

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

**PROPOSED  
HIGHWAY PLANS**

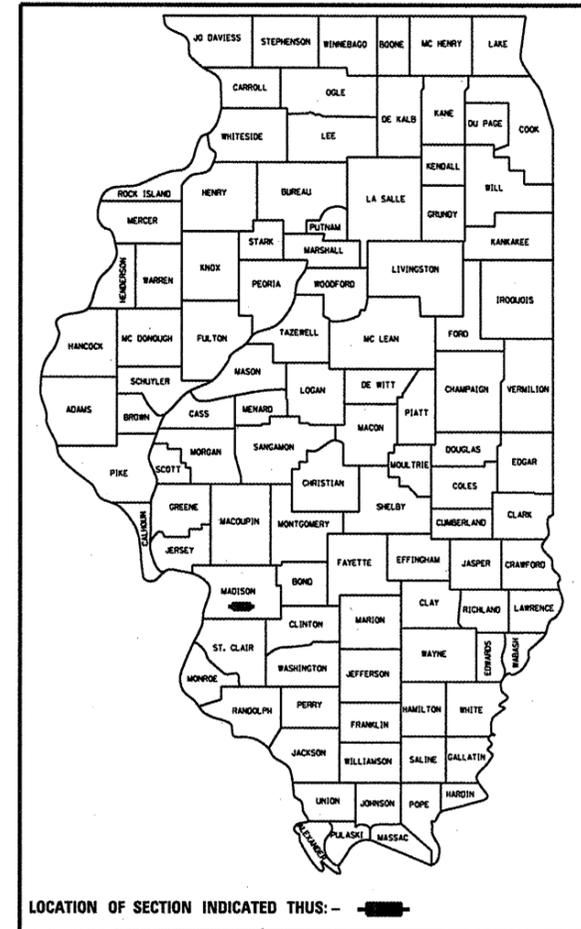
FAI ROUTE 270 (I-270)  
SECTION 60-3HB-1-HDF-1  
BRIDGE REPAIRS - HDF  
MADISON COUNTY

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF-1	MADISON	15	1
ILLINOIS			CONTRACT NO. 76F08	

15 + 1 = 16

FOR INDEX OF SHEETS, SEE SHEET NO. 2

D-98-070-11



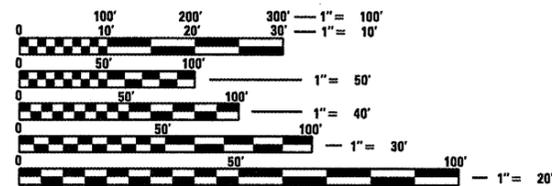
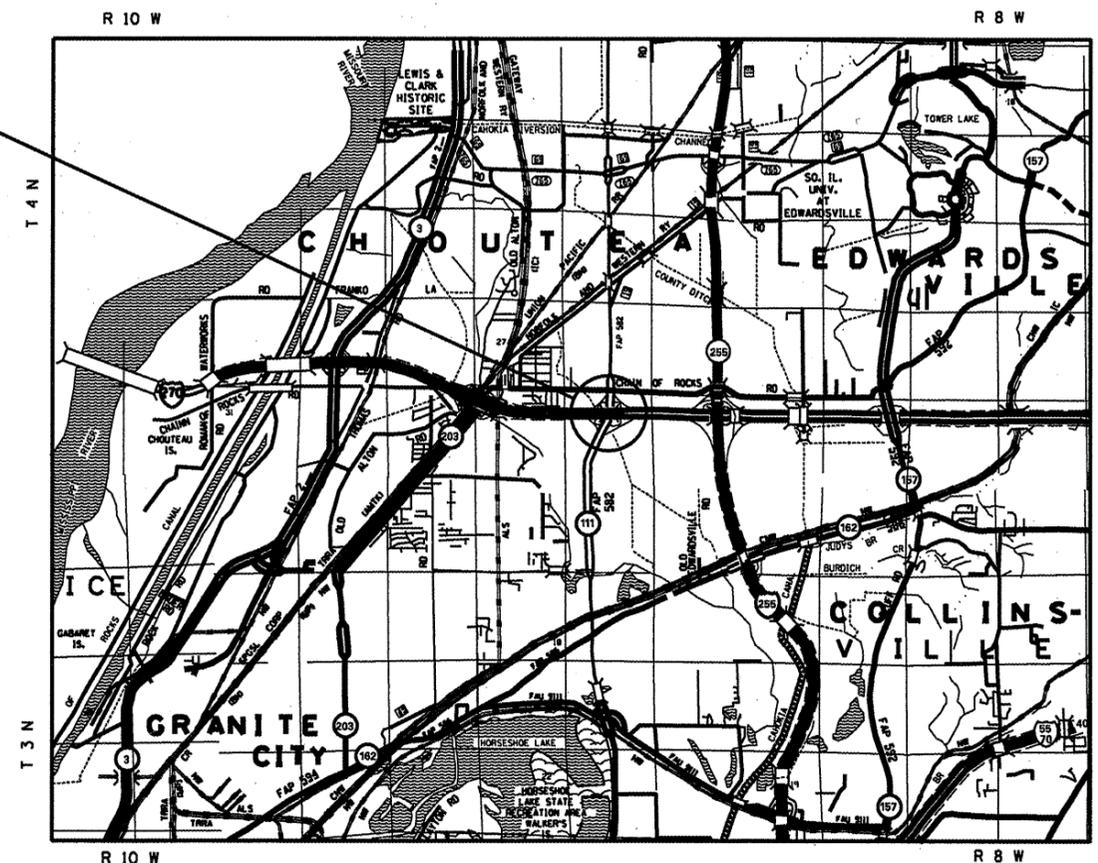
**TRAFFIC DATA**

IL 111  
ADT = 18,100 (2011)  
ADT = 22,100 (2031)  
SU = 2.4%  
MU = 1.4%

I-270  
ADT = 29,800 (2011)  
ADT = 36,400 (2031)  
SU = 3.5%  
MU = 16.8%

C-98-075-11

PROJECT LOCATION  
I-270 OVER IL 111  
STA 401+45.00  
SN 060-0046 (EB)



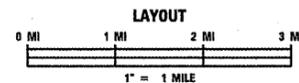
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

PROJECT ENGINEER: PATTI LEBEAU (618) 346-3179  
PROJECT MANAGER: REBECCA THARP (618) 346-3323

CONTRACT NO. 76F08

DESIGN DESIGNATION  
N/A



GROSS LENGTH = 0.011 MILES  
NET LENGTH = 0.011 MILES

LATITUDE: 38.757687 LONGITUDE: -90.066906

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED July 6 20 11  
*Mary C. Jamel*  
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

Aug 19 20 11  
*Scott E. Stitt PE, LE*  
ACTING ENGINEER OF DESIGN AND ENVIRONMENT

Aug 19 20 11  
*Christine M. Reed*  
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

**PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS**

**INDEX OF SHEETS**

- 1 COVER SHEET
- 2 INDEX OF SHEETS, HIGHWAY STANDARDS, GENERAL NOTES, & COMMITMENTS
- 3 SUMMARY OF QUANTITIES & SIGN DETAILS
- 4-6 TRAFFIC CONTROL & PROTECTION PLAN
- 7-15 STRUCTURE PLANS

**GENERAL NOTES**

1. THE STANDARDS AND REVISION NUMBERS SHALL APPLY TO THIS PROJECT.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS.
3. ILLINOIS STATE LAW REQUIRES A 48-HOUR NOTICE BE GIVEN TO UTILITIES WITHIN THE PROJECT AREA BEFORE DIGGING. FIELD MARKING OF FACILITIES MAY BE OBTAINED BY CONTACTING J.U.L.I.E. OR FOR NON-MEMBERS, THE UTILITY COMPANY DIRECTLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:
  - AT&T ILLINOIS
  - BUCKEYE PARTNERS L.P.--WOOD RIVER PIPELINE
  - CHARTER COMMUNICATION, INC.
  - VILLAGE OF GLEN CARBON
  - ILLINOIS AMERICAN WATER COMPANY
  - MADISON COUNTY SPECIAL SERVICE AREA\*1
  - MITCHELL PUBLIC WATER DISTRICT
  - PONTOON BEACH PUBLIC WATER DISTRICT

MEMBERS OF J.U.L.I.E CALL TOLL FREE (800) 892-0123 OR 811 AND ARE INDICATED BY \*. NON-J.U.L.I.E. MEMBERS MUST BE NOTIFIED INDIVIDUALLY.
4. NO SURVEY WAS PERFORMED FOR THIS PROJECT. THE STATIONING AND TOPOGRAPHY SHOWN ARE APPROXIMATE AND WERE CREATED USING MICROFILM.
5. COVER ALL 65 MPH SPEED LIMIT SIGNS FOR THE EB LANES THAT ARE LOCATED WEST OF THE PROJECT. THE INTENT IS TO MAINTAIN A 55 MPH SPEED LIMIT FROM THE MISSOURI-ILLINOIS BORDER THROUGH THE PROJECT LOCATION. COST INCLUDED WITH "TRAFFIC CONTROL AND PROTECTION STANDARD 701411 (SPECIAL)".
6. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY DEBRIS FROM FALLING ONTO LANES OPEN TO TRAFFIC BELOW THE BRIDGE.
7. THREE CHANGEABLE MESSAGE SIGNS SHALL BE PROVIDED FOR THIS PROJECT, ONE ON I-270 AND TWO ON IL 111.
8. LANE CLOSURES ON I-270 ARE FOR INSTALLING AND REMOVING TEMPORARY CONCRETE BARRIER. SEE I-270 LANE RESTRICTIONS SCHEDULE AND SPECIAL PROVISIONS.
9. TOTAL CLOSURES ON IL 111 AND RAMP ARE FOR REMOVING AND INSTALLING BEAM. SEE SPECIAL PROVISIONS FOR RESTRICTIONS.

**COMMITMENTS**

NONE

**HIGHWAY STANDARDS**

- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001001-02 AREAS OF REINFORCEMENT BARS
- 001006 DECIMAL OF AN INCH AND OF A FOOT
- 701411-07 LANE CLOSURE, MULTILANE AT ENTRANCE OR EXIT RAMP, FOR SPEEDS 45 MPH
- 701421-03 LANE CLOSURE, MULTILANE, DAY OPERATIONS ONLY, FOR SPEEDS 45 MPH TO 55 MPH
- 701901-01 TRAFFIC CONTROL DEVICES
- 704001-06 TEMPORARY CONCRETE BARRIER

*701400-05*

**I-270 LANE RESTRICTIONS SCHEDULE**

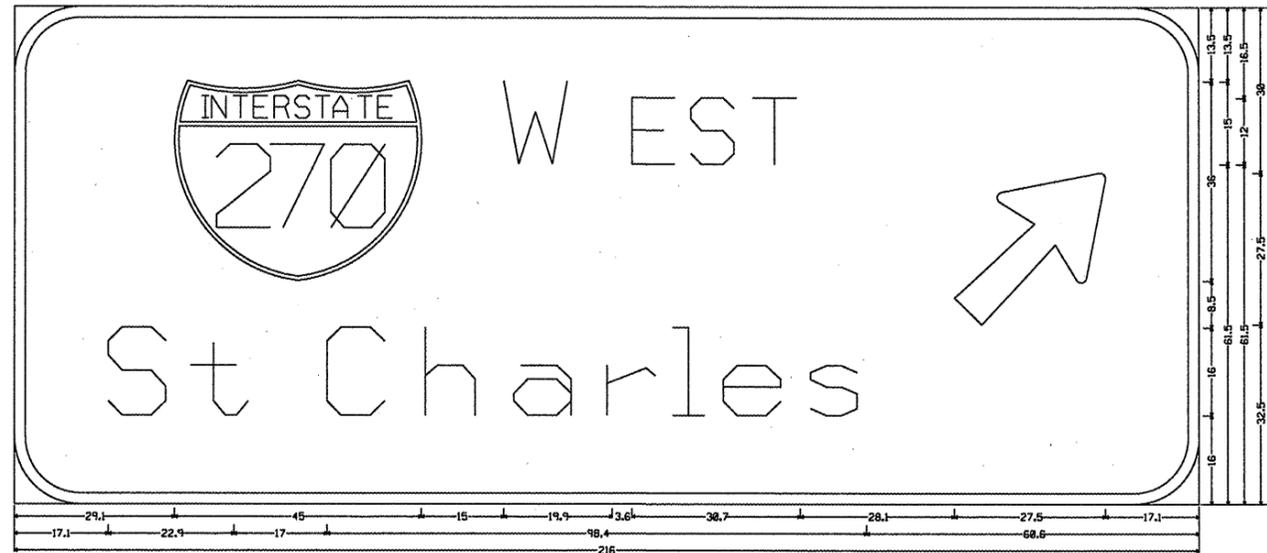
SUNDAY			MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY		
LANE RESTRICTIONS PERMITTED	NO LANE RESTRICTIONS PERMITTED	LANE RESTRICTIONS PERMITTED	NO LANE RESTRICTIONS PERMITTED	LANE RESTRICTIONS PERMITTED	NO LANE RESTRICTIONS PERMITTED	LANE RESTRICTIONS PERMITTED	NO LANE RESTRICTIONS PERMITTED	LANE RESTRICTIONS PERMITTED	NO LANE RESTRICTIONS PERMITTED	LANE RESTRICTIONS PERMITTED	NO LANE RESTRICTIONS PERMITTED	LANE RESTRICTIONS PERMITTED	NO LANE RESTRICTIONS PERMITTED			LANE RESTRICTIONS PERMITTED				
12A 3A 5A	9A 12P 3P 6P 9P	12A 3A 5A	9A 12P 3P 6P 9P	12A 3A 5A	9A 12P 3P 6P 9P	12A 3A 5A	9A 12P 3P 6P 9P	12A 3A 5A	9A 12P 3P 6P 9P	12A 3A 5A	9A 12P 3P 6P 9P	12A 3A 5A	9A 12P 3P 6P 9P	12A 3A 5A	9A 12P 3P 6P 9P	12A 3A 5A	9A 12P 3P 6P 9P	12A		

