

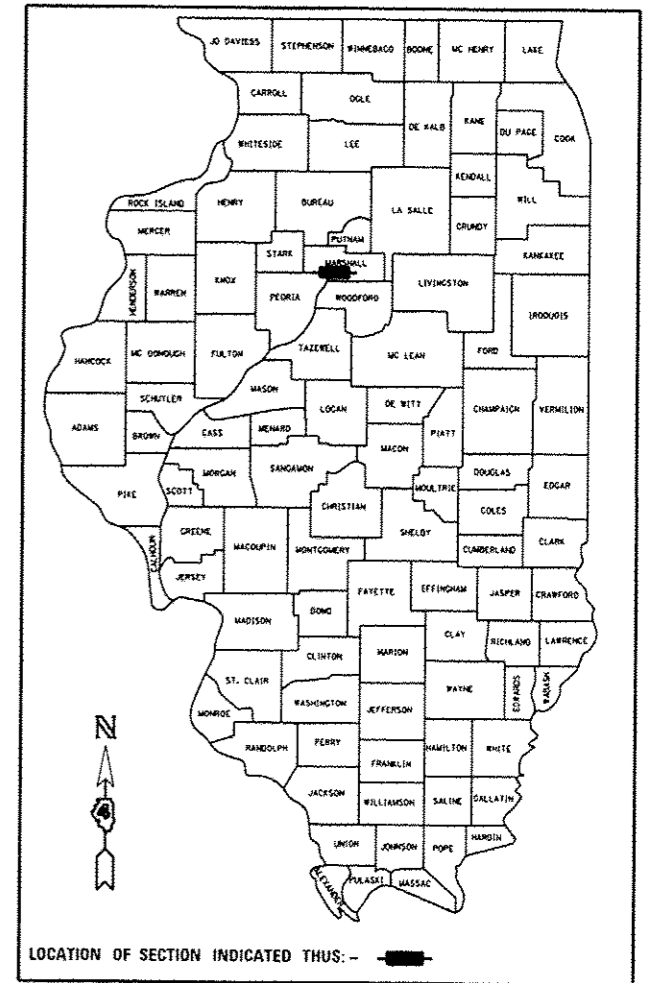
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

FAP 653 (IL.18)
SECTION (104B-D)
SUPERSTRUCTURE STEEL REPAIRS
MARSHALL COUNTY
C-94-105-12

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	(104B-D)	MARSHALL	17	1
CONTRACT MAINTENANCE ILLINOIS		CONTRACT NO. 68B16		

D-94-062-12



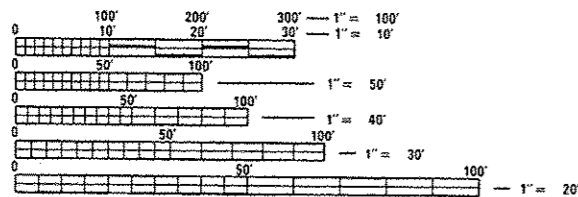
INDEX OF SHEETS:

1. COVER
2. SUMMARY OF QUANTITIES
3. SCHEDULE OF QUANTITIES
- 4-6. TRAFFIC CONTROL
7. GENERAL PLAN & ELEVATION
8. COMMITMENTS & JOB SPECIFIC NOTES
- 9-17. REPAIR DETAILS

STANDARDS:

- 701001-02
- 701006-03
- 701011-02
- 701201-04
- 701901-02
- 780001-03

ADT = 2750
SU = 150
MU = 60

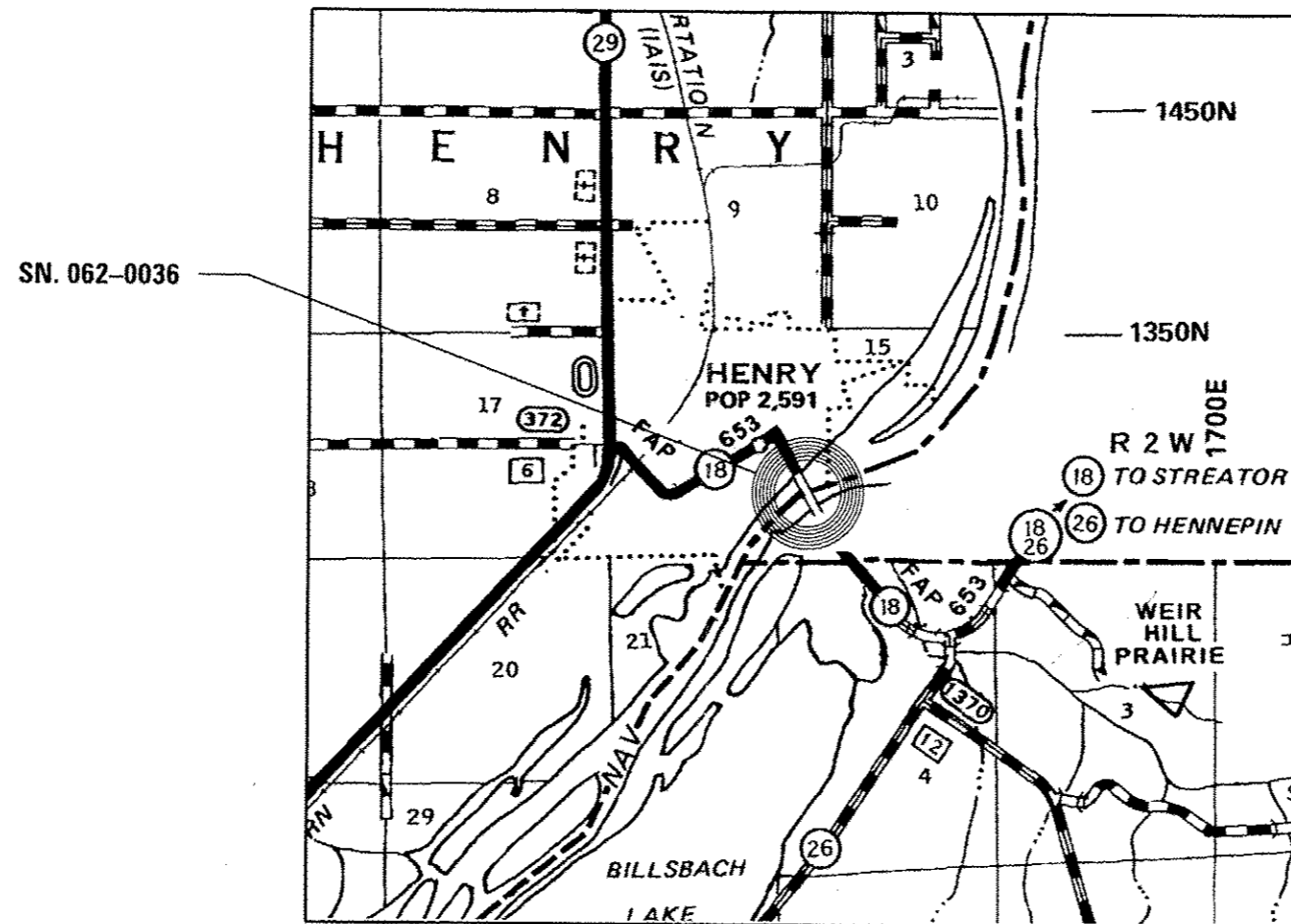


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

PROJECT ENGINEER: MARK ECKHOFF

CONTRACT NO. 68B16 Cat. No. 034834-00D



GROSS LENGTH = 1719.1 FT. = 0.326 MILE
NET LENGTH = 1719.1 FT. = 0.326 MILE

PROJECT CONSISTS OF SUPERSTRUCTURAL STEEL REPAIRS ON STRUCTURE CARRYING IL. 18 OVER ILLINOIS RIVER, 1.22 MI. EAST OF IL. 29

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED June 20 2012
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

August 17 2012
John D. Baranelli, P.E. acting
ENGINEER OF DESIGN AND ENVIRONMENT

August 17 2012
William R. Frey acting
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

SCHEDULE OF QUANTITIES

ENGINEER'S FIELD OFFICE, TYPE A

LOCATION	CALMO
Jobsite - SN.062-0036	1
TOTAL	1

STRUCTURAL STEEL REPAIR

LOCATION	POUND
Jobsite - Span 7	2665
TOTAL	2665

MOBILIZATION

LOCATION	LSUM
Jobsite - SN.062-0036	1
TOTAL	1

TEMPORARY SHORING & CRIBBING

LOCATION	EACH
Jobsite - Piers 6 & 7	2
TOTAL	2

CHANGEABLE MESSAGE SIGN

LOCATION	CALMO
Jobsite - SN.062-0036	1
TOTAL	1

STRAIGHTEN BENT MEMBER

LOCATION	EACH
Jobsite - Spans 4,5,6,7,& 8	12
TOTAL	12

BOLT REPLACEMENT

LOCATION	EACH
Jobsite - Truss & Guardrail	51
TOTAL	51

T.C.&P. STD. 701201 SPECIAL

LOCATION	LSUM
Jobsite - SN.062-0036	1
TOTAL	1

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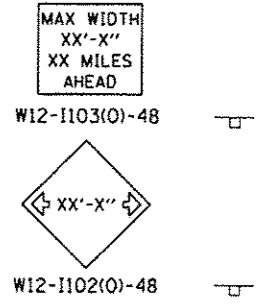
FILE NAME :	USER NAME : jonesoe	DESIGNED - CEJ	REVISED -	SCHEDULE OF QUANTITIES ILLINOIS ROUTE 18 OVER ILLINOIS RIVER SN 062-0036	SCHEDULE OF QUANTITIES ILLINOIS ROUTE 18 OVER ILLINOIS RIVER SN 062-0036	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
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Default	PLOT SCALE = 1/8" = 1' / in.	DATE - 06/22/2012	REVISED -			SUPERSTRUCTURE REPAIRS		CONTRACT NO. 68816		ILLINOIS FED. AID PROJECT	
	PLOT DATE = 6/26/2012					SCALE:	SHEET	OF	SHEETS	STA.	TO STA.

Notes:
 There will be (4) "WIDE LOAD" signs positioned; (2) on IL. 29, (1) at the IL. 18/26 intersection and (1) on IL. 26 according to the map locations indicated on this sheet.
 An attenuator truck shall be used at all times between traffic and the work zone when work is being done on the bridge.

