


USER: TThompson
08-MAR-2010 14:58
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RGE 32W



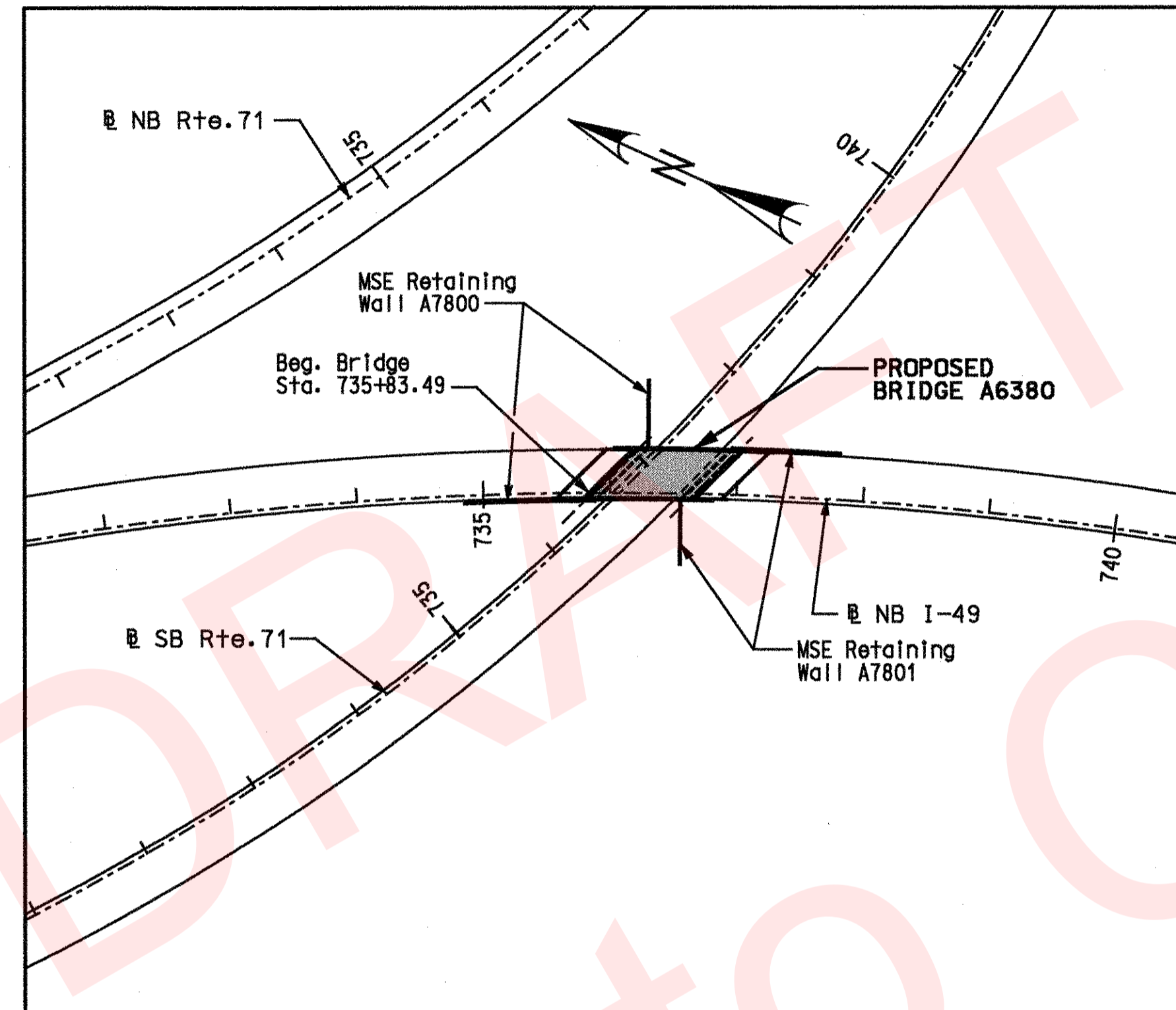
BRIDGE NO.
A6380

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MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HNTB
7115 KIRK DRIVE
KANSAS CITY, MO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270



- 1 Title Sheet
- 2 General Plan and Elevation
- 3 General Notes and Estimated Quantities
- 4 Boring Data
- 5 Boring Data
- 6 Substructure Layout and Slab Curve Ordinates
- 7 End Bent 1
- 8 End Bent 1 Details
- 9 End Bent 1 Details
- 10 End Bent 2
- 11 End Bent 2 Details
- 12 End Bent 2 Details
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- 16 Slab Plan
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- 25 Bill of Reinforcing Steel
- 26 As-Built Pile Data

STD. 609.00
STD. 617.10
STD. 706.35

Designed	JUL	2009
Detailed	AUG	2009
Checked	AUG	2009

Note: This drawing is not to scale. Follow Dimensions.

Sheet No. 1 of 26

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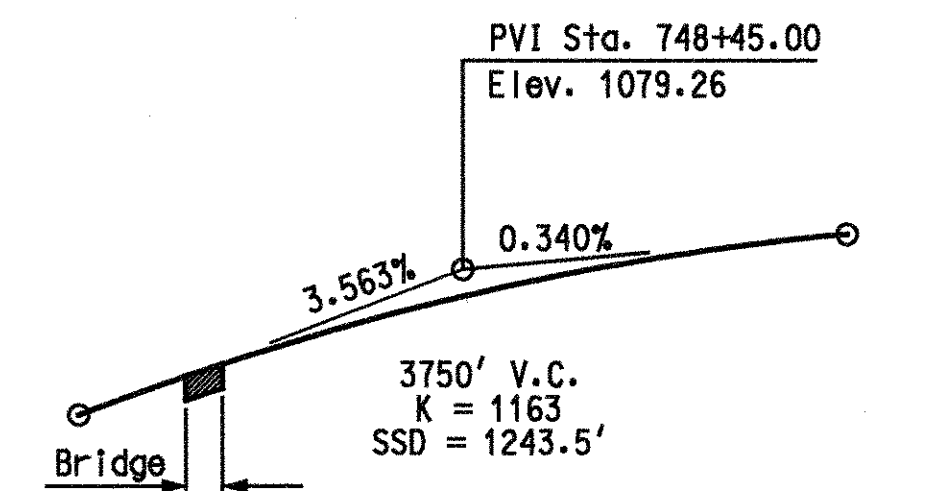



Diagram illustrating a vertical curve with the following data:

- Grade 1: 3.768%
- Grade 2: 1.875%
- Vertical Curve Length (V.C.): 800'
- Curve Constant (K): 423
- Stopping Sight Distance (SSD): 749'
- PVI Sta.: 733+40.00
- PVI Elev.: 1002.91
- PVC Sta.: 739+20.00
- PVC Elev.: 1013.78

CURVE DATA	CURVE DATA
NB 1-49	SB RTE. 71
P.I. Sta. = 739+20.393	P.I. Sta. = 736+04.58
$\Delta = 44^{\circ}43'02''$ (Rt.)	$\Delta = 66^{\circ}31'00''$ (Lt.)
D = 2°00'00.0"	Lc = 1987.22'
L = 2235.86'	Ts = 1368.30'
T = 1178.36'	R = 1909.86'
R = 2864.79'	D = 3°00'00.0"
SE = 6.3%	Ls = 230.00'
	Os = 3°27'00.0" (Lt.)
	Xs = 229.92'
	Ys = 4.62'
	SE = 7.9%

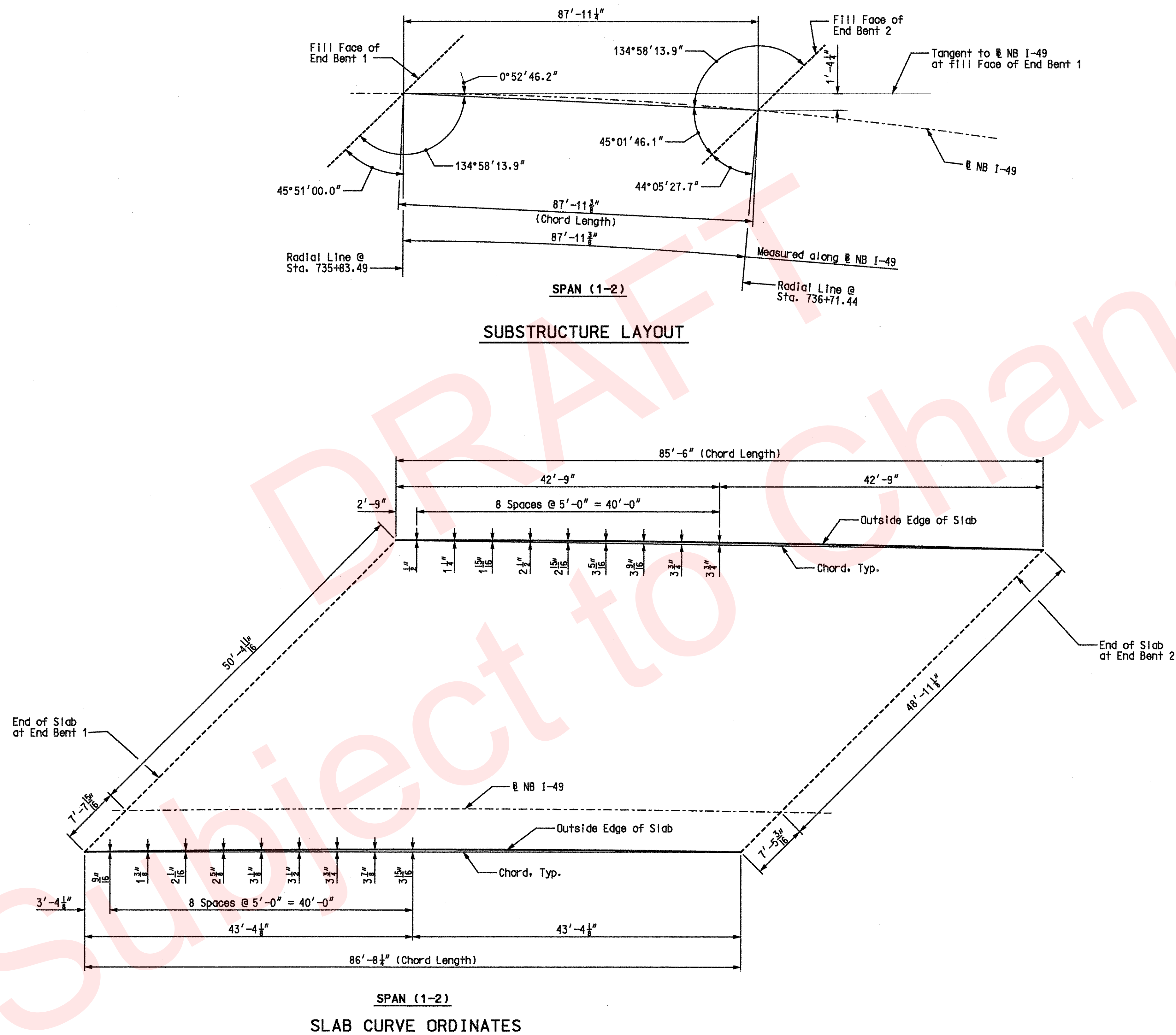
Notes:
 Denotes boring location.
 For pile locations, see Sheets No. 7 and 10.

BM-71-99-97 R.R. spike in West face of corner post 0.9 mi.
South of Rte. H on county road SW of H-21,
East of county road.
Elev. 925.19

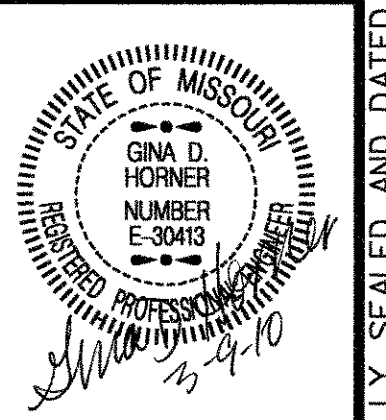
BM-49-01-01 R.R. spike East of root of 1.2' wild cherry with
blazed "A" West side of county road SW H-21.
West of Gardner's chicken houses. BM is 1.475 miles
South of Rte. H.
Elev. 949.43

Note: This drawing is not to scale. Follow Dimensions. Sheet No. 2 of 26

[illegible]



SUBSTRUCTURE LAYOUT AND SLAB CURVE ORDINATES



DATE PREPARED
07/28/09

ROUTE I-49	STATE MO
---------------	-------------

DISTRICT BR	SHEET NO. 6
----------------	----------------


COUNTY
McDONALD

JOB NO.
J7P0601

PROJECT NO.

PROJECT NO.	THIS
BRIDGE NO.	

A6380

[illegible]

MoDOT
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-278-6636)

HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270

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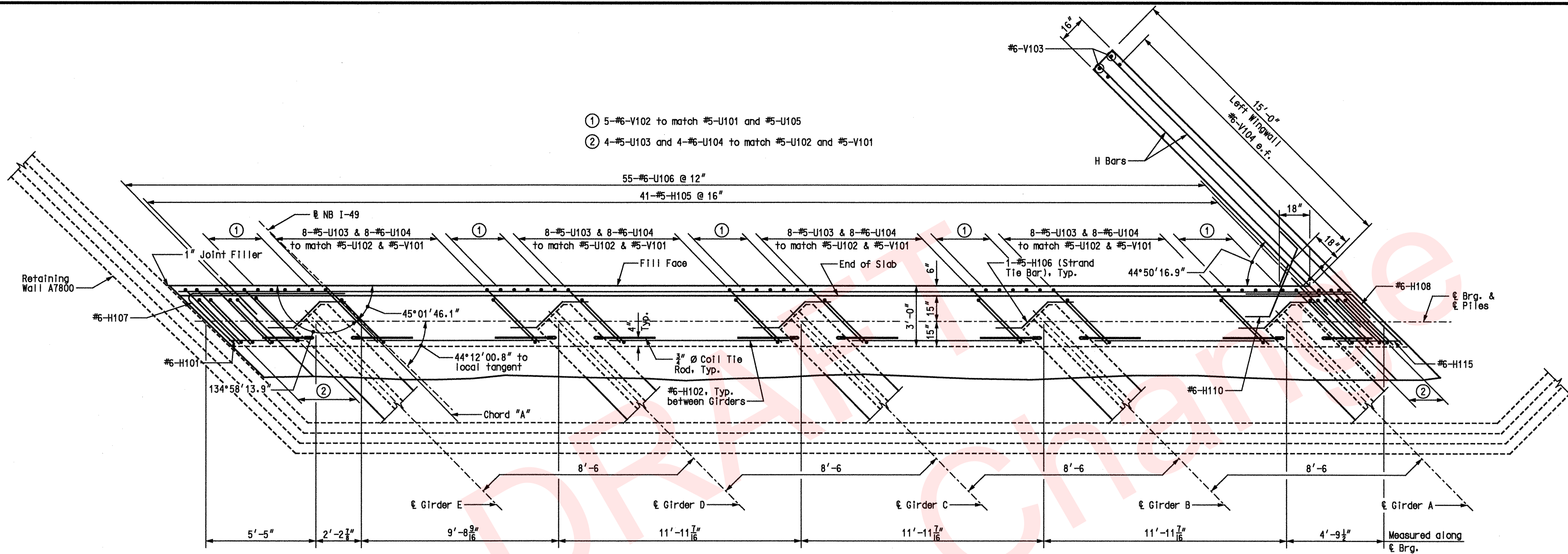
Checked JUL 2009

Note: This drawing is not to scale. Follow Dimensions.

Sheet No. 7 of 26

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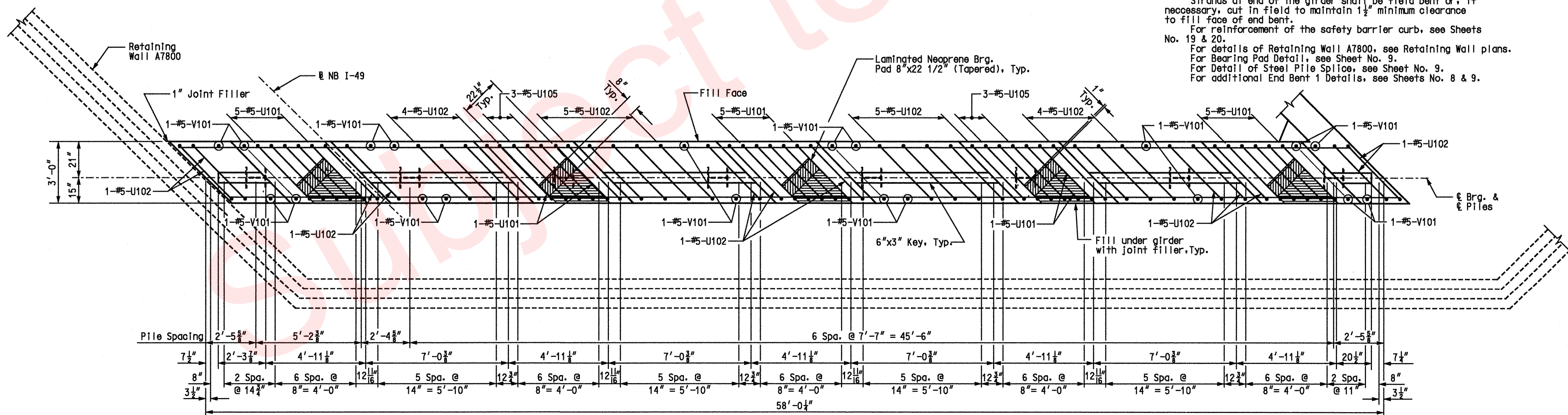
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PLAN

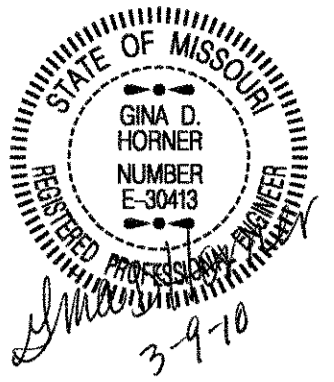
Notes:

- All piles shall be HP12x53.
 - e.f. denotes each face.
- All vertical reinforcing bars in the substructure beams or caps shall be field adjusted to clear piles by at least $1\frac{1}{2}$ ".
- All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
- Strands at end of the girder shall be field bent or, if necessary, cut in field to maintain $1\frac{1}{2}$ " minimum clearance to fill face of end bent.
- For reinforcement of the safety barrier curb, see Sheets No. 19 & 20.
- For details of Retaining Wall A7800, see Retaining Wall plans.
- For Bearing Pad Detail, see Sheet No. 9.
- For Detail of Steel Pile Splice, see Sheet No. 9.
- For additional End Bent 1 Details, see Sheets No. 8 & 9.



PLAN OF BEAM

END BENT 1



DATE PREPARED
7/24/09

ROUTE	STATE
I-49	MO

DISTRICT	SHEET NO.
BR	7

COUNTY
McDONALD

JOB NO.
J7P0601

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A6380

DL 02 (5)

APIT 651-663

ST. C. MC
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CITY
1-880

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PHONE
FICATED
01270

715 N. KANSAS
TELEPHONE CERT.
NO. 6

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REV.



BRG. PAD HEIGHTS	
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8	1.00
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92	1.00
93	1.00
94	1.00
95	1.00
96	1.00
97	1.00
98	1.00
99	1.00
100	1.00



Notes:
e.f. denotes each face.
For additional notes and details, see Sheets No. 7 and 9.

