

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

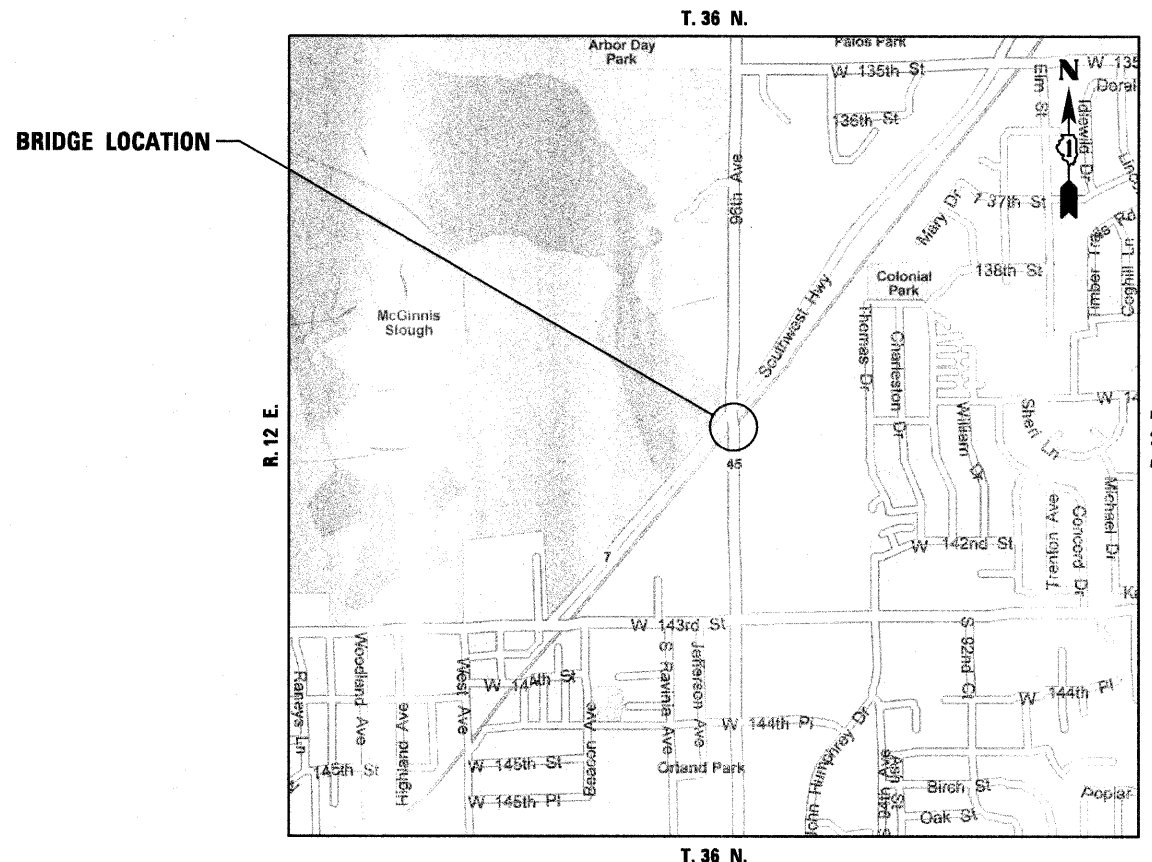
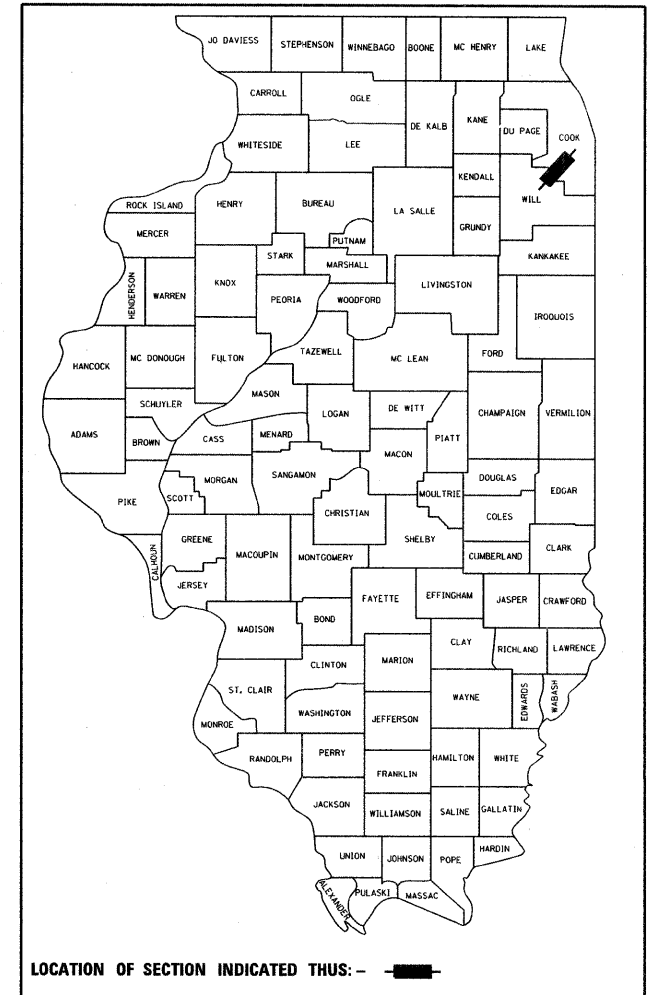
**PROPOSED
 HIGHWAY PLANS**

FAP ROUTE 330: US 45 (LAGRANGE ROAD)
 SECTION: 2010-074-F
 PROJECT: ACNHF-0330(063)
 RAILROAD BRIDGE BEAM FABRICATION
 COOK COUNTY
 C-91-751-10

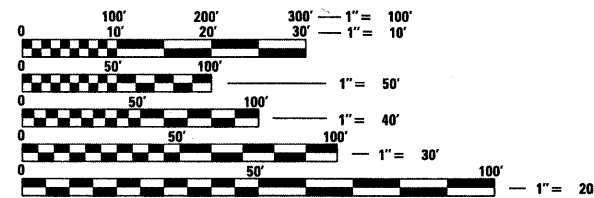
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2010-074-F	COOK	15	1
		ILLINOIS	CONTRACT NO. 60L60	

FOR INDEX OF SHEETS, SEE SHEET NO. 2

D-91-569-08



GROSS AND NET LENGTH = 205 FT. = 0.039 MILE



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: MICHELLE AQUINO
 PROJECT MANAGER: RAJENDRA SHAH

CONTRACT NO. 60L60



Exp 11/30/2010

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

SUBMITTED JUNE 10, 2010
Diana M. O'Keefe
 DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

August 13, 2010
Scott E. Stitt, P.E.
 acting ENGINEER OF DESIGN AND ENVIRONMENT

August 13, 2010
Christine M. Reed
 DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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 OF THE STATE OF ILLINOIS**

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

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SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	CONSTRUCTION CODE	
			URBAN	X631-2A
50500205	FURNISHING STRUCTURAL STEEL	L SUM	1	1
50500455	STORAGE OF STRUCTURAL STEEL	CAL DA	60	60
X0325960	STORAGE OF HIGH LOAD MULTI-ROTATION BEARINGS	CAL DA	60	60
X0327010	FURNISHING HIGH LOAD MULTI-ROTATION BEARINGS, FIXED, 1500K	EACH	4	4
X0327011	FURNISHING HIGH LOAD MULTI-ROTATION BEARINGS, GUIDED EXPANSION, 1500K	EACH	4	4
X0327012	FURNISHING HIGH LOAD MULTI-ROTATION BEARINGS, NON-GUIDED EXPANSION, 500K	EACH	8	8

DESIGNED - JCE
CHECKED - MJT
DRAWN - JCE
CHECKED - MJT

INDEX OF SHEETS
SUMMARY OF QUANTITIES



SHEET NO. 2	F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	330	2010-074-F	COOK	15	2
15 SHEETS	CONTRACT NO. 60L60				
DATE: 06/25/10		ILLINOIS FED. AID PROJECT			

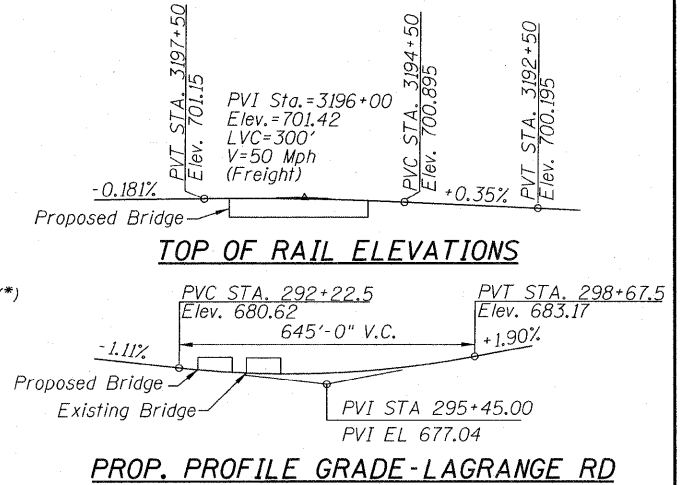
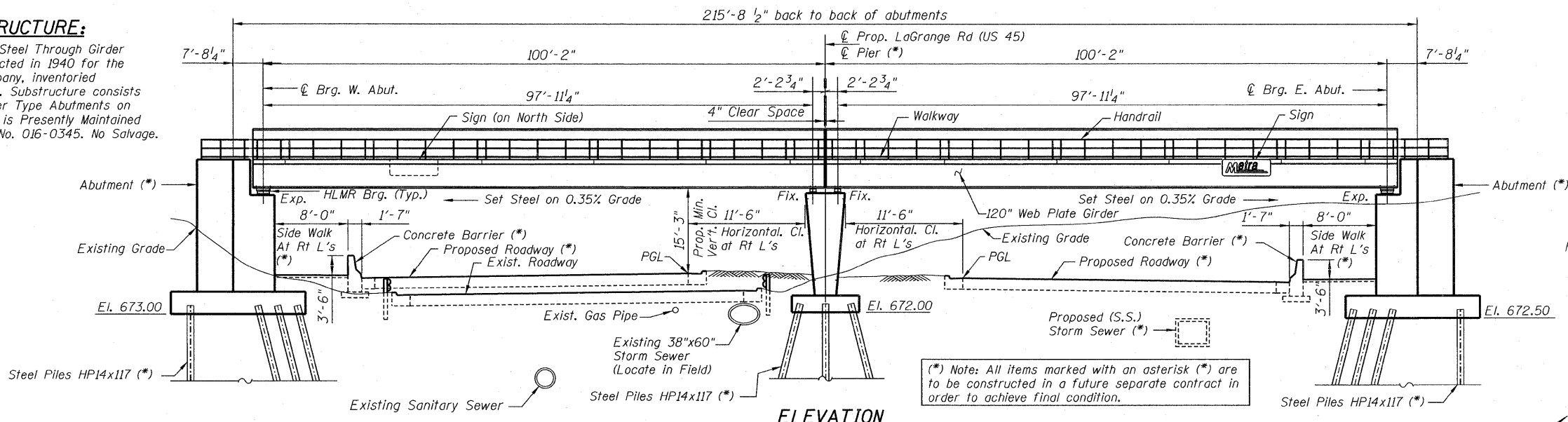
BENCH MARK:

TBM #1 - Elev. 689.00 Top of Brass Survey Monument located at the west edge of the LaGrange Road SB Pavement, 600 feet North of SW Highway Bridge.

EXISTING STRUCTURE:

89'-3" Simple Span Steel Through Girder R.R. Bridge, Constructed in 1940 for the Wabash Railway Company, inventoried as Bridge No. 1043A. Substructure consists of Concrete Cantilever Type Abutments on Timber Piles. Bridge is Presently Maintained by Metra. Structure No. 016-0345. No Salvage.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



(*) Note: All items marked with an asterisk (*) are to be constructed in a future separate contract in order to achieve final condition.

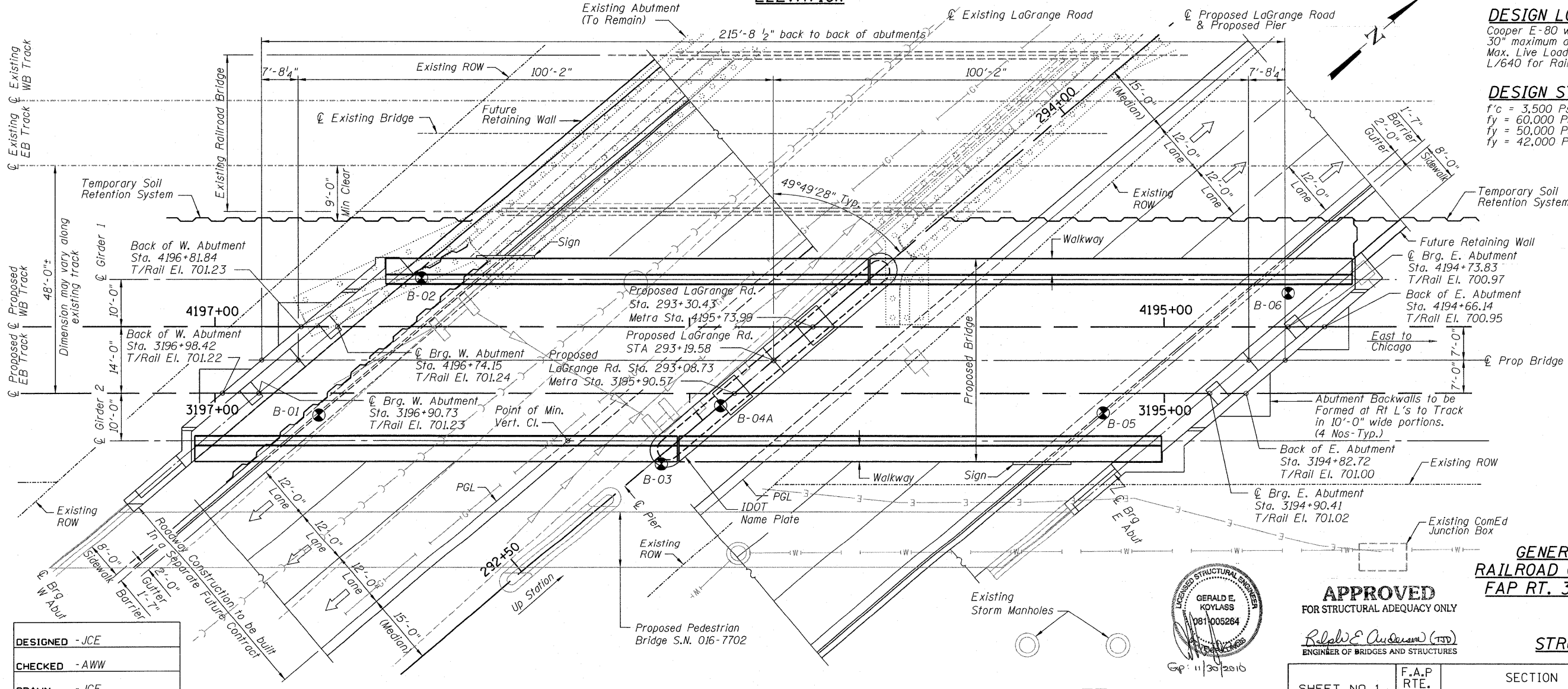
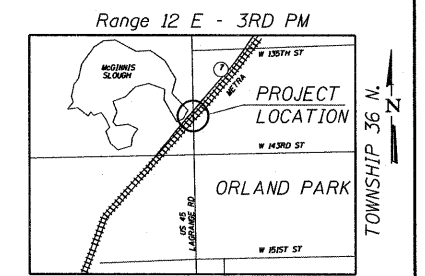
DESIGN SPECIFICATIONS
Specifications for Design and Materials:
A.R.E.M.A. Manual for Railway Engineering 2010.

DESIGN LOADING
Cooper E-80 with Diesel Impact with Alternate Live Load 30" maximum design ballast.
Max. Live Load plus Impact Deflection Criteria L/640 for Railroad Super Structure.

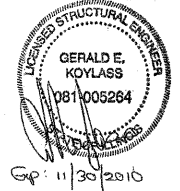
DESIGN STRESSES
f'c = 3,500 Psi (Concrete)
fy = 60,000 Psi (Reinforcing Steel)
fy = 50,000 Psi (ASTM A709 Grade 50 Structural Steel)
fy = 42,000 Psi (ASTM A572 Grade 42 HLMR Bearings)

LEGEND

- Soil Boring
- Existing Storm Sewer
- Existing Gas Line
- Existing Sanitary
- Existing Water Line



DESIGNED	- JCE
CHECKED	- AWW
DRAWN	- JCE
CHECKED	- AWW



APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E. Anderson (TSP)
ENGINEER OF BRIDGES AND STRUCTURES

GENERAL PLAN & ELEVATION
RAILROAD OVER US 45 (LaGRANGE RD.)
FAP RT. 330 - SECTION 2010-074-F
COOK COUNTY
STA. 293+19.58
STRUCTURE NO. 016-6201

SHEET NO. 1	F.A.P RTE. 330	SECTION 2010-074-F	COUNTY COOK	TOTAL SHEETS	SHEET NO.
				15	3
13 SHEETS	CONTRACT NO. 60L60				
DATE: 08/12/10		ILLINOIS FED. AID PROJECT			

McDonough Associates Inc.
Engineers / Architects
130 East Randolph Street Chicago, Illinois 60601

PLAN

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL

1. All structural steel conform to ASTM A709, Grade 50 unless otherwise noted on the plans or in the special provisions. Structural steel is to be paid for at the Contract Lump Sum Price for "Furnishing Structural Steel".
Calculated Wt of A709 Grade50 steel is-----1,302,100 lbs.
Calculated Wt of A709 Grade 50W Corrosion Resistant (C.R.) steel is-----248,900 lbs.
Total weight is-----1,551,000 lbs.
2. The webs and tension flanges of the through-plate girders are designated as "Fracture Critical Members" and shall conform to the fracture control plan for fracture critical members of the AREMA specifications for Zone 2. These components are noted on the plans as (FCM). For all FCM members NTR shall be Applied.
3. The main load carrying member components subject to tensile stress, other than fracture critical members, shall conform to the supplemental requirements for notch toughness, Zone 2. These components are the wide flange beams and other components of main girder and are noted on the plans as (NTR).
4. Steel noted on the plans (C.R.) shall be high-strength low-alloy structural steel conforming to ASTM A709, Grade 50W, except as otherwise specified on the plans or special provisions.
5. No field welding is permitted except as specified in the contract documents.
6. All shop and field connections shall be bolted with high-strength bolts except where otherwise shown or noted on the drawings to be bolted with machine bolts or welded. All high-strength bolts, nuts and washers shall conform to ASTM A325. Bolts shall be 7/8" diameter unless otherwise noted. Holes shall be 1/16" larger than bolt size unless otherwise noted. Holes for shop fasteners shall be subpunched or subdrilled and reamed through a template in accordance with AREMA specifications and as specified in the special provisions.
7. The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Reddish Brown, Munsell No. 2.5YR 3/4. See Special Provision for "Cleaning and Painting New Metal Structures".
8. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8". Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 1/8" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Furnishing Structural Steel	L Sum	1		1
Storage of Structural Steel	Cal Da	60		60
Storage of High Load Multi-Rotation Bearings	Cal Da	60		60
Furnishing High Load Multi-Rotation Bearings, Fixed - 1500K	Each	4		4
Furnishing High Load Multi-Rotation Bearings, Guided Expansion - 1500K	Each	4		4
Furnishing High Load Multi-Rotation Bearings, Non-Guided Expansion - 500K	Each	8		8

N.I.C. = NOT IN CONTRACT
Some items are shown for information only and are not a part of this Fabrication Contract.