— 1450N

— 1350N

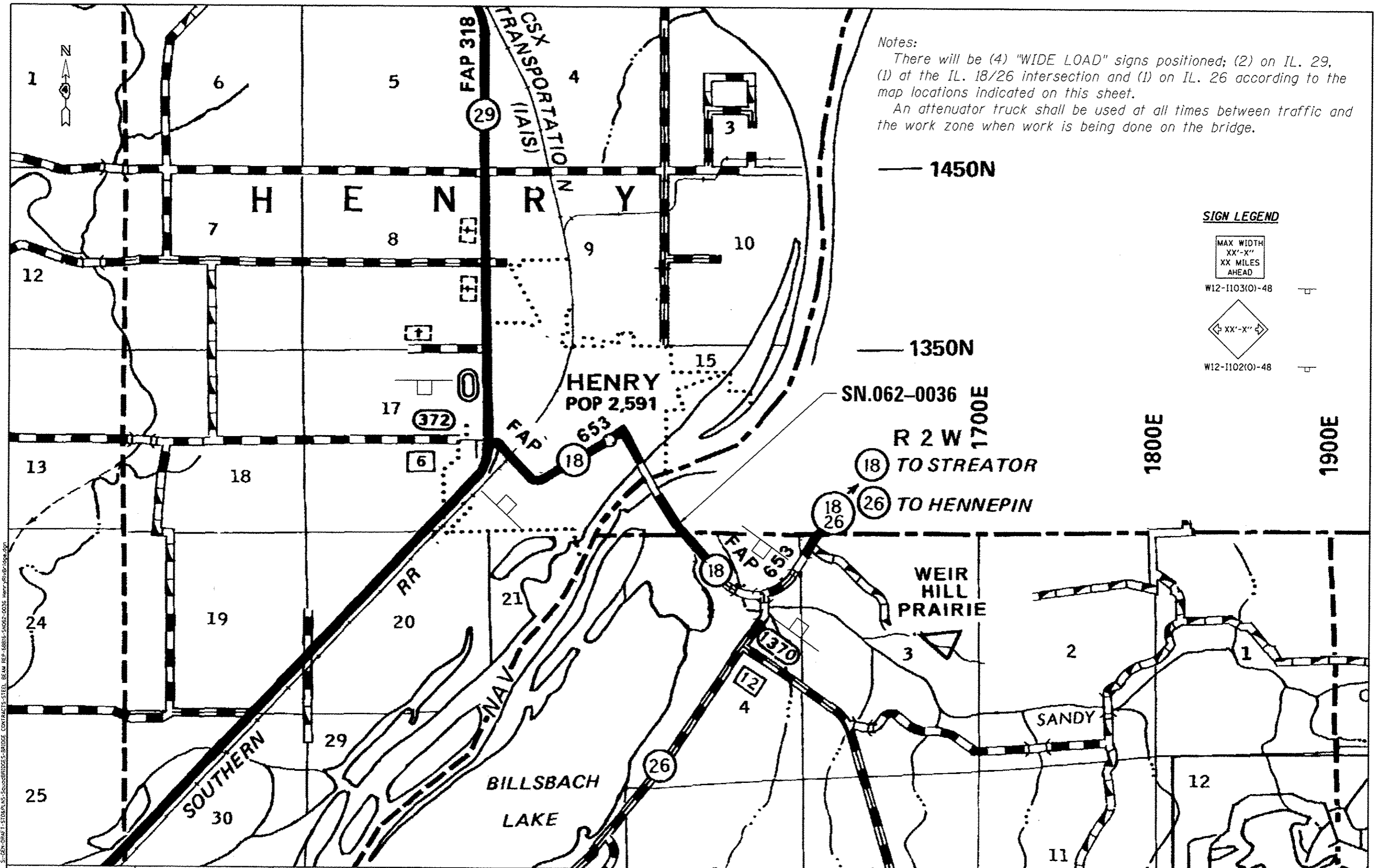
SIGN LEGEND



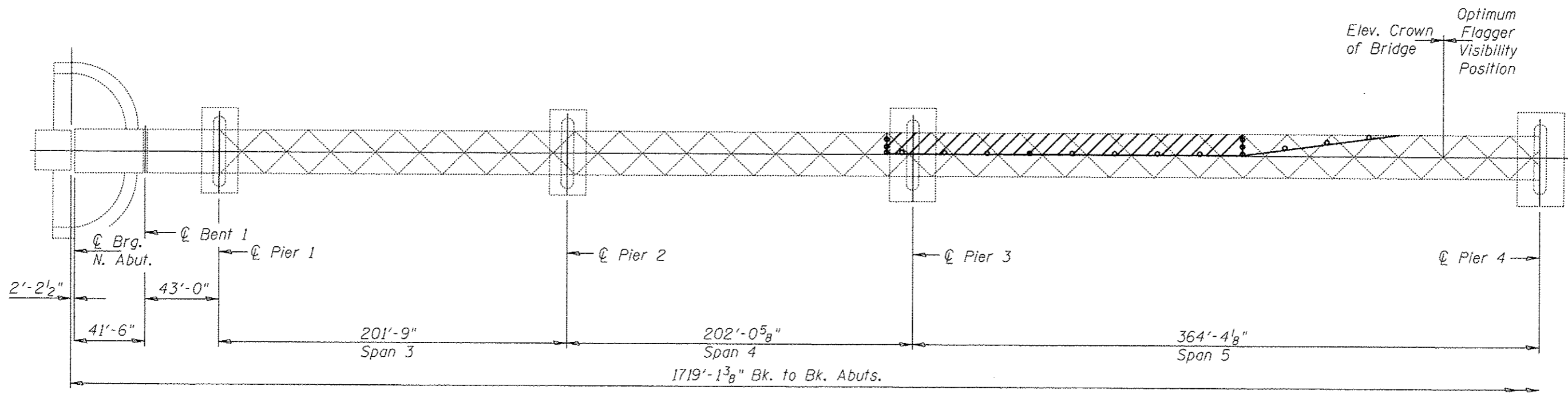
SN.062-0036
 R 2 W 1700E
 18 TO STREATOR
 26 TO HENNEPIN

1800E

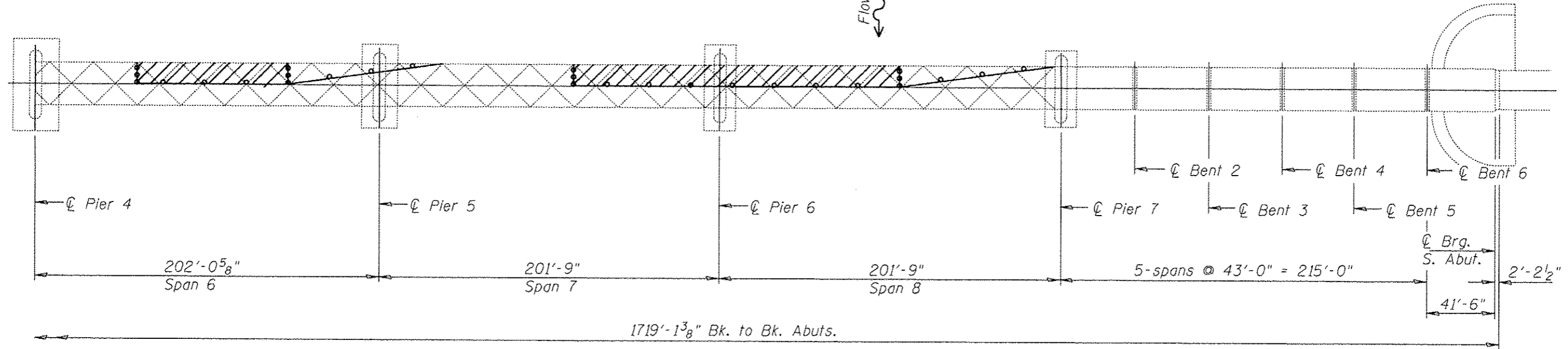
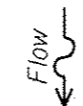
1900E



FILE NAME =	USER NAME = jonescp	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TRAFFIC CONTROL ILLINOIS ROUTE 18 OVER ILLINOIS RIVER SN 062-0036	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
S:\DEM\DRAWING\STDS\PLNS\Steel\BRIDGES\BRIDGE CONTRACTS\STEEL BEAM REP\68B16 SN062-0036\062-0036 HenryRlyvBridge.dgn	PLLOT SCALE = 103.7891' / in.	CHECKED -	REVISED -			653	1104B-D11	MARSHALL	17	4	
Default	PLLOT DATE = 6/29/2012	DATE -	REVISED -			SUPERSTRUCTURE REPAIRS		CONTRACT NO. 68B16		ILLINOIS FED. AID PROJECT	
						SCALE:	SHEET	OF	SHEETS	STA.	TO



PLAN
(Stage I)

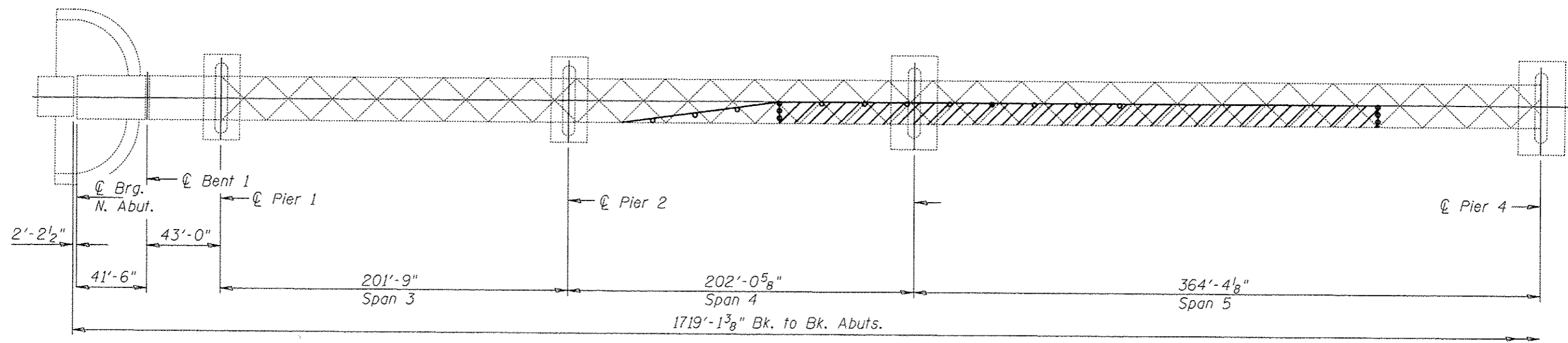


PLAN
(Stage I)

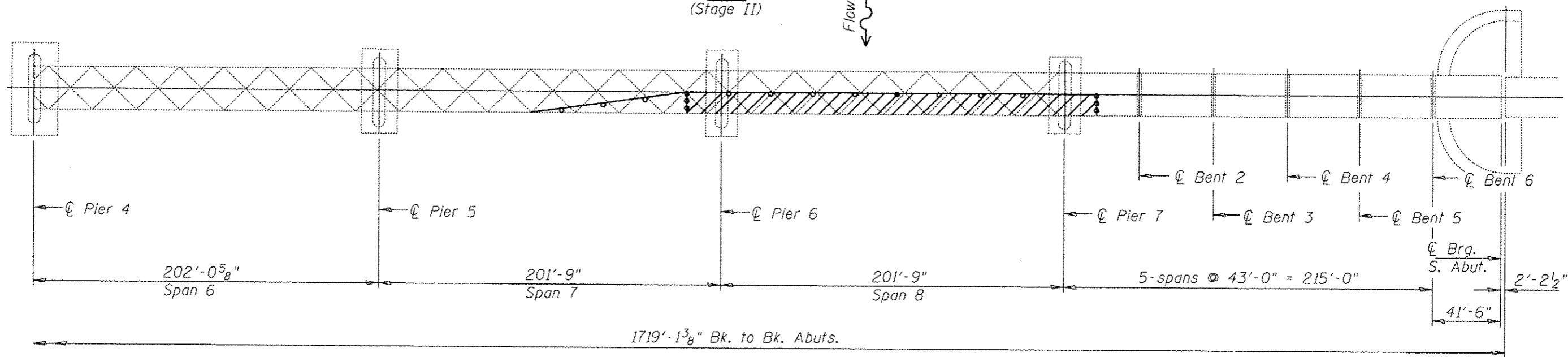
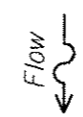
NOTES
Refer to Highway Standards 701201 in conjunction with this sheet for exact placement of traffic management devices and other clarifications as construction staging symbols and dimensioning were duplicated off of these standards.
Traffic staging sequence shall be at the discretion of the Engineer for given field applications. For additional signage and/or device placements, see Traffic Control Special.

