3-5-10 LETTING ITEM 288

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF	MADISON	12	1
	ILLINOIS	CONTRACT NO. 76D30		

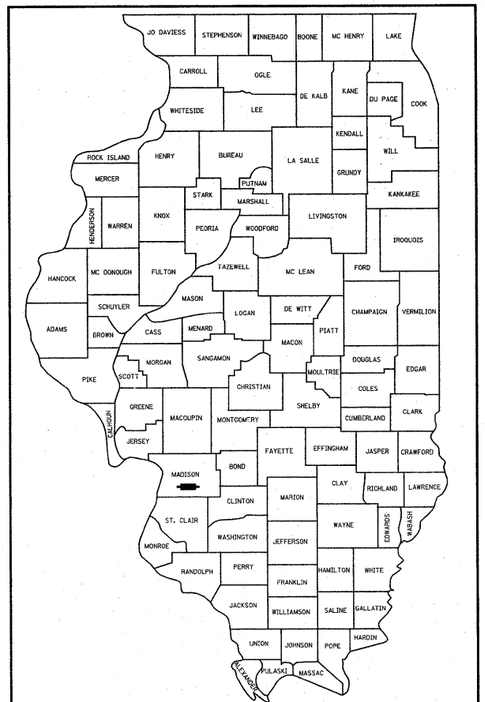
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS

FAI ROUTE 270
SECTION 60–3HB–1–HDF
BRIDGE REPAIRS – HDF
MADISON COUNTY

C–98–081–09

D–98–079–09

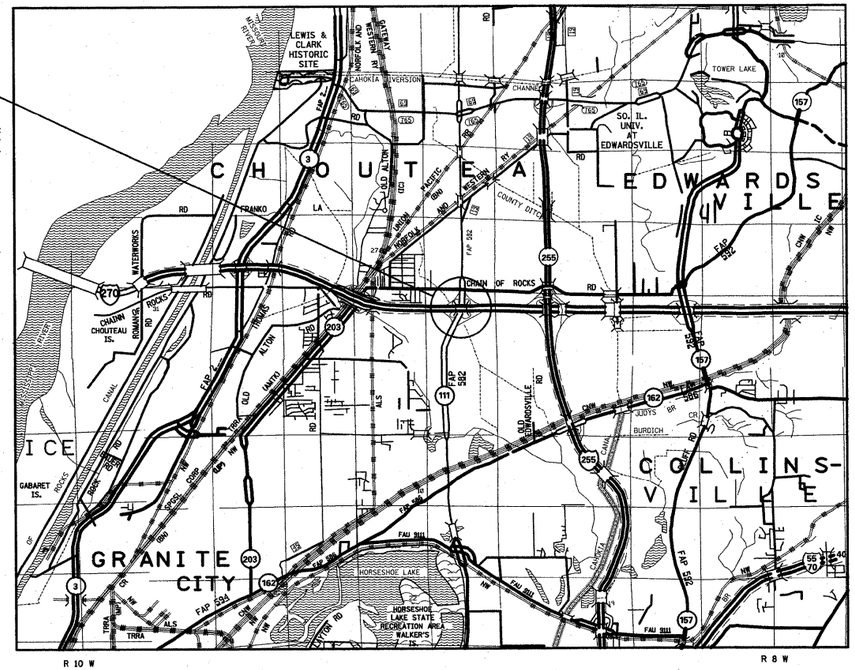


LOCATION OF SECTION INDICATED THUS: –

R 10 W — R 8 W

T 4 N

T 3 N



LAYOUT

0 MI — 1 MI — 2 MI — 3 MI

1" = 1 MILE

PROJECT LOCATION
I–270 OVER IL 111
SN 060–0046
STA 401+45.00

LATITUDE: 38.757687 LONGITUDE: –90.066906

INDEX OF SHEETS

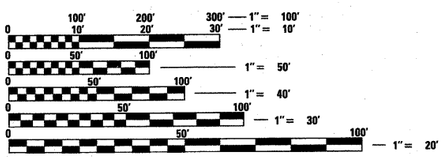
HIGHWAY STANDARDS

000001–05	701411–06
001001–02	701421–02
001006	701901–01
701101–02	704001–06
701400–04	

TRAFFIC DATA

IL 111
ADT (2009) 13900
ADT (2010) 14000

I–270
ADT (2009) 28600
ADT (2010) 29500



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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED Dec 9 20 09
/s/ C Lamb
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

January 29, 20 10
Scott E Stitt P.E. /KD
Acting ENGINEER OF DESIGN AND ENVIRONMENT

January 29, 20 10
Christine M. Reed /KD
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

PROJECT ENGINEER: PATTI LEBEAU (618) 346–3179
PROJECT MANAGER: ART MUEHLFELD (618) 346–3209

CONTRACT NO. 76D30

SUMMARY OF QUANTITIES

	CODE NO	ITEM	UNIT	URBAN TOTAL QUANTITIES	CONSTRUCTION TYPE CODE SFTY-2A 100% ~~STATE~~ MASHTO
	50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	11920	11920
	50501110	STRUCTURAL STEEL REMOVAL	POUND	11920	11920
	67100100	MOBILIZATION	L SUM	1	1
	70100310	TRAFFIC CONTROL AND PROTECTION, STANDARD 701421	L SUM	1	1
	70101220	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411 (SPECIAL)	EACH	1	1
	70400100	TEMPORARY CONCRETE BARRIER	FOOT	262.5	262.5
*	72000300	SIGN PANEL - TYPE 3	SQ FT	124	124
*	73304000	OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	FOOT	16.5	16.5
	Z0003600	BEAM STRAIGHTENING	L SUM	1	1
	Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	1	1
	Z0073300	TEMPORARY SHORING AND CRIBBING	L SUM	1	1
	Z0073351	TEMPORARY SLAB SUPPORT SYSTEM	L SUM	1	1

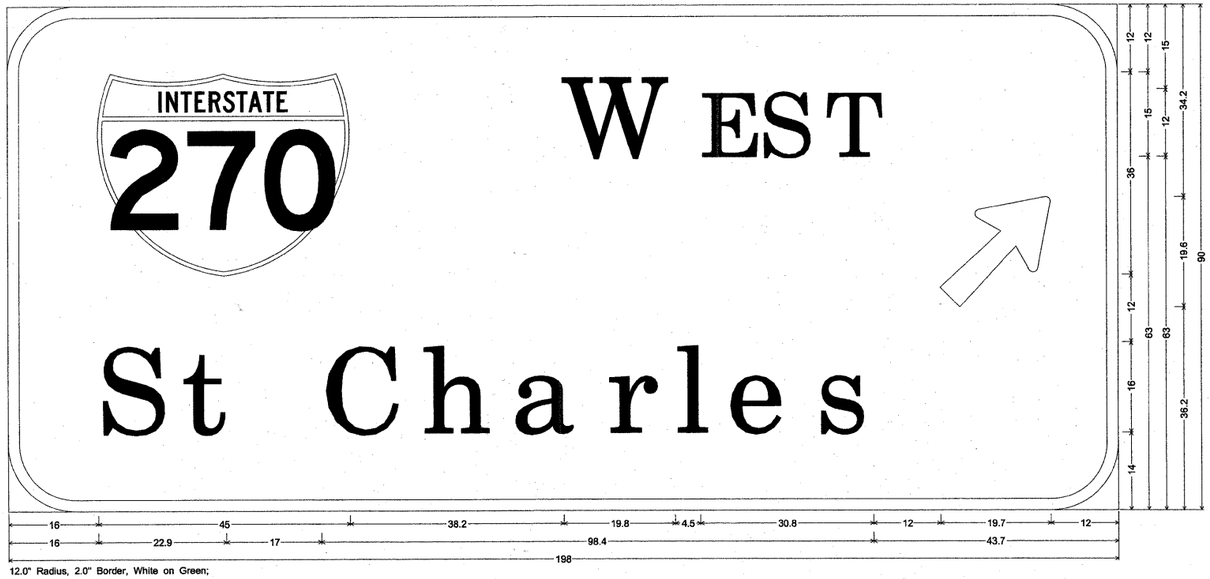
*Specialty Items

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 BY CALLING J.U.L.I.E. AND BY NOTIFYING NON-J.U.L.I.E. MEMBERS INDIVIDUALLY. 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 (800) 892-0123 ARE INDICATED BY •. NON-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. THE CONTRACTOR SHALL FURNISH AND INSTALL WOOD SIGN SUPPORTS IN ACCORDANCE WITH SECTION 730 OF THE STANDARD SPECIFICATIONS, HOWEVER, INSTALLATION BY METHOD "A" (ARTICLE 730.04(A)) SHALL BE THE ONLY METHOD PERMITTED.
6. TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES ON I-270.
7. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY DEBRIS FROM FALLING ONTO LANES OPEN TO TRAFFIC BELOW THE BRIDGE.
8. THERE ARE NO KNOWN COMMITMENTS ON THIS PROJECT

SIGN DETAILS



12.0" Radius, 2.0" Border, White on Green;
[W] ClearviewHwy-5-W; [EST] ClearviewHwy-5-W; [St Charles] ClearviewHwy-5-W; Arrow 80 - 25.0° 45°;
Table of widths and spaces.

16.0	45.0	38.2	W 19.8	4.5	E 7.6	3.2	S 8.7	2.6	T 8.7	12.0	19.7	12.0										
16.0	S 11.6	3.4	t 7.9	17.0	C 13.0	4.9	h 11.1	5.1	a 11.9	5.1	r 7.3	4.7	l 5.0	4.2	e 11.8	4.1	s 10.2	43.7				

Rev.

