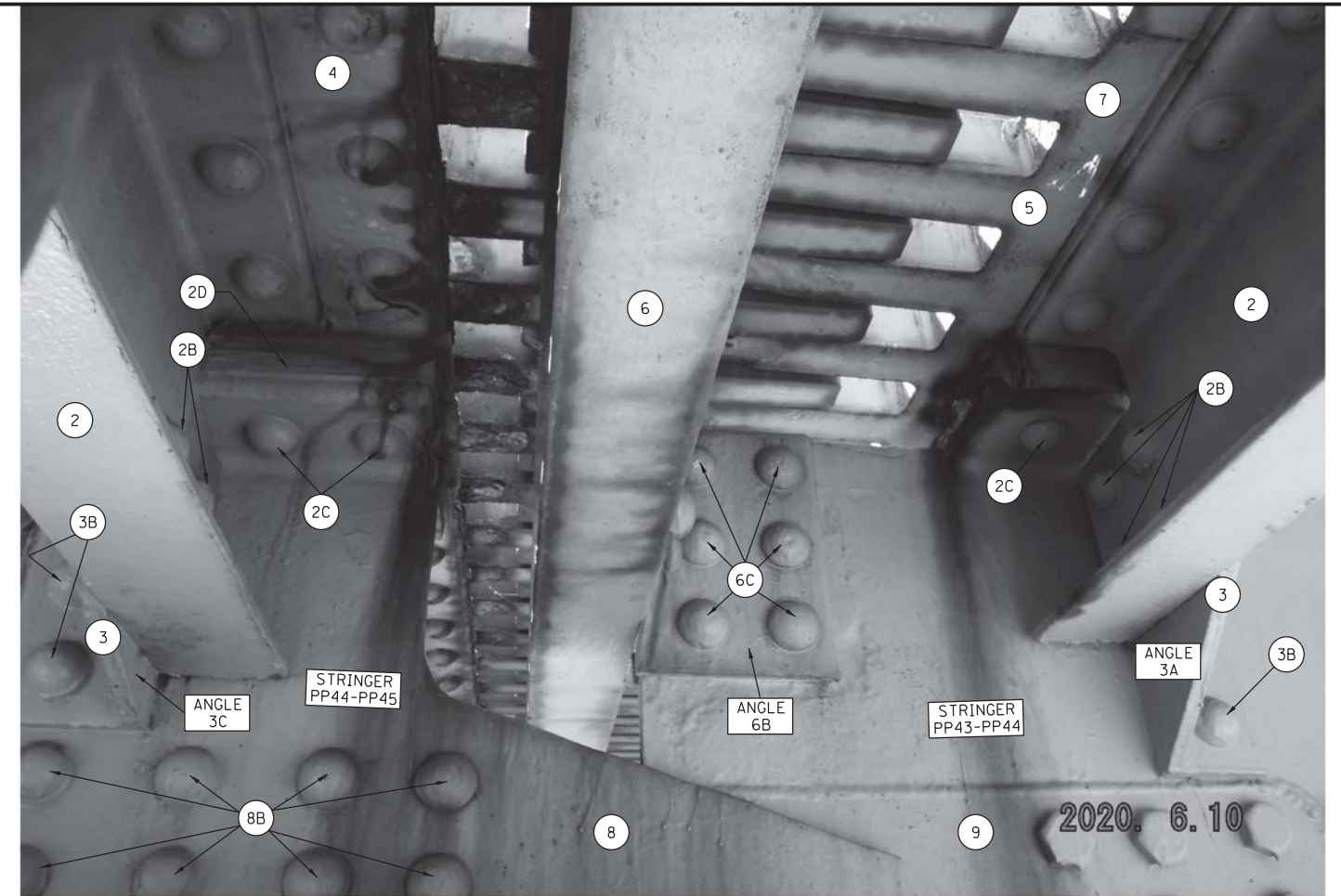
COUNTY OF
DAVISS

DRAWING NUMBER
28812

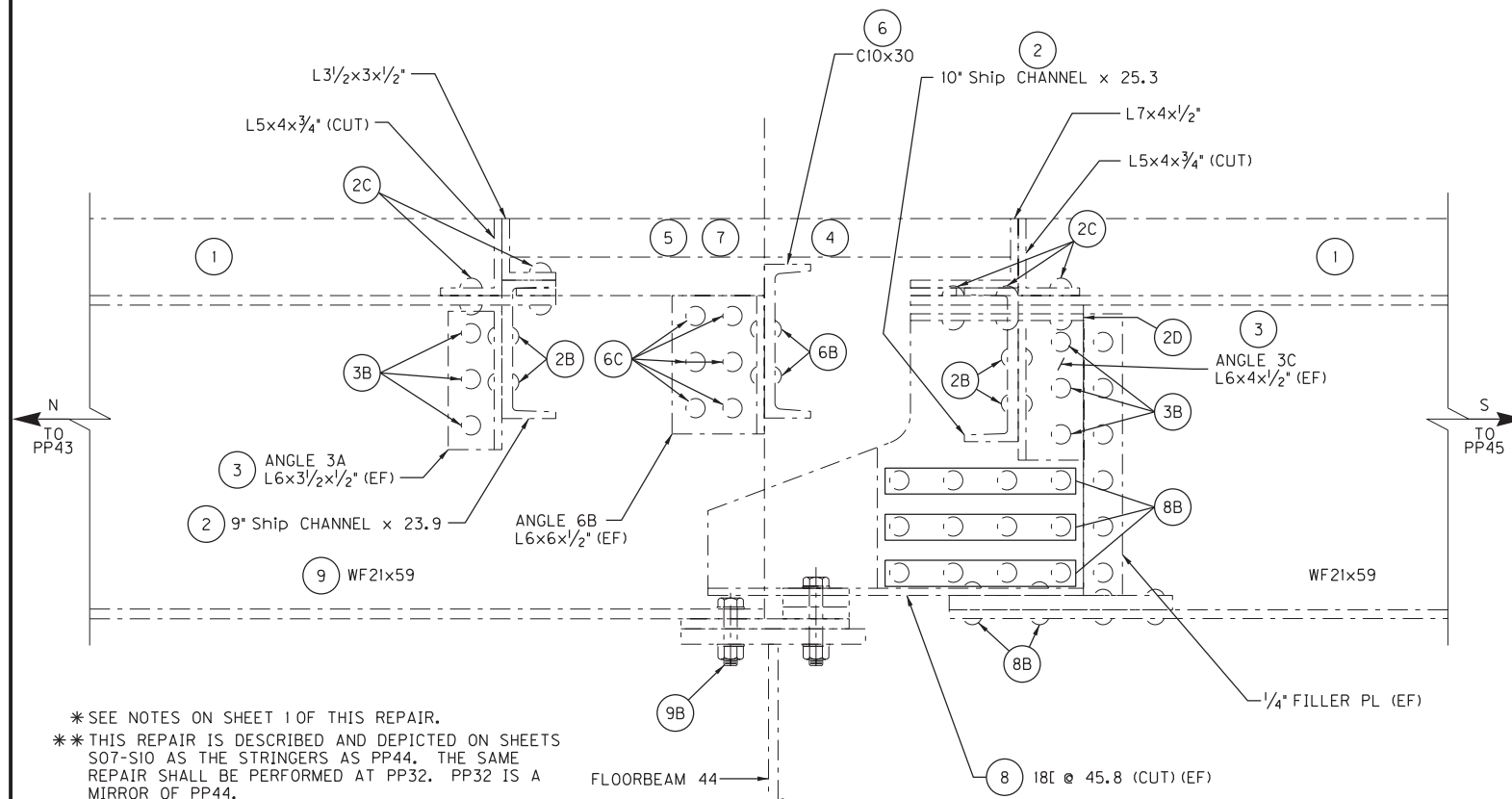
CROSSING
OHIO RIVER at OWENSBORO



VIEW LOOKING EAST FROM THE SOUTH FACE OF FLOORBEAM 44

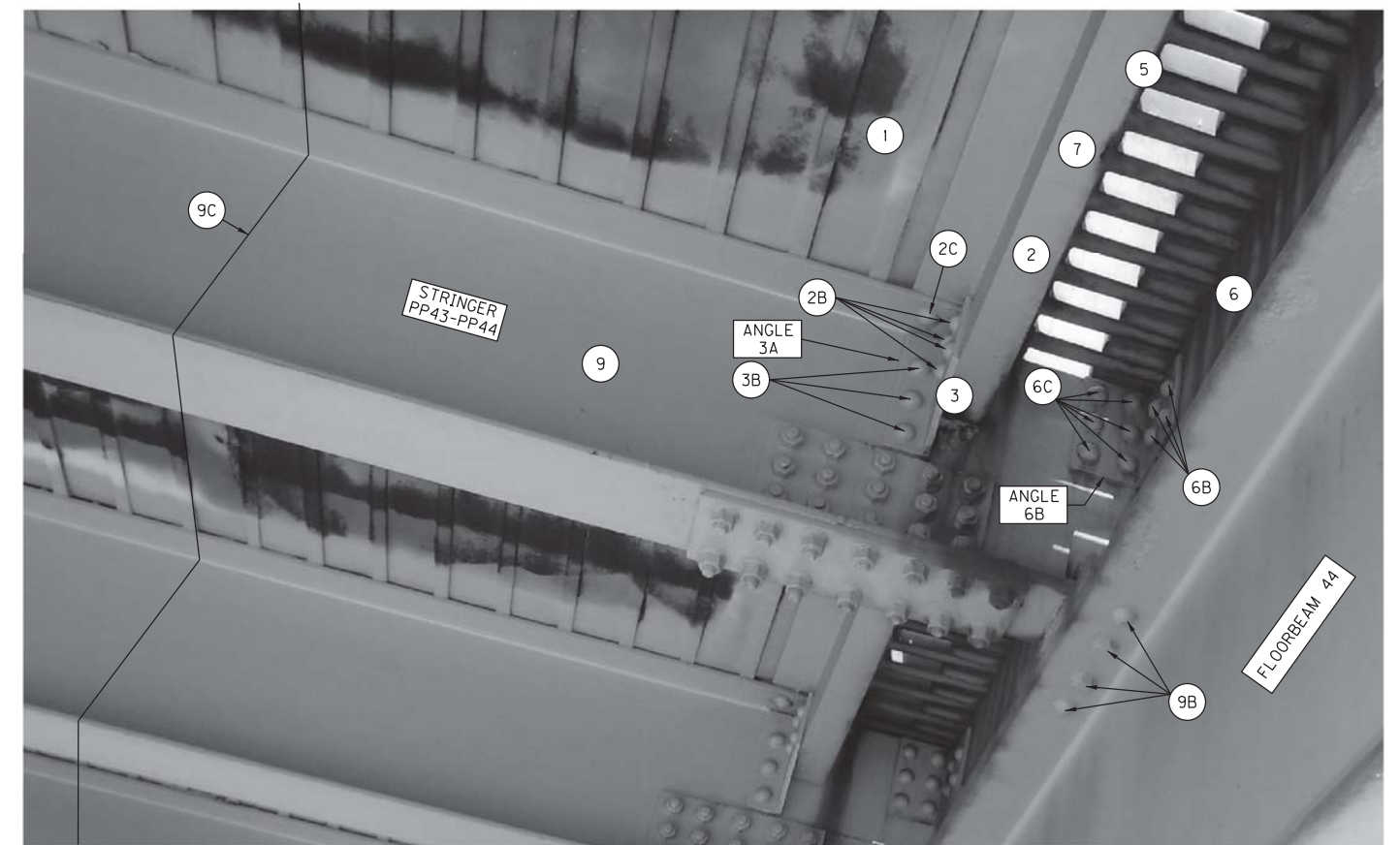


VIEW LOOKING WEST FROM THE CENTERLINE OF PP44



* SEE NOTES ON SHEET 1 OF THIS REPAIR.
 ** THIS REPAIR IS DESCRIBED AND DEPICTED ON SHEETS S07-S10 AS THE STRINGERS AS PP44. THE SAME REPAIR SHALL BE PERFORMED AT PP32. PP32 IS A MIRROR OF PP44.

EXISTING STRINGER ENDS & EXPANSION JOINT AT PP44



VIEW LOOKING EAST FROM THE NORTH FACE OF FLOORBEAM 44



COMMONWEALTH OF KENTUCKY
 DEPARTMENT OF HIGHWAYS



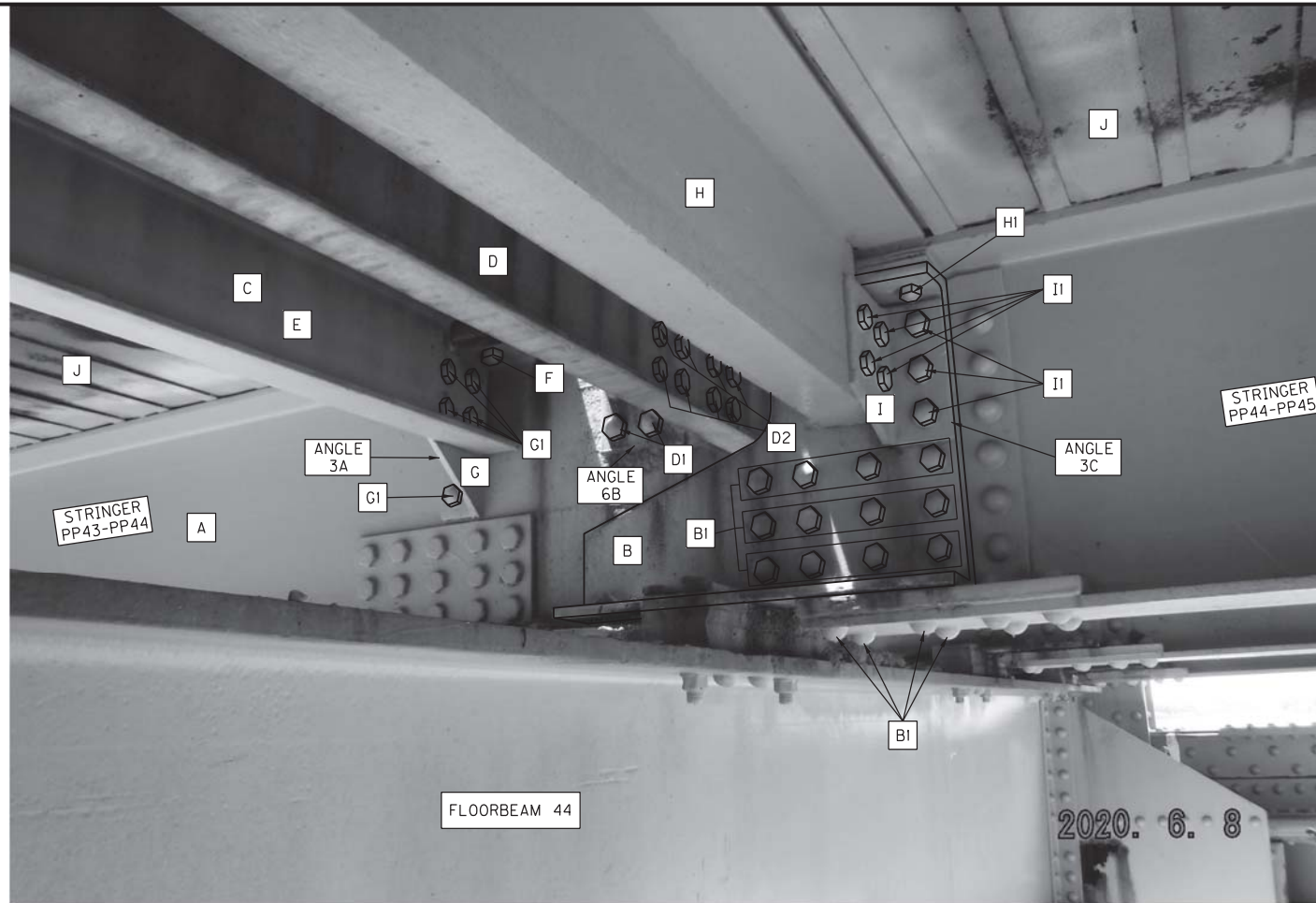
REVISION	DATE

PREPARED BY
Palmer
 ENGINEERING

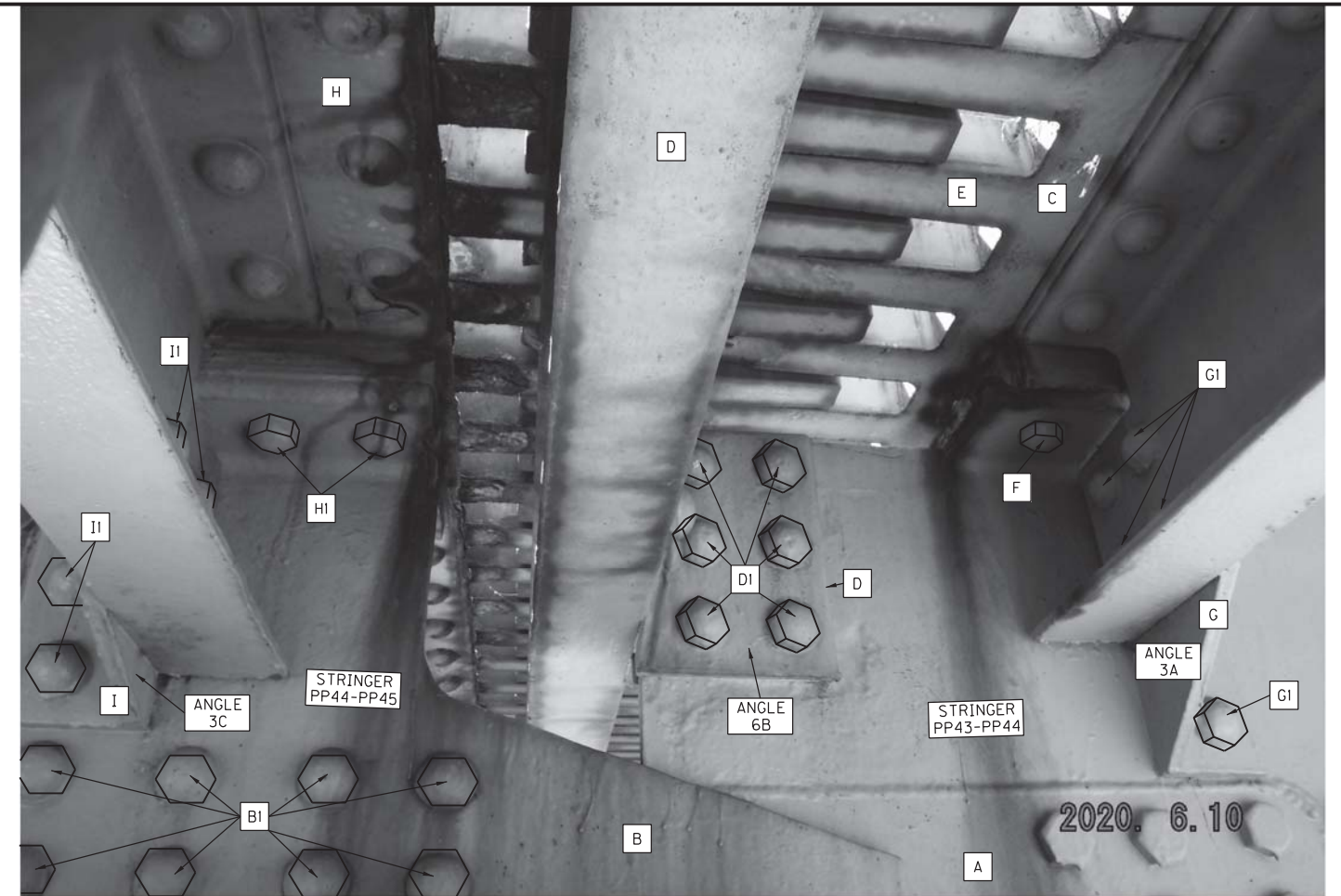
DATE:	DECEMBER, 2024	CHECKED BY:	D.E. RUST
DESIGNED BY:	J.P. MURRIN	DETAILED BY:	J.A. ROSE
			J.P. MURRIN

REPAIR 1B - STRINGER REPAIRS PP32&PP44 - SHEET 2
 CROSSING
 OHIO RIVER at OWENSBORO

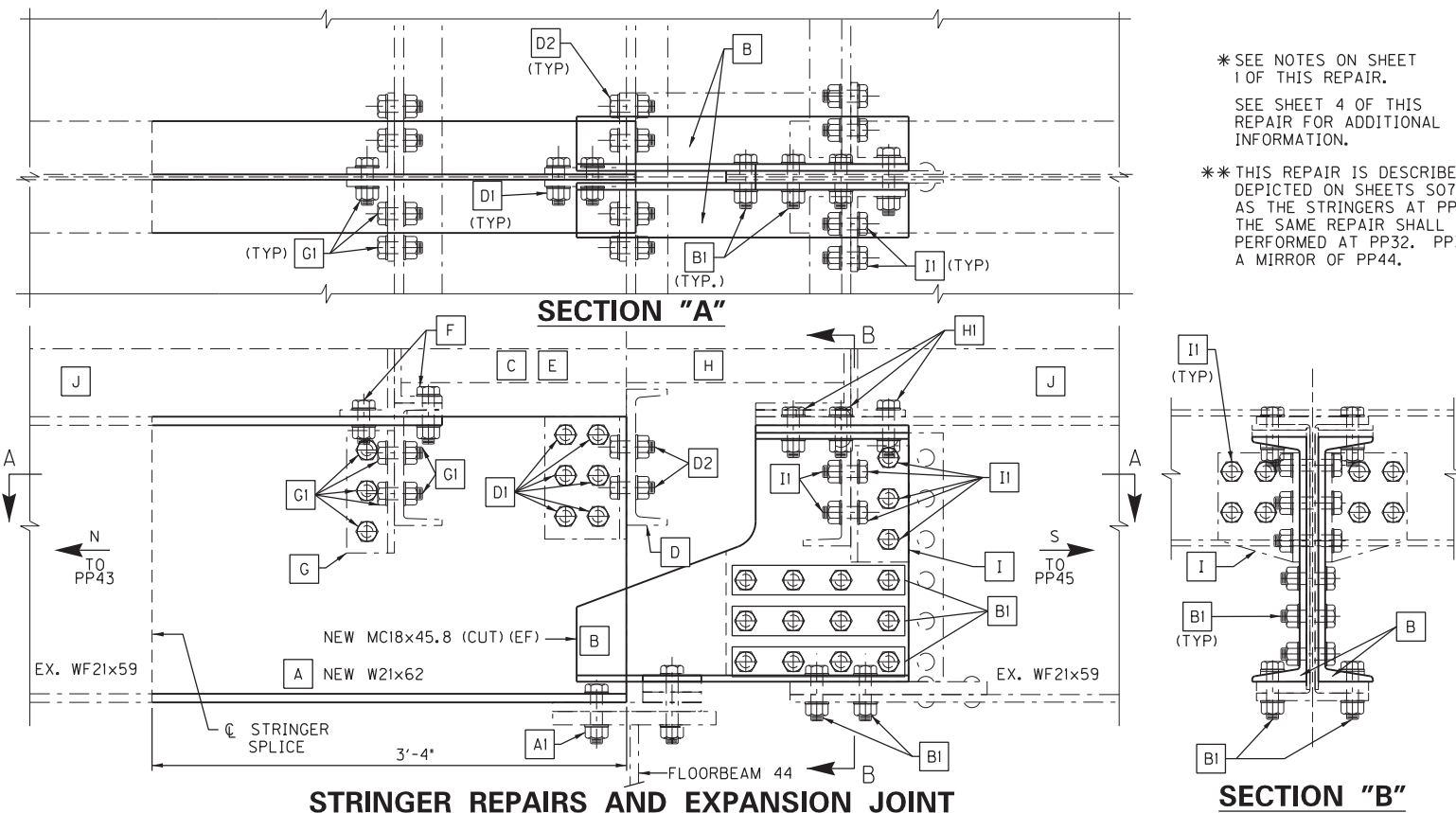
ROUTE	ITEM NO.	COUNTY OF
KY 2262	2-10020.00	DAVIESS
	SHEET NO.	DRAWING NUMBER
	S08	28812



VIEW LOOKING EAST FROM THE SOUTH FACE OF FLOORBEAM 44

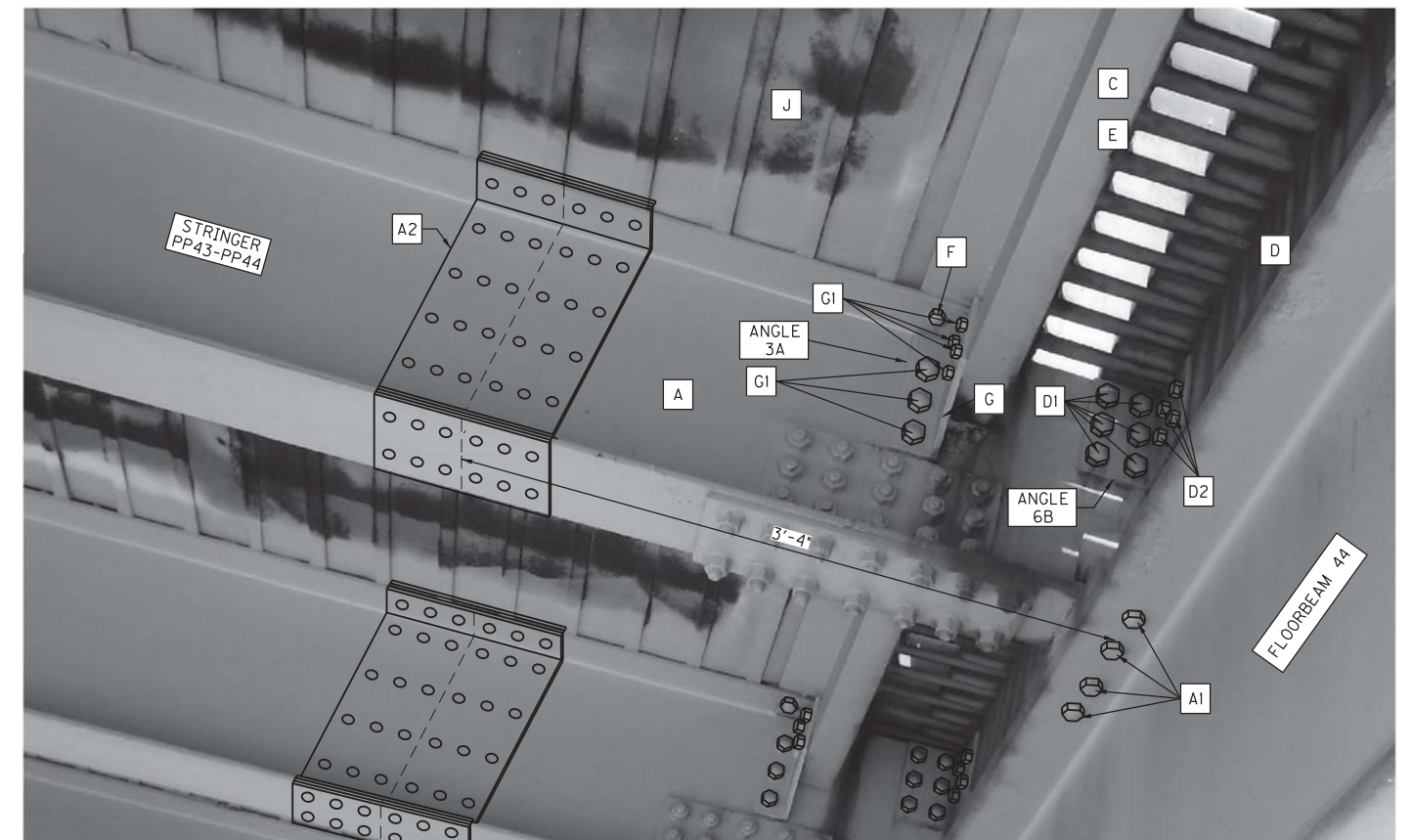


VIEW LOOKING WEST FROM THE CENTERLINE OF PP44



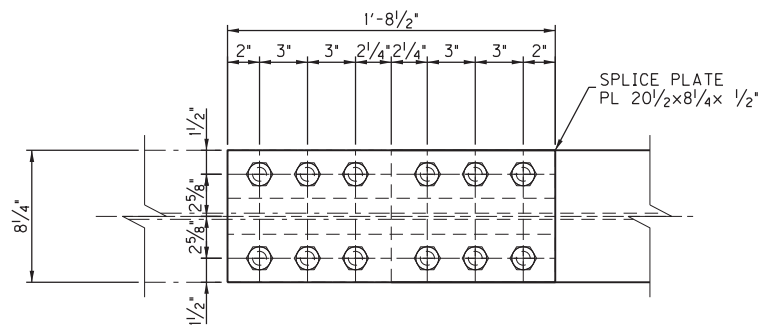
STRINGER REPAIRS AND EXPANSION JOINT RE-INSTALLATION AT PP44

* SEE NOTES ON SHEET 1 OF THIS REPAIR.
SEE SHEET 4 OF THIS REPAIR FOR ADDITIONAL INFORMATION.
** THIS REPAIR IS DESCRIBED AND DEPICTED ON SHEETS S07-S10 AS THE STRINGERS AT PP44. THE SAME REPAIR SHALL BE PERFORMED AT PP32. PP32 IS A MIRROR OF PP44.

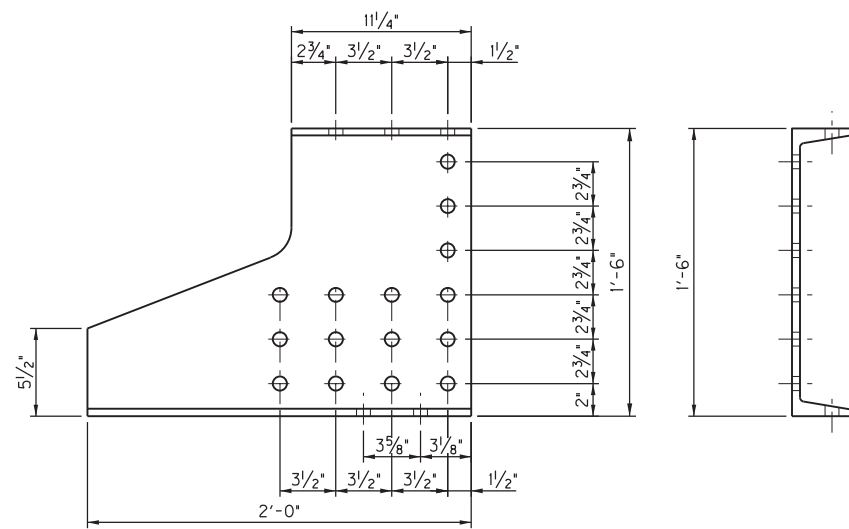


VIEW LOOKING EAST FROM THE NORTH FACE OF FLOORBEAM 44

	REVISION	DATE	PREPARED BY	DATE:	DECEMBER, 2024	CHECKED BY	REPAIR 1B - STRINGER REPAIRS PP32&PP44 - SHEET 3	ROUTE	ITEM NO.	COUNTY OF
				DESIGNED BY:	J.P. MURRIN	D.E. RUST	CROSSING	KY 2262	2-10020.00	DAVIESS
				DETAILED BY:	J.A. ROSE	J.P. MURRIN	OHIO RIVER at OWENSBORO		S09	DRAWING NUMBER
									28812	

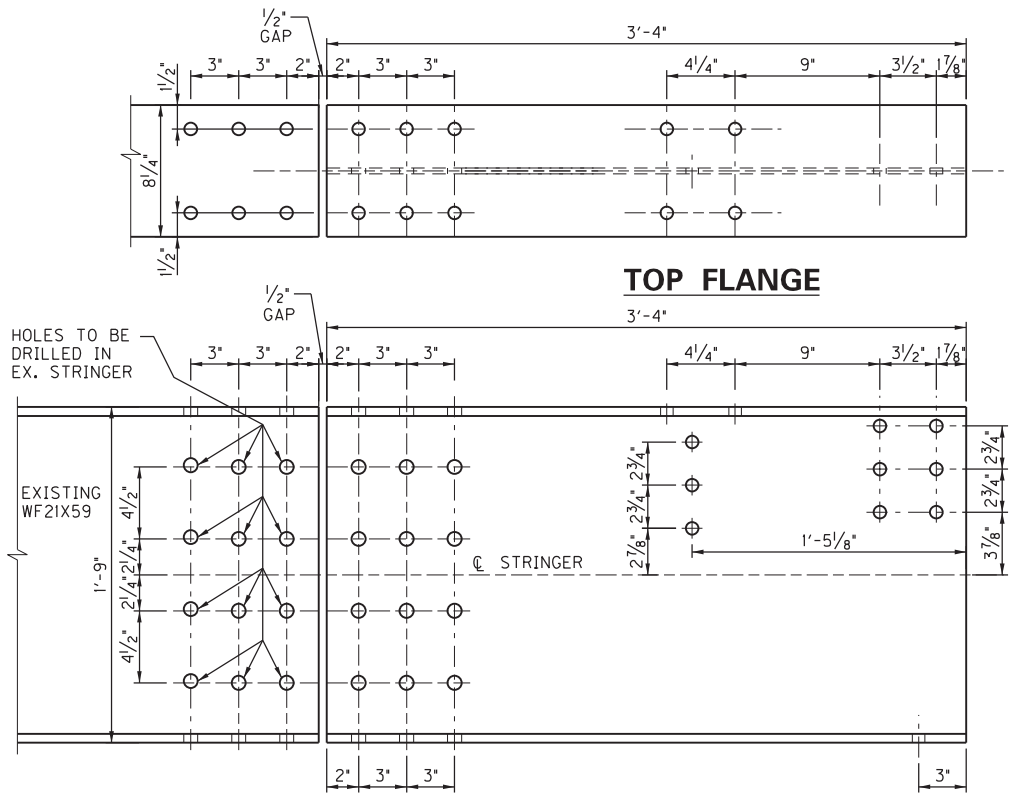


TOP AND BOTTOM FLANGE



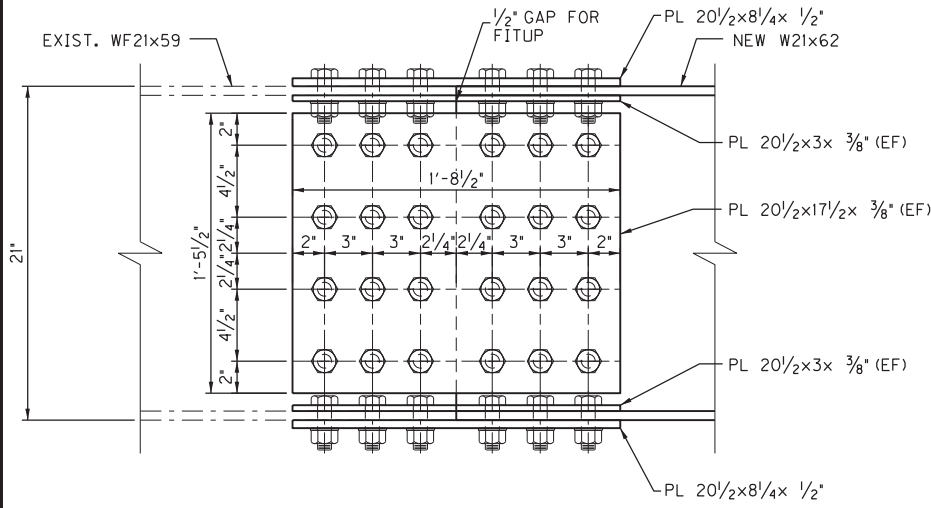
B NEW BOOT (CUT CHANNEL MC18x45.8)

5 TOTAL BOOTS NEEDED EACH ORIENTATION. ALL DIMENSIONS AND HOLE LOCATIONS TO DUPLICATE EXISTING RIVET LOCATIONS SHALL BE FIELD VERIFIED
 NOTE: FRONT FACE IS SHOWN LOOKING EAST, BACK FACE IS MIRRORED.