END BENT 1 DETAILS

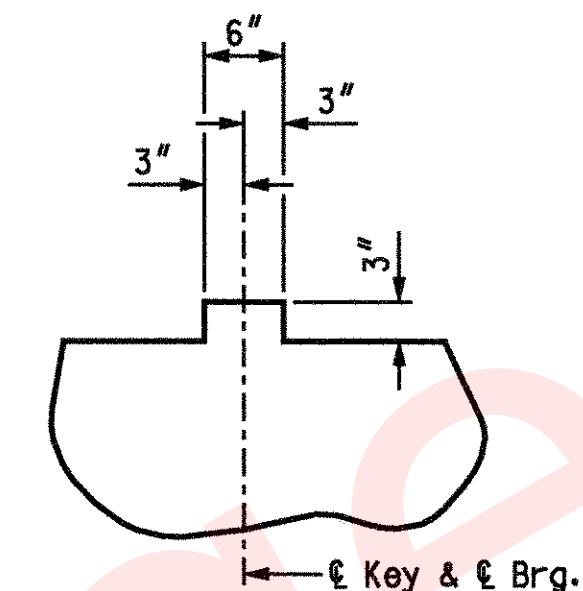
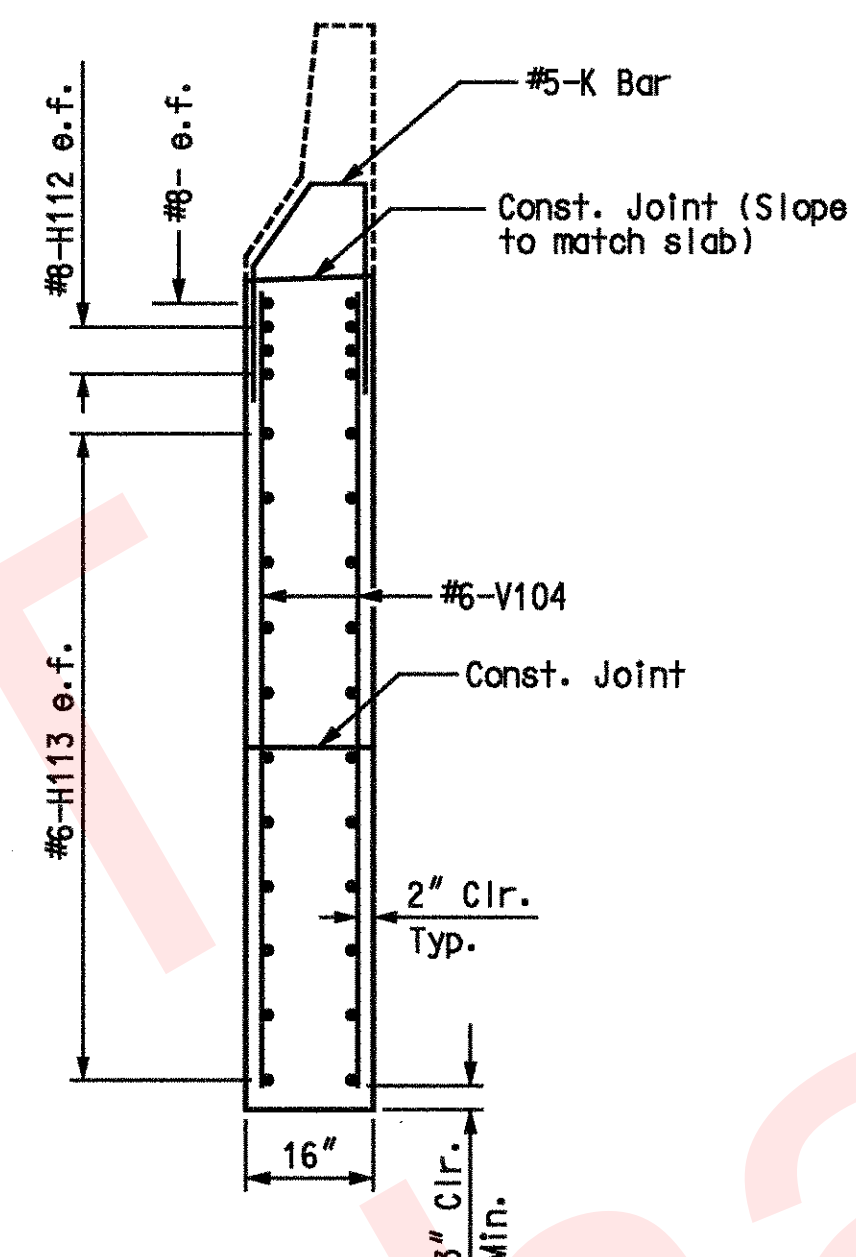
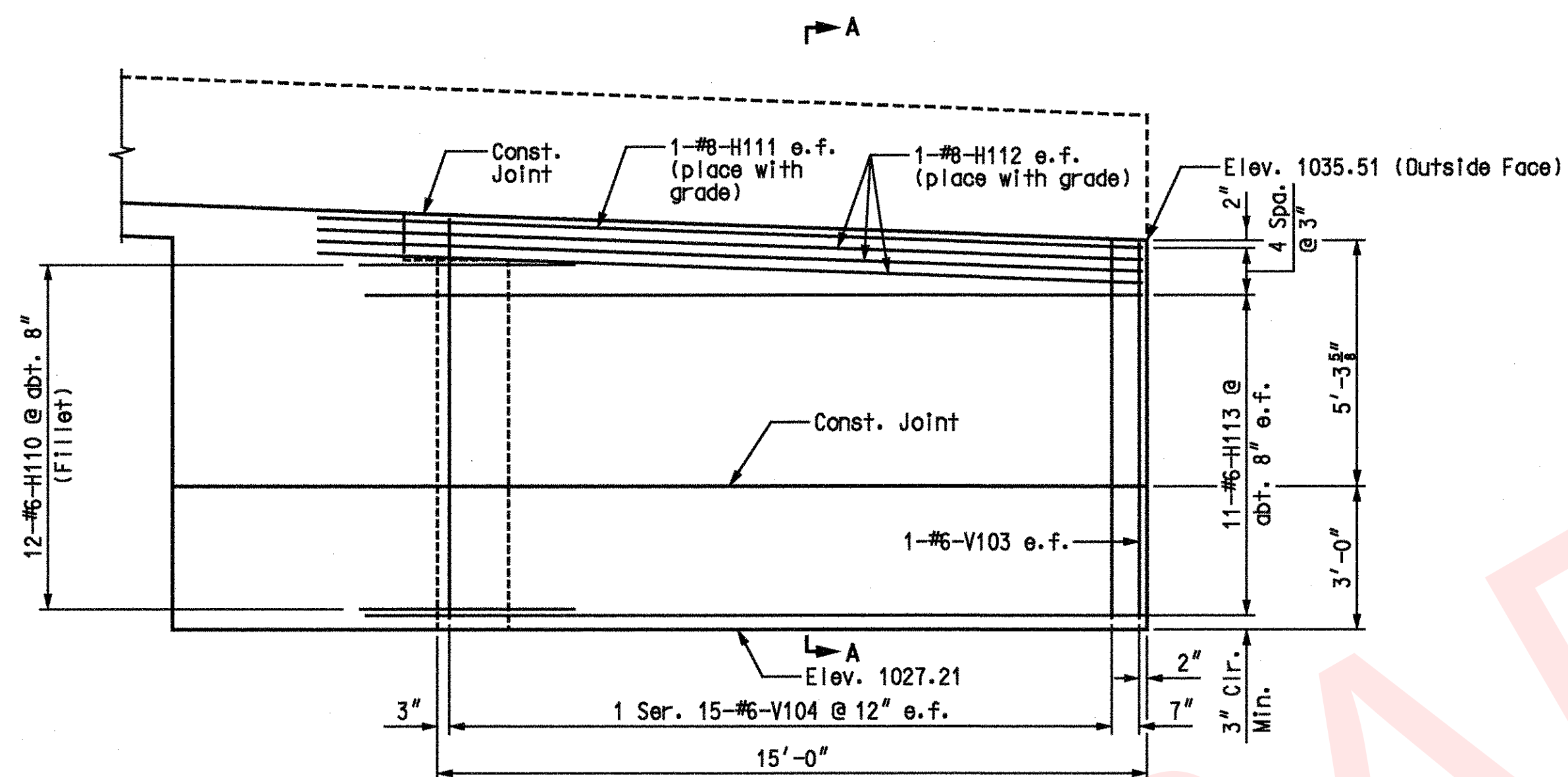
Note: This drawing is not to scale. Follow Dimensions.

Sheet No. 8 of 26

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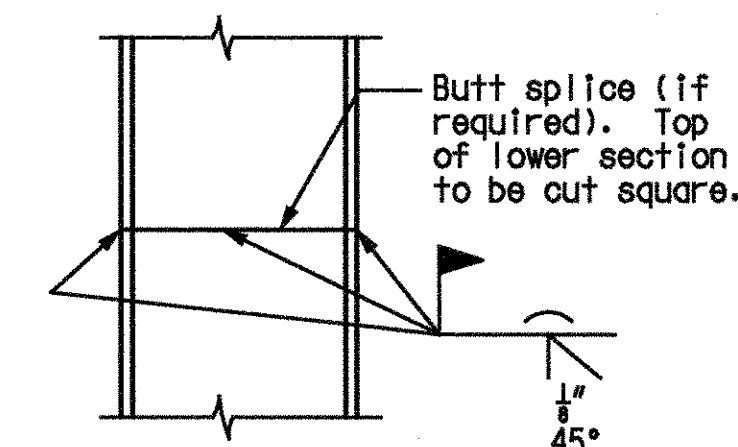
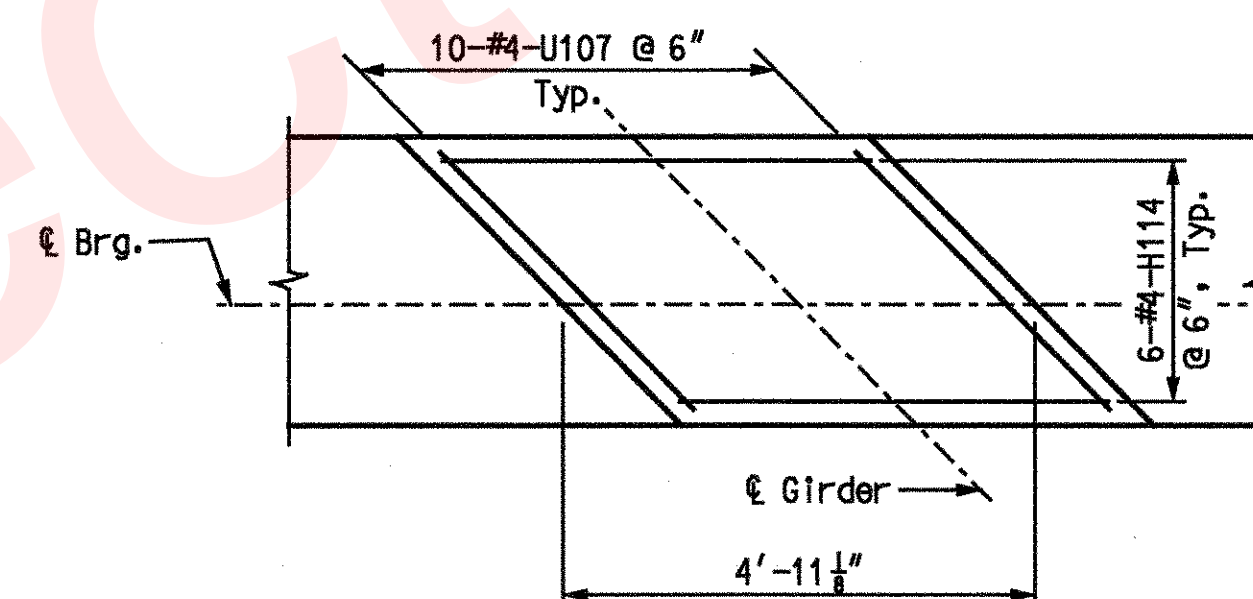
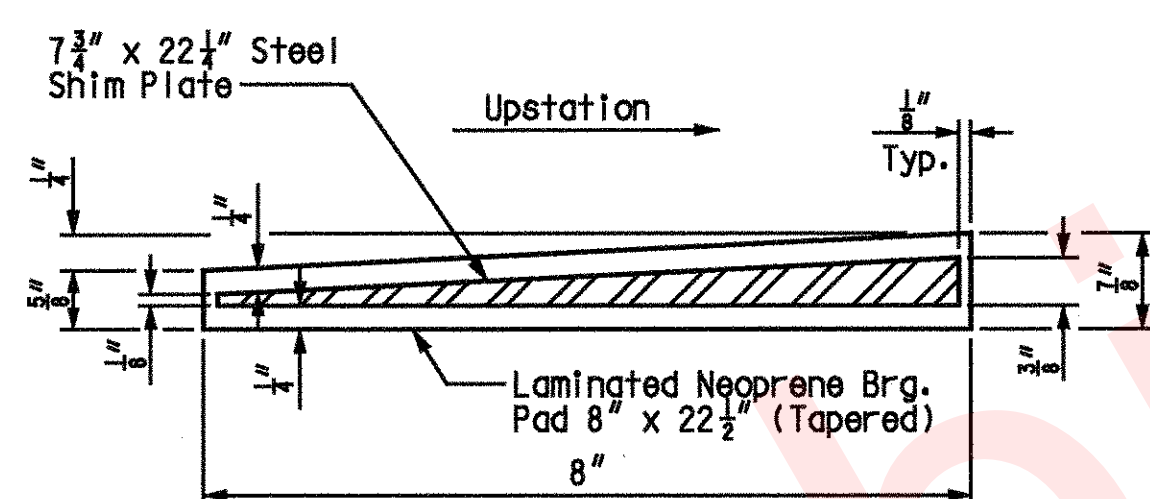
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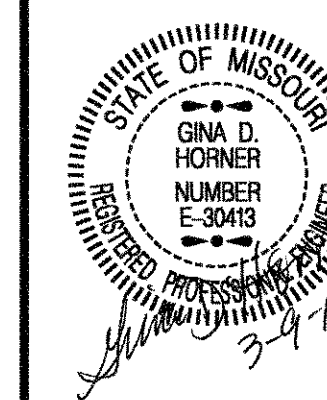
SUBSTRUCTURE QUANTITY TABLE FOR END BENT 1		
ITEM		QUANTITY
Structural Steel Piles (12 in.)	linear foot	240
Pre-Bore for Piling	linear foot	203
Class B Concrete (Substructure)	cu. yard	22.6
Corrugated Metal Pipe Pile Spacers	each	8

Note: These quantities are included in the Estimated Quantities table on Sheet No. 3.



Notes:
e.f. denotes each face.
For additional notes and details, see Sheets No. 7 and 8.

END BENT 1 DETAILS



DATE PREPARED
7/24/09

ROUTE	STA
I-49	MO

DISTRICT	SHEET
BR	9

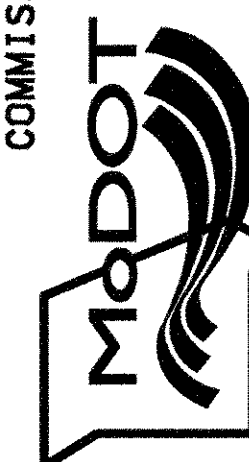
COUNTY
McDONALD

JOB NO.
J7P0601

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A6380

[illegible]MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
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Checked AUG 2009

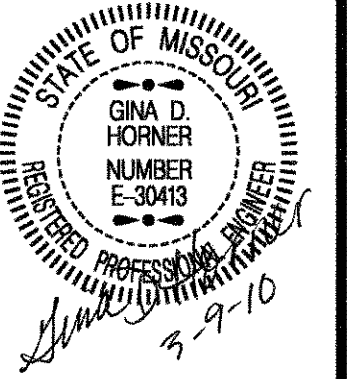
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Sheet No. 10 of 26

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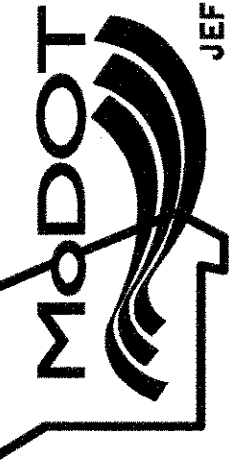
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DATE PREPARED 7/31/09	
ROUTE I-49	STATE MO
DISTRICT BR	SHEET NO. 10

COUNTY
McDONALD
JOB NO.
J7P0601
CONTRACT ID.

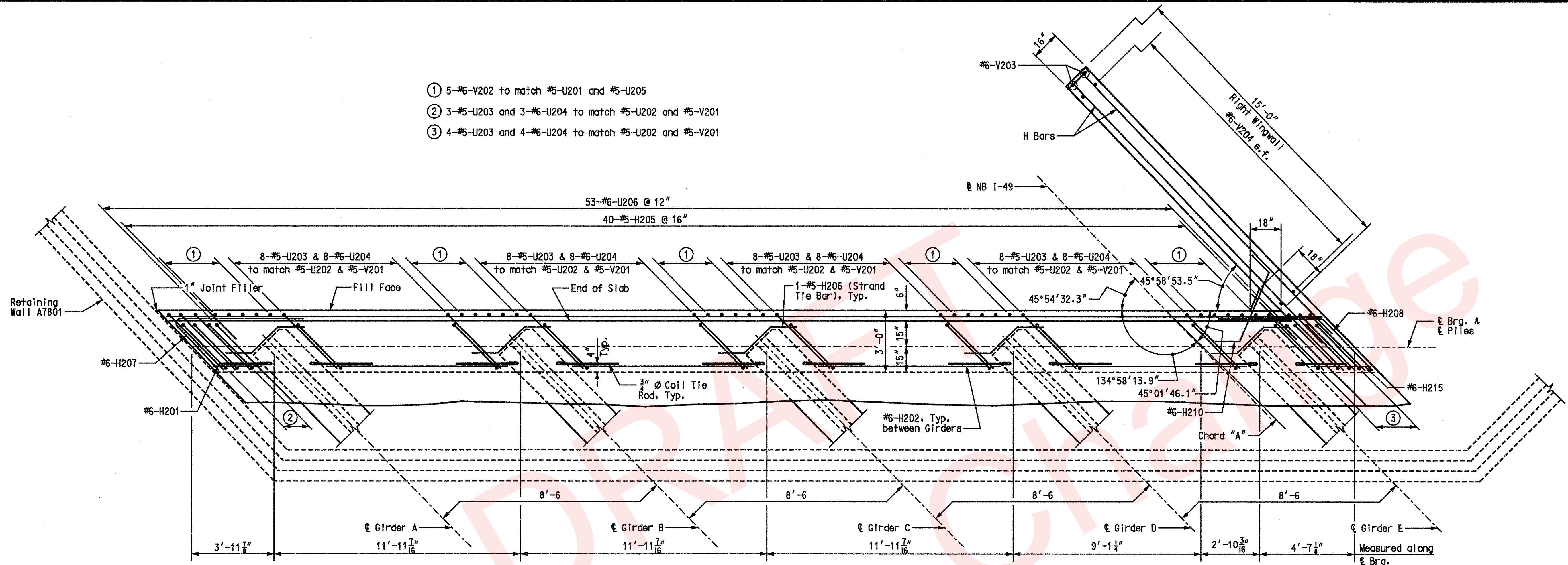
PROJECT NO.
BRIDGE NO. A6380

[illegible]MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

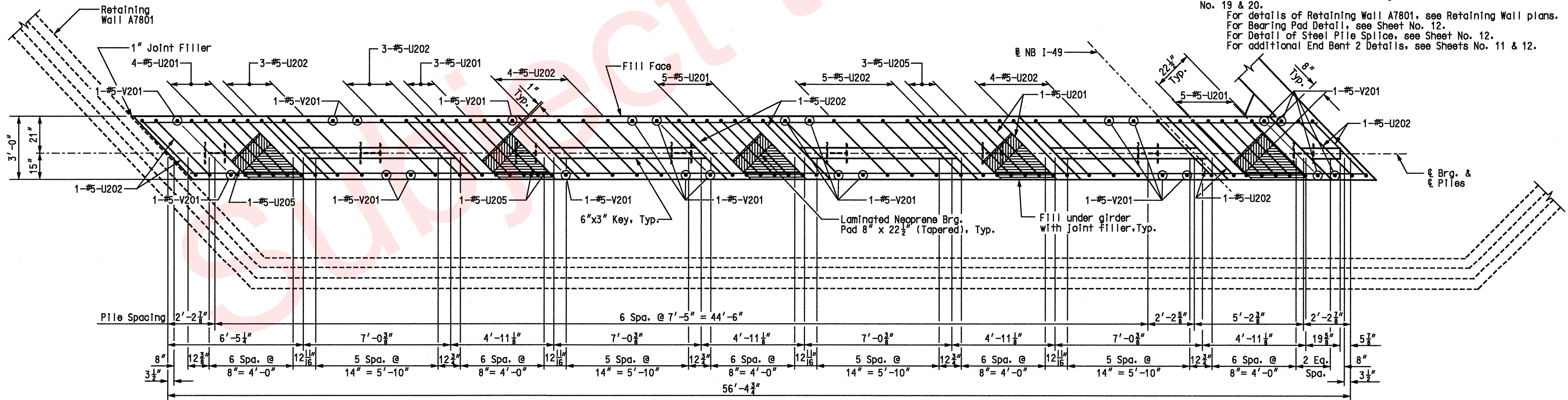
HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105
TELEPHONE (816) 472-7100
FAX (816) 472-7101
CERTIFICATE OF AUTHORITY
NO. 001270

TELEPHONE (816) 472-1201
 CERTIFICATE OF AUTHORITY
 NO. 001270



Notes:

- All piles shall be HP12x53.
- a.f. denotes each face.
- All vertical reinforcing bars in the substructure beams or caps shall be field adjusted to clear piles by at least $1\frac{1}{2}$ ".
- All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
- Strands at end of the girder shall be field bent or, if necessary, cut in field to maintain $1\frac{1}{2}$ " minimum clearance to field face of end bent.
- For reinforcement of the safety barrier curb, see Sheets No. 19 & 20.
- For details of Retaining Wall A7801, see Retaining Wall plans.
- For Bearing Pad Detail, see Sheet No. 12.
- For Detail of Steel Pile Splice, see Sheet No. 12.
- For additional End Bent 2 Details, see Sheets No. 11 & 12.



PLAN OF BEAM

END BENT 2

Note: This drawing is not to scale. Follow Dimensions.

Sheet No. 10 of 26

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BRG. PAD HEIGHTS

Notes:
e.f. denotes each face.

END BENT 2 DETAILS

Note: This drawing is not to scale. Follow Dimensions.