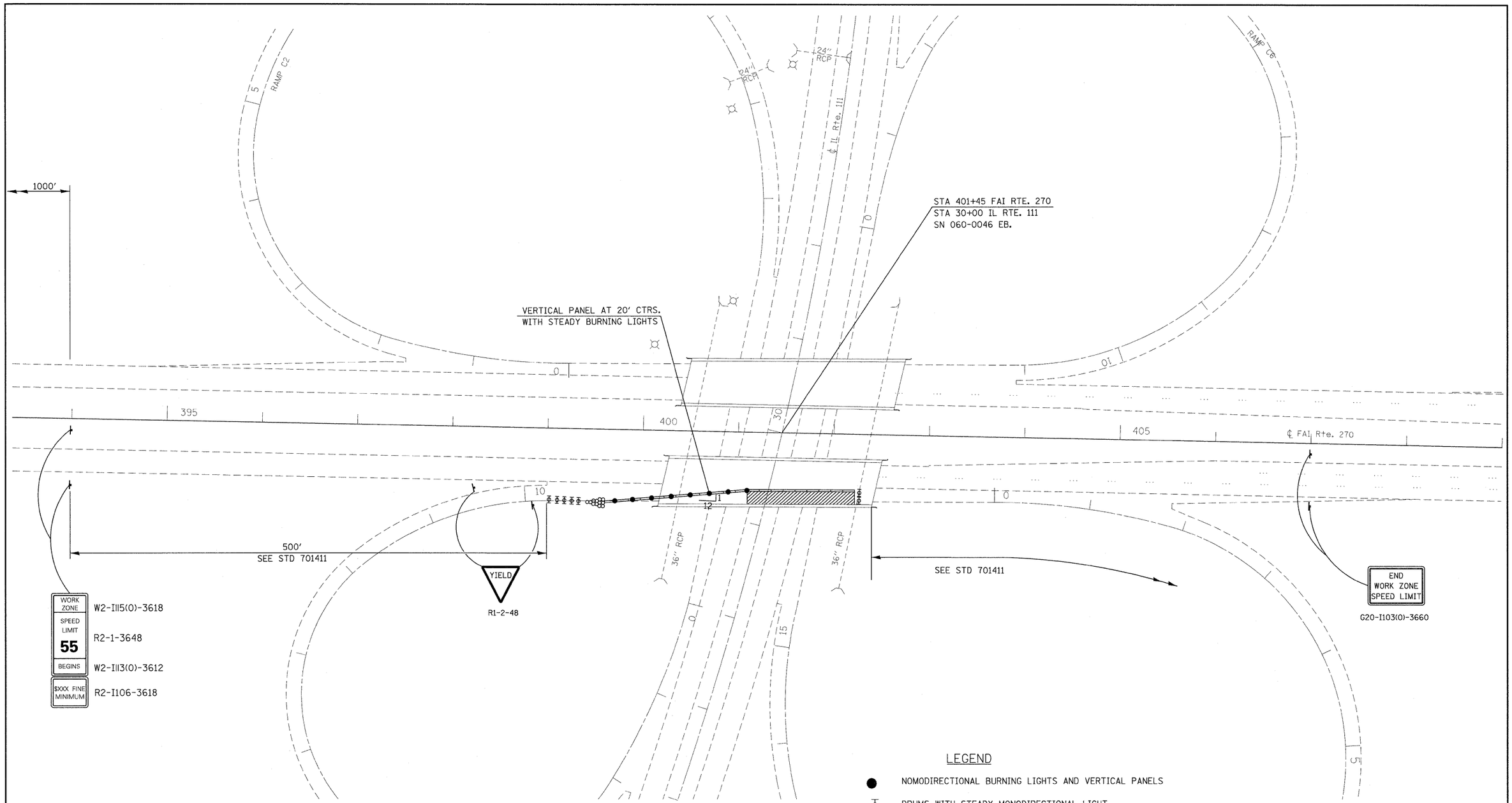
FILE NAME = c:\pw_work\pwidot\gelnh\d0145079\D876D30-Sht-SOQ-GN.dgn	USER NAME = gelnh	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 50.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = 12/8/2009	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES, GENERAL NOTES, AND SIGN DETAILS

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF	MADISON	12	2
		CONTRACT NO. 76D30		
	ILLINOIS	FED. AID PROJECT		



LEGEND

- NOMODIRECTIONAL BURNING LIGHTS AND VERTICAL PANELS
- DRUMS WITH STEADY MONODIRECTIONAL LIGHT
- SIGNS
- TEMPORARY CONCRETE BARRIER
- IMPACT ATTENUATORS
- WORK AREA

NOTE

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

TRAFFIC CONTROL FOR IL 111 SHALL BE HANDLED BY "TRAFFIC CONTROL AND PROTECTION STANDARD 701421."

FILE NAME = c:\pw_work\pwidot\gelinh\d0145079\D876030-Sht-Staging.dgn	USER NAME = gelinh	DESIGNED - ___	REVISED - ___
		DRAWN - ___	REVISED - ___
	PLOT SCALE = 50.0000 ' / IN.	CHECKED - ___	REVISED - ___
	PLOT DATE = 12/8/2009	DATE - _____	REVISED - ___

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTRON & PROTECTION PLAN

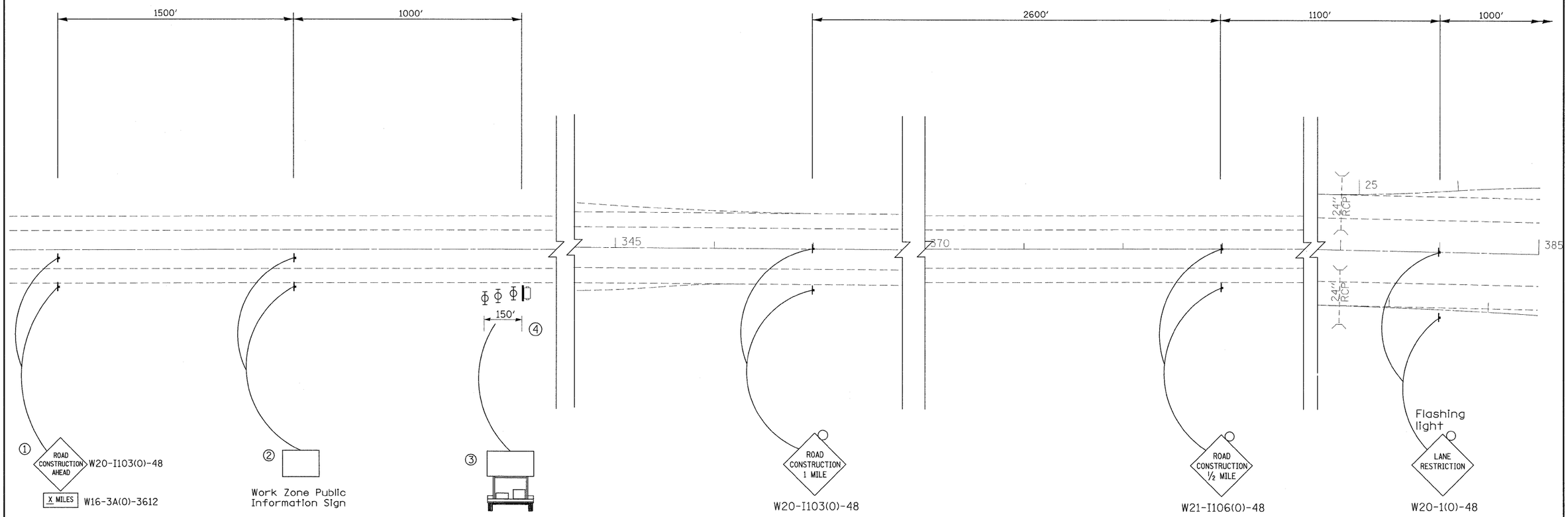
SCALE: 1" = 50' | SHEET NO. 2 OF 2 SHEETS | STA. 394+00.00 TO STA. 409+00.00

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF	MADISON	12	3
		CONTRACT NO. 76D30		
	ILLINOIS	FED. AID PROJECT		

NOTE

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

TRAFFIC CONTROL FOR IL 111 SHALL BE HANDLED BY "TRAFFIC CONTROL AND PROTECTION STANDARD 701421."



SYMBOLS

- PORTABLE CHANGEABLE MESSAGE SIGN
- SIGN
- TYPE II BARRICADE, DRUM, OR VERTICAL BARRICADE WITH MONODIRECTIONAL FLASHING LIGHT

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:
   "RIGHT LANE CLOSED" / " X MILES AHEAD"
   "LEFT LANE CLOSED" / " X MILES AHEAD"
   "ALL LANES OPEN"
4. THREE, TYPE II BARRICADES, DRUMS, OR VERTICAL BARRICADES AT 50' CENTERS.

FILE NAME = c:\pw_work\pwidot\gelinh\d0145079\D876D30-Sht-Staging.dgn	USER NAME = gelinh	DESIGNED - ___	REVISED - ___ _____
		DRAWN - ___	REVISED - ___ _____
	PLOT SCALE = 50.0000 ' / IN.	CHECKED - ___	REVISED - ___ _____
	PLOT DATE = 12/8/2009	DATE - _____	REVISED - ___ _____

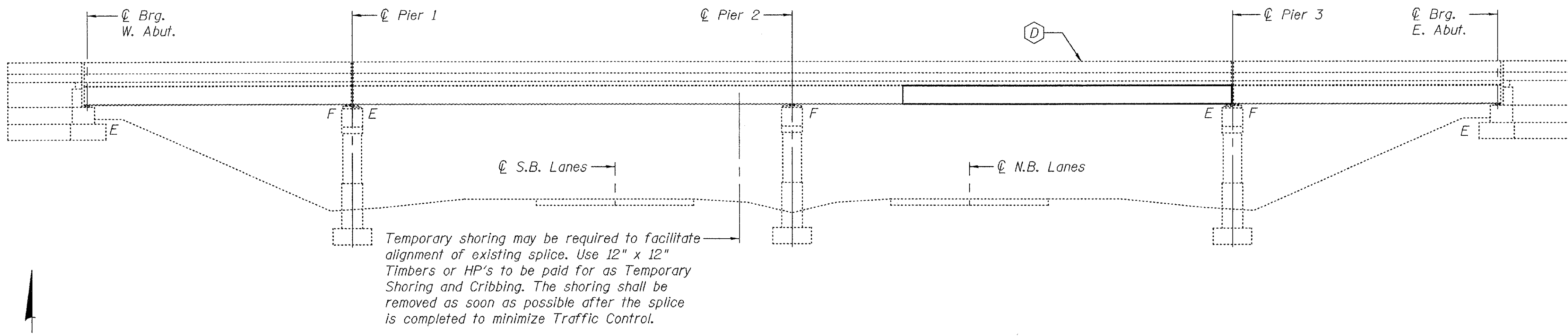
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