S:\GEN-DRAFT-STDA\PLNS\5-04-08\BRIDGES\STEEL BEAM REP-68B16-SN062-0036 MAR 2012\1044.DWG

FILE NAME =	USER NAME = jonesca	DESIGNED - CEJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TRAFFIC CONTROL ILLINOIS ROUTE 18 OVER ILLINOIS RIVER SN 062-0036		F.A.P. RTE. 653	SECTION (104B-DI)	COUNTY MARSHALL	TOTAL SHEETS 17	SHEET NO. 5	
S:\GEN-DRAFT-STDA\PLNS\5-04-08\BRIDGES\STEEL BEAM REP-68B16-SN062-0036 MAR 2012\1044.DWG	PROJECT CONTRACTS\STEEL BEAM REP-68B16-SN062-0036 MAR 2012\1044.DWG	DATE - 06/22/2012	REVISIONS		SCALE: _____	SHEET _____	OF _____ SHEETS	STA. _____	TO STA. _____	ILLINOIS FED. AID PROJECT		
Default	PLOT SCALE = 1/8" = 1'-0"	CHECKED -	REVISIONS									
	PLOT DATE = 6/26/2012	DATE - 06/22/2012	REVISIONS									



PLAN
(Stage II)

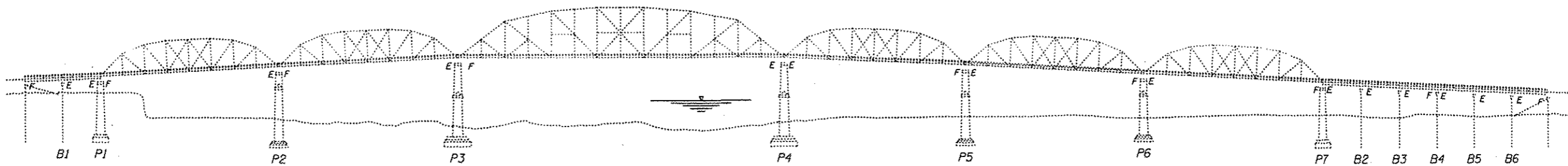


PLAN
(Stage II)

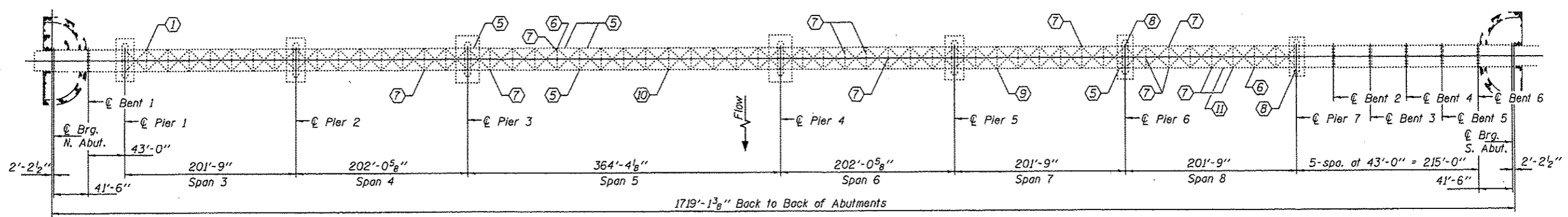
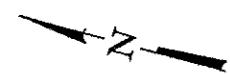
NOTES
 Refer to Highway Standards 701201 in conjunction with this sheet for exact placement of traffic management devices and other clarifications as construction staging symbols and dimensioning were duplicated off of these standards.
 Traffic staging sequence shall be at the descretion of the Engineer for given field applications. For additional signage and/or device placements, see Traffic Control Special.

S:\GEN-DRAFT\STOAR\MS-SQUAD\BRIDGES-BRIDGE CONTRACTS\STEEL BEAM REP\68816-SN062-0036\TRC\TRC.dgn

FILE NAME :	USER NAME : jonace	DESIGNED - CEJ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TRAFFIC CONTROL ILLINOIS ROUTE 18 OVER ILLINOIS RIVER SN 062-0036		F.A.P. RTE. 653	SECTION 1104B-D11	COUNTY MARSHALL	TOTAL SHEETS 17	SHEET NO. 6	
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Default	PLOT DATE : 6/26/2012	DATE -	REVISED -									
											CONTRACT NO. 68816	



ELEVATION



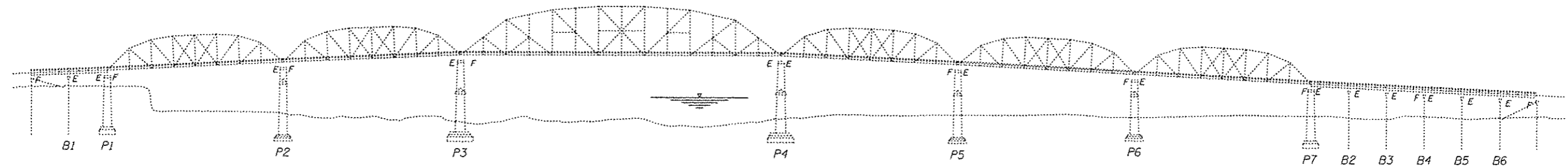
PLAN

- ① - Remove Welded Angles. See Detail on sheet 5 of 10.
- ② - Fill Holes with Bolts. See Table on sheet 5 of 10.
- ③ - Replace Missing Guardrail Support Bolts. See Table on sheet 5 of 10.
- ④ - Grind Nicks and Gouges. See Detail & Table on sheet 5 of 10.
- ⑤ - Remove & Replace Existing Batten R or Stay R. See Details on sheet 5 of 10.
- ⑥ - Repair Gusset R. See Details on sheets 6 & 7 of 10.
- ⑦ - Straighten Bent Members. See Details on sheet 8 of 10.
- ⑧ - Repair Floor Beam. See Details on sheet 9 of 10.
- ⑨ - Structural Steel Repair. See Details on sheet 9 of 10.
- ⑩ - Repair Inside Gusset R. See Details on sheet 10 of 10.
- ⑪ - Structural Steel Repair. See Details on sheet 10 of 10.

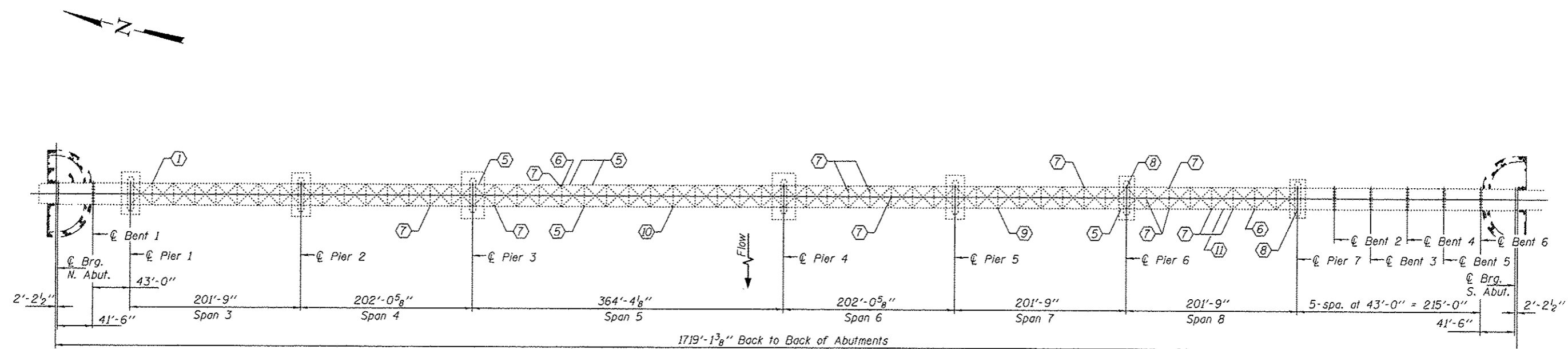
PRE-FINAL
DATE: 06-13-2012

Expires: November 30, 2012

DESIGNED - MKC	EXAMINED	DATE - JUNE 13, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN & ELEVATION ILLINOIS ROUTE 18 OVER THE ILLINOIS RIVER SN 062-0036		F.A.S. RTE. 2369	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED - VP	PASSED	REVISED						MARSHALL	-	7
DRAWN - Kyle M. Steffen	ACTING ENGINEER OF STRUCTURAL SERVICES	REVISED								
CHECKED - MKC VP	ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED								
				SHEET NO. 1 OF 10 SHEETS		ILLINOIS FED. AID PROJECT				



ELEVATION



PLAN

- ① - Remove Welded Angles. See Detail on sheet 5 of 10.
- ② - Fill Holes with Bolts. See Table on sheet 5 of 10.
- ③ - Replace Missing Guardrail Support Bolts. See Table on sheet 5 of 10.
- ④ - Grind Nicks and Gouges. See Detail & Table on sheet 5 of 10.
- ⑤ - Remove & Replace Existing Batten ℓ or Stay ℓ . See Details on sheet 5 of 10.
- ⑥ - Repair Gusset ℓ . See Details on sheets 6 & 7 of 10.
- ⑦ - Straighten Bent Members. See Details on sheet 8 of 10.
- ⑧ - Repair Floor Beam. See Details on sheet 9 of 10.
- ⑨ - Structural Steel Repair. See Details on sheet 9 of 10.
- ⑩ - Repair Inside Gusset ℓ . See Details on sheet 10 of 10.
- ⑪ - Structural Steel Repair. See Details on sheet 10 of 10.



Expires: November 30, 2012

DESIGNED <i>[Signature]</i>	EXAMINED <i>[Signature]</i>	DATE - JULY 26, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN & ELEVATION ILLINOIS ROUTE 18 OVER THE ILLINOIS RIVER SN 062-0036		F.A.S. RTE. 2369	SECTION (104B-DII)	COUNTY MARSHALL	TOTAL SHEETS 17	SHEET NO. 8	
CHECKED <i>[Signature]</i>	PASSED <i>[Signature]</i>	REVISED		SHEET NO. 1 OF 10 SHEETS		CONTRACT NO. 68B16		ILLINOIS FED. AID PROJECT			
DRAWN - Kyle M. Stoffen		REVISED									
CHECKED <i>[Signature]</i>		REVISED									

SCOPE OF WORK

1. Remove existing welded angles. Refer to Repair 1 Detail on sheet 5 of 10.
2. Fill holes with high strength bolts. Refer to Repair 2 Table on sheet 5 of 10.
3. Replace Missing guardrail bolts. Refer to Repair 3 Table on sheet 5 of 10.
4. Grind existing nicks, gouges, and shallow cracks on the bridge. Refer to Repair 4 Table on sheet 5 of 10.
5. Install new batten and stay plates. Refer to Repair 5 Detail on sheet 5 of 10.
6. Repair gusset plates at designated locations. Refer to Repair 6 Details on sheets 6 & 7 of 10.
7. Straighten impacted members at designated locations. Refer to Repair 7 Details on sheet 8 of 10.
8. Strengthen floorbeams at designated locations. Refer to Repair 8 Details on sheet 9 of 10.
9. Install Repair Plate. Refer to Repair 9 Details on sheet 9 of 10.
10. Repair gusset plate at designated location. Refer to Repair 10 Details on sheet 10 of 10.
11. Replace built-up diagonal member. Refer to Repair 11 Details on sheet 10 of 10.
12. Existing steel bolts and members in contact with or immediately adjacent to the above noted work areas shall be surface prepared and painted.
13. All new structural members and bolts shall be painted.

GENERAL NOTES

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

Fasteners shall be high strength bolts. Bolts 7/8"φ, open holes 15/16"φ, unless otherwise noted.

Grind existing nicks, gouges and shallow cracks in the damaged beams as detailed. Grinding shall be done parallel to the longitudinal axis of the member. Ground surfaces shall be inspected for cracks using dye penetrant or magnetic particle testing prior to initiating any beam straightening operations. Any cracks that cannot be removed by grinding approximately 1/4" deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. Ground surfaces shall be spot cleaned and painted with an aluminum epoxy mastic primer followed by a finish coat to match the color of the existing beam. Cost of grinding, testing and spot painting included with Structural Steel Repair.

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.

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

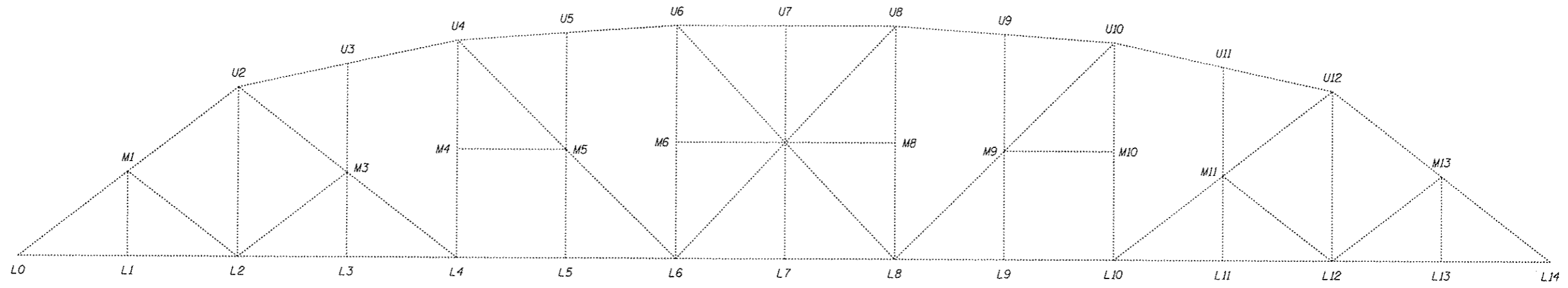
Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the Special Provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".