Sheet No. 11 of 26

Detailed JUL 2009
Checked AUG 2009

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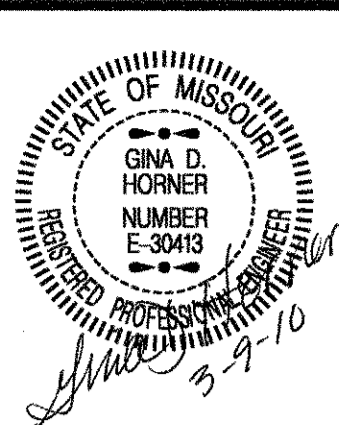
HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270



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COMMISSION

105 WEST CAPITAL
JEFFERSON CITY, MO 65102
1-800-ASK-MDOT (1-800-275-6761)

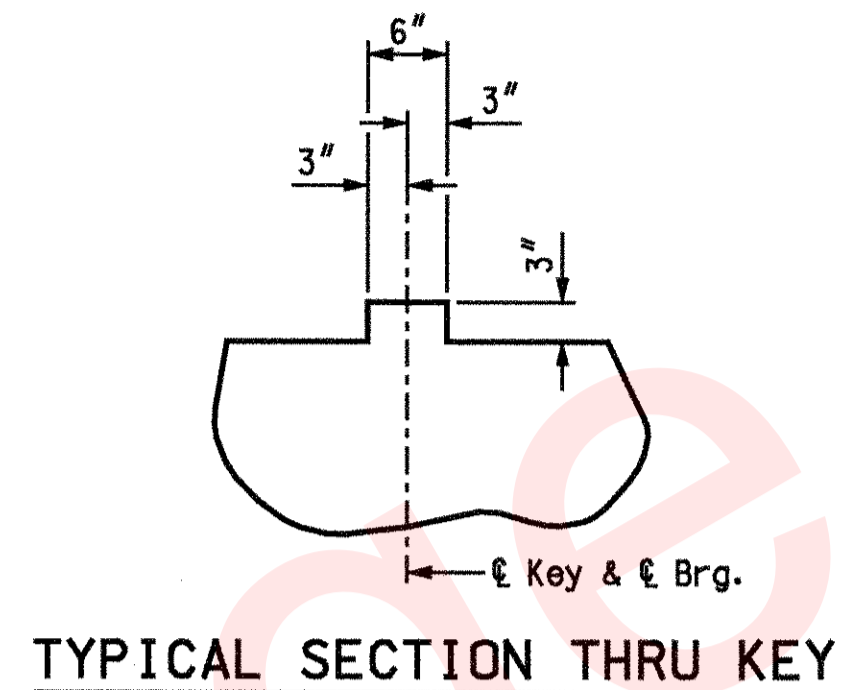
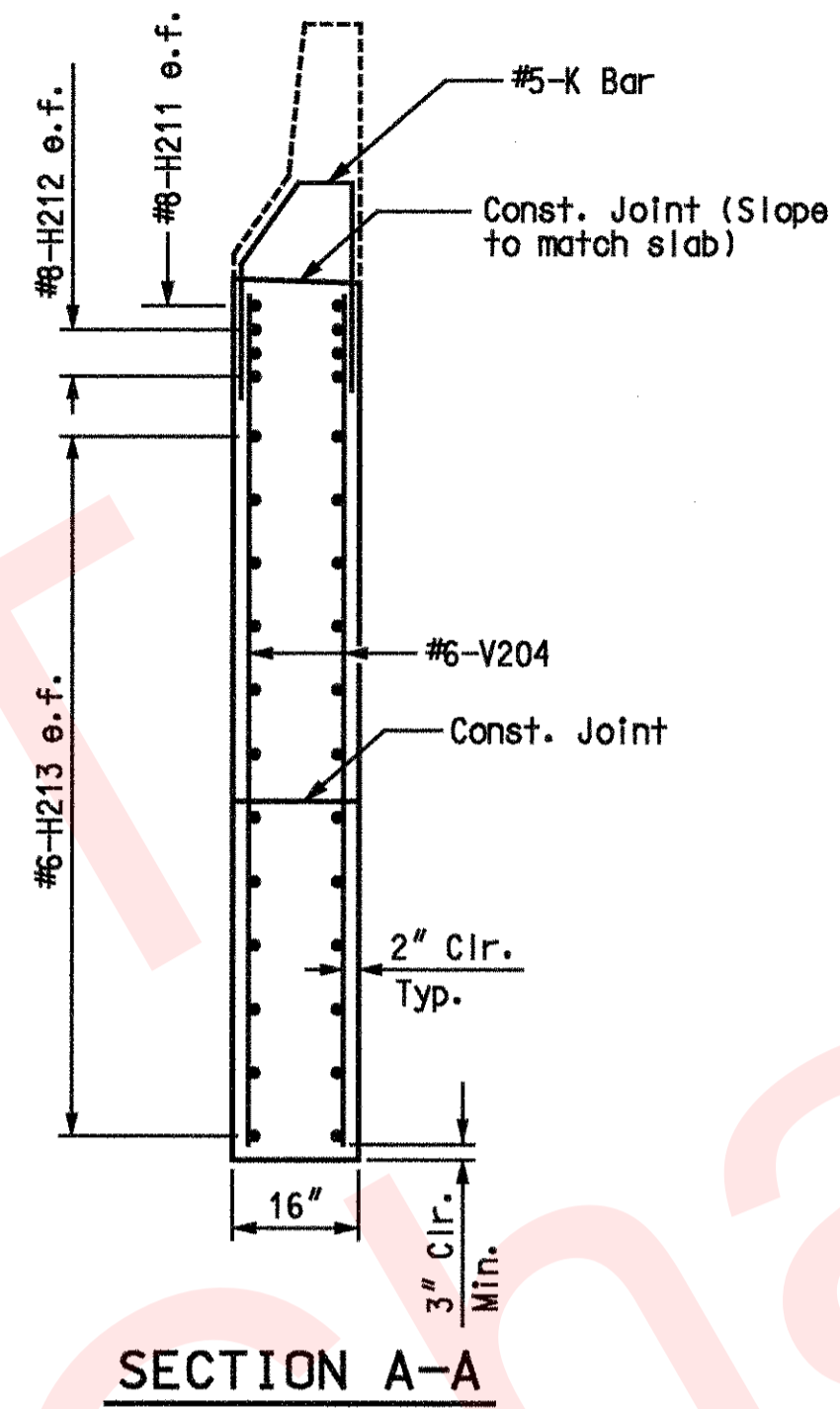
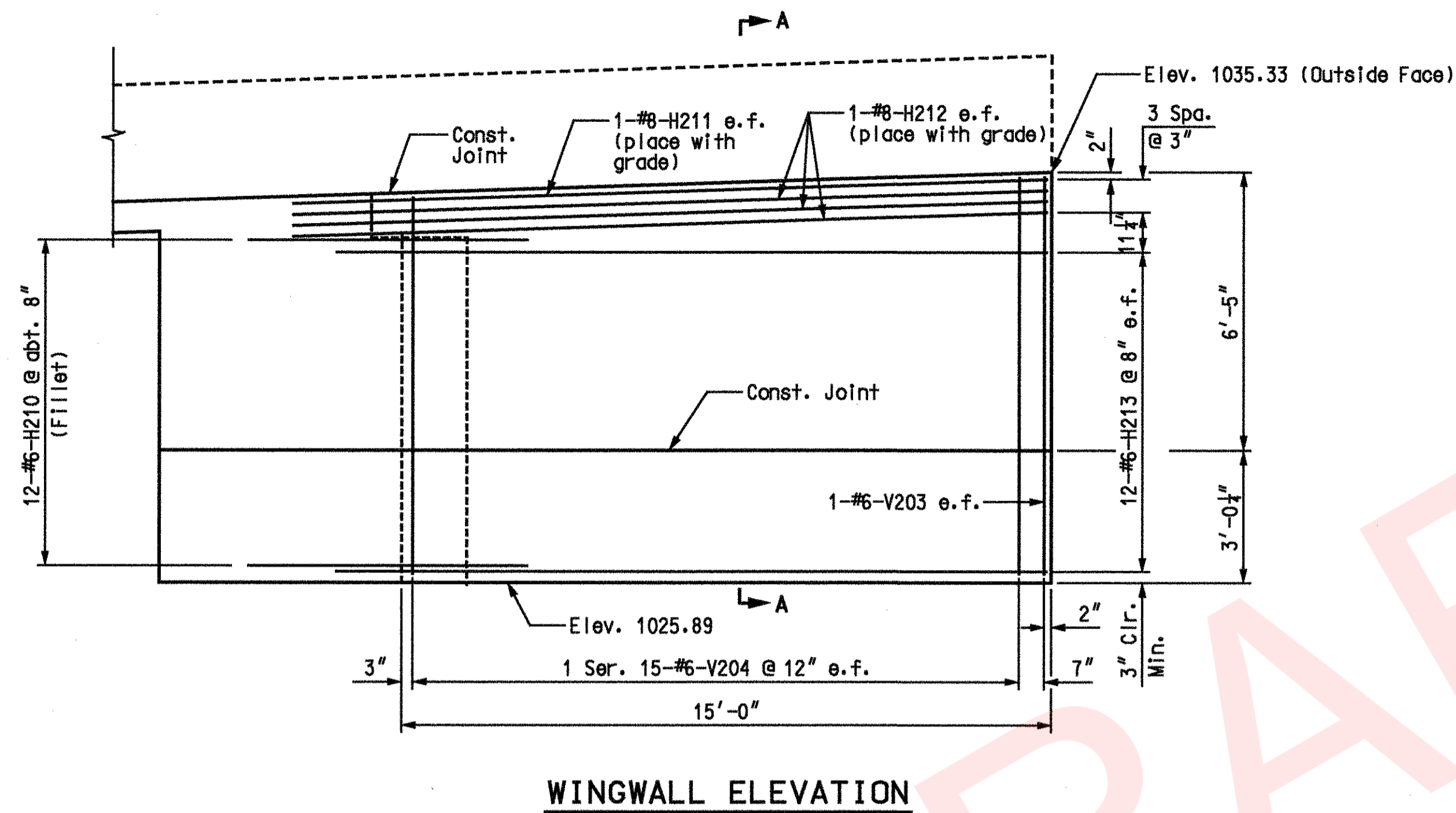
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DATE PREPARED 7/31/09	
ROUTE I-49	STATE MO
DISTRICT BR	SHEET NO. 11
COUNTY McDONALD	
JOB NO. J7P0601	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A6380	

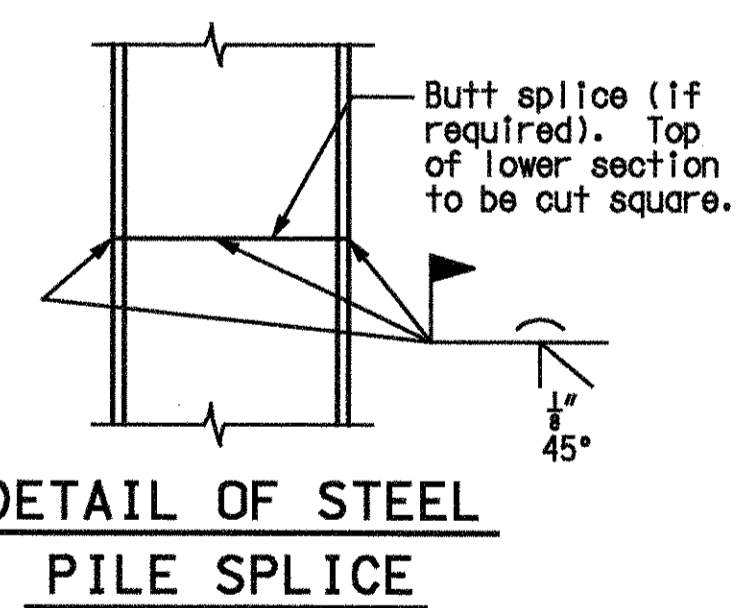
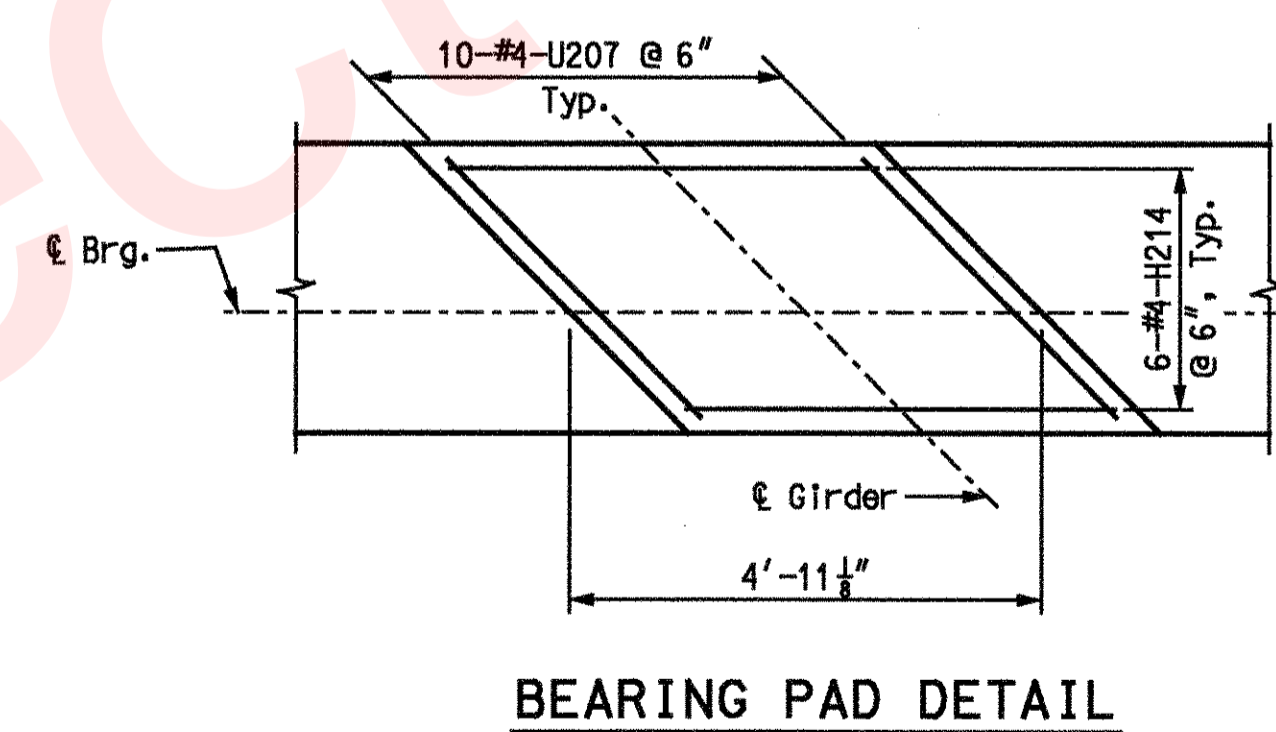
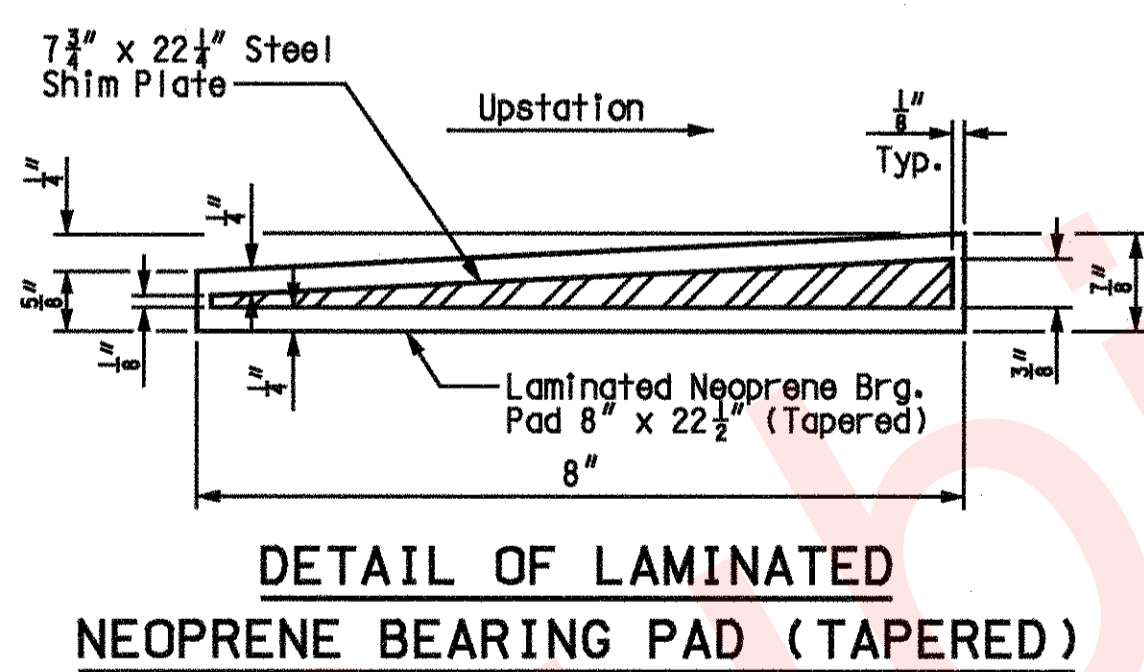
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MISSOURI HIGHWAYS AND TRANSPORTATION



SUBSTRUCTURE QUANTITY TABLE FOR END BENT 2		
ITEM		QUANTITY
Structural Steel Piles (12 in.)	linear foot	216
Pre-Bore for Piling	linear foot	182
Class B Concrete (Substructure)	cu. yard	22.1
Corrugated Metal Pipe Pile Spacers	each	8

Note: These quantities are included in the Estimated quantities table on Sheet No. 3.



Notes:
e.f. denotes each face.
For additional notes and details, see Sheets No. 10 and 11.

END BENT 2 DETAILS

GINA D. HORNER
NUMBER E-30413
7/31/09

DATE PREPARED
7/31/09

ROUTE I-49	STATE MO
DISTRICT BR	SHEET NO. 12

COUNTY
McDONALD

JOB NO.
J7P0601

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A6380

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITAL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY NO. 000270

REV.

IF A SFA IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SFA'ED AND DATED.

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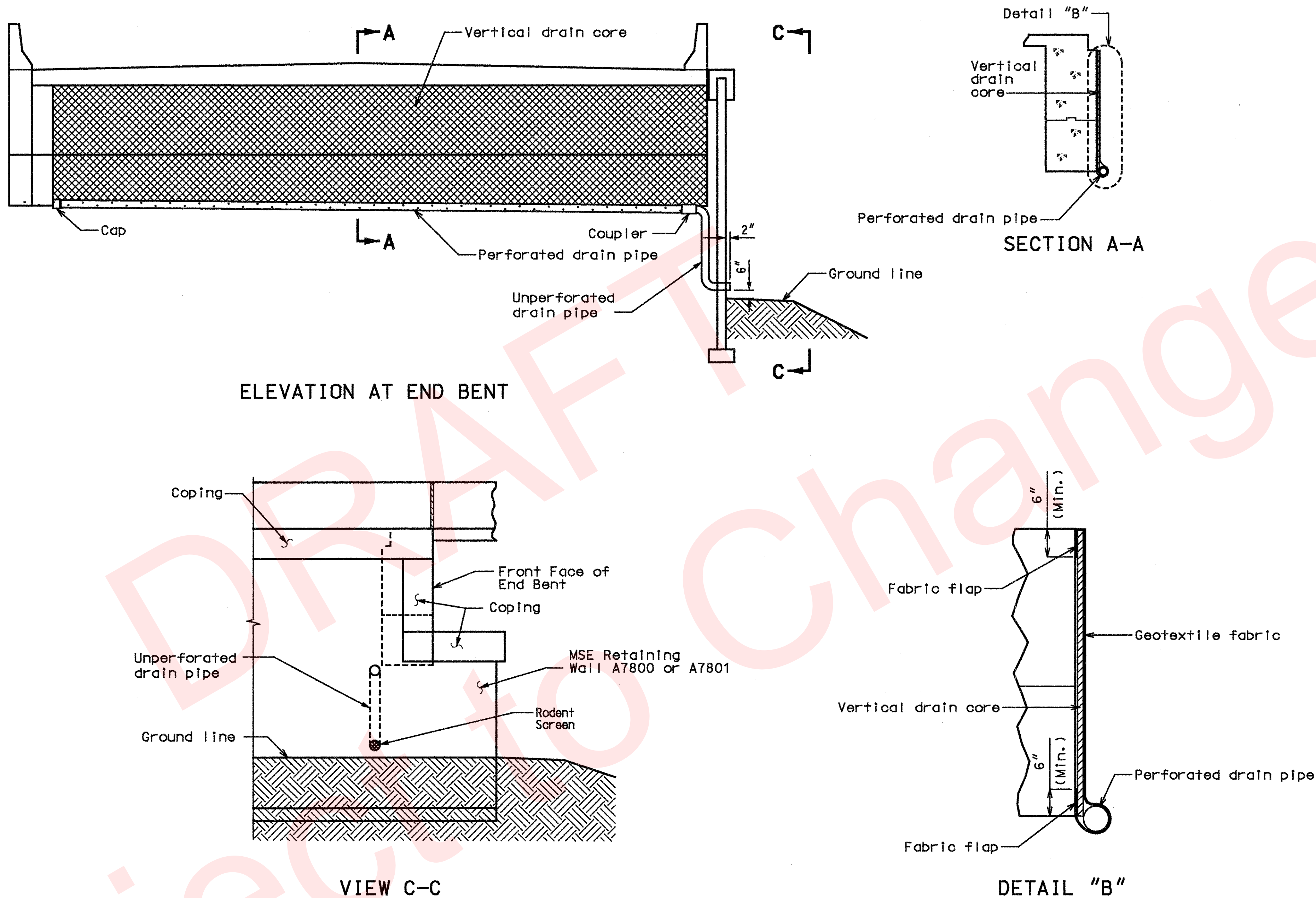
Detailed APR 2009
Checked JUL 2009

Note: This drawing is not to scale. Follow Dimensions.