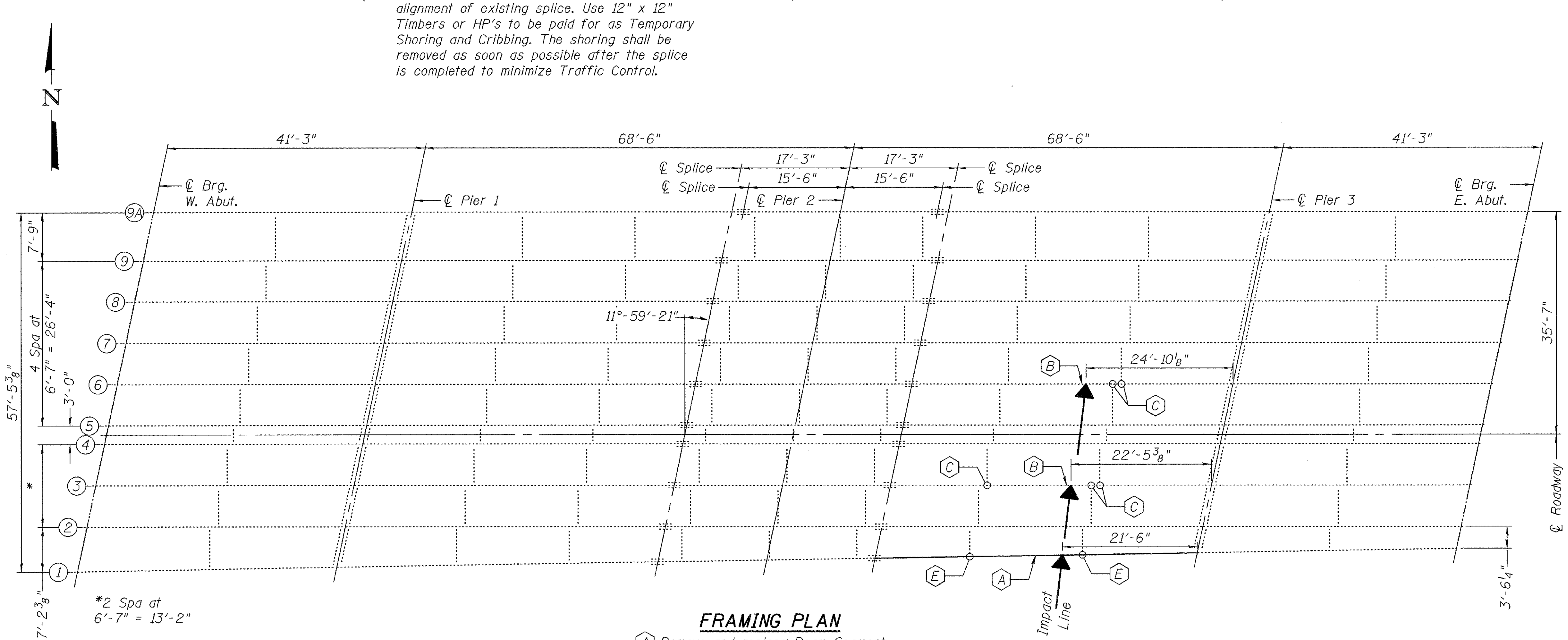
TRAFFIC CONTROL & PROTECTION PLAN

SCALE: 1" = 50' | SHEET NO. 1 OF 2 SHEETS | STA. _____ TO STA. _____

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60-3HB-1-HDF	MADISON	12	4
		CONTRACT NO. 76D30		
	ILLINOIS FED. AID PROJECT			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION





FRAMING PLAN

- (A) Remove and replace Beam Segment
- (B) Existing beam to be straightened and strengthened
- (C) Replace bottom clip L
- (D) Replace Sign Structure
- (E) Replace top and bottom clip L's

GENERAL NOTES

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

Fasteners shall be high strength bolts. Bolts ⅞"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" and "Temporary Slab Support System."

After the new beam is in its final position and/or beam straightening operations have been completed, the Engineer in the field shall check to see that the top flange is tight against the slab. If not, the Contractor shall inject epoxy between the existing concrete deck and the top flange of the beam. See Special Provision "Epoxy Injection".

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 ¾"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, during cutting and removal operations, and shall ensure that cuts made are smooth and straight.

TOTAL BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Furnishing and Erecting Structural Steel	Pound	11,920
Structural Steel Removal	Pound	11,920
Temporary Slab Support System	L.S.	1
Beam Straightening	L.S.	1
Temporary Shoring and Cribbing	L.S.	1
Overhead Sign Structure -Bridge Mounted	Foot	16.5

PLAN AND ELEVATION
SN 060-0046

DESIGNED		
CHECKED		
DRAWN		
CHECKED		

January 21, 2010

EXAMINED — ENGINEER OF STRUCTURAL SERVICES

PASSED — ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS RALPH E. ANDERSON 081-004625 SPRINGFIELD LICENSED STRUCTURAL ENGINEER

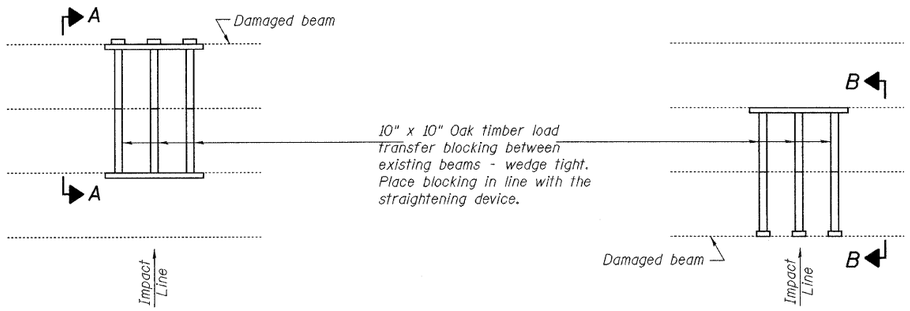
Expires: November 30, 2010

SHEET NO. 1	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	270	60 B-I-3, 60-1B-I-3, 60-(1,2,3)RS-1, 60-(2HBY, 2VHBY,3HBY-1,3VHBY,3VBY)	Madison	12	5
			CONTRACT NO. 76D30		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SLT-98-001-09

060-0046.dgn 1/21/2010 2:28:56 PM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

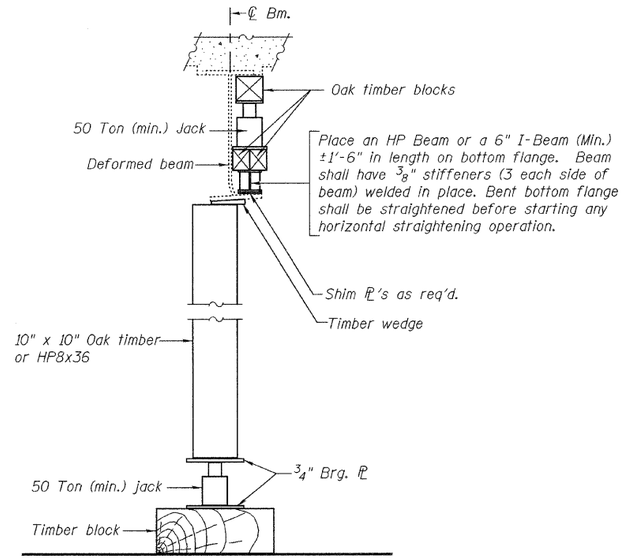


PULLING DEVICE

PUSHING DEVICE

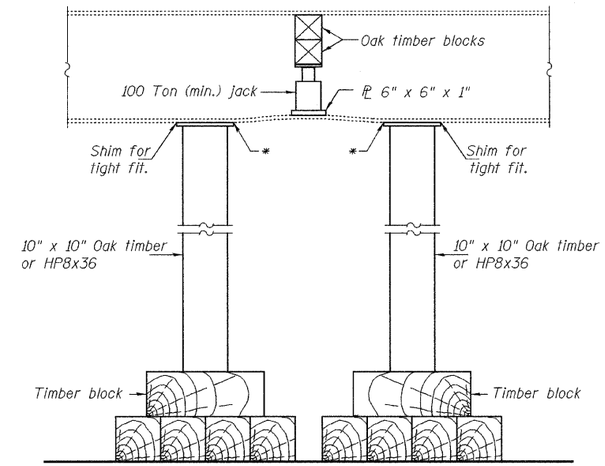
PARTIAL PLANS
SUGGESTED BEAM STRAIGHTENING METHODS

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



SUGGESTED VERTICAL STRAIGHTENING DETAIL

(To correct flange rotation.)

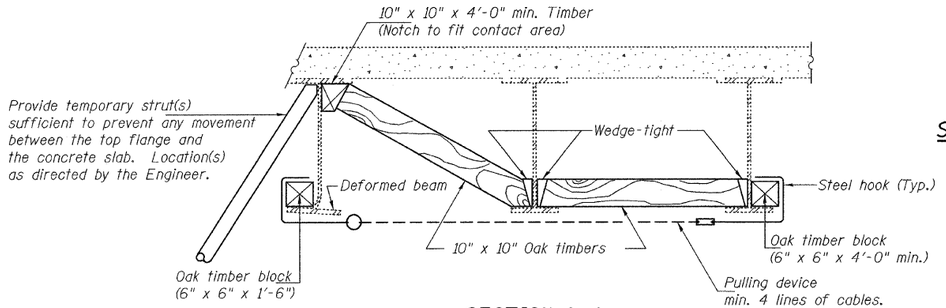


SUGGESTED VERTICAL STRAIGHTENING DETAIL

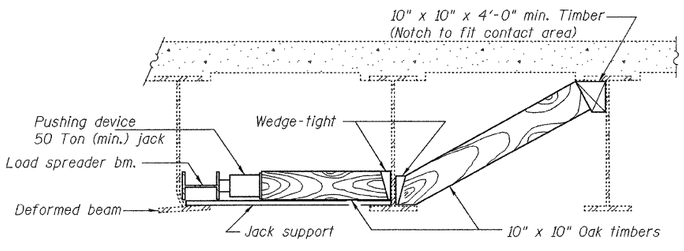
(To correct localized vertical flange deformations.)

