

# CITY OF OVERLAND PARK, KANSAS

## METCALF AVENUE BRIDGE REDECKING METCALF AVENUE OVER BLUE RIVER

### CARS PROJECT NO. 320000947

### DESIGN SPEED 55 M.P.H. (POSTED 45 M.P.H.)

### 2010 TRAFFIC CENSUS 5346 VEHICLES PER DAY

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Utility Note:  
Utilities shown are from Kansas One-Call locations and available utility company maps. Locations shown should not be considered perfectly accurate or complete and should be verified in the field prior to any construction.

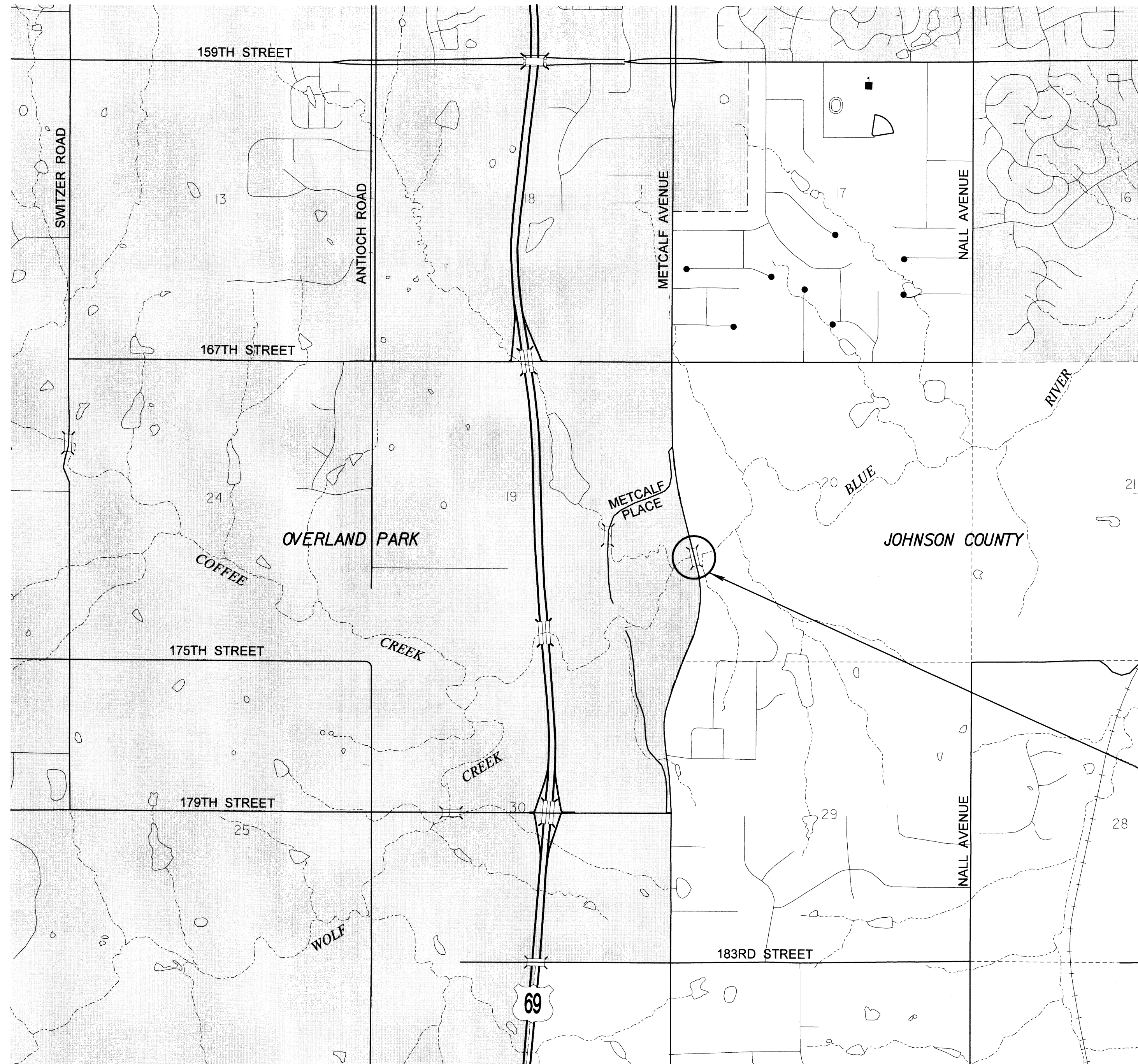
#### UTILITY CONTACTS

Gas - Kansas Gas Service  
(913) 599-8981

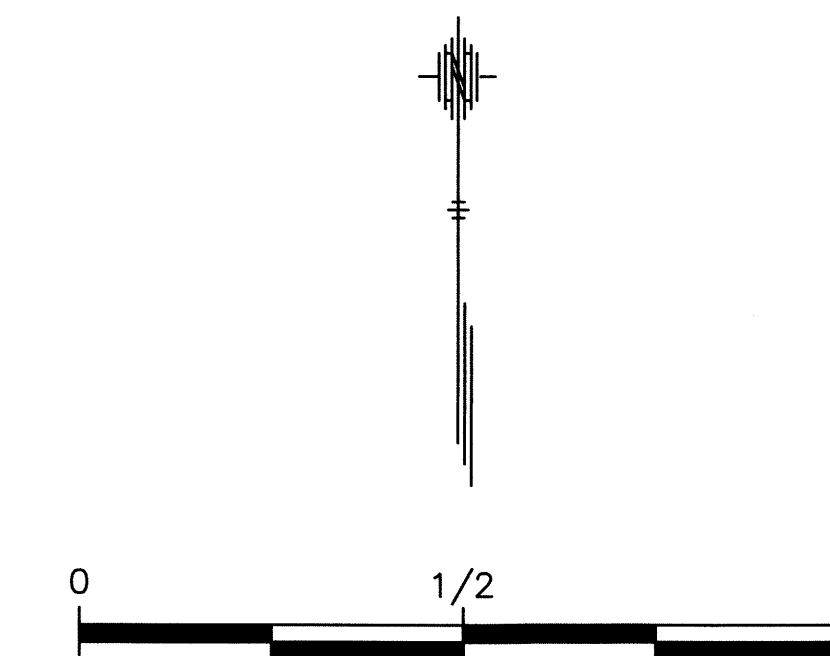
Telephone - AT&T  
913-383-4858

Sewer - Johnson County Wastewater District  
(913) 715-8684

Cable TV & - Time Warner Cable  
Telephone (913) 643-1979



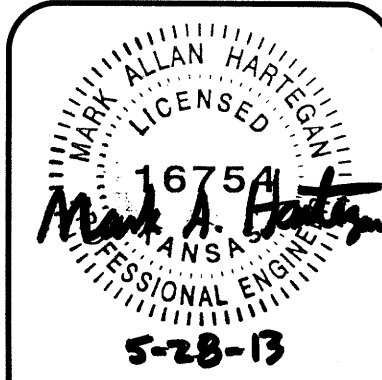
### VICINITY MAP



PROJECT LOCATION

Approved By:  
*Scott Page for Brian Pickett* 5/30/13  
Date  
Johnson County Public Works Department  
Interim Director/County Engineer

Approved By:  
*Dan Gifford* 5/24/13  
Date  
City of Overland Park, Kansas  
City Engineer



**LOCHNER**  
903 East 104th Street | Suite 800 | Kansas City, MO 64131

CITY OF OVERLAND PARK, KANSAS  
METCALF BRIDGE REDECKING  
METCALF AVENUE OVER BLUE RIVER

PROJECT NO.	BR-1377
DRAWN BY	JTC 11/2012
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 11/2012
REVISIONS	DATE

ISSUE DATE

TITLE SHEET

# 1

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## GENERAL NOTES

**EXCAVATION:** Elevation 887.6 shall designate the Excavation Boundary Plane of Class I and Class II Excavation; Class I above the plane, Class II below the plane. See the Construction Layout and Bridge Excavation sheet for the pay limits of Class I Excavation. All other excavation shall be Unclassified Excavation.

**BACKFILL COMPACTION:** Compact backfill at the abutments.

**CONCRETE:** All bridge and approach slab concrete shall be KCM MB 4K Concrete. Concrete shall be air entrained. Bevel all exposed edges of all concrete with a 3/4" triangular molding, except as otherwise noted on the plans. Construction Joints are optional with the Contractor, but if used, place only at locations shown, or at locations approved by the Engineer.

**CONCRETE PLACING:** Place and hand vibrate all concrete for the abutments to the bottom of deck elevation just prior to the normal paving train operations. Do this work in a manner to avoid cold joints in either the slab or in the abutment.

**CONCRETE PLACING SEQUENCE:** The Contractor shall place concrete from end of wearing surface to end of wearing surface with no option for construction joints without prior approval from the Engineer.