DESIGN CRITERIA

SPECIFICATIONS:

Steel design in accordance with AREMA Specifications for Steel Structures, Dated 2010. Concrete design in accordance with AREMA Specifications for Concrete Structures and Foundations, Dated 2010. Workmanship and materials in accordance with the Standard Specifications for Road and Bridge Construction of the State of Illinois, Department of Transportation, Adopted Jan. 1, 2007. Except that wherever applicable, steel fabrication shall be in accordance with the AREMA Specifications. Welding shall be in accordance with the above AREMA Specifications.

LIVE LOAD

Cooper E-80 with Diesel Impact with Alternate Live Load

MAXIMUM LIVE LOAD PLUS IMPACT DEFLECTION

L/640 for Railroad Super Structure.

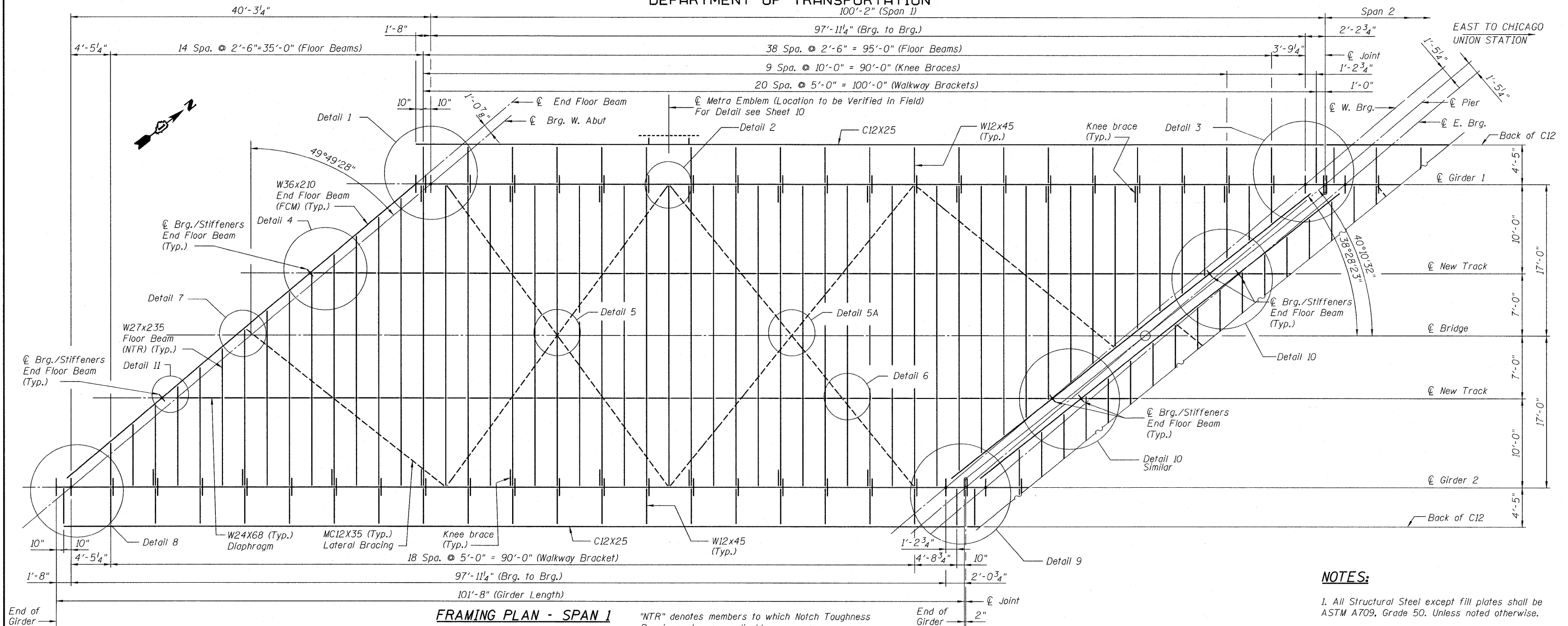
DESIGNED - JCE
CHECKED - GEK
DRAWN - JCE
CHECKED - GEK

**GENERAL NOTES & BILL OF MATERIAL
STRUCTURE NO. 016-6201**

 **McDonough Associates Inc.**
Engineers / Architects
130 East Randolph Street Chicago, Illinois 60601

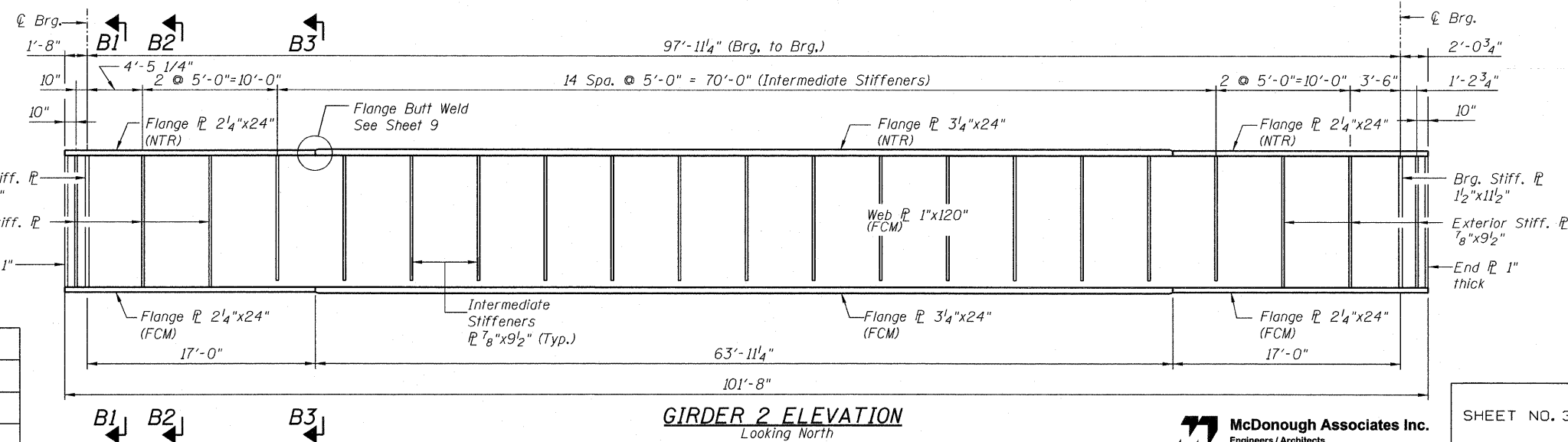
SHEET NO. 2	F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	330	2010-074-F	COOK	15	4
13 SHEETS	CONTRACT NO. 60L60		ILLINOIS FED. AID PROJECT		
DATE: 08/12/10					

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
100'-2" (Span 1)



FRAMING PLAN - SPAN 1

"NTR" denotes members to which Notch Toughness Requirements are applicable.



GIRDER 2 ELEVATION
Looking North

NOTES:

1. All Structural Steel except fill plates shall be ASTM A709, Grade 50. Unless noted otherwise.
2. "NTR" Indicates Notch Toughness Requirements.
3. All Floor Beams shall be "NTR".
4. FCM Denotes Fracture Critical Members.
5. For all FCM Members NTR, shall also be applied.
6. For Sections B1, B2 & B3 see Sheet 5.
7. For Details see Sheets 5 through 9.
8. See Sheet 6 for location of jacking stiffeners.
9. See Sheet 10 for Camber Diagram.

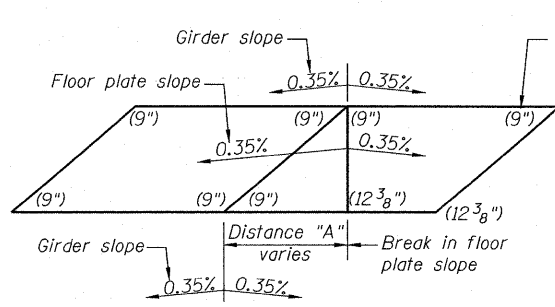
FRAMING PLAN AND DETAILS
SPAN 1
STRUCTURE NO. 016-6201

DESIGNED	-KJH
CHECKED	-MGB
DRAWN	-RJ
CHECKED	-MGB

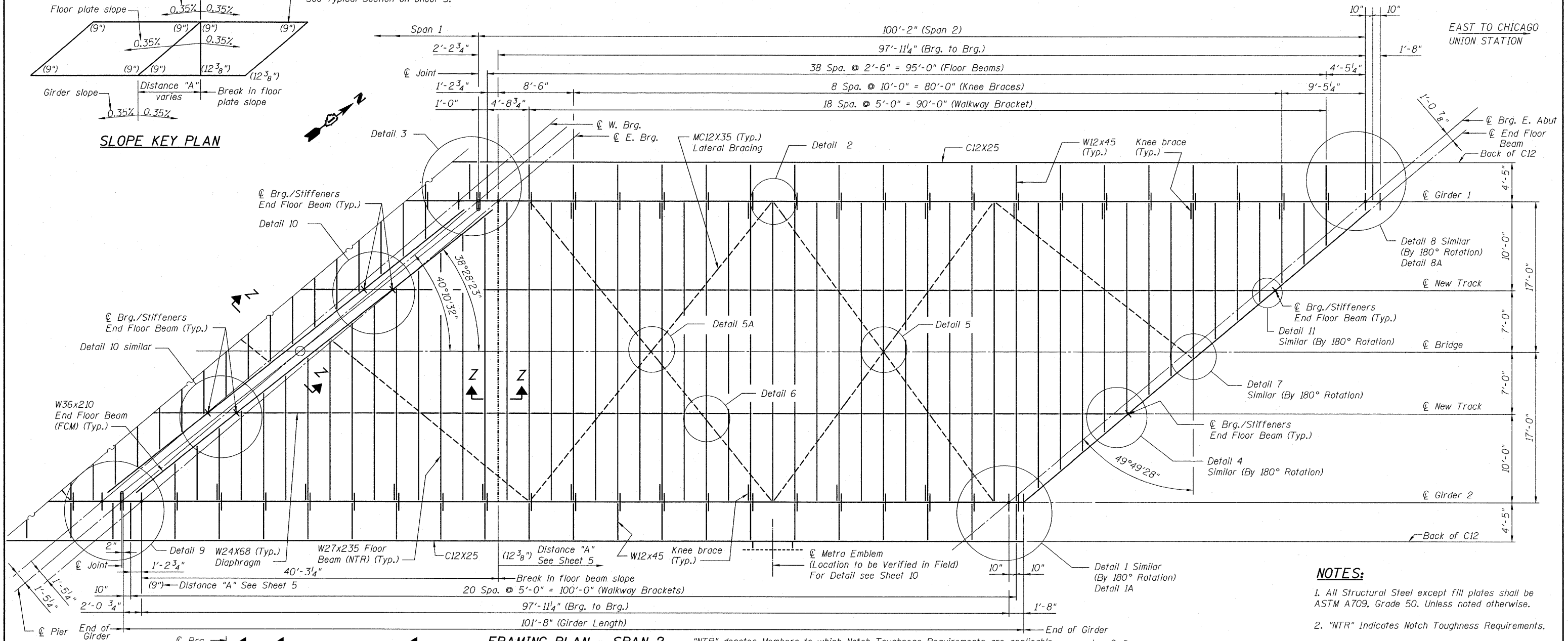
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	330	2010-074-F	COOK	15	5
DATE: 08/12/10			ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60L60					

McDonough Associates Inc.
Engineers / Architects
130 East Randolph Street Chicago, Illinois 60601

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

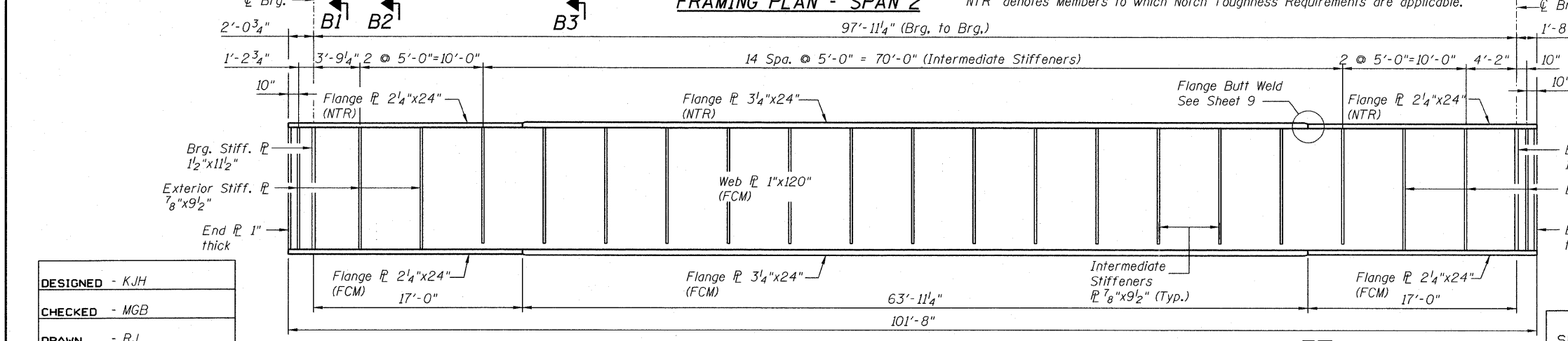


SLOPE KEY PLAN



FRAMING PLAN - SPAN 2

"NTR" denotes Members to which Notch Toughness Requirements are applicable.



GIRDER 2 ELEVATION
Looking North

NOTES:

1. All Structural Steel except fill plates shall be ASTM A709, Grade 50. Unless noted otherwise.
2. "NTR" Indicates Notch Toughness Requirements.
3. All Floor Beams shall be "NTR".
4. FCM Denotes Fracture Critical Members.
5. For all FCM Members, NTR shall also be applied.
6. For Sections B1, B2, and B3 see Sheet 5.
5. For Details, see Sheets 5 through 9.
6. See Sheet 6 for location of jacking stiffeners.
9. See Sheet 10 for Camber Diagram.