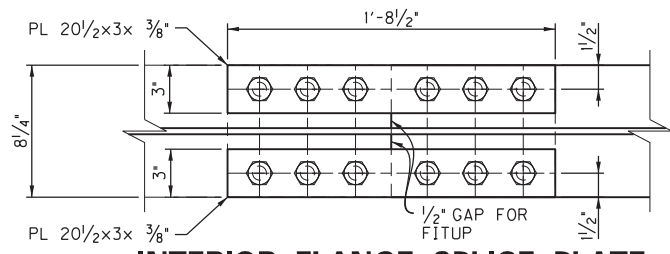


A NEW STRINGER W21x62 - ELEVATION

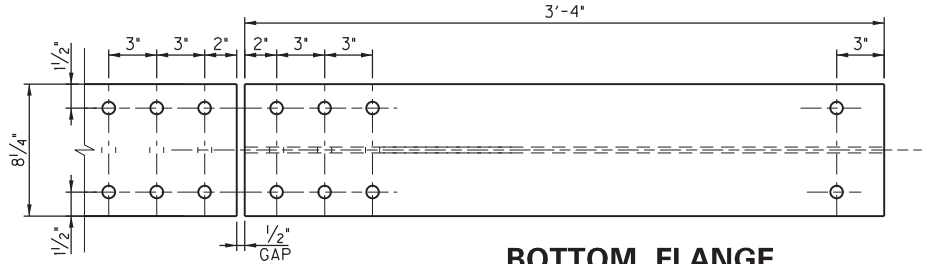
LOCATION OF HOLES THROUGH THE NEW STEEL THAT ARE TO DUPLICATE EXISTING RIVET LOCATIONS SHALL BE FIELD VERIFIED BEFORE DRILLING.



WEB SPLICE PLATE ELEVATION



INTERIOR FLANGE SPLICE PLATE

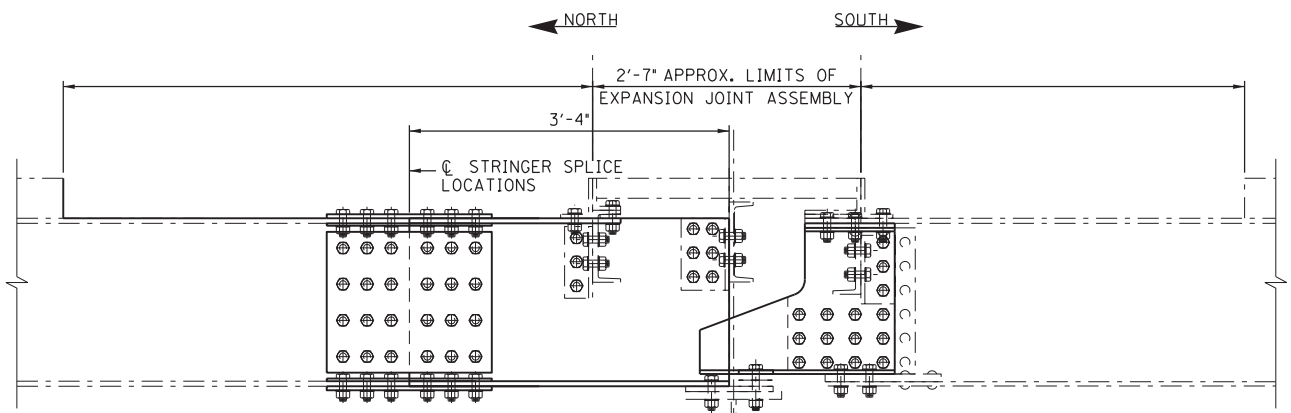


BOTTOM FLANGE

A2 STRINGER REPAIR SPLICE PLATES DETAILS

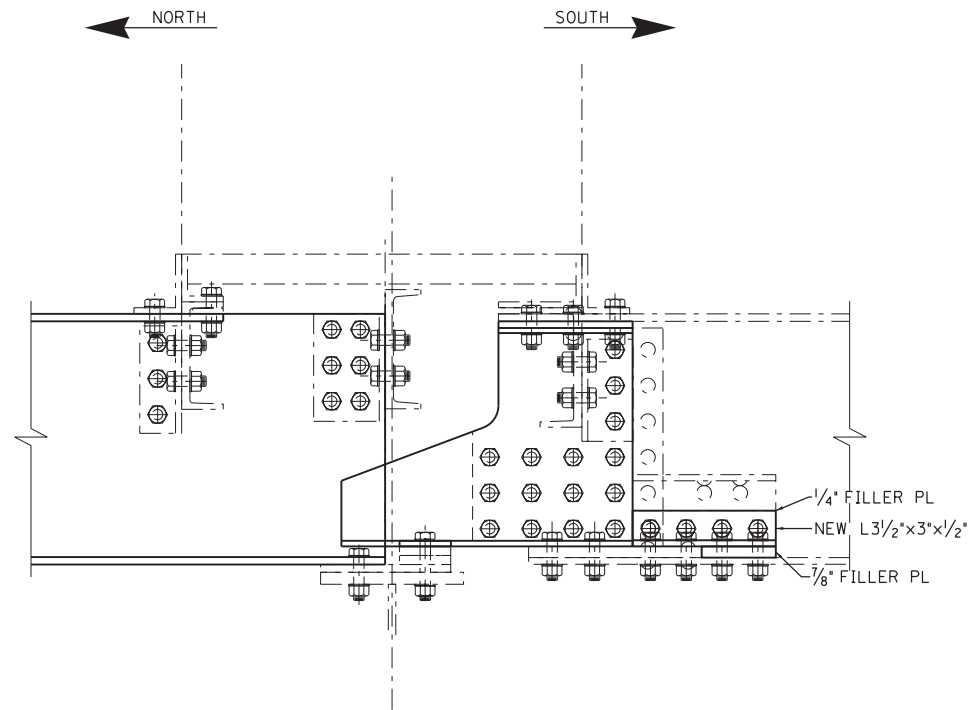
ALL HOLES IN OLD AND NEW STRUCTURAL STEEL SHALL BE DRILLED ACCORDING TO STANDARD SPECIFICATIONS.

* SEE NOTES ON SHEET 1 OF THIS REPAIR.
 ** THIS REPAIR IS DESCRIBED AND DEPICTED ON SHEETS S07-S10 AS THE STRINGERS AT PP44. THE SAME REPAIR SHALL BE PERFORMED AT PP32. PP32 IS A MIRROR OF PP44.

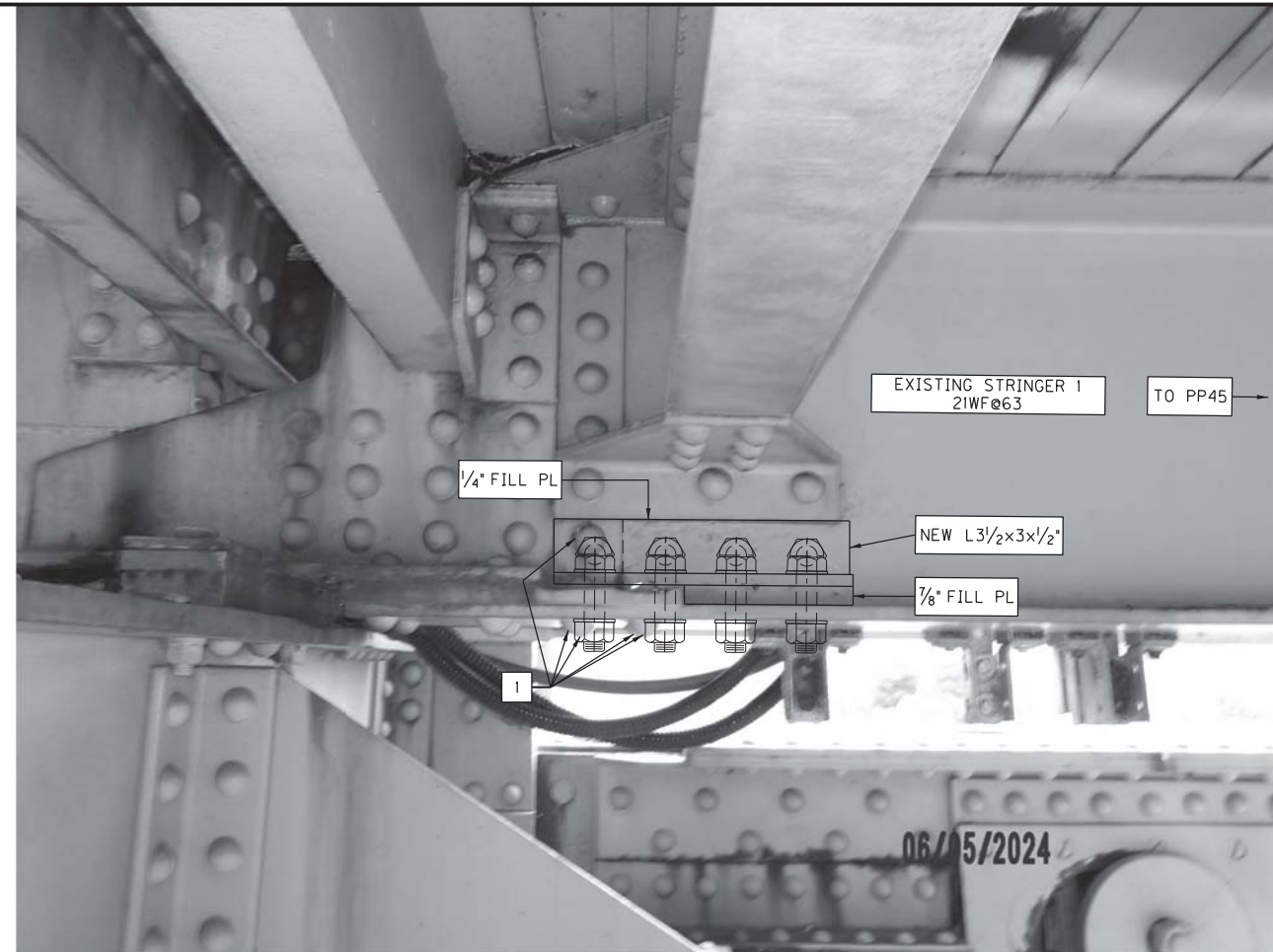


REPAIR LIMITS

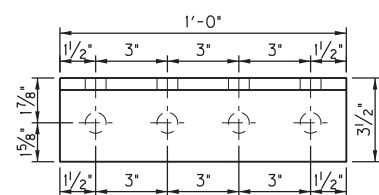
	REVISION	DATE	PREPARED BY	DATE:	DECEMBER, 2024	CHECKED BY	REPAIR 1B - STRINGER REPAIRS PP32&PP44 - SHEET 4	ROUTE	ITEM NO.	COUNTY OF
				DESIGNED BY:	J.P. MURRIN	D.E. RUST	CROSSING	2-10020.00	DAVIESS	
				DETAILED BY:	J.A. ROSE	J.P. MURRIN	OHIO RIVER at OWENSBORO	SHET NO.	S10	DRAWING NUMBER
									28812	



PP44 STRINGER 1&5 - CORROSION HOLE REPAIR

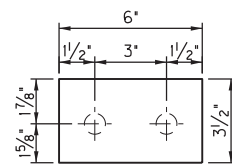


VIEW LOOKING EAST FROM THE SOUTH FACE OF FLOORBEAM 44



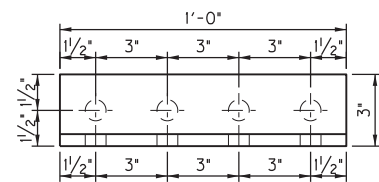
**PLAN VIEW OF
3 1/2" x 3" x 1/2" ANGLE**

(2 ANGLES NEED PER REPAIR, 1 PER SIDE)



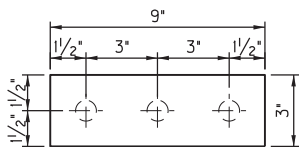
PLAN VIEW OF 7/8" FILLER PLATE

(2 PLATES NEED PER REPAIR, 1 PER SIDE)



**ELEVATION VIEW OF
3 1/2" x 3" x 1/2" ANGLE**

(2 ANGLES NEED PER REPAIR, 1 PER SIDE)



ELEVATION VIEW OF 1/4" FILLER PLATE

(2 PLATES NEED PER REPAIR, 1 PER SIDE)

1 REMOVE RIVETS FOR REPAIR ACCESS AND REPLACE WITH HIGH STRENGTH BOLTS. 5 RIVETS TOTAL EACH STRINGER. THIS REPAIR IS ONLY TO BE COMPLETED ON STRINGER 1&5 AT PP44.



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



REVISION

DATE

PREPARED BY



DATE: DECEMBER, 2024

CHECKED BY

DESIGNED BY: J.P. MURRIN

D.E. RUST

DETAILED BY: M.B. HAGGARD

J.P. MURRIN

REPAIR 1B - STRINGER REPAIR PP32&PP44 - SHEET 5

ROUTE
KY 2262

ITEM NO.
2-10020.00
SHEET NO.
S11

COUNTY OF
DAVISS
DRAWING NUMBER
28812

CROSSING
OHIO RIVER at OWENSBORO

EXPANSION JOINT TEMPORARY REMOVAL AND STRINGER PREPARATION

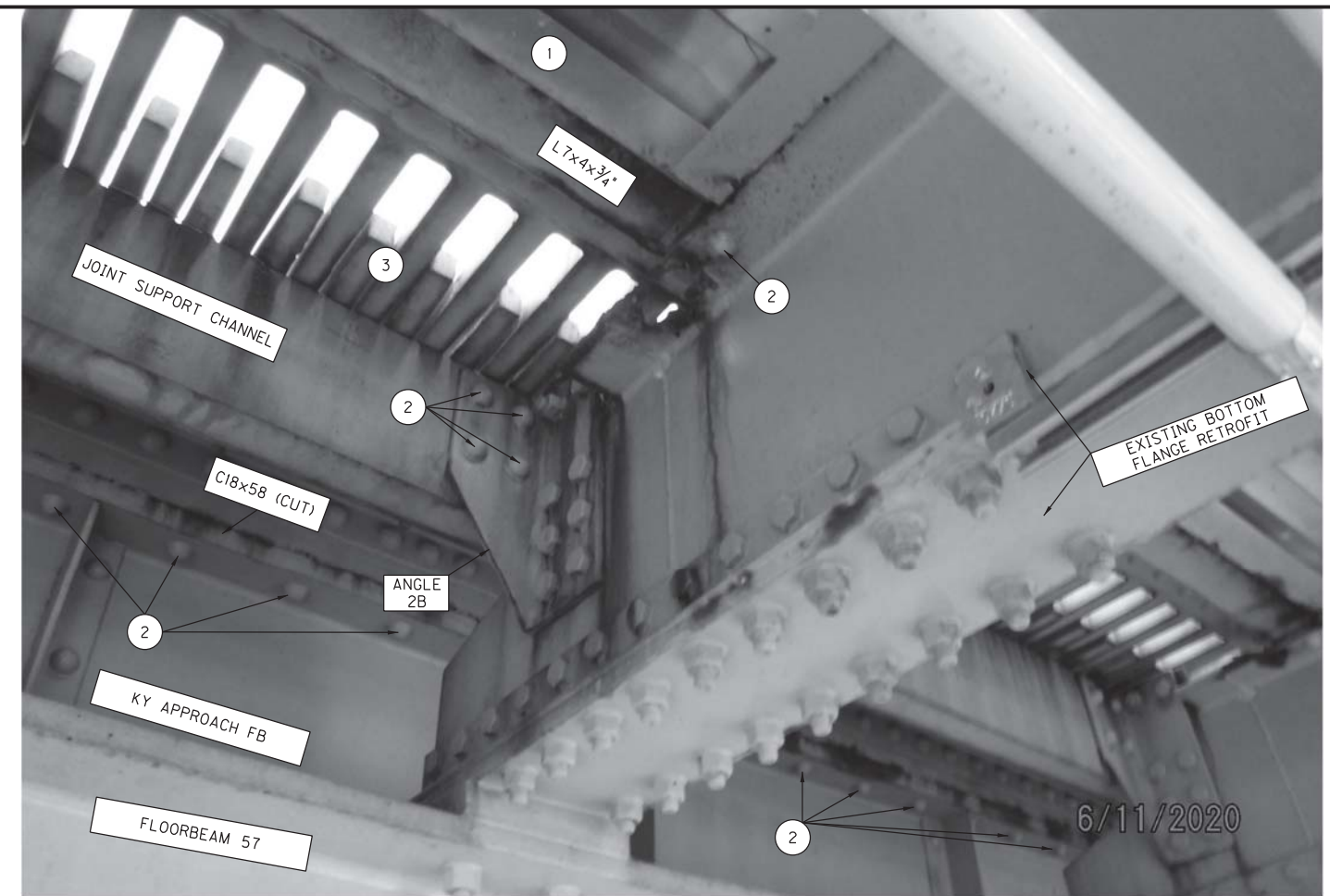
- 1 REMOVE CONCRETE TO THE EXTENT OF THE BLOCKOUTS SHOWN ON THIS SHEET. EDGES OF CONCRETE SHALL BE NEAT AND SQUARE. STEEL EXTENDING INTO BLOCKOUT SHALL REMAIN AND BE CLEANED FREE OF DEBRIS AND RUST.
- 2 DISPLACE JOINT SUPPORT CHANNELS AND CONNECTION ANGLES BY REMOVING RIVETS ON CONNECTION ANGLE 2B (4 RIVETS EF STRINGER), THE EXISTING L7x4x3/4" (1 RIVET EF STRINGER), AND C18x58(CUT) (RIVETS SPACED ~9" ENTIRE LENGTH OF THE KY APPROACH FLOORBEAM).
- 3 REMOVE EXISTING EXPANSION JOINT ASSEMBLY.
- 3B REMOVE 1/2x3/8" PLATES WITH 2" HOOK, FROM THE C18x58(CUT) AND L7x4x3/4". GRIND LEGS OF ANGLES SMOOTH.

NOTE:

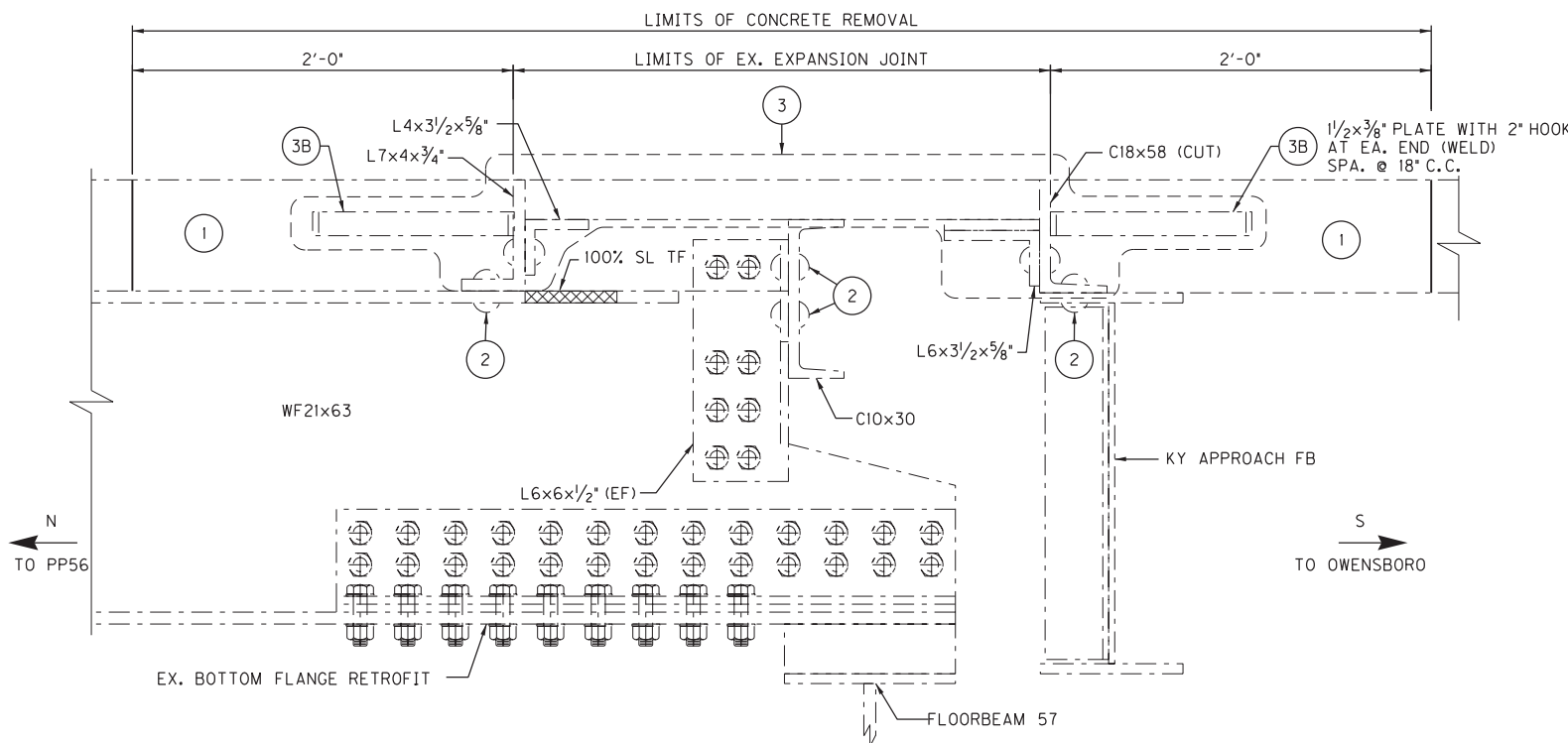
1. THE TOTAL NUMBER OF RIVETS OR BOLTS SHOWN IS THE TOTAL AT EACH INDIVIDUAL INTERIOR STRINGER LOCATION.
2. CONTRACTOR SHALL TAKE EXTREME CARE NOT TO DAMAGE EXISTING JOINTS, DECK REINFORCEMENT, OR ANY STEEL MEMBERS TO REMAIN IN PLACE. ANY DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
3. CLEAN RUST AT STRINGER ENDS WITHIN THE LIMITS OF THE REPAIR.
4. 5 TOTAL STRINGER REPAIRS AT THIS LOCATION (PP57).

SEE "SPECIAL NOTE FOR PAINTING STRUCTURAL STEEL REPAIRS."

SEE "SPECIAL NOTE FOR STEEL REPAIRS."



LOOKING SOUTHWEST FROM THE NORTH FACE OF FLOORBEAM 57



EXISTING SECTION FOR EXPANSION JOINT AND STRINGER ENDS AT PP57 - PIER E



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



REVISION

DATE

PREPARED BY

Palmer
ENGINEERING

DATE: DECEMBER, 2024

CHECKED BY

DESIGNED BY: J.P. MURRIN

D.E. RUST

DETAILED BY: J.A. ROSE

J.P. MURRIN

REPAIR 2 - PP57 STRINGERS AND EXPANSION JOINT
PIER E - SHEET 1

CROSSING
OHIO RIVER at OWENSBORO

ROUTE
KY 2262

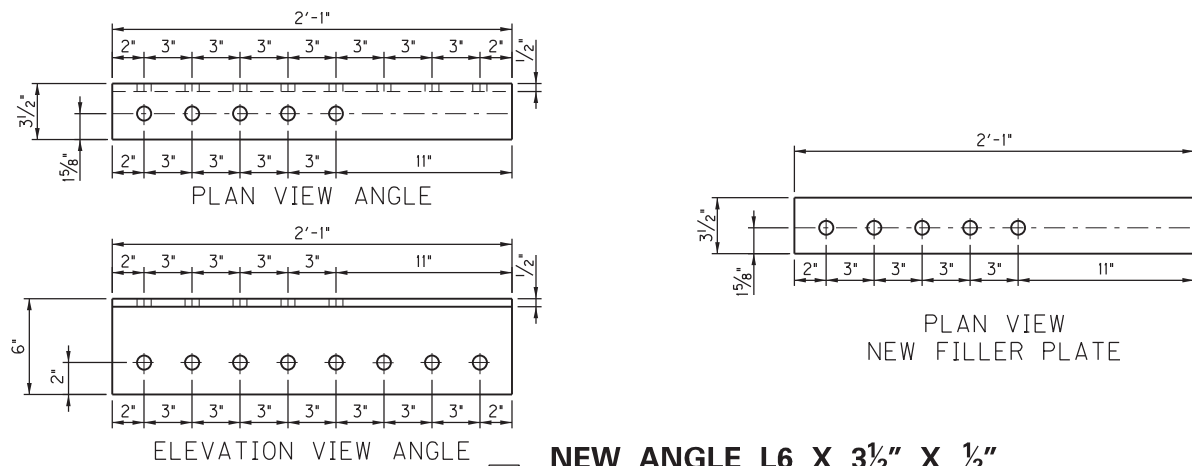
ITEM NO.
2-10020.00
SHEET NO.
S12

COUNTY OF
DAVIESS
DRAWING NUMBER
28812

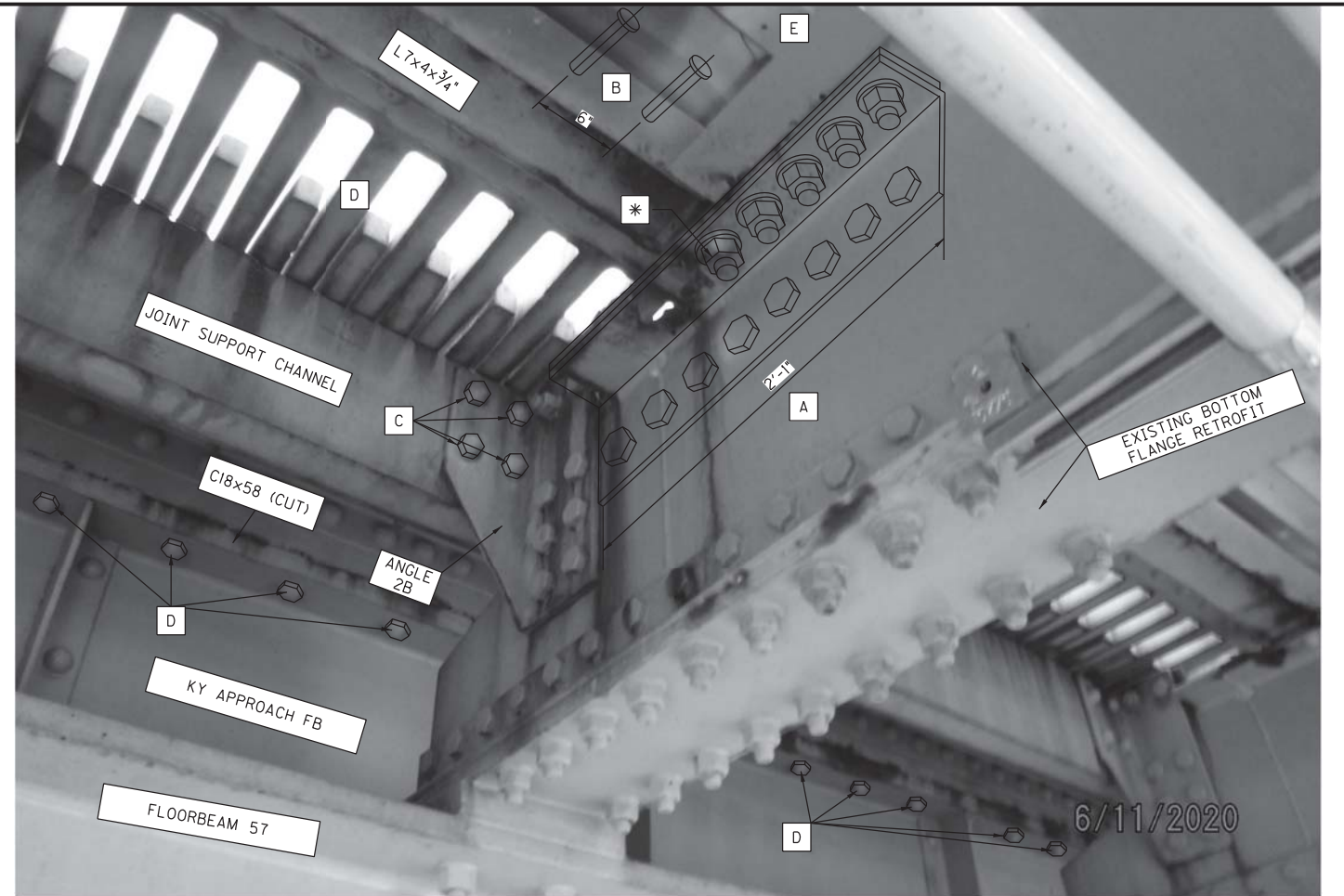
STRINGER RETROFIT AND EXPANSION JOINT RE-INSTALLATION

- A AFTER THE END OF THE STRINGER HAS BEEN CLEANED AND IS FREE OF LAITANCE, INSTALL NEW L6x3½x½' WITH ½' FILLER PLATE. REPLACE PREVIOUS RIVETS WITH EQUIVALENT DIAMETER HIGH STRENGTH BOLTS TENSIONED PER THE STANDARD SPECIFICATIONS.
 - * DO NOT INSTALL THESE BOLTS UNTIL AFTER THE FINGER JOINT HAS BEEN POSITIONED BACK INTO PLACE.
 - B WELD NEW ¾x6" SHEAR CONNECTOR STUDS TO EXISTING C18x58 (CUT) AND EXISTING L7x4x¾". WELDING SHALL BE COMPLETED IN ACCORDANCE WITH AWS SPECIFICATIONS. SHEAR STUDS SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR FINGER DAM REPAIR.
 - C RE-ATTACH JOINT SUPPORT CHANNEL (EX. C10x30) TO ANGLE 2B WITH NEW HIGH STRENGTH BOLTS AND TIGHTEN PER STANDARD SPECIFICATIONS. (4 BOLTS EF OF STRINGER)
 - D RE-INSTALL EXPANSION JOINT ASSEMBLY, INSTALL NEW HIGH STRENGTH BOLTS AND TIGHTEN PER STANDARD SPECIFICATIONS.
 - E POUR NEW CLASS "M" CONCRETE TO THE EXTENT SHOWN AND MATCH EXISTING GRADE.
 - E1 FURNISH FOR REPLACEMENT, AS DIRECTED BY THE ENGINEER, 520 LINEAR FEET OF #4 STAINLESS STEEL REINFORCING BARS IN 26' LENGTHS FOR THIS FINGER JOINT LOCATION. PLACE THESE BARS IN AREAS DEEMED BY THE ENGINEER TO REQUIRE ADDITIONAL REINFORCEMENT. FIELD CUTTING AND BENDING IS PERMITTED. DO NOT PLACE ANY ADDITIONAL STEEL ABOVE THE HEIGHT OR THE TOP ROW OF STUDS.
- NOTE: ALL CLASS "M" CONCRETE & STAINLESS STEEL REINFORCING BARS SHALL BE INCLUDED IN THE LUMP SUM BID FOR FINGER DAMN REPAIR.