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

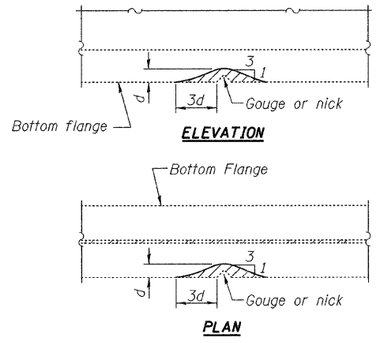
Note:
Braces and jack assembly shall be placed on same side of web.
Bent bottom flange shall be straightened before starting any horizontal straightening operations.



SECTION A-A

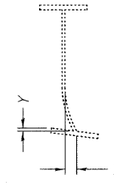


SECTION B-B



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.



Beam	X	Y	L
3	5 1/2"	1 1/8"	4'-0"
6	4 5/8"	7/8"	4'-0"

EXISTING DEFORMATION TO BE STRAIGHTENED

(Looking East)
(Approximate max. deflections)
Deflected length of beam to be straightened is approximately L.

DESIGNED	A.T.H.
CHECKED	G.G.E.
DRAWN	Drew Christopher
CHECKED	A.T.H. G.G.E.

January 21, 2010
EXAMINED — ENGINEER OF STRUCTURAL SERVICES
PASSED — ENGINEER OF BRIDGES AND STRUCTURES

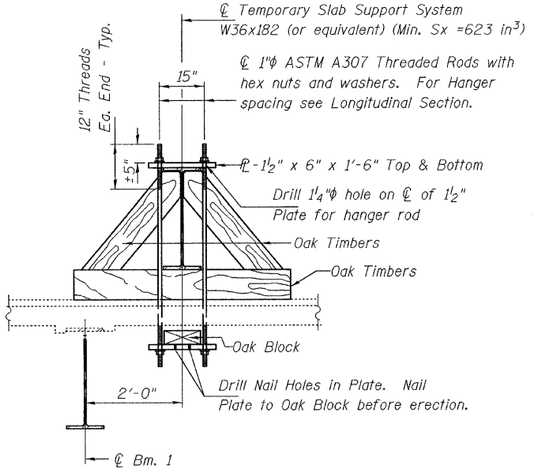
REP-1 1-14-2005
SLT-98-001-09

BEAM STRAIGHTENING DETAILS
SN 060-0046

SHEET NO. 2	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	270	60 B-I-3, 60-1B-I-3, 60-(1,2,3)RS-1, 60-(2HBY, 2VHBY,3HBY-1,3VHBY,3VBY)	Madison	12	6
			CONTRACT NO. 76D30		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

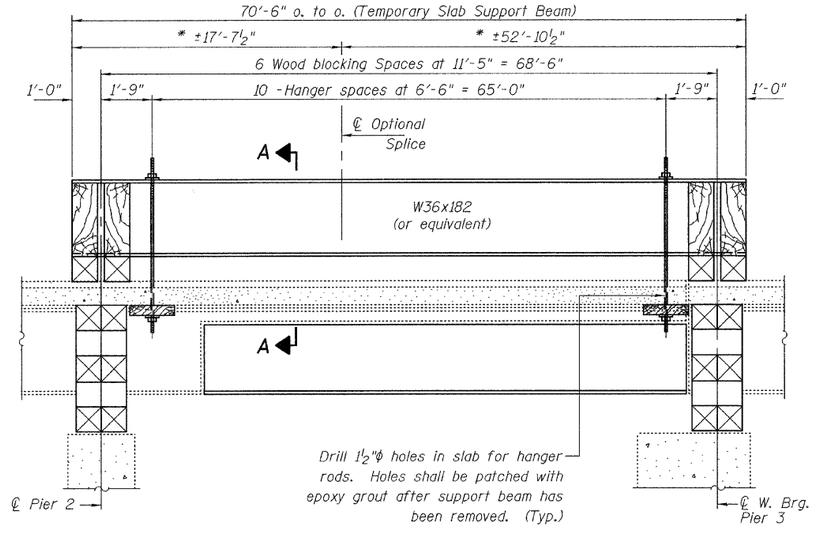
060-0046.dgn 1/21/2010 2:28:57 PM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

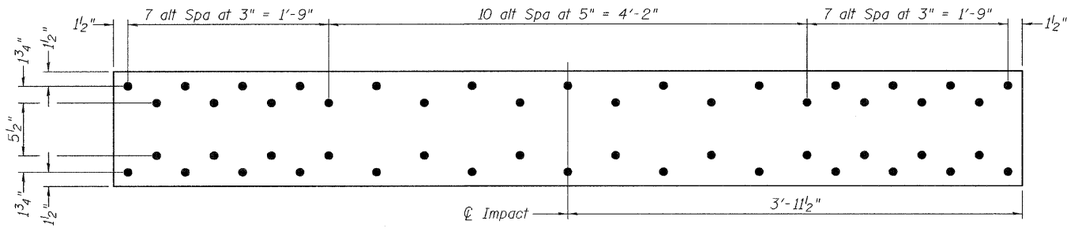


SECTION A-A
(Looking West)

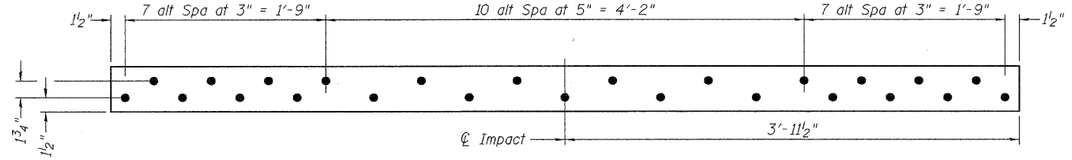
* These dimensions may vary for available beams in stock.
** Timber blocking is to be installed after support beam is allowed to deflect under its own weight.



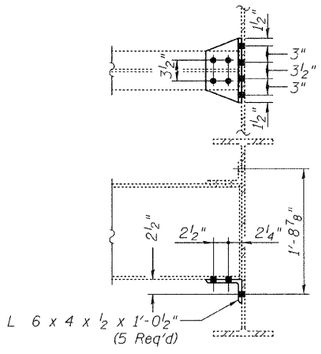
LONGITUDINAL SECTION
SUGGESTED TEMPORARY SLAB SUPPORT SYSTEM



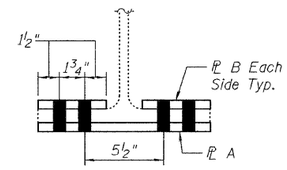
STRENGTHENING PL A
(PL ⅝" x 12" x 7'-11")
(2 Req'd)



STRENGTHENING PL B
(PL ⅝" x 4¾" x 7'-11")
(4 Req'd)



REPAIR C
CLIP L REPLACEMENT



REPAIR B
STRENGTHENING SECTION
(⅞"ϕ H.S. bolts In 15/16"ϕ holes.)

DESIGNED	A.T.H.
CHECKED	G.G.E.
DRAWN	Drew Christopher
CHECKED	A.T.H. G.G.E.

January 21, 2010
EXAMINED A Carl Piraz
ENGINEER OF STRUCTURAL SERVICES
PASSED Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

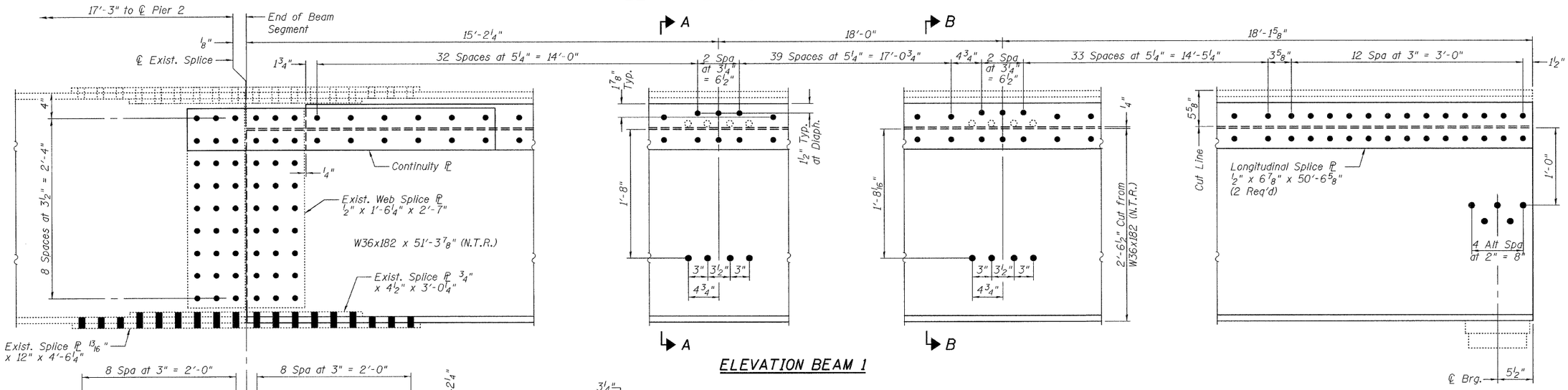
DETAILS
SN 060-0046

SHEET NO. 3	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	270	60 B-I-3, 60-1B-I-3, 60-(1,2,3)RS-1, 60-(2HBY, 2VHBY,3HBY-1,3VHBY,3VBY)	Madison	12	7
			CONTRACT NO. 76D30		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