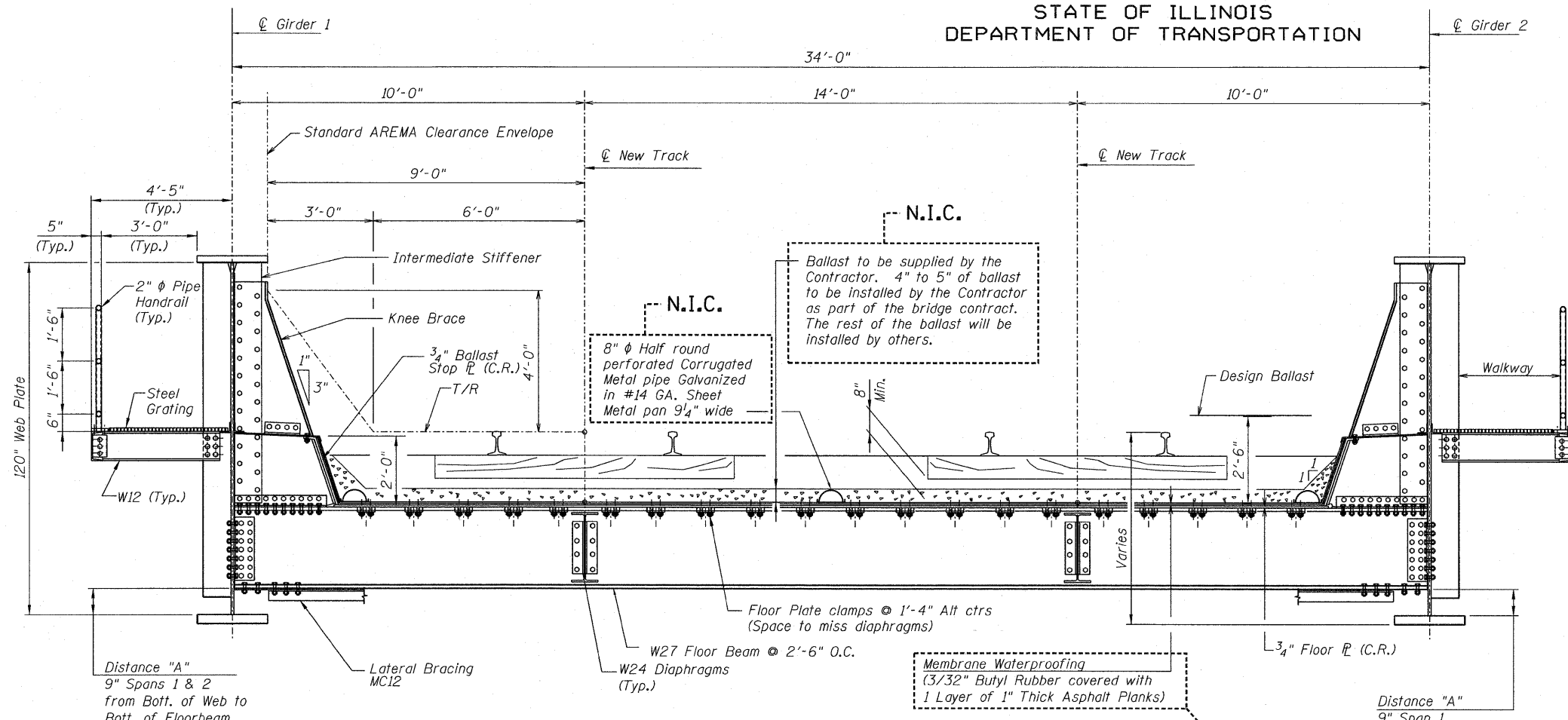
FRAMING PLAN AND DETAILS
SPAN 2
STRUCTURE NO. 016-6201

DESIGNED - KJH
CHECKED - MGB
DRAWN - RJ
CHECKED - MGB

SHEET NO. 4 13 SHEETS	F.A.P. RTE. 330	SECTION 2010-074-F	COUNTY COOK	TOTAL SHEETS 15	SHEET NO. 6
	CONTRACT NO. 60L60				
DATE: 08/12/10		ILLINOIS FED. AID PROJECT			

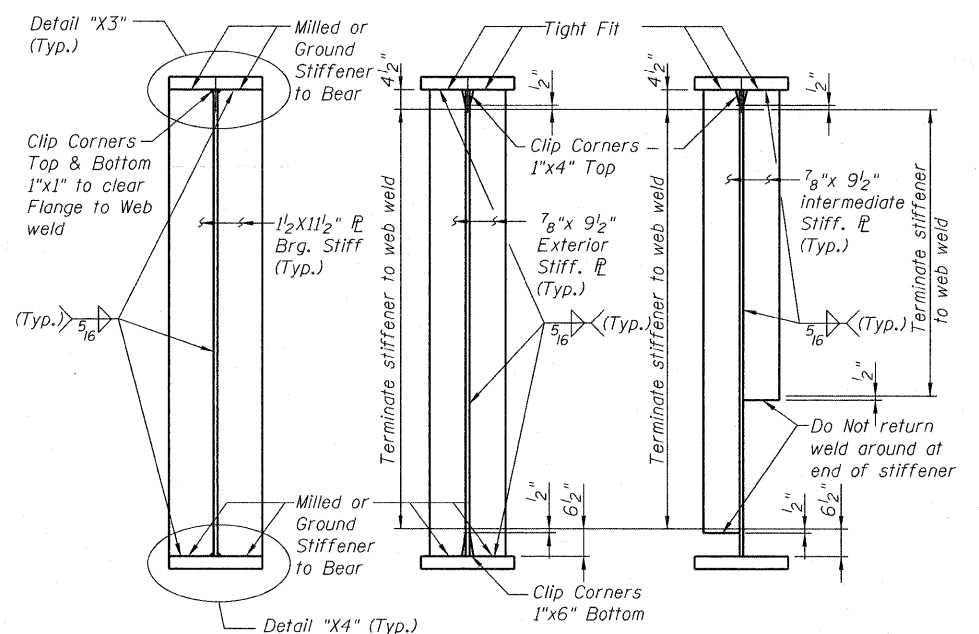
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DEPARTMENT OF TRANSPORTATION



TYPICAL BRIDGE CROSS SECTION LOOKING EAST

Scale: 3/16" = 1'-0"



SECTION B1-B1 AT BEARING SECTION B2-B2 AT EXTERIOR SECTION B3-B3 AT INTERMEDIATE

TYPICAL STIFFENER DETAILS

NOTES:

(C.R.) Denotes Corrosion Resistant.

Note "A"
No Glue. The Water Proofing Membrane (W.P.M.) (3/32" Butyl Rubber) in this area shall not adhere to the Floor Plate or the Abutment Backwall.

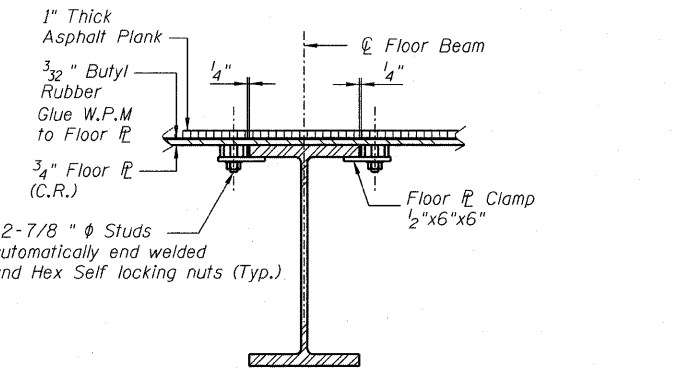
Membrane Waterproofing - (3/32") thickness Butyl Rubber covered with 1 - (1") thick Asphalt Plank. The Membrane shall be Bonded to the Floor and Ballast Stop Plates with Adhesive Applied to the entire Surface in accordance with the Recommendations of the Membrane Manufacturer, the Protective Panels shall be Bonded to the Membrane and to each other with the same Adhesive used for bonding the Membrane and be compatible with all materials it contacts.

The floor plate clamp is to be installed square with the beam, any clamps that are not square shall be corrected at the Contractor's expense.

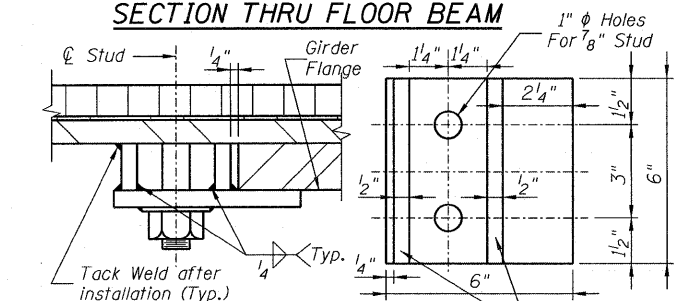
Floor beam bracket flange plate shall be flat and at right angles to the bracket web after welding has been completed.

All shop and field welds on the deck shall be continuous unless otherwise shown and shall result in a watertight deck.

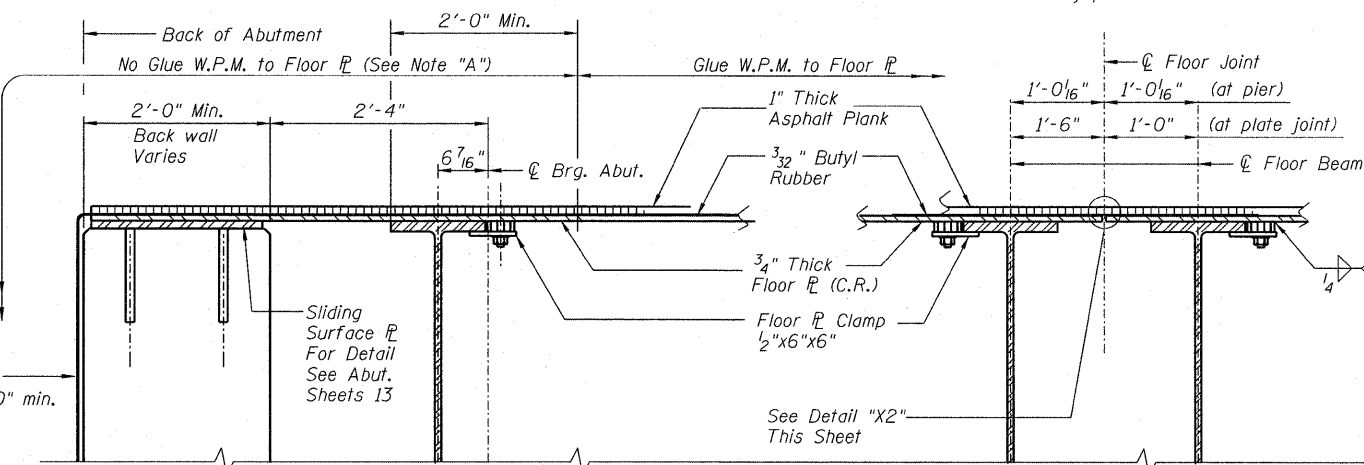
Remove sharp edges or any projections from floor plates or welds that may damage the Butyl Rubber Membrane.



SECTION THRU FLOOR BEAM

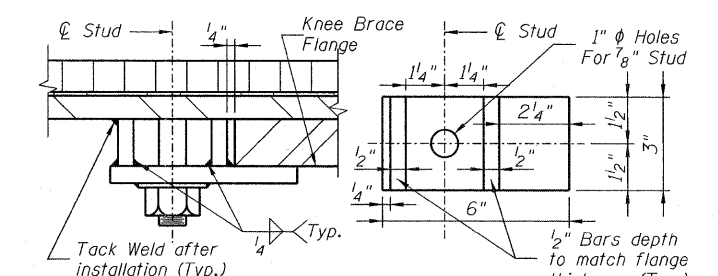


FLOOR PLATE CLAMP DETAIL



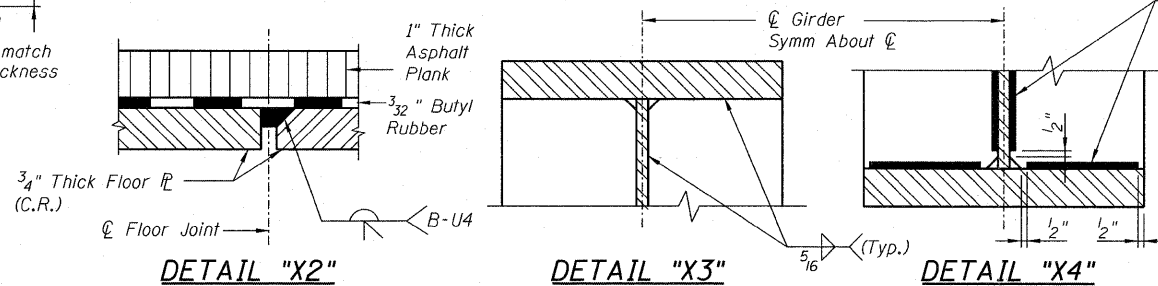
SECTION THRU ABUTMENT

SECTION Z-Z (thru pier and plate joint)



BALLAST STOP PLATE CLAMP DETAIL

DESIGNED	-KJH
CHECKED	-MGB
DRAWN	-RJ
CHECKED	-MGB



DETAIL "X2"

DETAIL "X3"

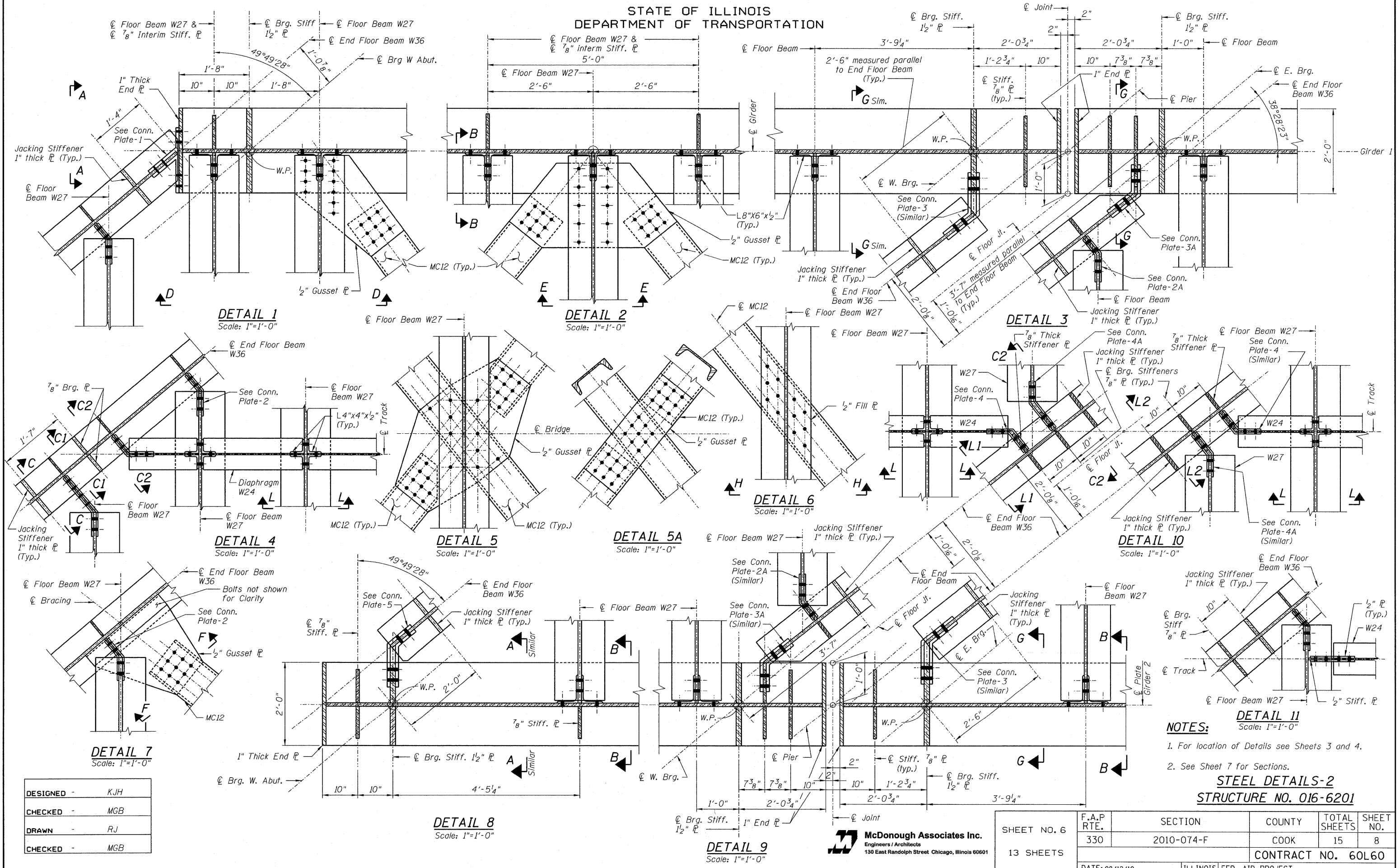
DETAIL "X4"

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Engineers / Architects
130 East Randolph Street Chicago, Illinois 60601

TYPICAL CROSS SECTION AND STEEL DETAILS-1
STRUCTURE NO. 016-6201

SHEET NO. 5 13 SHEETS	F.A.P R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	330	2010-074-F	COOK	15	7
DATE: 08/12/10			ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60L60					

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



DETAIL 1
Scale: 1"=1'-0"

DETAIL 2
Scale: 1"=1'-0"

DETAIL 3
Scale: 1"=1'-0"

DETAIL 4
Scale: 1"=1'-0"

DETAIL 5
Scale: 1"=1'-0"

DETAIL 5A
Scale: 1"=1'-0"

DETAIL 6
Scale: 1"=1'-0"

DETAIL 10
Scale: 1"=1'-0"

DETAIL 11
Scale: 1"=1'-0"

DETAIL 7
Scale: 1"=1'-0"

DETAIL 8
Scale: 1"=1'-0"

DETAIL 9
Scale: 1"=1'-0"