Sheet No. 13 of 26

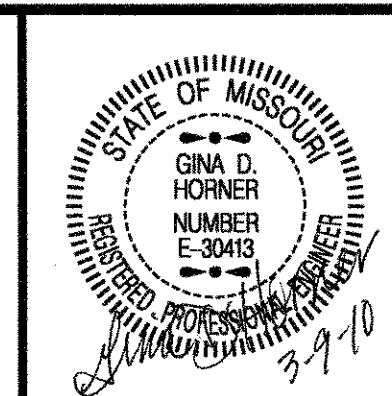
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08-MAR-2010 15:00



Note:
Drain pipe may be either 6" diameter corrugated metallic-coated steel pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.
Place drain pipe at fill face of end bent and slope to exit. (See elevation at end bent.)
Perforated pipe shall be placed at fill face side at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit.

VERTICAL DRAIN AT END BENTS



DATE PREPARED
07/28/09

ROUTE
I-49

STATE
MO

DISTRICT
BR

SHEET NO.
13

COUNTY
MCDONALD

JOB NO.
J7P0601

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A6380

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MODOT

105 WEST CAPITAL

JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-275-6636)

CERTIFICATE OF AUTHORITY

NO. 001270

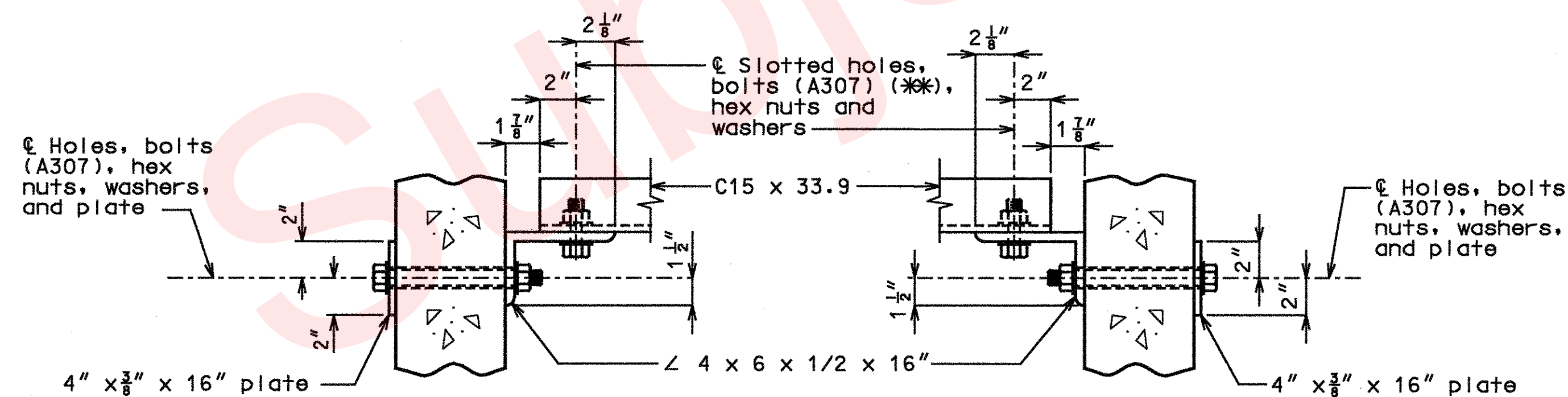
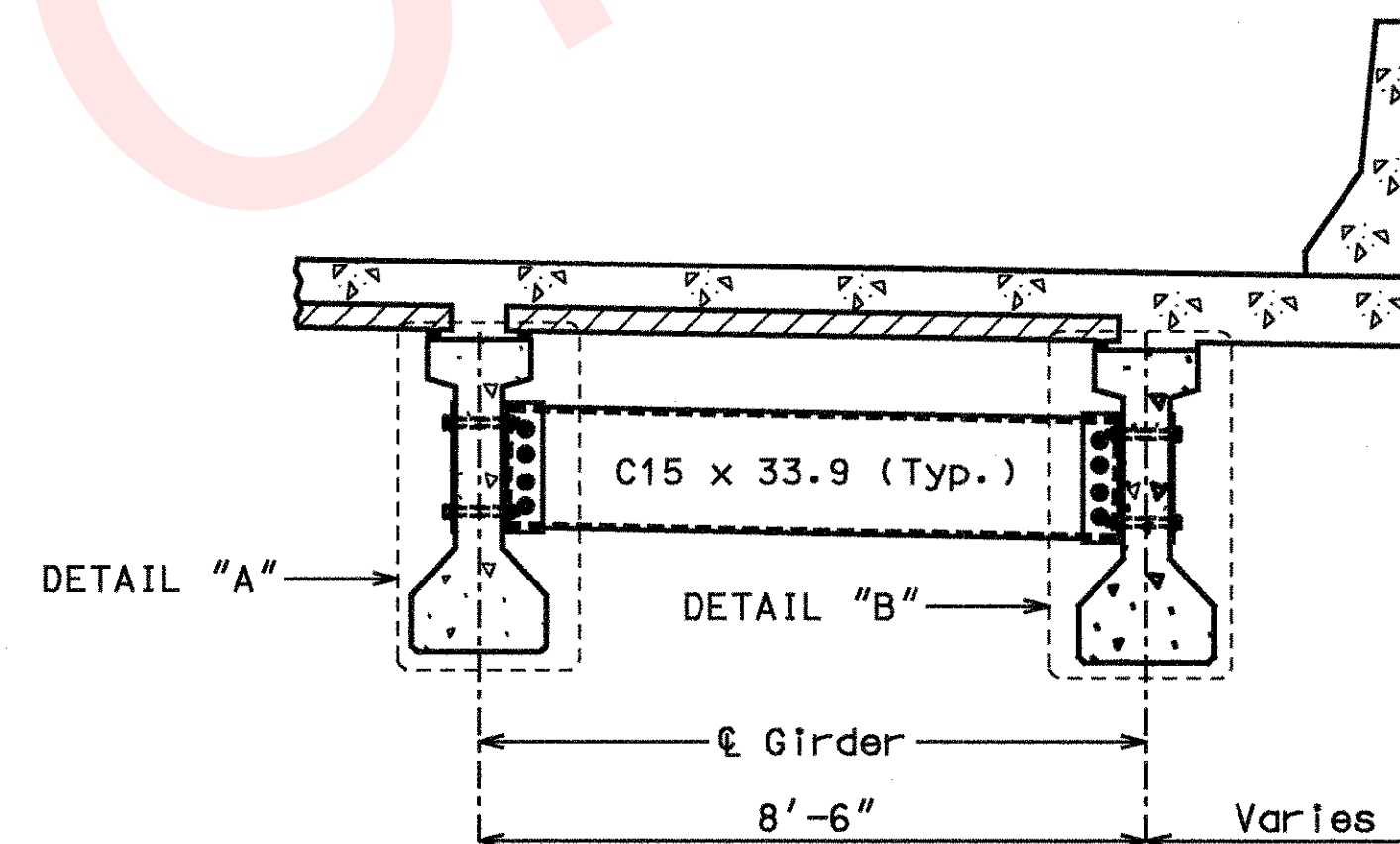
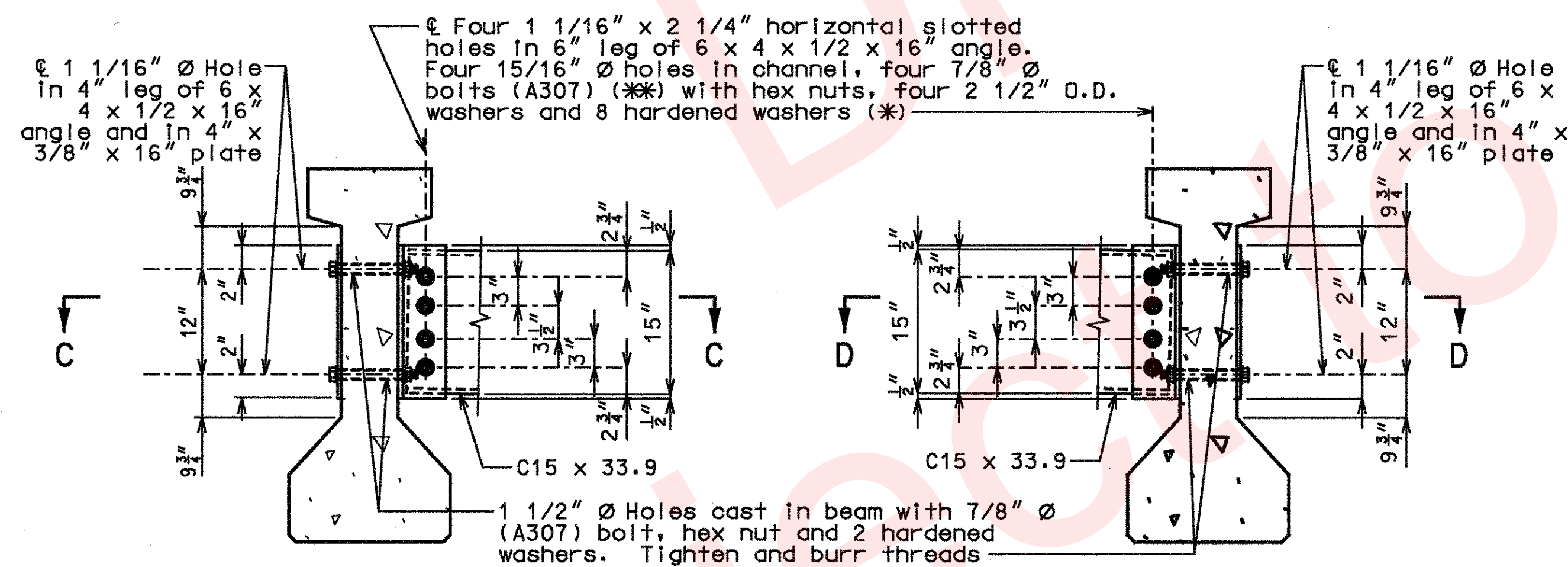
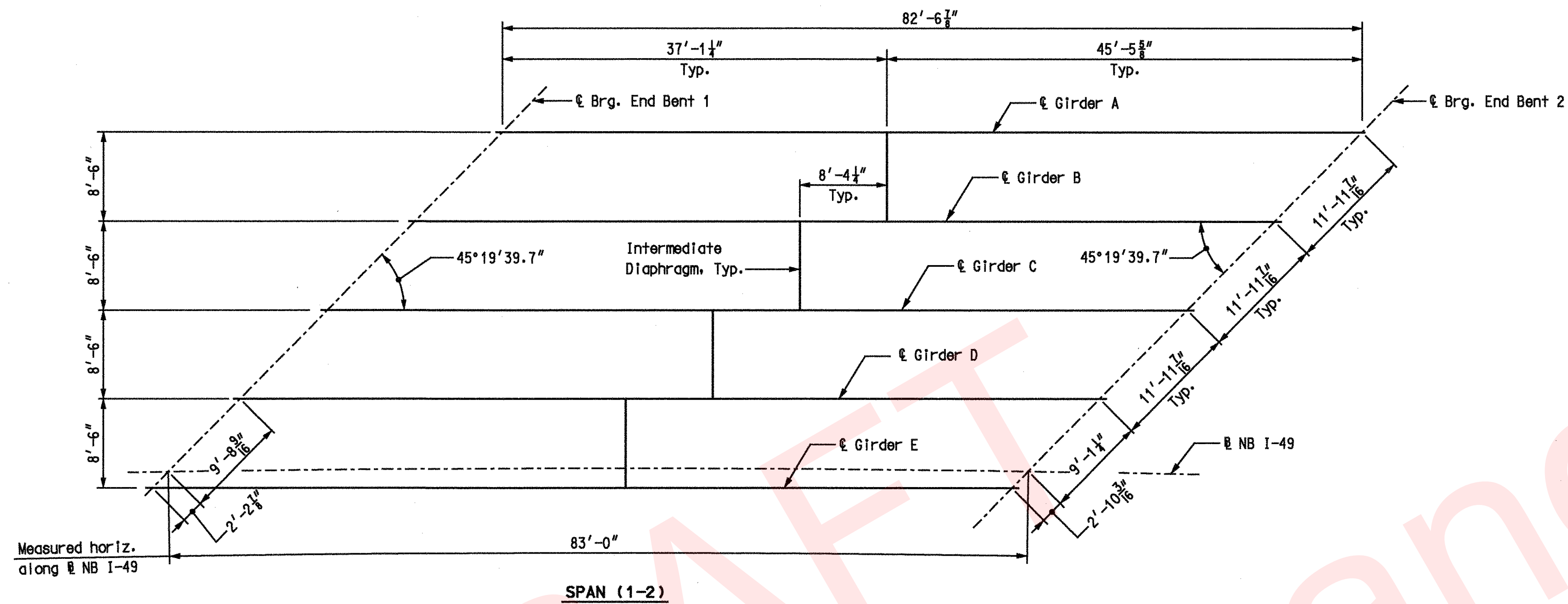
715 KIRK DRIVE

KANSAS CITY, MO 64105-1310

TELEPHONE (816) 472-1201

IF A SFAI IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SFAI'D AND DATED.

REV.



STEEL DIAPHRAGM NOTES:

(*) In lieu of 2 1/2" outside diameter washers, contractor may substitute a 3/16" (Min. thickness) plate with four 15/16" Ø holes and one hardened washer per bolt.

(**) Bolts shall be tightened to provide a tension of one-half that specified in Sec 712 for high strength bolt installation. A325 bolts may be substituted for and installed in accordance with the requirements for the specified A307 bolts.

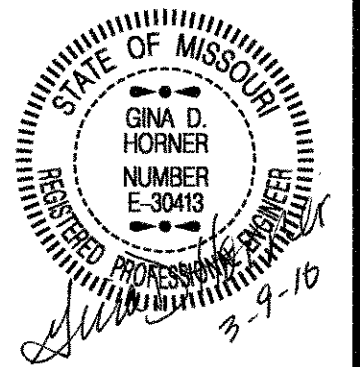
All diaphragm materials including bolts, nuts, and washers shall be galvanized.

Fabricated structural steel shall be ASTM A709 Grade 36 except as noted.

Payment for furnishing and installing steel intermediate diaphragms will be considered completely covered by the contract unit price for Steel Intermediate Diaphragm for P/S Concrete Girders.

Shop drawings will not be required for steel intermediate diaphragms and angle connections.

FRAMING PLAN AND STEEL INTERMEDIATE DIAPHRAGM DETAILS



DATE PREPARED
7/16/09

ROUTE I-49	STATE MO
DISTRICT BR	SHEET NO. 14

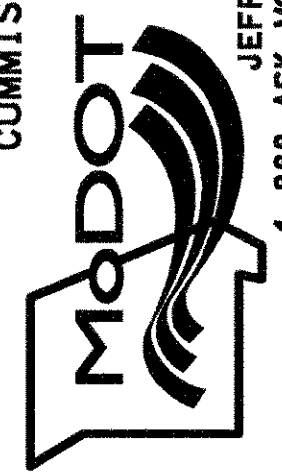
COUNTY
McDONALD

JOB NO.
J7P0601

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A6380

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COMMISSION

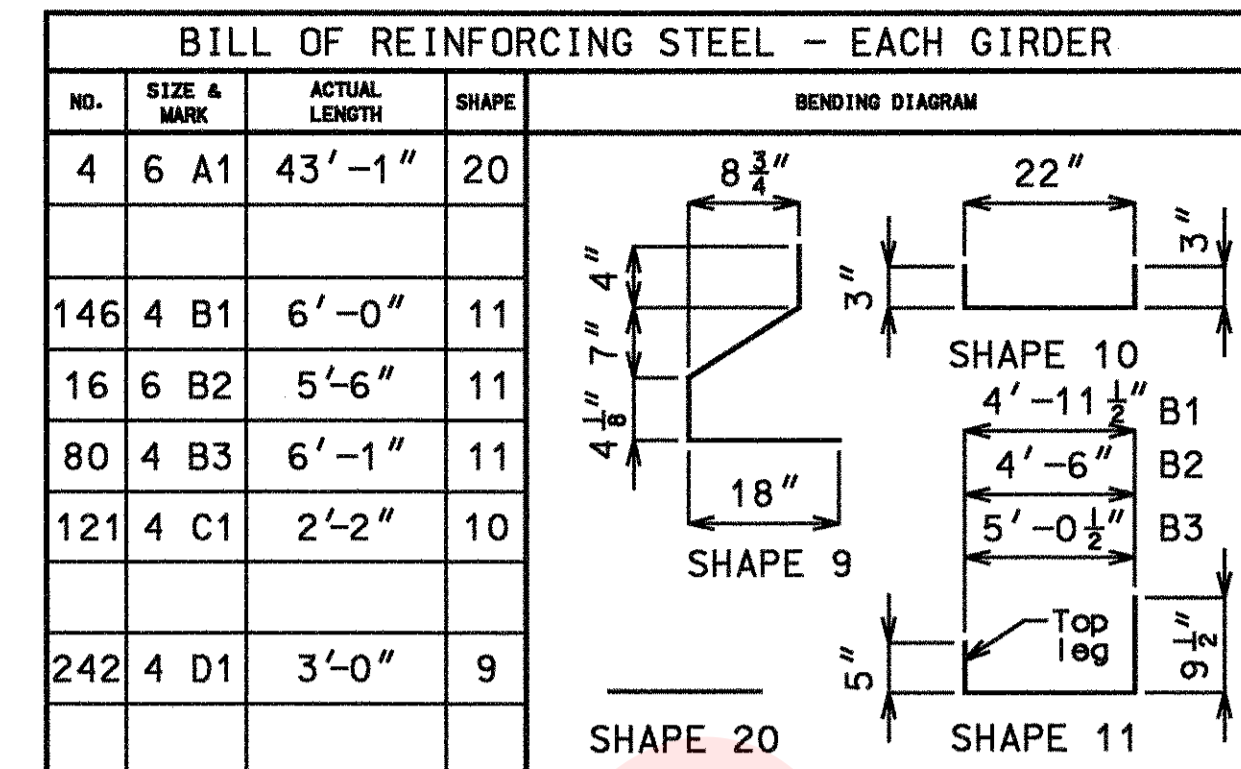
JEFFERSON CITY, MO 65102
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CONT B

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TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270

Prestressing tendons shall be uncoated, seven-wire, low-relaxation strands, 1/2 inch diameter in accordance with AASHTO M 203, Grade 270. Pretensioned members shall be in accordance with Sec 1029.

*** At contractor's option a 1 1/2" to 1 3/4" smooth finish strip is permitted to facilitate placement of preformed fiber expansion joint material or expanded or extruded polystyrene bedding material for the prestressed panels.



All B1 bars shall be epoxy coated.

113-#4-C1, and 113-Pairs-#4-D1 (Spaced as shown)

3-Spa. @ 3 1/2" 4" 19-Spa. @ 4" 12-Spa. 8 3/8" @ 4" 16-Spa. @ 12" 12" 6-Spa. @ 24"

1 3/4" 3'-0" 5'-0" 6'-0" 8'-0" 1/2" typ.

#4-C1

2-#6-A1 2'-11" Lap

Pair-#6-B2

20 Pairs-#4-B3 73-Pairs-#4-B1

Pair-#4-D1

℄ Bearing

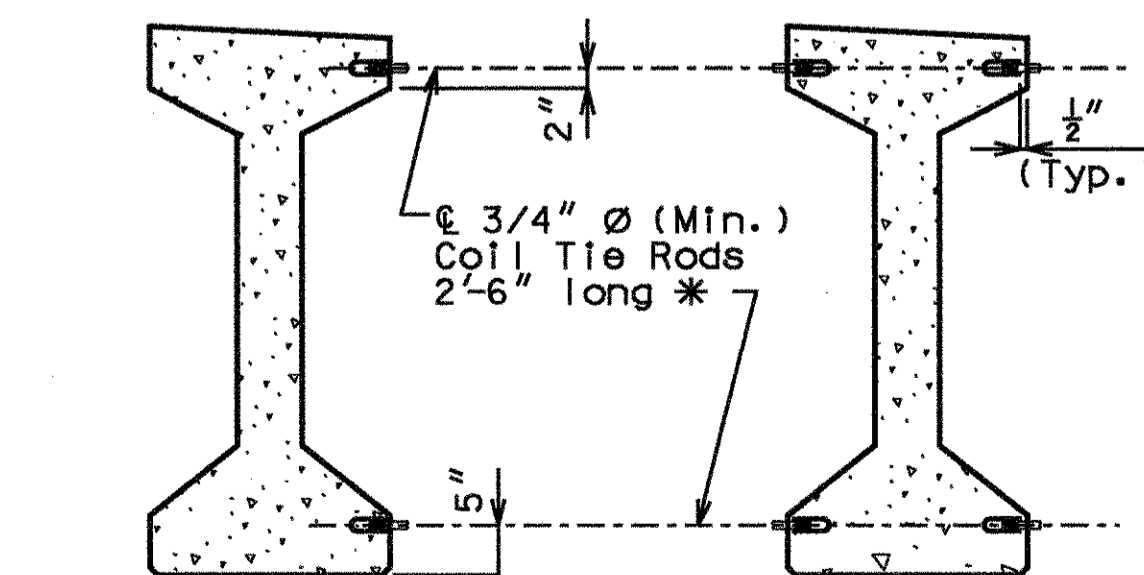
5"

8'-4"

Symm. about ℄ girder except as shown

82'-7 1/4" ℄ - ℄ Bearing

Exterior and interior girders are the same, except for coil ties.



Cost of furnishing, galvanizing, and installing the $\frac{1}{2}$ " bearing plate (ASTM A709 Grade 36) and welded studs in the prestressed girder will be considered completely covered by the contract unit price for Prestressed Concrete I-Girder.