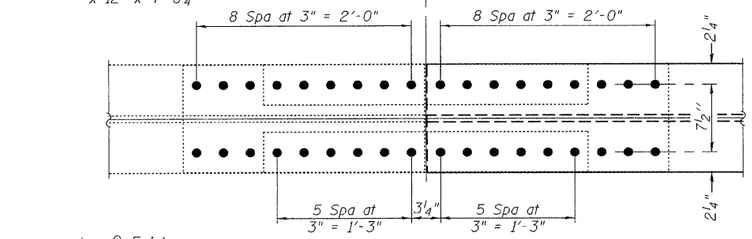
SLT-98-001-09

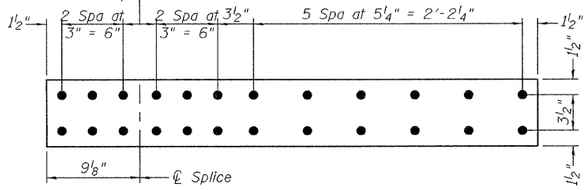
060-0046.dgn 1/21/2010 2:28:57 PM

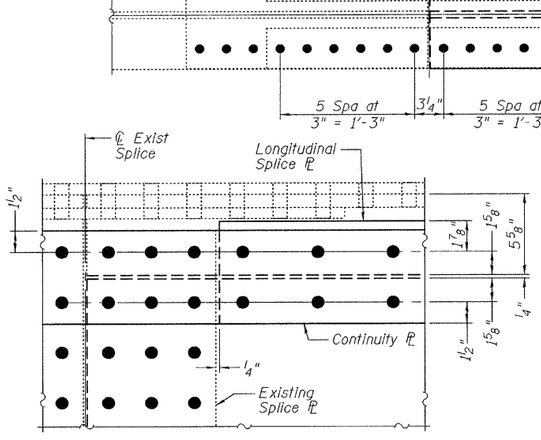
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



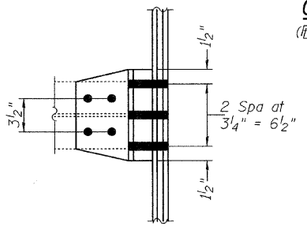
ELEVATION BEAM 1







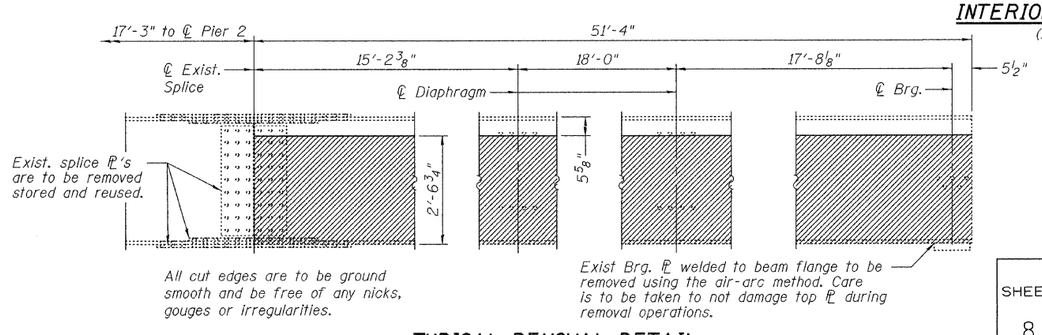
ENLARGED DETAIL



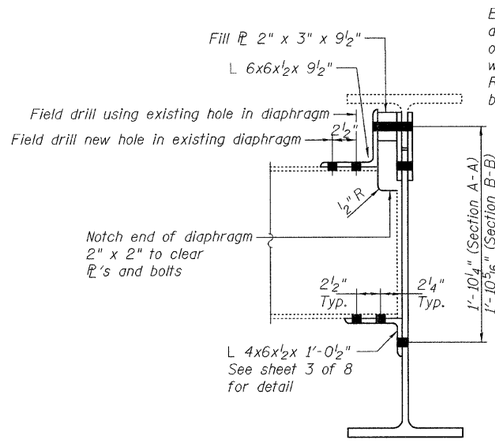
CONTINUITY ℄

(℄ ½" x 6½" x 4'-0")
(2 Req'd)

TOP CLIP L DETAIL

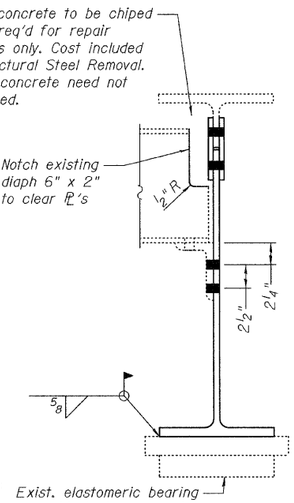


TYPICAL REMOVAL DETAIL



INTERIOR DIAPHRAGM DETAIL

(Sections A-A & B-B)



END DIAPHRAGM SECTION

DESIGNED	A.T.H.
CHECKED	G.G.E.
DRAWN	Drew Christopher
CHECKED	A.T.H. G.G.E.

January 21, 2010

EXAMINED — ENGINEER OF STRUCTURAL SERVICES

PASSED — ENGINEER OF BRIDGES AND STRUCTURES

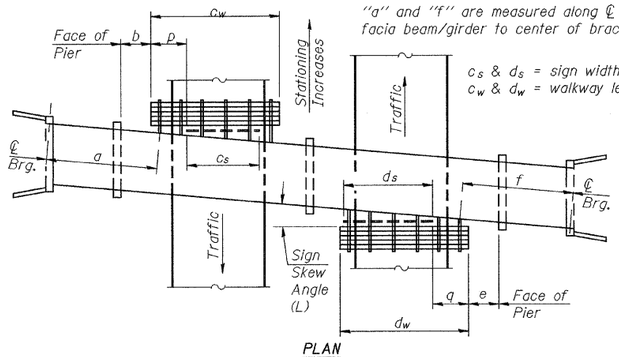
DETAILS
SN 060-0046

SHEET NO. 4	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	270	60 B-I-3, 60-1B-I-3, 60-(1,2,3)RS-1, 60-(2HBY, 2VHBY,3HBY-1,3VHBY,3VBY)	Madison	12	8
			CONTRACT NO. 76D30		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SLT-98-001-09

060-0046.dgn 1/21/2010 2:28:58 PM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

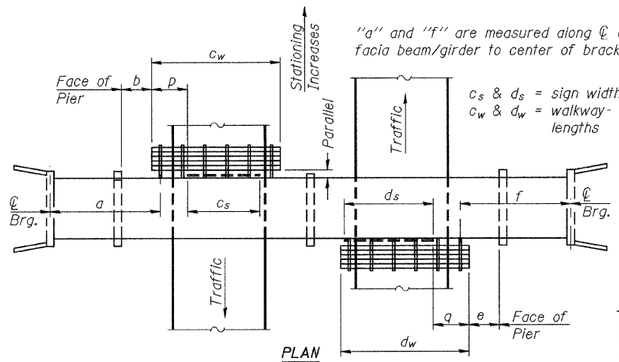


PLAN

(Left Sign Skew > 15°)

WALKWAY AND HANDRAIL SKETCH

(Road plan beneath structure varies.)

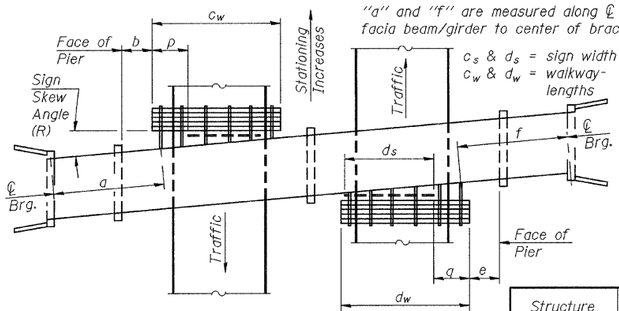


PLAN

(For Sign Skew ≤ 15°, all brackets constant)

WALKWAY AND HANDRAIL SKETCH

(Road plan beneath structure varies.)

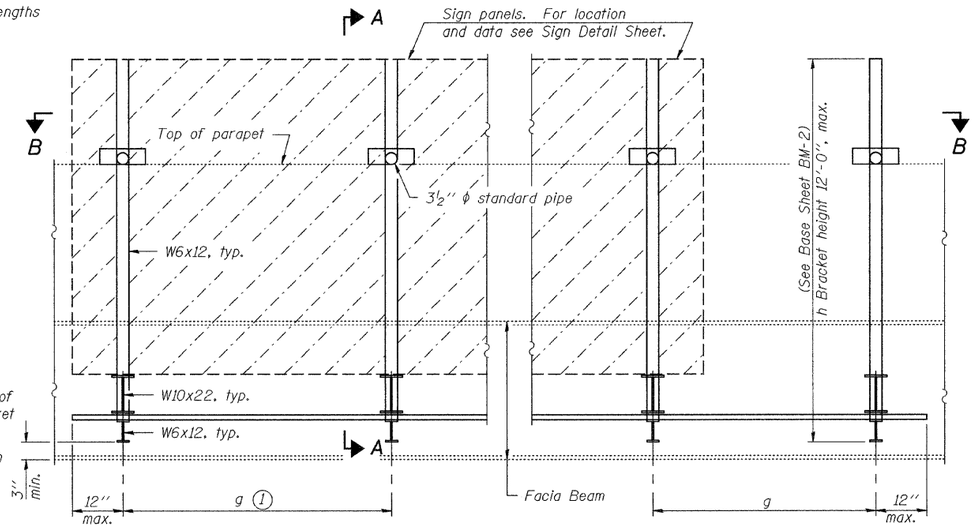


PLAN

(Right Sign Skew > 15°)

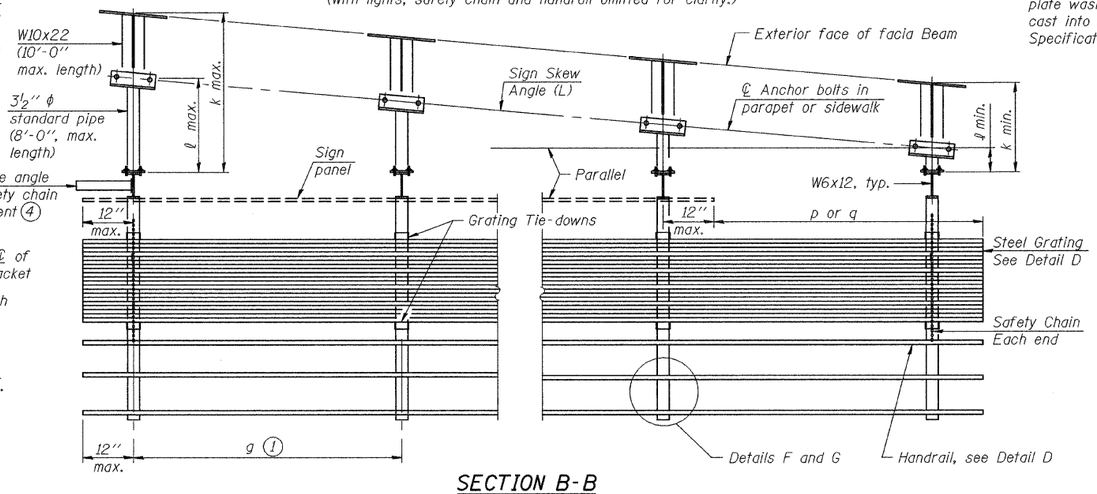
WALKWAY AND HANDRAIL SKETCH

(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_s	c_w	d_s	d_w	e	f	g	No. of Brackets (Total)	p	q	Total Grating/ Hndrl. Lengths (c_w + d_w)
8B060S111R007.4	11°-59'-21"	30+00	060-0046	FAI 270	--	--	--	--	16'-5"	16'-5"	10'-9"	53'-3"	5'-0"	4	--	--	16'-6"

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).