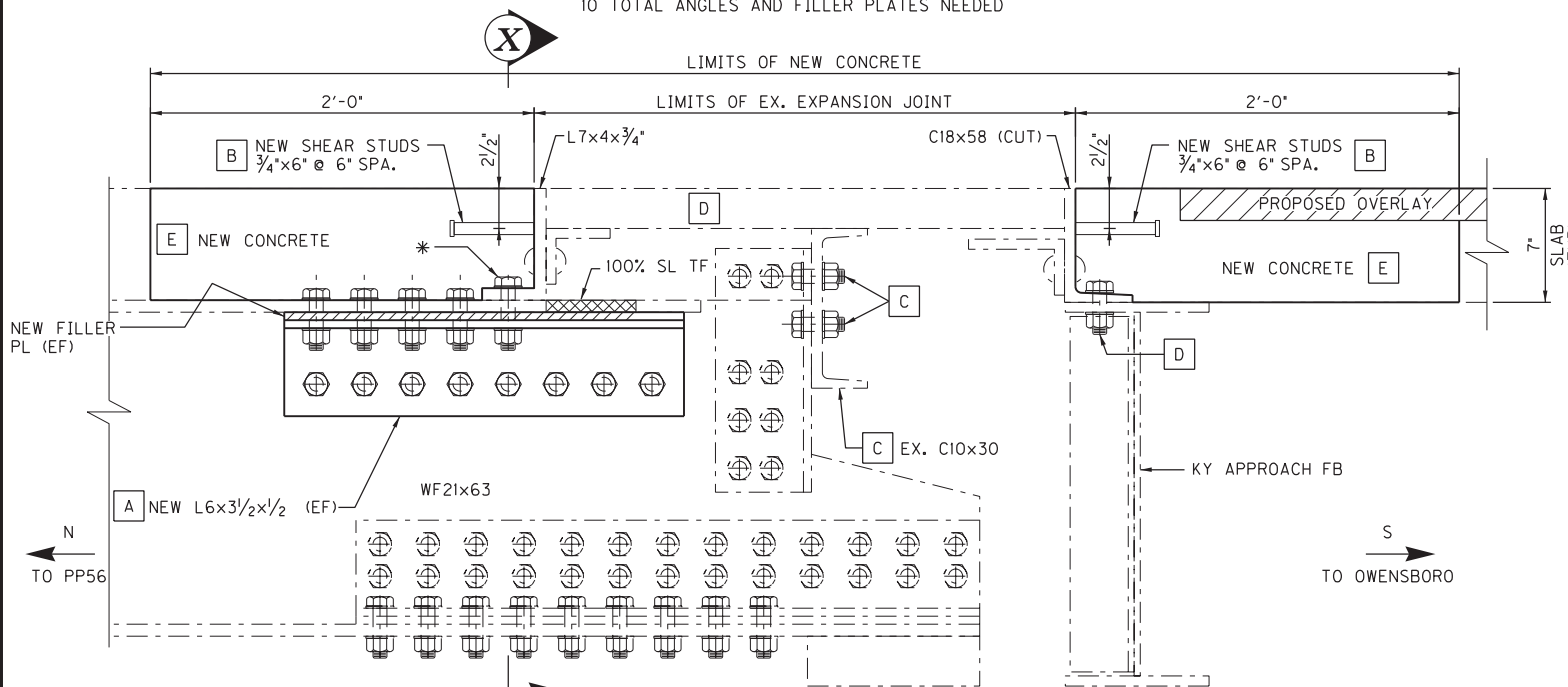
* SEE NOTES ON SHEET 1 OF THIS REPAIR



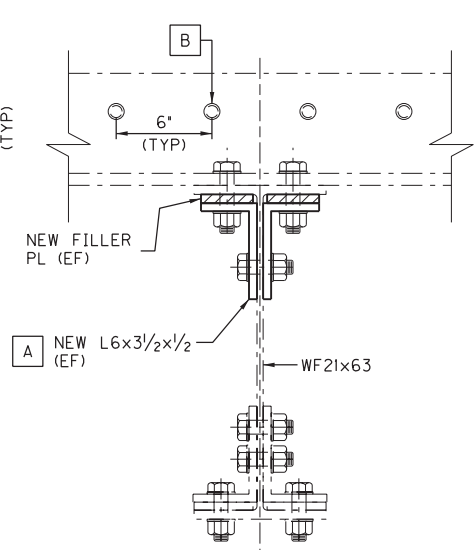
NEW ANGLE L6 X 3½" X ½"
RETROFITS AND FILLER PLATE
 10 TOTAL ANGLES AND FILLER PLATES NEEDED



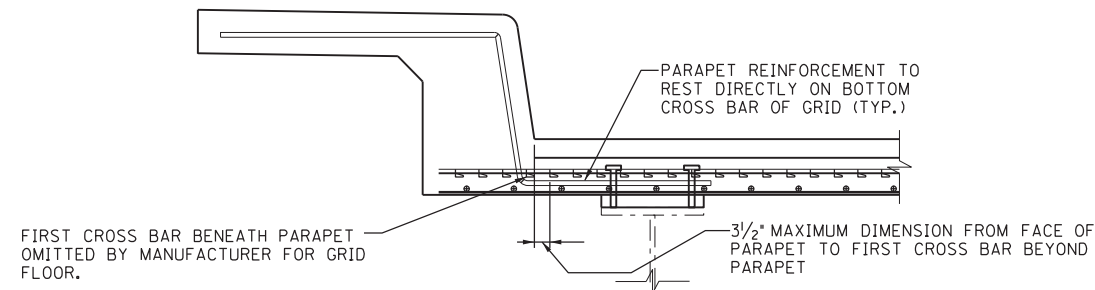
LOOKING SOUTHWEST FROM THE NORTH FACE OF FLOORBEAM 57



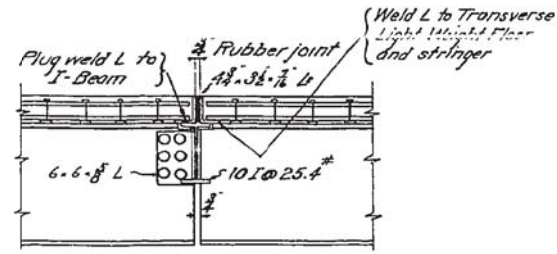
STRINGER RETROFIT AND EXPANSION JOINT
RE-INSTALLATION AT PP57 (PIER E)



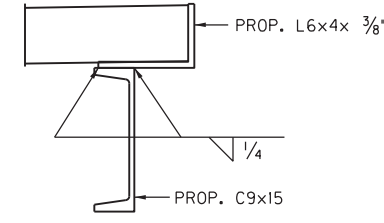
	REVISION	DATE	PREPARED BY	DATE:	DECEMBER, 2024	CHECKED BY	REPAIR 2 - PP57 STRINGERS AND EXPANSION JOINT	ROUTE	ITEM NO.	COUNTY OF
				DESIGNED BY:	J.P. MURRIN	D.E. RUST	PIER E - SHEET 2	KY 2262	2-10020.00	DAVISS
				DETAILED BY:	J.A. ROSE	J.P. MURRIN	CROSSING	OHIO RIVER at OWENSBORO	S13	DRAWING NUMBER



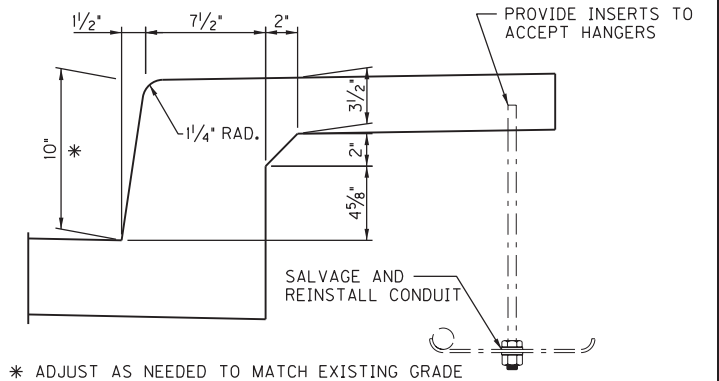
TYPICAL CONCRETE CURB / SIDEWALK DETAIL



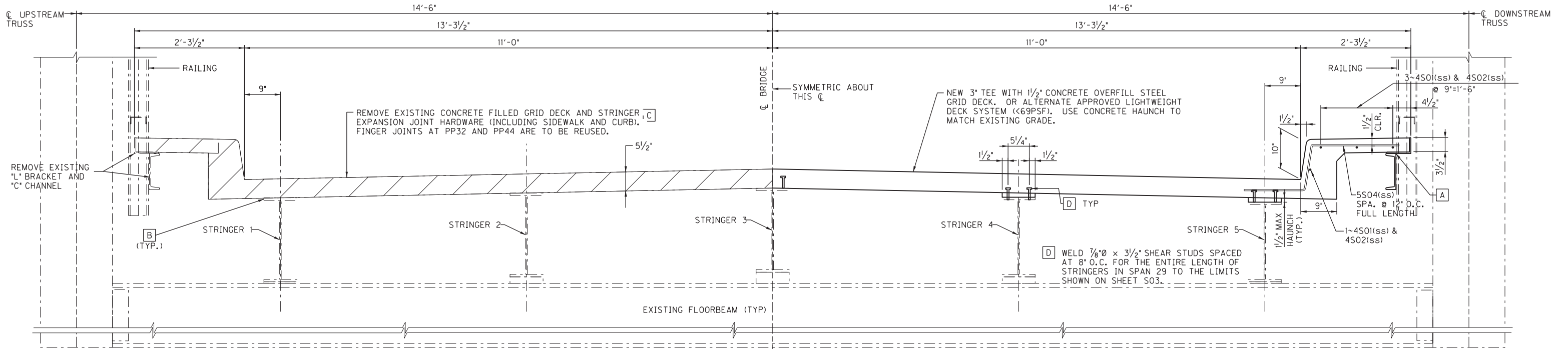
STRINGER EXPANSION JOINT (Light Weight Floor)



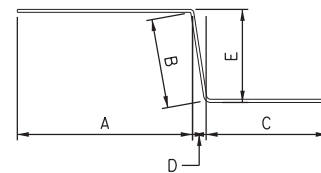
WELD DETAIL



CURB DETAIL (TYP. BOTH CURBS)
* ADJUST AS NEEDED TO MATCH EXISTING GRADE
SEE "SPECIAL NOTE FOR SALVAGE AND REINSTALL CONDUIT"



**CONCRETE FILLED STEEL GRID DECK REPLACEMENT
MAIN TRUSS SPAN 29
(LOOKING SOUTH)**

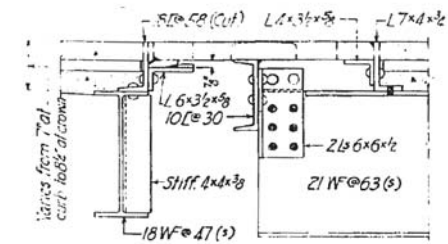
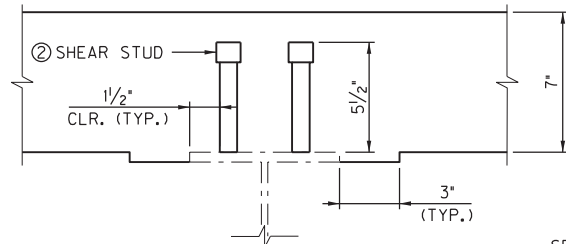
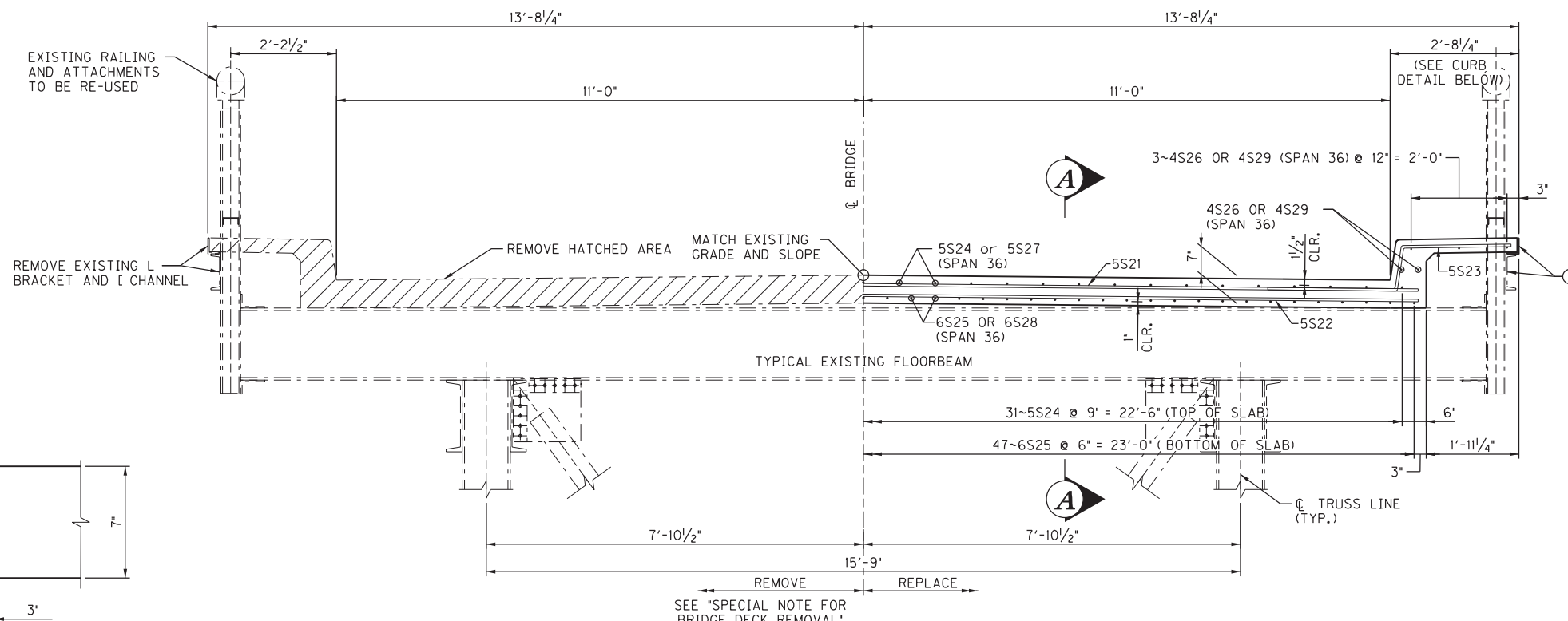


TYPE 21

** LOCATION OF BARS CORRESPOND TO THE BAYS IN THE DECK REPLACEMENT SEQUENCE ON SHEET S03

2'-6" MINIMUM SPLICE LENGTH FOR NO. 4 BARS

BILL OF REINFORCEMENT - CURB / SIDEWALK										
MARK	TYPE	NUMBER	SIZE	LENGTH	LOCATION **	A	B	C	D	E
4S01(ss)	STR	32	4	53'-9"	BAYS 1&7					
4S02(ss)	STR	112	4	36'-8"	BAYS 2,3,4,5,&6					
5S04(ss)	21	1367	5	4'-1"	TOP OF SLAB/SIDEWALK	1'-10"	0'-11 3/4"	1'-3"	0'-2"	0'-11 5/8"



③ EXPANSION DAM AT PIER A
For dimensions not shown on Exp. Dams at Piers A & E
See Exp. Dams at L15, L32 & L44.

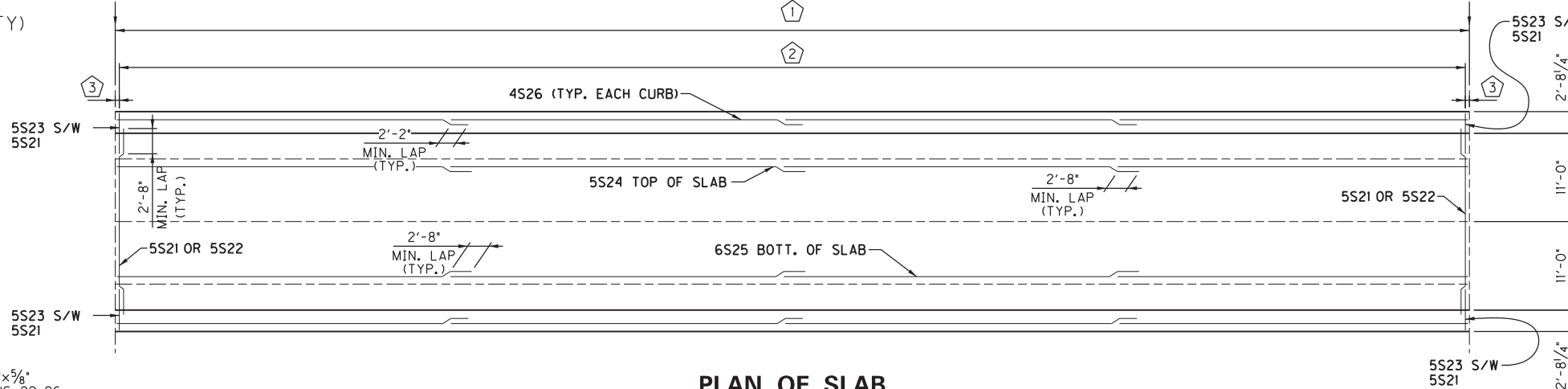
TYPICAL SECTION - DECK TRUSS SPANS 22-26
(LOOKING SOUTH)

SEE SHEET S17 FOR EXPANSION JOINT DETAILS AT PIERS I-4 AND I-2. SEE ③ FOR PIER A; HARDWARE TO BE RE-INSTALLED

SECTION A-A
(DECK STEEL NOT SHOWN FOR CLARITY)

- ① SPAN 22: (167'-2 1/4\"/>

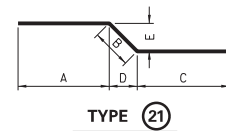
SEE SHEET S17 FOR EXPANSION JOINT DETAILS AT PIERS I-5, I-3, AND I-1



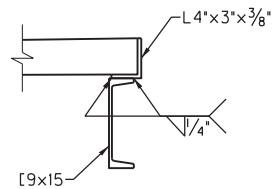
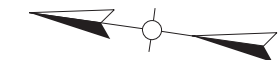
PLAN OF SLAB

(**SPANS 22-26; CURVE NOT SHOWN)

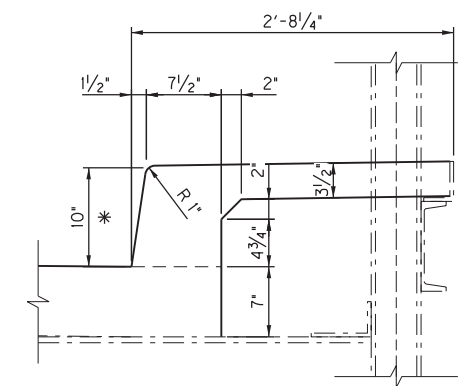
- ① PROPOSED 19x15 CURB FASCIA STRINGER AND L4x3x5/8\"/>
- ② WELD 7/8\"/>
- ③ EXISTING EXPANSION DAM DETAILS TAKEN DIRECTLY FROM THE ORIGINAL PLANS.



**SPANS 25 AND 26 ARE IN A HORIZONTAL CURVE. TRANSVERSE BARS TO BE SPACED RADIALLY, AND DECK ELEVATIONS SHALL MATCH THE EXISTING GRADE. LONGITUDINAL BARS SHALL BE LAID KINKED TO ALIGN WITH EXISTING HORIZONTAL CURVE.



① WELD DETAIL



CURB DETAIL

* ADJUST AS NEEDED TO MATCH EXISTING GRADE

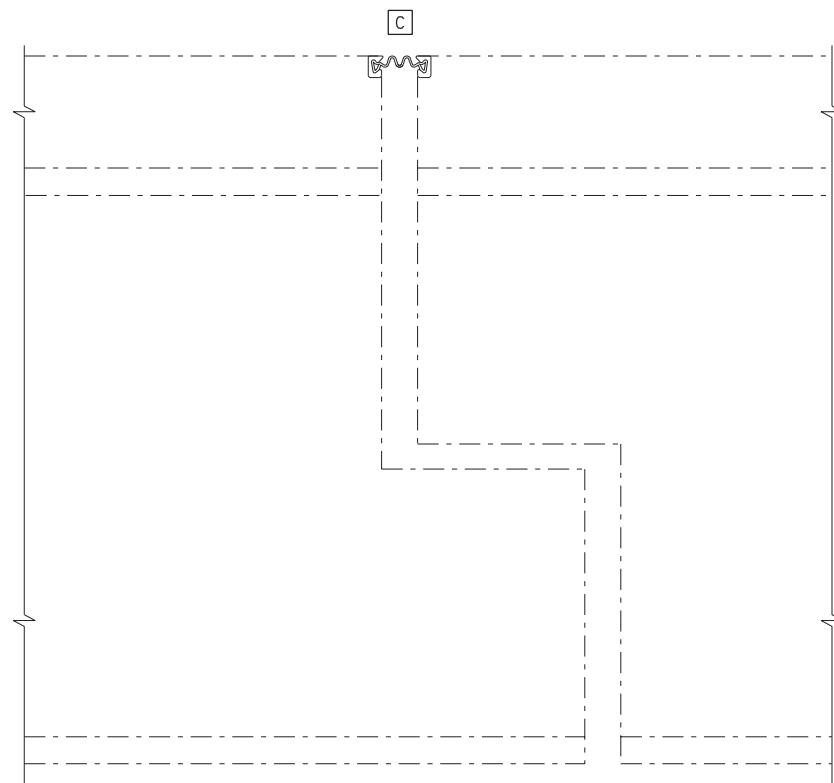
BILL OF REINFORCEMENT - DECK TRUSS SPANS (SPANS 22-26)

MARK	TYPE	NUMBER	SIZE	LENGTH	LOCATION	A	B	C	D	E
5S21(ss)	STR	840	5	23'-2"	TOP OF SLAB					
5S22(e)	STR	840	5	23'-2"	BOTTOM OF SLAB					
5S23(ss)	21	1680	5	5'-10"	SLAB/SIDEWALK	2'-3 1/4"	0'-10 3/4"	2'-8"	0'-1 3/4"	0'-11 1/4"
5S24(ss)	STR	620	5	44'-3"	TOP OF SLAB					
6S25(e)	STR	940	6	44'-3"	BOTTOM OF SLAB					
4S26(ss)	STR	200	4	43'-11"	SIDEWALK					

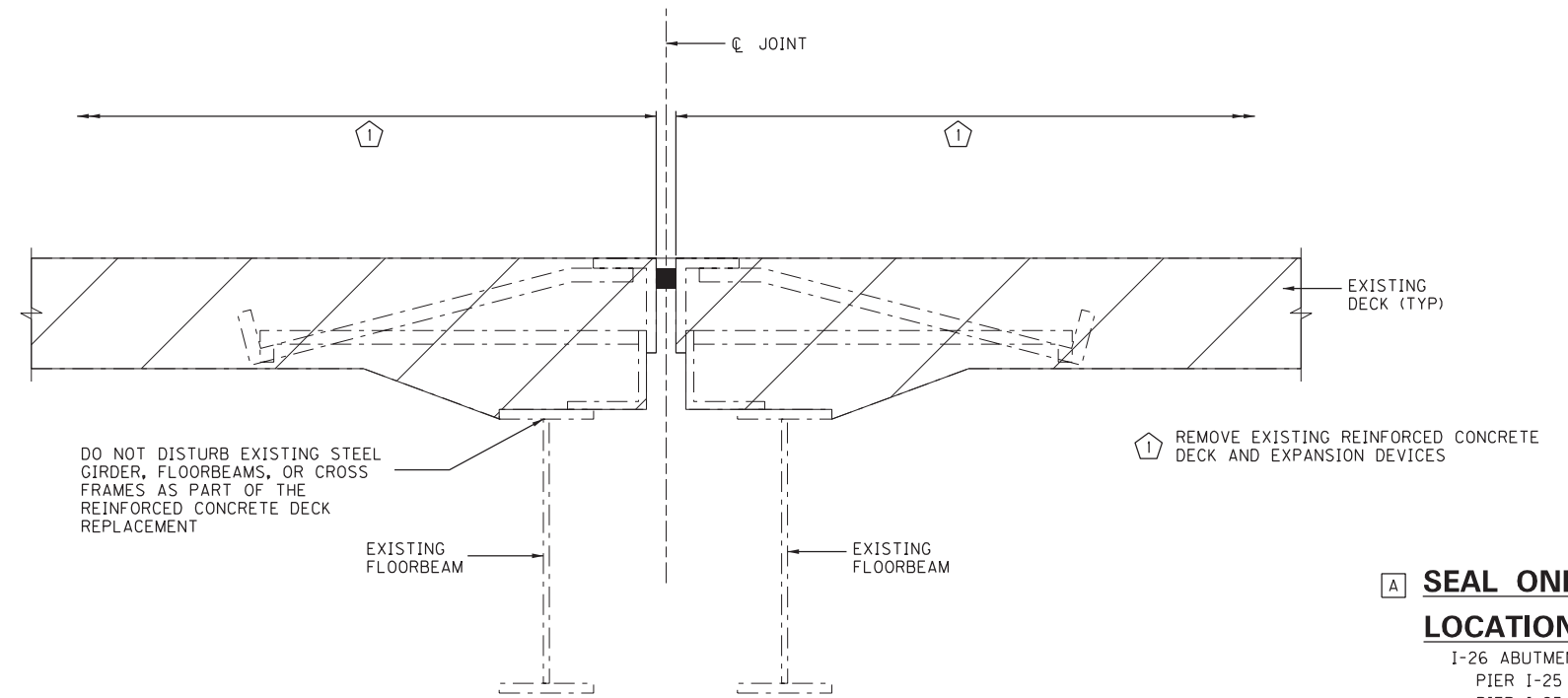
BILL OF REINFORCEMENT - SPAN 36 (SEE SHEET S28)

MARK	TYPE	NUMBER	SIZE	LENGTH	LOCATION	A	B	C	D	E
5S21(e)	STR	8	5	23'-2"	TOP OF SLAB					
5S22(e)	STR	8	5	23'-2"	BOTTOM OF SLAB					
5S23(e)	21	16	5	5'-10"	SLAB/SIDEWALK	2'-3 1/4"	0'-10 3/4"	2'-8"	0'-1 3/4"	0'-11 1/4"
5S27(e)	STR	31	5	7'-0"	TOP OF SLAB					
6S28(e)	STR	47	6	7'-0"	BOTTOM OF SLAB					
4S29(e)	STR	10	4	7'-0"	SIDEWALK					





PROPOSED STRIP SEAL REPLACEMENT AT PIER K-3

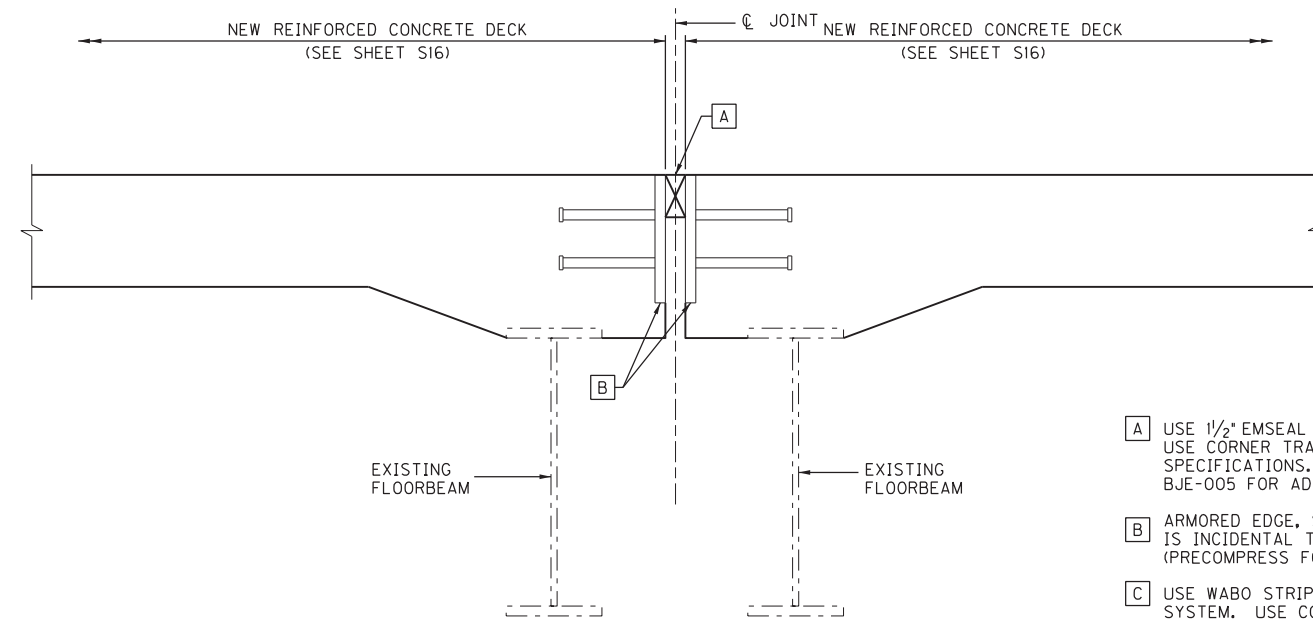


EXISTING SECTION AT COMPRESSION JOINT PIERS I-1, I-2, I-3, & I-4

A SEAL ONLY LOCATIONS

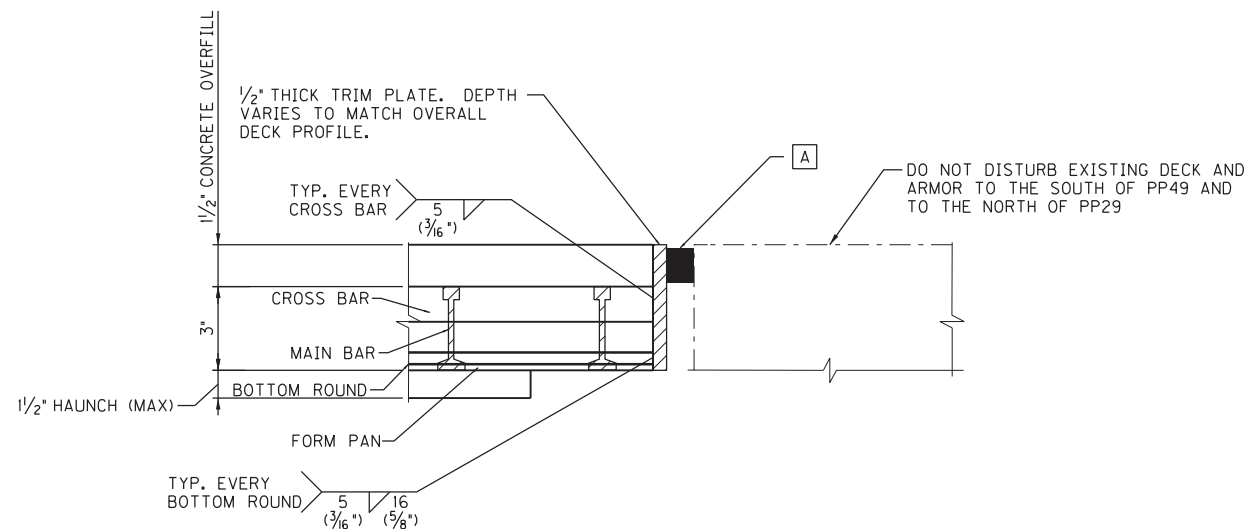
- I-26 ABUTMENT
- PIER I-25
- PIER I-23
- PIER I-21
- PIER I-19
- PIER I-17
- PIER I-15
- PIER I-13
- PIER I-11
- PIER I-8
- PIER I-6
- PANEL POINT 4
- PANEL POINT 8
- PANEL POINT 10
- PANEL POINT 12
- PANEL POINT 19
- PANEL POINT 22
- PANEL POINT 25
- PANEL POINT 51
- PANEL POINT 54
- C PIER K3

NOTE: SEE "SPECIAL NOTE FOR JOINT SEAL REPLACEMENT."