EXTERIOR GIRDERS
AT END BENTS
INTERIOR GIRDERS
AT ALL BENTS

GIRDER DETAILS - SPAN (1-2)

* Length of coil tie rods at exterior girders at end bents = 2'-0".

For Girder Camber Diagram, see Sheet No. 18.

Coil ties shall be held in place in the forms by slotted wire-setting-studs projecting through forms. Studs are to be left in place or replaced with temporary plugs until girders are erected, then replaced by coil tie rods.

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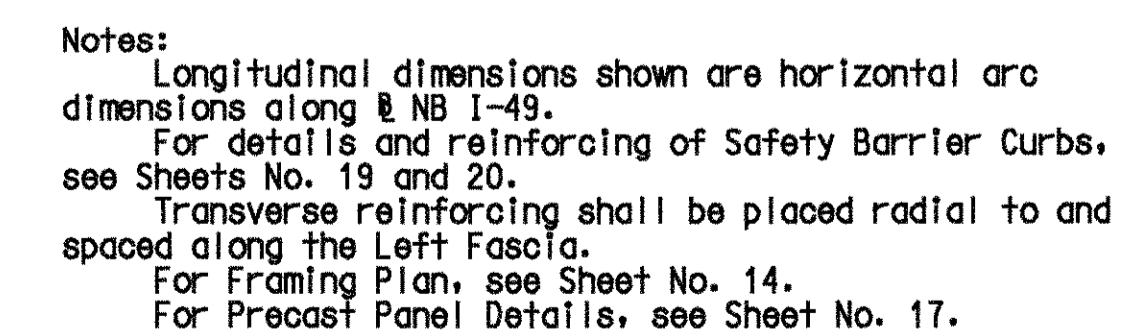
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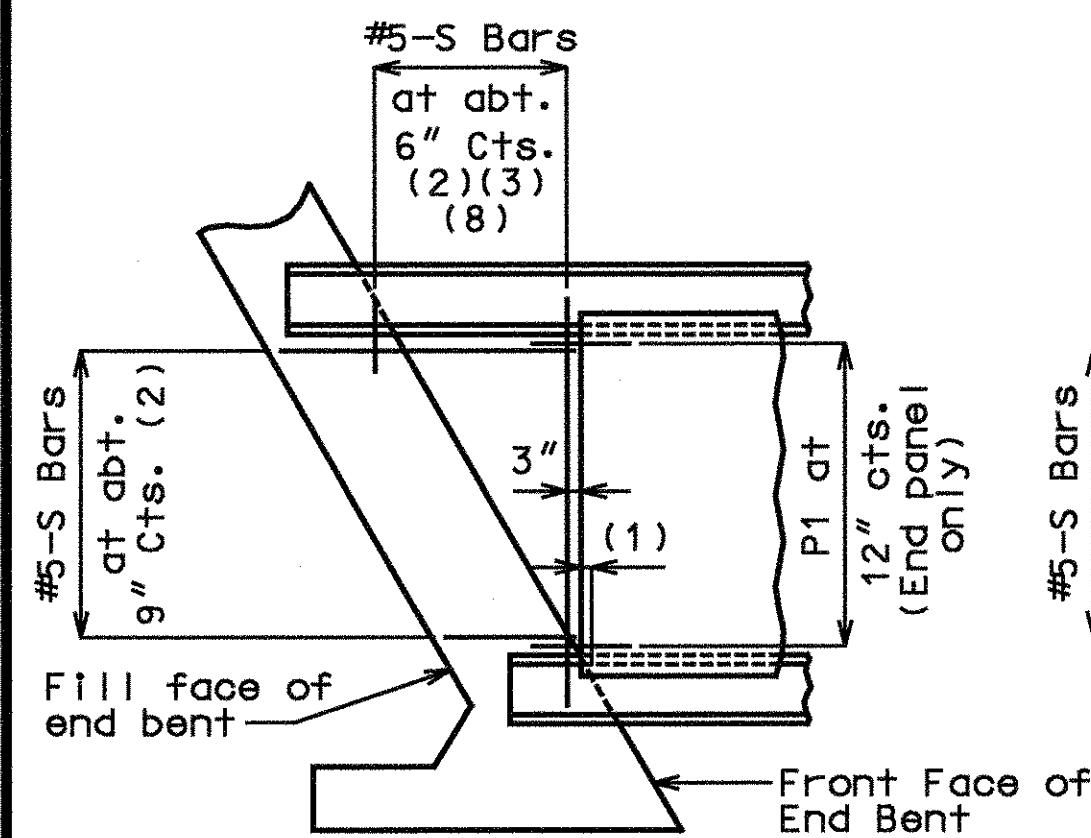


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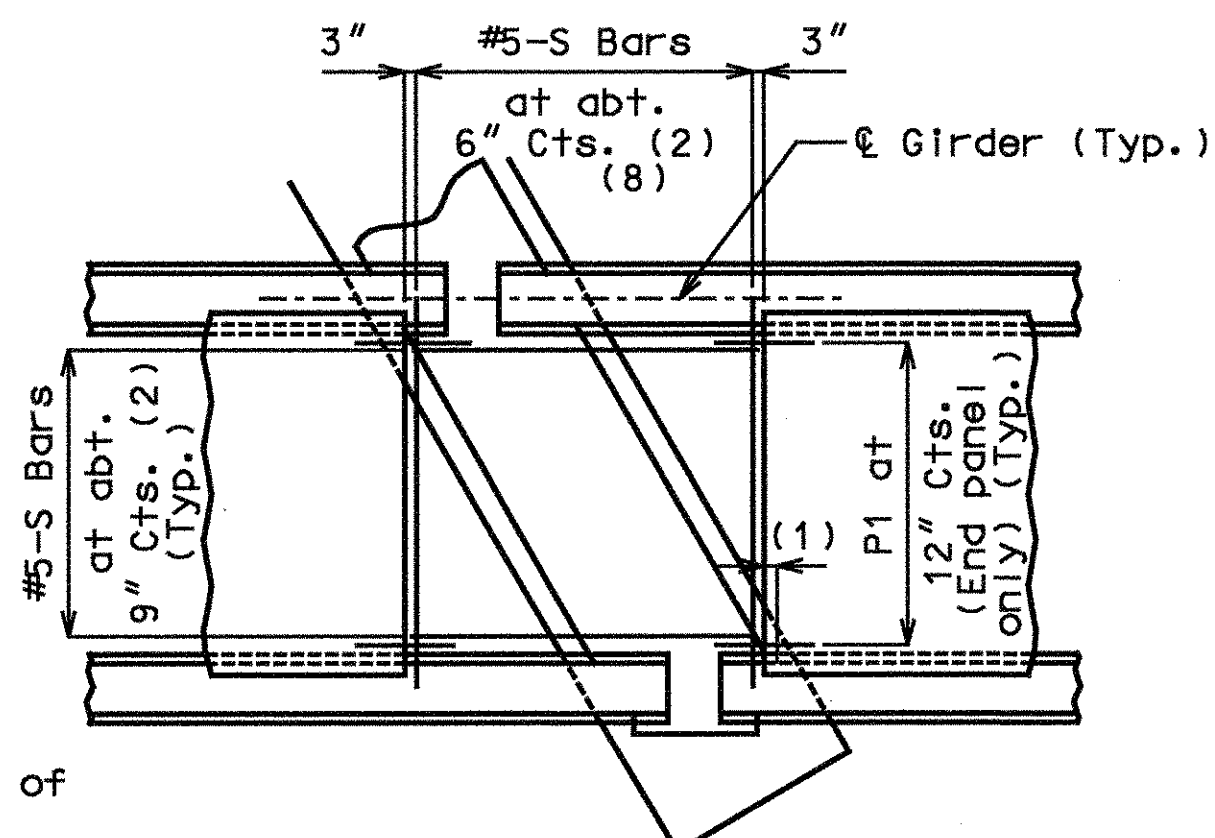
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715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270

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REV.

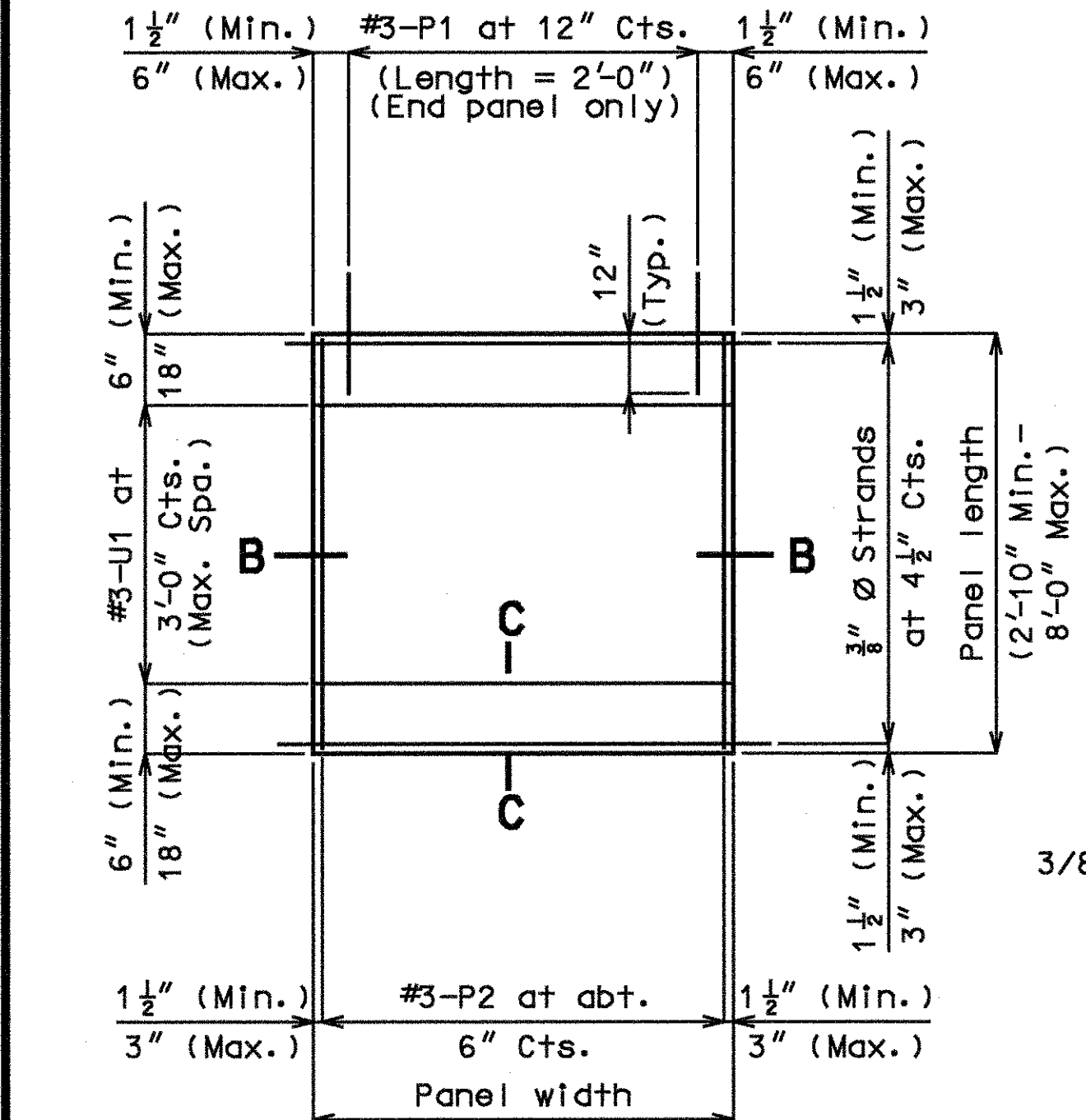


PANELS-SQUARED ENDS

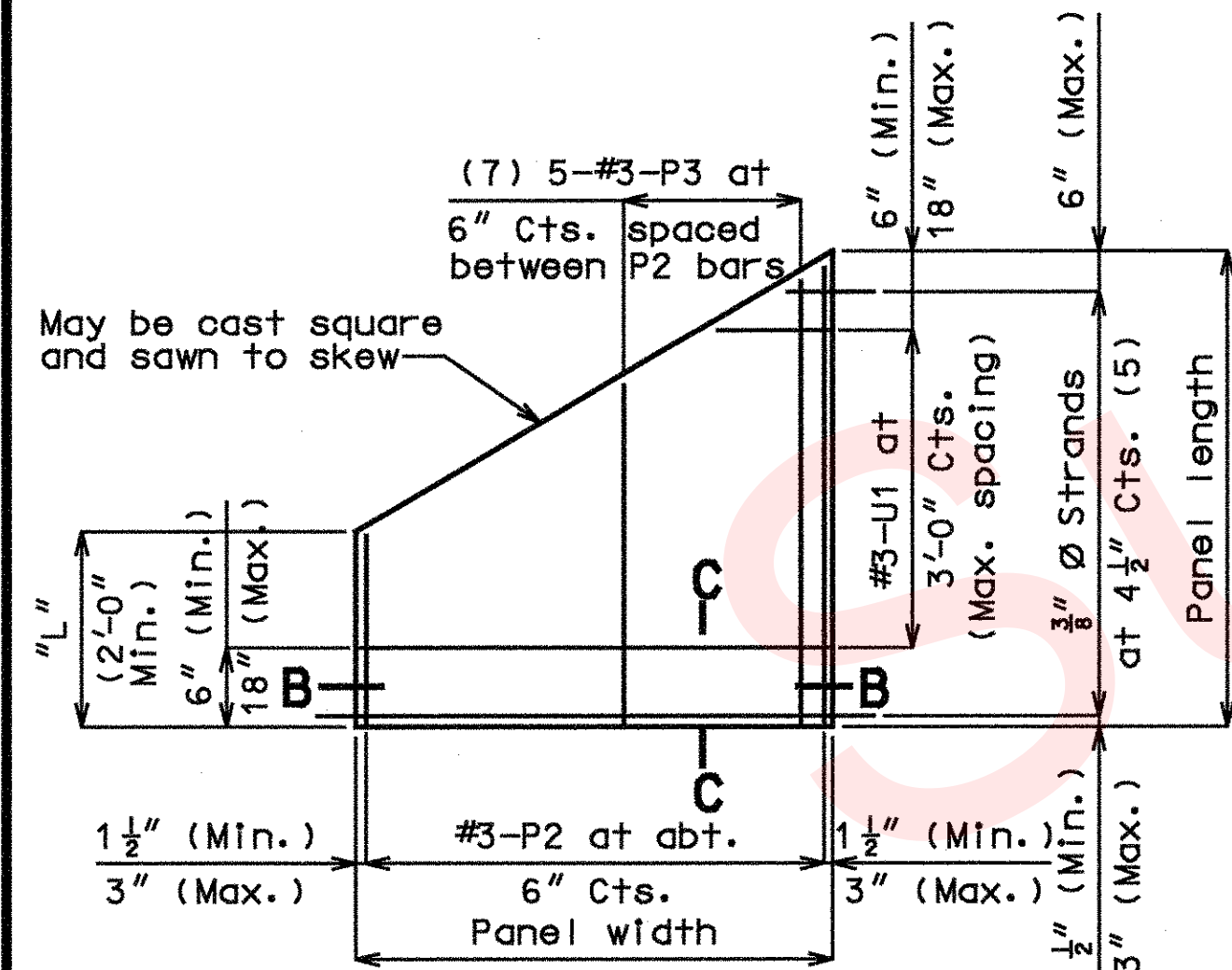


PANELS-SKEWED ENDS

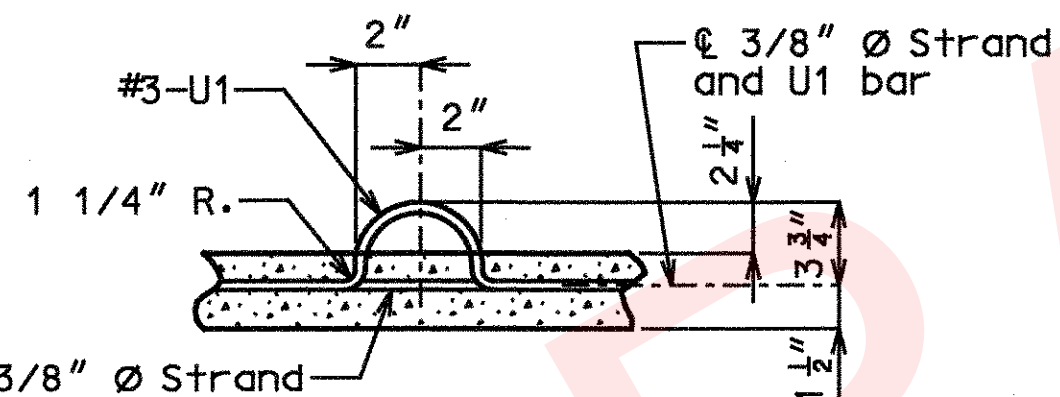
PLAN OF PRECAST PRESTRESSED PANELS PLACEMENT



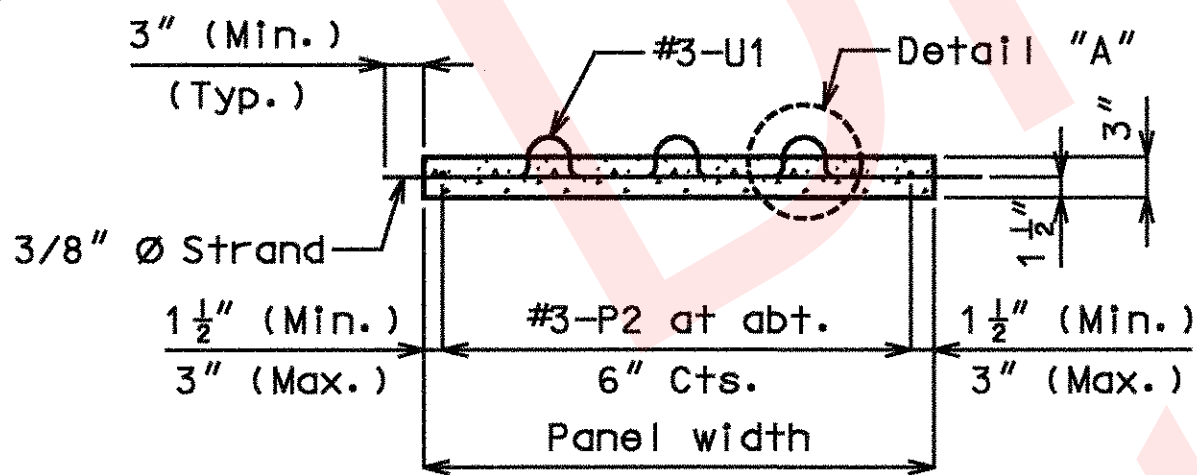
PLAN OF PRECAST PRESTRESSED PANEL



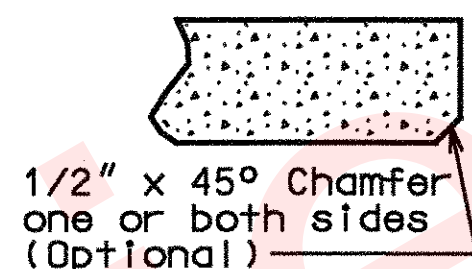
PLAN OF PRECAST PRESTRESSED PANEL (SKEWED END-OPTIONAL)



DETAIL "A"



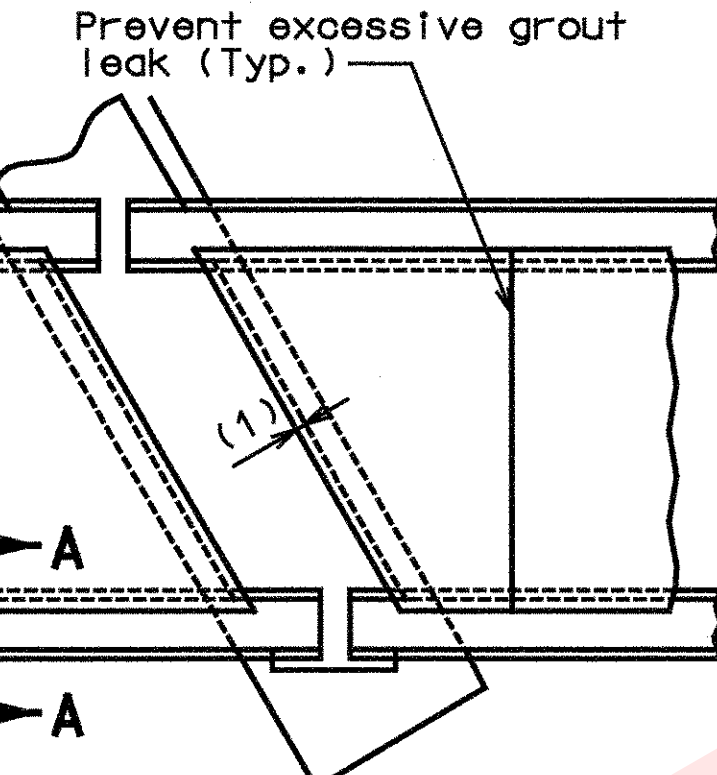
SECTION B-B



SECTION C-C



BENDING DIAGRAM FOR U1 BAR (U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars).



PANELS-SKEWED ENDS

GENERAL NOTES:

PRESTRESSED PANELS: Concrete for prestressed panels shall be Class A-1 with $f'c = 6,000$ psi, $f'ci = 4,000$ psi.

The top surface of all panels shall receive a scored finish with a depth of scoring of $1/8$ " perpendicular to the prestressing strands in the panels.