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	PLOT SCALE = 1/8" = 1'-0"	CHECKED -	REVISED -		SCALE: N/A	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	<b>CONTRACT NO. 76F08</b>			
	PLOT DATE = 7/7/2011	DATE -	REVISED -		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							

07M03

SUMMARY OF QUANTITIES			TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 0014
CODE NO	ITEM	UNIT		
50102400	CONCRETE REMOVAL	CU YD	17.4	17.4
50157300	PROTECTIVE SHIELD	SO YD	100.9	100.9
50300255	CONCRETE SUPERSTRUCTURE	CU YD	17.4	17.4
50300260	BRIDGE DECK GROOVING	SO YD	35.1	35.1
50300300	PROTECTIVE COAT	SO YD	65.4	65.4
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	10,190	10,190
50500505	STUD SHEAR CONNECTORS	EACH	234	234
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	4,690	4,690
67100100	MOBILIZATION	L SUM	1	1
70100310	TRAFFIC CONTROL AND PROTECTION, STANDARD 701421	L SUM	1	1
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1	1
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	24	24
70400100	TEMPORARY CONCRETE BARRIER	FOOT	225	225
72000300	SIGN PANEL - TYPE 3	SO FT	135	135
73304000	OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	FOOT	18	18
x5080600	MECHANICAL SPLICERS	EACH	246	246
x7010210	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411 (SPECIAL)	EACH	1	1
Z0001901	JACK AND REPOSITION BEARINGS	EACH	1	1
Z0001903	STRUCTURAL STEEL REMOVAL	POUND	11,690	11,690
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	1	1
Z0073300	TEMPORARY SHORING AND CRIBBING	L SUM	1	1

SIGN DETAILS



NOTES:

FOR SIGN PANEL LOCATION, SEE SHEET 6 OF 15.

SEE STRUCTURE PLANS FOR BRIDGE MOUNT DETAILS.

SIGN PANEL SHALL BE TYPE ZZ RETROREFLECTIVE.

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c:\pw\work\p1dot\therpr1\d8266295\d876	08-shr-500.dgn	DRAWN -	REVISED -
	PLOT SCALE = 100.0000' / 1"	CHECKED -	REVISED -
	PLOT DATE = 7/7/2011	DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

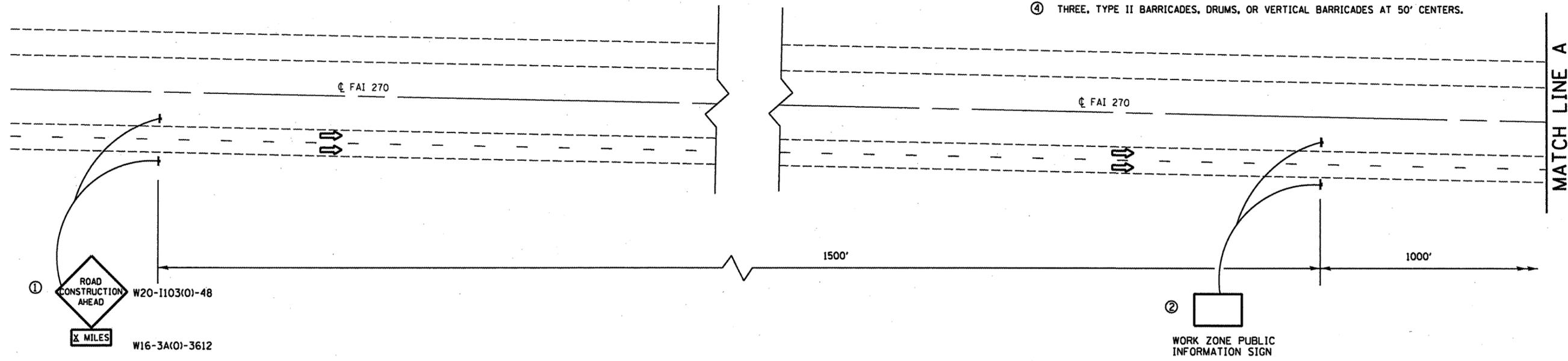
SUMMARY OF QUANTITIES & SIGN DETAILS

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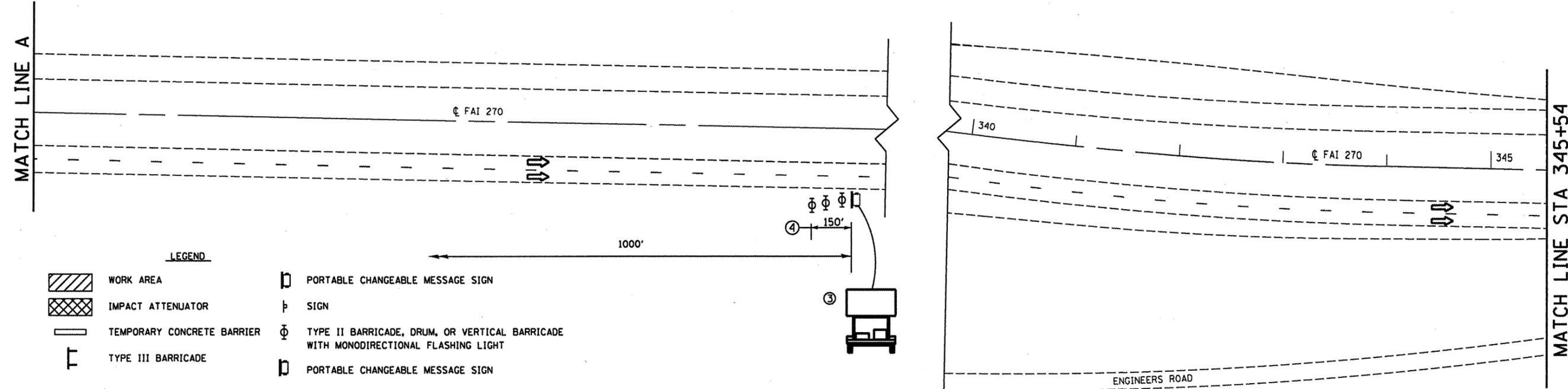
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF-1	MADISON	15	3
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	
			CONTRACT NO. 76F08	



- ① THE ROAD CONSTRUCTION AHEAD SIGN SHALL BE LOCATED 3 TO 5 MILES IN ADVANCE OF THE PROJECT LIMITS.
- ② THE MESSAGE AND SIZE OF THE WORK ZONE PUBLIC INFORMATION SIGN SHALL BE AS SPECIFIED BY THE DEPARTMENT.
- ③ THE MESSAGE BOARD SHALL BE USED TO DISPLAY STATUS OF LANES WITHIN THE PROJECT. THE PRIMARY MESSAGES SHALL BE AS SPECIFIED BY THE RESIDENT ENGINEER. MESSAGE BOARD PAID FOR IN CALENDAR MONTH AS CHANGEABLE MESSAGE SIGN.
- ④ THREE, TYPE II BARRICADES, DRUMS, OR VERTICAL BARRICADES AT 50' CENTERS.



NOTES:  
 TRAFFIC CONTROL FOR I-255 SHALL BE INSTALLED AS SHOWN ON THE PLANS. THE COST OF THIS TRAFFIC CONTROL SHALL BE INCLUDED IN THE PAY ITEM "TRAFFIC CONTROL AND PROTECTION STANDARD 701411 (SPECIAL)".  
 TRAFFIC CONTROL ON IL 111 SHALL BE ACCORDING TO "TRAFFIC CONTROL AND PROTECTION STANDARD 701421".  
 PLAN NOT TO SCALE.



- LEGEND**
- WORK AREA
  - IMPACT ATTENUATOR
  - TEMPORARY CONCRETE BARRIER
  - TYPE III BARRICADE
  - PORTABLE CHANGEABLE MESSAGE SIGN
  - SIGN
  - TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH MONODIRECTIONAL FLASHING LIGHT
  - PORTABLE CHANGEABLE MESSAGE SIGN

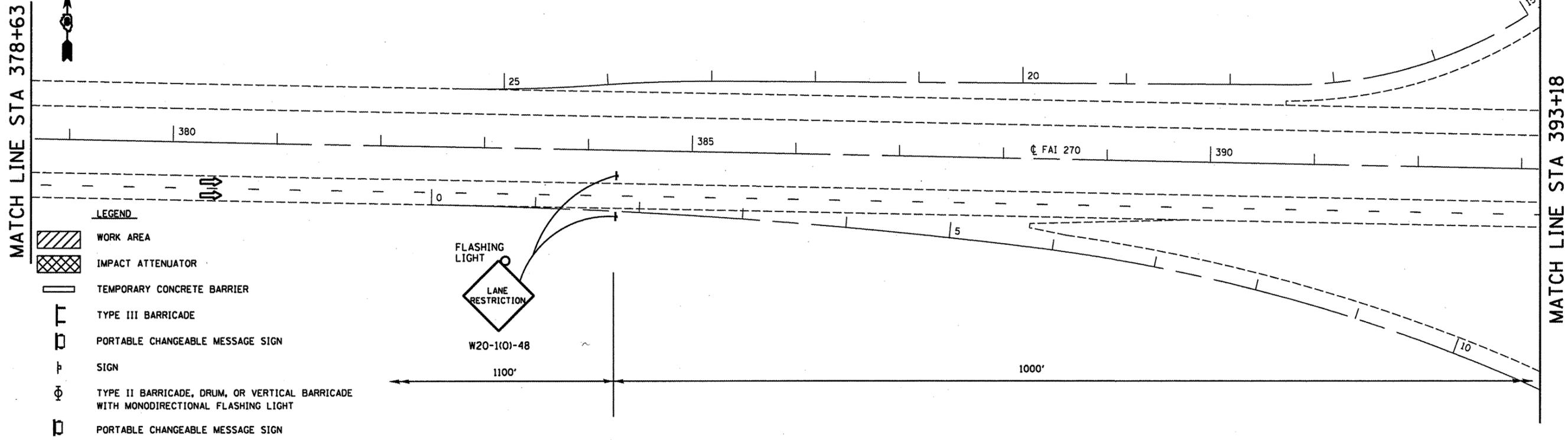
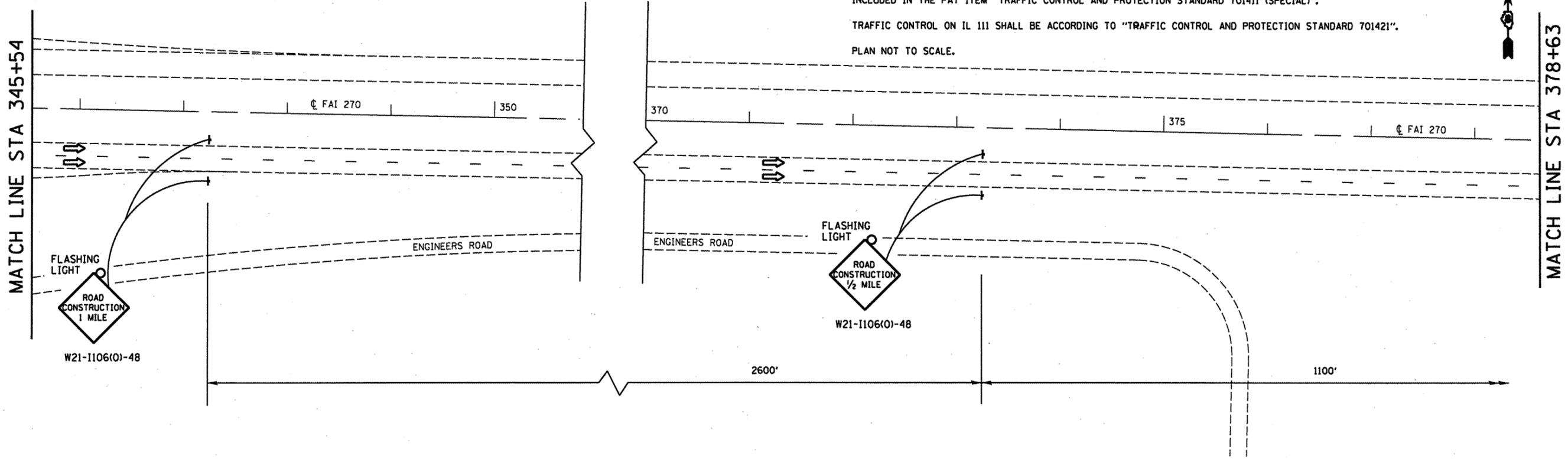
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a:\pwwork\pwwork\therpr1\08266295\0876	08-sht-plan.dgn	DRAWN -	REVISED -			270	60-3HB-1-HDF-1	MADISON	15	4
PLOT SCALE = 100.0000' / in.		CHECKED -	REVISED -			CONTRACT NO. 76F08				
PLOT DATE = 7/7/2011		DATE -	REVISED -			ILLINOIS FED. AID PROJECT				
					SCALE: N/A	SHEET NO. 1 OF 3 SHEETS		STA. _____ TO STA. _____		

NOTES:

TRAFFIC CONTROL FOR I-255 SHALL BE INSTALLED AS SHOWN ON THE PLANS. THE COST OF THIS TRAFFIC CONTROL SHALL BE INCLUDED IN THE PAY ITEM "TRAFFIC CONTROL AND PROTECTION STANDARD 701411 (SPECIAL)".