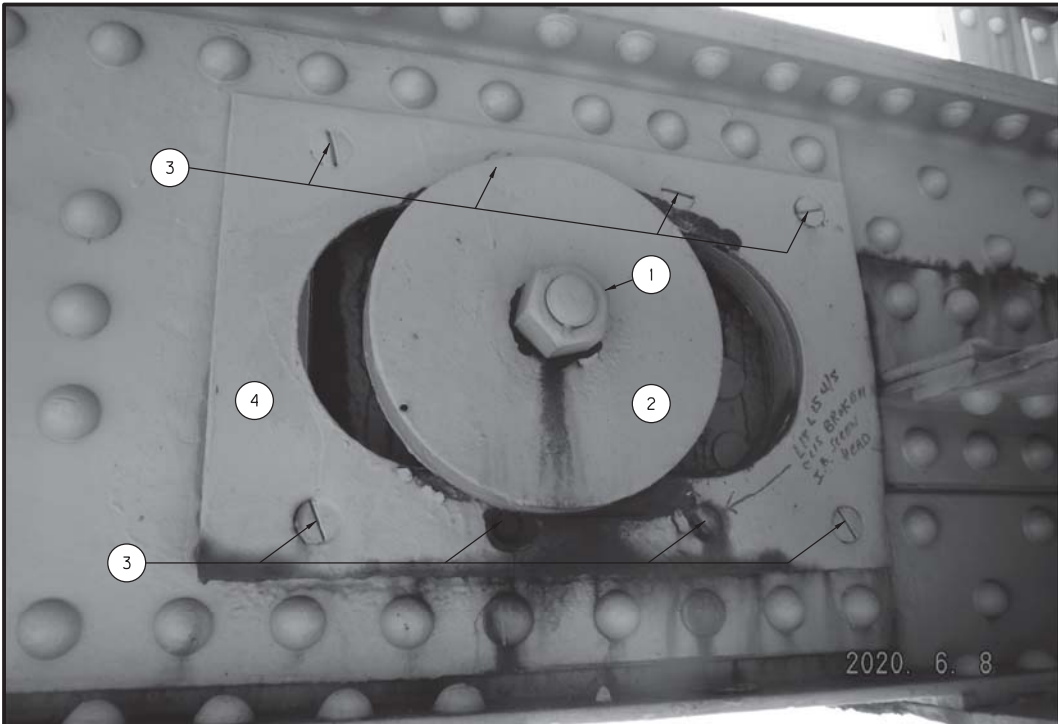
PROPOSED SECTION AT COMPRESSION JOINT PIERS I-1, I-2, I-3, & I-4

- A** USE 1/2" EMSEAL BEJS OR EQUIVALENT SYSTEM. USE CORNER TRANSITIONS PER THE MANUFACTURER'S SPECIFICATIONS. SEE STD. DWG. BJE-003 AND BJE-005 FOR ADDITIONAL DETAILS.
- B** ARMORED EDGE, SEE STD. DWG. BJE-001, c.e. ARMORED EDGE IS INCIDENTAL TO REPLACE EXPANSION JOINT I IN (PRECOMPRESS FOAM).
- C** USE WABO STRIP SEAL WITH SE-400 SEAL OR EQUIVALENT SYSTEM. USE CORNER TRANSITIONS PER MANUFACTURER'S SPECIFICATIONS. SEE STD. DWG. BJE-005 AND BJE-006 FOR ADDITIONAL DETAILS.



PROPOSED SECTION AT JOINT SEAL REPLACEMENT AT L49 (L29 MIRRORED)
(SEE SHEET S14 FOR CONCRETE-FILLED STEEL GRID DECK DETAILS)

	REVISION	DATE	PREPARED BY	DATE:	DECEMBER, 2024	CHECKED BY	REPAIRS 5 & 6 - JOINT REPLACEMENTS	ROUTE	ITEM NO.	COUNTY OF
					DESIGNED BY:	J.P. MURRIN		D.E. RUST	KY 2262	2-10020.00
				DETAILED BY:	J.A. ROSE	J.P. MURRIN	CROSSING OHIO RIVER at OWENSBORO		SHEET NO. S17	DRAWING NUMBER 28812



REPAIR 7A – PIN SLIDING PLATE – DISASSEMBLY

(L14-L15 UPSTREAM, INBOARD DEPICTED. TYPICAL FOR L-15, L32, & L44)

NOTE: CONTRACTOR SHOULD TAKE EXTREME CARE WHEN REMOVING THE INBOARD NUT AND WASHER SO THE PIN DOES NOT "WALK OUT" THE OUTBOARD SIDE.

- 1 REMOVE NUT FROM END OF PIN ASSEMBLY.
- 2 REMOVE WASHER FROM THE PIN.
- 3 REMOVE COUNTERSUNK RIVETS.
- 4 REMOVE DETERIORATED PLATE.
- 5 CLEAN RUST FROM AREA OF DETERIORATED PLATE.

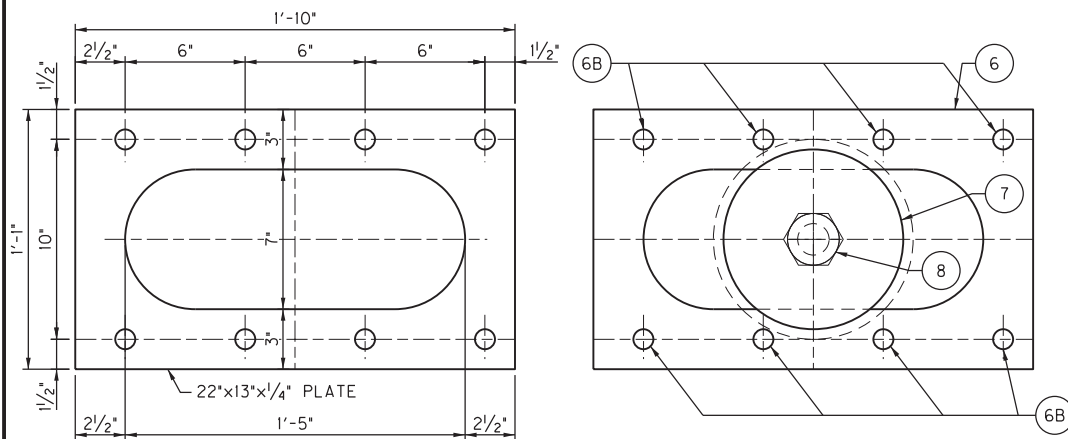
REPAIR 7A – PIN SLIDING PLATE REPAIR

(L14-L15 UPSTREAM, INBOARD DEPICTED. TYPICAL FOR L-15, L32, & L44)

6 STEEL REPAIR LOCATIONS

- 6 INSTALL NEW 1/4" PLATE.
- 6B INSTALL NEW HIGH STRENGTH COUNTERSUNK BOLTS OF MATCHING DIAMETER.
- 7 RE-INSTALL EXISTING WASHER.
- 8 RE-INSTALL EXISTING NUT.

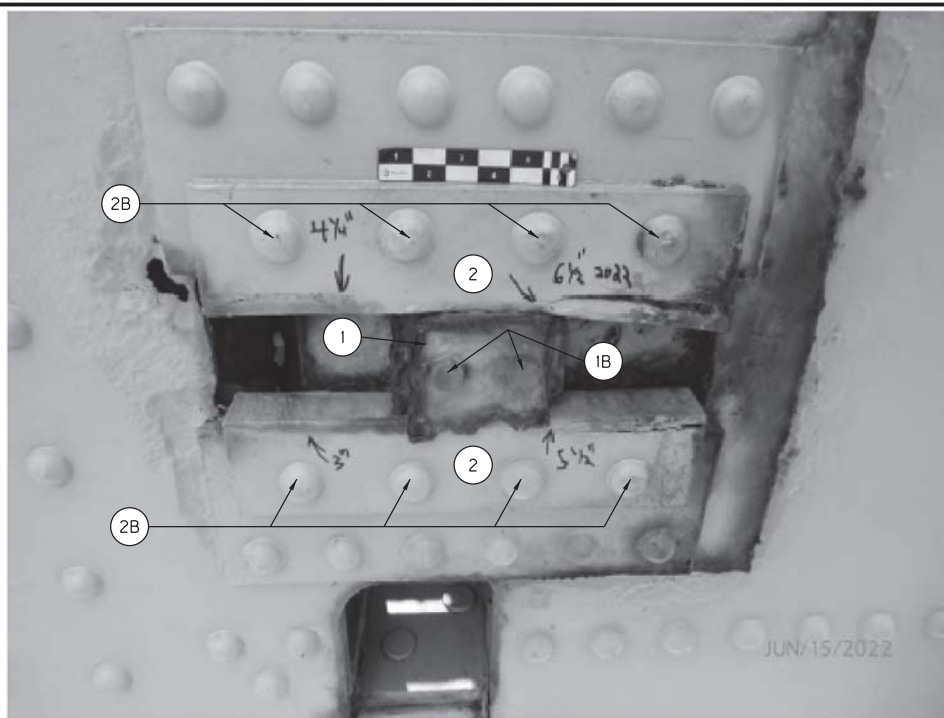
*SEE "SPECIAL NOTE FOR STEEL REPAIRS" AND "SPECIAL NOTE FOR PAINTING STRUCTURAL STEEL REPAIRS".



NEW PIN SLIDING PLATE

RE-INSTALLATION

ALL DIMENSIONS AND HOLE LOCATIONS TO DUPLICATE EXIST. SLIDING PLATE SHALL BE FIELD VERIFIED

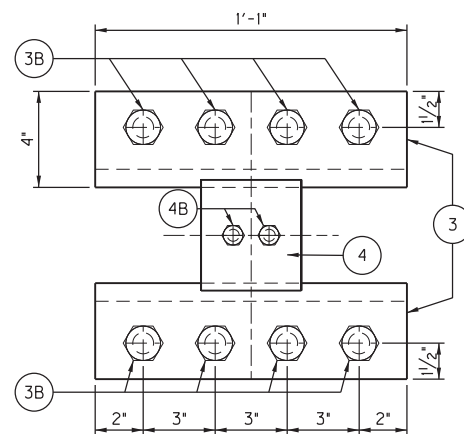


**REPAIR 7B – UNDERSIDE OF WINDLOCK ANGLE REPAIRS
L15, L32, AND L44 (UPSTREAM AND DOWNSTREAM)**

6 STEEL REPAIR LOCATIONS

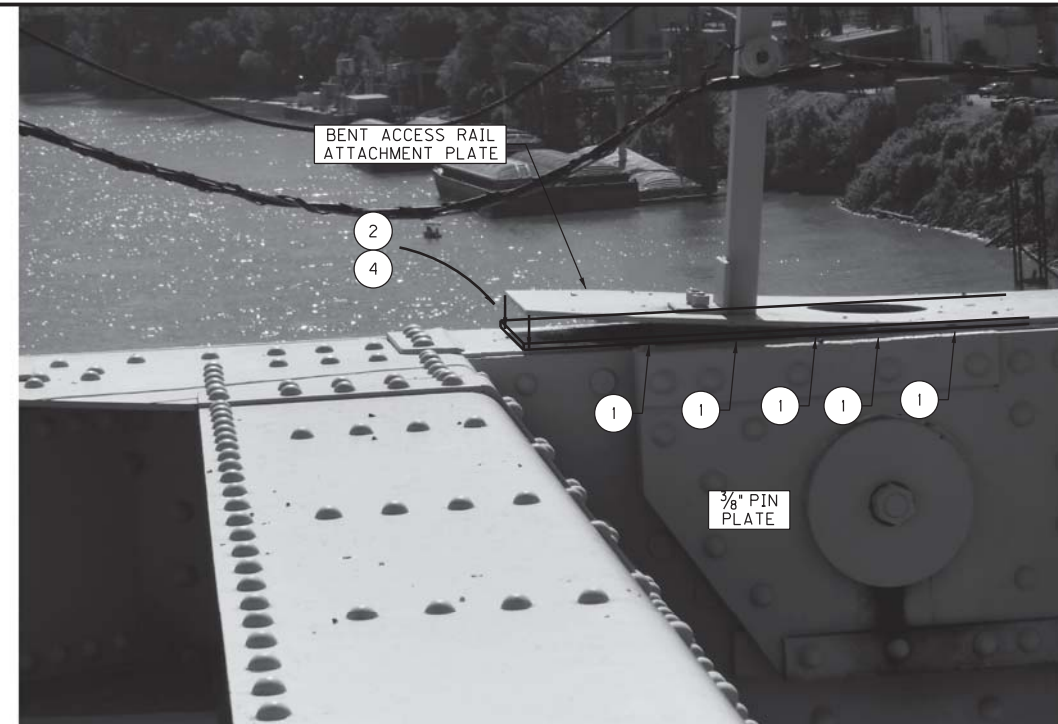
- 1 REMOVE WINDLOCK CAP PLATE BY REMOVING (2) BOLTS.
- 1B REMOVE BOLTS FROM CAP.
- 2 REMOVE DETERIORATED / CRACKED ANGLES BY REMOVING RIVETS. ONE ANGLE TO BE REMOVED AT A TIME.
- 2B REMOVE RIVETS HOLDING EXISTING DETERIORATED ANGLES ON BEARING PLATES.
- 3 INSTALL NEW L4x2x3/4" ANGLES WITH NEW HIGH STRENGTH BOLTS.
- 3B INSTALL NEW HIGH STRENGTH BOLTS OF EQUIVALENT DIAMETER. TIGHTEN BOLTS ACCORDING TO THE STANDARD SPECIFICATIONS.
- 4 INSTALL NEW CAP PLATE WITH NEW HIGH STRENGTH BOLTS.
- 4B INSTALL NEW HIGH STRENGTH BOLTS OF EQUIVALENT DIAMETER. TIGHTEN BOLTS ACCORDING TO THE STANDARD SPECIFICATIONS.

*SEE "SPECIAL NOTE FOR STEEL REPAIRS" AND "SPECIAL NOTE FOR PAINTING STRUCTURAL STEEL REPAIRS".



NEW ANGLES & RE-INSTALLATION

ALL DIMENSIONS AND HOLE LOCATIONS TO DUPLICATE EXIST. PLATES & ANGLES SHALL BE FIELD VERIFIED

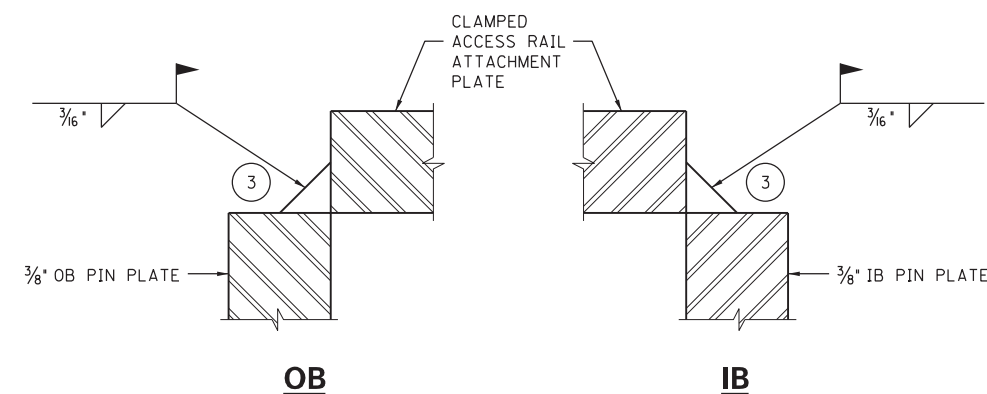


**REPAIR 7C – ACCESS RAIL ATTACHMENT PLATE WELDED REPAIR
U43 UPSTREAM TRUSS**

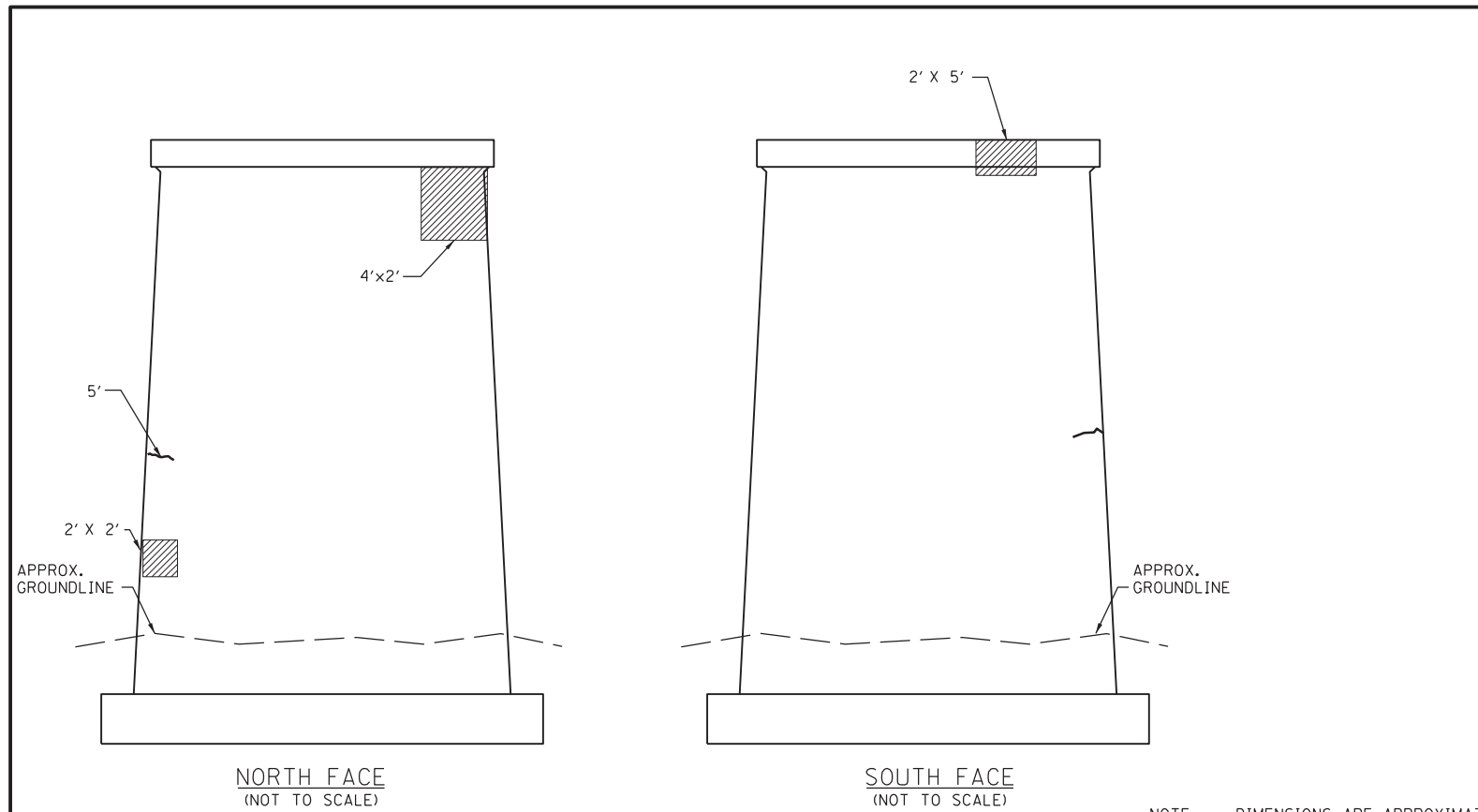
1 STEEL REPAIR LOCATION

- 1 CLEAN SURFACE OF STEEL AND GRIND DOWN ORIGINAL TACK WELDS WITH ROTARY BURR. (5 LOCATIONS EACH SIDE OF PLATE) OBTAIN UNIFORM SURFACE ON BOTH THE BENT ACCESS RAIL ATTACHMENT PLATE AND THE 3/8" PIN PLATE.
- 2 CLAMP THE BENT ACCESS RAIL ATTACHMENT PLATE TO THE UPPER CHORD, INTO THE PLATE'S ORIGINAL INTENDED POSITION.
- 3 FILLET WELD ALONG THE INTERFACE WITH E7018 ELECTRODES. CHECK EACH PASS VISUALLY FOR FREEDOM FROM CRACKS OR OTHER DEFECTS. OBTAIN 3/16" THICKNESS.
- 4 LEAVE CLAMPS IN PLACE FOR 2 HOURS BEFORE REMOVING.

*SEE "SPECIAL NOTE FOR STEEL REPAIRS" AND "SPECIAL NOTE FOR PAINTING STRUCTURAL STEEL REPAIRS".



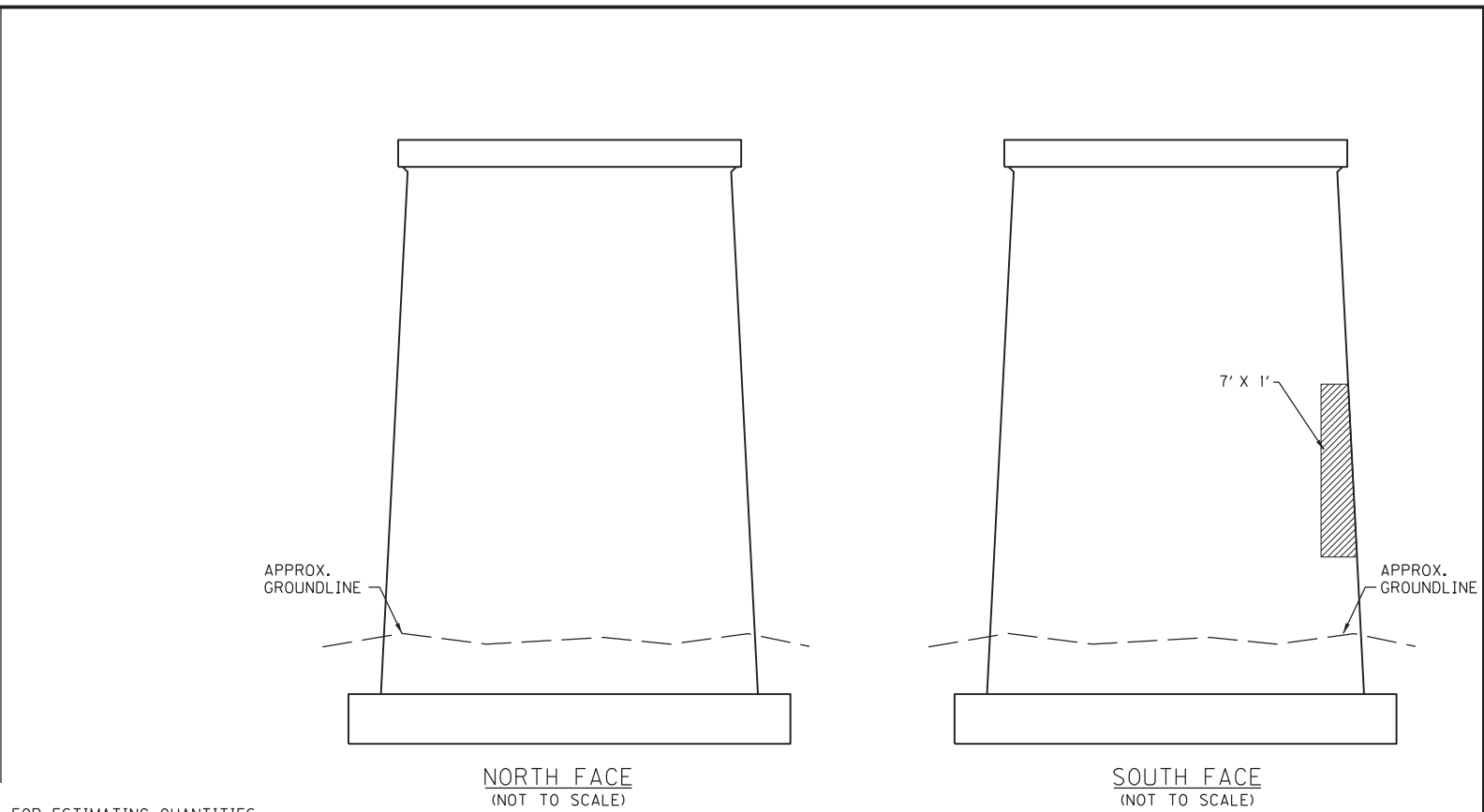
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					DESIGNED BY:	J.P. MURRIN		D.E. RUST	KY 2262	2-10020.00
				DETAILED BY:	J.A. ROSE	J.P. MURRIN	CROSSING OHIO RIVER at OWENSBORO	SHEET NO. S18	DRAWING NUMBER 28812	



NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)

NOTE: DIMENSIONS ARE APPROXIMATE FOR ESTIMATING QUANTITIES. FINAL LOCATIONS TO BE REPAIRED AND FINAL QUANTITIES WILL BE DETERMINED BY THE ENGINEER PER THE SPECIAL NOTES.



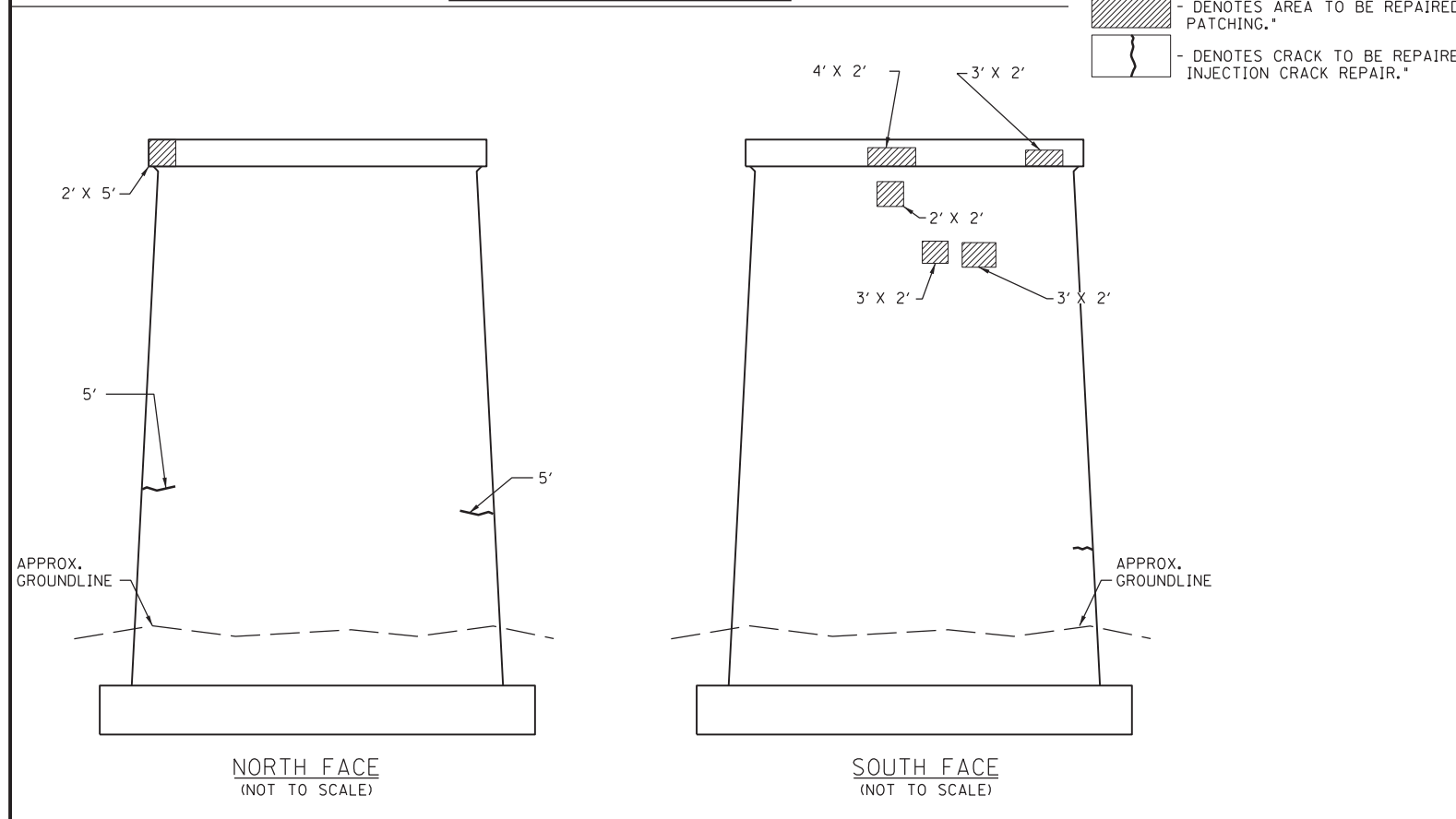
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(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)

IN APPROACH PIER I-25

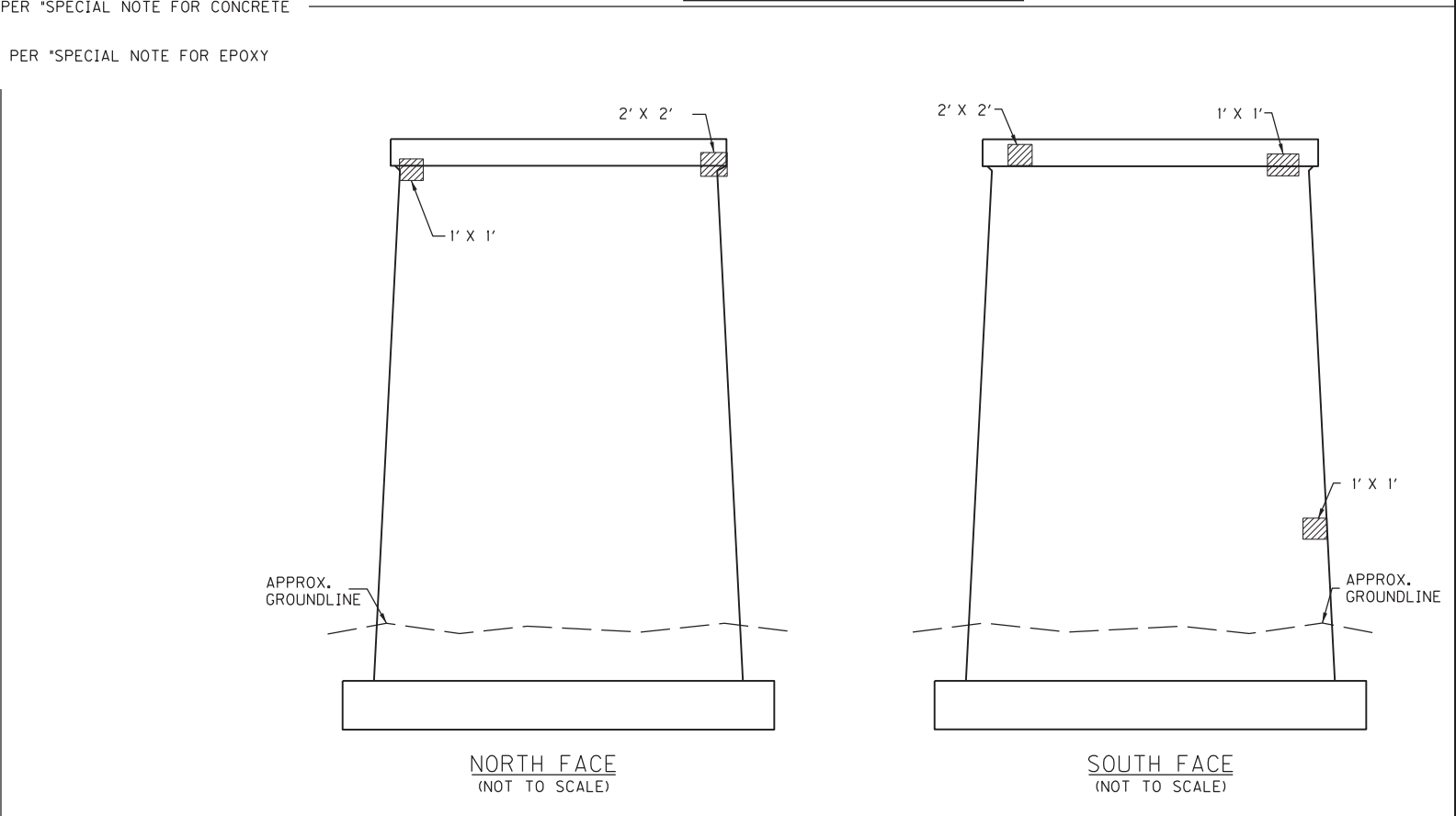
IN APPROACH PIER I-23

- DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR CONCRETE PATCHING."
 - DENOTES CRACK TO BE REPAIRED PER "SPECIAL NOTE FOR EPOXY INJECTION CRACK REPAIR."



NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)



NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)

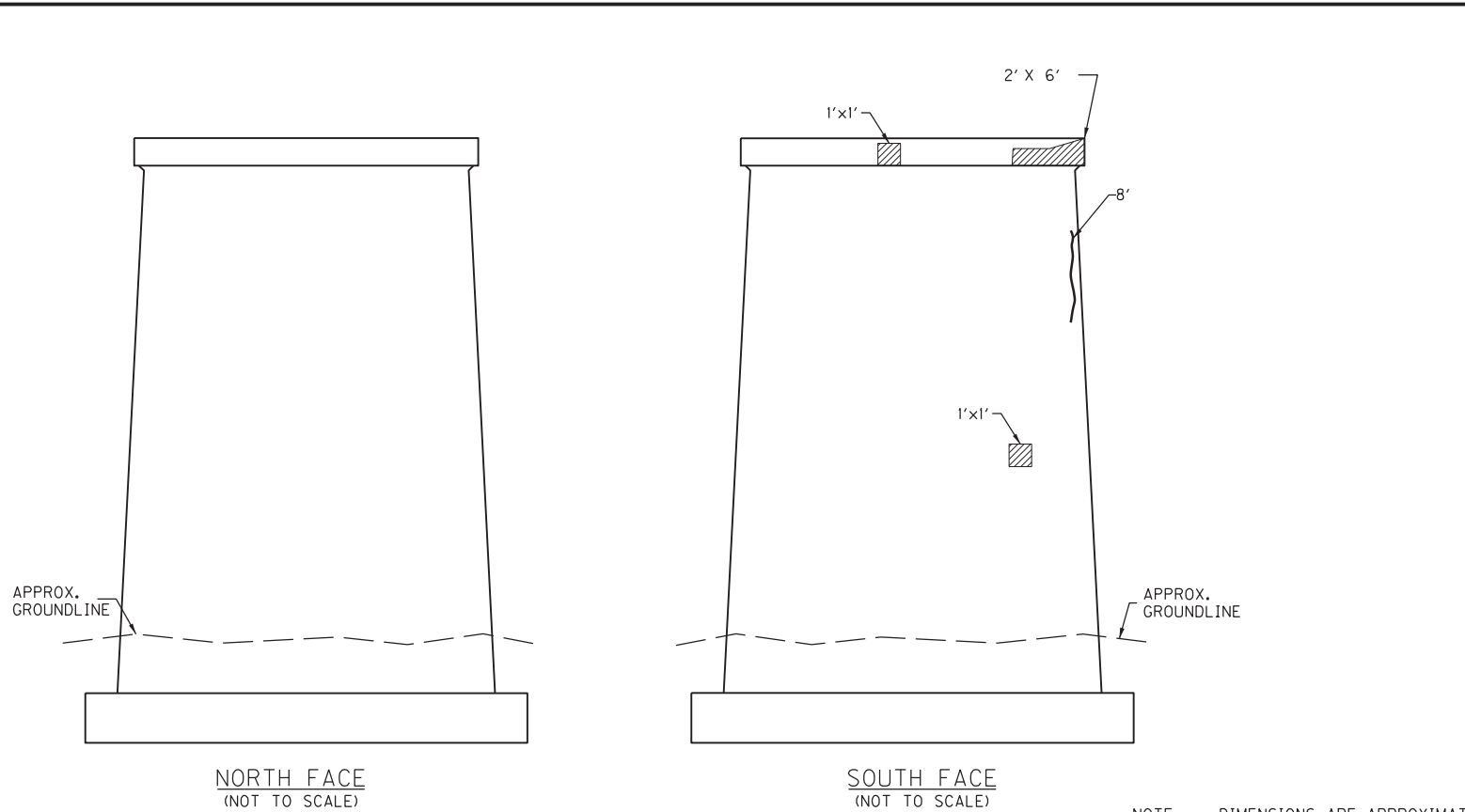
IN APPROACH PIER I-24

IN APPROACH PIER I-22

REVISION	DATE

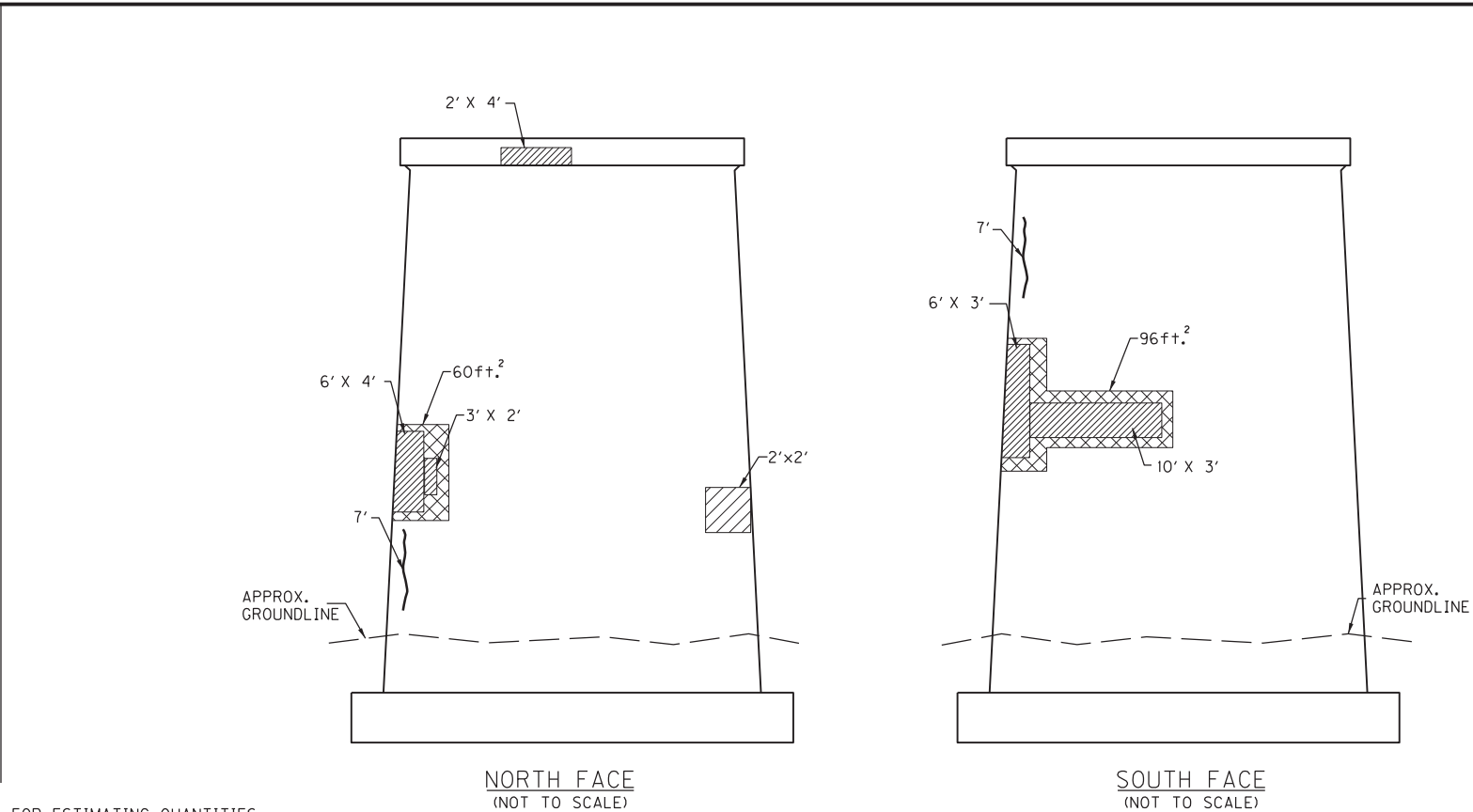
DATE:	DECEMBER, 2024	CHECKED BY:	
DESIGNED BY:	J.P. MURRIN	D.E. RUST	
DETAILED BY:	M.B. HAGGARD	J.P. MURRIN	

ROUTE	ITEM NO.	COUNTY OF
KY 2262	2-10020.00	DAVIESS
	SHEET NO.	DRAWING NUMBER
	S19	28812



NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)



NORTH FACE
(NOT TO SCALE)

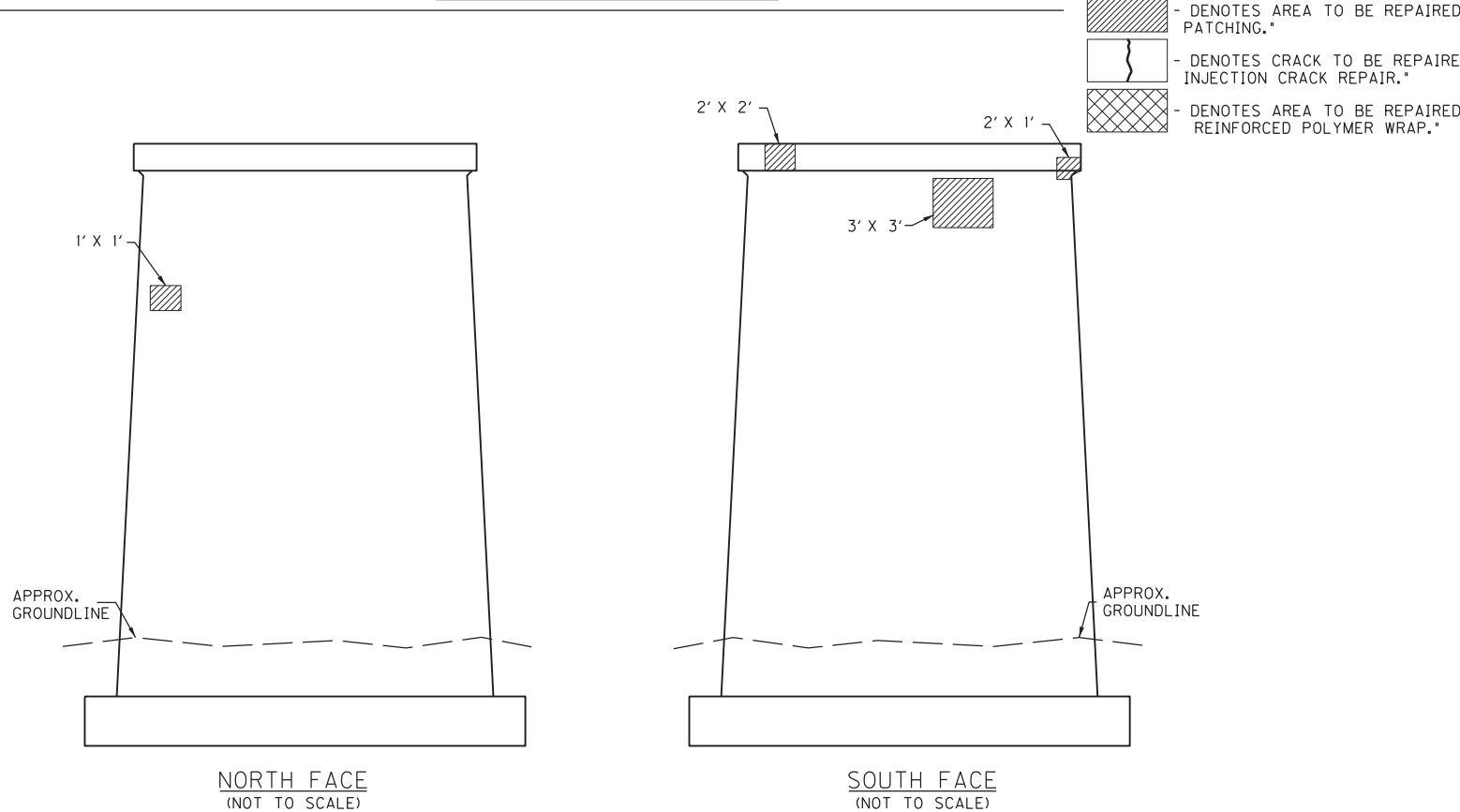
SOUTH FACE
(NOT TO SCALE)

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IN APPROACH PIER I-21

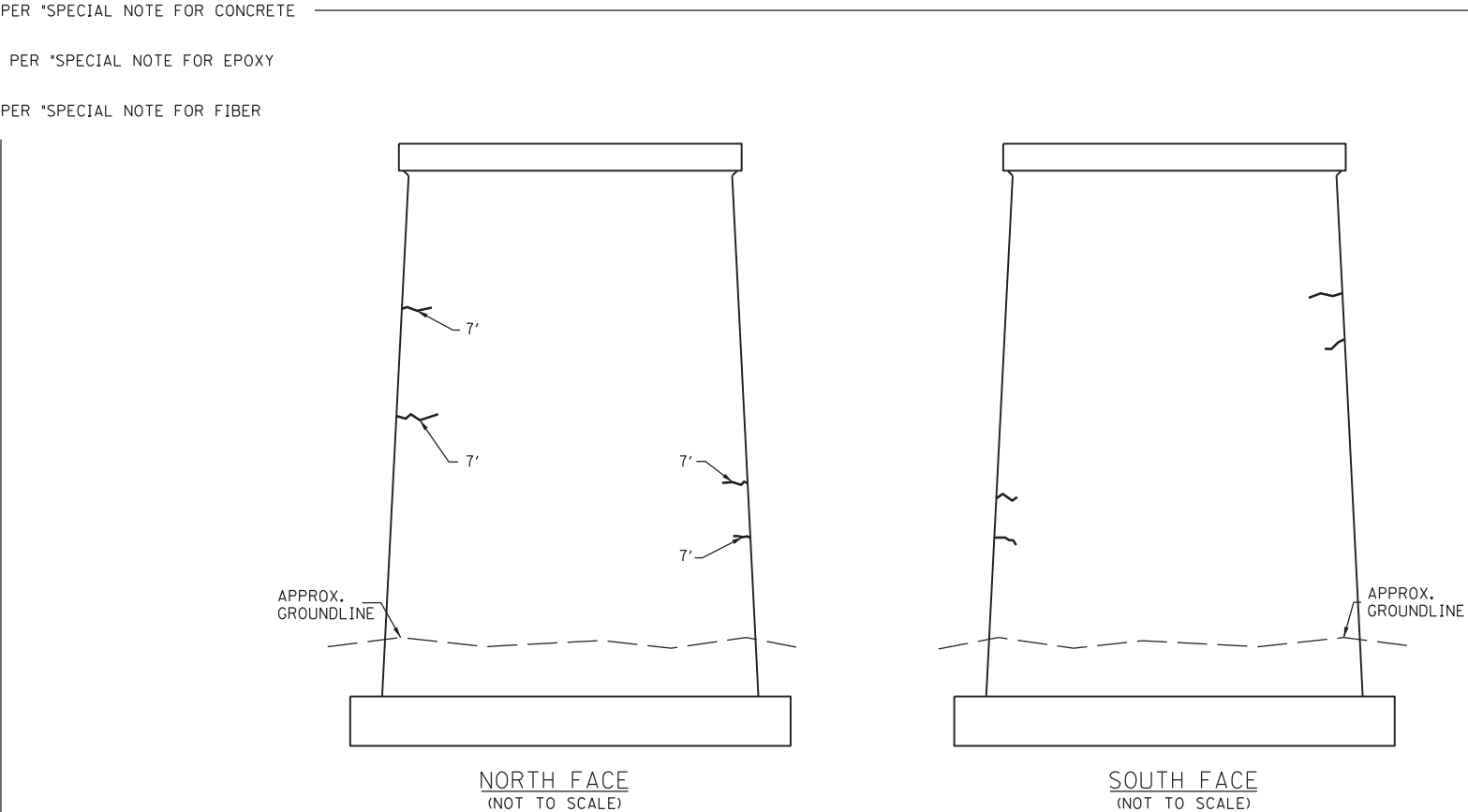
IN APPROACH PIER I-19

- DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR CONCRETE PATCHING."
- DENOTES CRACK TO BE REPAIRED PER "SPECIAL NOTE FOR EPOXY INJECTION CRACK REPAIR."
- DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR FIBER REINFORCED POLYMER WRAP."



NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)

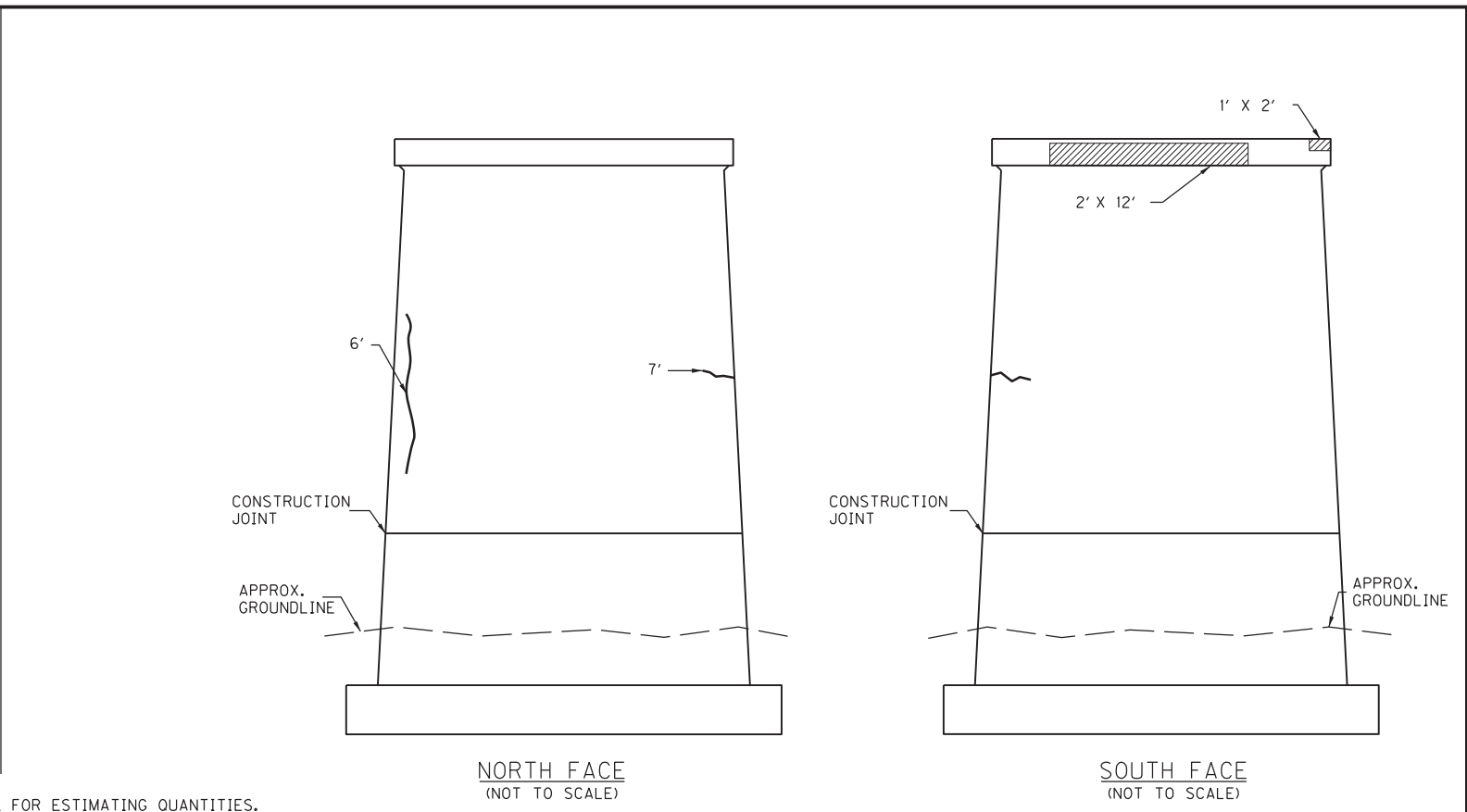
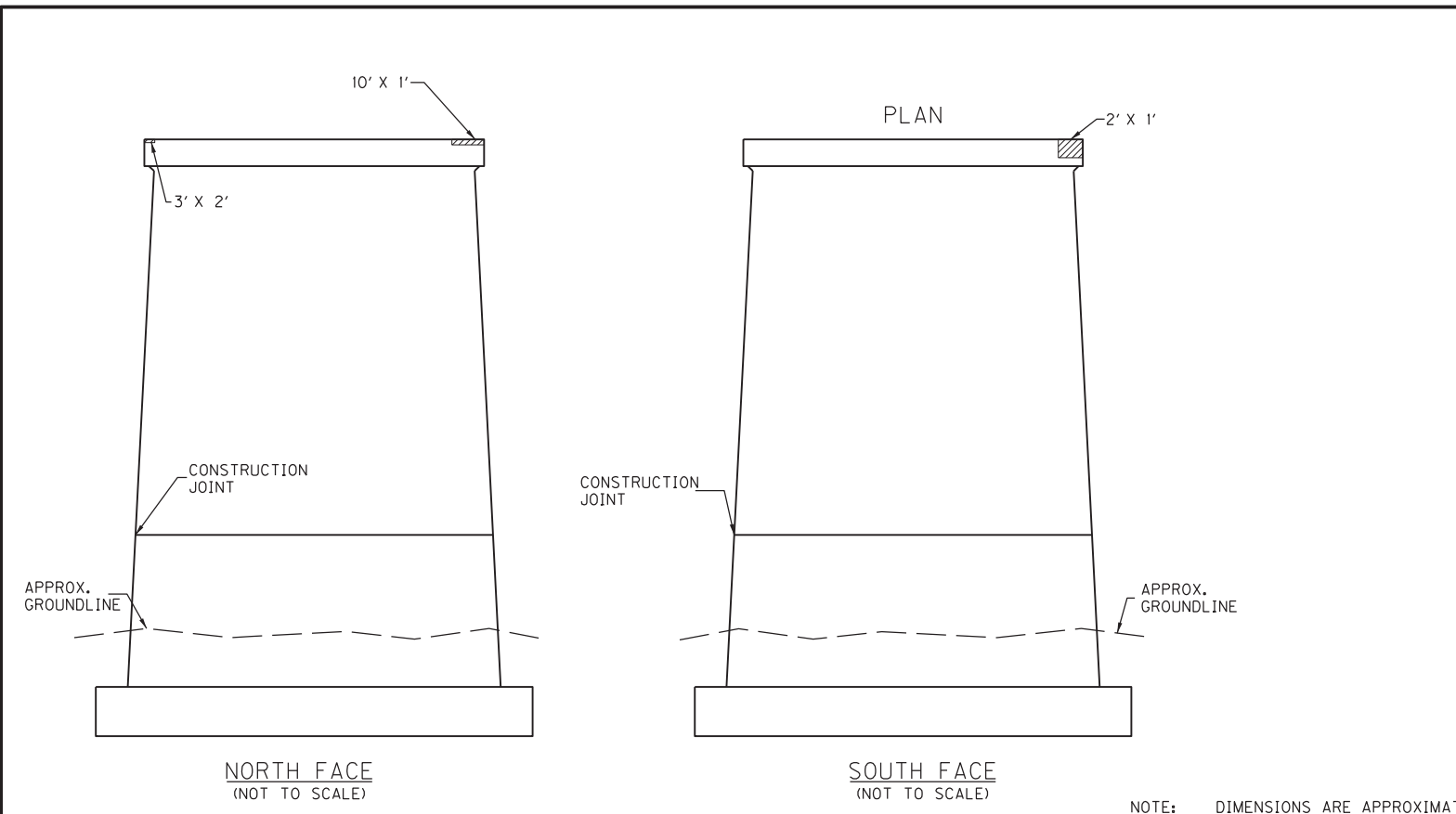


NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)

IN APPROACH PIER I-20

IN APPROACH PIER I-18

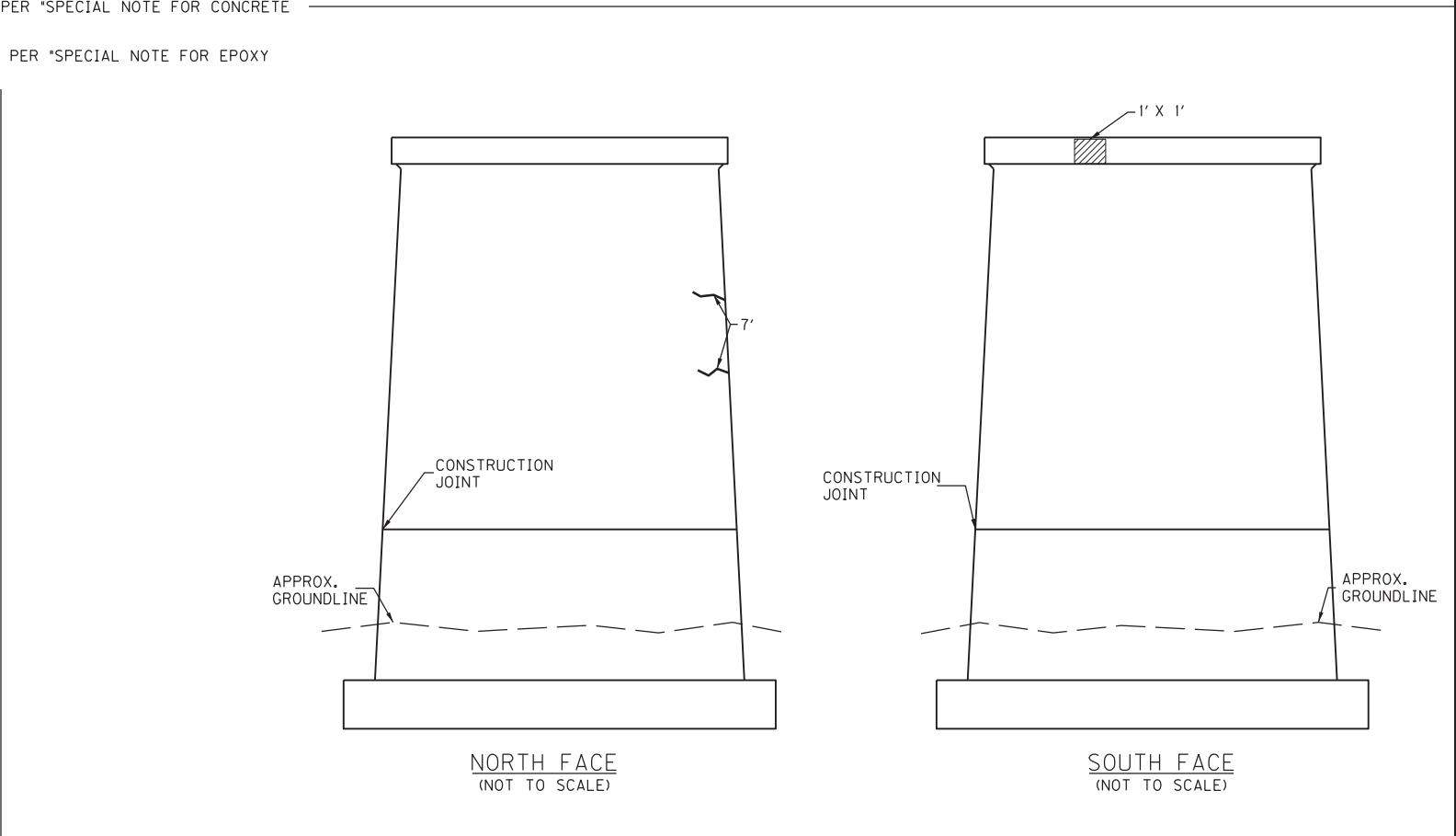
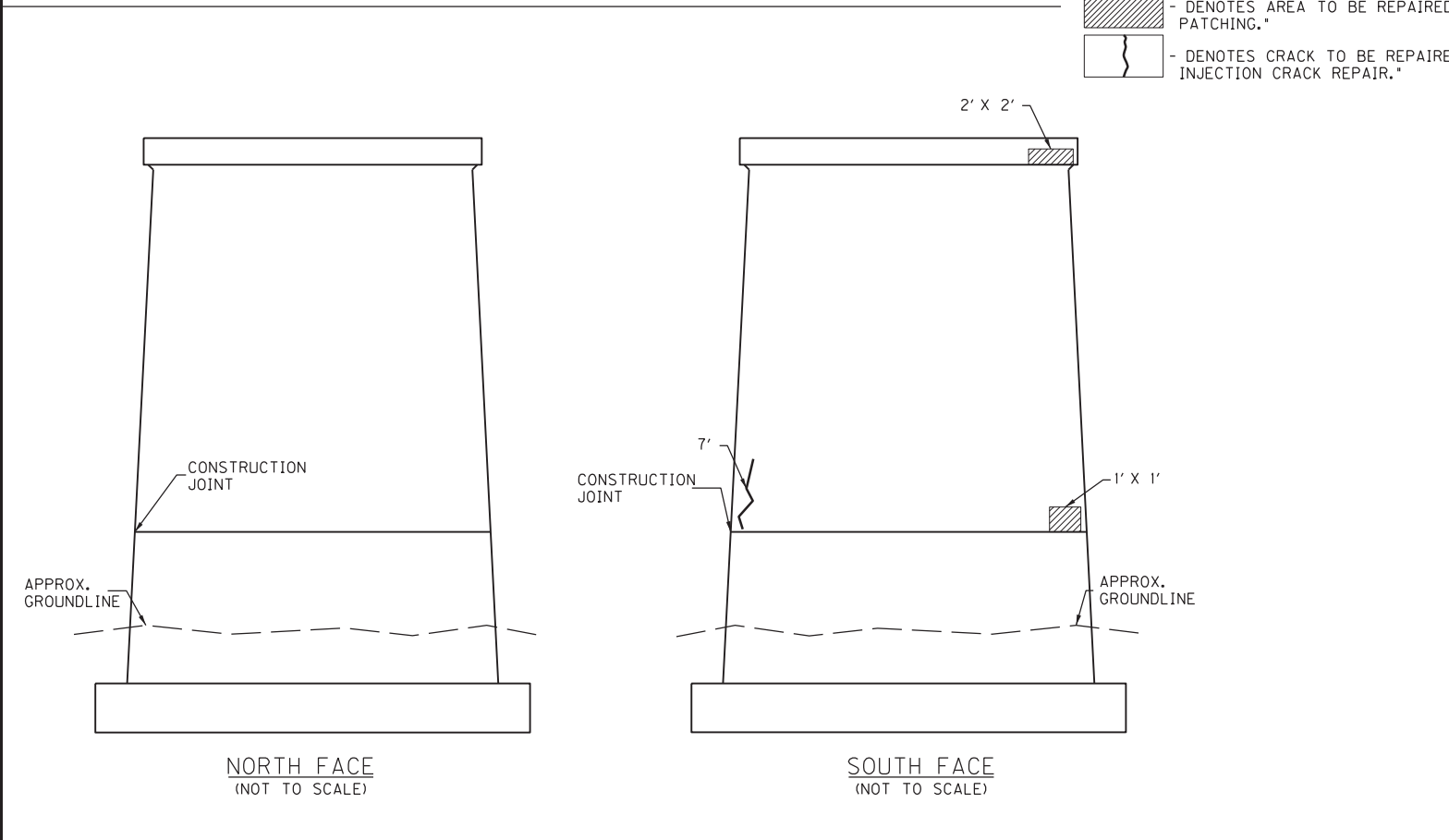


NOTE: DIMENSIONS ARE APPROXIMATE FOR ESTIMATING QUANTITIES. FINAL LOCATIONS TO BE REPAIRED AND FINAL QUANTITIES WILL BE DETERMINED BY THE ENGINEER PER THE SPECIAL NOTES.