DESIGNED	-	KJH
CHECKED	-	MGB
DRAWN	-	RJ
CHECKED	-	MGB

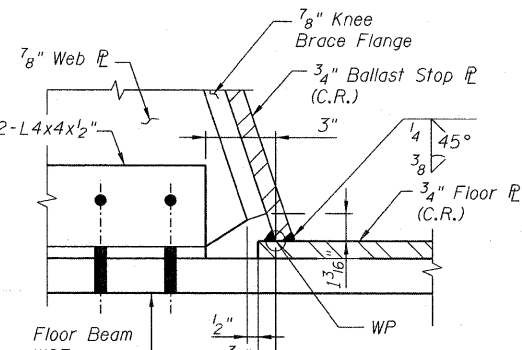
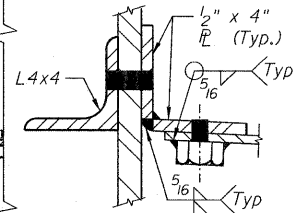
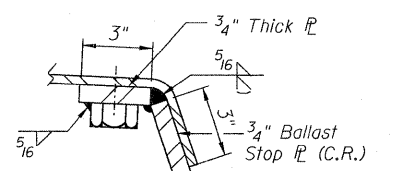
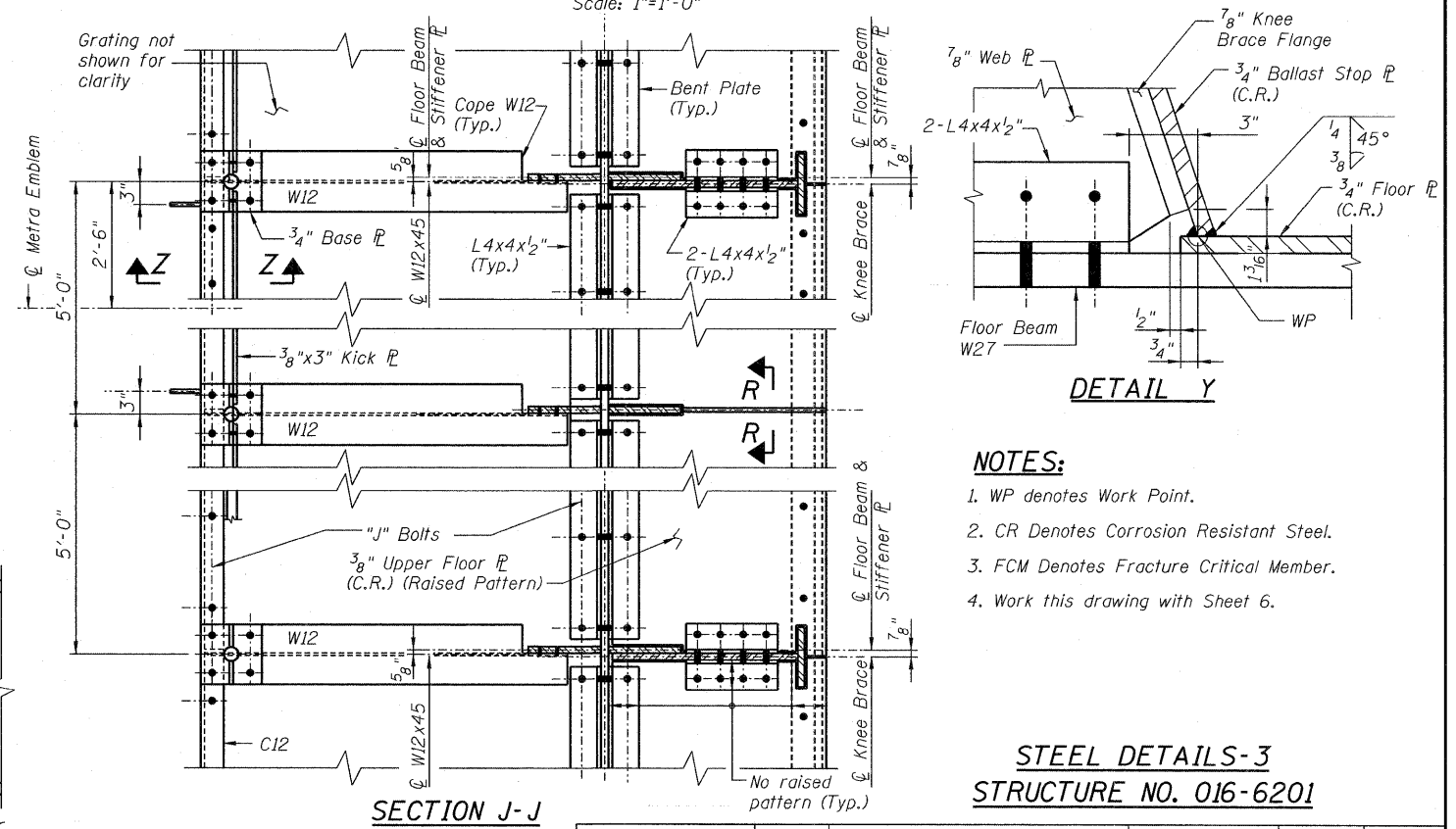
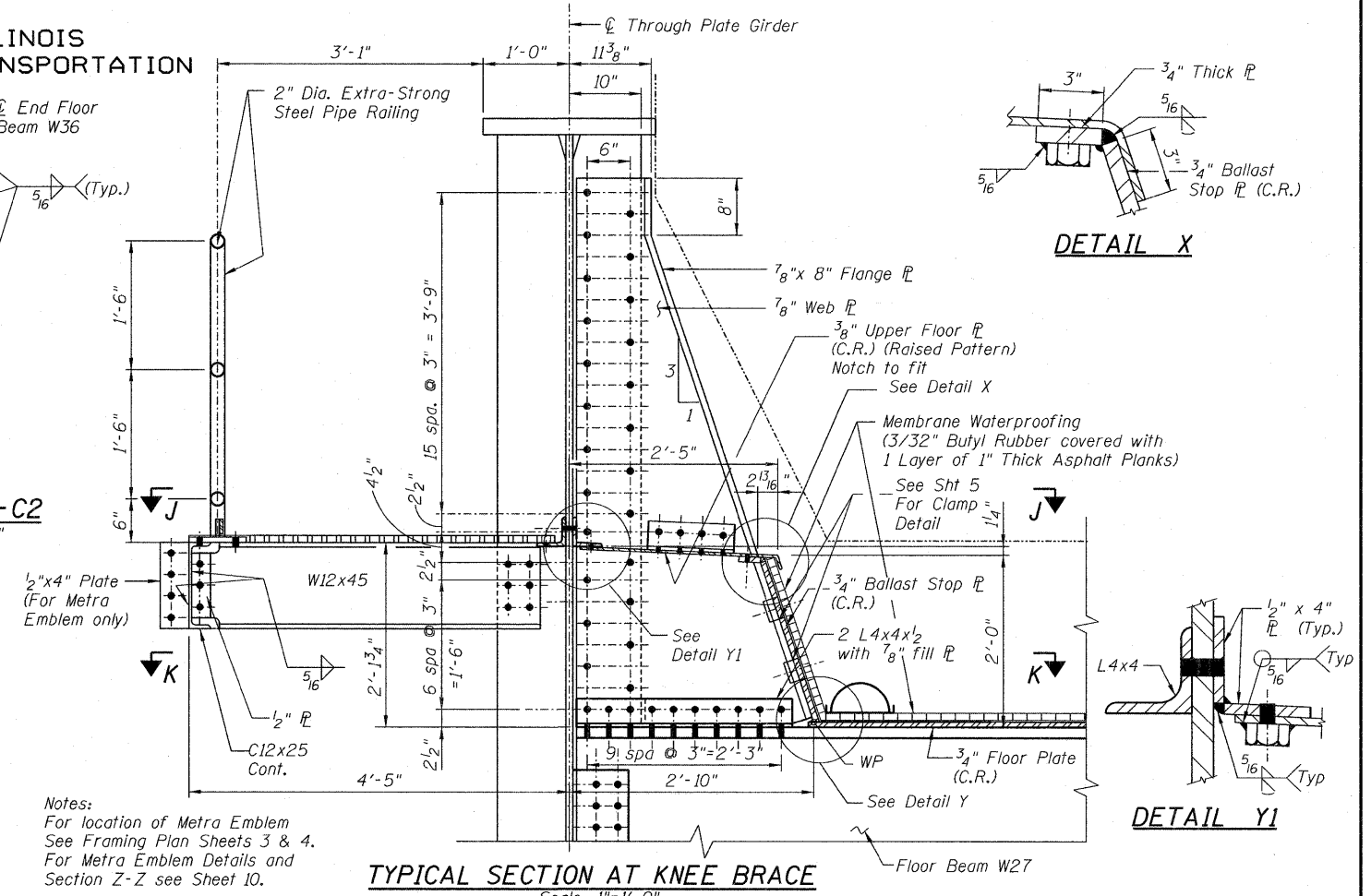
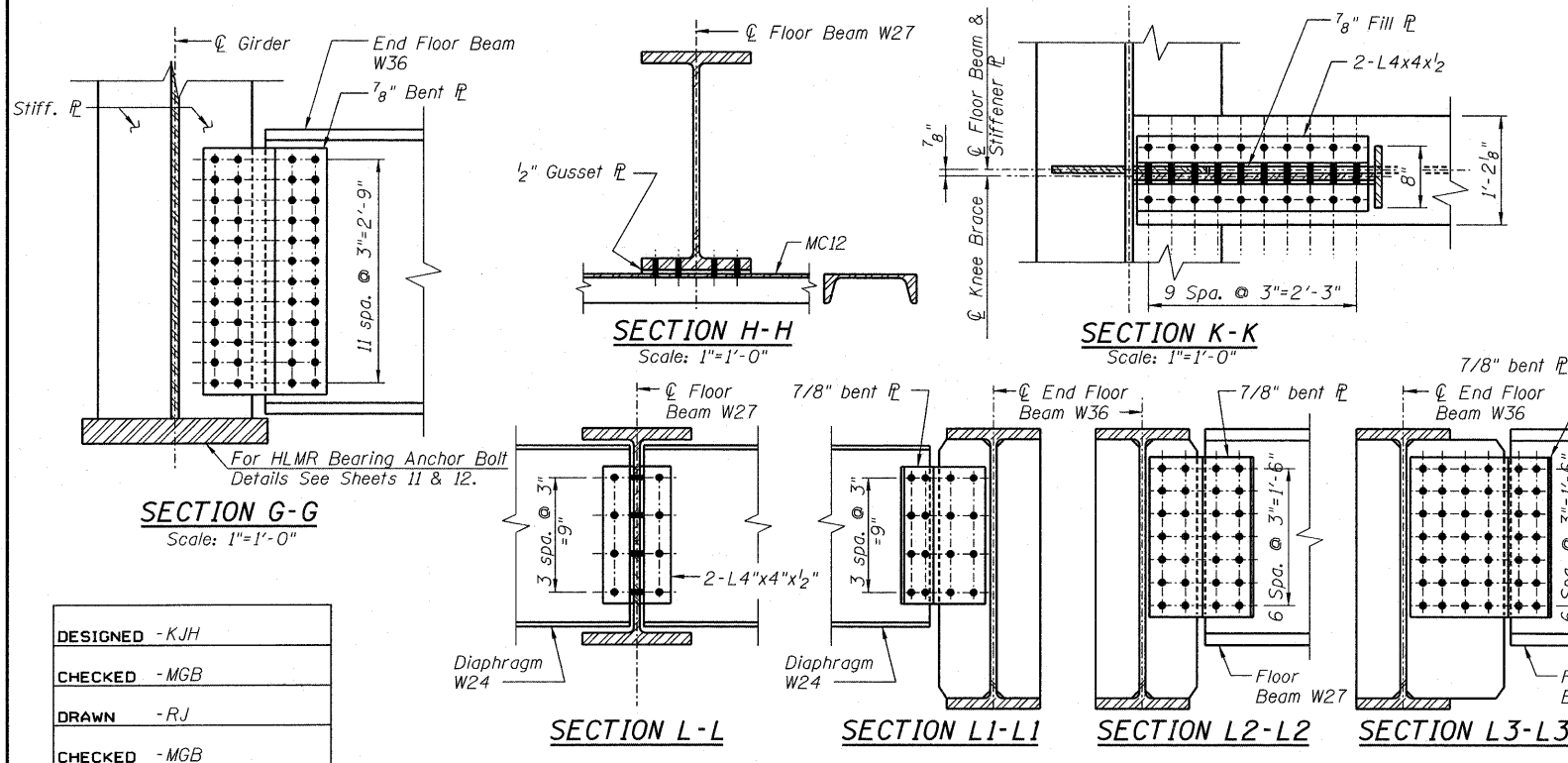
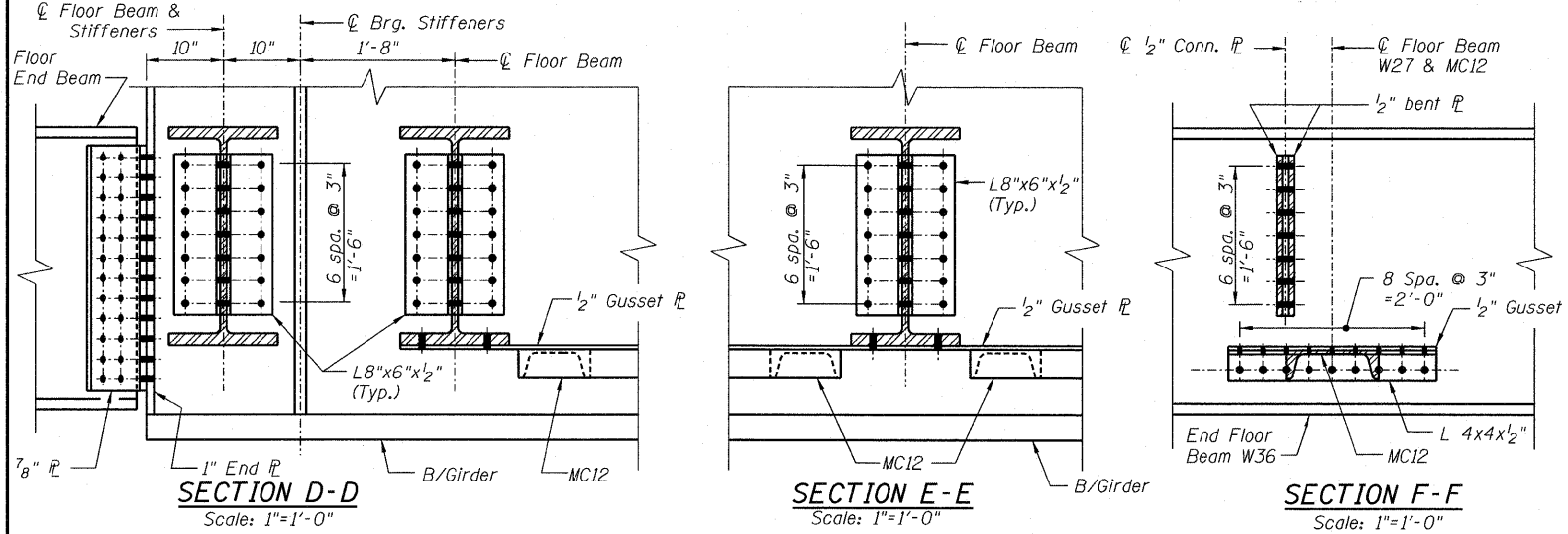
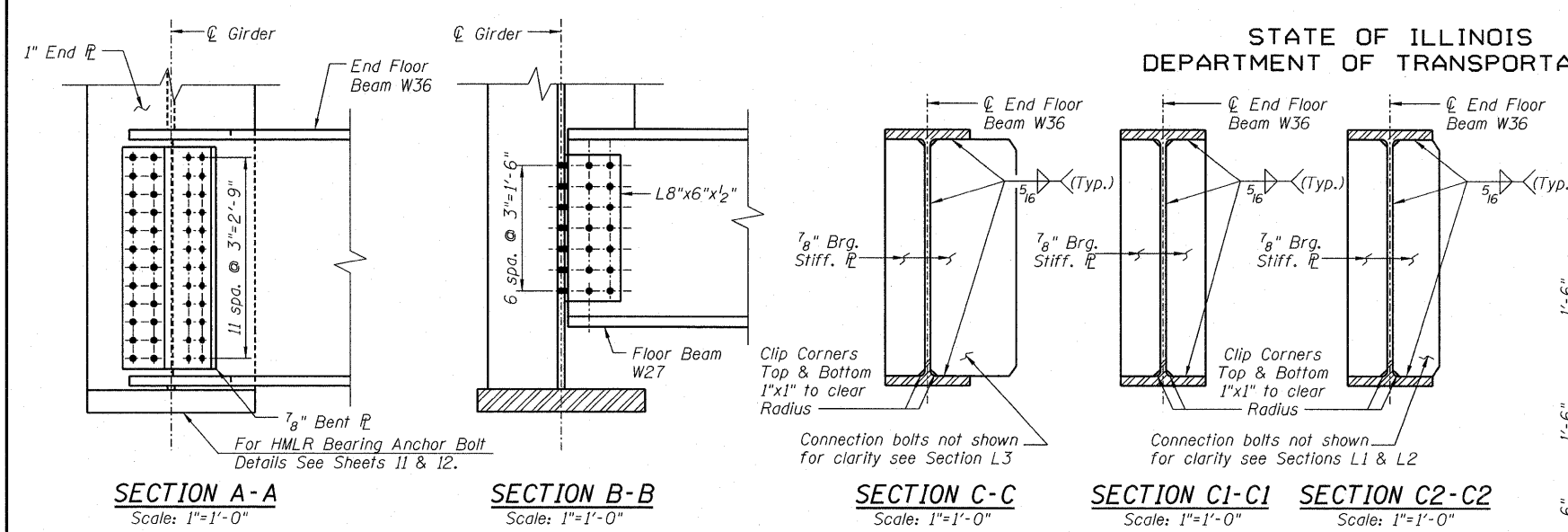
- NOTES:**
1. For location of Details see Sheets 3 and 4.
 2. See Sheet 7 for Sections.

STEEL DETAILS-2
STRUCTURE NO. 016-6201

SHEET NO. 6 13 SHEETS	F.A.P. RTE. 330	SECTION 2010-074-F	COUNTY COOK	TOTAL SHEETS 15	SHEET NO. 8
	CONTRACT NO. 60L60				
DATE: 08/12/10		ILLINOIS FED. AID PROJECT			

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130 East Randolph Street Chicago, Illinois 60601

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



Notes:
For location of Metra Emblem
See Framing Plan Sheets 3 & 4.
For Metra Emblem Details and
Section Z-Z see Sheet 10.

- NOTES:**
1. WP denotes Work Point.
 2. CR Denotes Corrosion Resistant Steel.
 3. FCM Denotes Fracture Critical Member.
 4. Work this drawing with Sheet 6.