TRAFFIC CONTROL ON IL 111 SHALL BE ACCORDING TO "TRAFFIC CONTROL AND PROTECTION STANDARD 701421".

PLAN NOT TO SCALE.



FILE NAME = c:\pwwork\pwwork\therpr1\d0266295\d076	USER NAME = therpr1	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TRAFFIC CONTROL &amp; PROTECTION PLAN</b>		F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
	08-ahc-plan.dgn	DRAWN -	REVISED -				270	60-3HB-1-HDF-1	MADISON	15	5	
PLOT SCALE = 1/8" = 1'-0"	CHECKED -	REVISED -	REVISED -		SCALE: N/A		SHEET NO. 2 OF 3 SHEETS		STA. _____ TO STA. _____		<b>CONTRACT NO. 76F08</b>	
PLOT DATE = 7/7/2011	DATE -	REVISED -	REVISED -		ILLINOIS FED. AID PROJECT							

NOTES:

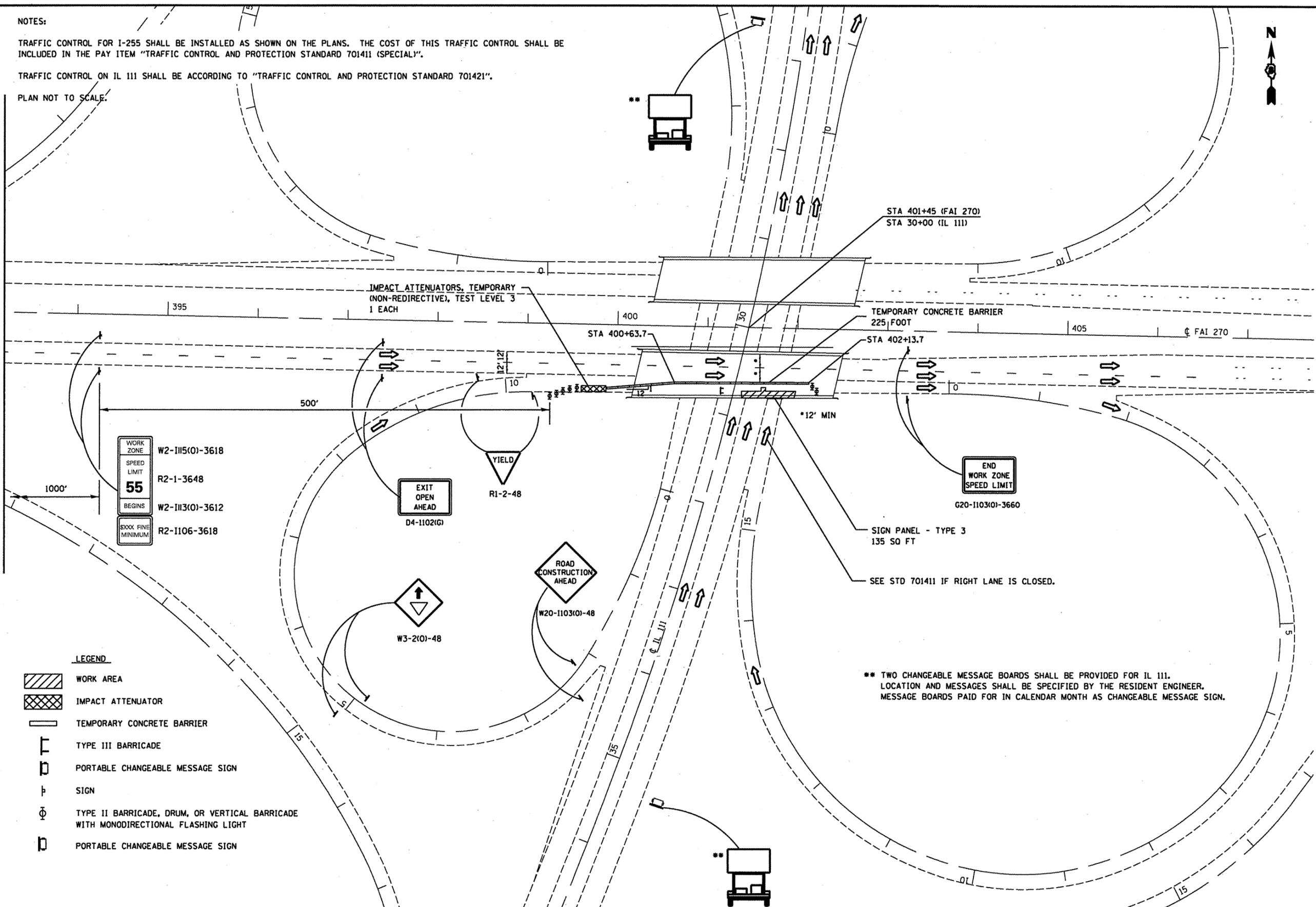
TRAFFIC CONTROL FOR I-255 SHALL BE INSTALLED AS SHOWN ON THE PLANS. THE COST OF THIS TRAFFIC CONTROL SHALL BE INCLUDED IN THE PAY ITEM "TRAFFIC CONTROL AND PROTECTION STANDARD 701411 (SPECIAL)".

TRAFFIC CONTROL ON IL 111 SHALL BE ACCORDING TO "TRAFFIC CONTROL AND PROTECTION STANDARD 701421".

PLAN NOT TO SCALE.



MATCH LINE STA 393+18



WORK ZONE W2-1115(O)-3618  
 SPEED LIMIT R2-1-3648  
**55**  
 BEGINS W2-1113(O)-3612  
 SIXX FIVE MINIMUM R2-1106-3618

- LEGEND**
- WORK AREA
  - IMPACT ATTENUATOR
  - TEMPORARY CONCRETE BARRIER
  - TYPE III BARRICADE
  - PORTABLE CHANGEABLE MESSAGE SIGN
  - SIGN
  - TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH MONODIRECTIONAL FLASHING LIGHT
  - PORTABLE CHANGEABLE MESSAGE SIGN

\*\* TWO CHANGEABLE MESSAGE BOARDS SHALL BE PROVIDED FOR IL 111. LOCATION AND MESSAGES SHALL BE SPECIFIED BY THE RESIDENT ENGINEER. MESSAGE BOARDS PAID FOR IN CALENDAR MONTH AS CHANGEABLE MESSAGE SIGN.

FILE NAME =	USER NAME = therpr1	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TRAFFIC CONTROL &amp; PROTECTION PLAN</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
cr:\pwwork\pwwork\therpr1\d0266295\d876	08-ah-t-plen,dgn	DRAWN -	REVISED -			270	60-3HB-1-HDF-1	MADISON	15	6	
	PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED -			<b>CONTRACT NO. 76F08</b>					
	PLOT DATE = 7/7/2011	DATE -	REVISED -			ILLINOIS FED. AID PROJECT					
					SCALE: N/A	SHEET NO. 3 OF 3 SHEETS		STA.	TO STA.		

**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.

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

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

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

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

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", and "Cleaning and Painting New Metal Structures". The color of the final finish coat shall be Interstate Green, Munsell No. 7.5G 4/8. Cost included with Furnishing and Erecting Structural Steel.

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

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

The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat shall be Interstate Green, Munsell No. 7.5G 4/8. See Special Provision "Cleaning and Painting New Metal Structures".

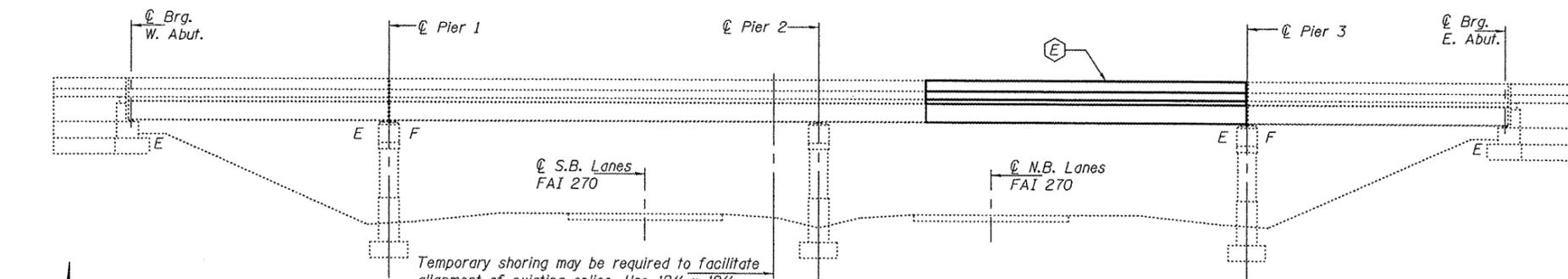
The Contractor is responsible for the method of supporting the portion of existing girder to be removed prior to removal operations.

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

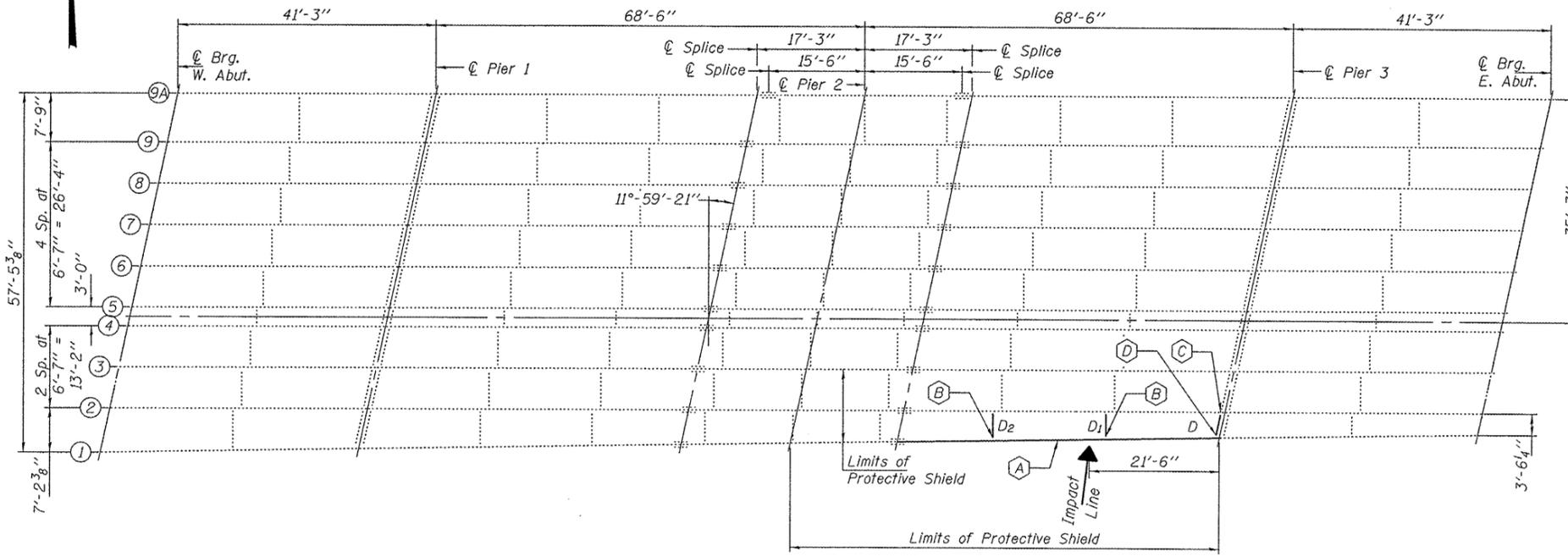
Reinforcement bars designated (E) shall be epoxy coated.

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

Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.