IN APPROACH PIER I-17

IN APPROACH PIER I-15

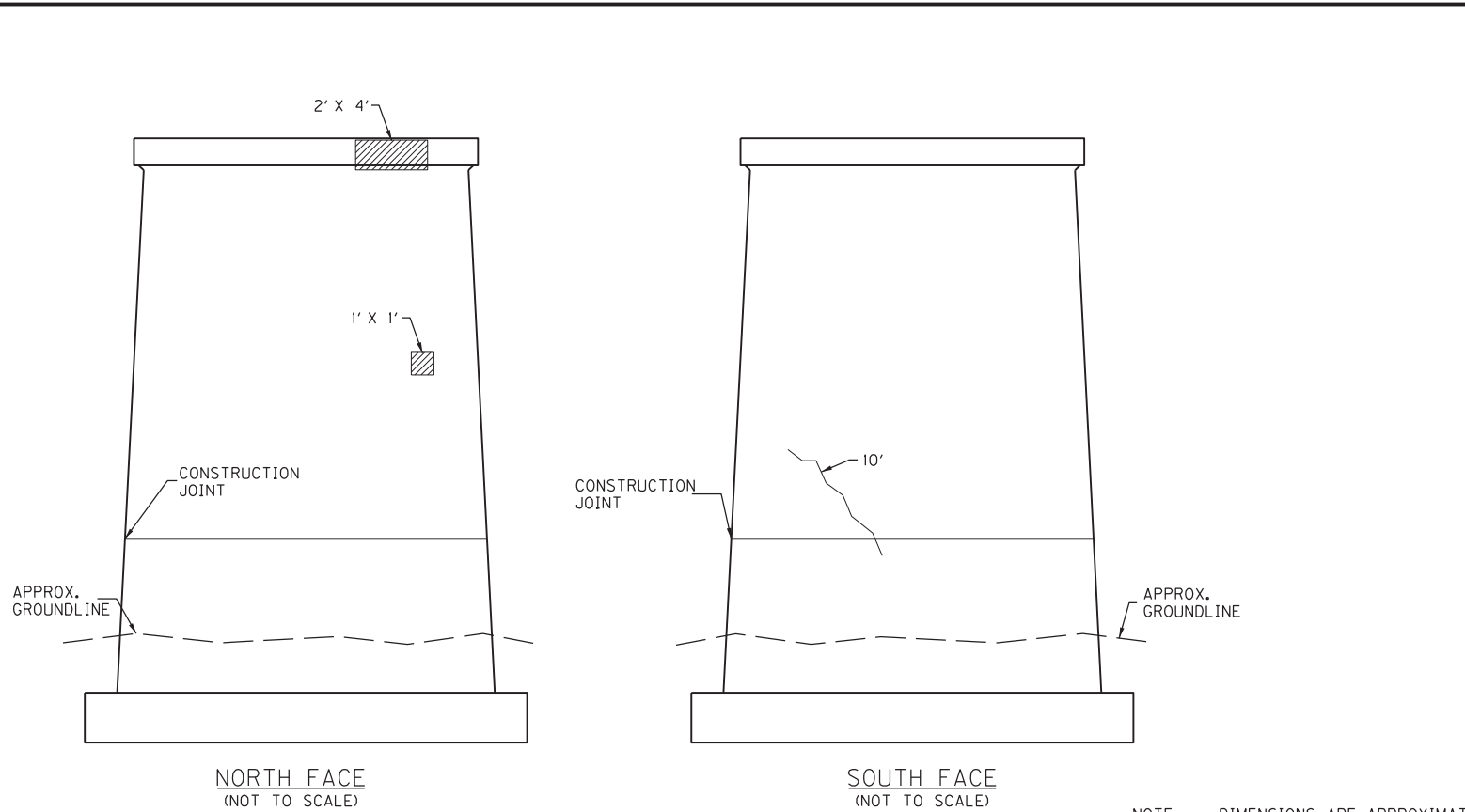
- DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR CONCRETE PATCHING."
 - DENOTES CRACK TO BE REPAIRED PER "SPECIAL NOTE FOR EPOXY INJECTION CRACK REPAIR."



IN APPROACH PIER I-16

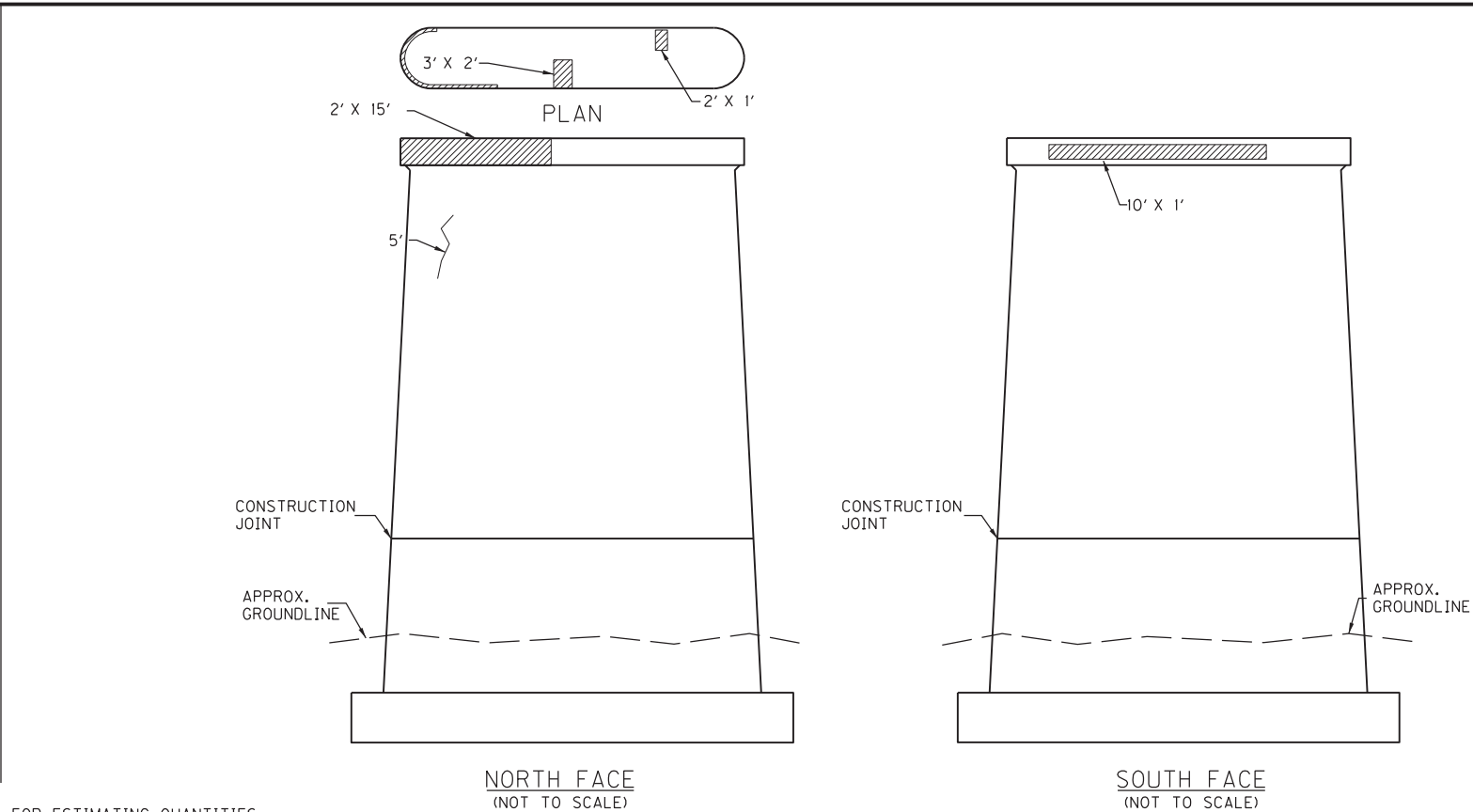
IN APPROACH PIER I-14

	REVISION	DATE	PREPARED BY	DATE:	DECEMBER, 2024	CHECKED BY	REPAIR 8 REINFORCED CONCRETE SUBSTRUCTURE REPAIR SHEET 3	ROUTE	ITEM NO.	COUNTY OF	
				DESIGNED BY:	J.P. MURRIN	D.E. RUST		CROSSING OHIO RIVER at OWENSBORO	KY 2262	2-10020.00	DAVIESS
				DETAILED BY:	M.B. HAGGARD	J.P. MURRIN			SHEET NO. S21	DRAWING NUMBER 28812	



NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)



NORTH FACE
(NOT TO SCALE)

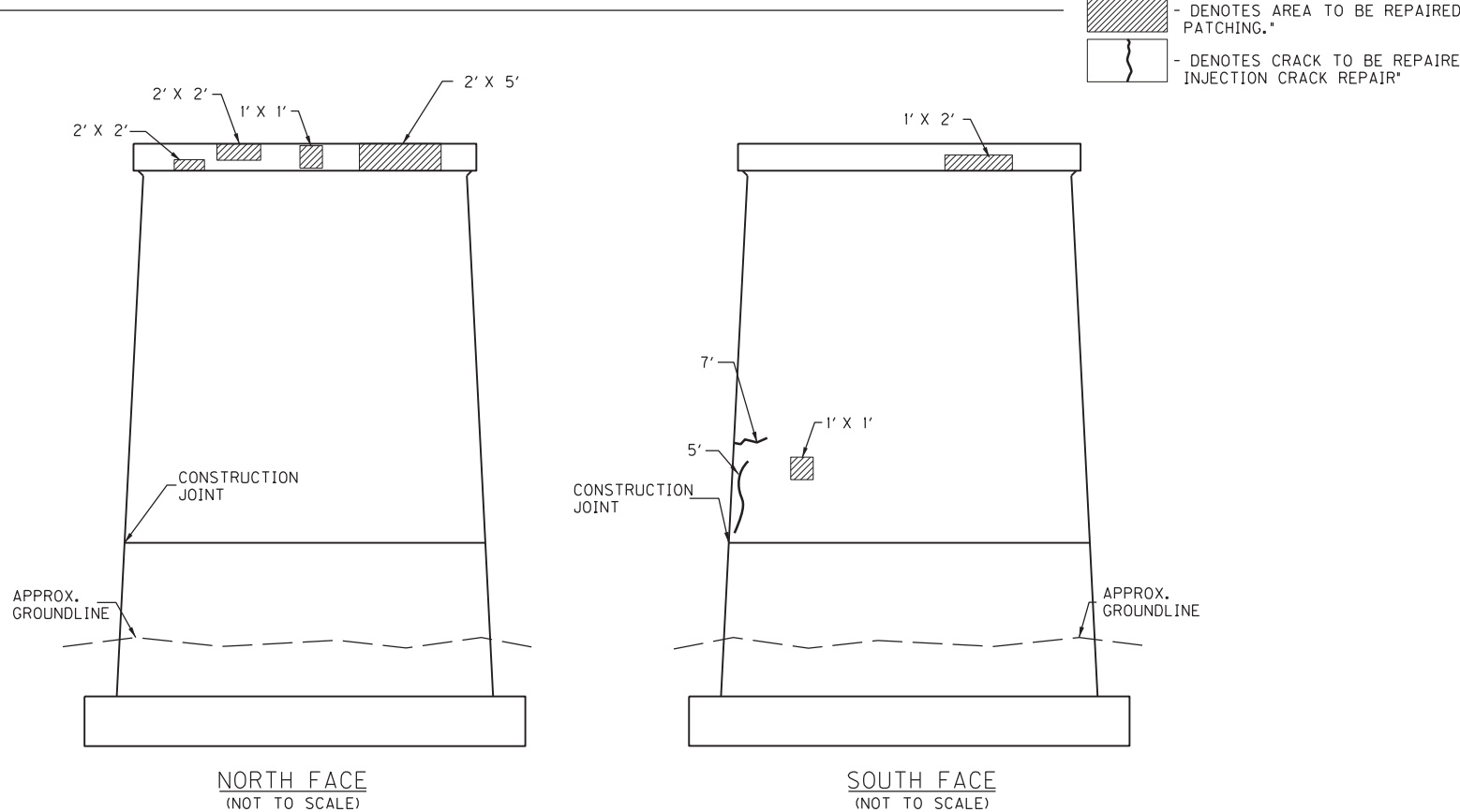
SOUTH FACE
(NOT TO SCALE)

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IN APPROACH PIER I-13

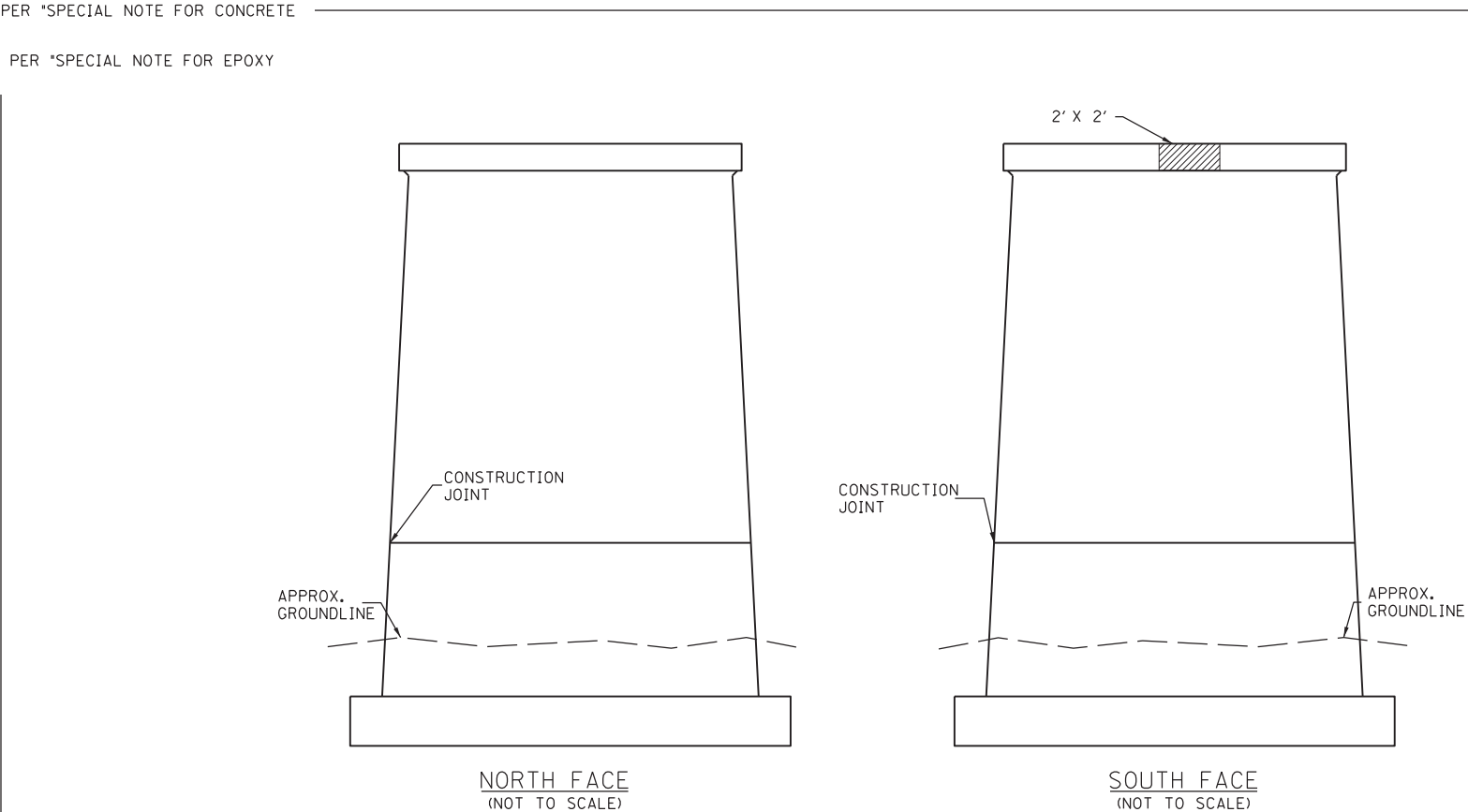
IN APPROACH PIER I-11

- DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR CONCRETE PATCHING."
- DENOTES CRACK TO BE REPAIRED PER "SPECIAL NOTE FOR EPOXY INJECTION CRACK REPAIR"



NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)



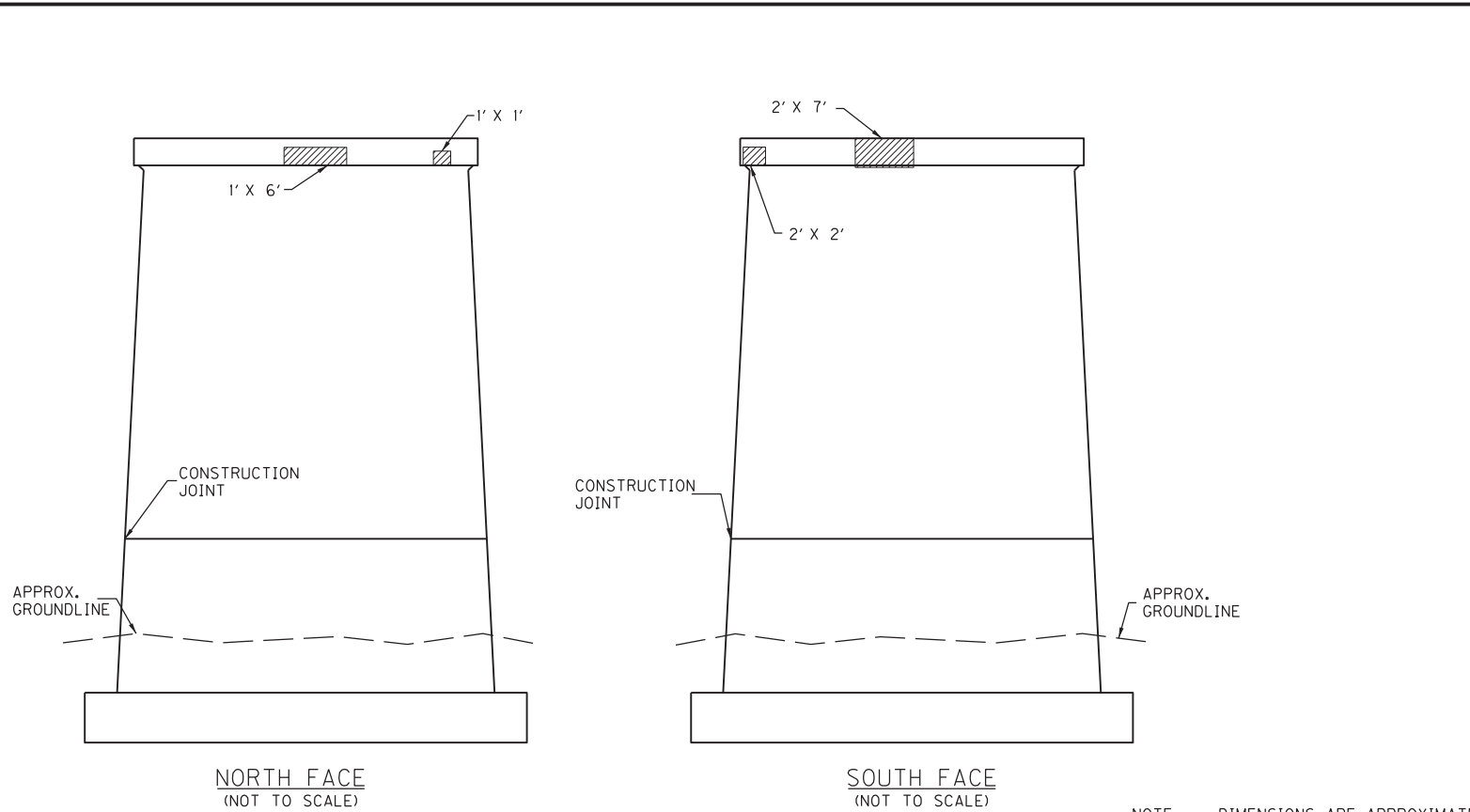
NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)

IN APPROACH PIER I-12

IN APPROACH PIER I-10

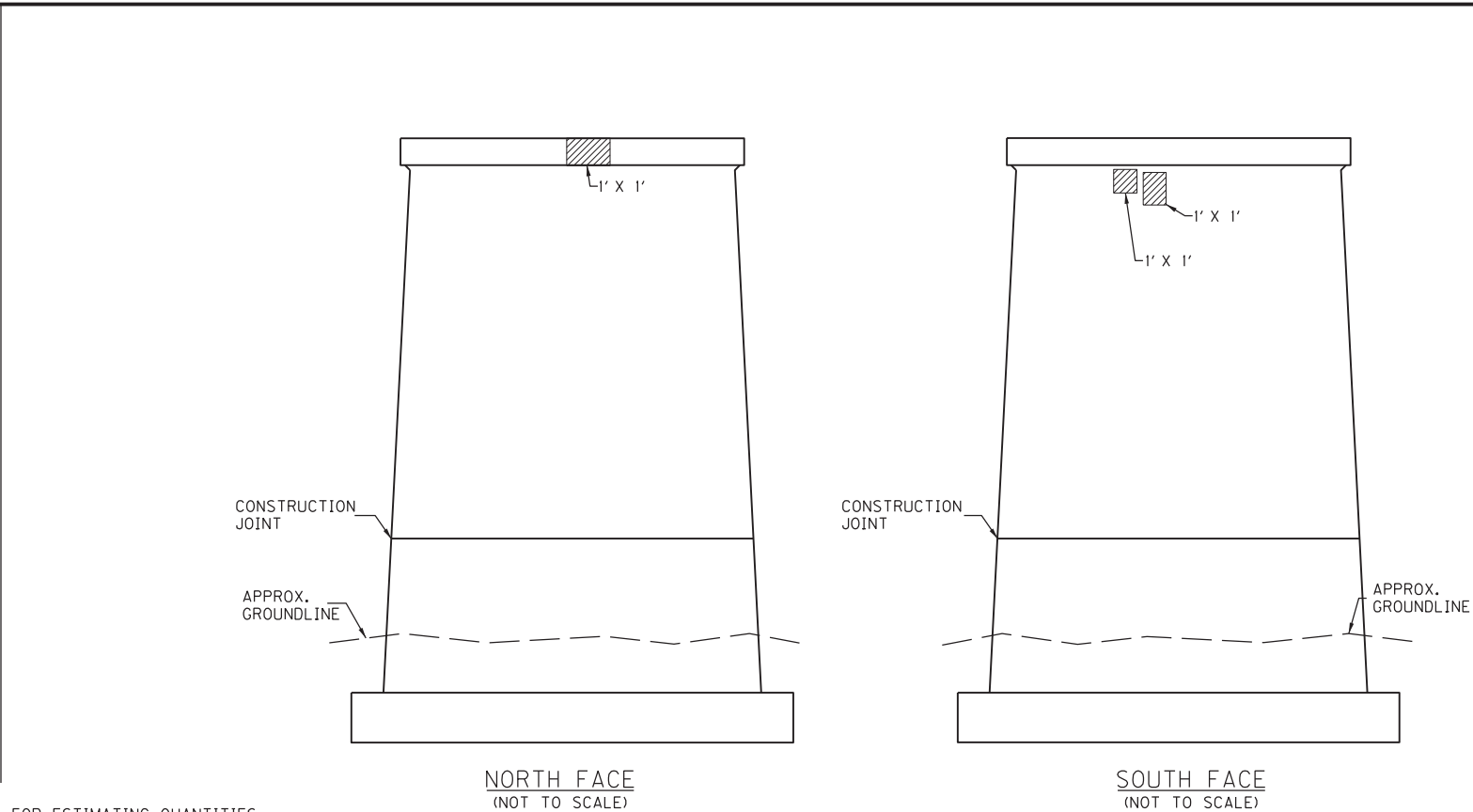
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				DESIGNED BY: J.P. MURRIN		CROSSING		SHEET NO.: S22	DRAWING NUMBER: 28812
				DETAILED BY: M.B. HAGGARD		J.P. MURRIN	OHIO RIVER at OWENSBORO		



NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)

NOTE: DIMENSIONS ARE APPROXIMATE FOR ESTIMATING QUANTITIES. FINAL LOCATIONS TO BE REPAIRED AND FINAL QUANTITIES WILL BE DETERMINED BY THE ENGINEER PER THE SPECIAL NOTES.





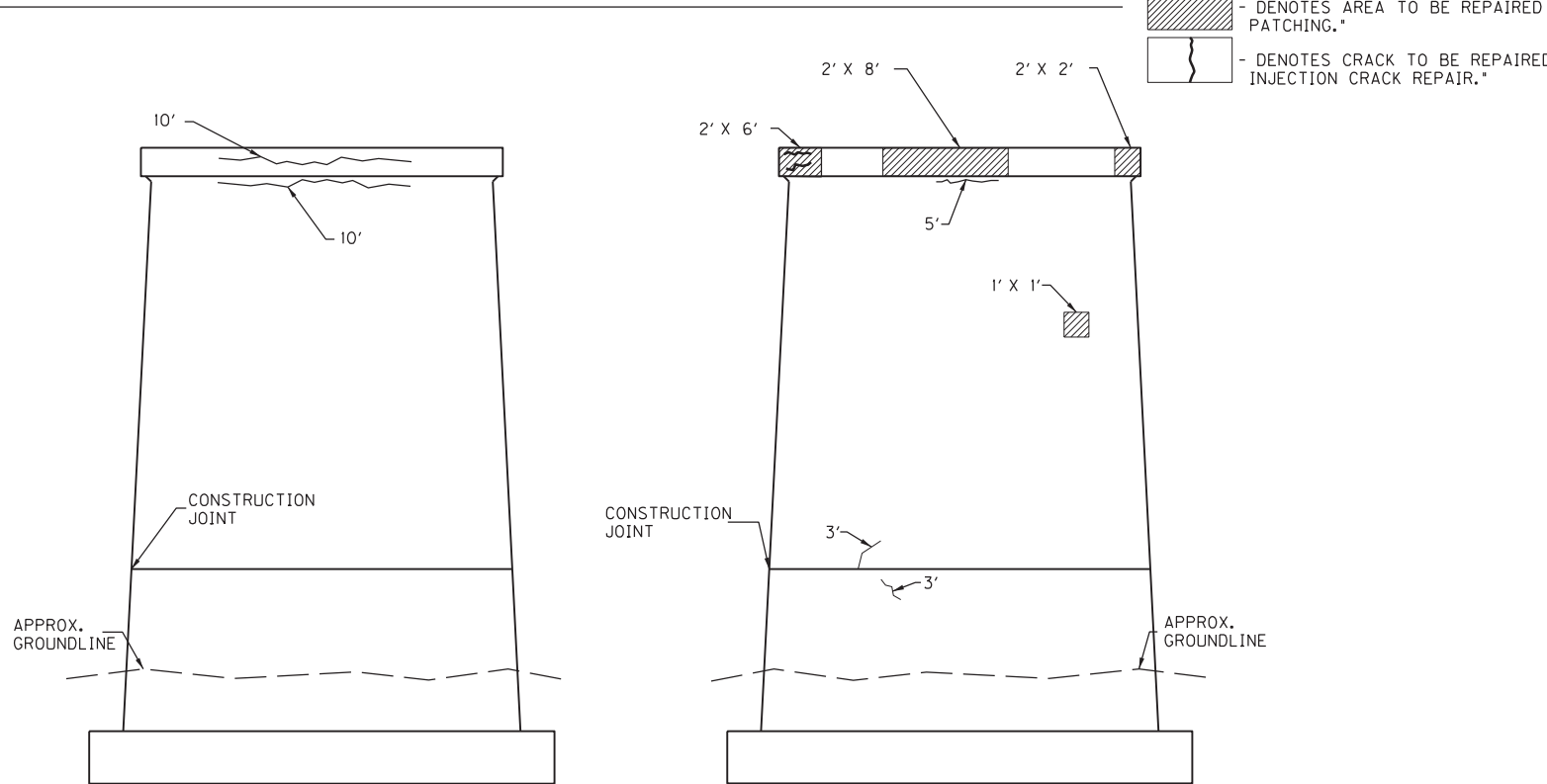
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SOUTH FACE
(NOT TO SCALE)

IN APPROACH PIER I-9

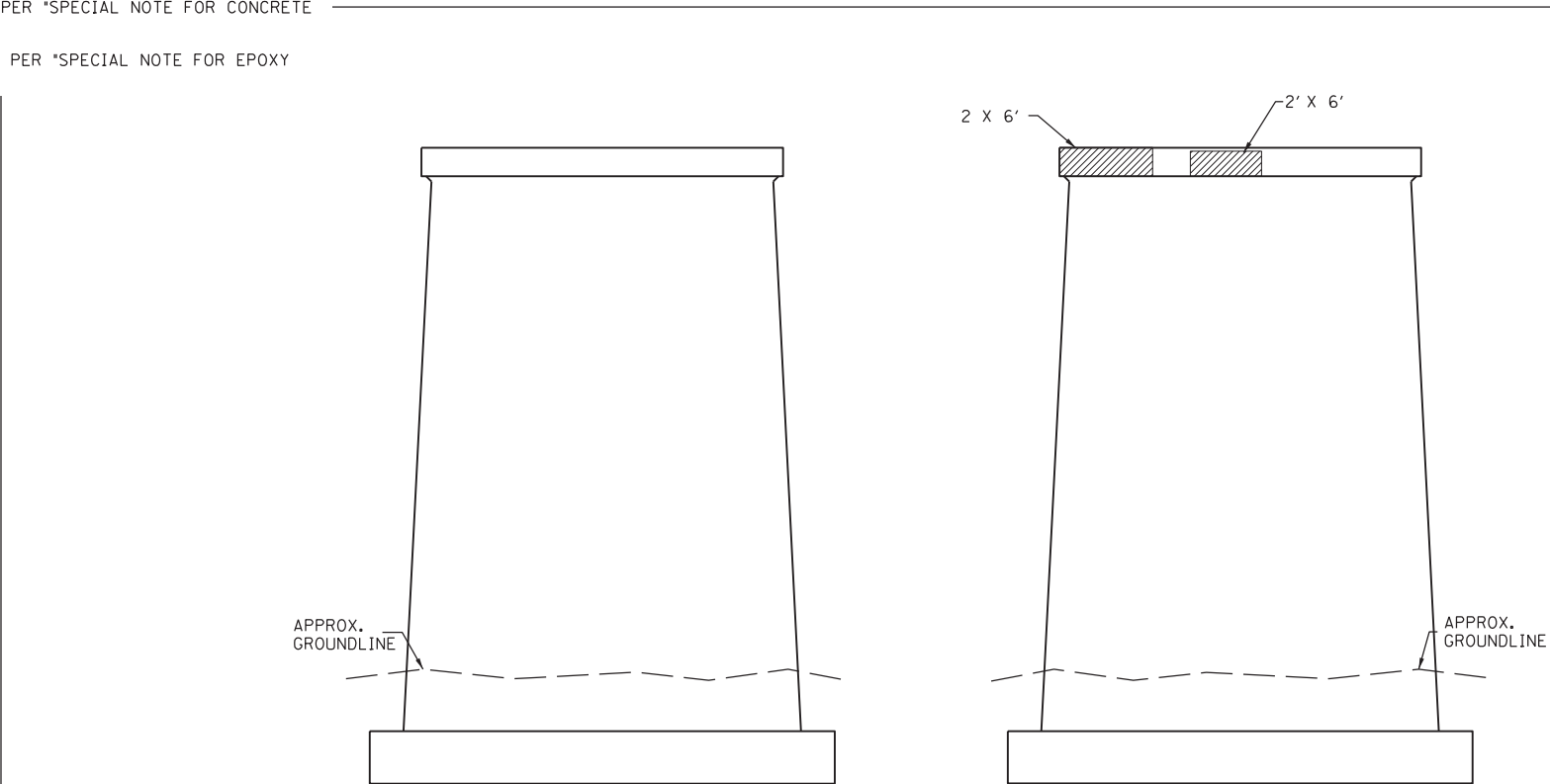
IN APPROACH PIER I-7

 - DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR CONCRETE PATCHING."
 - DENOTES CRACK TO BE REPAIRED PER "SPECIAL NOTE FOR EPOXY INJECTION CRACK REPAIR."