All structural steel shall be shop painted with the inorganic zinc rich primer per AASHTO M300, Type 1. Cost included with Structural Steel Repair.

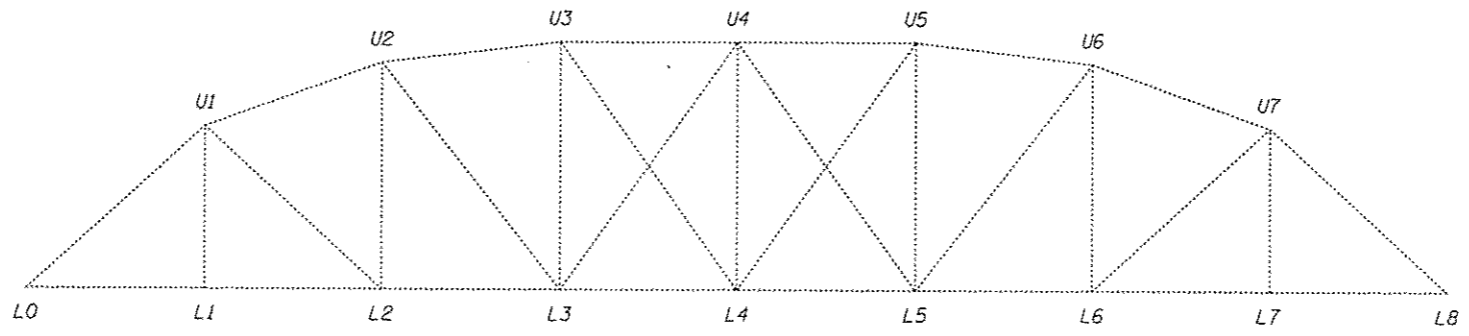
The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

TOTAL BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Bolt Replacement	Each	51
Structural Steel Repair	Pound	2665
Straighten Bent Members	Each	12
Temporary Shoring & Cribbing	Each	2

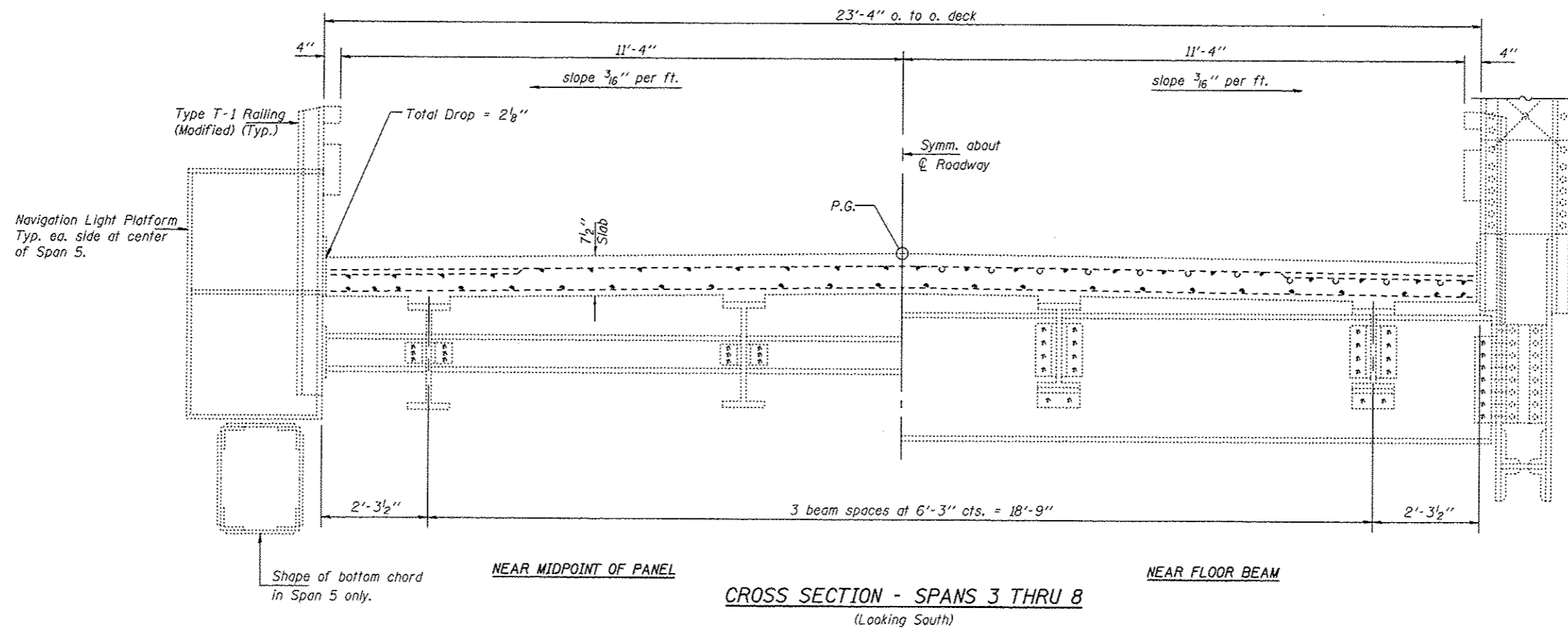
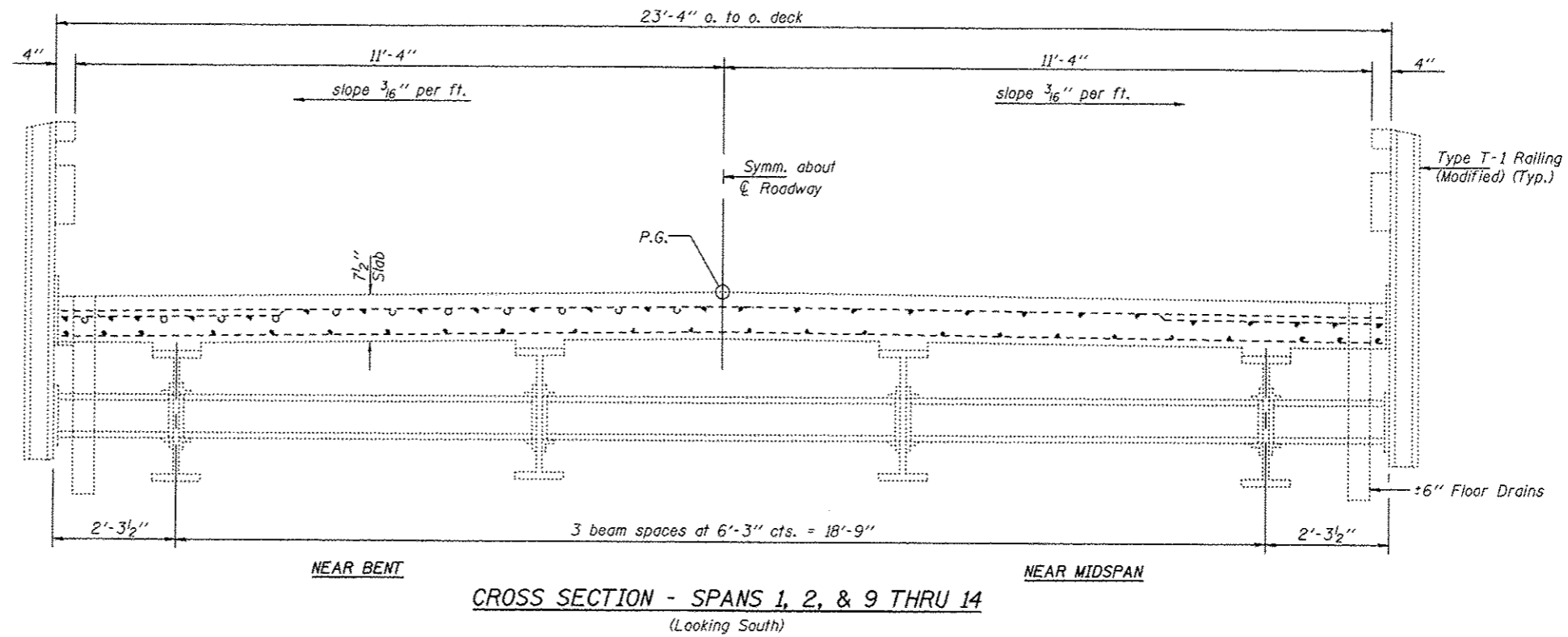


SPAN 5
(Looking East)

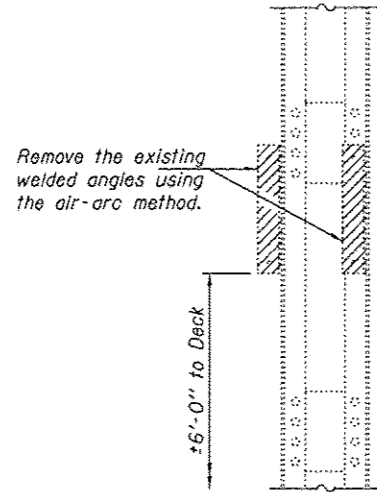


SPANS 3, 4, 6, 7 & 8
(Looking East)

DESIGNED - MKC	EXAMINED	DATE - JULY 26, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPICAL TRUSS LAYOUT		F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED - VP	PASSED	REVISED		SN 062-0036		2369	(104B-D1)	MARSHALL	17	10
DRAWN - Kyle M. Steffen	ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED		SHEET NO. 3 OF 10 SHEETS		CONTRACT NO. 68B16				
CHECKED - MKC VP	ACTING ENGINEER OF STRUCTURAL SERVICES	REVISED		ILLINOIS FED. AID PROJECT						



DESIGNED - MKC	EXAMINED	DATE - JULY 26, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPICAL CROSS SECTIONS SN 062-0036		F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED - VP	<i>Timothy A. Balliet</i> ACTING ENGINEER OF STRUCTURAL SERVICES			2369	(104B-D1)	MARSHALL	17	11		
DRAWN - Kyle M. Steffen	PASSED	REVISED						CONTRACT NO. 68B16		
CHECKED - MKC VP	<i>Carl Perry</i> ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED		SHEET NO. 4 OF 10 SHEETS		ILLINOIS FED. AID PROJECT				



REPAIR 1 DETAIL

Span 3, L1E-U1E
(Cost included with Structural Steel Repair.)
(Contractor must ensure that no damage is done to the vertical truss members.)