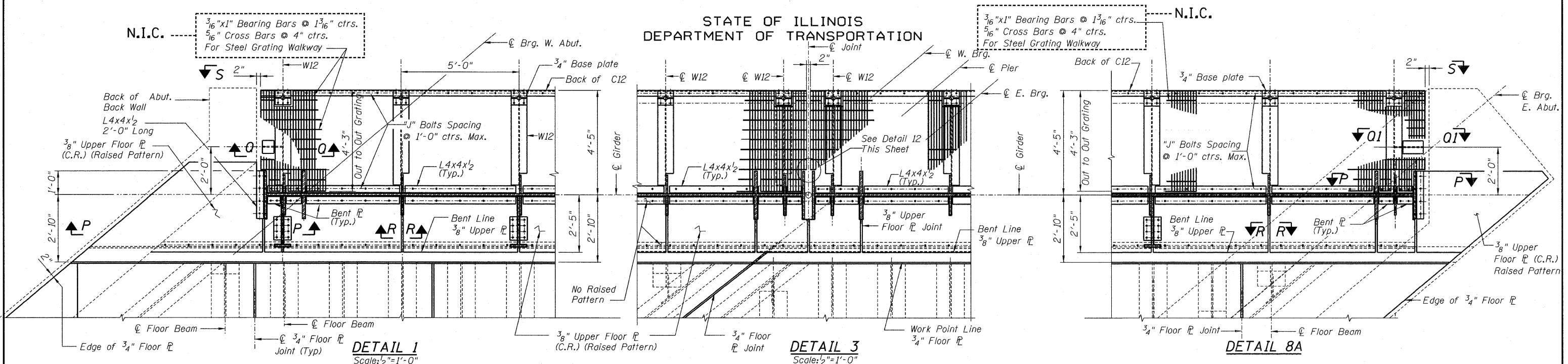
DESIGNED	-KJH
CHECKED	-MGB
DRAWN	-RJ
CHECKED	-MGB

SHEET NO. 7 13 SHEETS	F.A.P. RTE. 330	SECTION 2010-074-F	COUNTY COOK	TOTAL SHEETS 15	SHEET NO. 9
	CONTRACT NO. 60L60				
DATE: 08/12/10		ILLINOIS FED. AID PROJECT			

McDonough Associates Inc.
Engineers / Architects
130 East Randolph Street Chicago, Illinois 60601

**STEEL DETAILS-3
STRUCTURE NO. 016-6201**

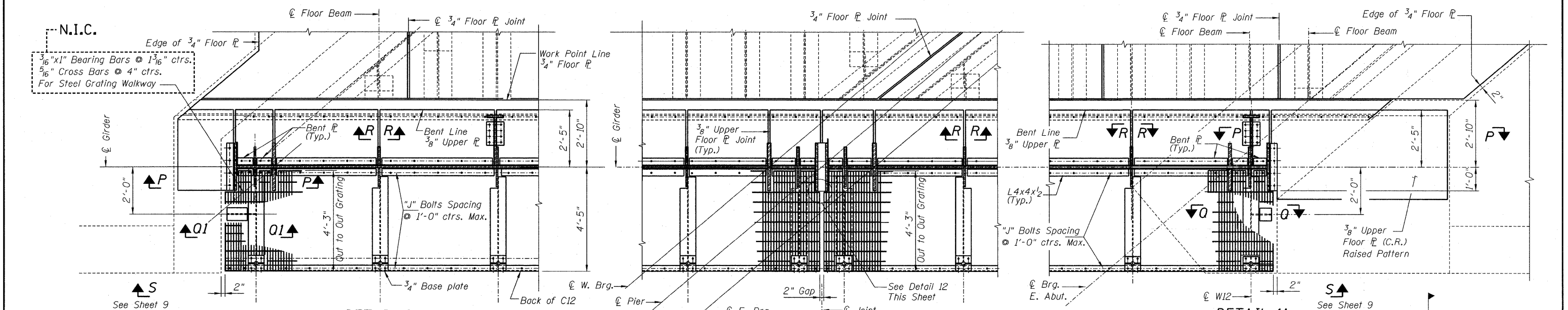
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



DETAIL 1
Scale: 1/2"=1'-0"

DETAIL 3
Scale: 1/2"=1'-0"

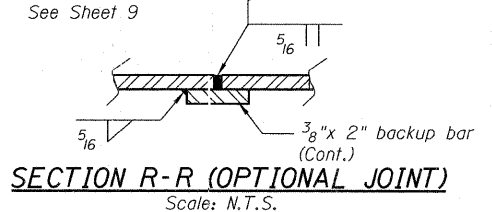
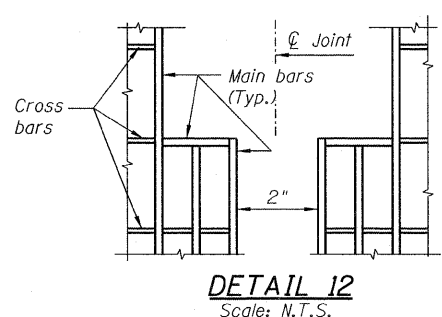
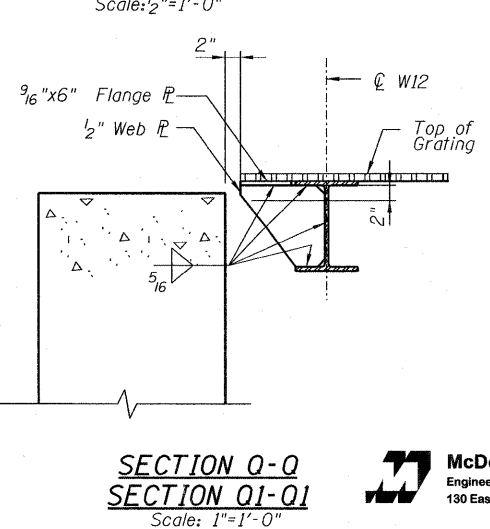
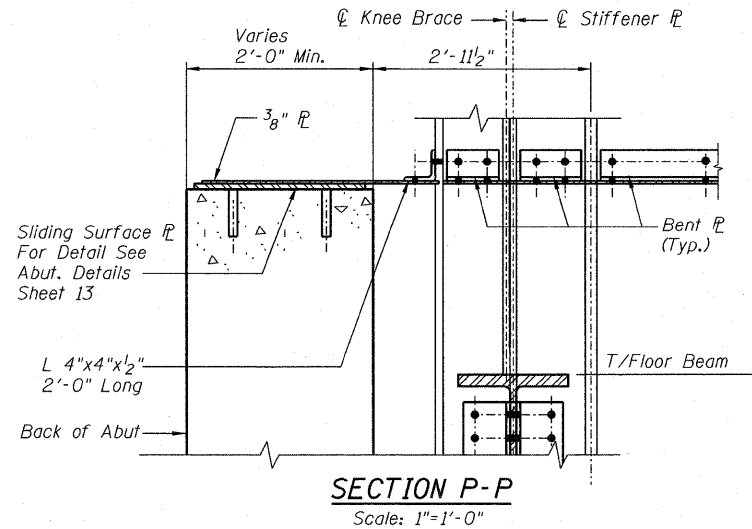
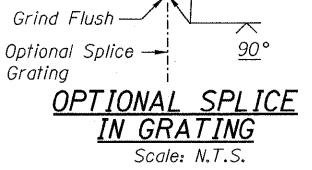
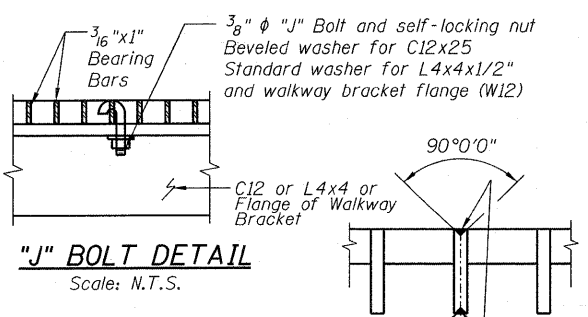
DETAIL 8A



DETAIL 8
Scale: 1/2"=1'-0"

DETAIL 9
Scale: 1/2"=1'-0"

DETAIL 1A



NOTES:
Grating shall be bolted to longitudinal channel and along girder and walkway bracket by means of 3/8" φ "J" bolts or other type of bolts Approved by the Engineer. Each panel shall have one bolt in each corner with a maximum longitudinal spacing of 1'-0" ctrs. between bolts. Drill 7/16" diameter holes for "J" bolts in field.

Work this Sheet with Sheet 3 and 4.

DESIGNED	-KJH
CHECKED	-MGB
DRAWN	-RJ
CHECKED	-MGB

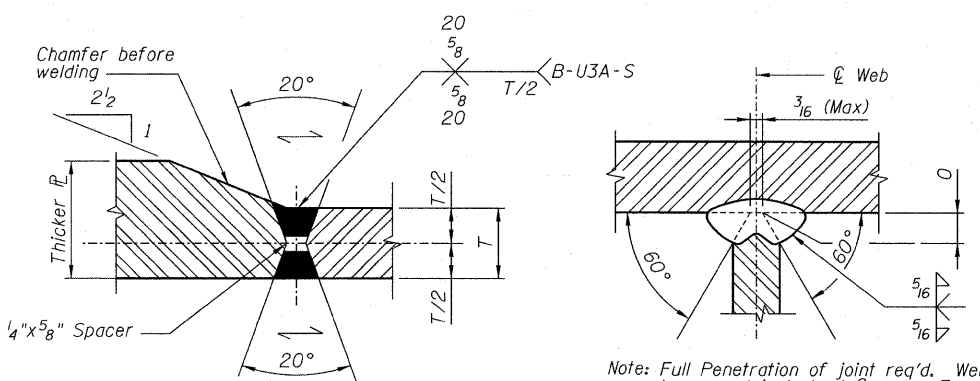
STEEL DETAILS-4
STRUCTURE NO. 016-6201

SHEET NO. 8 13 SHEETS	F.A.P R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	330	2010-074-F	COOK	15	10
DATE: 08/12/10			ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60L60					

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130 East Randolph Street Chicago, Illinois 60601

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

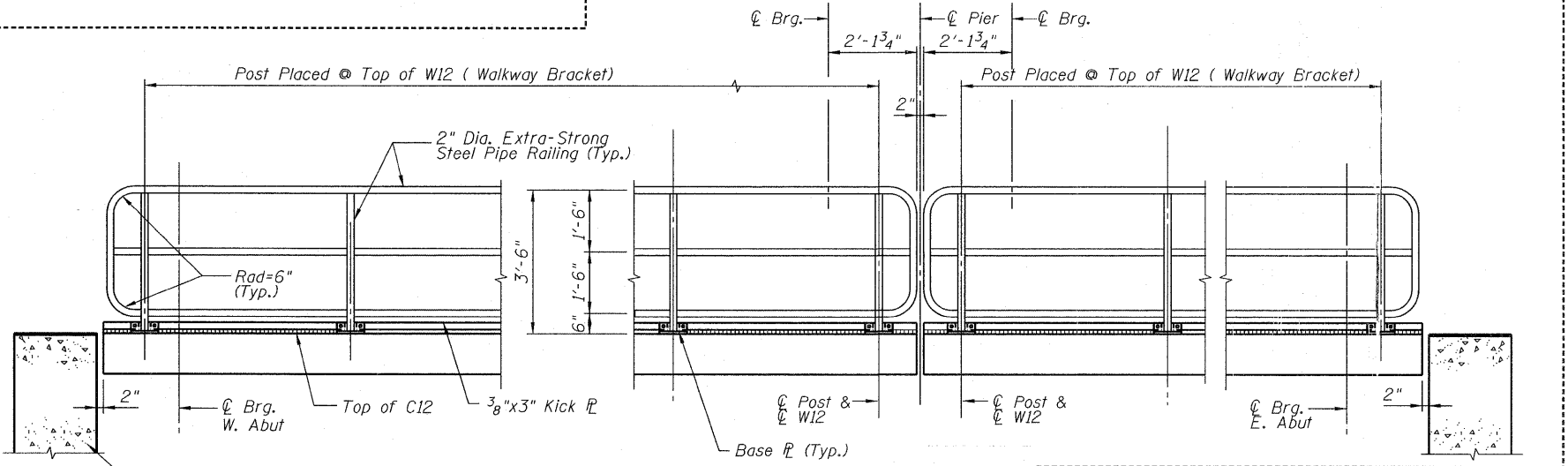
N.I.C.



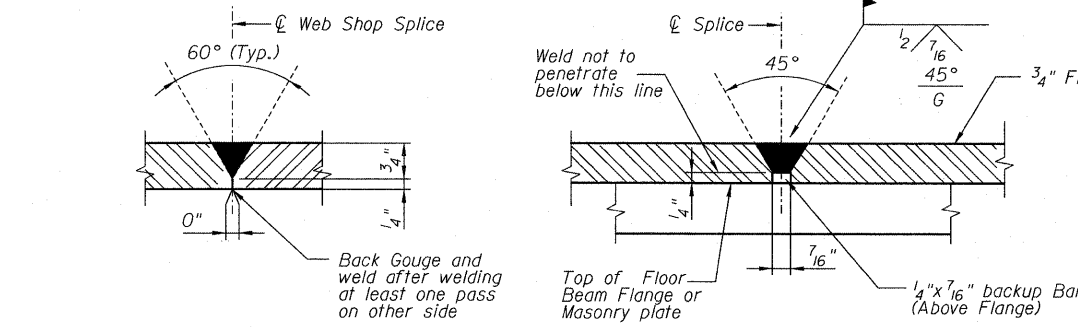
Note: Full Penetration of joint req'd. Weld to be symmetrical about C web. Excessive unbalance shall be cause for rejection. See Specs. for weld qualification. Gauge root to sound metal before welding second side.

FLANGE TO FLANGE WELD
B-U3A-S
Scale: N.T.S.

FLANGE TO WEB WELD
TC-U5-S
Scale: N.T.S.

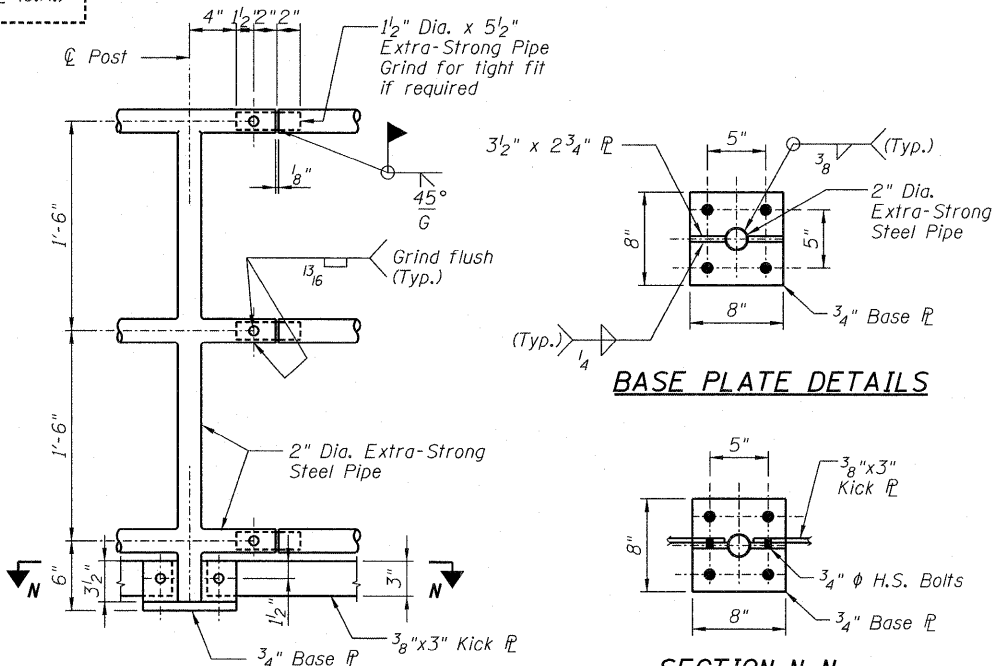


SECTION S-S RAILING ELEVATION

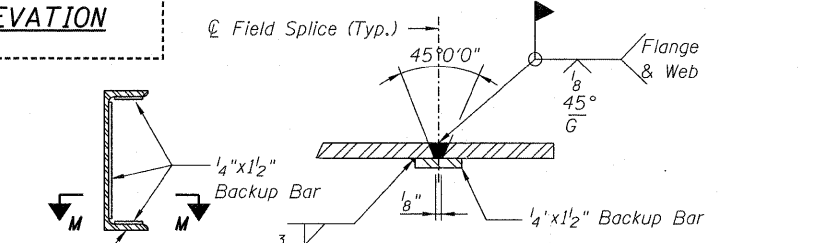


WEB TO WEB BUTT WELD
B-L2C-S
Scale: N.T.S.

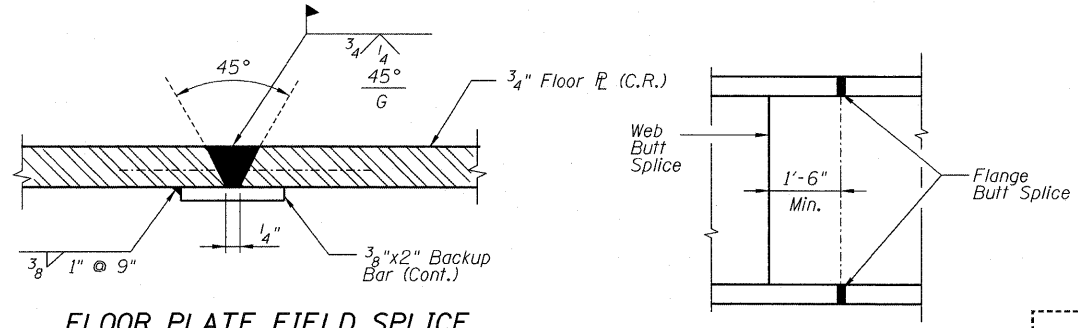
FIELD SPLICE OVER BEAM FLANGE
(If Required)
Scale: N.T.S.



RAILING SPLICE AND POST DETAILS

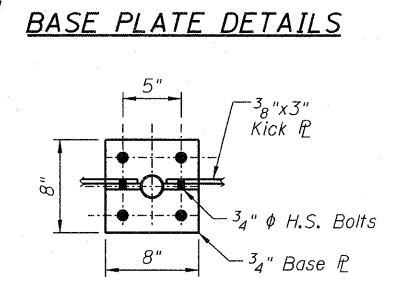


SECTION M-M CHANNEL SPLICE DETAILS

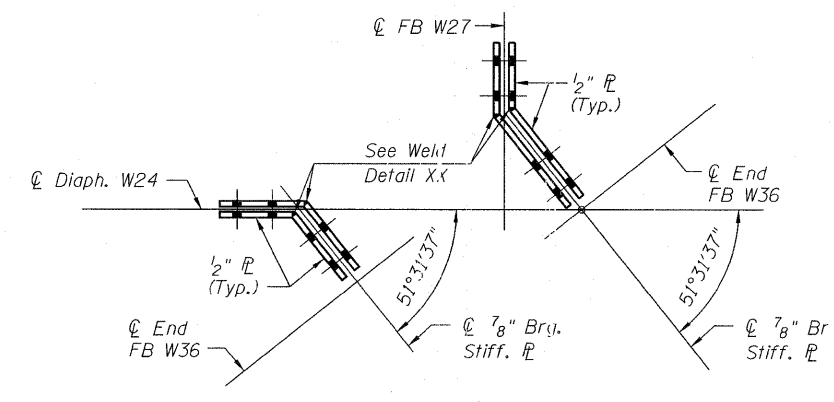


FLOOR PLATE FIELD SPLICE
BALLAST STOP PLATE SPLICE SIMILAR
Scale: N.T.S.