**ELEVATION**



**FRAMING PLAN**

- (A) Remove and replace Beam Segment
- (B) Replace Diaphragm and top and bottom clip L's
- (C) Jack and Reposition Bearing
- (D) Replace Diaphragm and bottom clip L
- (E) Replace Sign Structure

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Furnishing and Erecting Structural Steel	Pound	10,190
Structural Steel Removal	Pound	11,690
Temporary Shoring and Cribbing	L.S.	1
Concrete Removal	Cu. Yd.	17.4
Concrete Superstructure	Cu. Yd.	17.4
Reinforcement Bars, Epoxy Coated	Pound	4690
Stud Shear Connectors	Each	234
Bridge Deck Grooving	Sq. Yd.	35.1
Protective Coat	Sq. Yd.	65.4
Protective Shield	Sq. Yd.	100.9
Overhead Sign Structure - Bridge Mounted	Foot	18
Mechanical Splicers	Each	246
Jack and Reposition Bearings	Each	1



DESIGNED: *Alan Holloway* AT EXAMINED: *John F. [Signature]* DATE: **JULY 27, 2011**

CHECKED: *Alan Holloway* PASSED: *[Signature]*

DRAWN: *balva*

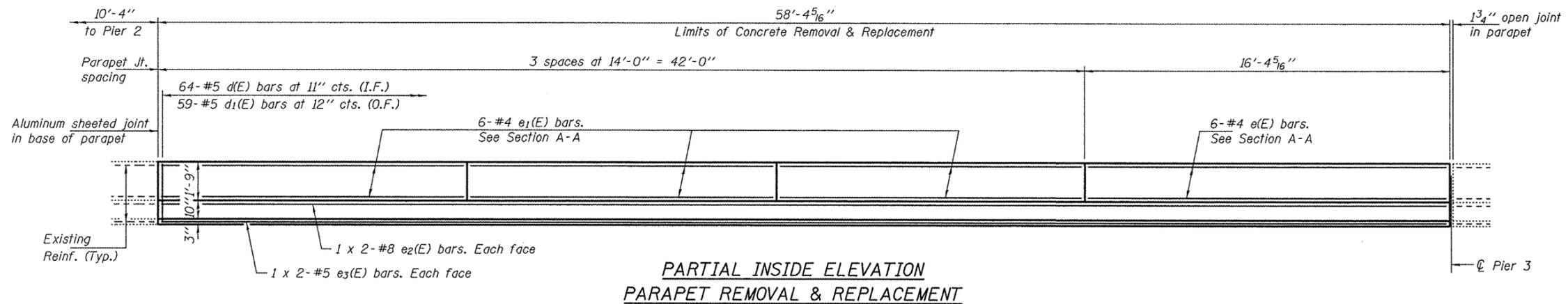
CHECKED: *ADY* *HRC*

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

**PLAN AND ELEVATION**  
**OVER FAI 270**  
**SN 060-0046**  
SHEET 1 OF 9 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF-1	MADISON	15	7

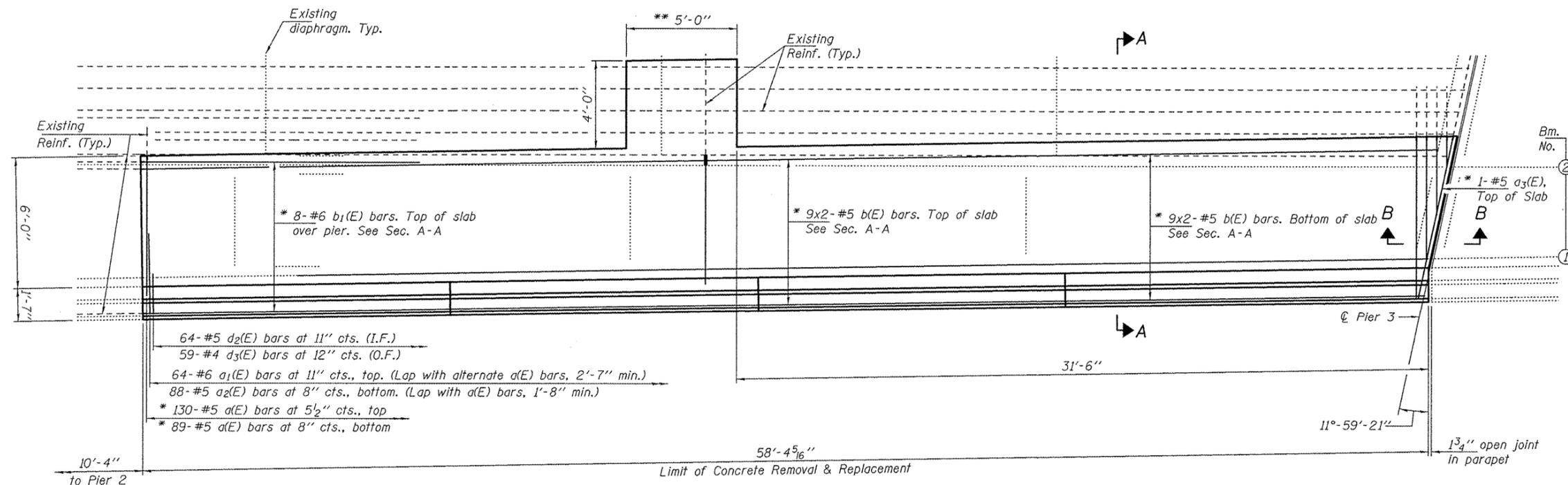
CONTRACT NO. 76F08  
ILLINOIS FED. AID PROJECT



**PARTIAL INSIDE ELEVATION  
PARAPET REMOVAL & REPLACEMENT**

**MINIMUM BAR LAP**  
 #5 bar = 2'-7"  
 #8 bar = 5'-2"

\*\* Existing reinforcement in this area  
to extend 4'-6" into the removal area.

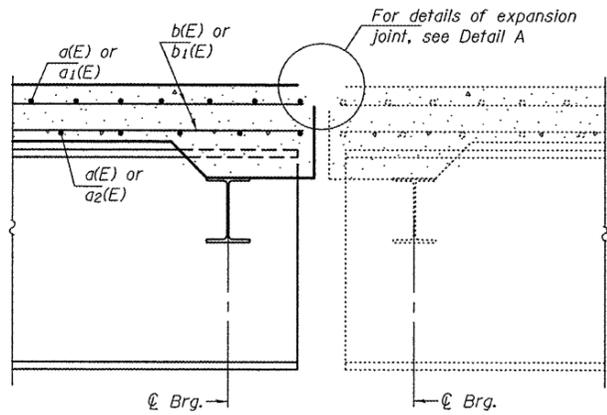


**PARTIAL PLAN  
CONCRETE REMOVAL & REPLACEMENT**

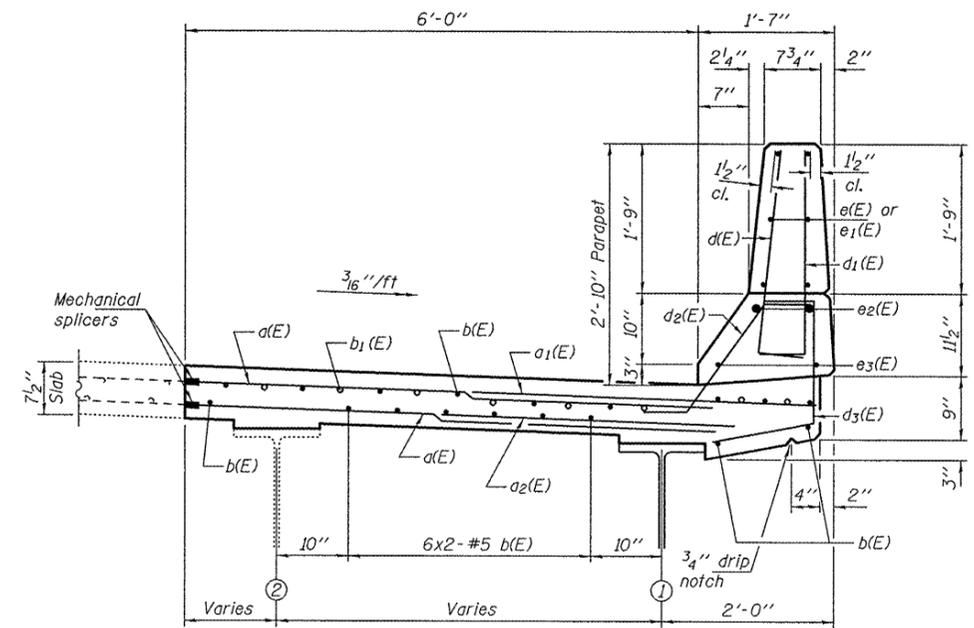
\* Attach to existing reinforcement with mechanical splicers. Existing reinforcement to extend 6" (min.) into the removal area to allow attachment of the mechanical splicers. Cut a(E) bars to fit at Pier 3.

See sheet 3 of 9 for  
Sections A-A & B-B

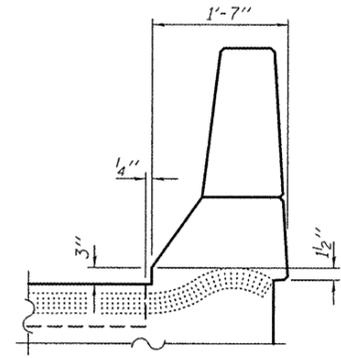
DESIGNED ATH	EXAMINED	DATE	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REPAIR DETAILS SN 060-0046	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED ADY	<i>Jayne F. [Signature]</i>	JULY 27, 2011			270	60-3HB-1-HDF-1	MADISON	15	8
DRAWN baliva	PASSED				CONTRACT NO. 76F08				
CHECKED ATH ADY	ACTING ENGINEER OF STRUCTURAL SERVICES				ILLINOIS FED. AID PROJECT				
	ACTING ENGINEER OF BRIDGES AND STRUCTURES				SHEET 2 OF 9 SHEETS				



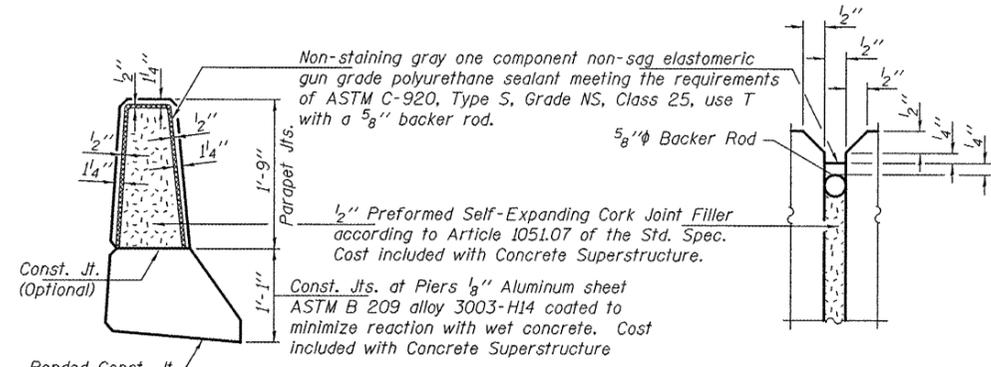
SECTION B-B



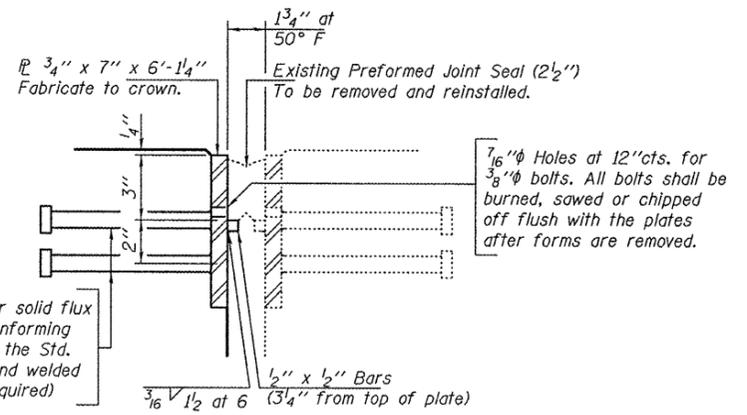
SECTION A-A



END TREATMENT



PARAPET JOINT DETAILS

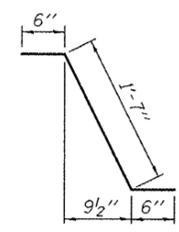


DETAIL A

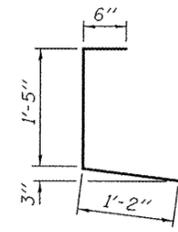
Cost included with Concrete Superstructure.

ELEVATION NEW JOINT R TO EXISTING JOINT R

BARS d(E) & d1(E)



BAR d2(E)



BAR d3(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	219	#5	6'-0"	—
a1(E)	64	#6	4'-0"	—
a2(E)	88	#5	3'-5"	—
a3(E)	1	#5	7'-0"	—
b(E)	36	#5	30'-9"	—
b1(E)	8	#6	12'-9"	—
d(E)	64	#5	3'-0"	┌
d1(E)	59	#4	3'-0"	┌
d2(E)	64	#5	2'-7"	┌
d3(E)	59	#4	3'-1"	┌
e(E)	6	#4	16'-0"	—
e1(E)	18	#4	13'-8"	—
e2(E)	4	#8	31'-7"	—
e3(E)	4	#5	30'-3"	—
Concrete Removal			Cu. Yd.	17.4
Concrete Superstructure			Cu. Yd.	17.4
Reinforcement Bars, Epoxy Coated			Lbs.	4690

Bars indicated thus 1 x 2-#5 etc. indicates 1 line of bars with 2 lengths per line.

DESIGNED ATH	EXAMINED	DATE
CHECKED ADY	<i>James F. J...</i>	JULY 27, 2011
DRAWN balva	PASSED	
CHECKED ATH ADY	ACTING ENGINEER OF BRIDGES AND STRUCTURES	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

REPAIR DETAILS  
SN 060-0046  
SHEET 3 OF 9 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF-1	MADISON	15	9
CONTRACT NO. 76F08			ILLINOIS FED. AID PROJECT	



**GENERAL NOTES**

**SPECIFICATIONS:**

**DESIGN:** AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. ("AASHTO Specifications") (2)

**CONSTRUCTION:** Current (at time of letting) Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Supplemental Specifications and Special Provisions. ("Standard Specifications")

**LOADING:** 90 M.P.H. WIND VELOCITY

**WALKWAY LOADING:** Dead load plus 500 lbs. concentrated live load.

**MINIMUM CLEARANCE:** 3" greater than bridge members at all locations. (All Obstructions)

**WELDING:** All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 Structural Welding Code (Steel) and the Standard Specifications.