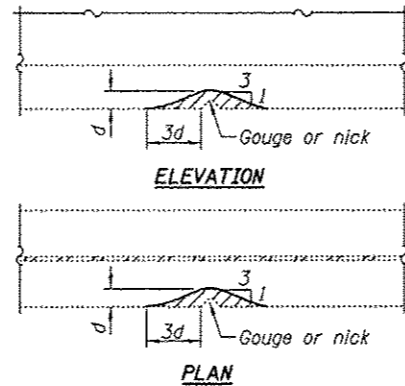
**REPAIR 2
TABLE OF HOLE LOCATIONS**

SPAN	MEMBER	LOCATION	DESCRIPTION	ACTION
3	L1E-U1E	6' above deck	3 Small holes	Fill with bolts
3	U1W-L2W	8' above deck	3/4" Hole	Fill with bolt
3	U5W-L5W	3' above deck	1" Hole	Fill with bolt
5	L4W-U4W	15' above deck	3/4" Hole, ea. O.S. L	Fill with bolts
5	L7E-U7E	1' above deck	2-3/4" Holes	Fill with bolts
5	L7E-U7E	15' above deck	2-3/4" Holes	Fill with bolts
5	L7W-U7W	20' above deck	3/4" Hole	Fill with bolt
5	L10E-U10E	15' above deck	2-3/4" Holes, O.S. L	Fill with bolts
5	M11W-U12W	at M11W	1" Hole	Fill with bolt
6	L5W-U6W	25' above deck	4-3/4" Holes	Fill with bolts
7	L7W-L8W	8' N. of L8W	2-Missing Rivets	Fill with bolts
8	L6W-U7W	3' above deck	2-3/4" Holes	Fill with bolts
8	L5W-U5W	10' above deck	2-3/4" Holes	Fill with bolts

**REPAIR 3
TABLE OF MISSING GUARDRAIL BOLTS**

WEST TRUSS			EAST TRUSS		
SPAN	LOCATION	# MISSING	SPAN	LOCATION	# MISSING
3	LOW	2	3	2' N. of L6E	2
3	6' N. of L1W	2	3	5' S. of L7E	2
3	PP5 - PP6	2	4	LOE	2
3	PP7 - PP8	2	4	6' N. of L1E	2
4	LOW - L1W	2	5	5' N. of L8E	2
5	PP8	4	5	5' S. of L8E	2

Note:
For Repair 5 locations, the Contractor shall field measure the existing plates and determine the actual locations of the existing rivets prior to ordering or fabricating any plates. Any discrepancies from the plans or existing shop plans shall be brought to the attention of the Engineer prior to fabrication.

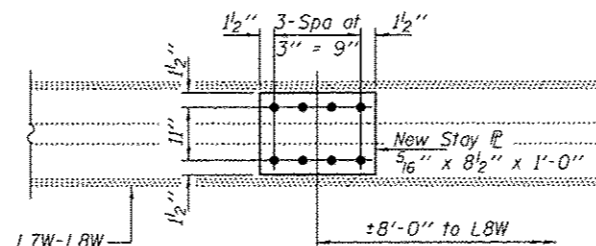


REPAIR 4 - GRINDING DETAIL

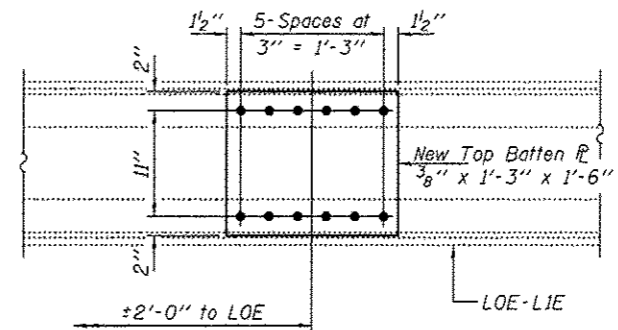
Grind existing nicks, gouges and shallow cracks in the damaged beams as detailed. Ground surfaces shall be inspected for cracks using magnetic particle testing prior to initiating any beam straightening operations. Any cracks that cannot be removed by grinding approximately 1/4" deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. Ground surfaces shall be spot cleaned and painted with an aluminum epoxy mastic primer followed by a finish coat to match the color of the existing beam. Cost of grinding, testing and spot painting included with Structural Steel Repair.

**REPAIR 4
TABLE OF GRINDING LOCATIONS**

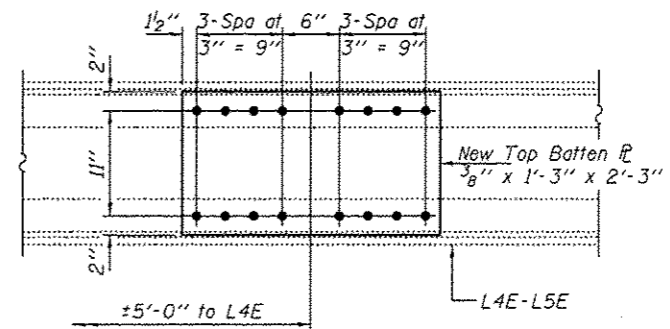
MEMBER	LOCATION	DESCRIPTION	ACTION
U7W-L8W	3.5'-5' above deck	Gouges	Grind
LOE-U1E	3' above deck	Gouge	Grind
L3E-U3E	4' above deck	Gouge	Grind
L5W-U5W	8' above deck	Gouge	Grind
L6W-U7W	2' above deck	Gouge	Grind
L8E-U7E	4' above deck	Gouge	Grind
U1W-L2W	5' above deck	Gouge	Grind
U13W-L14W	3' above deck	Gouge	Grind
LOE-U1E	4' above deck	Gouge	Grind
LOW-U1W	4' above deck	Gouge	Grind
L2W-U2W	6' above deck	Gouge	Grind
U2W-L3W	7' above deck	Gouge	Grind
L3W-U3W	3' & 6' above deck	Gouge	Grind
L3W-U4W	6' above deck	Gouge	Grind
U3W-L4W	6' above deck	Gouge	Grind
L4W-U4W	6' above deck	Gouge	Grind
L5W-U5W	4' & 6' above deck	Gouge	Grind
L6E-U6E	4' above deck	Gouge	Grind
L6W-U6W	6' above deck	Gouge	Grind
L7W-U7W	6' above deck	Gouge	Grind
U7W-L8W	6' above deck	Gouge	Grind
LOE-U1E	4' above deck	Gouge	Grind
Gusset Plate	M3.5 E	Gouge	Grind
L4E-U4E	4' above deck	Gouge	Grind
L7E-U7E	5' above deck	Gouge	Grind
U7E-L8E	4' above deck	Gouge	Grind
U7W-L8W	3' above deck	Gouge	Grind



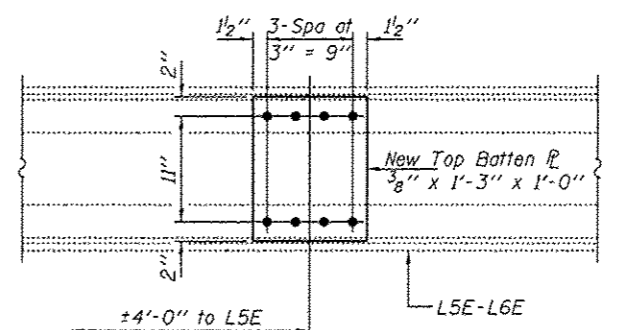
**REPAIR 5 DETAIL
Plan View - Span 7, L7W-L8W**



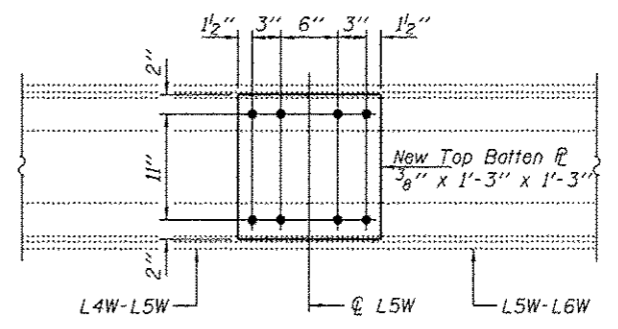
**REPAIR 5 DETAIL
Plan View - Span 5, LOE-L1E**



**REPAIR 5 DETAIL
Plan View - Span 5, L4E-L5E**



**REPAIR 5 DETAIL
Plan View - Span 5, L5E-L6E**



**REPAIR 5 DETAIL
Plan View - Span 5 at L5W
(L5W-U5W not shown for clarity)**

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	180
Bolt Replacement	Each	50

DESIGNED - MKC
CHECKED - VP
DRAWN - Kyle M. Steffen
CHECKED - MKC VP

EXAMINED
PASSED
ACTING ENGINEER OF STRUCTURAL SERVICES
ACTING ENGINEER OF BRIDGES AND STRUCTURES

DATE - JULY 26, 2012
REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

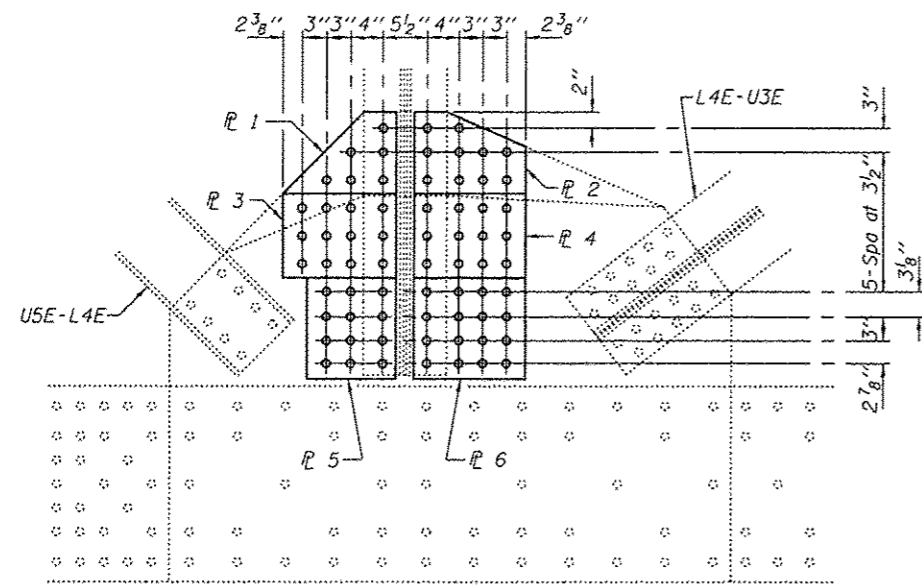
REPAIRS 1 THRU 5 DETAILS
SN 062-0036

SHEET NO. 5 OF 10 SHEETS

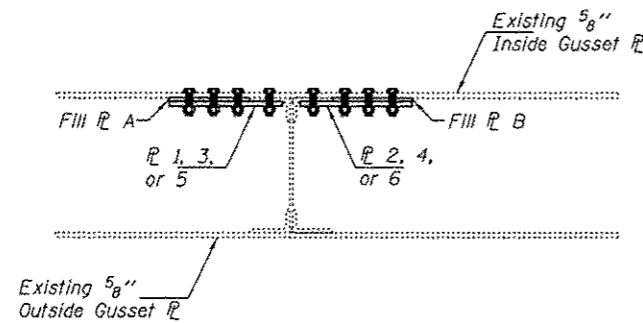
F.A.S. R.T.E. 2369
SECTION (U04B-DI)
COUNTY MARSHALL
TOTAL SHEETS 17
SHEET NO. 12
CONTRACT NO. 68B16
ILLINOIS FED. AID PROJECT

SCOPE OF WORK AT L4E IN SPAN 5

1. Clean and prepare the existing surfaces at the repair area.
2. For the installation of R #1, carefully remove the 3 existing rivets at the location where the plate is to be attached, prior to installing the Fill R and R #1.
3. Use the 3 existing rivet holes as a template for drilling the 3 holes in R #1.
4. Install R #1 with 3 bolts placed through the existing rivet holes. Install nuts and tighten fully.
5. Completely install all the remaining bolts & nuts in R #1, prior to beginning work on the installation of R #2.
6. Install R #2, by repeating the steps outlined in Steps 2 thru 5.
7. After completing the installation of R #2, proceed to installing R #3, by repeating the steps outlined in Steps 2 thru 5.
8. After completing the installation of R #3, proceed to installing R #4, by repeating the steps outlined in Steps 2 thru 5.
9. After completing the installation of R #4, proceed to installing R #5. First, remove the 2 upper most rivets and then immediately place 2 bolts in these existing holes. Second, proceed to remove the 2 lower rivets and then immediately place 2 bolts in these existing holes. Third, proceed to install R #5 and the remainder of bolts & nuts.
10. After completing the installation of R #5, proceed to installing R #6. First, remove the 2 upper most rivets and then immediately place 2 bolts in these existing holes. Second, proceed to remove the 2 lower rivets and then immediately place 2 bolts in these existing holes. Third, proceed to install R #6 and the remainder of bolts & nuts.
11. Paint the repair area.