NORTH FACE
(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)





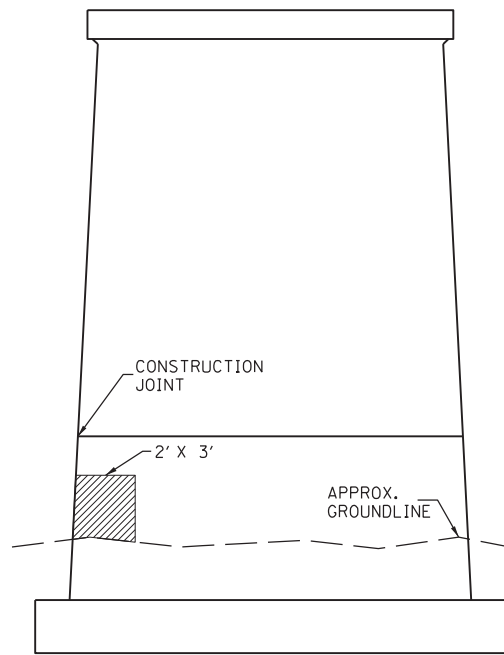
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(NOT TO SCALE)

SOUTH FACE
(NOT TO SCALE)

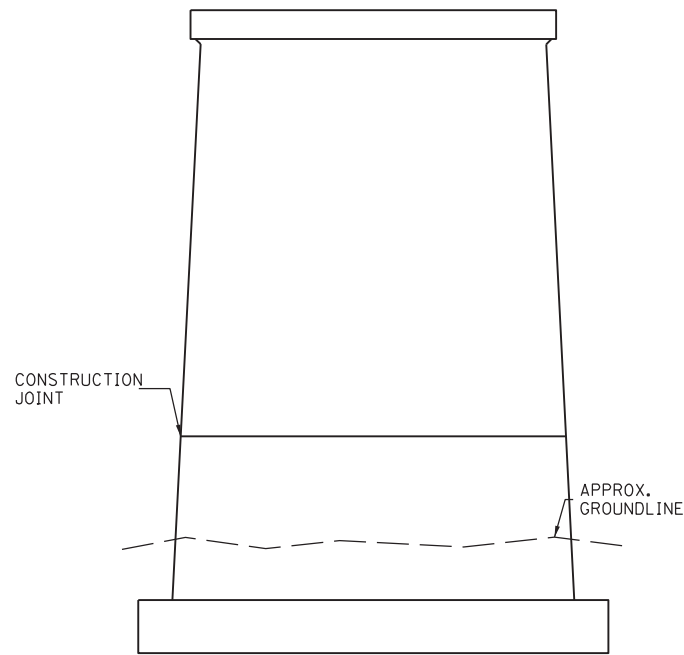
IN APPROACH PIER I-8

IN APPROACH PIER I-6

	REVISION	DATE	PREPARED BY	DATE:	DECEMBER, 2024	CHECKED BY	REPAIR 8 REINFORCED CONCRETE SUBSTRUCTURE REPAIR SHEET 5	ROUTE	ITEM NO.	COUNTY OF	
				DESIGNED BY:	J.P. MURRIN	D.E. RUST		CROSSING OHIO RIVER at OWENSBORO	KY 2262	2-10020.00	DAVIESS
				DETAILED BY:	M.B. HAGGARD	J.P. MURRIN			SHEET NO.	S23	DRAWING NUMBER






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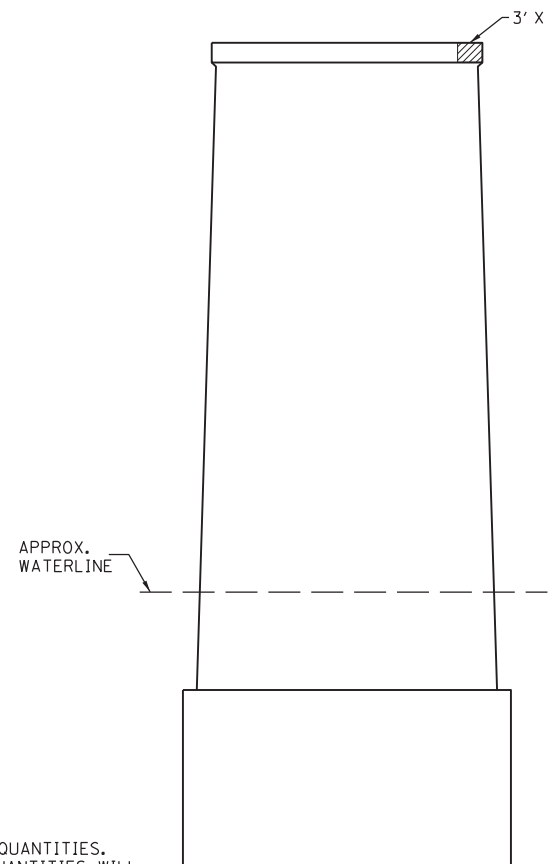


SOUTH FACE
(NOT TO SCALE)

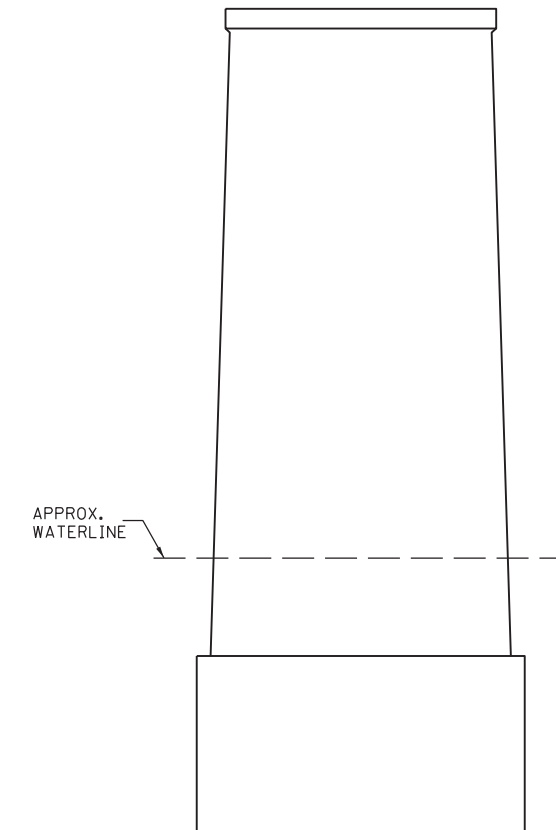
IN APPROACH PIER I-4

NOTE: DIMENSIONS ARE APPROXIMATE FOR ESTIMATING QUANTITIES. FINAL LOCATIONS TO BE REPAIRED AND FINAL QUANTITIES WILL BE DETERMINED BY THE ENGINEER PER THE SPECIAL NOTES.

-  - DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR CONCRETE PATCHING."
-  - DENOTES CRACK TO BE REPAIRED PER "SPECIAL NOTE FOR EPOXY INJECTION CRACK REPAIR."
-  - DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR FIBER REINFORCED POLYMER WRAP."

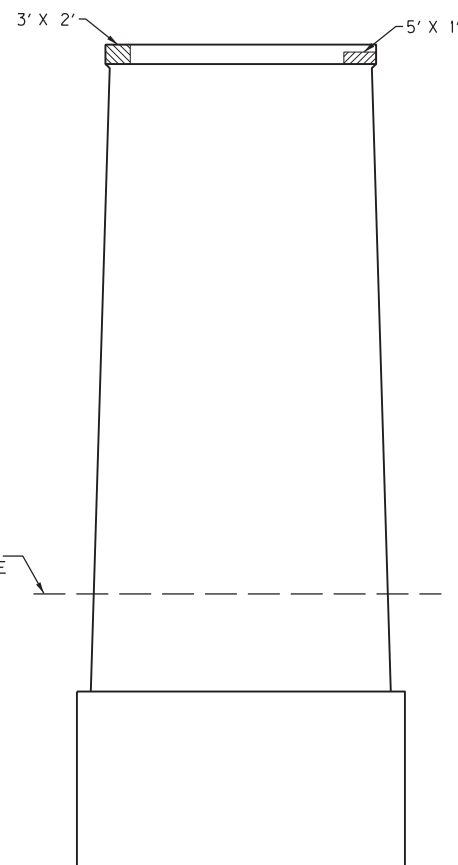


NORTH FACE
(NOT TO SCALE)

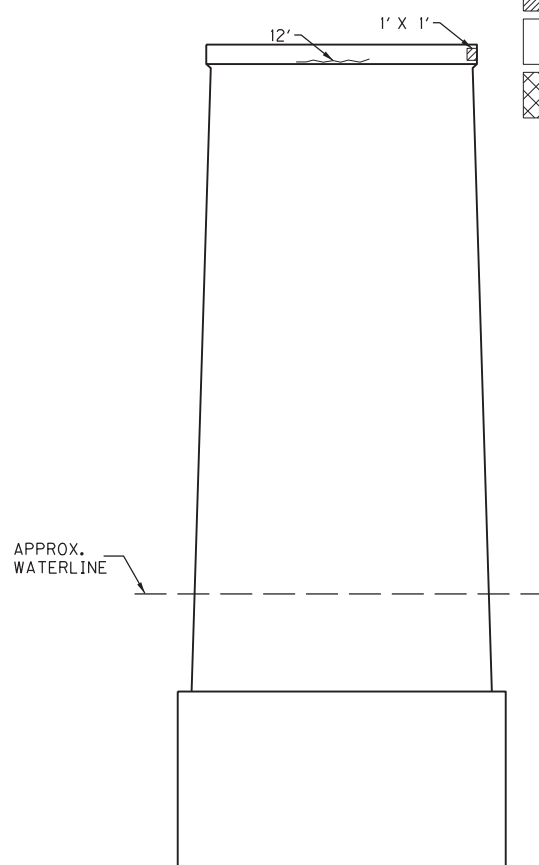


SOUTH FACE
(NOT TO SCALE)

IN APPROACH PIER I-2

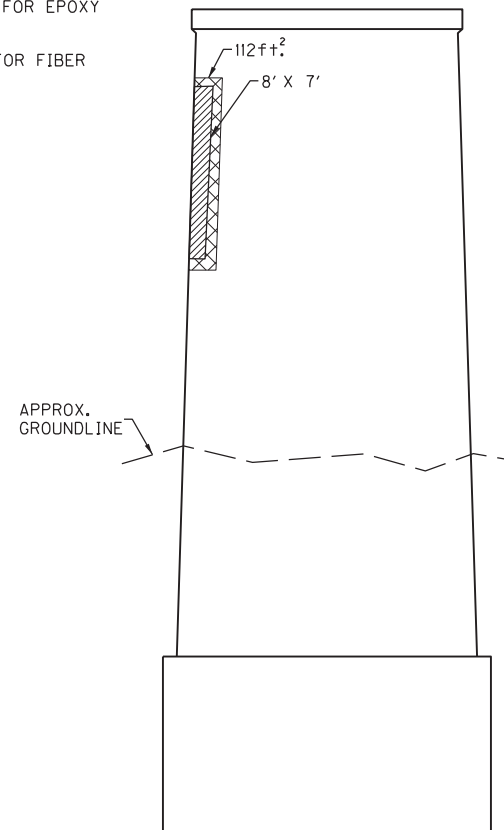


NORTH FACE
(NOT TO SCALE)

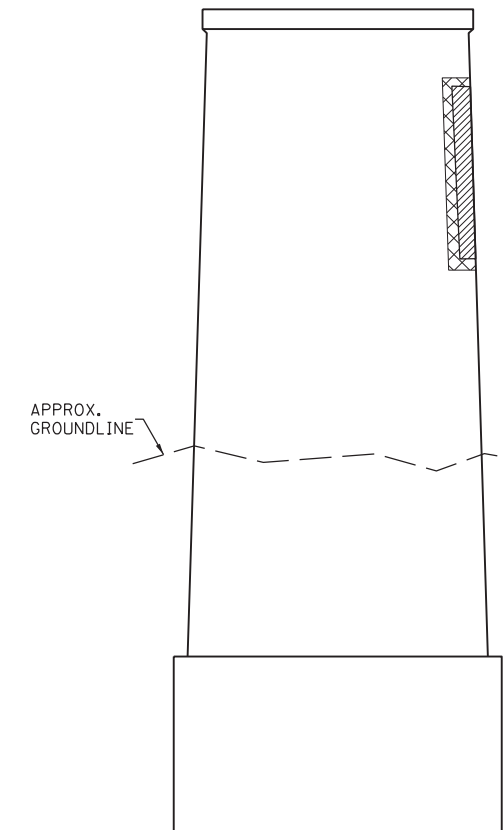


SOUTH FACE
(NOT TO SCALE)

IN APPROACH PIER I-3



NORTH FACE
(NOT TO SCALE)



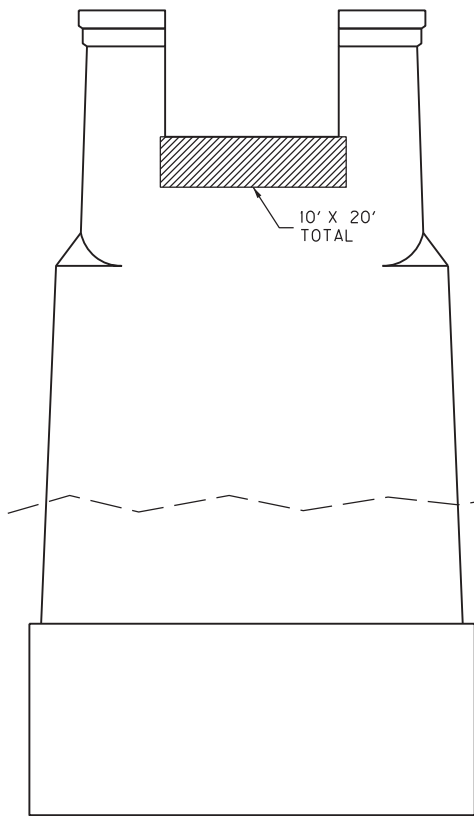
SOUTH FACE
(NOT TO SCALE)

IN APPROACH PIER I-1

REVISION	DATE

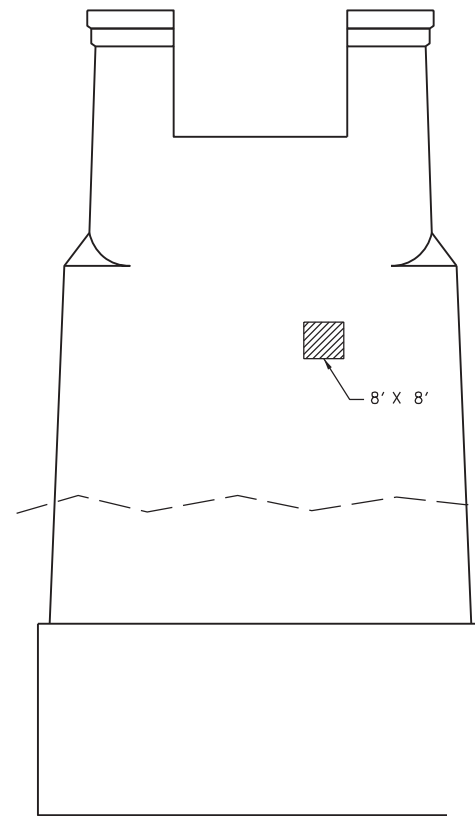
DATE:	DECEMBER, 2024	CHECKED BY:	
DESIGNED BY:	J.P. MURRIN	D.E. RUST	
DETAILED BY:	M.B. HAGGARD	J.P. MURRIN	

ROUTE	ITEM NO.
KY 2262	2-10020.00
	SHEET NO.
	S24



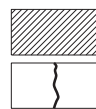
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(NOT TO SCALE)

MAIN SPAN PIER A



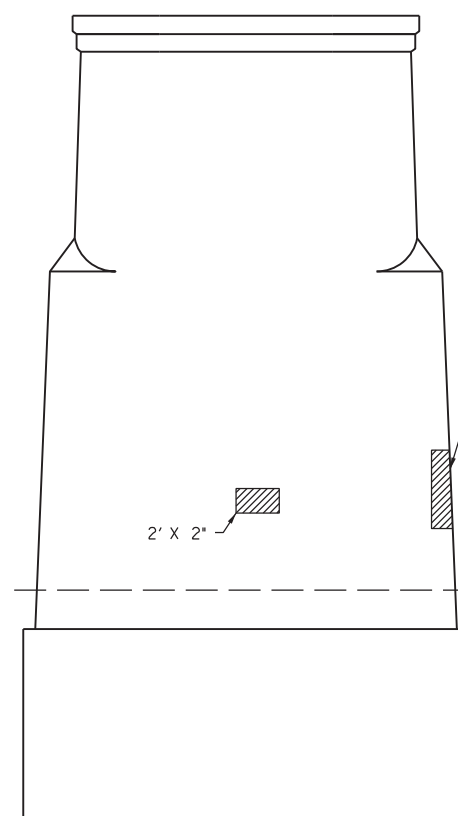
SOUTH FACE
(NOT TO SCALE)

NOTE: DIMENSIONS ARE APPROXIMATE FOR ESTIMATING QUANTITIES. FINAL LOCATIONS TO BE REPAIRED AND FINAL QUANTITIES WILL BE DETERMINED BY THE ENGINEER PER THE SPECIAL NOTES.



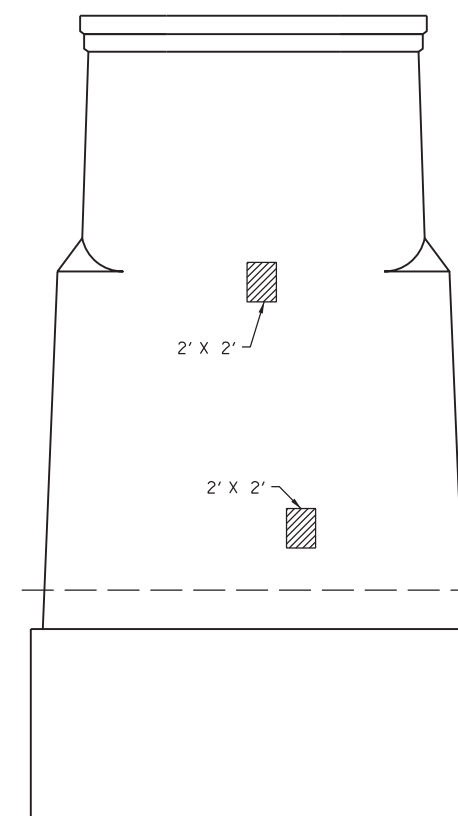
- DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR CONCRETE PATCHING."

- DENOTES CRACK TO BE REPAIRED PER "SPECIAL NOTE FOR EPOXY INJECTION CRACK REPAIR."

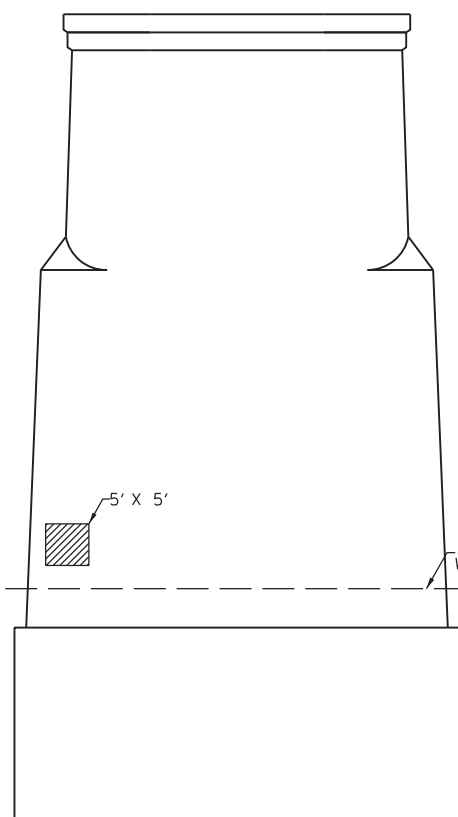


NORTH FACE
(NOT TO SCALE)

MAIN SPAN PIER C

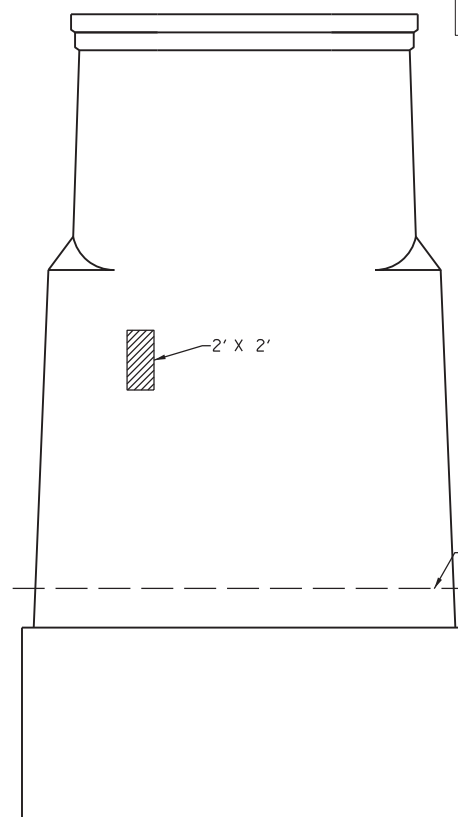


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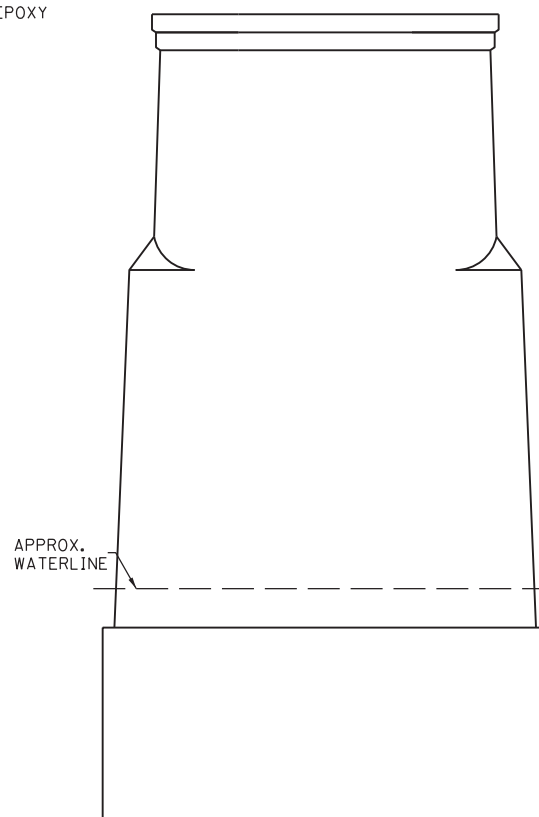


NORTH FACE
(NOT TO SCALE)

MAIN SPAN PIER B

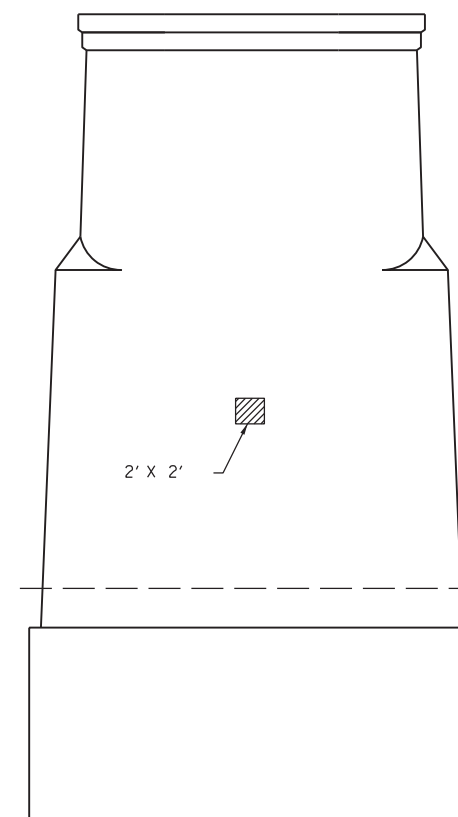


SOUTH FACE
(NOT TO SCALE)



NORTH FACE
(NOT TO SCALE)

MAIN SPAN PIER D



SOUTH FACE
(NOT TO SCALE)



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



REVISION	DATE

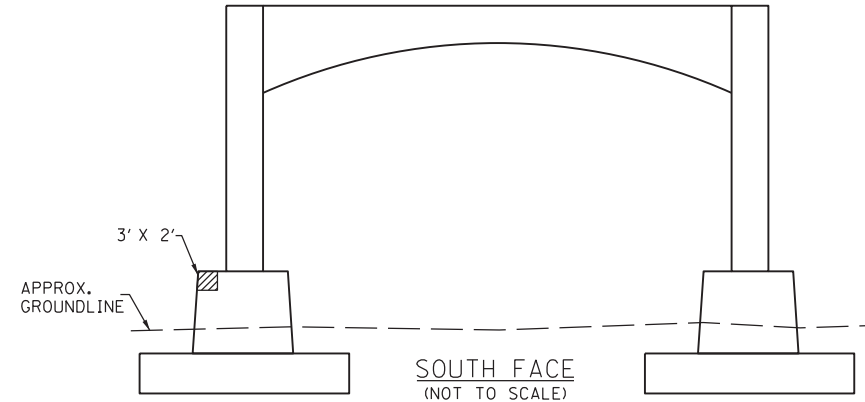
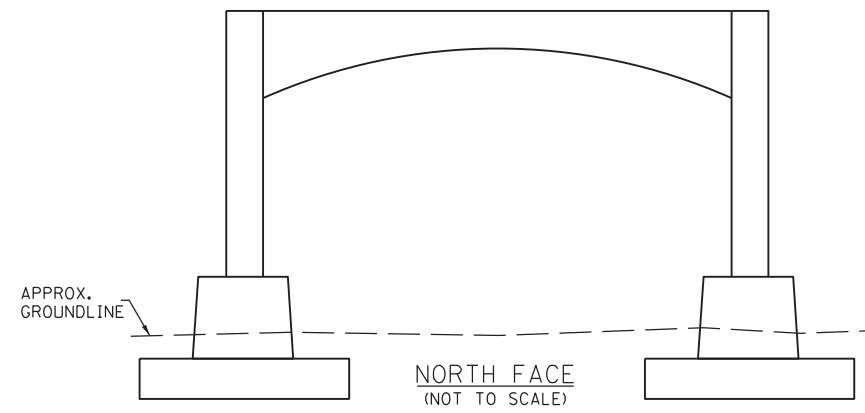
PREPARED BY
Palmer ENGINEERING

DATE:	DECEMBER, 2024	CHECKED BY:	
DESIGNED BY:	J.P. MURRIN	D.E. RUST	
DETAILED BY:	M.B. HAGGARD	J.P. MURRIN	

**REPAIR 8 REINFORCED CONCRETE
SUBSTRUCTURE REPAIR SHEET 7**

ROUTE	ITEM NO.
	2-10020.00
	SHEET NO.
	S25

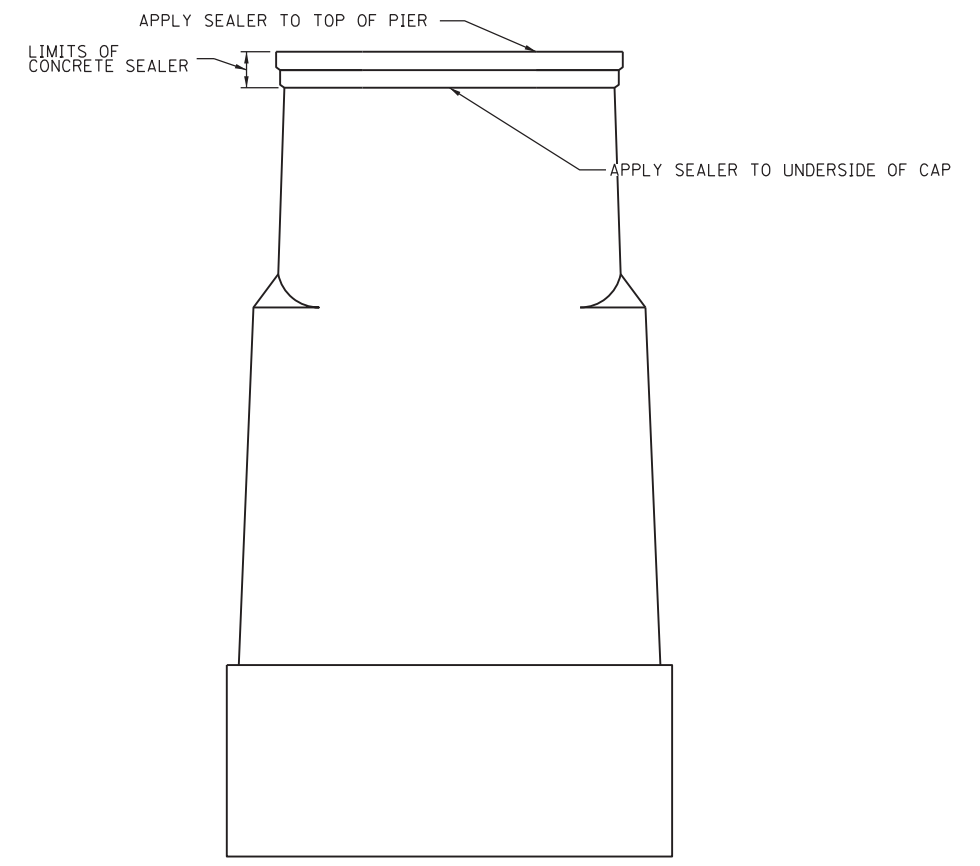
COUNTY OF	DRAWING NUMBER
DAVIESS	28812



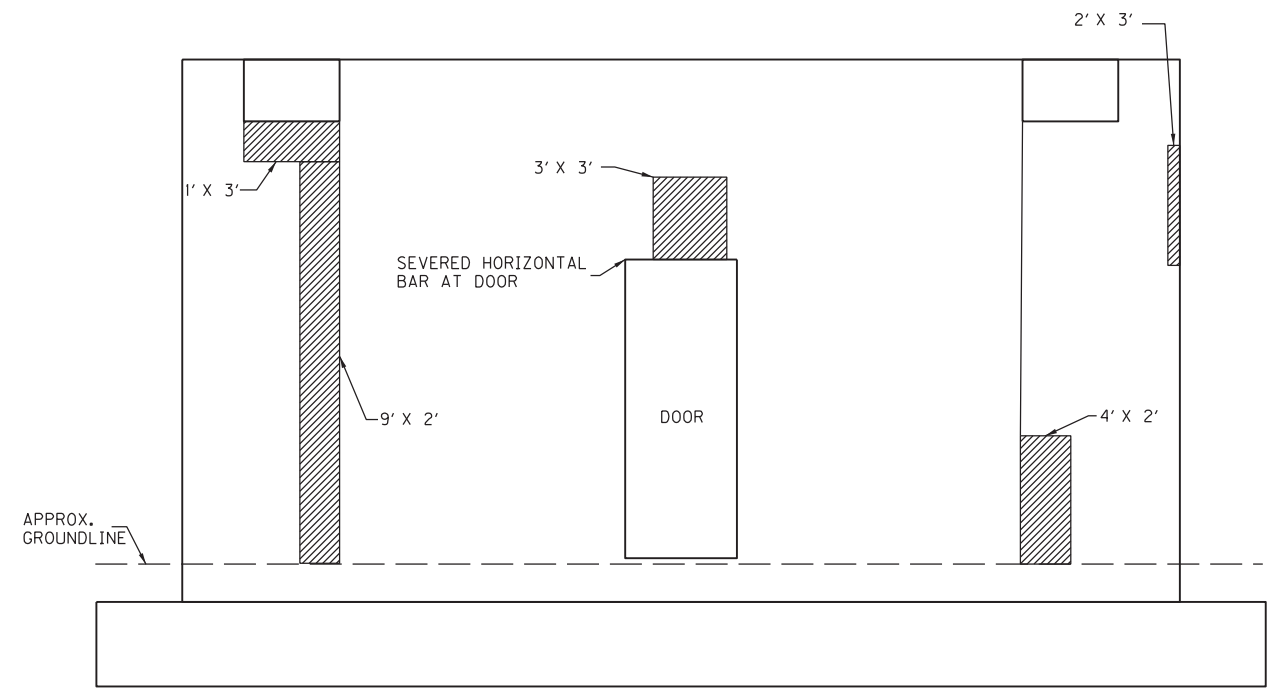
KY APPROACH PIER K-3

NOTE: DIMENSIONS ARE APPROXIMATE FOR ESTIMATING QUANTITIES. FINAL LOCATIONS TO BE REPAIRED AND FINAL QUANTITIES WILL BE DETERMINED BY THE ENGINEER PER THE SPECIAL NOTES.

- DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR CONCRETE PATCHING."
- DENOTES CRACK TO BE REPAIRED PER "SPECIAL NOTE FOR EPOXY INJECTION CRACK REPAIR."