Prestressing tendons shall be high-tensile strength uncoated seven-wire, low-relaxation strands for prestressed concrete in accordance with AASHTO M 203 Grade 270, with nominal diameter of strand = $3/8$ " and nominal area = 0.085 sq. in. and minimum ultimate strength = 22.95 kips (270 ksi). Larger strands may be used with the same spacing and initial tension.

Initial prestressing force = 17.2 kips/strand.

The method and sequence of releasing the strands shall be shown on the shop drawings.

Suitable anchorage devices for lifting panels may be cast in panels, provided the devices are shown on the shop drawings and approved by the engineer. Panel lengths shall be determined by the contractor and shown on the shop drawings.

When square and panels are used at skewed bents, the skewed portion shall be cast full depth. No separate payment will be made for additional concrete and reinforcing required.

Support from diaphragm forms is required under the optional skewed end until cast-in-place concrete has reached $3,000$ psi compressive strength.

Minimum preformed fiber expansion joint material or polystyrene bedding material thickness shall be 1 inch. Thicker material may be used on one or both sides of the girder to reduce cast-in-place concrete thickness, to within tolerances. No more than 2 inches total thickness shall be used.

The same thickness of preformed fiber expansion joint material shall be used under any one edge of any panel except at locations where top flange thickness may be stepped. The maximum change in thickness between adjacent panels shall be $1/4$ inch. The polystyrene bedding material may be cut with a transition to match haunch height above top of flange.

Slab thickness over prestressed panels varies due to girder camber.

At the contractor's option, the variation in slab thickness over prestressed panels may be eliminated or reduced by increasing and varying the girder top flange thickness. Dimensions shall be shown on the shop drawings.

REINFORCING STEEL: All dimensions are out to out.

Minimum clearance to reinforcing steel shall be $1 1/2$ ", unless otherwise shown.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrups and Tie Dimensions.

Actual lengths are measured along centerline of bar to the nearest inch.

The prestressed panel quantities are not included in the table of estimated quantities for slab.

If U1 bars interfere with placement of slab steel, U1 loops may be bent over, as necessary, to clear slab steel.

Note: Use slab haunching diagram on Sheet No. 18 for determining thickness of preformed fiber expansion joint material or polystyrene bedding material within the limits noted in general notes.

NOTES:

Welded wire fabric or welded deformed bar mats providing a minimum area of reinforcing perpendicular to strands of 0.22 sq. in./ft., with spacing parallel to strands sufficient to insure proper handling, may be used in lieu of the #3-P2 bars shown. Wire or bar diameter shall not be larger than 0.375 inches. The above alternative reinforcement criteria may be used in lieu of the #3-P3 bars, when required, and placed over a width not less than 2 feet.

The reinforcing steel shall be tied securely to the $3/8$ " ϕ strands with the following maximum spacing in each direction:

#3-P2 bars at 16 inches.

Welded wire fabric or welded deformed bar mats at $2'-0"$.

Tie the #3-U1 bars to the #3-P2 bars, to the welded wire fabric or the welded deformed bar mats at about $3'-0"$ centers.

All reinforcement other than prestressing strands shall be epoxy coated.

Precast panels may be in contact with stirrup reinforcing in diaphragms.

Cost of S-bars will be considered completely covered by the contract unit price for the slab.

S-bars are not listed in the bill of reinforcing.

(1) End panels shall be dimensioned $1"$ min. to $1 1/2"$ max. from the inside face of diaphragm.

(2) S-bars shown are bottom steel in slab between panels and used with squared end panels only.

(3) Extend S-bars 18 inches beyond the front face of end bents only.

(4) In order to maintain minimum slab thickness, it may be necessary to raise the grade uniformly throughout the structure. No payment will be made for additional labor or materials required for necessary grade adjustment.

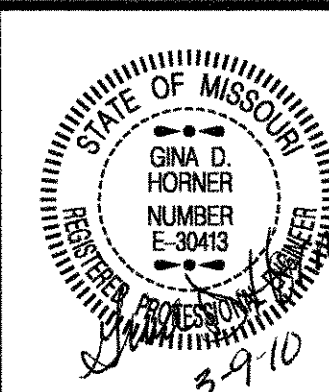
(5) Any strand $2'-0"$ or shorter shall have a #4 reinforcing bar on each side of it, centered between strands. Strands $2'-0"$ or shorter may then be debonded at the fabricator's option.

(6) All panel support pads shall be glued to the girder. When support thickness exceeds $1 1/2$ inches, the pads shall be glued top and bottom. The glue used shall be the type recommended by the panel support pads manufacturer.

(7) Use #3-P3 bars if panel is skewed 45° or greater.

(8) Minimum reinforcement steel length shall be $2'-0"$.

DETAILS OF PRECAST PRESTRESSED PANELS



DATE PREPARED
2/28/09

ROUTE
I-49

DISTRICT
BR

COUNTY
McDONALD

JOB NO.
J7P0601

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A6380

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MDOT

105 WEST CAPITAL
JEFFERSON CITY, MO 65102

1-888-ASK-MDOT (1-888-275-6636)

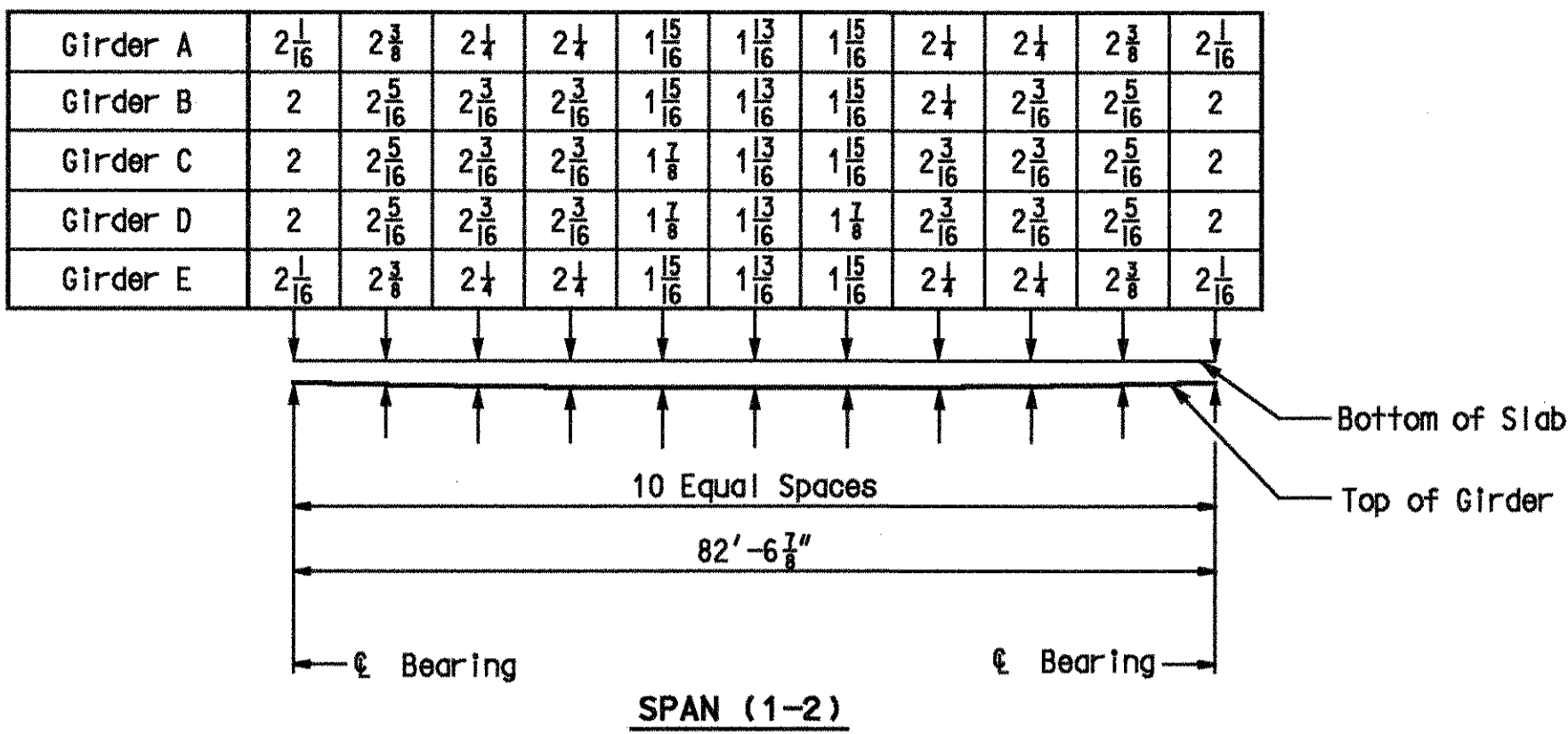
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NO. 001270

HNTB

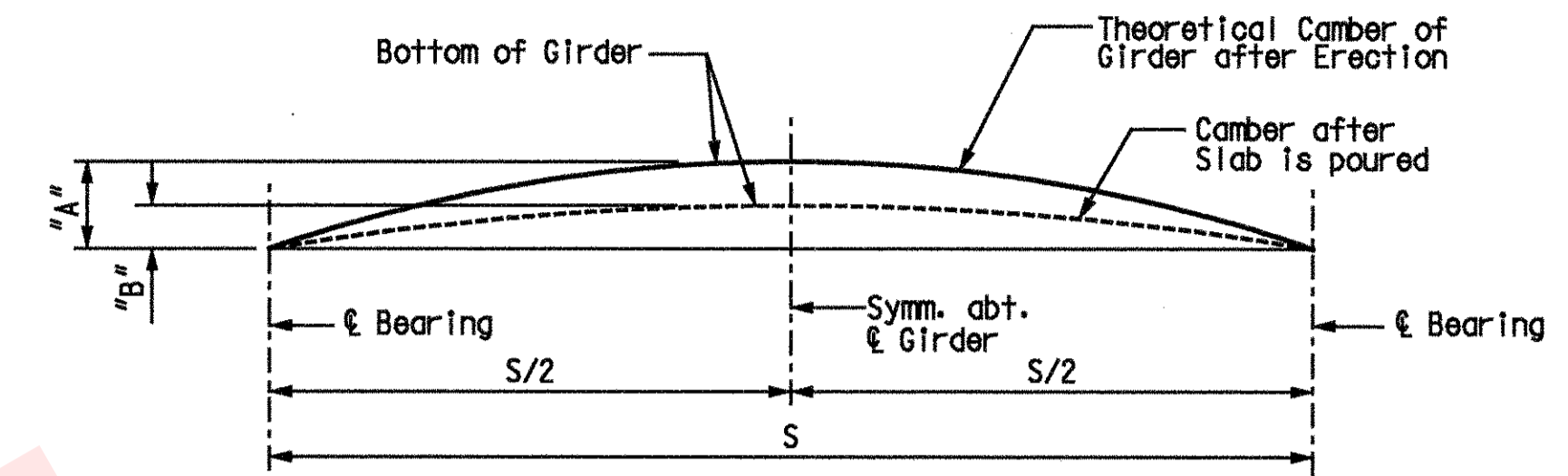
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310

TELEPHONE (816) 472-1201

08-MAR-2010 15:00



THEORETICAL SLAB HAUNCHING DIAGRAM

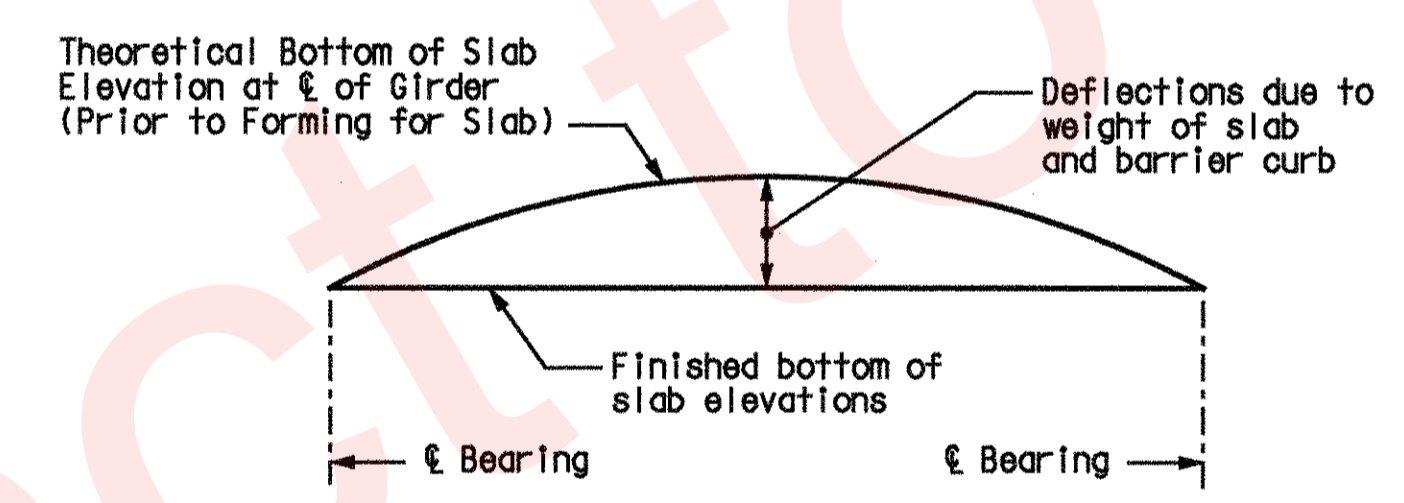


GIRDER CAMBER DIAGRAM

Conversion Factors for Girder Camber
0.1 PT.=0.314 x 0.5 PT.
0.2 PT.=0.593 x 0.5 PT.
0.3 PT.=0.813 x 0.5 PT.
0.4 PT.=0.952 x 0.5 PT.

GIRDER	SPAN (1-2)	
	"A"	"B"
A	3"	2 1/8"
B	3"	2 1/16"
C	3"	2 1/16"
D	3"	2 1/16"
E	3"	2 1/8"

Notes:
If Girder Camber is different from that shown in the Camber Diagram, it shall be necessary to adjust the slab haunches, increase the slab thickness or raise the grade uniformly throughout the structure. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.
Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete I-Girder.
Slab haunching values are given in inches.



TYPICAL SLAB ELEVATIONS DIAGRAM

Theoretical Bottom of Slab Elevations at CL of Girder (Prior to Forming for Slab) **											
	Span (1-2)										
	℄ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ brg.
Girder A	1035.05	1035.29	1035.53	1035.77	1036.02	1036.26	1036.51	1036.76	1037.00	1037.25	1037.50
Girder B	1034.26	1034.50	1034.75	1034.99	1035.23	1035.48	1035.73	1035.97	1036.22	1036.47	1036.72
Girder C	1033.48	1033.72	1033.96	1034.21	1034.45	1034.69	1034.94	1035.19	1035.43	1035.68	1035.93
Girder D	1032.70	1032.94	1033.18	1033.42	1033.66	1033.91	1034.15	1034.40	1034.65	1034.90	1035.15
Girder E	1031.91	1032.15	1032.39	1032.64	1032.88	1033.12	1033.37	1033.61	1033.86	1034.11	1034.36

** Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab and barrier curb.

THEORETICAL SLAB HAUNCHING DIAGRAM AND BOTTOM OF SLAB ELEVATIONS

STATE OF MISSOURI
GINA D. HORNER
NUMBER E-30413
REGISTERED PROFESSIONAL ENGINEER
EXPIRATION DATE 12/31/2010

DATE PREPARED
07/31/09

ROUTE
I-49

STATE
MO

DISTRICT
BR

SHEET NO.
18

COUNTY
McDONALD

JOB NO.
J7P0601

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A6380

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITAL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MODOT

105 WEST CAPITAL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HNTB

715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
TELEPHONE (816) 472-1201
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CERTIFICATE OF AUTHORITY
NO. 001270

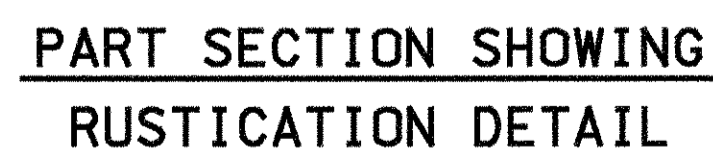
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Detailed JUL 2009
Checked AUG 2009

Note: This drawing is not to scale. Follow Dimensions.
Sheet No. 18 of 26

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Cost of plastic waterstop complete in place will be considered completely covered by the contract unit price for safety barrier curb.



Notes:
The cross sectional area above slab = 2.28 sq. ft. Right Barrier and 2.23 sq. ft. Left Barrier



(*) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)

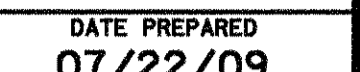
(**) The R3 bar and #5 bottom transverse slab bar in cantilever (P/S panels only) combination may be furnished as one bar as shown, at the contractor's option.



Notes:

- e.f. denotes each face.
- Use a minimum lap of 2'-11" for #5 horizontal barrier curb bars.
- Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.
- All exposed edges of safety barrier curb shall have either a $\frac{1}{2}"$ radius or a $\frac{3}{8}"$ bevel, unless otherwise noted.
- Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.
- Concrete in the safety barrier curb shall be Class B-1.
- Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of curb to end of curb.
- Concrete traffic barrier delineators shall be placed on top of safety barrier curb (Type C) as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb (Type C)".
- The curb shall be cured by application of Type 1-0 or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055.
- Surface sealing for concrete in accordance with Sec 703 is not required.
- Application of linseed oil at the contractor's expense is permitted.

SAFETY BARRIER CURB DETAILS



DISTRICT	SHEET NO.
BB	10

JOB NO.
175001

PROJECT NO.

A6380							
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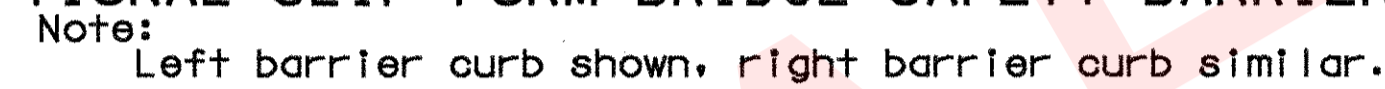