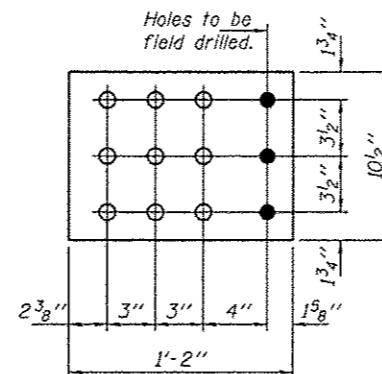
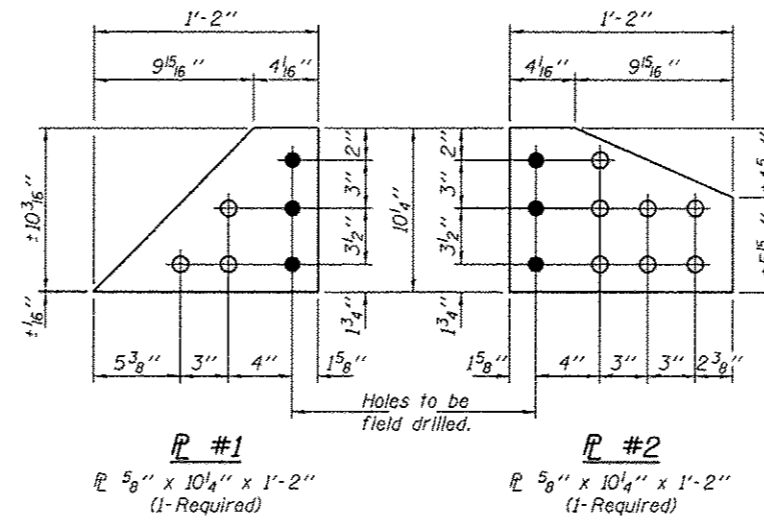


REPAIR 6 ELEVATION
Span 5 at L4E

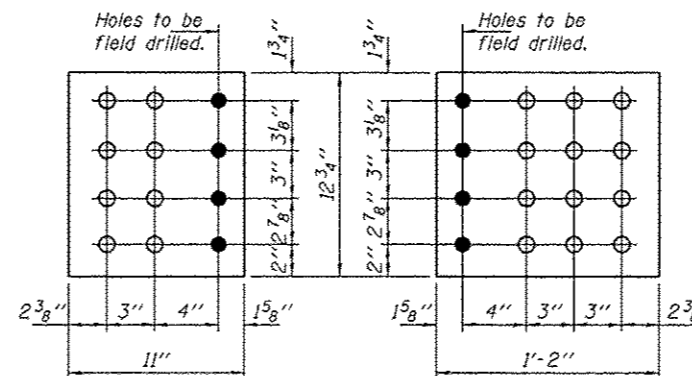


REPAIR 6 PLAN
Span 5 at L4E

Note:
For Repair 6 locations, the Contractor shall field measure the existing plates and determine the actual locations of the existing rivets prior to ordering or fabricating any plates. Any discrepancies from the plans or existing shop plans shall be brought to the attention of the Engineer prior to fabrication.



R #3 & #4
R 5/8" x 10 1/2" x 1'-2"
(2-Required)

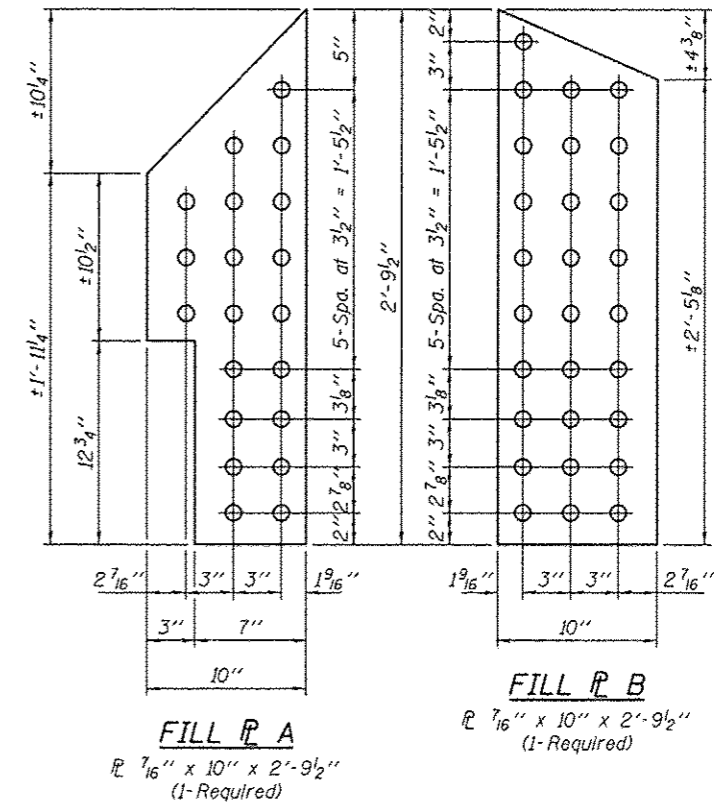


R #5
R 5/8" x 12 3/4" x 11"
(1-Required)

R #6
R 5/8" x 12 3/4" x 1'-2"
(1-Required)

LEGEND

- - Holes to be drilled in shop.
- - Holes to be field drilled.



FILL R A
R 7/16" x 10" x 2'-9 1/2"
(1-Required)

FILL R B
R 7/16" x 10" x 2'-9 1/2"
(1-Required)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	330

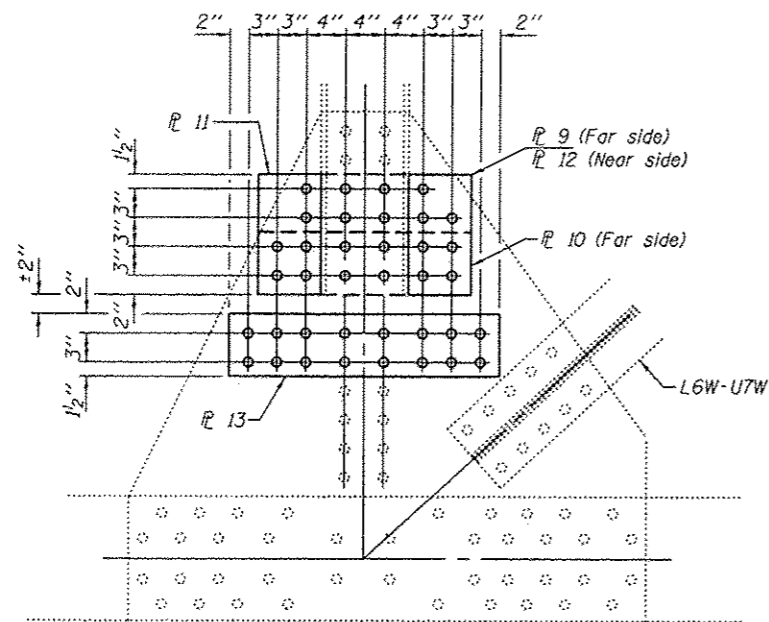
DESIGNED - MKC	EXAMINED - <i>[Signature]</i>	DATE - JULY 26, 2012
CHECKED - VP	ACTING ENGINEER OF STRUCTURAL SERVICES	
DRAWN - Kyle M. Stoffen	PASSED - <i>[Signature]</i>	REVISED
CHECKED - MKC VP	ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

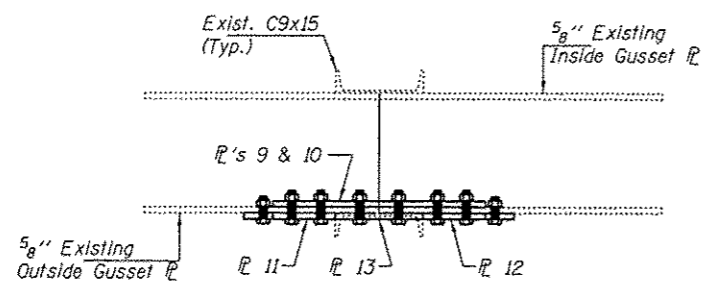
REPAIR 6 ON SPAN 5 AT L4E
SN 062-0036

SHEET NO. 6 OF 10 SHEETS

F.A.S. RTE. 2369	SECTION (104B-D1)	COUNTY MARSHALL	TOTAL SHEETS 17	SHEET NO. 13
CONTRACT NO. 68B16			ILLINOIS FED. AID PROJECT	

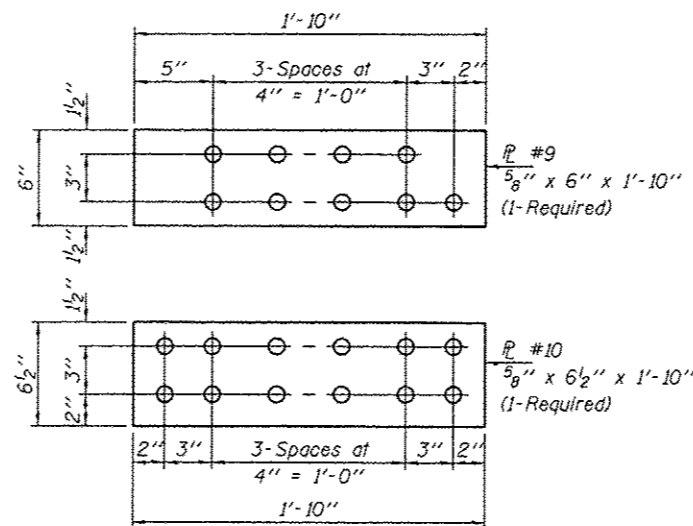


REPAIR 6 ELEVATION
Span 8 at L6W

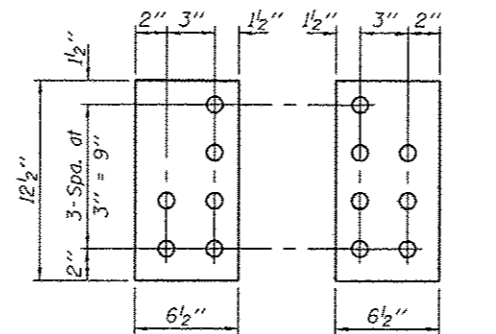


REPAIR 6 PLAN
Span 8 at L6W

Note:
For Repair 6 locations, the Contractor shall field measure the existing plates and determine the actual locations of the existing rivets prior to ordering or fabricating any plates. Any discrepancies from the plans or existing shop plans shall be brought to the attention of the Engineer prior to fabrication.