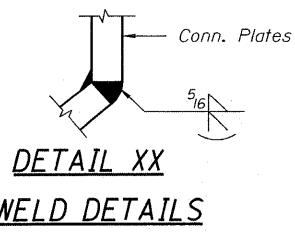
SPLICE DETAIL
Scale: N.T.S.



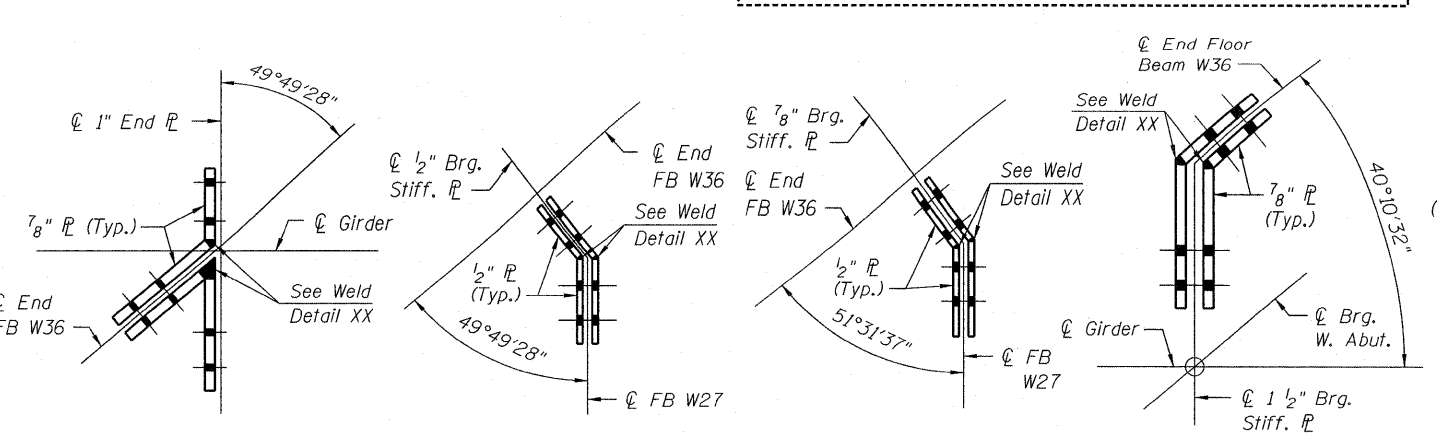
BASE PLATE DETAILS



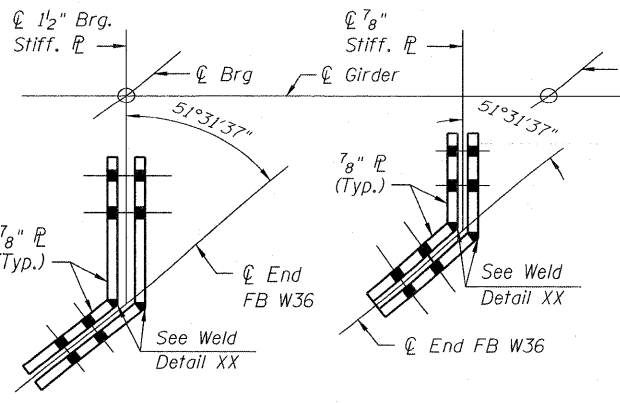
CONN. PLATE-4 CONN. PLATE-4A



DETAIL XX WELD DETAILS



CONN. PLATE-1 CONN. PLATE-2 CONN. PLATE-2A CONN. PLATE-5



CONN. PLATE-3 CONN. PLATE-3A

NOTES:
All Shop and Field Welds on the deck shall be continuous unless otherwise shown.
Remove shop edges or any projections from floor plates or welds that may damage the butyl rubber membrane.

N.I.C. Pipe Handrail shall be in accordance with Section 510 of the "IDOT" Standard Specification.

**STEEL DETAILS-5
STRUCTURE NO. 016-6201**

DESIGNED	-KJH
CHECKED	-MGB
DRAWN	-RJ
CHECKED	-MGB

SHEET NO. 9 13 SHEETS	F.A.P R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	330	2010-074-F	COOK	15	11
DATE: 08/12/10			ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60L60					

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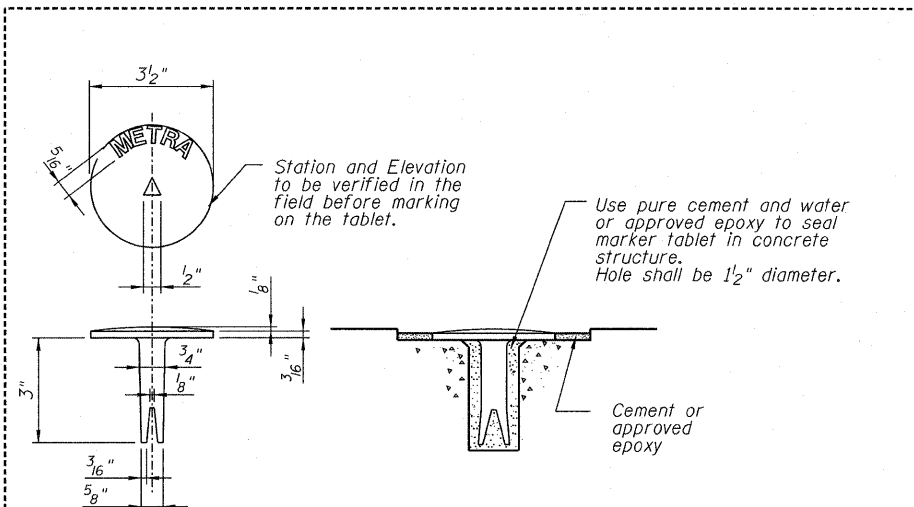
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MOMENT TABLE	
Description	Through Plate Girder At Mid Span
Span Length	97'-11 1/4"
Dead Load Moment (k-ft)	9625
Live Load Moment (k-ft)	12893
Impact Moment (k-ft)	3623
Total Moment (k-ft)	26141
Web Section (in)	1" X 120"
Flange Section (in)	3 1/4" X 24"
Gross I Furnished (in4)	736,569
Section Modulus (in3)	11,645
Allowable Stress fb (ksi)	27.5
Actual Stress fb (ksi)	26.9
Allowable Deflection (in)	1.84
Actual Deflection (in)	1.68

SHEAR TABLE	
Description	Through Plate Girder At End
Dead Load Shear (k)	385
Live Load Shear (k)	600
Impact Shear (k)	169
Total Shear (k)	1154
Web Shear Area (in2)	120
Allow. Shear Stress (ksi)	17.5
Actual Shear Stress (ksi)	9.6

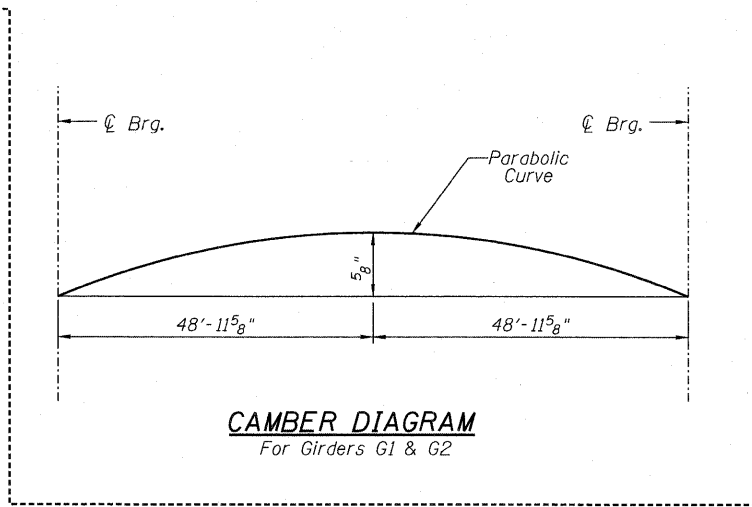
MOMENT TABLE			
Description	Typical Floor Beam		End Floor Beam
	At Mid Span	At Support	At Support
Span Length	34'-0"	21'-8"	21'-8"
Dead Load Moment (k-ft)	160	91	170
Live Load Moment (k-ft)	575	253	371
Impact Moment (k-ft)	225	102	150
Total Moment (k-ft)	960	446	691
Section	W27x235	W36x210	W36x210
Gross I Furnished (in4)	9,700	13,200	13,200
Section Modulus (in3)	674	719	719
Allowable Stress (ksi)	27.5	27.5	27.5
Actual Stress (ksi)	17.0	7.4	11.5
Allowable Deflection (in)	0.64	0.41	-
Actual Deflection (in)	0.61	0.20	-

SHEAR TABLE		
Description	Typical Floor Beam	End Floor Beam
	At End	At End
Dead Load Shear (k)	16	46
Live Load Shear (k)	51	115
Impact Shear (k)	27	46
Total Shear (k)	94	207
Web Shear Area (in2)	21.7	27.0
Allowable Shear Stress (ksi)	17.5	17.5
Actual Shear Stress (ksi)	4.3	7.7

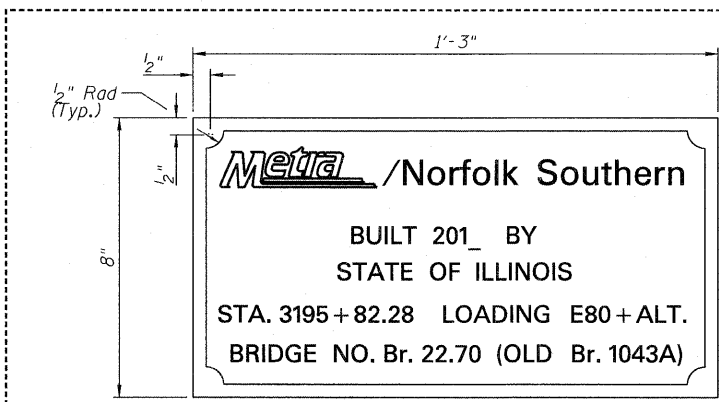


**TABLET
CONSTRUCTED IN CONCRETE**

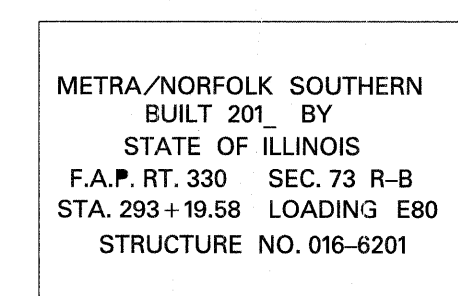
BRONZE TABLET
PERMANENT SURVEY MARKER
Location shall be approved by Engineer.



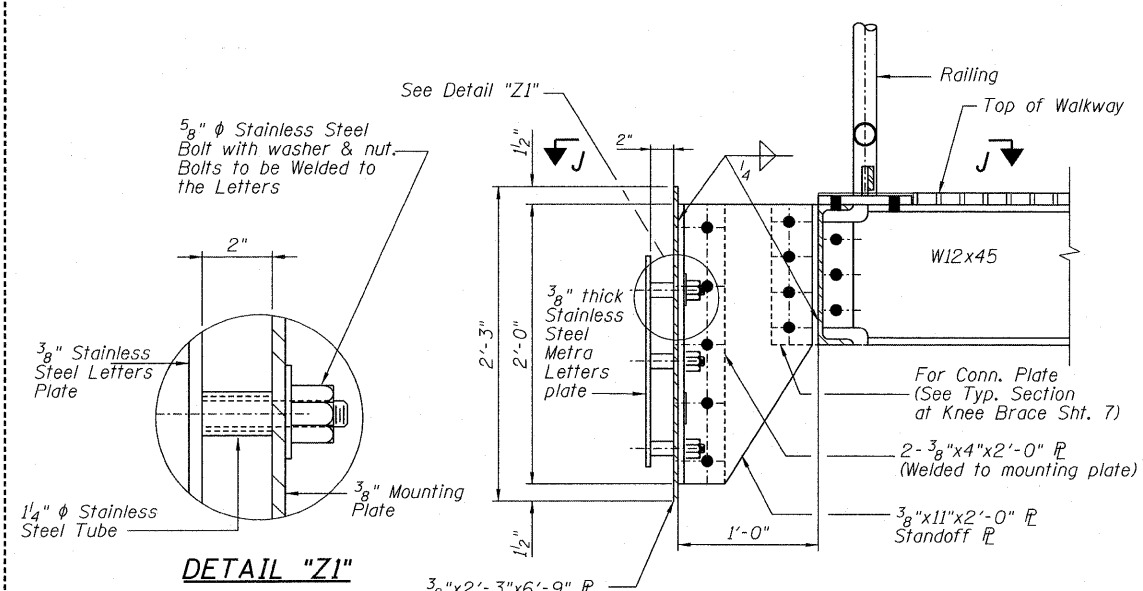
CAMBER DIAGRAM
For Girders G1 & G2



NAME PLATE - SPECIAL
Name Plate shall have four lugs at least 3 inch long cast on the back of the plate. For plate location. See Sheet

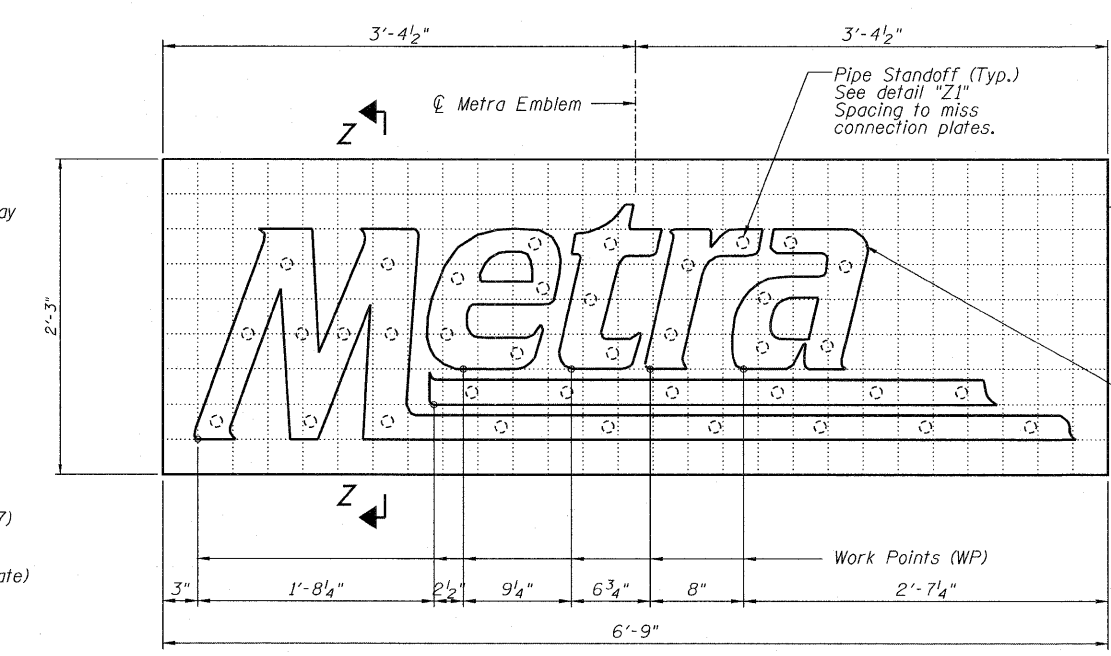


NAME PLATE
See STD 515001 For Plate Location. See Sheet



SECTION Z-Z

DESIGNED - KJH
CHECKED - MGB
DRAWN - RJ
CHECKED - MGB



METRA EMBLEM
2 Required
For Location of Metra Emblem See Framing Plans Sht. 3 & 4.

- NOTES:**
1. Metra Emblem is referred to as Sign Panel-Type 2 in the Total Bill Of Material.
 2. The cost of connecting accessories for Metra Emblem shall be included in the Lump Sum Bid Price of Erecting Structural Steel.
 3. Prior to Fabrication of Metra Emblems, the Contractor shall obtain the current Standards and Specifications of the Emblem from Metra.

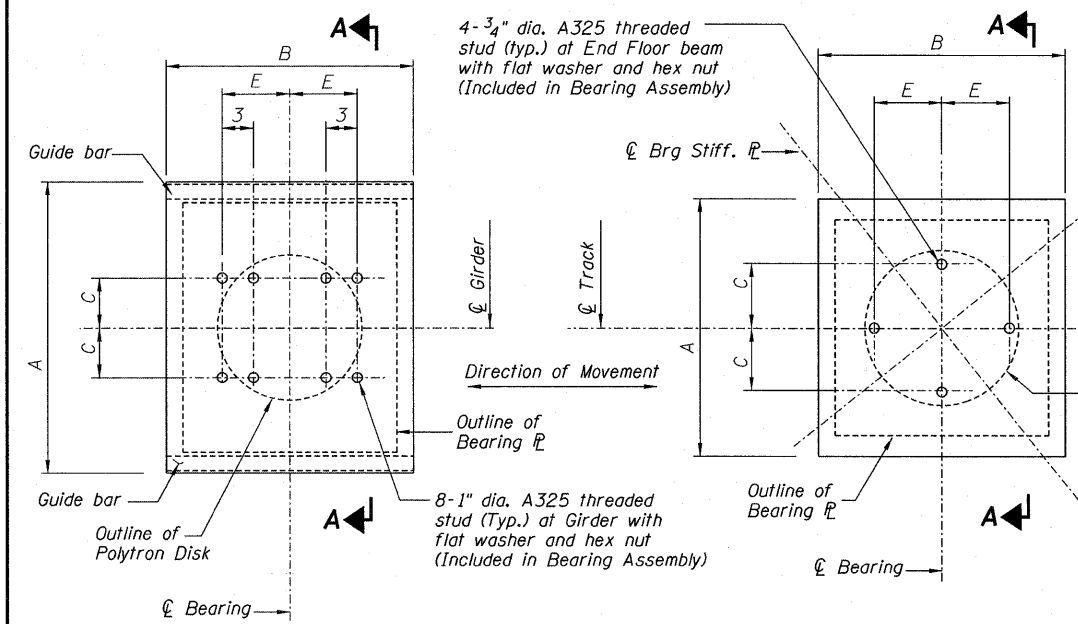
Note:
The "bottoms" of each letter shall be horizontal along the grid lines.