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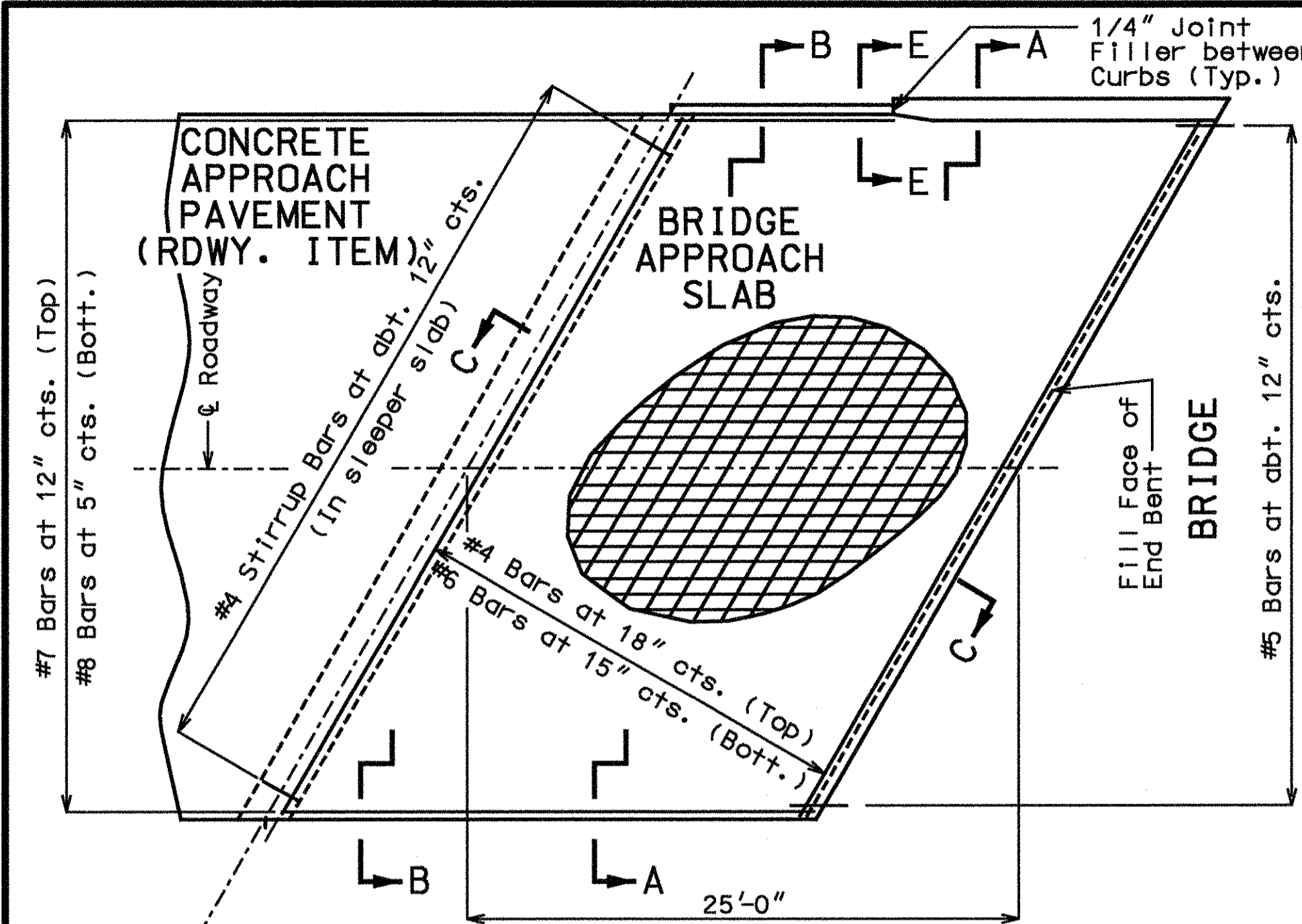
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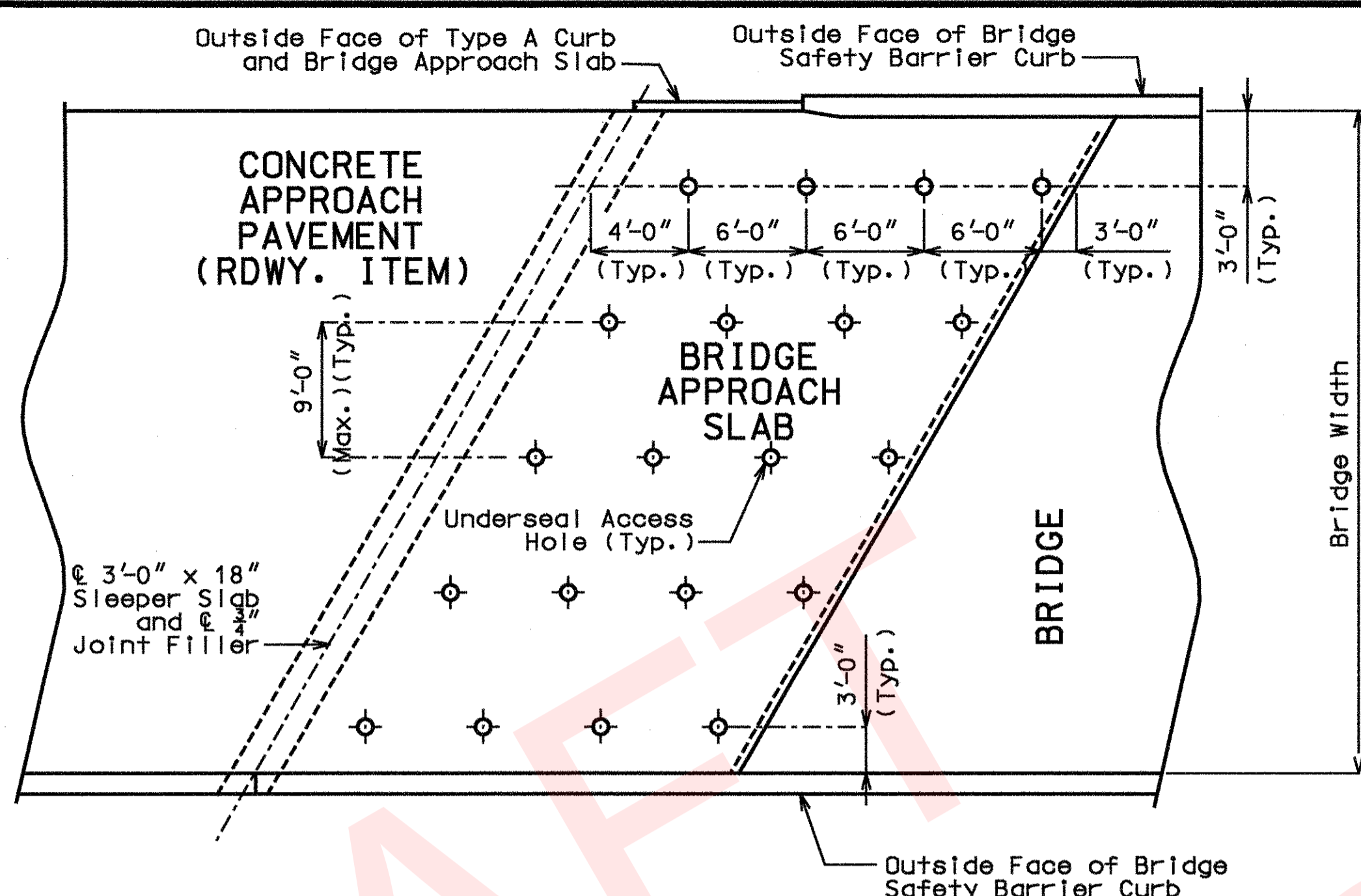
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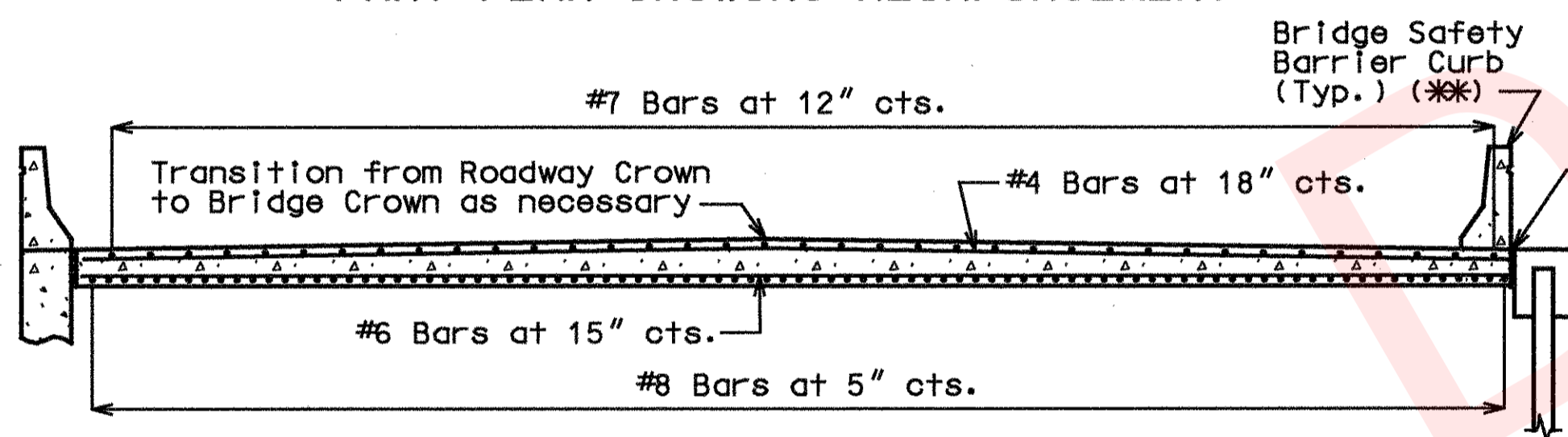
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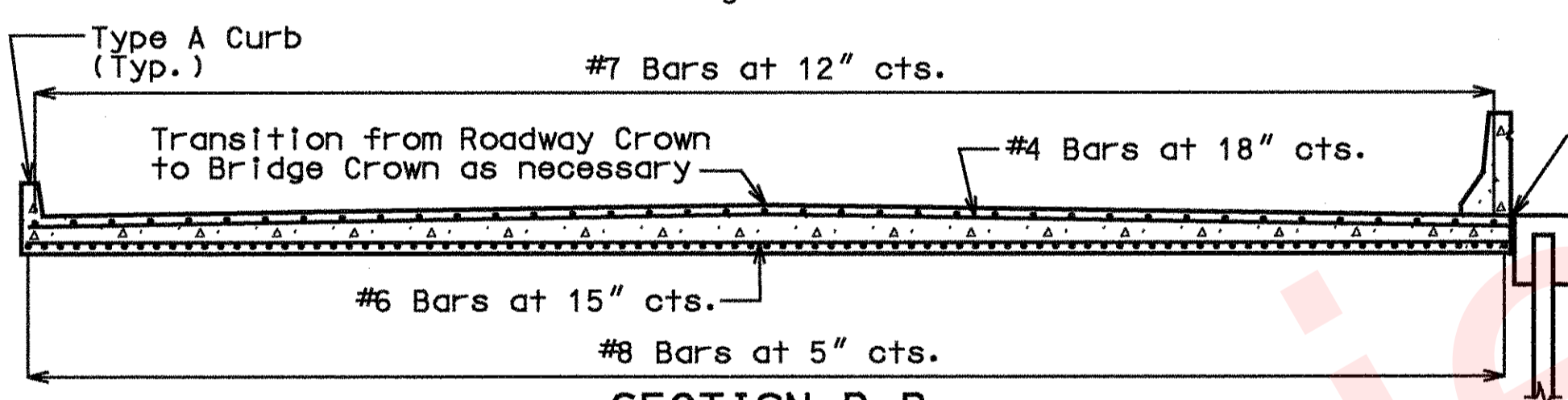
PART PLAN SHOWING REINFORCEMENT



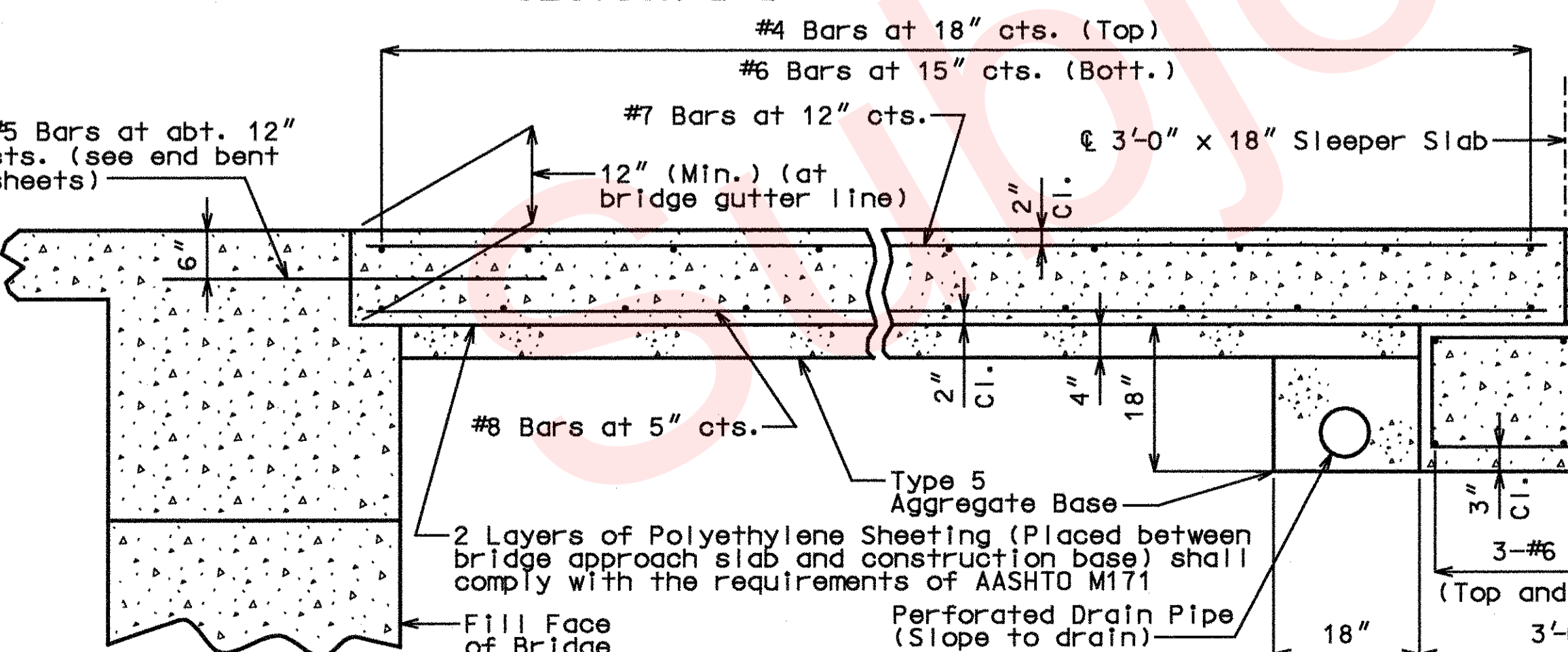
PART PLAN (SHOWING TYPICAL UNDERSEAL ACCESS HOLE LOCATIONS)



SECTION A-A
(*) For Safety Barrier Curb dimensions and reinforcing, see Sheet No. 19.

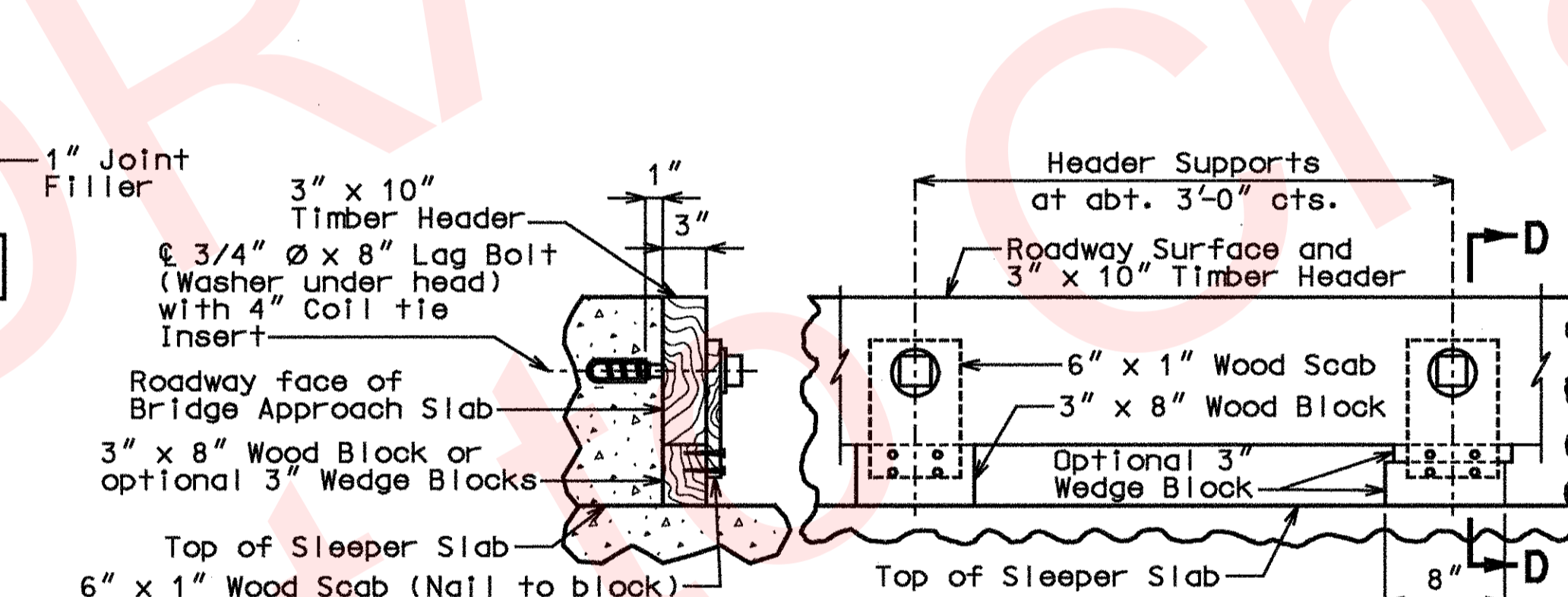


SECTION B-B



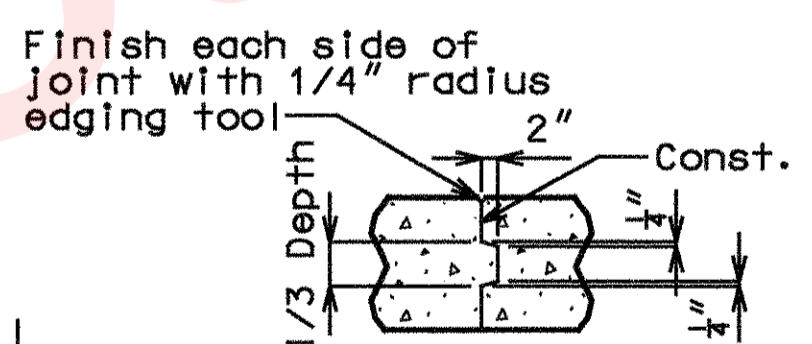
SECTION C-C

Note: This drawing is not to scale. Follow Dimensions.

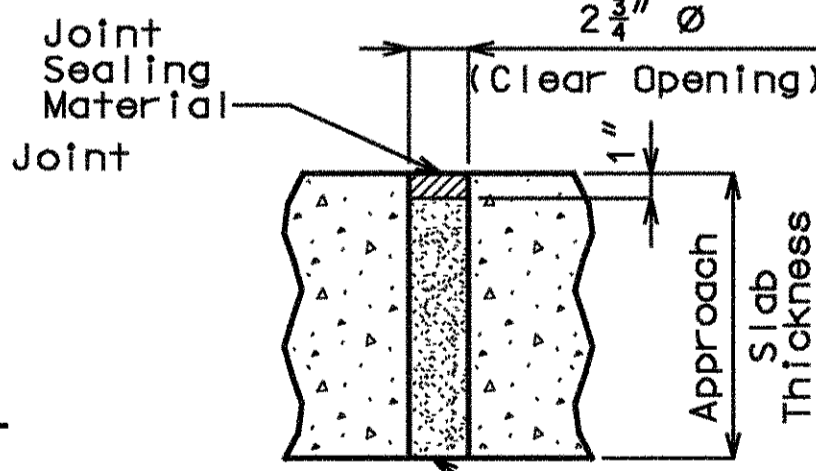


SECTION D-D
Note: Remove timber header when concrete pavement is placed.

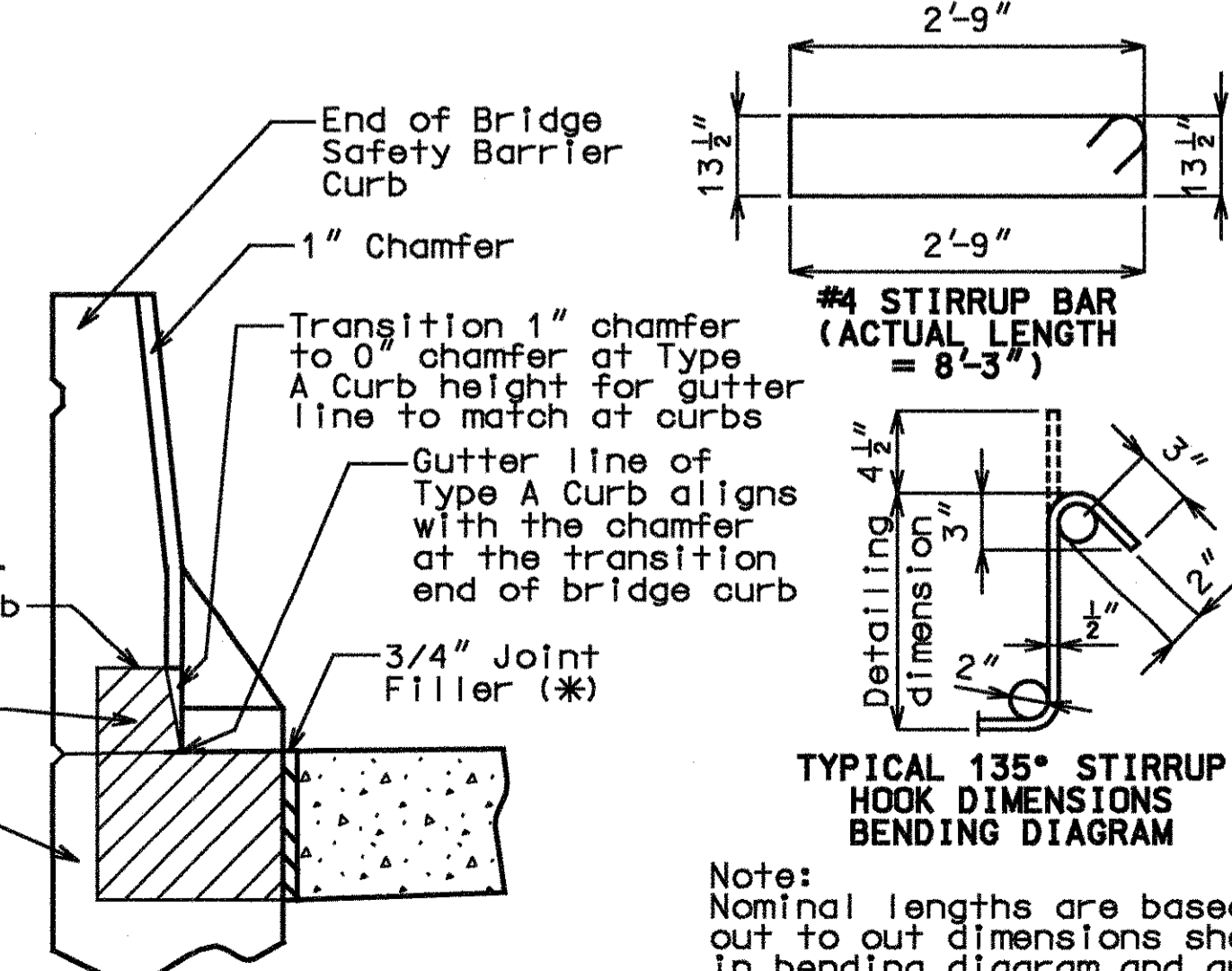
PART ELEVATION
DETAILS OF TIMBER HEADER



CONST. JOINT DETAIL
(IF REQUIRED)



TYPICAL UNDERSEAL
ACCESS HOLE DETAIL



SECTION E-E
(BETWEEN CURBS)

TYPICAL 135° STIRRUP
HOOK DIMENSIONS
BENDING DIAGRAM

Note: Nominal lengths are based on out to out dimensions shown in bending diagram and are listed for fabricators use (nearest inch).