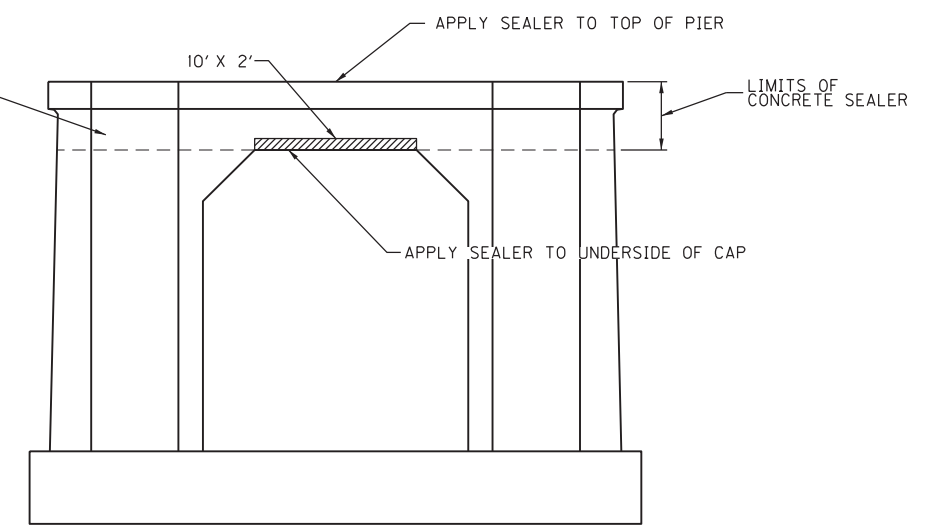


PIER A-D CONCRETE SEALING DETAIL (NOT TO SCALE)



SOUTH ABUTMENT (KENTUCKY ABUTMENT)

PLACE A LEVEL LINE OF MASKING TAPE AROUND PIER COLUMN WHERE CONCRETE EDGES DO NOT FORM A NATURAL LINE PRIOR TO APPLYING THE CONCRETE SEALER TO ENSURE A NEAT LINE. REMOVE THE TAPE AFTER THE CONCRETE SEALER HAS CURED ADEQUATELY.



PIER E CONCRETE SEALING DETAIL (NOT TO SCALE)

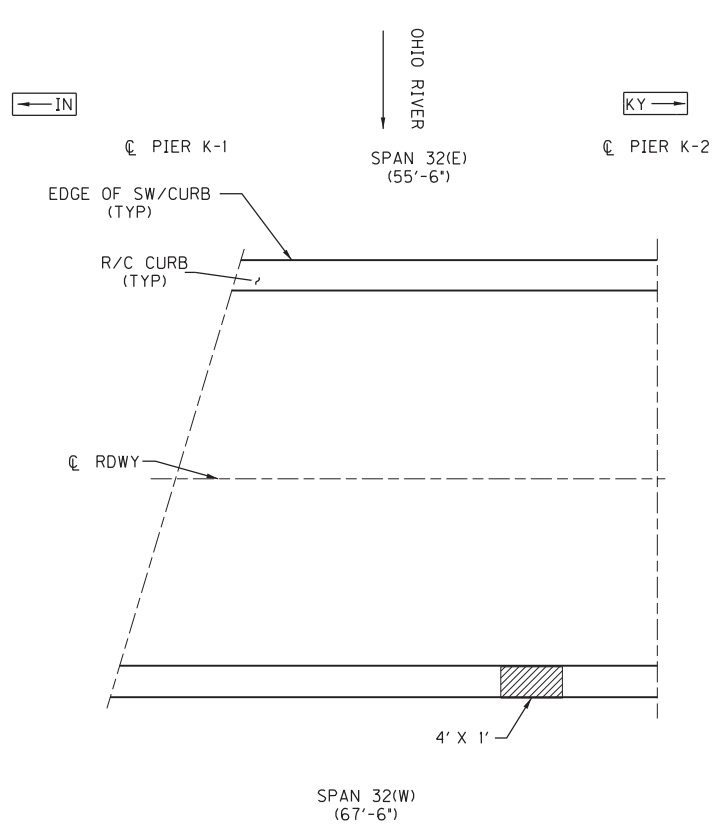
LIMITS OF CONCRETE SEALER

APPLY SEALER TO EVERY EXPOSED CONCRETE SURFACE OF THE KENTUCKY ABUTMENT FROM THE GROUND LINE UP ONCE REPAIR 8 IS COMPLETE .

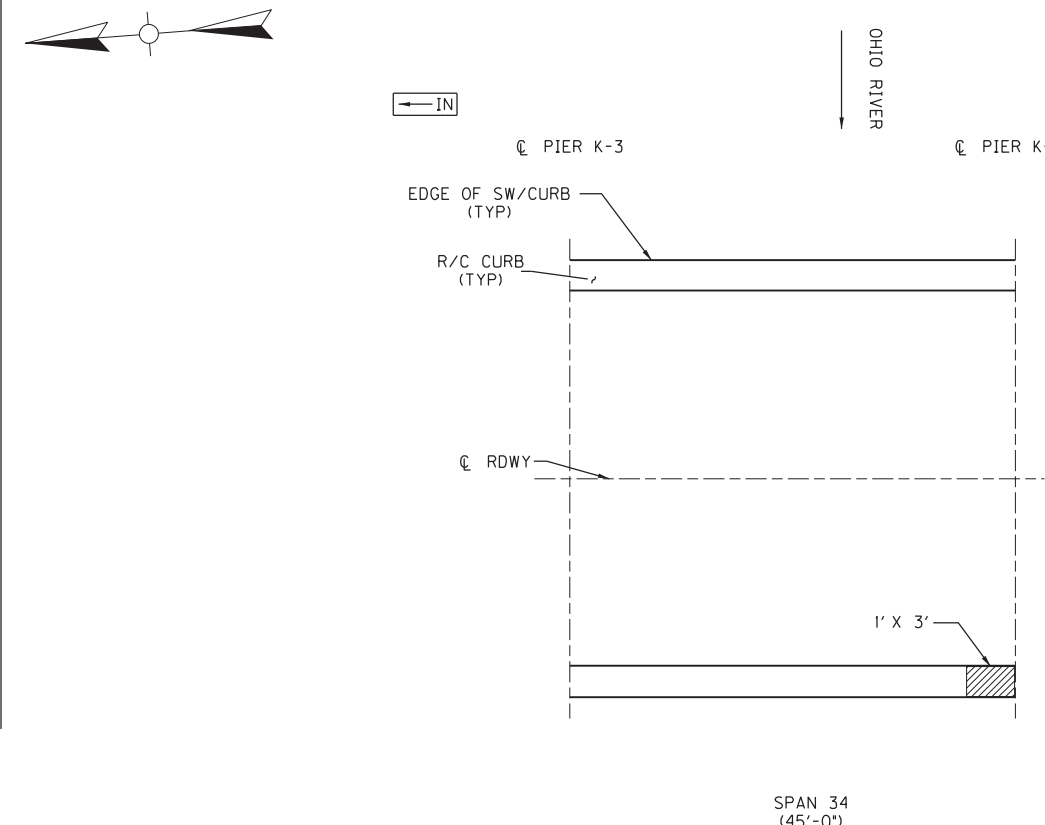
FOR PIERS A-E APPLY CONCRETE SEALER FROM BEAM SEAT TO BOTTOM OF CAP AS DEPICTED.

APPLY CONCRETE SEALER TO ALL FACES OF NEWLY PATCHED CONCRETE.

FOR CONCRETE SEALING INFORMATION SEE "SPECIAL NOTE FOR CONCRETE SEALING."



REPAIR 9 - CURB / SIDEWALK REPAIR (SPAN 32)

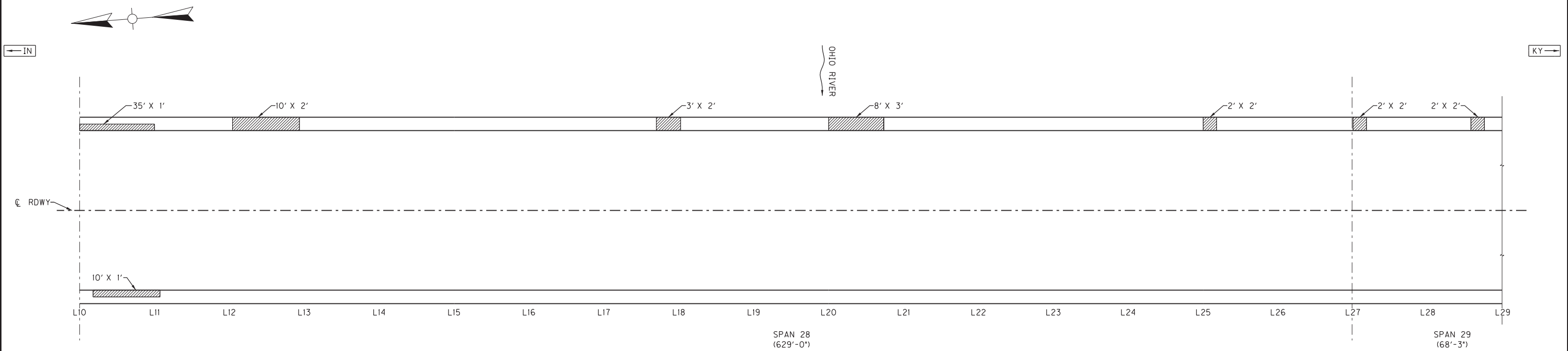


REPAIR 9 - CURB / SIDEWALK REPAIR (SPAN 34)

NOTE: DIMENSIONS ARE APPROXIMATE FOR ESTIMATING QUANTITIES. FINAL LOCATIONS TO BE REPAIRED AND FINAL QUANTITIES WILL BE DETERMINED BY THE ENGINEER PER THE SPECIAL NOTES.

NOTE: EPOXY SLURRY APPLICATION WILL NOT BEGIN UNTIL CURB PATCHING REPAIRS HAVE BEEN COMPLETED.

- DENOTES AREA TO BE REPAIRED PER "SPECIAL NOTE FOR CONCRETE PATCHING."



REPAIR 9 - CURB / SIDEWALK REPAIR (SPAN 28)

	REVISION	DATE	PREPARED BY	DATE:	DECEMBER, 2024	CHECKED BY	REPAIR 9 - CURB / SIDEWALK REPAIR CROSSING OHIO RIVER at OWENSBORO	ROUTE	ITEM NO.	COUNTY OF
				DESIGNED BY:	J.P. MURRIN	D.E. RUST		KY 2262	2-10020.00	DAVIESS
				DETAILED BY:	M.B. HAGGARD	J.P. MURRIN		SHEET NO.	DRAWING NUMBER	
								S27	28812	

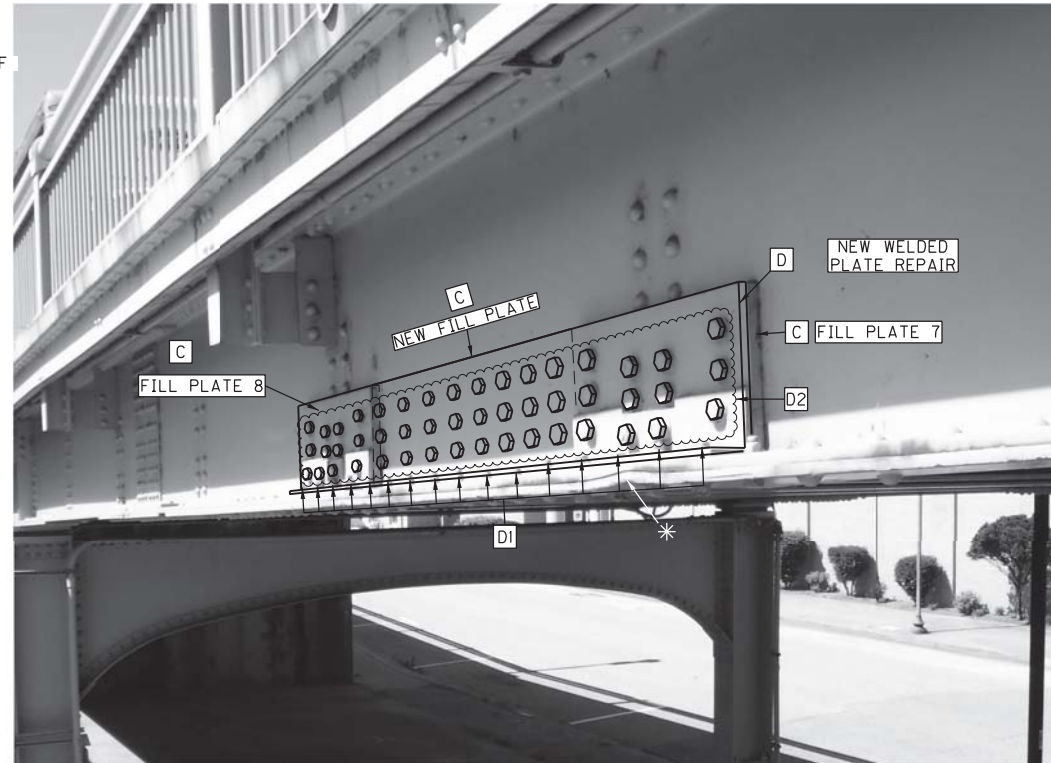
PREPARATION, CONSTRUCTION SEQUENCE

OUTBOARD FACE OF GIRDER 1

- 1A REMOVE 4 BOLTS AND NUTS THAT CONNECT ANGLE 8 TO THE WEB OF THE GIRDER.
- 1B REMOVE 4 NUTS WHILE KEEPING THE BOLTS IN PLACE THAT CONNECT ANGLE 8 TO THE BOTTOM FLANGE OF THE GIRDER.
- 1C REMOVE ANGLE 8.
- 2A REMOVE 8 REMAINING BOLTS THAT CONNECT FILL PLATE 8 TO THE WEB OF THE GIRDER.
- 2B REMOVE FILL PLATE 8.
- 3A REMOVE 4 BOLTS AND NUTS THAT CONNECT ANGLE 7 TO THE WEB OF THE GIRDER.
- 3B REMOVE 4 NUTS, WHILE KEEPING THE BOLTS IN PLACE THAT CONNECT ANGLE 7 TO THE BOTTOM FLANGE OF THE GIRDER.
- 3C REMOVE ANGLE 7.
- 4A REMOVE 8 REMAINING BOLTS THAT CONNECT FILL PLATE 7 TO THE WEB OF THE GIRDER.
- 4B REMOVE FILL PLATE 7.

INBOARD FACE OF GIRDER 1

- 5A REMOVE REMAINING RIVETS THAT ATTACH FLOORBEAM 8 WEB TO GIRDER 1 (13 TOTAL) VIA THE INBOARD ANGLES.
- 5B REMOVE BOTH INBOARD ANGLES ATTACHING FLOORBEAM 8 WEB TO GIRDER 1. THIS SHOULD EXPOSE BOTH ENDS OF THE CRACK. THE FLOORBEAM WILL REMAIN IN PLACE, THROUGHOUT THIS REPAIR.
- 6 INSPECT CRACK LIMITS ON GIRDER 1 AT FLOORBEAM 8 CAREFULLY USING NDE METHODS, SUCH AS MAGNETIC PARTICLE TESTING (MT) OR PENETRANT TESTING (PT), TO IDENTIFY LIMITS OF CRACKING.
- 7 CUT 3/4" DIAMETER CRACK ARREST HOLE IN THE WEB OF THE GIRDER, AT THE END OF THE CRACK. EXTREME CARE SHALL BE TAKEN TO REMOVE ONLY WEB MATERIAL IN THIS STEP. REPEAT THIS STEP AT BOTH ENDS OF THE CRACK. WHEN BOTH ENDS OF THE CRACK ARE ARRESTED, INSPECT AREA AGAIN USING NDE METHODS TO VERIFY NO CRACKS REMAIN.
- 8 REMOVE HEX NUTS (8 TOTAL) FROM THE OUTBOARD BOTTOM FLANGE OF GIRDER 1 BETWEEN FLOORBEAMS 7&8. KEEP THE BOLTS IN PLACE THROUGH THE BOTTOM FLANGE AND COVER PLATE.



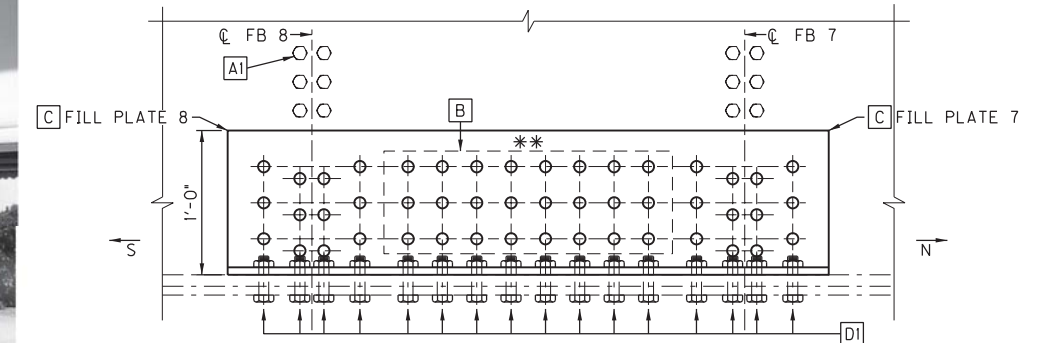
OUTBOARD FACE OF GIRDER 1, SPAN 35, AT FLOORBEAMS 7&8 LOOKING SOUTHWEST
(FILL PLATES AND ANGLES LABELLED BASED ON FLOORBEAM LOCATION)

NOTES:

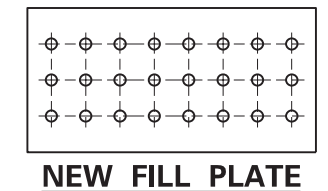
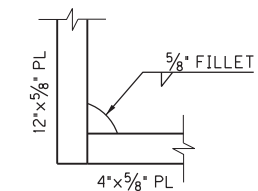
- 1. SOME STEPS SHOWN IN MULTIPLE VIEWS FOR CLARITY.
 - 2. CONTRACTOR SHALL TAKE EXTREME CARE NOT TO DAMAGE ANY MEMBERS AROUND THE REPAIR LOCATION. ANY DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- SEE *SPECIAL NOTE FOR PAINTING STRUCTURAL STEEL REPAIRS*.
SEE *SPECIAL NOTE FOR STEEL REPAIRS*.

INSTALL REPAIRS, CONSTRUCTION SEQUENCE

- A RE-INSTALL BOTH INBOARD ANGLES ATTACHING FLOORBEAM 8 WEB TO GIRDER 1.
- A1 INSTALL NEW HIGH STRENGTH BOLTS AND TIGHTEN PER STANDARD SPECIFICATIONS.
- B DRILL HOLES FOR FILL PLATE AND WELDED REPAIR PLATE (24 TOTAL).
- C RE-POSITION FILL PLATE 7, THE NEW FILL PLATE, AND FILL PLATE 8 INTO PLACE USING NEW HIGH STRENGTH BOLTS.
- D INSTALL NEW WELDED REPAIR PLATE.
- D1 REPLACE THE BOLTS IN THE BOTTOM FLANGE, ONE AT A TIME, WITH EXTENDED LENGTH BOLTS. TIGHTEN THE BOLTS/HEX NUTS PER STANDARD SPECIFICATIONS.
- D2 INSTALL THE WEB NUTS AND TIGHTEN PER STANDARD SPECIFICATIONS.

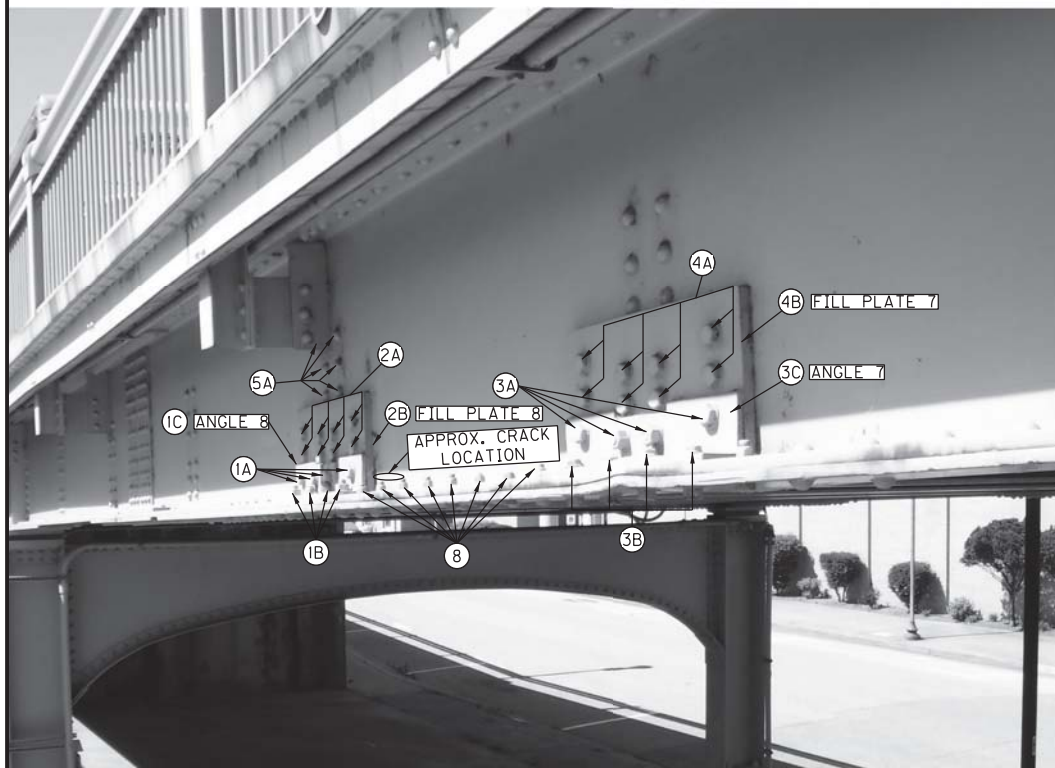


GIRDER 1 OUTBOARD FACE
NEW 12"x4"x5/8" WELDED REPAIR PLATE

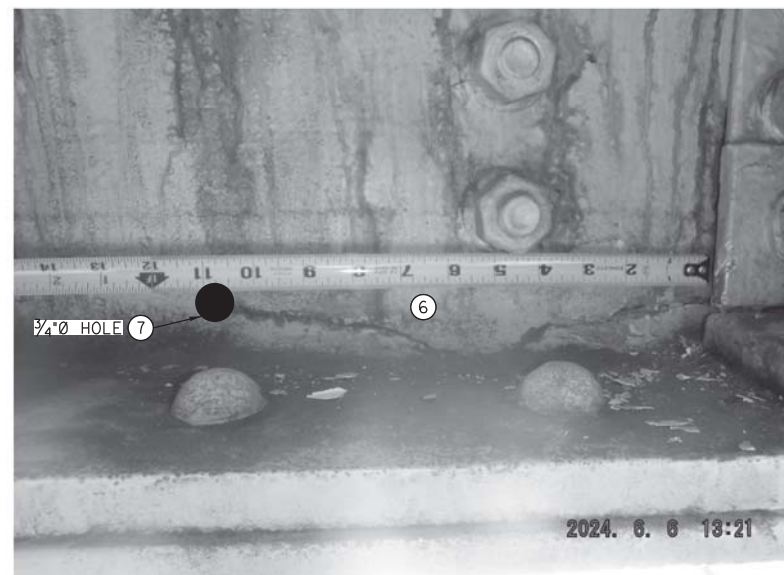


NEW FILL PLATE

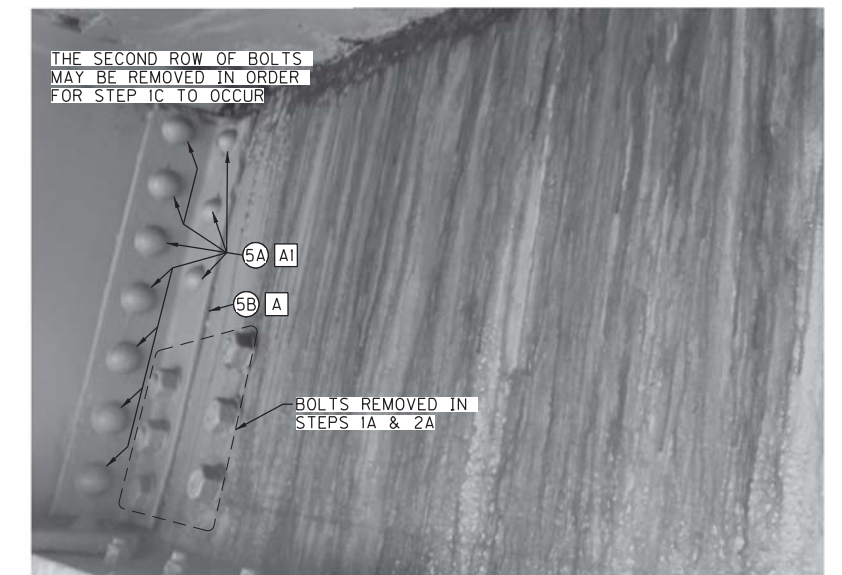
- * HEAT STRAIGHTENING OF THE BOTTOM FLANGE MAY BE REQUIRED TO INSTALL WELDED REPAIR PLATE.
- ** CONTRACTOR TO FIELD VERIFY ALL EXISTING PLATE DIMENSIONS, THICKNESS, AND BOLT SPACINGS, AND MATCH NEW REPAIRS TO FIELD CONDITIONS. BOLT SPACING TO BE UNIFORM AND ≤ 7" MIN. EDGE DISTANCE FOR 3/8" Ø BOLTS IS 1.5"



OUTBOARD FACE OF GIRDER 1, SPAN 35, AT FLOORBEAMS 7&8 LOOKING SOUTHWEST
(FILL PLATES AND ANGLES LABELLED BASED ON FLOORBEAM LOCATION)



INBOARD FACE OF GIRDER 1, SPAN 35 AT FLOORBEAM 8



INBOARD FACE OF GIRDER 1, SPAN 35 AT FLOORBEAM 8

	REVISION	DATE	PREPARED BY	DATE:	DECEMBER, 2024	CHECKED BY	REPAIR 13 - GIRDER 1 CRACK REPAIR, SPAN 35 CROSSING OHIO RIVER at OWENSBORO	ROUTE	ITEM NO.	COUNTY OF
					DESIGNED BY:	J.P. MURRIN		D.E. RUST	KY 2262	2-10020.00
				DETAILED BY:	M.B. HAGGARD	J.P. MURRIN		SHEET NO.	S29	DRAWING NUMBER
										28812

4'X4'
ROAD CLOSED
1500 FT

4'X4'
ROAD CLOSED
1000 FT

4'X4'
ROAD CLOSED
500 FT

DETOUR AHEAD

DETOUR

DETOUR

DETOUR

PORTABLE CHANGEABLE MESSAGE SIGNS
INSTALL AND OPERATE PORTABLE CHANGEABLE MESSAGE SIGN(S) TO NOTIFY TRAVELERS OF UPCOMING BRIDGE CLOSURE.

PCMS #1 AND #2 SHALL BE IN PLACE AT LEAST TWO (2) WEEKS PRIOR TO THE BRIDGE CLOSURE AND SHALL REMAIN IN PLACE UNTIL THE BRIDGE IS CLOSED.

MESSAGE DISPLAY	
PHASE 1	PHASE 2
BRIDGE TO BE CLOSED	* BEGIN THROUGH **END

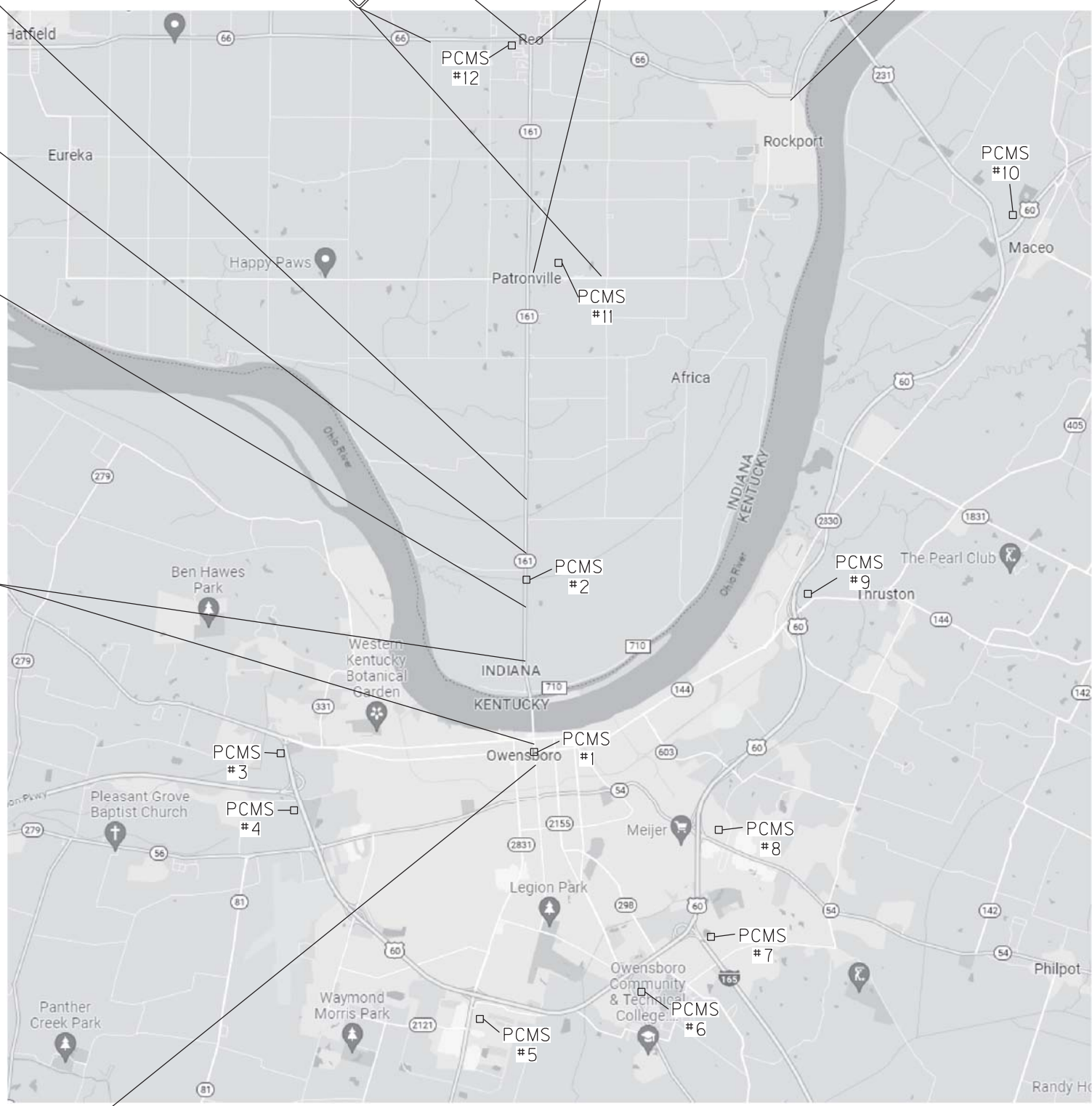
*CONTRACTOR SHALL USE SELECTED CLOSURE DATE
**CONTRACTOR SHALL USE PLANNED REOPEN DATE

PCMS #1 THROUGH #12 SHALL BE IN PLACE WHEN THE BRIDGE IS CLOSED AND SHALL REMAIN IN PLACE UNTIL THE BRIDGE IS REOPENED.

MESSAGE DISPLAY	
PHASE 1	PHASE 2
DOWNTOWN BRIDGE CLOSED	DETOUR VIA US 231

SEE "SPECIAL NOTE FOR TRAFFIC CONTROL" AND "SPECIAL NOTE FOR CONTRACT COMPLETION DATE, LIQUIDATED DAMAGES, AND PENALTIES" FOR ADDITIONAL INFORMATION.

(2 EA.) TYPE III BARRICADES WITH
ROAD CLOSED
(R11-2)



4'X4'
ROAD CLOSED
500 FT

ENVIRONMENTALLY CLEARED AREA COORDINATES

Lat	Long
37.77400549	-87.10877736
37.77454053	-87.10881237
37.77480805	-87.10876568
37.7802461	-87.10919172
37.78114091	-87.10935514
37.78187891	-87.10946603
37.78657966	-87.11084309
37.78660272	-87.11072053
37.78190269	-87.10938397
37.78115086	-87.10925557
37.78024219	-87.10908631
37.77479493	-87.10867196
37.77401082	-87.10860777
37.77400549	-87.10877736

NOTE: THE AREA BENEATH THE BRIDGE IS NOT INCLUDED IN THE ENVIRONMENTALLY CLEARED AREA AND SHALL NOT BE DISTURBED



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



REVISION

DATE

PREPARED BY



DATE: DECEMBER, 2024

CHECKED BY

DESIGNED BY:

DETAILED BY: J.A. ROSE

D.E. RUST

ENVIRONMENTALLY CLEARED AREA

CROSSING
OHIO RIVER at OWENSBORO

ROUTE
KY 2262

ITEM NO.
2-10020.00
SHEET NO.
E01

COUNTY OF
DAVIESS
DRAWING NUMBER
28812