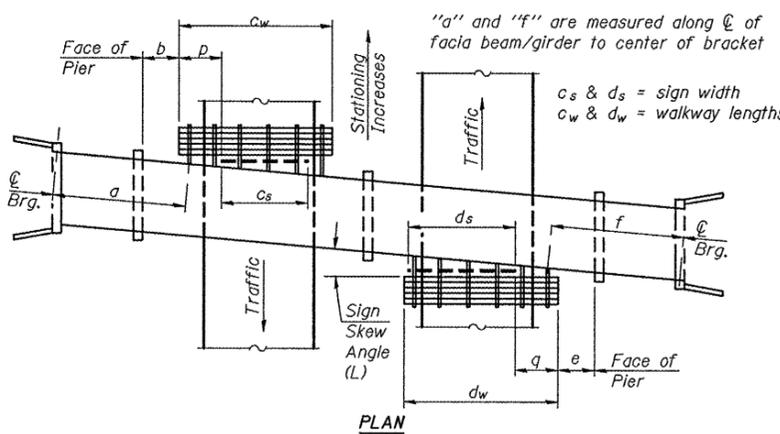
**MATERIALS:** All Structural Steel Pipe shall be ASTM A53 Grade B with a minimum yield of 35,000 p.s.i., or A500 Grade B or C with a minimum yield of 46,000 p.s.i. If A500 pipe is substituted for A53, then the outside diameter shall be as detailed and wall thickness greater than or equal to A53. All Structural Steel Plates and Shapes shall conform to AASHTO M270 Gr. 36, Gr. 50 (M183, M223 Gr. 50).

**HIGH STRENGTH BOLTS:** All bolts, washers, nuts and locknuts shall satisfy the requirements of ASTM designation A307 unless noted as "H.S." which shall require AASHTO M164 (A325), ASTM A449, or approved alternate. All fasteners shall be hot dip galvanized per AASHTO M232 unless otherwise specified.

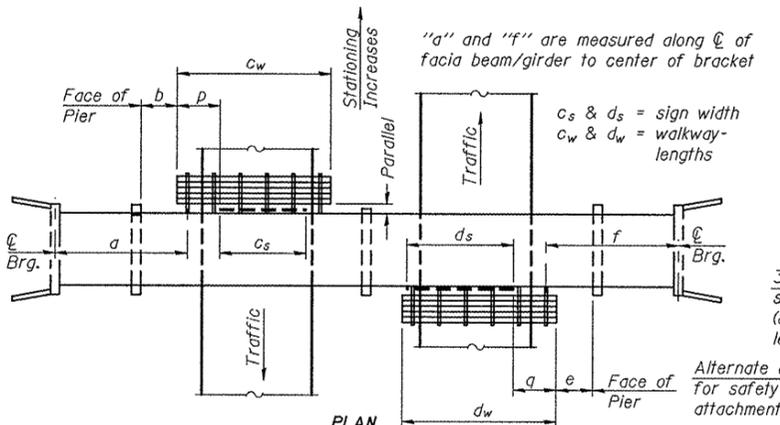
**GALVANIZING:** All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

**ANCHOR RODS:** All-threaded rod shall conform to ASTM F1554 Grade 105, 3/4"φ x 12" long, each with one plate washer and locknut and be hot dip galvanized per AASHTO M232. They shall be either cast into the concrete or epoxy grouted in accordance with Section 584 of the Standard Specifications. Minimum embedment in concrete shall be 9".

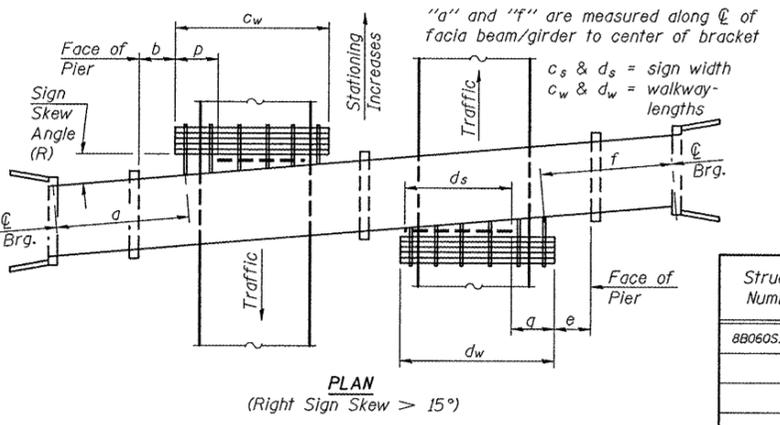
- ① Bracket spacing  $g \leq 6'-0"$ , max. Spacing shall be uniform if possible but may vary  $\pm 6"$  to miss existing obstruction (rail post, light poles, web stiffeners, splice plates, etc.). Adjust bracket lengths accordingly on skewed structures.
- ② Any design modifications shall be based on the current version of applicable specifications and submitted for the Engineer's approval.
- ③ Unit price includes grating, handrail, brackets, supports, anchor bolts, fasteners, fabrication, delivery, erection, field drilling and other necessary items. Limits of payment are based on grating length ( $c_w$ ,  $d_w$ ) unless otherwise specified. For Safety Chain Details and Details D, F and G, see Base Sheet BM-4.
- ④ If walkway bracket at safety chain location is behind sign, add angle to bracket. See detail on Base Sheet BM-4.



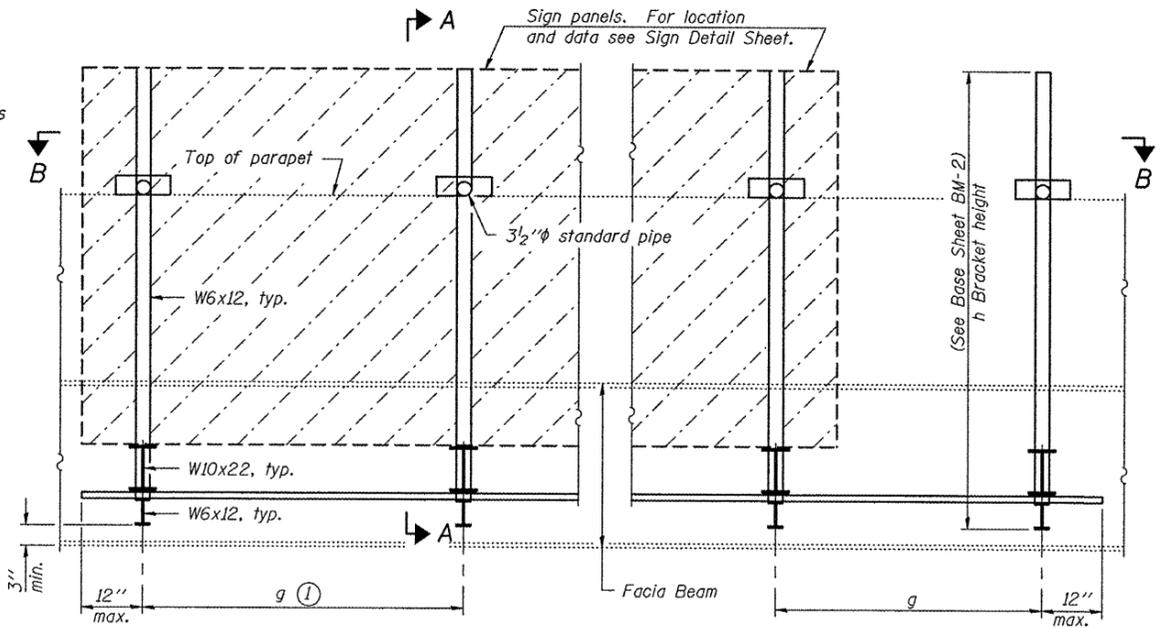
**PLAN WALKWAY AND HANDRAIL SKETCH**  
(Left Sign Skew > 15°)  
(Road plan beneath structure varies.)



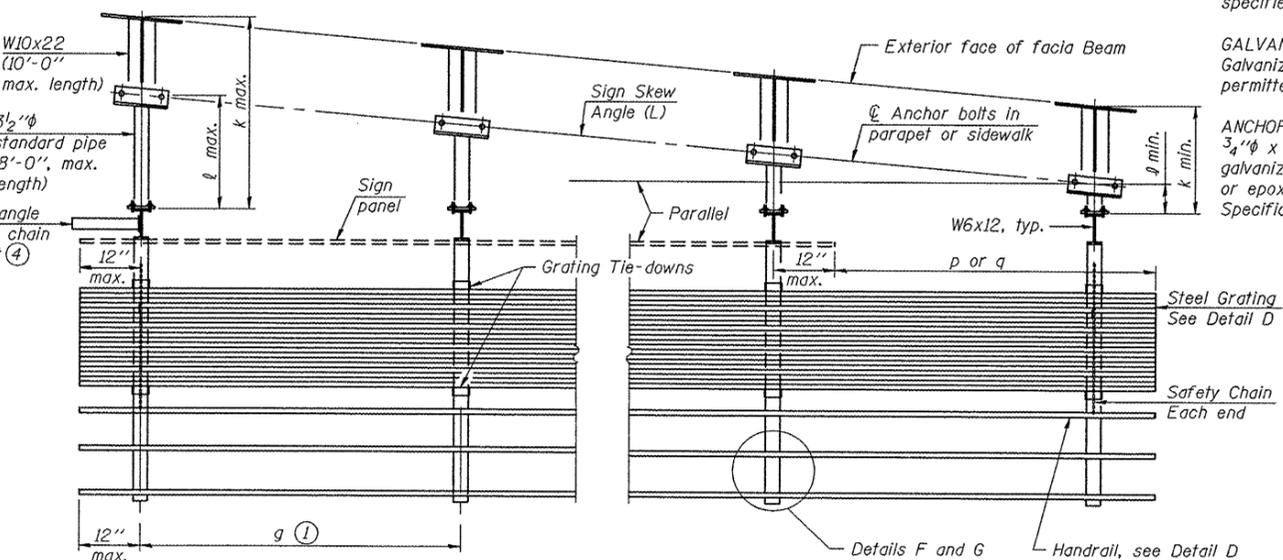
**PLAN WALKWAY AND HANDRAIL SKETCH**  
(For Sign Skew  $\leq 15^\circ$ , all brackets constant)  
(Road plan beneath structure varies.)



**PLAN WALKWAY AND HANDRAIL SKETCH**  
(Right Sign Skew > 15°)  
(Road plan beneath structure varies.)



**TYPICAL FRONT ELEVATION**  
(With lights, safety chain and handrail omitted for clarity.)



**SECTION B-B**  
(Shown: Left Sign Skew > 15°)

Structure Number	Sign Skew Angle (L) or (R)	Bridge Station	Bridge Structure Number	Contract Route Designation	a	b	c <sub>s</sub>	c <sub>w</sub>	d <sub>s</sub>	d <sub>w</sub>	e	f	g	No. of Brackets (Total)	p	q	Total Grating/Hndrl. Lengths (c <sub>w</sub> + d <sub>w</sub> )
88060S11R007.4	11°-59'-21"	30+00	060-0046	FAI 270	--	--	--	--	18'-0"	18'-0"	10'-0"	52'-6"	5'-6"	4	--	--	18'-0"

Dimensions a, b, e, f & g may vary as approved by the Engineer, see (1).  
When  $c_w < c_s$  and/or  $d_w < d_s$ , use alternate brackets without walkway supports where applicable, see (3).

BM-1 1-20-11

DESIGNED ATH	EXAMINED	DATE
CHECKED ADY	<i>Joanne F. [Signature]</i>	JULY 27, 2011
DRAWN baliva	ACTING ENGINEER OF STRUCTURAL SERVICES	
CHECKED ATH ADY	PASSED	
	ACTING ENGINEER OF BRIDGES AND STRUCTURES	