**DESIGN DATA AND MISC. DETAILS
STRUCTURE NO. 016-6201**

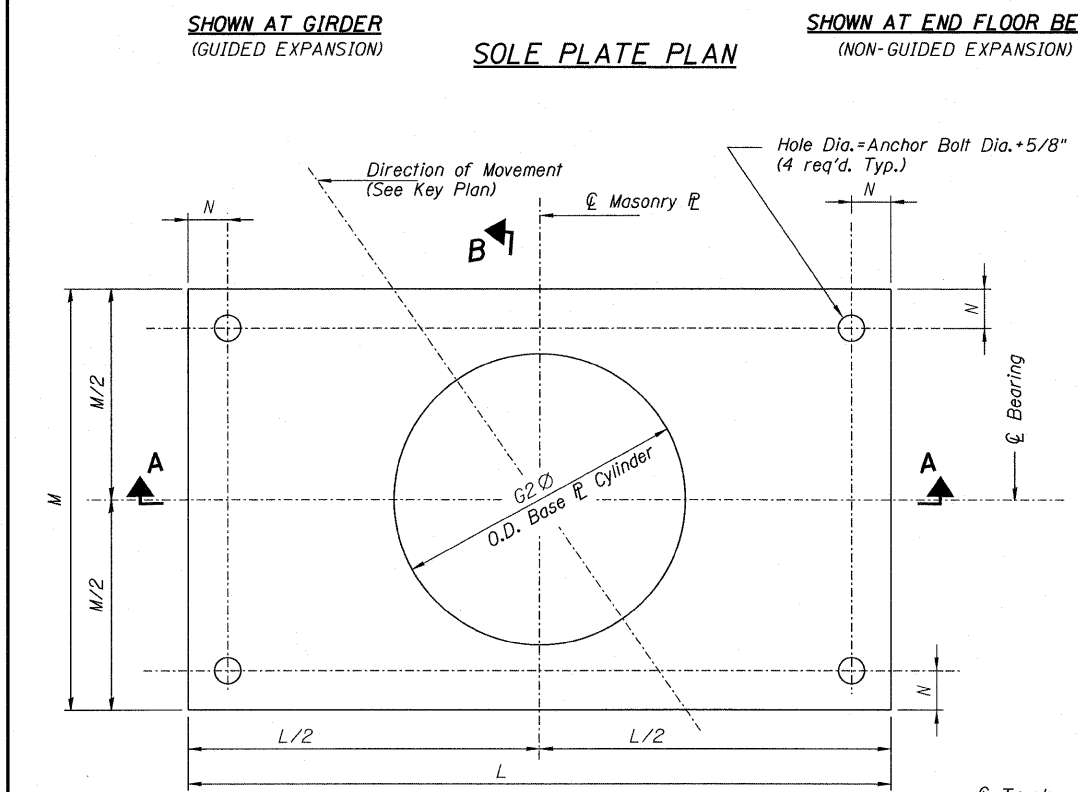
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	330	2010-074-F	COOK	15	12
DATE: 08/12/10			ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60L60					

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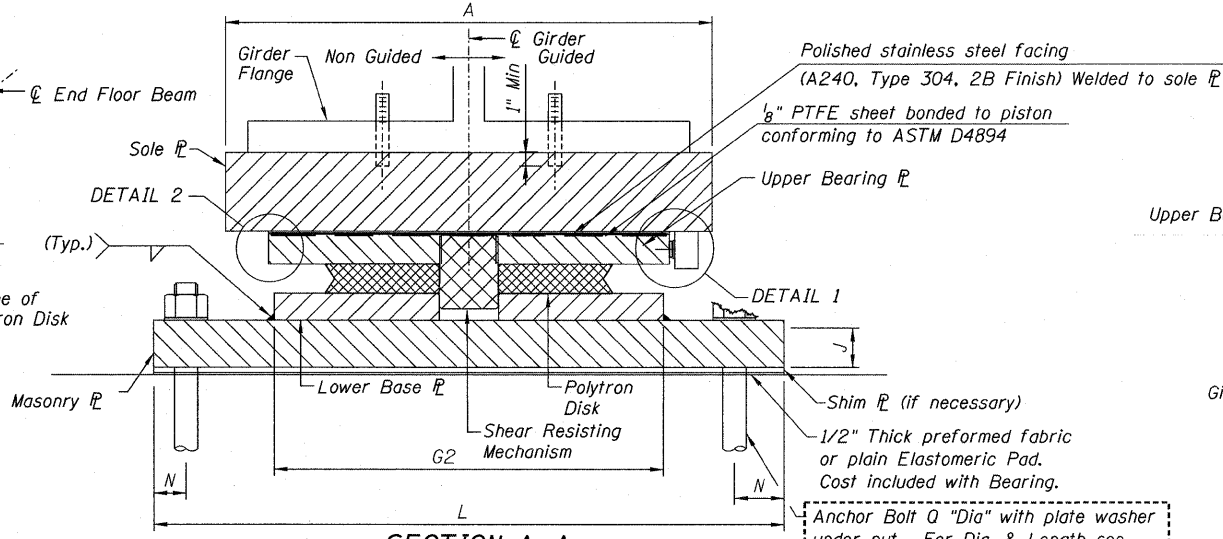


SOLE PLATE PLAN
(NON-GUIDED EXPANSION)

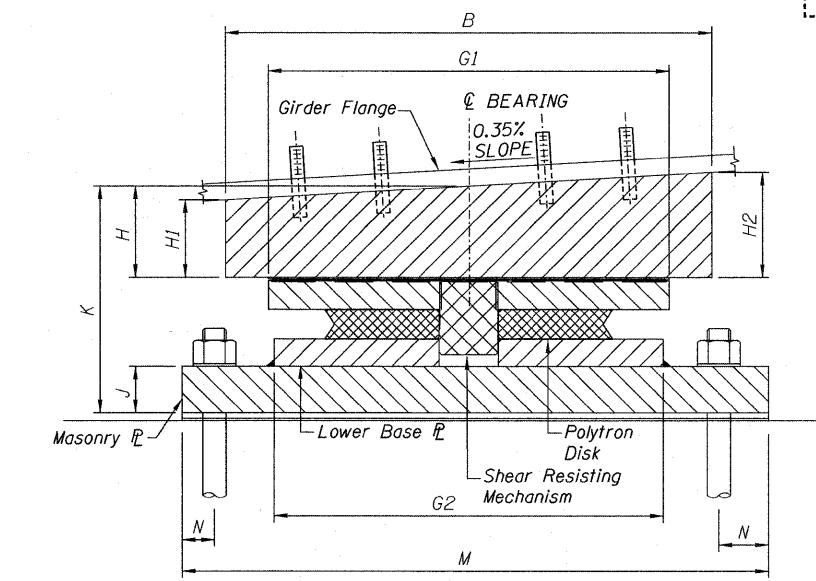


MASONRY PLATE PLAN

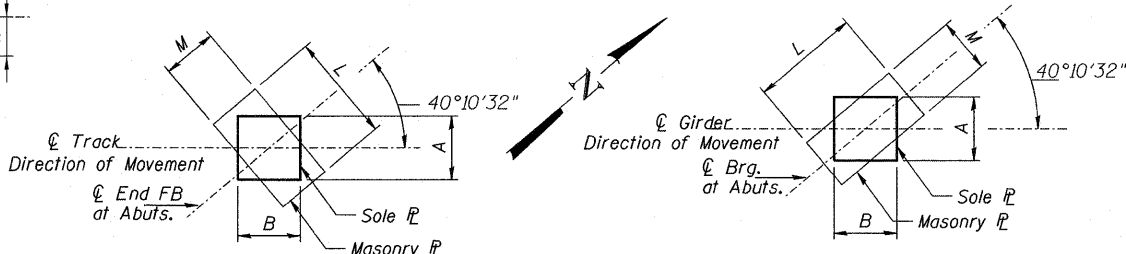
HLMR BEARING, GUIDED & NON-GUIDED EXPANSION PLAN



SECTION A-A



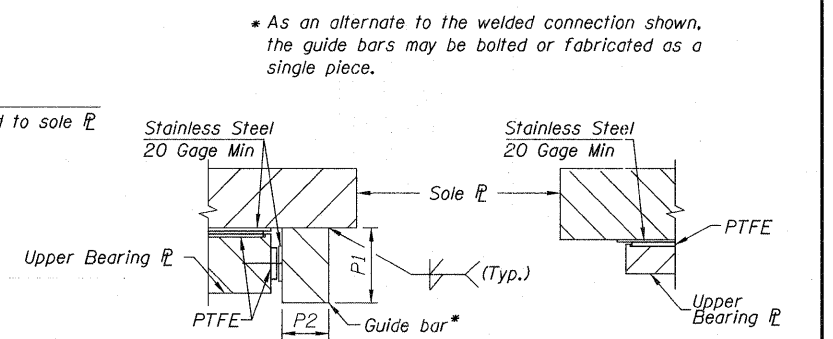
SECTION B-B



BEARING LAYOUT AT END FLOOR BEAM LOCATION

BEARING LAYOUT AT GIRDER LOCATION

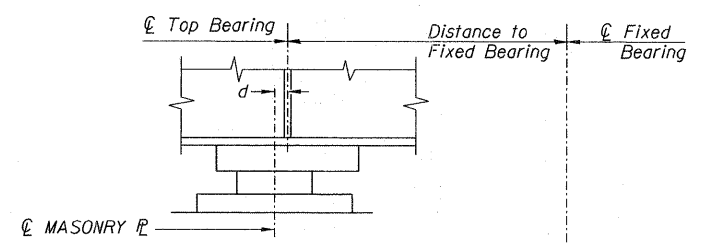
SOLE PLATE AND MASONRY PLATE KEY PLAN



DETAIL 1

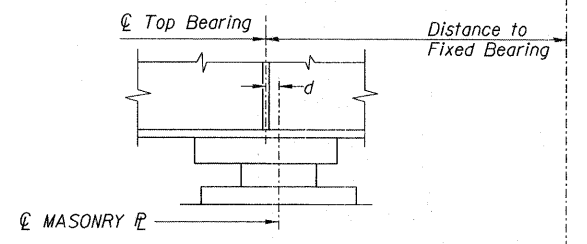
DETAIL 2

(Guided Bearings for main Through Girders at Abutments to have guide bars)
(Non-guided Bearings for end floor beams do not have guide bars)



BELOW 50°F

(Move masonry plate away from fixed bearing)



ABOVE 50°F

(Move masonry plate toward fixed bearing)

SETTING ANCHOR BOLTS AT EXPANSION BEARINGS

NOTE: $d = \frac{1}{8}$ " per each 100' of expansion for every 15°F temperature change from the normal temperature of 50°F.

- NOTES:
1. See Sheet No. -- for Anchor Bolt installation.
 2. Anchor Bolts, Nuts and Washers shall be stainless steel.
 3. All Structural Steel for Bearings shall be ASTM A572 Grade 42.
 4. Bearings shall conform to the Multi-Rotational Disc Bearing section of the 2010 AREMA Code.
 5. Anchor bolts shall be cast with abutment. Masonry plates may be adjusted when setting girder and bolts tightened after final location is determined.

BEARING LOCATION	VERT. LOAD (k)	HORZ. LOAD (k)	ROTATION (rad)	A	B	C	E	G1	G2	H	H1	H2	J	K	L	M	N	P1	P2	ANCHOR BOLT "DIA." x Length	PLATE WASHER
E. & W. Abuts. - Girders	1265	127	0.015	2'-7 1/4"	2'-4 1/4"	8"	6 1/2"	2'-1 1/4"	2'-1"	4 15/16"	4 7/8"	5"	3"	1'-1 1/16"	3'-4 1/2"	2'-6"	2 5/8"	2 3/8"	1 1/2"	1 1/2"x1'-6"	3"x 3"x 5/16"
E. & W. Abuts. & Pier - End Floor Beams	500	50	0.015	1'-10"	1'-6 5/8"	5"	5"	1'-3 7/8"	1'-3 5/16"	2 15/16"	2 7/8"	3"	2 3/4"	9 9/16"	2'-5 1/2"	1'-6"	1 3/4"			1 1/4"x1'-0"	2 3/4"x2 3/4"x 5/16"

EXPANSION BEARING DATA

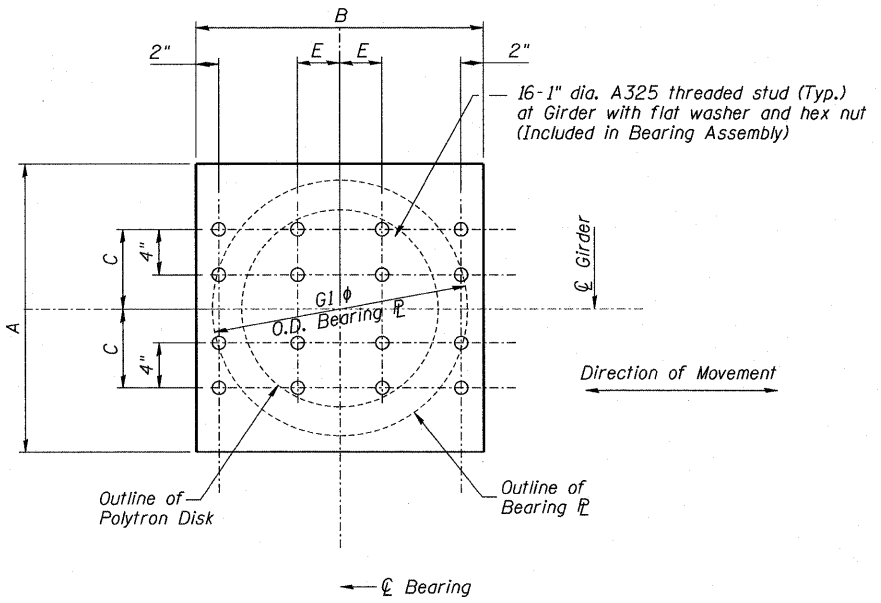
DESIGNED - KJH
CHECKED - MGB
DRAWN - RJ
CHECKED - MGB

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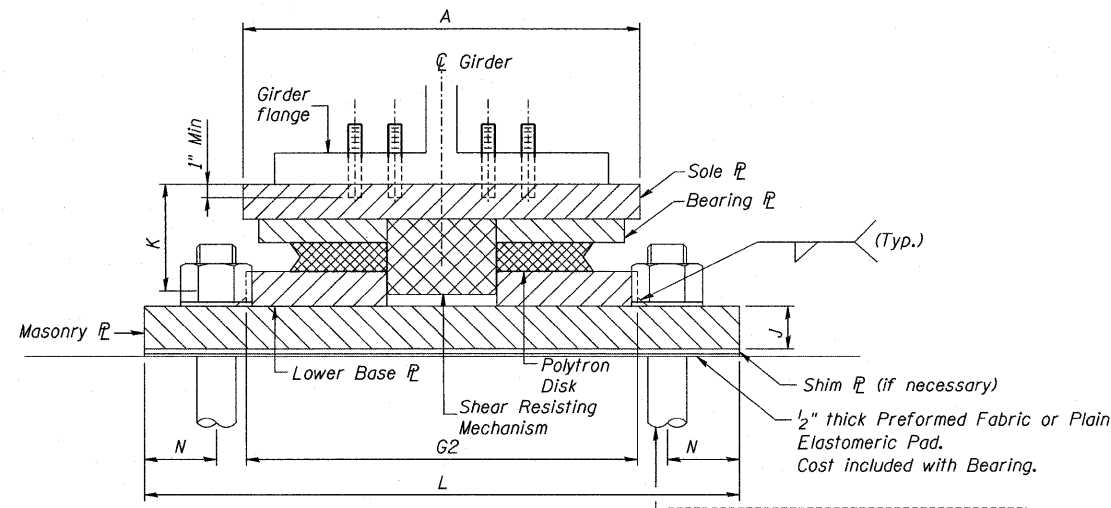
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	330	2010-074-F	COOK	15	13
DATE: 08/12/10			ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60L60					

HLMR EXPANSION BEARINGS
STRUCTURE NO. 016-6201

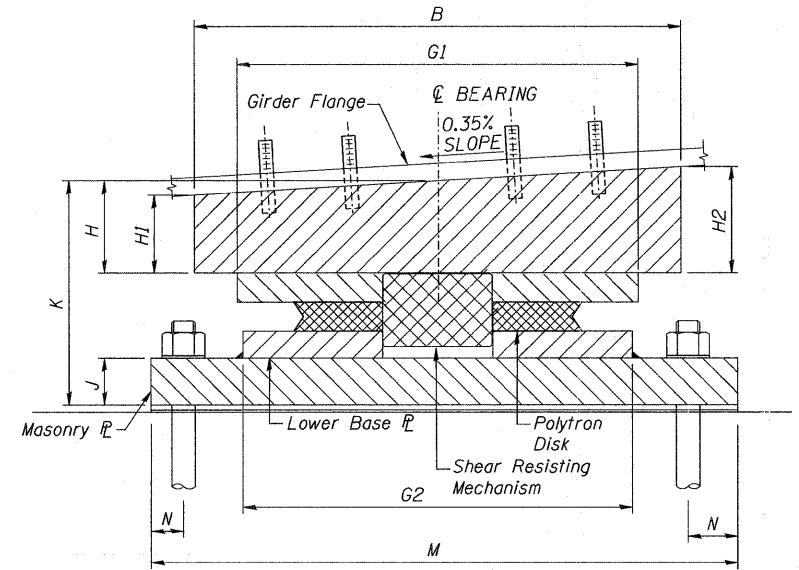
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