**CONCRETE FINISHING:** Finish the bridge deck with a rough burlap drag.

**CORRAL RAIL:** Build the corral rail after the falsework is struck.

**REINFORCING STEEL:** All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60. Where noncoated bars come in contact with epoxy coated bars, they need not be coated.

**MECHANICAL BAR SPLICES:** Mechanical bar splices shall be *subsidiary* to other items of the contract.

**PILING:** All abutment piles shall be driven to penetrate or bear upon the shale formation. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. All piles shall be driven to a minimum computed bearing value of 37 tons/pile.

**BROKEN CONCRETE:** Waste the broken concrete from the existing bridge on sites provided by the Contractor and approved by the Engineer.

**DRILLING AND GROUTING:** This item shall consist of grouting reinforcing steel, anchor bolts, tie bars, or dowel bars into the existing concrete, where required by the Engineer, with an epoxy grout. Follow KDOT Specifications 842 and any associated Special Provisions. Follow the manufacturer's directions for mixing, application and curing. The tools, materials, labor and incidentals necessary to complete the work shall be *subsidiary* to other items of the contract.

**TEMPORARY SHORING:** The bid item "Temporary Shoring" includes all labor and material necessary to design and furnish shoring/falsework for the temporary bracing of the structure during work on the bridge. Shoring/falsework shall be in place supporting the existing concrete girders prior to removal of the existing bridge deck. Maintain the shoring/falsework until the Engineer authorizes its removal.

The shoring/falsework plans are to be designed and sealed by a registered Professional Engineer. Submit design calculations and shoring plans to the Field Engineer for review 3 weeks before work is scheduled to begin. Work shall not begin until the Engineer grants approval.

**FALSEWORK PLANS:** A licensed Professional Engineer shall design the falsework details. Details shall bear the seal of a licensed Professional Engineer. See the KDOT Bridge Design Manual, Section 5.1 "Review and Approval of Falsework Plans", for a listing of items to be included on the falsework plan. Submit electronic plans conforming to Section 105.10(b) of the KDOT Standard Specifications with details in compliance with KDOT Specifications to the Field Engineer for review.

**FALSEWORK INSPECTION:** This project has falsework plan requirements which are considered "Category 2" by KDOT specifications. If falsework deficiencies or variations from the approved and sealed plans are found, the falsework design Engineer of Record will provide written approval of the changes. If for the convenience of the Contractor the falsework becomes "Category 1" by the use of non-typical supports; then the inspection and review requirement of "Category 1" will be fully enforced, but at no cost to the City. "Category 2" falsework inspection is not paid for directly, but is *subsidiary* to other bid items.

**EXISTING DIMENSION VERIFICATION:** Dimensions of the existing structure are based on old plans. Verify, by field measurement, the as-built dimensions of the existing structure and submit such verification in writing to the Engineer. The verification will include sketches, drawings, photographs and descriptions as needed to clearly define the as-built dimensions that will be incorporated in the new construction.

**REMOVAL OF EXISTING STRUCTURE:** This item shall include removal of the existing concrete deck and abutments to the limits shown on the plans. This item also includes removal of the existing drain inlets and removal of the existing roadway pavement (Full Depth) in both areas of new Concrete Bridge Approach Pavement.

Care shall be taken to minimize the amount of rubble that falls into the streambed. The Contractor will be required to clean the streambed of any rubble caused by these operations as directed by the Engineer.

Care should be exercised to prevent cutting, stretching or damaging exposed reinforcing steel. Extreme care should be exercised to avoid breaking the bond between the reinforcing steel and concrete where bars are partially exposed yet remain anchored in sound concrete. Reinforcing steel damaged, cut or deteriorated shall be replaced as directed by the Engineer. Do not wedge chipping hammer bit against reinforcement. Replacement of bars damaged by the Contractor shall be *subsidiary* to other items of the contract.

Before new concrete is placed, sandblast all existing reinforcing steel exposed during concrete removal.

All materials removed from the existing structure shall become the property of the Contractor and removed from the site.

**DRAIN INLETS:** Contractor shall remove the four existing drain inlets and fill/plug the existing CMP pipe with flowable fill. The material, equipment and labor necessary to remove and plug the existing drains shall be *subsidiary* to the bid item "Removal of Existing Structures".

**SLOPE PROTECTION (Shot Rock):** Place Slope Protection (Shot Rock) to the limits and thicknesses shown on the plans or as directed by the Engineer.

**CONCRETE RUBBLE:** The amount of suitable concrete rubble available for slope protection is approximate and is furnished only as an aid to the Contractor.

Concrete Rubble = 145 C.Y.