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 Specificiations.

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 conforming to ASTM A307, $\frac{3}{4}$" 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 ≤ 6'-0", max. Spacing shall be uniform if possible but may vary ±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 (cw, dw) 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.

NUMBER	REVISION	DATE

TOTAL BILL OF MATERIAL

(3) OVERHEAD SIGN STRUCTURE - BRIDGE MOUNTED	Foot	

BRIDGE MOUNT SIGN STRUCTURES
GENERAL PLAN AND ELEVATION
SN 060-0046

SHEET NO. 5	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	270	60 B-1-3, 60-1B-1-3, 60-(1,2,3)RS-1, 60-(2HBY, 2VHBY,3HBY-1,3VHBY,3VBY)	Madison	12	9
			CONTRACT NO.		76D30
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

DESIGNED	A.T.H.
CHECKED	G.G.E.
DRAWN	Drew Christopher
CHECKED	A.T.H. G.G.E.

January 21, 2010

EXAMINED — ENGINEER OF STRUCTURAL SERVICES

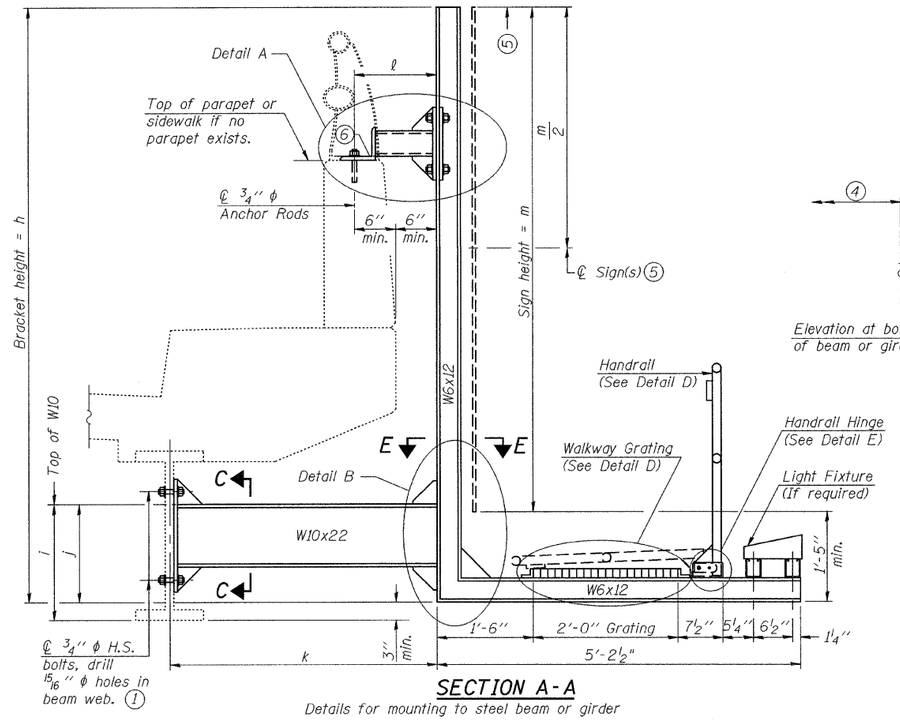
PASSED — ENGINEER OF BRIDGES AND STRUCTURES

BM-1 12-1-08

SLT-98-001-09

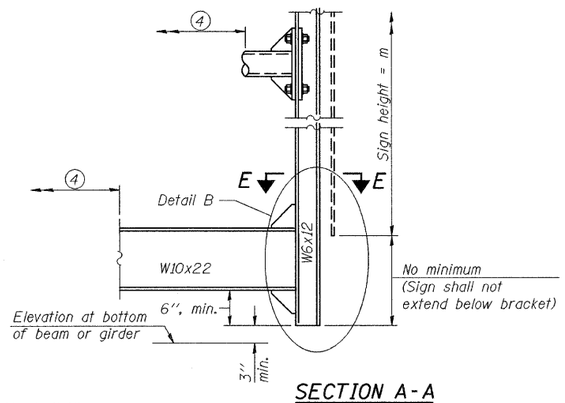
060-0046.dgn 1/21/2010 2:28:59 PM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



SECTION A-A

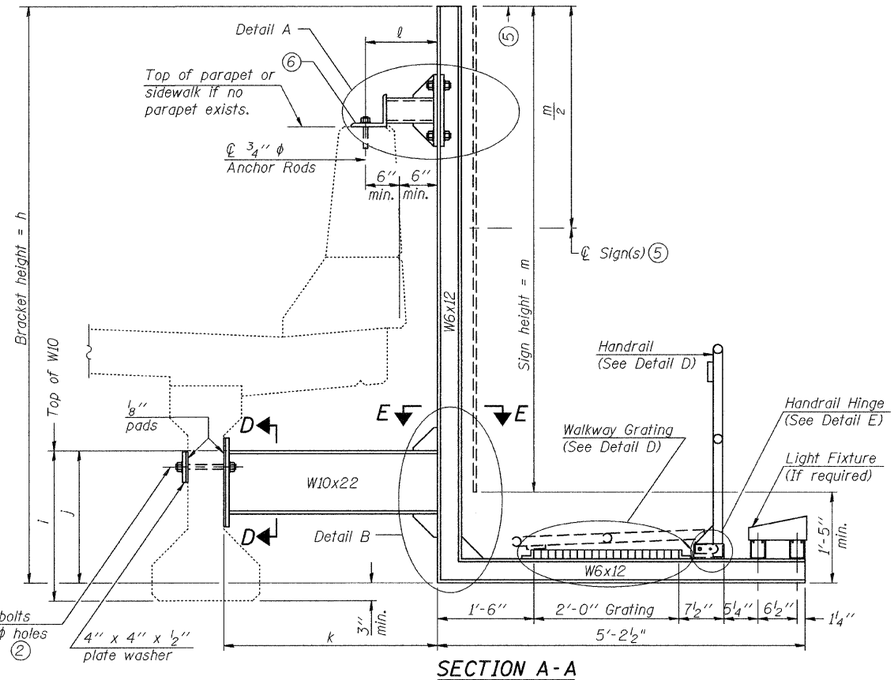
Details for mounting to steel beam or girder
& Details for mounting with existing parapet mounted rail



SECTION A-A

Alternate with no lights or walkways

④ *For attachment details of 3 1/2" pipe and W10x22, see other sections as applicable.*



SECTION A-A

Details for mounting to PPC I Beam or Bulb "T"
& Details for mounting to parapet w/o rail

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 1/4"	7'-6"

For Details A & B, Sections C-C, D-D and E-E, see Base Sheet BM-3.
For Details D & E, see Base Sheet BM-4.

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.*

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.

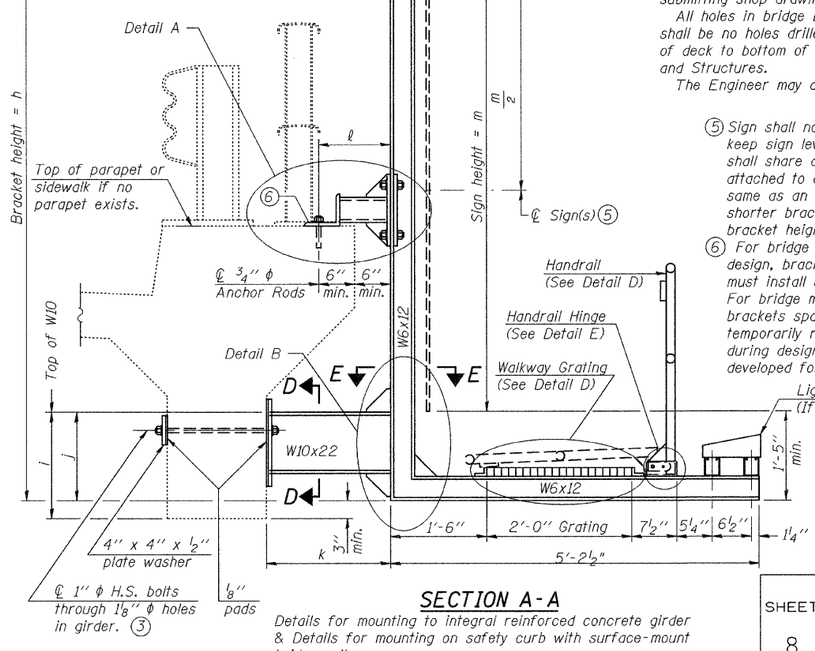
Contractor shall field check all pertinent existing bridge dimensions shown on plans before submitting shop drawings.

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.

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 structrues 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.



SECTION A-A

Details for mounting to integral reinforced concrete girder
& Details for mounting on safety curb with surface-mount bridge rail

BRIDGE MOUNT SIGN STRUCTURES
WALKWAY AND CONNECTION DETAILS
SN 060-0046

DESIGNED	A.T.H.
CHECKED	G.G.E.
DRAWN	Drew Christopher
CHECKED	A.T.H. G.G.E.