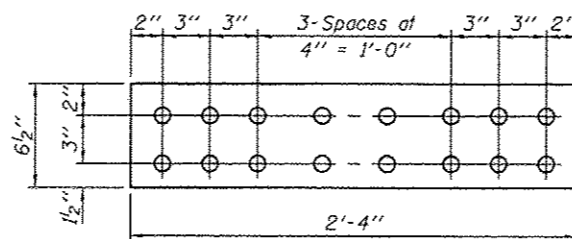


R'S #9 & #10



R #11
R 5/8" x 6 1/2" x 12 1/2"
(1-Required)

R #12
R 5/8" x 6 1/2" x 12 1/2"
(1-Required)



R #13
R 5/8" x 6 1/2" x 2'-4"
(1-Required)

SCOPE OF WORK AT L6W IN SPAN 8

1. Clean and prepare the existing surfaces at the repair area.
2. For the installation of R #9, carefully remove the 4 existing rivets that connect the existing vertical member C9x15, to the existing outside gusset R, at the location where the R is to be attached.
3. Use the 4 existing rivet holes as a template for drilling the 4 holes in R #9.
4. Install R #9 with 4 bolts placed through the existing rivet holes. Install nuts and tighten fully.
5. The bolt holes for R #11 & #12 shall be drilled in the shop.
6. Clamp R #11 & #12 in their final positions.
7. Using the bolts holes in R #11 & #12 as guides, drill through the existing 5/8" gusset R and 5/8" R #9.
8. Install all of the remaining bolts & nuts for R #9. Tighten the nuts fully.
9. Only after completing the above noted steps, shall the Contractor proceed to the installation of R #10.
10. For the installation of R #10, carefully remove the 4 existing rivets that connect the existing vertical member C9x15, to the existing outside gusset R, at the location where the R is to be attached.
11. Use the 4 existing rivet holes as a template for field drilling the 4 holes in R #10.
12. Install R #10 with 4 bolts placed through the existing rivet holes. Install nuts and tighten fully.
13. Using the bolts holes in R #11 & #12 as guides, drill through the existing 5/8" gusset R and 5/8" R #10.
14. Install all of the remaining bolts & nuts for R #10. Tighten the nuts fully.
15. Only after completing the above noted steps, shall the Contractor proceed to the installation of R #13.
16. The bolt holes for R #13 shall be drilled in the shop, except for the 4 holes where the bolts will replace the 4 existing rivets.
17. For the installation of R #13, carefully remove the 4 existing rivets that are located where the R is to be attached.
18. Use the 4 existing rivet holes as a template for field drilling the 4 holes in R #13.
19. Install R #13 with 4 bolts placed through the existing rivet holes. Install the nuts and tighten fully.
20. Using the shop drilled bolt holes in R #13 as guides, drill through the existing 5/8" gusset R.
21. Install all of the remaining bolts & nuts for R #13. Tighten the nuts fully.
22. Paint the repair area.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	160

DESIGNED - MKC
CHECKED - VP
DRAWN - Kyle M. Steffen
CHECKED - MKC VP

EXAMINED
PASSED
ACTING ENGINEER OF STRUCTURAL SERVICES
ACTING ENGINEER OF BRIDGES AND STRUCTURES

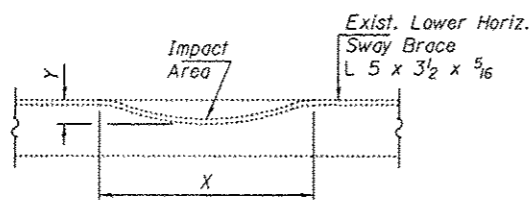
DATE - JULY 26, 2012
REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REPAIR 6 ON SPAN 8 AT L6W
SN 062-0036

SHEET NO. 7 OF 10 SHEETS

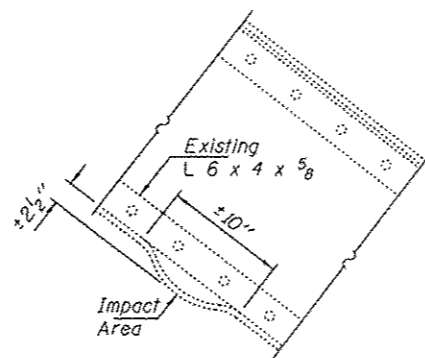
F.A.S. RTE. 2369	SECTION (1048-DII)	COUNTY MARSHALL	TOTAL SHEETS 17	SHEET NO. 14
				CONTRACT NO. 68B16
ILLINOIS FED. AID PROJECT				



REPAIR 7 DETAILS AT SWAY BRACES

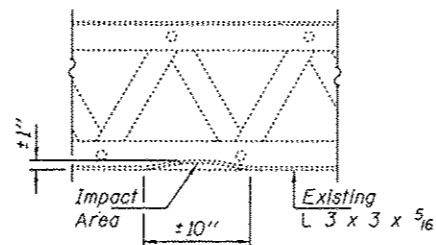
See Table for Locations & Dimensions

SPAN	LOCATION	Dim. X	Dim. Y
5	PP4, E. Side, 1'-3" from E. Truss	±12"	±1 1/2"
6	PP3, E. Side, 4'-0" from E. Truss	±12"	±1"
6	PP4, E. Side, 4'-6" from E. Truss	±8"	±1 1/2"
6	PP5, 3' East & 3' West of C	±12"	±1 1/2"
6	PP5, 3' East & 3' West of C	±4'-6"	±3 3/8"



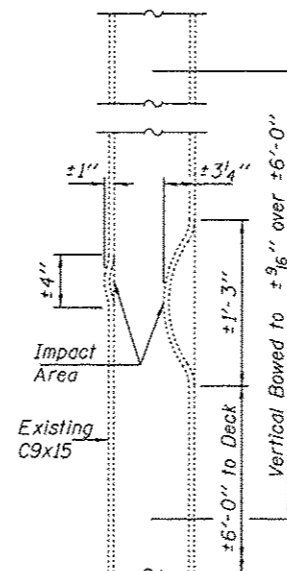
REPAIR 7 DETAILS

Span 5, LOW-UIW, ±5' above deck



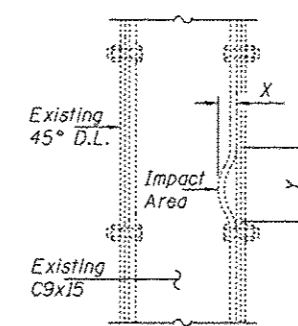
REPAIR 7 DETAILS

Span 8, UIW-UIE, ±2' W. of C



REPAIR 7 DETAILS

Span 4, L6W-U6W, ±6' above deck



REPAIR 7 DETAILS

SPAN	LOCATION	Dim. X	Dim. Y
7	L6E-U6E, ±4' above deck	±1 1/2"	±12"
8	L2E-U2E, ±3' above deck	±1 1/2"	±2"
8	L2W-U2W, ±3' above deck	±1"	±5"
8	L4W-U4W, ±4' above deck	±5 1/8"	±4"
8	L5W-U5W, ±4' above deck	±1"	±6"

Note:
 Impacted areas shall be straightened.
 See special provision Straighten Bent Members.
 Cost included with Straighten Bent Members.
 Typical for Repair 7.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Straighten Bent Member	Each	13

DESIGNED - MKC
 CHECKED - VP
 DRAWN - Kyle M. Steffen
 CHECKED - MKC VP

EXAMINED *Timothy A. Hallett*
 ACTING ENGINEER OF STRUCTURAL SERVICES
 PASSED *Carl Perry*
 ACTING ENGINEER OF BRIDGES AND STRUCTURES

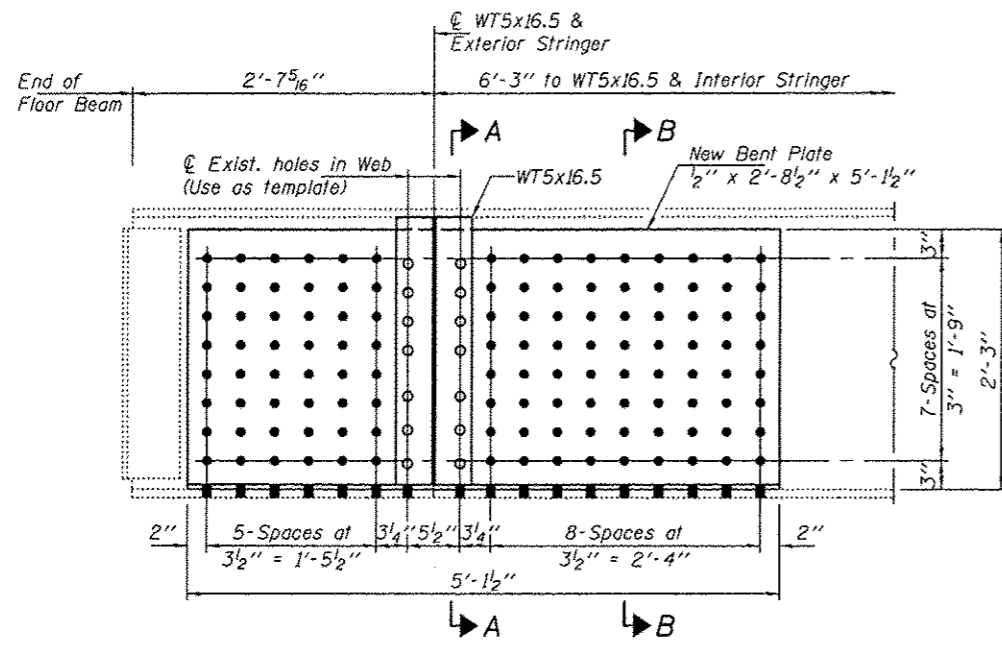
DATE - JULY 26, 2012
 REVISED
 REVISED

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

REPAIRS 7 DETAILS
 SN 062-0036

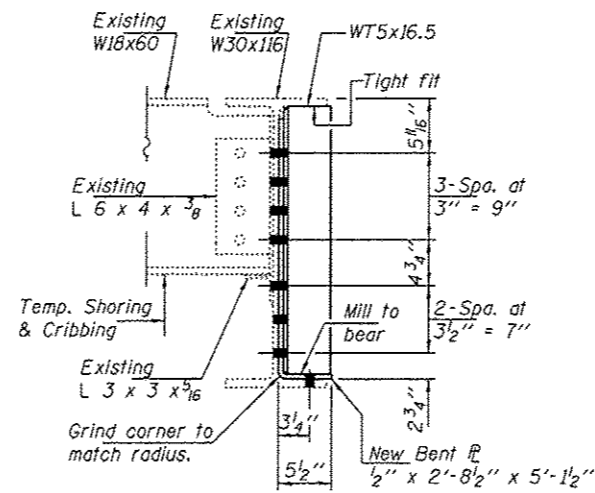
SHEET NO. 8 OF 10 SHEETS

F.A.S. RTE. 2369	SECTION (1048-D)1	COUNTY MARSHALL	TOTAL SHEETS 17	SHEET NO. 15
				CONTRACT NO. 68B16
ILLINOIS FED. AID PROJECT				

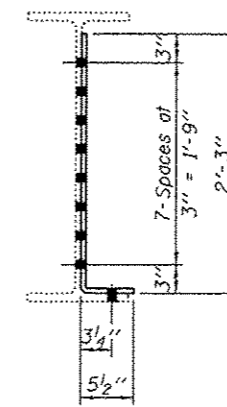


REPAIR 8 DETAILS

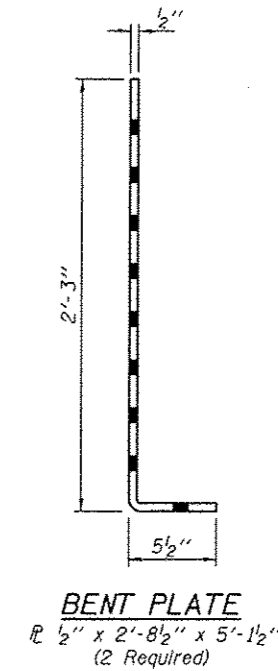
Span 8, Floor Beam 0, North Face, East End
Span 8, Floor Beam 8, South Face, West End



SECTION A-A

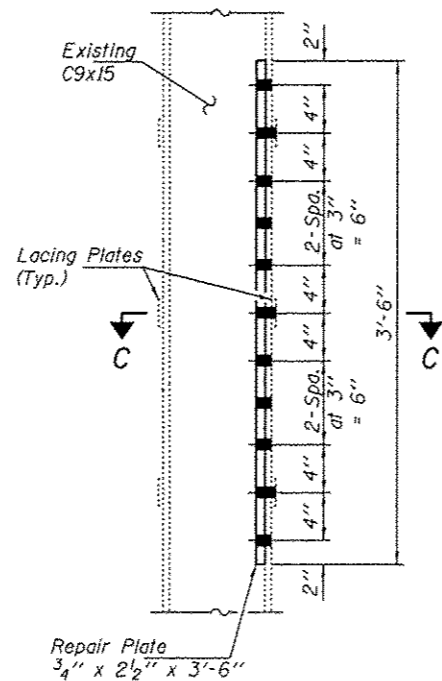


SECTION B-B



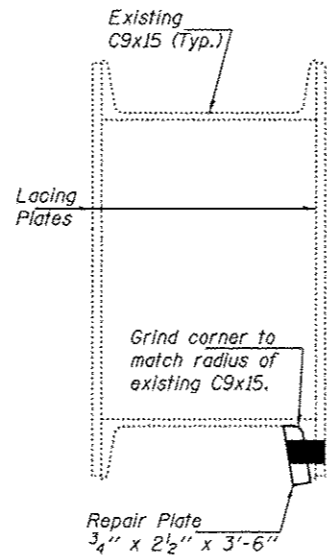
STEPS TO REPAIR THE FLOOR BEAMS

1. Provide support to the exterior stringer at the floor beam that is to be repaired.
2. Remove the existing WT5x16.5 from the W30x116 floor beam.
3. Prepare all surfaces of the existing W30x116, from the end of the floor beam to 1 foot beyond the end of the new bent plate. The linear distance would be approximately 7 feet. Included in the surface preparation will be the angles that attach the exterior stringer to the floor beam and 2 linear feet of the exterior stringer. Refer to "Cleaning and Painting Contact Surface Areas of Existing Steel Structures"
4. Install the Bent Plate (1/2" x 2'-8 1/2" x 5'-1 1/2") on the W30x116 floor beam.
5. Install the WT5x16.5 on top of the bent plate. Reuse the existing holes in the web of the W30x116 to attach the WT and bent plate to the existing floor beam.