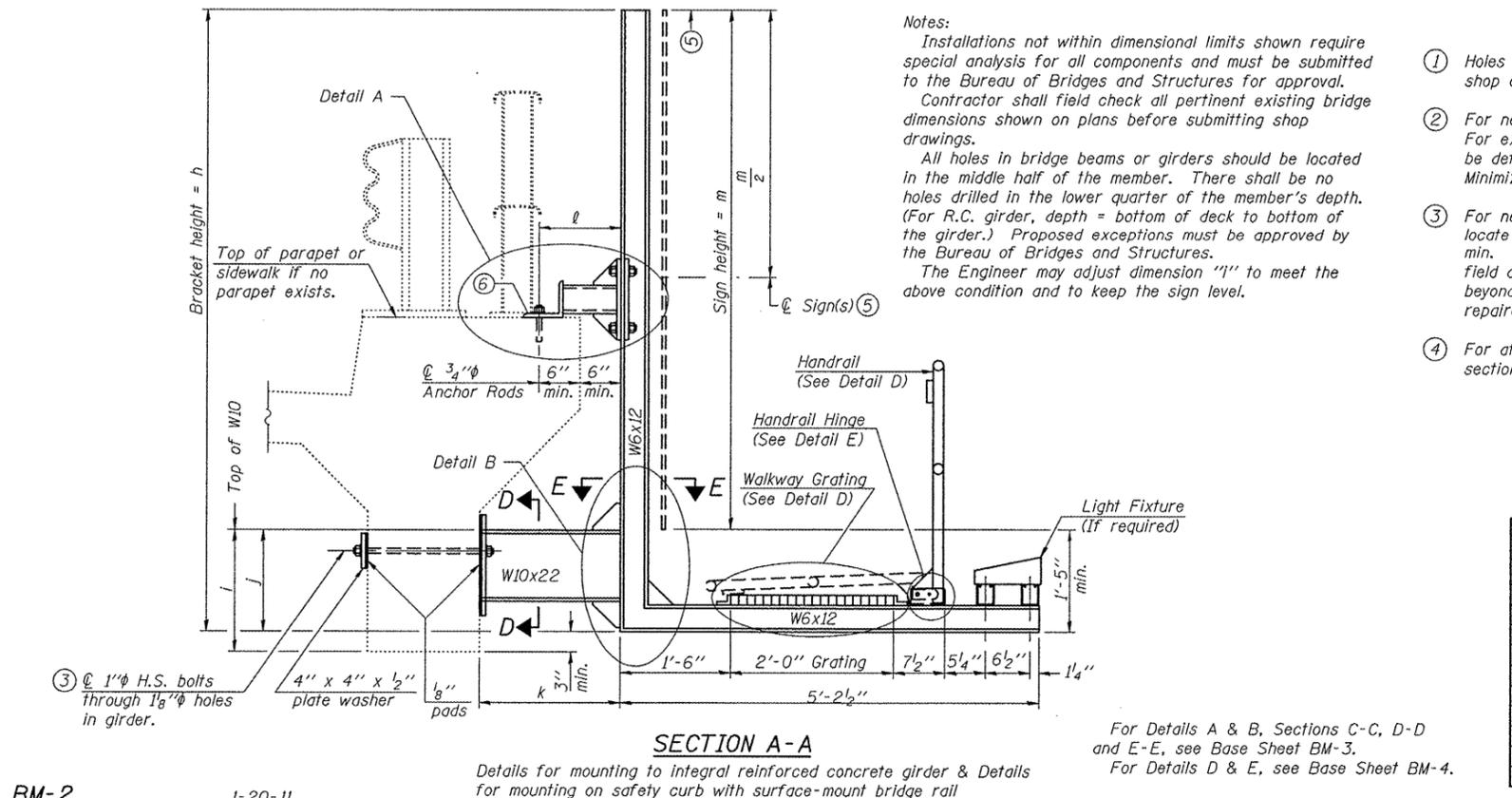
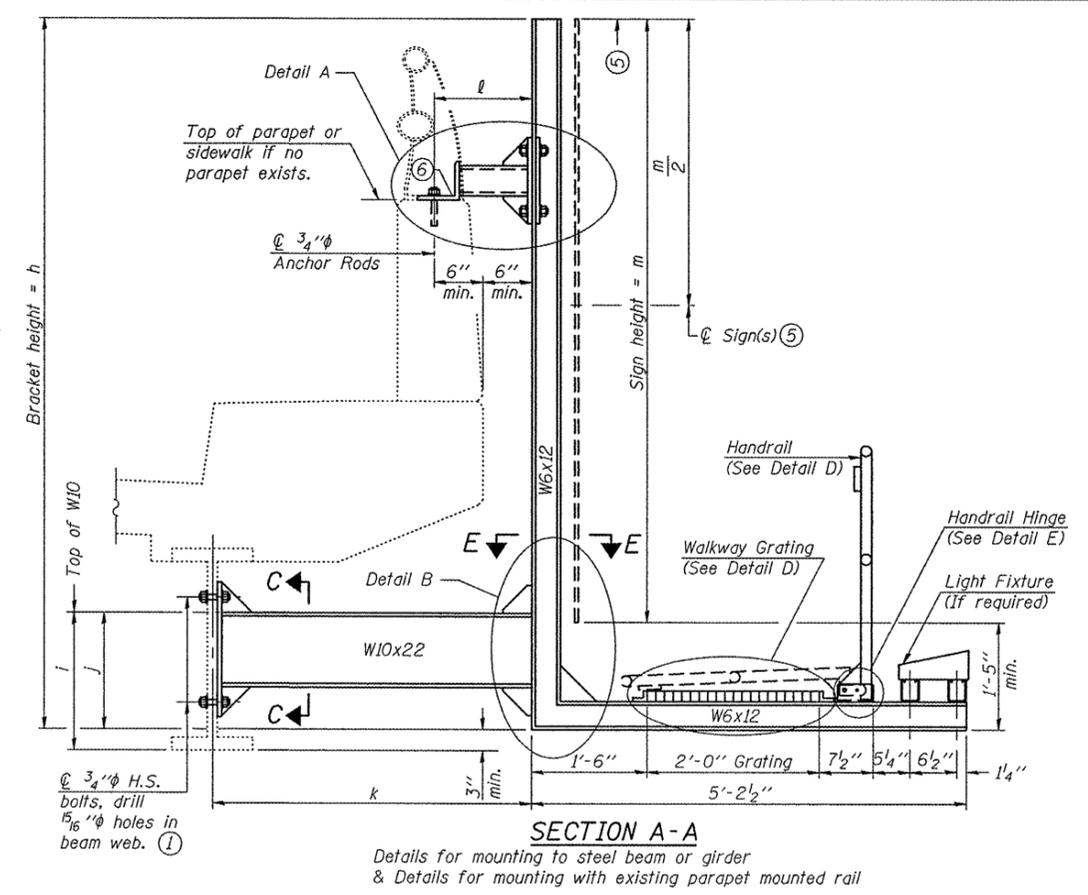
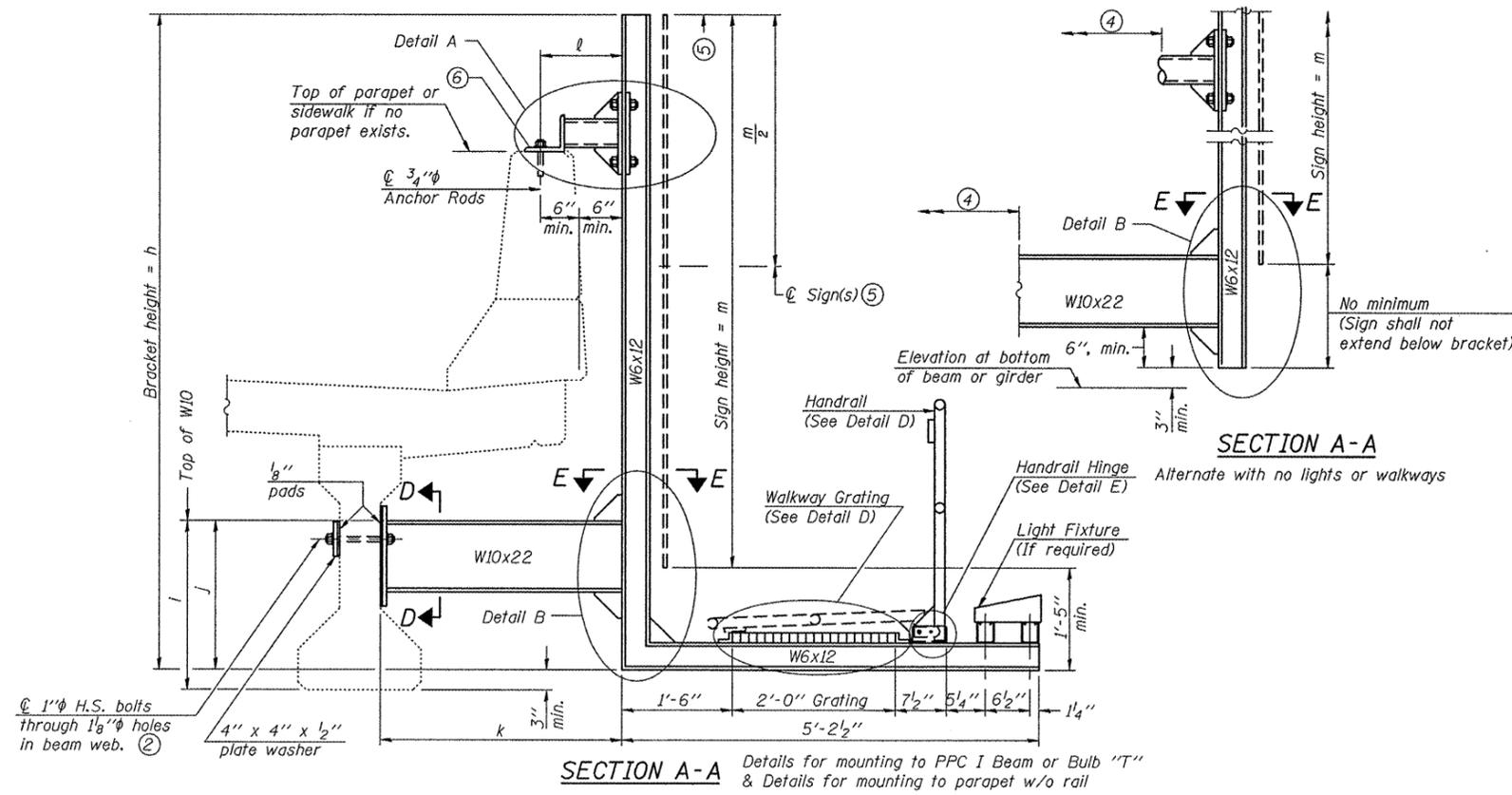
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**BRIDGE MOUNT SIGN STRUCTURES**  
**GENERAL PLAN AND ELEVATION**  
**SN 060-0046**  
SHEET 5 OF 9 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF-1	MADISON	15	11
CONTRACT NO. 76F08			ILLINOIS FED. AID PROJECT	

**TOTAL BILL OF MATERIAL**

③ OVERHEAD SIGN STRUCTURE-BRIDGE MOUNTED	Foot	18.0
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Notes:  
 Installations not within dimensional limits shown require special analysis for all components and must be submitted to the Bureau of Bridges and Structures for approval. Contractor shall field check all pertinent existing bridge dimensions shown on plans before submitting shop drawings.  
 All holes in bridge beams or girders should be located in the middle half of the member. There shall be no holes drilled in the lower quarter of the member's depth. (For R.C. girder, depth = bottom of deck to bottom of the girder.) Proposed exceptions must be approved by the Bureau of Bridges and Structures.  
 The Engineer may adjust dimension "i" to meet the above condition and to keep the sign level.

- ① Holes in new steel members may be drilled in the fabrication shop or in the field. Field drill existing members.
- ② For new PPC I beams, holes shall be formed during casting. For existing PPC I beams, prestressing strand locations shall be determined and spaced to miss strands by 6", min. Minimize spalling during field drilling of existing beams.
- ③ For new construction, form holes. For existing RC beams, locate primary reinforcement and space holes to miss by 6", min. Minimize spalling and concrete fracturing/damage during field drilling of existing concrete. Spalls over 1/4" deep or beyond the coverage of the 4x4 plate washer shall be repaired with epoxy mortar before installing washer.
- ④ For attachment details of 3/2" pipe and W10x22, see other sections as applicable.
- ⑤ Sign shall not extend more than 6" above top of bracket, and this dimension may vary to keep sign level if bridge is on grade or vertical curve. Multiple signs of various heights shall share a common horizontal centerline and use equal bracket heights. If no sign is attached to a W6x12 vertical (bracket only supporting walkway), dimension h shall be the same as an adjacent bracket with a sign attached, unless Engineer specifically directs shorter brackets due to locational restraints on future uses. (See Detail A for minimum bracket height.)
- ⑥ For bridge mounted sign structures installed on new bridges with railing, during design, bracket spacing must be coordinated with railing post spacing and the Contractor must install upper brackets prior to railing installation. For bridge mounted sign structures installed on existing bridges with railing, during design, brackets spacing must be coordinated with railing post spacing and the Contractor must temporarily remove sections of railing to facilitate upper bracket installation. If it is determined during design that existing railings can't be removed, alternate upper connection details must be developed for the contract plans and approved by the Bureau of Bridges and Structures.

Structure Number	Station	h	i	j	k max. (10'-0" max.)	l max. (8'-0" max.)	m (15'-0" max.)
060-0046	30+00	9'-0"	1'-11"	1'-8"	2'-6"	1'-1 1/2"	7'-6"

BM-2 1-20-11

DESIGNED ATH  
 CHECKED ADY  
 DRAWN baliva  
 CHECKED ATH ADY

EXAMINED  
 PASSED

DATE JULY 27, 2011

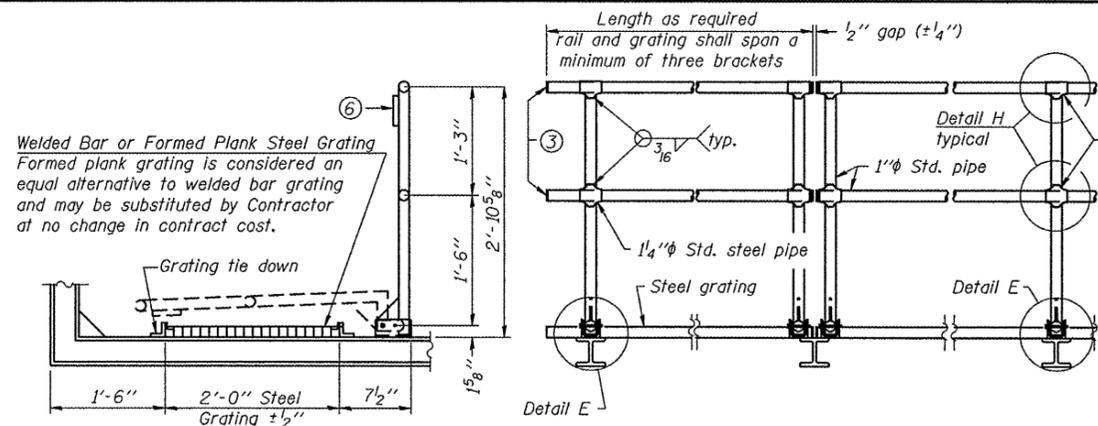
ACTING ENGINEER OF STRUCTURAL SERVICES  
 ACTING ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