SOLE PLATE PLAN



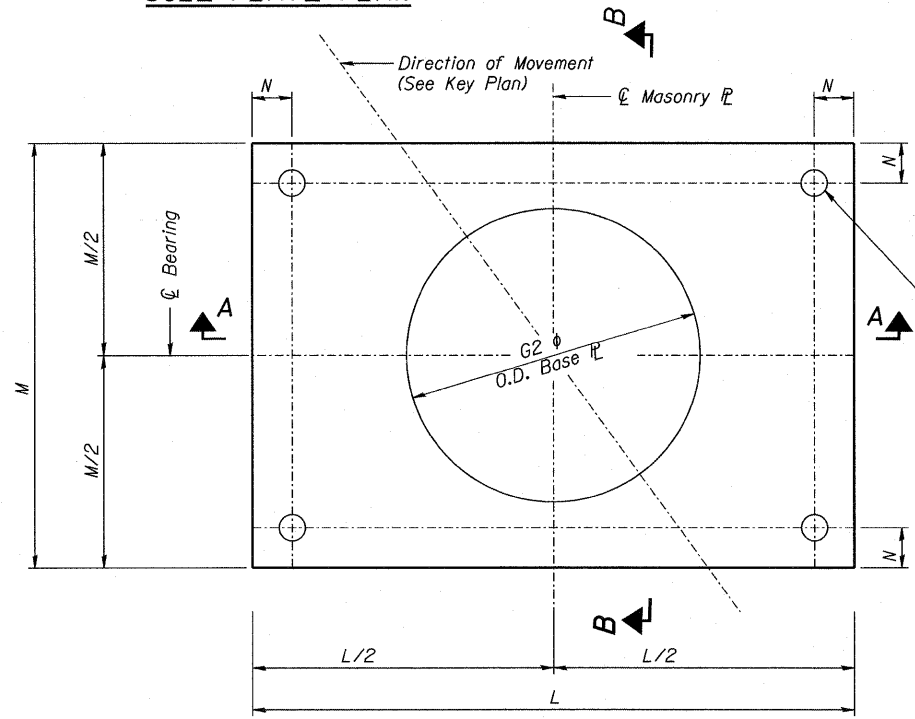
SECTION A-A



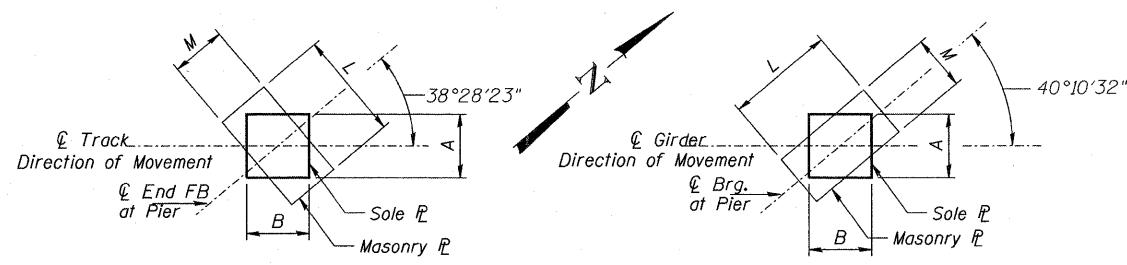
SECTION B-B

Anchor Bolt ϕ "Dia" with plate washer under nut. For Dia. & Length see Table (4 req'd. Typ.).

N.I.C.



MASONRY PLATE
FIXED (F) AT PIER
PLAN



BEARING LAYOUT AT END FLOOR BEAM LOCATION BEARING LAYOUT AT GIRDER LOCATION

SOLE PLATE AND MASONRY PLATE KEY PLAN

NOTES:

1. See Sheet No. -- for Anchor Bolt installation.
2. Anchor Bolts, Nuts and Washers shall be stainless steel.
3. All Structural Steel for Bearings shall be ASTM A572 Grade 42.
4. Bearings shall conform to the Multi-Rotational Disc Bearing sections of the 2010 AREMA Code.
5. Anchor bolts shall be cast with pier.

N.I.C.

FIXED BEARING DATA

BEARING LOCATION	VERT. LOAD (K)	HORZ. LOAD (K)	ROTATION (rad)	A	B	C	E	G1	G2	H	H1	H2	J	K	L	M	N	ANCHOR BOLT ϕ "DIA." x Length	PLATE WASHER
Pier - Girders	1265	300	0.015	2'-1 1/2"	2'-1 1/2"	7"	3 3/4"	1'-11 1/2"	2'-1 1/2"	2 3/16"	2 1/8"	2 1/4"	2 3/4"	10 9/16"	3'-2 1/4"	2'-6 3/4"	4 3/8"	2 1/2" x 2'-6"	4" x 4" x 5/16"

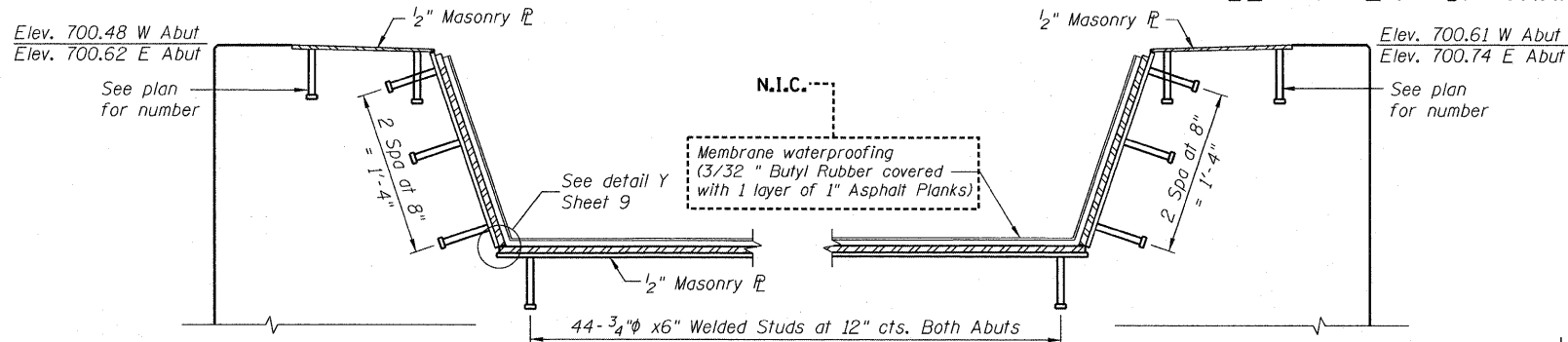
DESIGNED - KJH
CHECKED - MGB
DRAWN - RJ
CHECKED - MGB

HLMR FIXED BEARING
STRUCTURE NO. 016-6201

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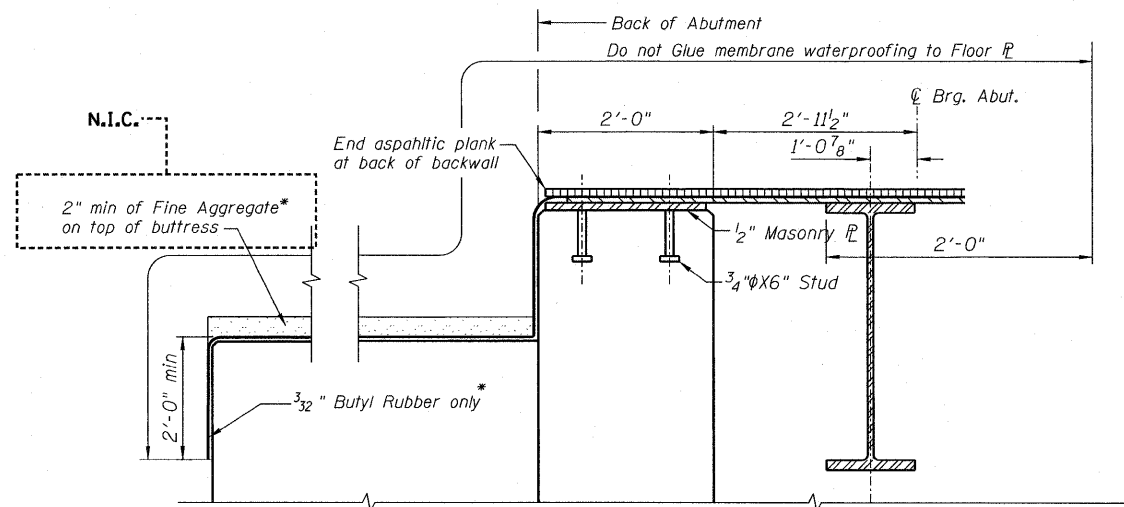
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CONTRACT NO. 60L60					

STATE OF ILLINOIS
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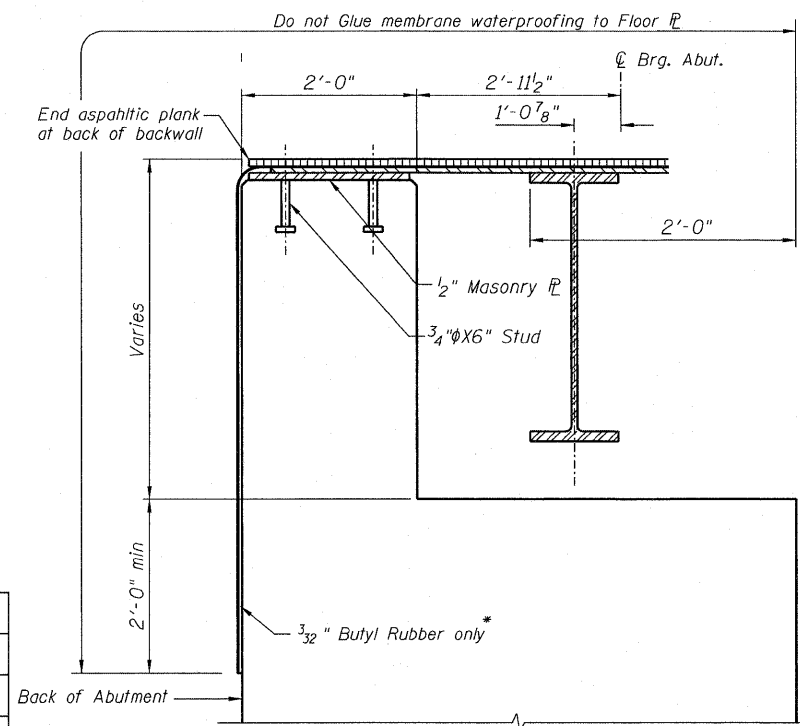
SECTION A-A WEST ABUTMENT
SECTION B-B EAST ABUTMENT

Note:
For additional details,
See Typical Section at
Knee brace-Sheet 7.



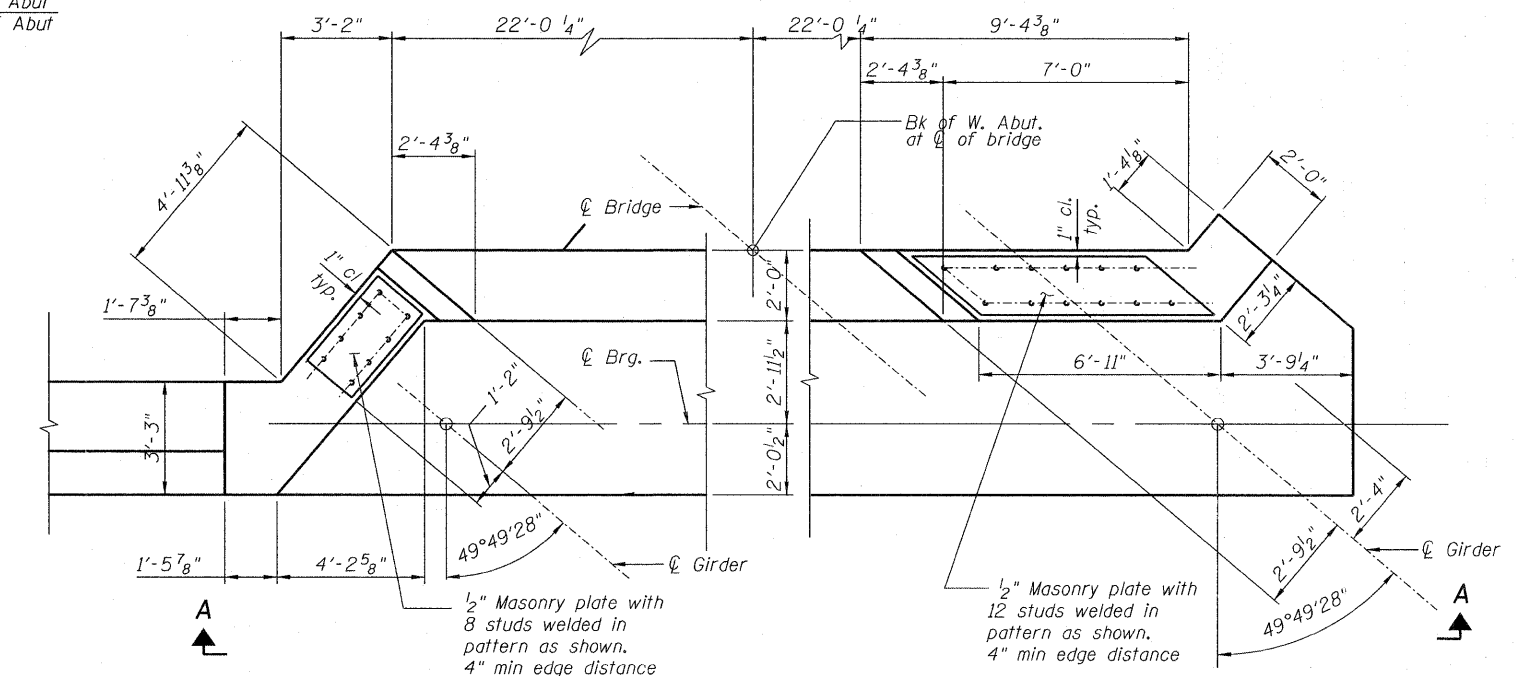
SECTION THRU ABUTMENT AT BUTTRESS

* Included in the cost of
Membrane Waterproofing

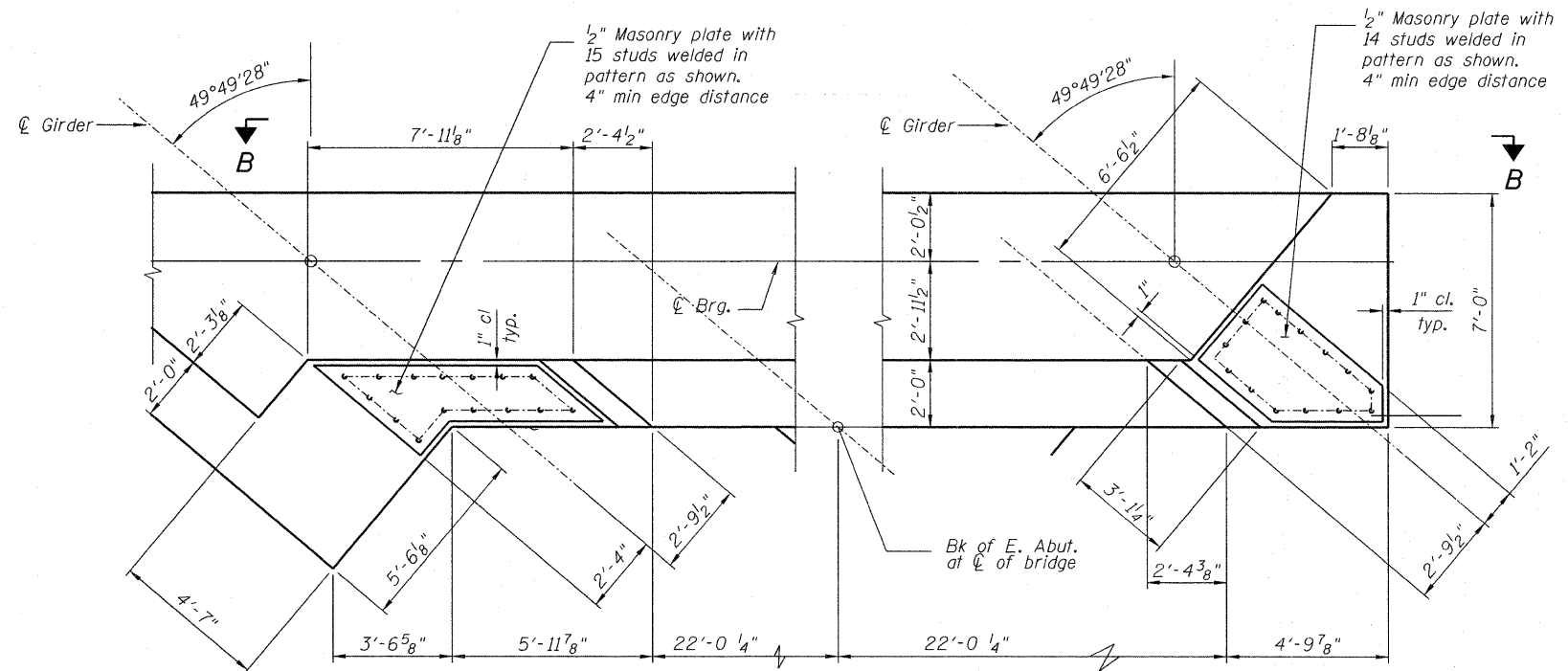


SECTION THRU ABUTMENT

DESIGNED - JCE
CHECKED - JCA
DRAWN - JCE
CHECKED - JCA



WEST ABUTMENT DETAILS



EAST ABUTMENT DETAILS

Note:
Cost of studs included in the cost of "Furnishing Structural Steel"

ABUTMENT DETAILS
STRUCTURE NO. 016-6201

SHEET NO. 13 13 SHEETS	F.A.P. RTE. 330	SECTION 2010-074-F	COUNTY COOK	TOTAL SHEETS 15	SHEET NO. 15
	CONTRACT NO. 60L60				
DATE: 08/12/10		ILLINOIS FED. AID PROJECT			

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