GENERAL NOTES:

All concrete for the bridge approach slab and sleeper slab shall be in accordance with Sec 503 ($f'c = 4,000$ psi).

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler, except as noted.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be epoxy coated Grade 60 with $F_y = 60,000$ psi.

Minimum clearance to reinforcing steel shall be $1\frac{1}{2}$ ", unless otherwise shown.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by lap splicing the #4 & #6 bars 18" and 2'-2", respectively.

Mechanical bar splices shall be in accordance with Sec 706.

(*) Seal joint between vertical face of approach slab and wing with "Silicone Joint Sealant for Saw Cut and Formed Joints" in accordance with Sec 717.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

The contractor shall pour and satisfactorily finish the bridge or semi-deep slab before pouring the bridge approach slabs.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge or semi-deep slab.

Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Bridge) per square yard.

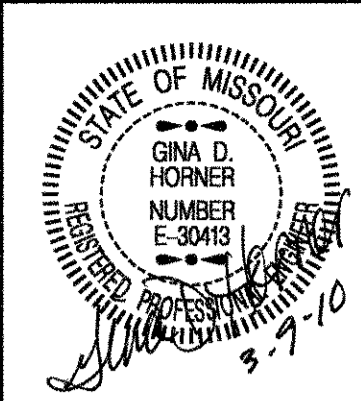
For Concrete Approach Pavement details, see roadway plans.

See Missouri Standard Plans Drawings 609.00 for details of Type A Curb.

At the contractor's option, Grade 40 reinforcement may be substituted for the Grade 60 #5 dowel bars connecting the bridge approach slab to the bridge abutment. No additional payment will be made for this substitution.

When Grade 40 reinforcement is substituted for the Grade 60 #5 dowel bars connecting the bridge approach slab to the bridge abutment, the reinforcement may be bent up to 90 degrees with a 2' minimum radius near the abutment to allow compaction of the backfill material near the abutment. Damage to epoxy coating shall be repaired in accordance with Sec 710.

Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.



DATE PREPARED
07/23/09

ROUTE
I-49

STATE
MO

DISTRICT
BR

SHEET NO.
22

COUNTY
McDONALD

JOB NO.
J7P0601

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A6380

DESCRIPTION

DATE

DESCRIPTION

DATE

DESCRIPTION

DATE

DESCRIPTION

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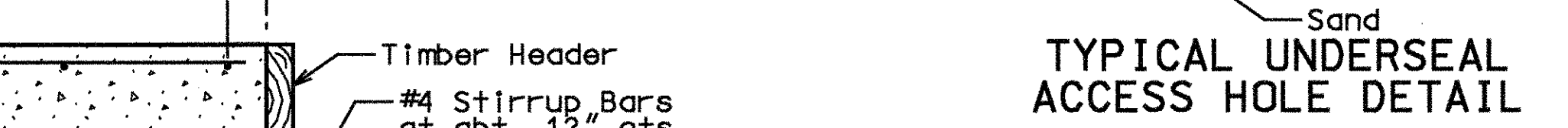
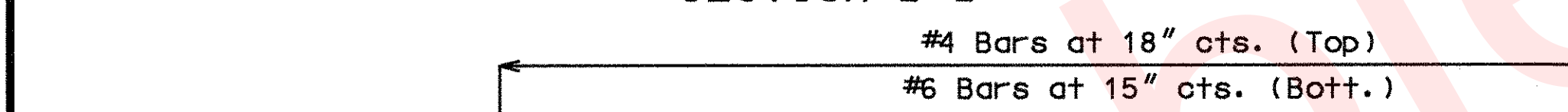
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DESCRIPTION

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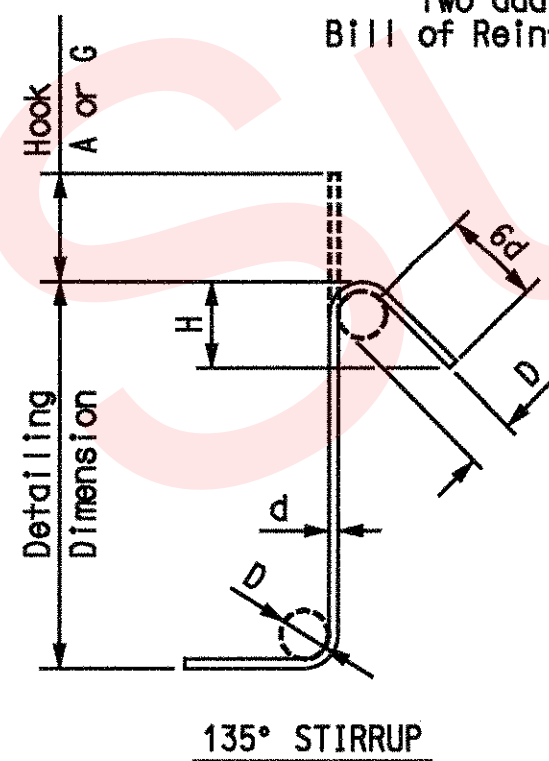
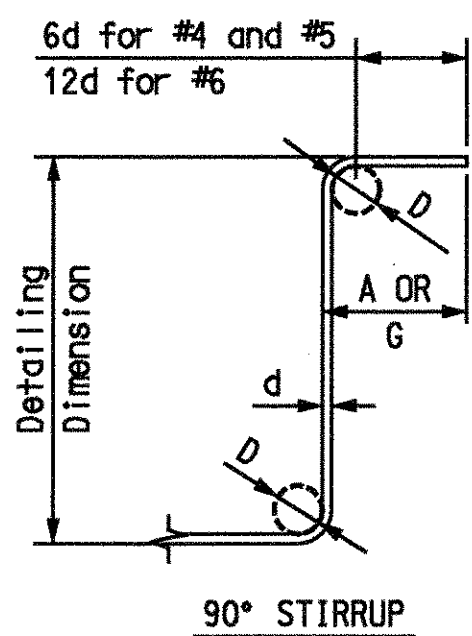


Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.

REV. : IF A SFA IS PRESENT ON HIS SHEET HAS BEEN CIRCUNCAIY SFAID AND JAFID.

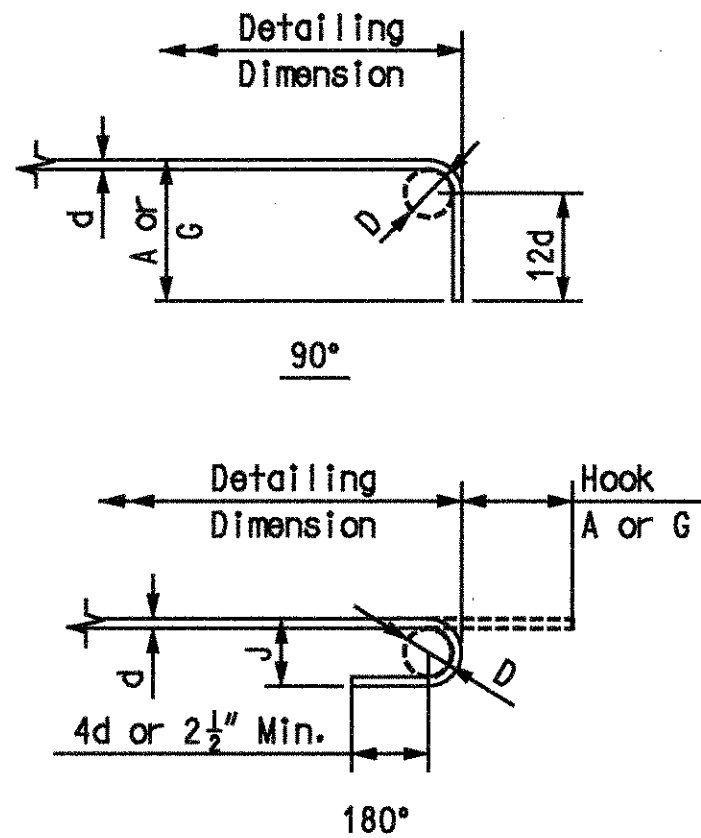
BILL OF REINFORCING STEEL																										
NO.	REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS												NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT		
										B		C		D		E		F		H					K	
										FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.
			SUPERSTRUCTURE																							
			END BENT 1																							
4		6H101	Diaphragm		20						3'-6"							3'-6"	3'-6"	21						
16		6H102	Diaphragm		20						8'-9"							8'-9"	8'-9"	210						
8		6H103	Diaphragm & Beam		20						57'-10"							57'-10"	57'-10"	695						
4		7H104	Diaphragm	E	20						57'-10"							57'-10"	57'-10"	473						
41		5H105	Diaphragm	E	20						2'-6"							2'-6"	2'-6"	107						
5		5H106	Diaphragm		23	S					15"	2'-0"	15"	10 1/2"	10 3/4"	10 1/2"	10 3/4"	4'-6"	4'-6"	23						
5		6H107	Diaphragm		38	S					8'-3"	3'-10"				2'-8"	2'-9"	12'-1"	12'-1"	91						
5		6H108	Diaphragm		2						5'-1"	3'-8"				2'-7 1/8"	2'-7 1/8"	8'-9"	8'-9"	66						
8		7H109	Beam		20						57'-10"							57'-10"	57'-10"	946						
12		6H110	Fillet		15	S					14"	3'-10"	14"	12 7/8"	5 3/8"	12 7/8"	5 3/8"	6'-2"	6'-2"	111						
2		8H111	Wingwall	E	20						17'-5"							17'-5"	17'-5"	93						
6		8H112	Wingwall		20						17'-5"							17'-5"	17'-5"	279						
22		6H113	Wingwall		20						16'-5"							16'-5"	16'-5"	542						
30		4H114	Bearing Pad		20						4'-7"							4'-7"	4'-7"	92						
4		6H115	Diaphragm		20						3'-0"							3'-0"	3'-0"	18						
19		5U101	Beam		53	S					3'-10"	2'-7"						13'-9"	13'-6"	268						
30		5U102	Beam		5	S					3'-10"	4'-10"	4'-10"					13'-6"	13'-3"	415						
40		5U103	Diaphragm	E	5	S					3'-2"	5'-4"	5'-4"					13'-10"	13'-7"	567						
40		6U104	Diaphragm		19	S					4'-4"	3'-10"						8'-2"	8'-1"	486						
6		5U105	Beam		5	S					3'-10"	2'-7"	2'-7"					9'-0"	8'-9"	55						
57		6U106	Diaphragm	E	19	S					3'-0"	14'-0"						17'-0"	16'-11"	1,448						
50		4U107	Bearing Pad		5	S					3'-9"	15"	15"					6'-3"	6'-1"	203						
20		5V101	Beam		20						4'-10"							4'-10"	4'-10"	101						
25		6V102	Diaphragm		20						4'-4"							4'-4"	4'-4"	163						
2		6V103	Wingwall		20						7'-9"							7'-9"	7'-9"	23						
30		6V104	Wingwall		20			V	2		7'-10"							7'-10"	7'-10"	366						
			Increment = 1/2"								8'-5"							8'-5"	8'-5"							

Notes:
Two additional #6-U106 are included in the Bill of Reinforcing Steel for testing.



STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

Note:
Unless otherwise noted, diameter "D" is the same for all bends and hooks on a bar.



END HOOK DIMENSIONS			
BAR SIZE	D (IN.)	ALL GRADES	
		180° HOOKS A OR G	90° HOOKS A OR G
#3	2 1/4"	5"	3"
#4	3"	6"	4"
#5	3 3/4"	7"	5"
#6	4 1/2"	8"	6"
#7	5 1/4"	10"	7"
#8	6"	11"	8"
#9	9 1/2"	15"	11 3/4"
#10	10 3/4"	17"	13 1/4"
#11	12"	19"	14 3/4"
#14	18 1/4"	2'-3"	2'-7"

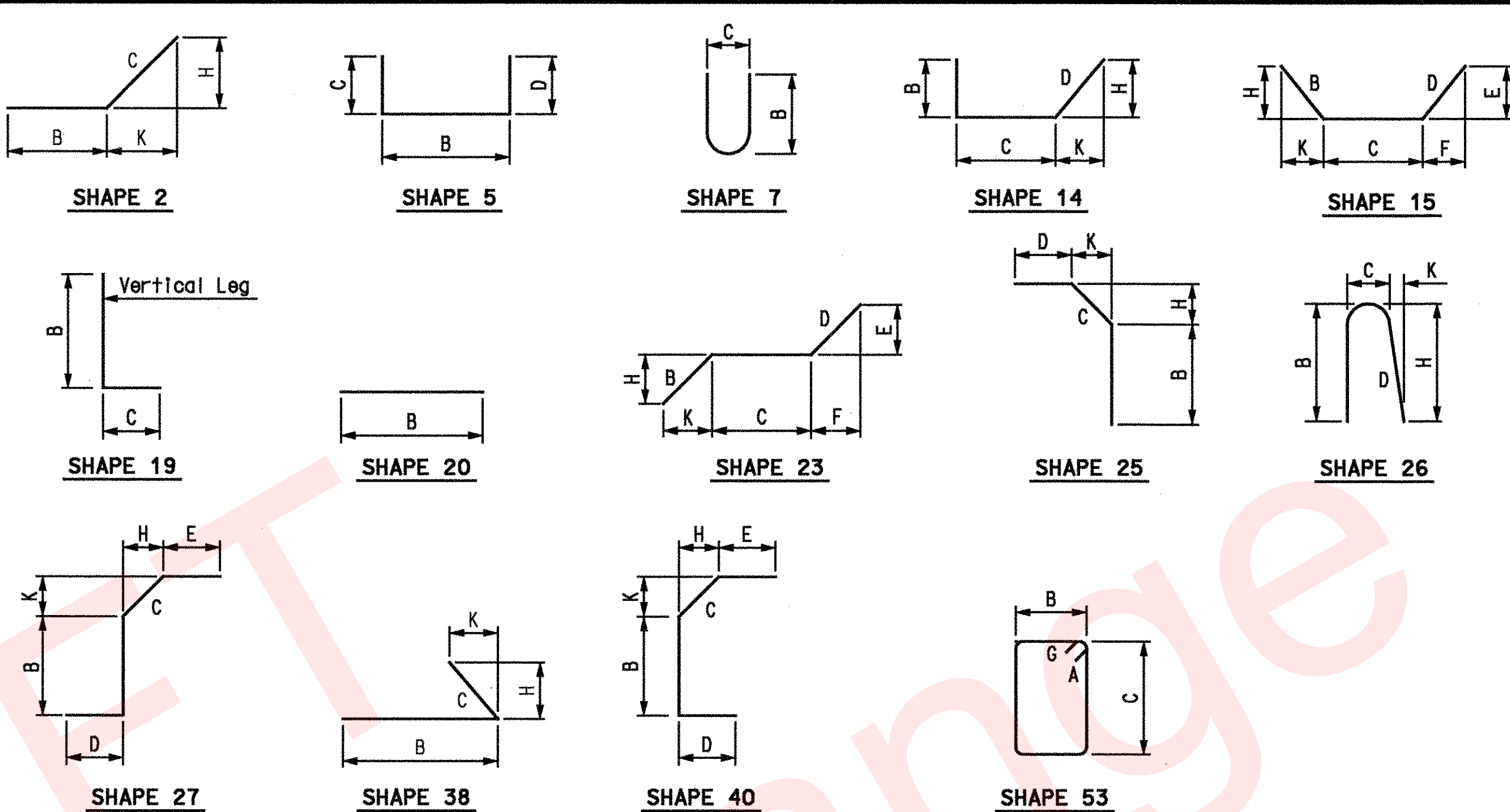
Notes:
All standard hooks and bends other than 180 degree are to be bent with the same procedure as for 90 degree standard hooks.
Hooks and bends shall be in accordance with the procedures as shown on this sheet.
E = Epoxy coated reinforcement.
S = Stirrup.
X = Bar is included in substructure quantities.
V = Bar dimensions vary in equal increments between dimensions shown on this line and the following line.
No. Each = Number of bars of each length.
Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed for fabricators use. (Nearest inch)
Actual lengths are measured along centerline bar to the nearest inch.
Payweights are based on actual lengths.
Reinforcing Steel (Grade 60) fy = 60,000 psi.

BILL OF REINFORCING STEEL

Checked AUG 2009
Detailed AUG 2009

Note: This drawing is not to scale. Follow Dimensions.

Sheet No. 24 of 26



STATE OF MISSOURI
GINA D. HORNER
NUMBER E-30413
2-9-10

DATE PREPARED
08/08/09
ROUTE I-49
DISTRICT BR
COUNTY McDONALD
JOB NO. J7P0601
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A6380

DESCRIPTION
DATE
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
HNTB
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY NO. 001270

105 WEST CAPITAL
JEFFERSON CITY, MO 65102
1-888-ASK-MDOT (1-888-275-6636)

IF A SFAI IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SFAID AND DATED.

Detailed AUG 2009
Checked AUG 2009

Sheet No. 25 of 26

Notes:
For Bar Bending Diagrams, see Sheet 24.
Two additional #7-H204, #8-H211, #5-K4, and #4-K14 are included in the Bill of Reinforcing Steel for testing.

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USER: TThompson

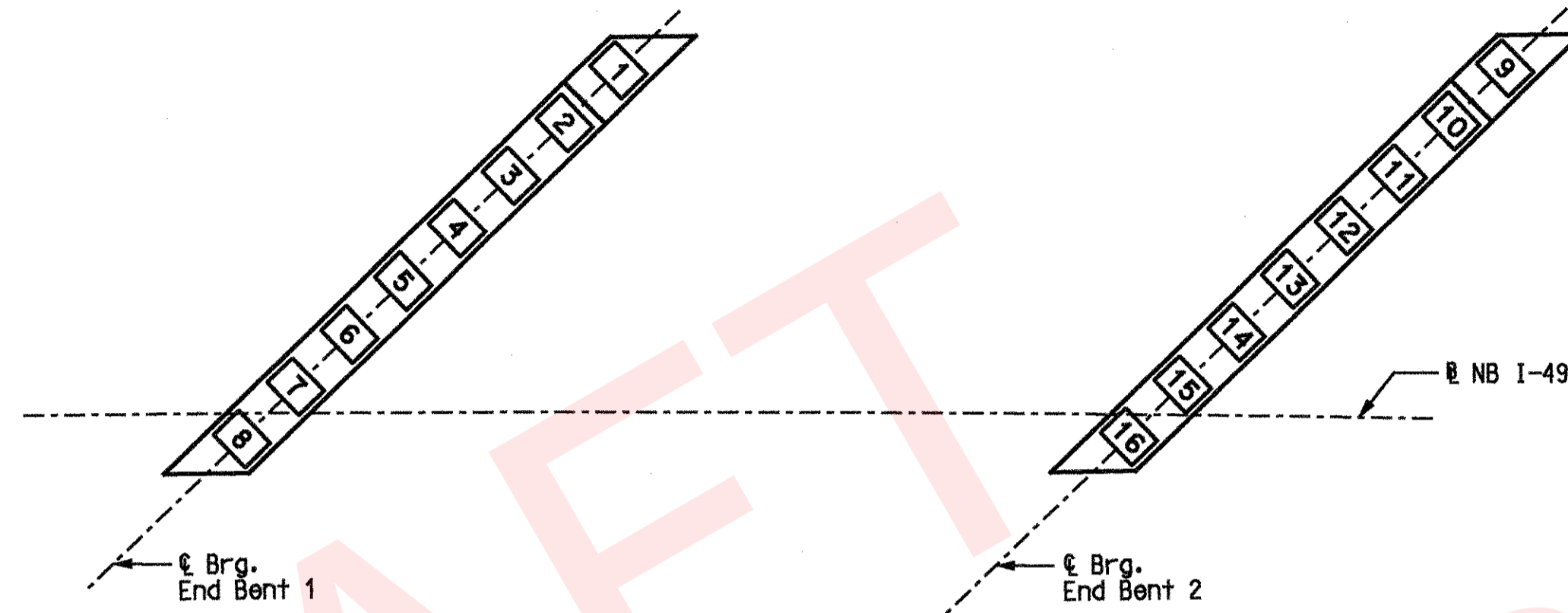
Detailed	JUL	2009
Checked	JUL	2009

Note: This drawing is not to scale. Follow Dimensions.

Sheet No. 26 of 26

\\kcow00\Jobs\49259\Bridges\Plans\CDtoMoDotA6380_03-05-10\J7P0601\A6380-dgn\ZPL0T_A30.dgn

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Notes:

Indicate in the remarks column:

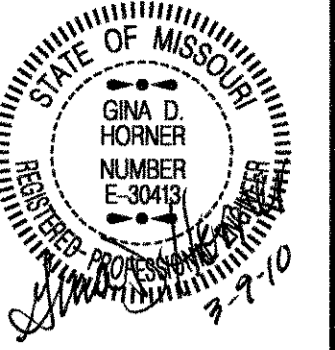
A. If pilings were driven to practical refusal.

B. If pile batter is other than shown on the Bent Detail Sheet.

C. Type of piling used.

NOTE:
THIS SHEET TO BE COMPLETED BY MoDOT
CONSTRUCTION PERSONNEL.

AS-BUILT PILE DATA



DATE PREPARED
07/23/09

ROUTE	STATE
-49	MO

DISTRICT BR	SHEET NO. 26
----------------	-----------------

COUNTY
McDONALD

JOB NO.
J7P0601

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A6380

[illegible]

HNTB
7115 KIRK DRIVE
KANSAS CITY, MO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270

IF A STAR IS FINISHED ON THIS SHEET IT HAS BEEN ELECTRONICALLY STARRED AND DATED.

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