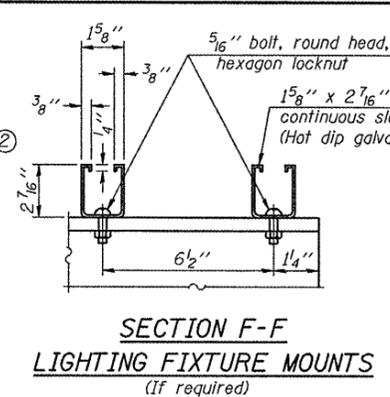
BRIDGE MOUNT SIGN STRUCTURES  
 WALKWAY AND CONNECTION DETAILS  
 SN 060-0046  
 SHEET 6 OF 9 SHEETS

F.A.I. RTE. 270  
 SECTION 60-3HB-1-HDF-1  
 COUNTY MADISON  
 TOTAL SHEETS 15  
 SHEET NO. 12  
 CONTRACT NO. 76F08  
 ILLINOIS FED. AID PROJECT

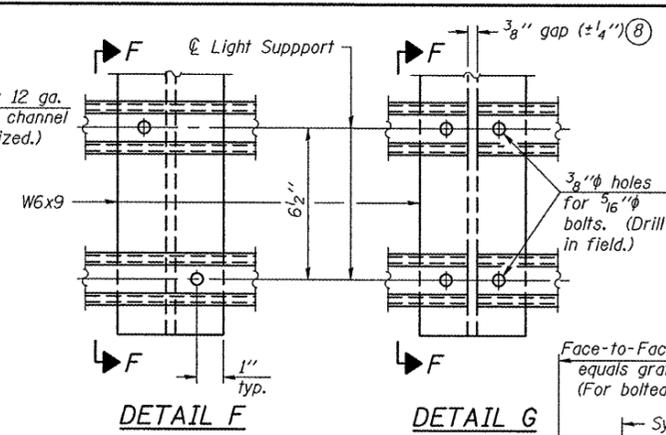




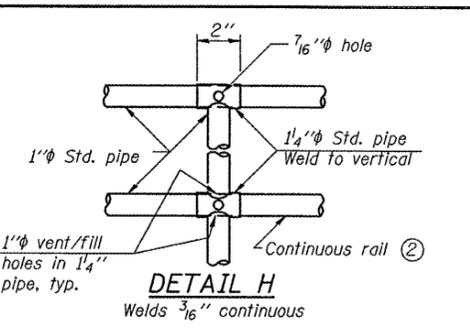
**SIDE ELEVATION DETAIL D HANDRAIL FRONT ELEVATION**



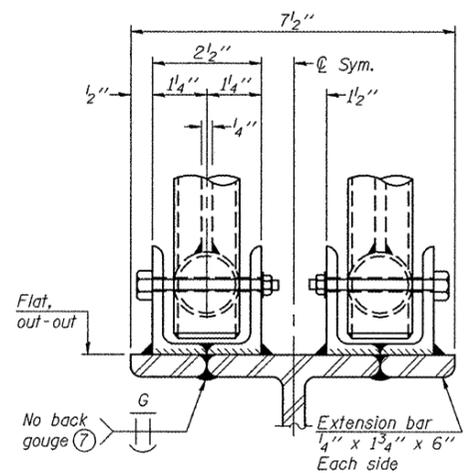
**SECTION F-F LIGHTING FIXTURE MOUNTS (IF required)**



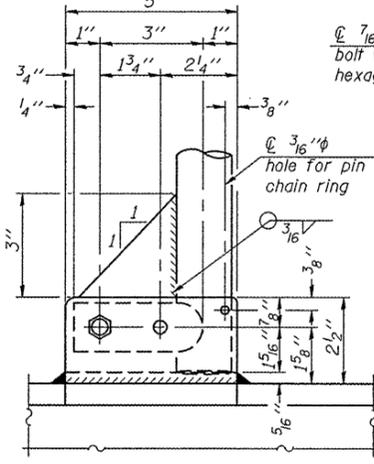
**DETAIL F DETAIL G**



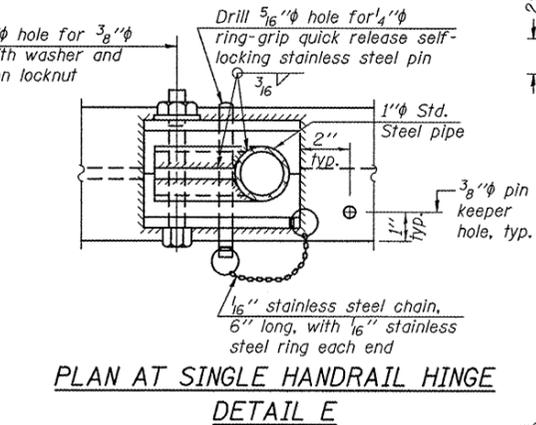
**DETAIL H**



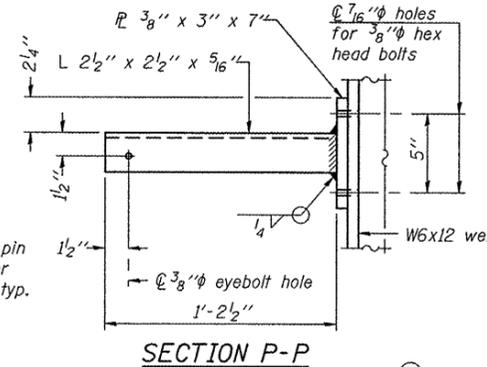
**ELEVATION AT HANDRAIL JOINT**  
(Details not shown same as "FRONT ELEVATION")



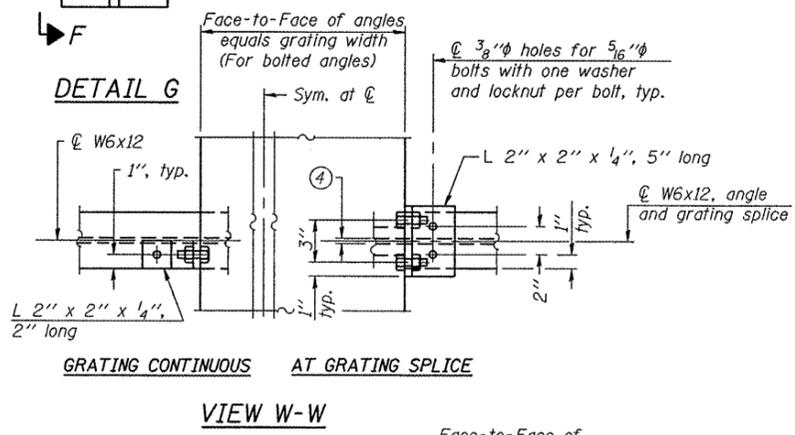
**SIDE ELEVATION**



**PLAN AT SINGLE HANDRAIL HINGE DETAIL E**

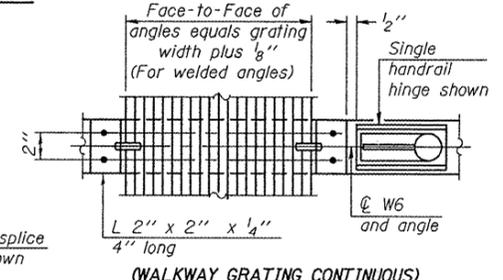


**SECTION P-P**



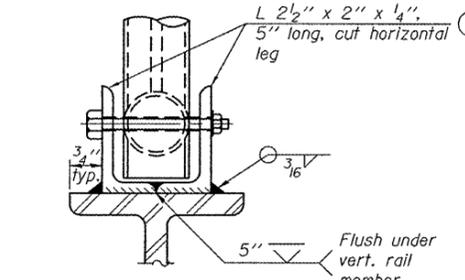
**GRATING CONTINUOUS AT GRATING SPLICE**

**VIEW W-W**



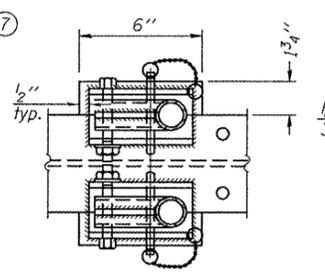
**(WALKWAY GRATING CONTINUOUS)**

**PLAN**

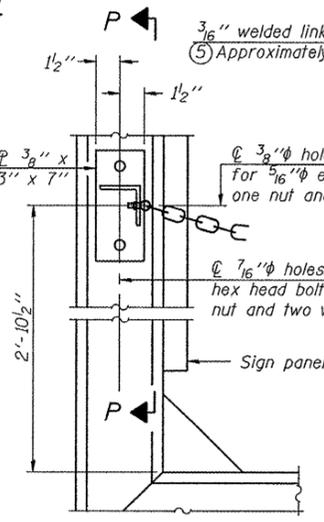


**FRONT ELEVATION**

(See above Elevations For dimensions.)

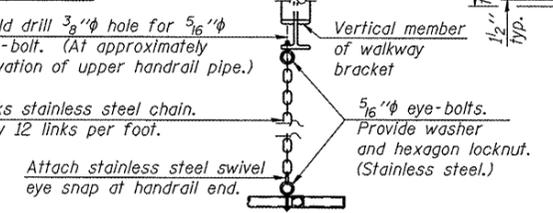


**PLAN AT HANDRAIL JOINT**  
(For Details, see Elevations.)



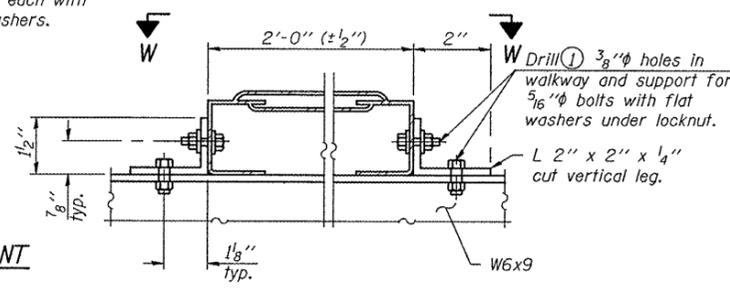
**SAFETY CHAIN ATTACHMENT**

(With Sign Present)  
Items not shown same as "SIDE ELEVATION" and "SAFETY CHAIN"



**SAFETY CHAIN**

One (1) required for each end of each walkway.



**ALTERNATE FORMED PLANK GRATING DETAILS**

Plank Grating: nominal depth = 2 1/2" (± 1/2"); perforated or expanded steel sheet with a non-skid surface (non-serrated) concentrated load capacity = 500 lbs. with 6'-0" clear span.

- NOTES**
- Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment. Field drilled holes must be touched up with galvanized paint.
  - Horizontal rail member shall be continuous thru 1 1/4" pipe. Provide 7/16" hole in 1 1/4" pipe for 3/8" bolt. Field drill 7/16" hole in horizontal rail member. Provide washer and locknut for bolt. (Use 5/16" eyebolts in 7/16" holes on top rail at ends only.)
  - Install standard force-fit end caps or weld 1/8" end plates with 3/8" c.f.w. and grind smooth. (All rail ends.)
  - 3/8" (± 1/4") gap between grating panels at splice.
  - Chain to be type 304L stainless steel suitable for prolonged exterior exposure. Approximately 3'-6" long chain per location. Maximum sag with handrail erected = 4".
  - 1 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
  - Extrusions may be used in lieu of details shown, with approval by Engineer.
  - Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.

**BM-4 1-20-11**

**WELDED BAR GRATING DETAILS**

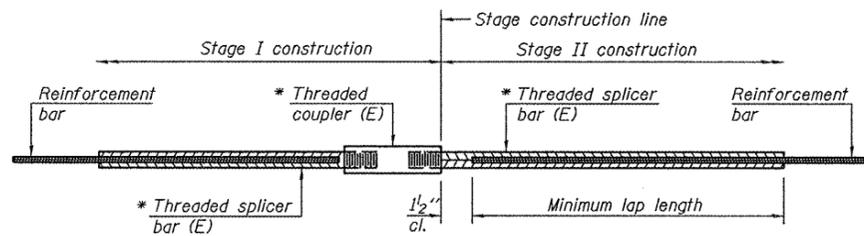
DESIGNED	ATH
CHECKED	ADY
DRAWN	baliva
CHECKED	ATH ADY

EXAMINED	DATE	JULY 27, 2011
PASSED	ACTING ENGINEER OF STRUCTURAL SERVICES	
	ACTING ENGINEER OF BRIDGES AND STRUCTURES	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BRIDGE MOUNT SIGN STRUCTURES  
WALKWAY DETAILS  
SN 060-0046  
SHEET 8 OF 9 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF-1	MADISON	15	14
CONTRACT NO. 76F08			ILLINOIS FED. AID PROJECT	



**STANDARD BAR SPLICER ASSEMBLY**

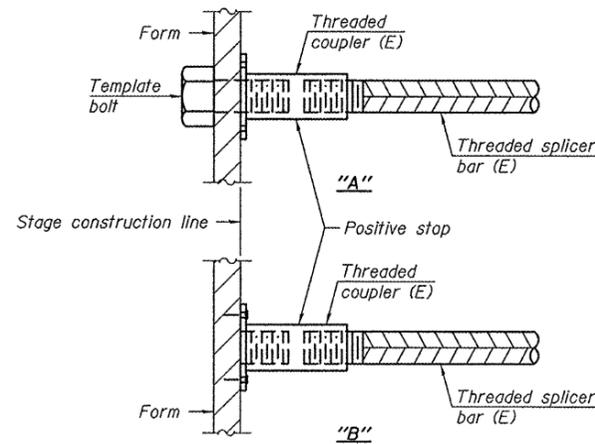
Minimum Lap Lengths					
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-3"
5	1'-9"	2'-5"	2'-7"	2'-11"	2'-10"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-4"
7	2'-9"	3'-10"	4'-2"	4'-8"	4'-6"
8	3'-8"	5'-1"	5'-5"	6'-2"	5'-10"
9	4'-7"	6'-5"	6'-10"	7'-9"	7'-5"