REPAIR 9 DETAILS

Span 7, L2W-U2W, ±3' above deck



SECTION C-C

REACTION TABLE AT TEMPORARY SHORING		
Q	(k)	7.5
L	(k)	28.0
Imp.	(k)	8.4
Total	(k)	43.9

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	1020
Temporary Shoring & Cribbing	Each	2

DESIGNED - MKC
CHECKED - VP
DRAWN - Kyla M. Steffen
CHECKED - MKC VP

EXAMINED
ACTING ENGINEER OF STRUCTURAL SERVICES
PASSED
ACTING ENGINEER OF BRIDGES AND STRUCTURES

DATE - JULY 26, 2012

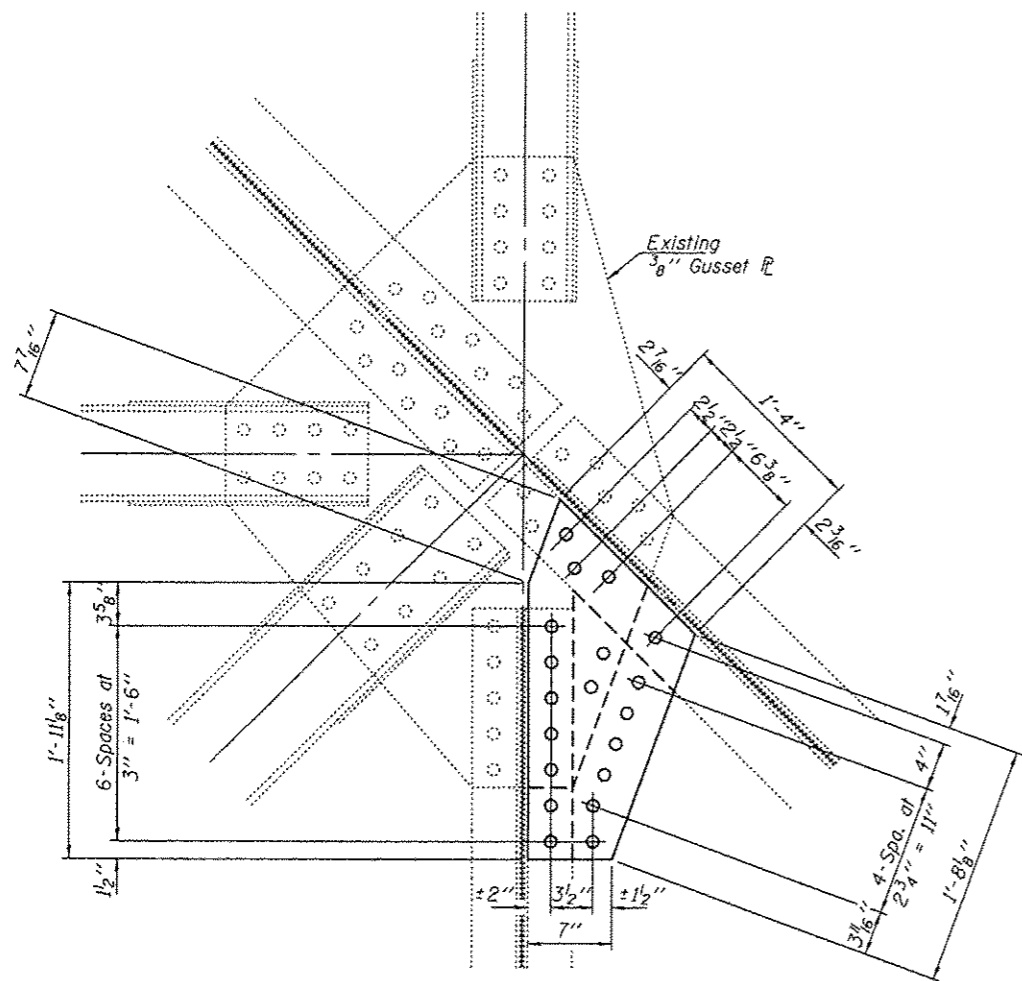
REVISED
REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REPAIRS 8 & 9
SN 062-0036

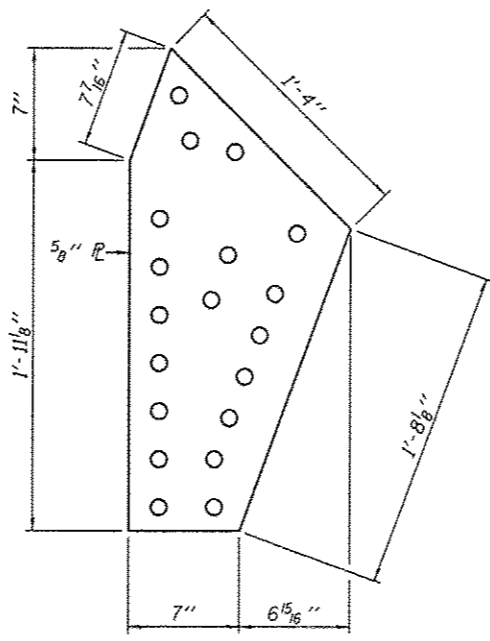
SHEET NO. 9 OF 10 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2369	(104B-D)	MARSHALL	17	16
CONTRACT NO. 68B16				
ILLINOIS FED. AID PROJECT				

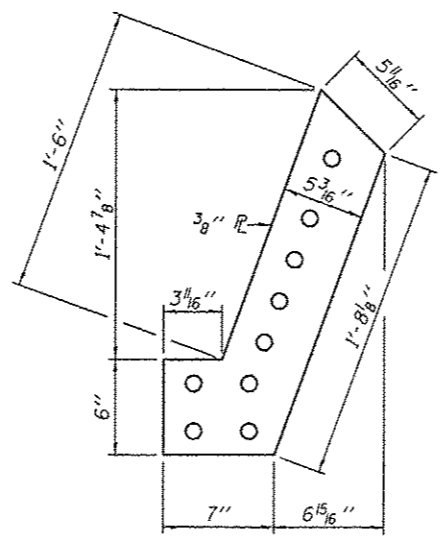


REPAIR 10 DETAILS
Span 5 at M9W (Inside Gusset P Repair)

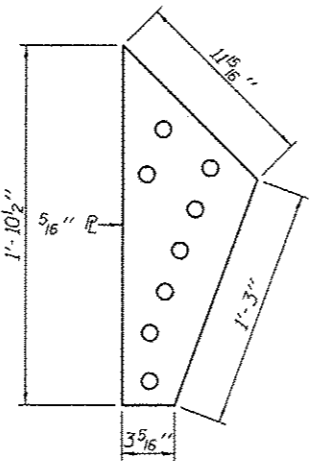
* The Contractor shall field measure the M9W plates, angles and actual location of rivets prior to ordering or fabricating any plates. Any discrepancies from the plans or existing shop plans shall be brought to the attention of the Engineer prior to fabrication.



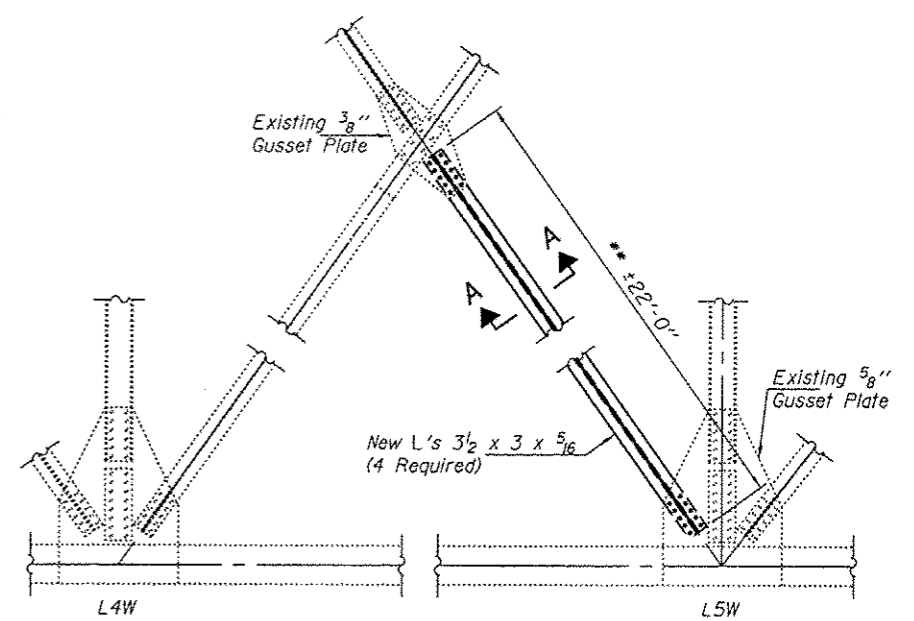
*** REPAIR P A**
(2-Required)



*** REPAIR P B**
(1-Required)

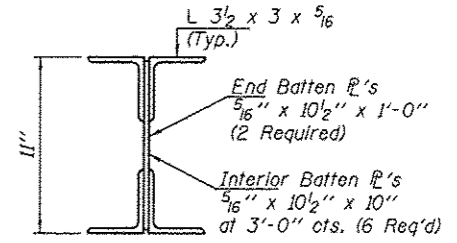


*** REPAIR P C**
(1-Required)



REPAIR 11 DETAILS
Span 8, U4W-L5W at L5W

** Actual dimension shall be field measured prior to ordering steel angles.



SECTION A-A

SCOPE OF WORK FOR REPAIR 11

1. Clean and prepare the existing surfaces at the repair area.
2. Field measure and document the exact locations of all existing batten plates that are located on the existing diagonal U4W-L5W.
3. Field measure and document rivet spacing on all existing batten plates that are located on the existing diagonal U4W-L5W.
4. Remove one of the four existing angles that make up diagonal U4W-L5W. Extreme care shall be practiced when removing the existing rivets from the gusset plates.
5. Install a new angle in the location where the existing angle was removed. Utilize the existing rivet holes in the gusset plate as a template for field drilling holes in the new angle.
6. Repeat Steps 4 & 5 for the remaining three angles. Only one angle may be removed and replaced at a time.
7. Utilize the field measurements obtained in Steps 2 & 3 to install the new batten plates.
8. Paint the repair area.

Note:
The lower portion of member U4W-L5W shall be replaced in-kind.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	965

DESIGNED - MKC	CHECKED - VP	DRAWN - Kyle M. Steffen	CHECKED - MKC VP
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EXAMINED	DATE - JULY 26, 2012
PASSED	REVISED
	REVISED

ACTING ENGINEER OF STRUCTURAL SERVICES
ACTING ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REPAIR 10 & 11
SN 062-0036

SHEET NO. 10 OF 10 SHEETS

F.A.S. RTE. 2369	SECTION (1048-D1)	COUNTY MARSHALL	TOTAL SHEETS 17	SHEET NO. 17
CONTRACT NO. 68B16				ILLINOIS FED. AID PROJECT