January 21, 2010
EXAMINED — ENGINEER OF STRUCTURAL SERVICES
PASSED — ENGINEER OF BRIDGES AND STRUCTURES

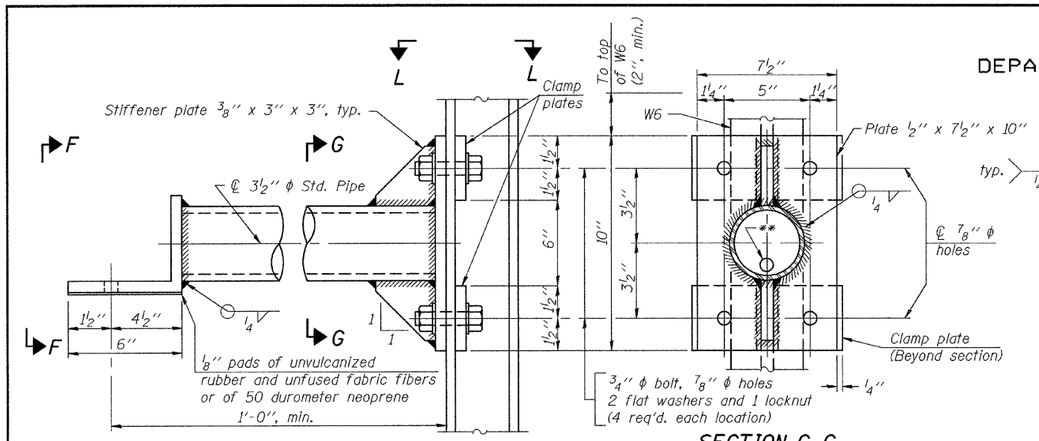
BM-2 12-1-08

SHEET NO. 6	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	270	60 B-I-3, 60-1B-I-3, 60-(1,2,3)RS-1, 60-(2HBY, 2VHBY,3HBY-1,3VHBY,3VBY)	Madison	12	10
			CONTRACT NO. 76D30		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SLT-98-001-09

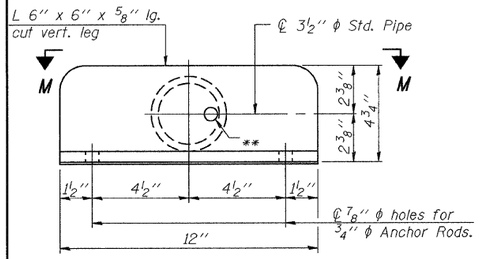
060-0046.dgn 1/21/2010 2:29:00 PM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



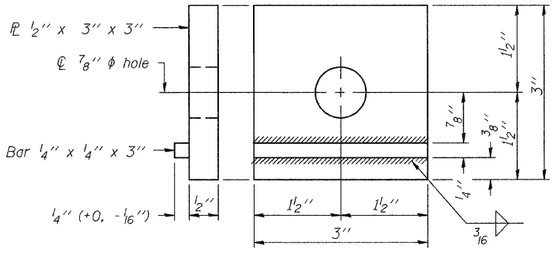
DETAIL A

SECTION G-G

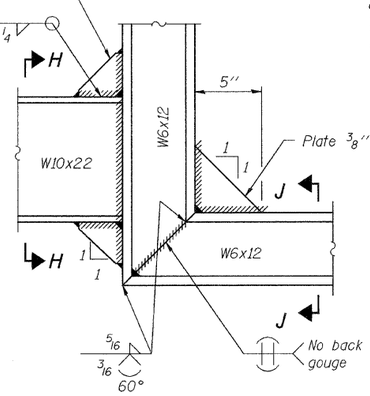


VIEW F-F

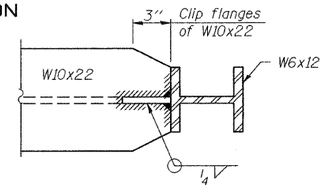
** 13/16" ϕ holes for galvanizing. After galvanizing, install 7/8" ϕ A307 hot-dip galvanized bolt to close hole in angle. (No bolt required in 1/2" plate.)



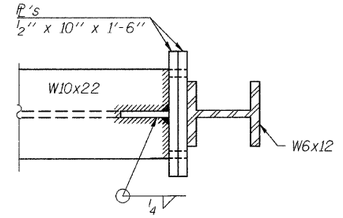
CLAMP PLATE DETAILS



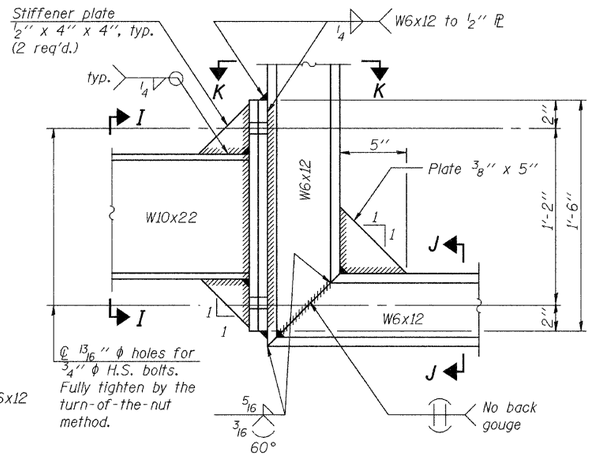
DETAIL B - WELDED W10x22 TO W6x12 CONNECTION



SECTION E-E

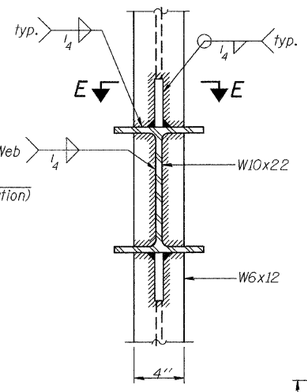


SECTION K-K

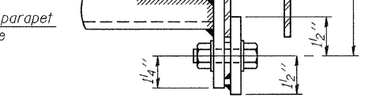


DETAIL B - ALTERNATE BOLTED W10x22 TO W6x12 CONNECTION

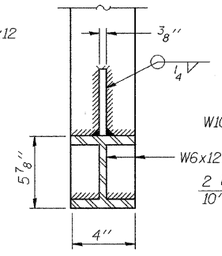
Alternate may be substituted by contractor to facilitate construction or galvanizing, especially on long struts for skewed bridges.



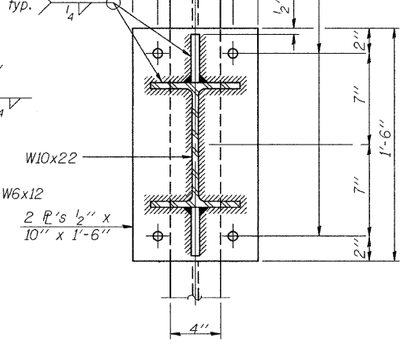
SECTION H-H



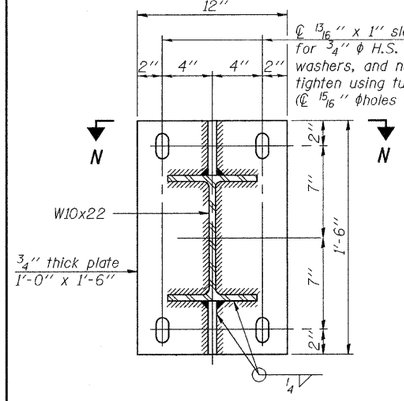
SECTION L-L



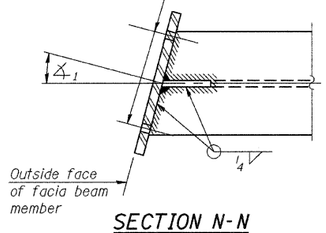
SECTION J-J



SECTION I-I

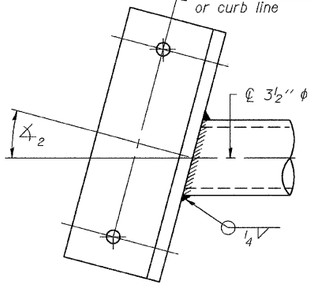


SECTION C-C
Steel beam or girder connection plate details

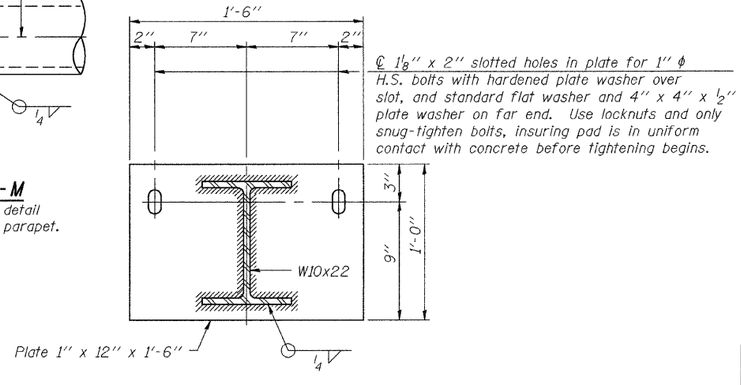


SECTION N-N
Skewed connection detail for W10x22 to facia beam.

Note: For constant slab overhang at facia beam, $\Delta_1 = \Delta_2$ = sign angle. For flared beams or other special cases where $\Delta_1 \neq \Delta_2$, Δ_1 = sign angle.



SECTION M-M
Skewed connection detail for 3 1/2" ϕ pipe to parapet.



SECTION D-D
Concrete beam or girder connection plate details.

BRIDGE MOUNT SIGN STRUCTURES
CONNECTION DETAILS
SN 060-0046

DESIGNED	A.T.H.				
CHECKED	G.G.E.				
DRAWN	Drew Christopher				
CHECKED	A.T.H.	G.G.E.			