- Table 1: Black bar, 0.8 Class C
- Table 2: Black bar, Top bar lap, 0.8 Class C
- Table 3: Epoxy bar, 0.8 Class C
- Table 4: Epoxy bar, Top bar lap, 0.8 Class C
- Table 5: Epoxy bar, Top bar lap, Class B

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

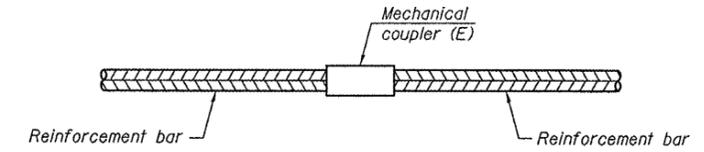
\* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

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



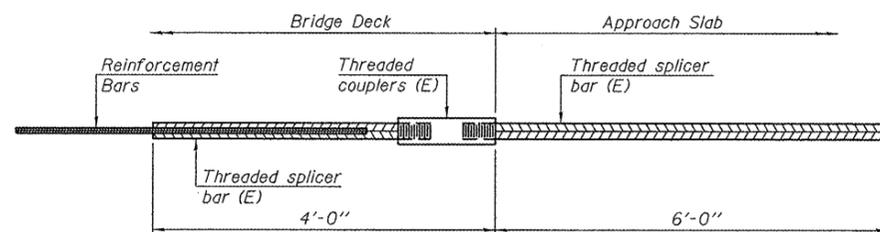
**INSTALLATION AND SETTING METHODS**

"A": Set bar splicer assembly by means of a template bolt.  
 "B": Set bar splicer assembly by nailing to wood forms or cementing to steel forms.  
 (E) : Indicates epoxy coating.



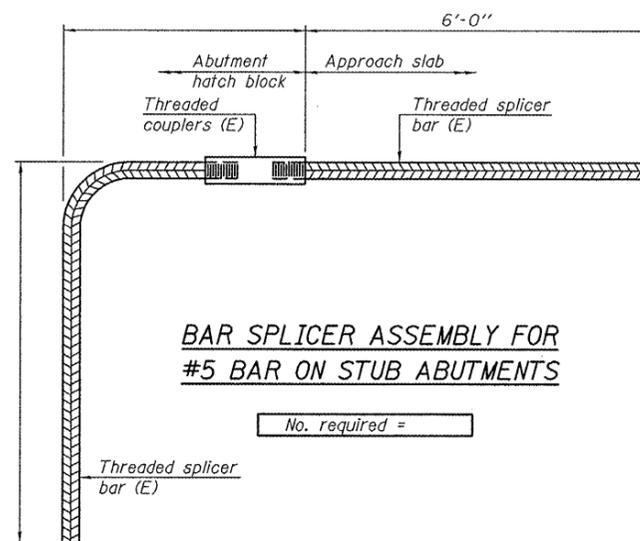
**STANDARD MECHANICAL SPLICER**

Location	Bar size	No. assemblies required
Deck	#5	234
Deck	#6	8



**BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS**

No. required =



**BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS**

No. required =

**NOTES**

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.  
 All reinforcement shall be lapped and tied to the splicer bars.  
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.  
 See special provision for Mechanical Splicers.  
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1

7-1-10

DESIGNED ATH  
 CHECKED ADY  
 DRAWN baliva  
 CHECKED ATH ADY

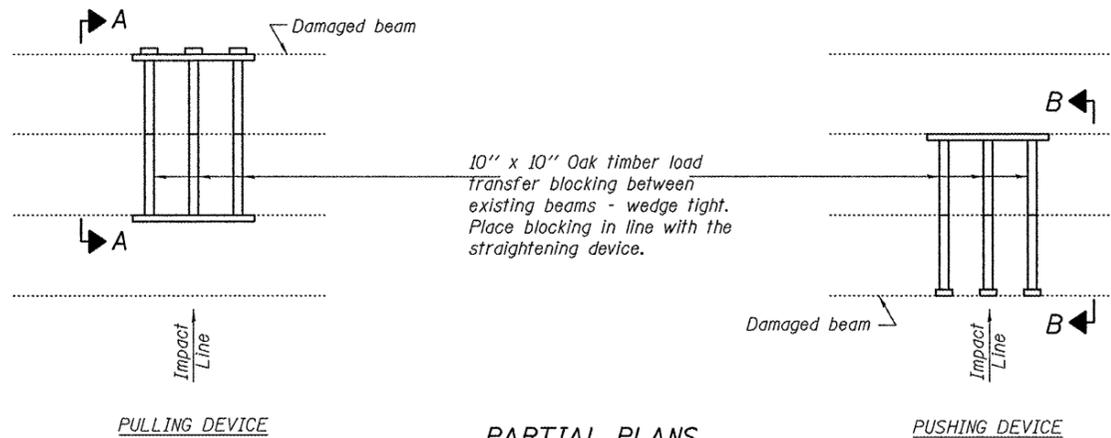
EXAMINED  
 PASSED  
 DATE JULY 27, 2011  
 ACTING ENGINEER OF STRUCTURAL SERVICES  
 ACTING ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS  
 SN 060-0046

SHEET 9 OF 9 SHEETS

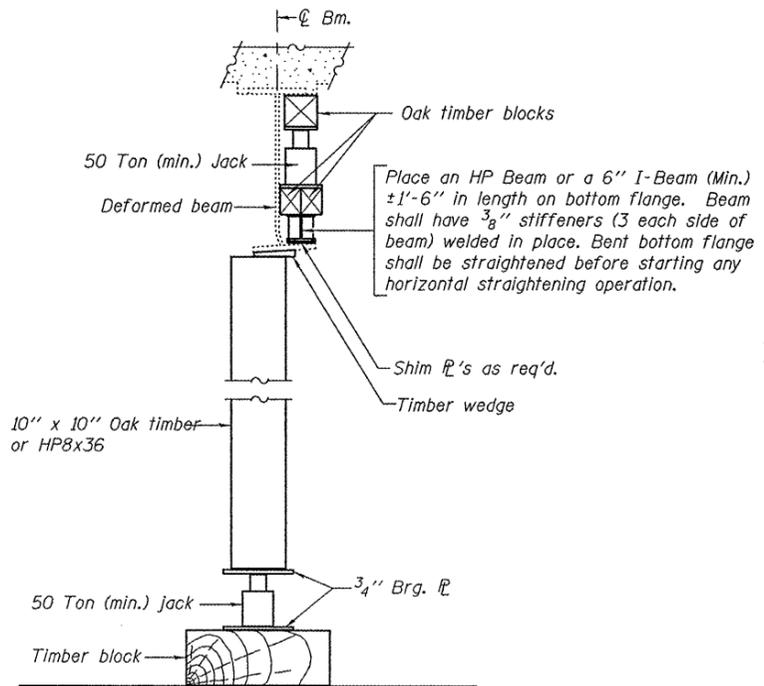
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-34B-1-HDF-1	MADISON	15	15
CONTRACT NO. 76F08				
ILLINOIS FED. AID PROJECT				



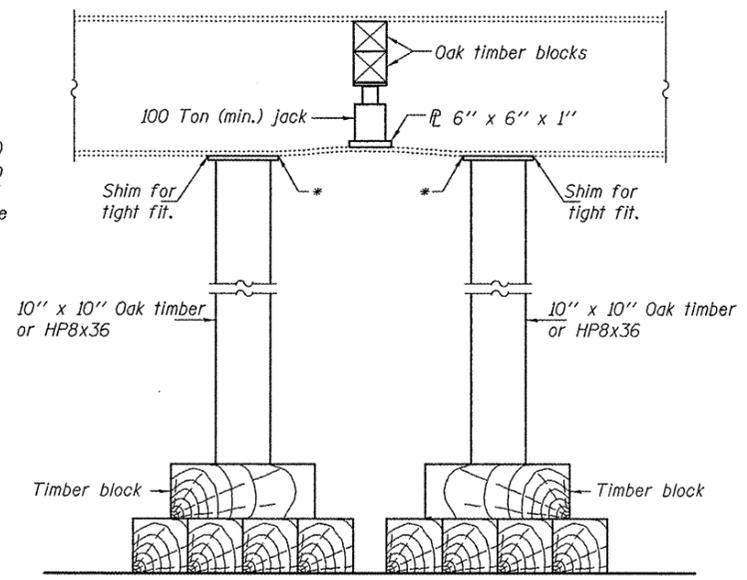
**PULLING DEVICE**      **PUSHING DEVICE**

**PARTIAL PLANS**  
**SUGGESTED BEAM STRAIGHTENING METHODS**

Straightening Force shall be maintained on all load transfer blocking during beam straightening.



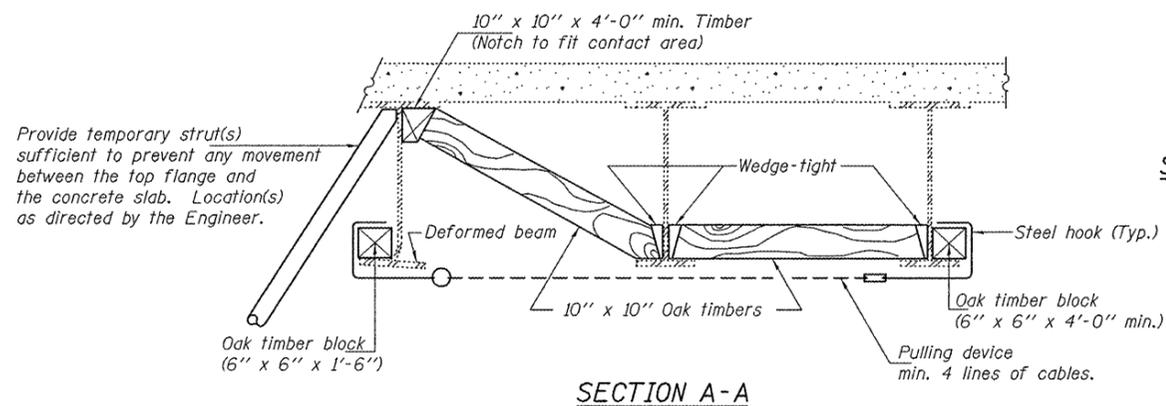
**SUGGESTED VERTICAL STRAIGHTENING DETAIL**  
(To correct flange rotation.)



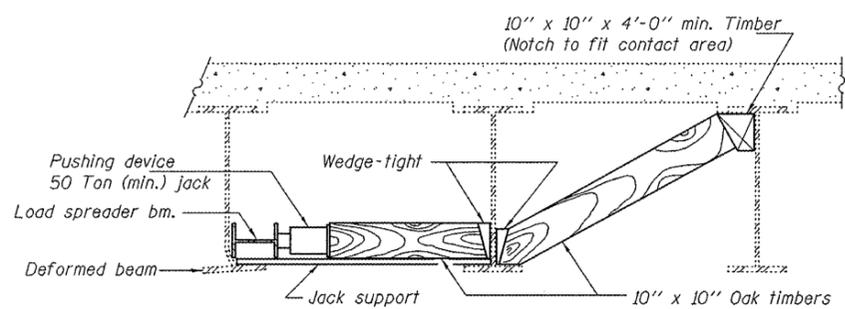
**SUGGESTED VERTICAL STRAIGHTENING DETAIL**  
(To correct localized vertical flange deformations.)

\* Edge of plate shall line up with edge of deformation.

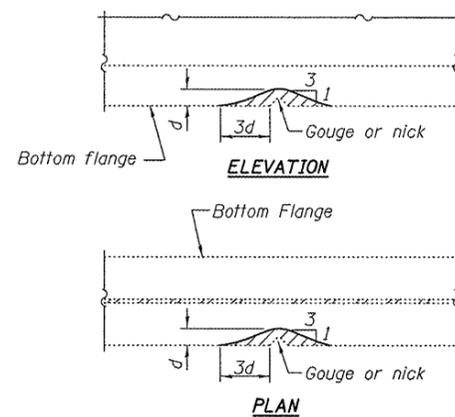
Note:  
Braces and jack assembly shall be placed on same side of web.  
Bent bottom flange shall be straightened before starting any horizontal straightening operations.



**SECTION A-A**



**SECTION B-B**



**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 Beam Straightening.



**SECTION AT BEAM 1, PIER 3**  
Existing bearing to be repositioned. See Special Provision for Jack and Reposition Bearings

REACTION TABLE AT Pier 3		
Q	(k)	24.6
L	(k)	36.2
Imp.	(k)	9.4
Total	(k)	70.2

REP-11-14-2005

DESIGNED ATH	EXAMINED	DATE JULY 27, 2011
CHECKED ADY	 ACTING ENGINEER OF STRUCTURAL SERVICES	
DRAWN ballva	PASSED	 ACTING ENGINEER OF BRIDGES AND STRUCTURES
CHECKED ATH ADY		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

REPAIR DETAILS  
SN 060-0046

SHEET 9A OF 9 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF-1	MADISON	15	15A
CONTRACT NO. 76F08			ILLINOIS FED. AID PROJECT	