January 21, 2010
EXAMINED A Carl Peery ENGINEER OF STRUCTURAL SERVICES
PASSED Ralph E. Anderson ENGINEER OF BRIDGES AND STRUCTURES

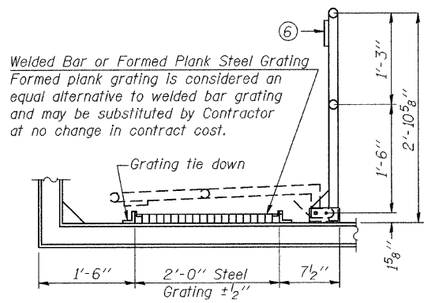
BM-3 12-1-08

SHEET NO. 7	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	270	60 B-I-3, 60-1B-I-3, 60-(1,2,3)RS-1, 60-(2HBY, 2VHBY,3HBY-1,3VHBY,3VBY)	Madison	12	11
			CONTRACT NO. 76D30		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

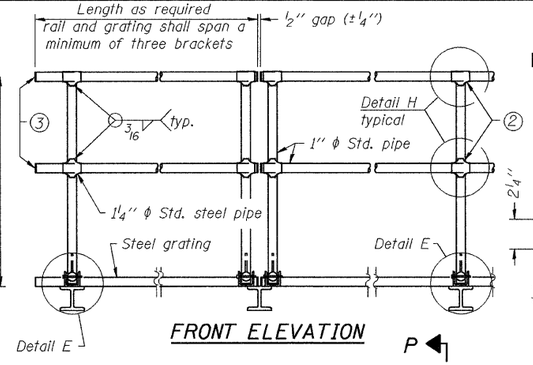
SLT-98-001-09

060-0046.dgn 1/21/2010 2:29:00 PM

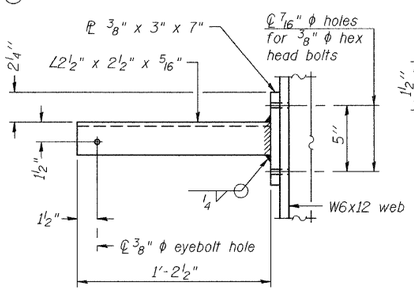
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



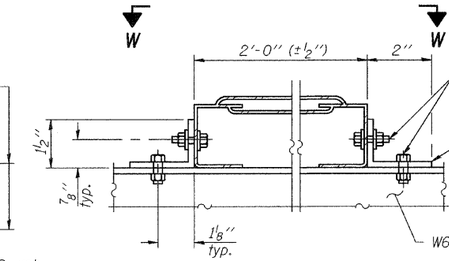
SIDE ELEVATION



FRONT ELEVATION

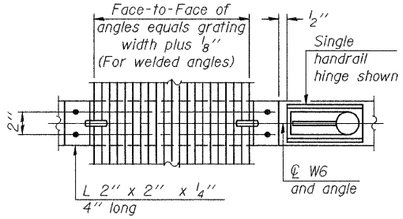


SECTION P-P

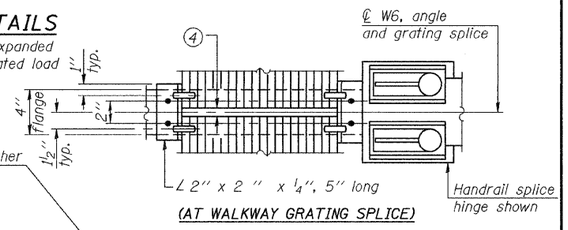


ALTERNATE FORMED PLANK GRATING DETAILS

Plank Grating: nominal depth = 2½" (±½"); perforated or expanded steel sheet with a non-skid surface (non-serrated) concentrated load capacity = 500 lbs. with 6'-0" clear span.

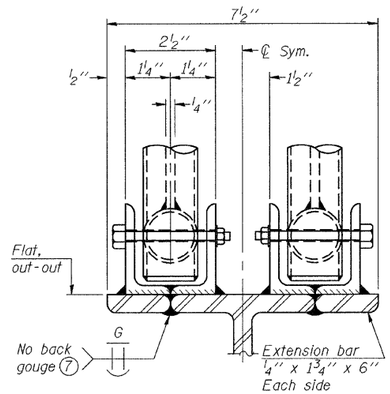


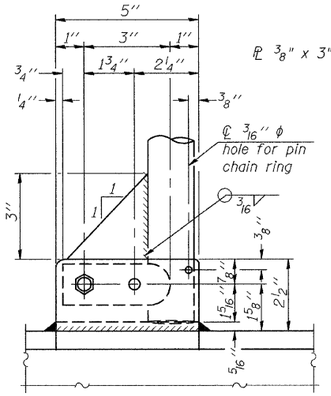
(WALKWAY GRATING CONTINUOUS)



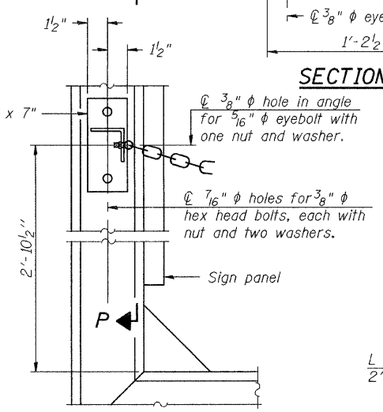
(AT WALKWAY GRATING SPLICE)

PLAN



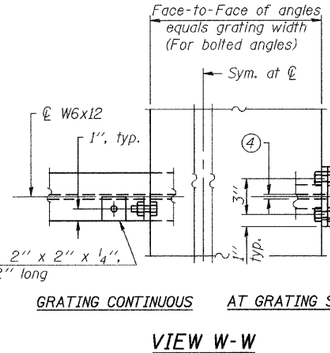


SIDE ELEVATION



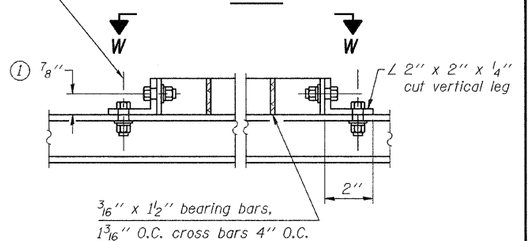
SAFETY CHAIN ATTACHMENT

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

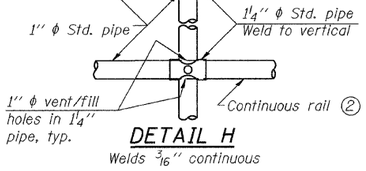


GRATING CONTINUOUS AT GRATING SPLICE

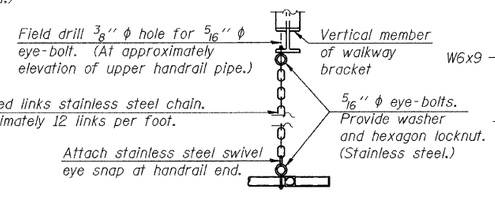
VIEW W-W



WELDED BAR GRATING DETAILS

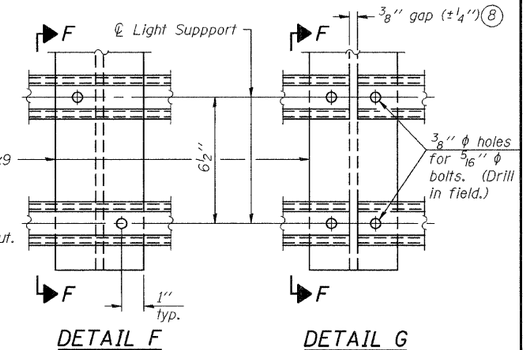


DETAIL H
Welds 3/16" continuous

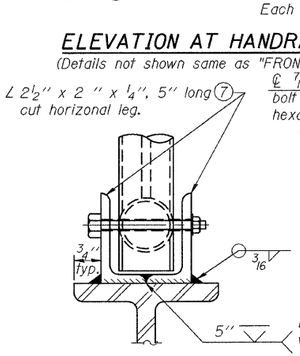


No Sign at Bracket

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

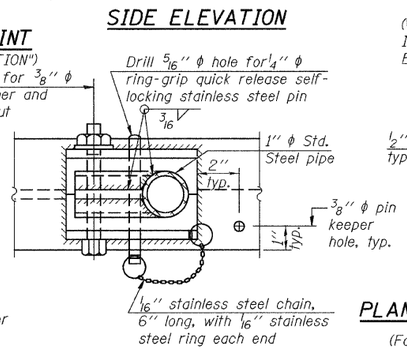


DETAIL F DETAIL G

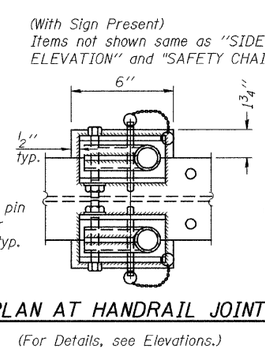


FRONT ELEVATION
(See above Elevations for dimensions.)

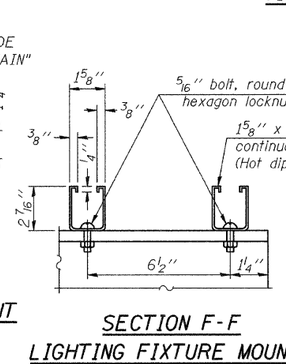
ELEVATION AT HANDRAIL JOINT
(Details not shown same as "FRONT ELEVATION")



PLAN AT SINGLE HANDRAIL HINGE
DETAIL E



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



SECTION F-F
LIGHTING FIXTURE MOUNTS
(If required)

NOTES

① 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.

② Horizontal rail member shall be continuous thru 1¼" ϕ pipe. Provide 7/16" ϕ hole in 1¼"ϕ pipe for 3/8" ϕ bolt. Field drill 7/16" ϕ hole in horizontal rail member. Provide washer and locknut for bolt. (Use 5/16" eyebolts in 7/16" ϕ holes on top rail at ends only.)

③ Install standard force-fit end caps or weld ⅛" end plates with ⅛" c.f.w. and grind smooth. (All rail ends.)

④ 3/8" (±¼") gap between grating panels at splice.

⑤ 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".

⑥ PL ⅛" x ½" x 2" welded to handrail posts to protect locations that contact grating.

⑦ Extrusions may be used in lieu of details shown, with approval by Engineer.

⑧ Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.

DESIGNED	A.T.H.
CHECKED	G.G.E.
DRAWN	Drew Christopher
CHECKED	A.T.H. G.G.E.

BM-4 12-1-08

January 21, 2010
EXAMINED — ENGINEER OF STRUCTURAL SERVICES
PASSED — ENGINEER OF BRIDGES AND STRUCTURES

BRIDGE MOUNT SIGN STRUCTURES
WALKWAY DETAILS
SN 060-0046

SHEET NO.	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	270	60 B-I-3, 60-1B-I-3, 60-(1,2,3)RS-1, 60-(2HBY, 2VHBY,3HBY-1,3VHBY,3VBY)	Madison	12	12
			CONTRACT NO. 76D30		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SLT-98-001-09

060-0046.dgn 1/21/2010 2:29:01 PM