**TEMPORARY CONSTRUCTION LOADS:** The Contractor shall not stock pile construction materials, debris/rubble or place equipment weighing more than 20 tons on the bridge without prior written approval by the Engineer. The Contractor's Engineer will use AASHTO Specifications for limitations on structural capacities, as the structure is found in the field.

**CONSTRUCTION LOADS:** Limited traffic is permitted on the new one-course deck during the curing period. Keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Tables 710-1 & 710-2 for additional information.

**NATURAL GAS LINE HANGER INSERTS:** The Contractor shall install hanger inserts for the natural gas line in the bridge deck prior to pouring the deck. The inserts will be provided by Kansas Gas Service. The first three hangers near each abutment shall be placed at 12 inch centers. The remaining hangers shall be installed at 10 foot centers.

**TEMPERATURE:** The design temperature for all dimensions is 60 F.

**QUANTITIES:** Items not listed separately in the Summary of Quantities are *subsidiary* to other items in the proposal.

**DIMENSIONS:** All dimensions shown on the design plans are horizontal dimensions unless otherwise noted. Make necessary allowances for roadway grade and cross slope.

**TEMPORARY STREAM CROSSING:** The Contractor may elect to construct a temporary stream crossing for ease of operations. The crossing shall be an open span type structure, so as to comply with the Corps of Engineers nationwide permit (NWP) 14 obtained for this project. Pipes placed in the river covered with fill will not be allowed. See the Temporary Stream Crossing detail on the Contour Map sheet for additional requirements.

Area disturbed to construct a temporary stream crossing shall be restored to equal or better conditions than before construction. The flow line shall be re-established, and all fill material shall be removed from the channel. Disturbed areas above ordinary high water mark shall be reseeded.

The Contractor shall construct the temporary stream crossing in such a manner as to reasonably prevent decking and/or beams from washing down the river in the event of significant rainfall.

All work associated with designing, constructing and maintaining temporary stream crossing shall be *subsidiary* to other items of the contract.

SUMMARY OF QUANTITIES		
Item	Quantity	Unit
Force Account (Set)	1	L.S.
Maintenance Bond	1	L.S.
Clearing & Grubbing	1	L.S.
Removal of Existing Structures	1	L.S.
Unclassified Excavation	149	Cu. Yds.
Class I Excavation	53	Cu. Yds.
Embankment (Contractor Furnished)	942	Cu. Yds.
Compaction of Earthwork	888	Cu. Yds.
Asphaltic Concrete (Overland Park Mix)	262	Tons
Milling (Total Width)(2'X)Depth Transitions)	1,070	Sq. Yds.
Aggregate Base Course (AB-3 O.P. Modified)	296	Sq. Yds.
KCM MB 4K Concrete	252.4	Cu. Yds.
Concrete Pavement (12" Uniform)(Bridge Appr.)	272	Sq. Yds.
Bridge Approach Slab Footing	17.8	Cu. Yds.
Reinforcing Steel (Grade 60)(Epoxy Coated)	74,060	Lbs.
Piles (Steel)(HP 10X42)	152	Lin. Ft.
Abutment Strip Drain	37	Sq. Yds.
Bridge Backwall Protection System	43	Sq. Yds.
Temporary Shoring	1	L.S.
Slope Protection (Shot Rock)	129	Cu. Yds.
Removal of Existing Guardrail	863	Lin. Ft.
Guardrail (Steel Plate)(MGS)	906	Lin. Ft.
Guardrail End Terminal (MGS)	4	Each
Object Marker (Type 3)	4	Each
Traffic Control	1	L.S.
Permanent Pavement Markings	1	L.S.
CARS Sign	2	Each
Temporary Erosion Control	1	L.S.
Seed	1	L.S.
Contractor Construction Staking	1	L.S.
Control Point (Vertical)(Reset)	1	Each

**DESIGN DATA:**

**DESIGN SPECIFICATIONS:** AASHTO Specifications, 2002 Edition and latest Interim Specifications. Load Factor Design

**DESIGN LOADING: (Existing Concrete Girders)**  
H20-S16-44 AASHTO Specifications, Edition of 1957  
Design Dead Load includes no allowances for a future wearing surface.

**DESIGN LOADING: (New Concrete Deck)**  
HS20-44  
Design Dead Load includes an allowance of 15 psf for a future wearing surface.

**UNIT STRESSES: (New Construction)**  
Concrete (KCM MB 4K)  $f'c = 4$  ksi  
Reinforcing Steel (Grade 60)  $f_y = 60$  ksi  
Structural Steel (Grade 50)  $F_y = 50$  ksi

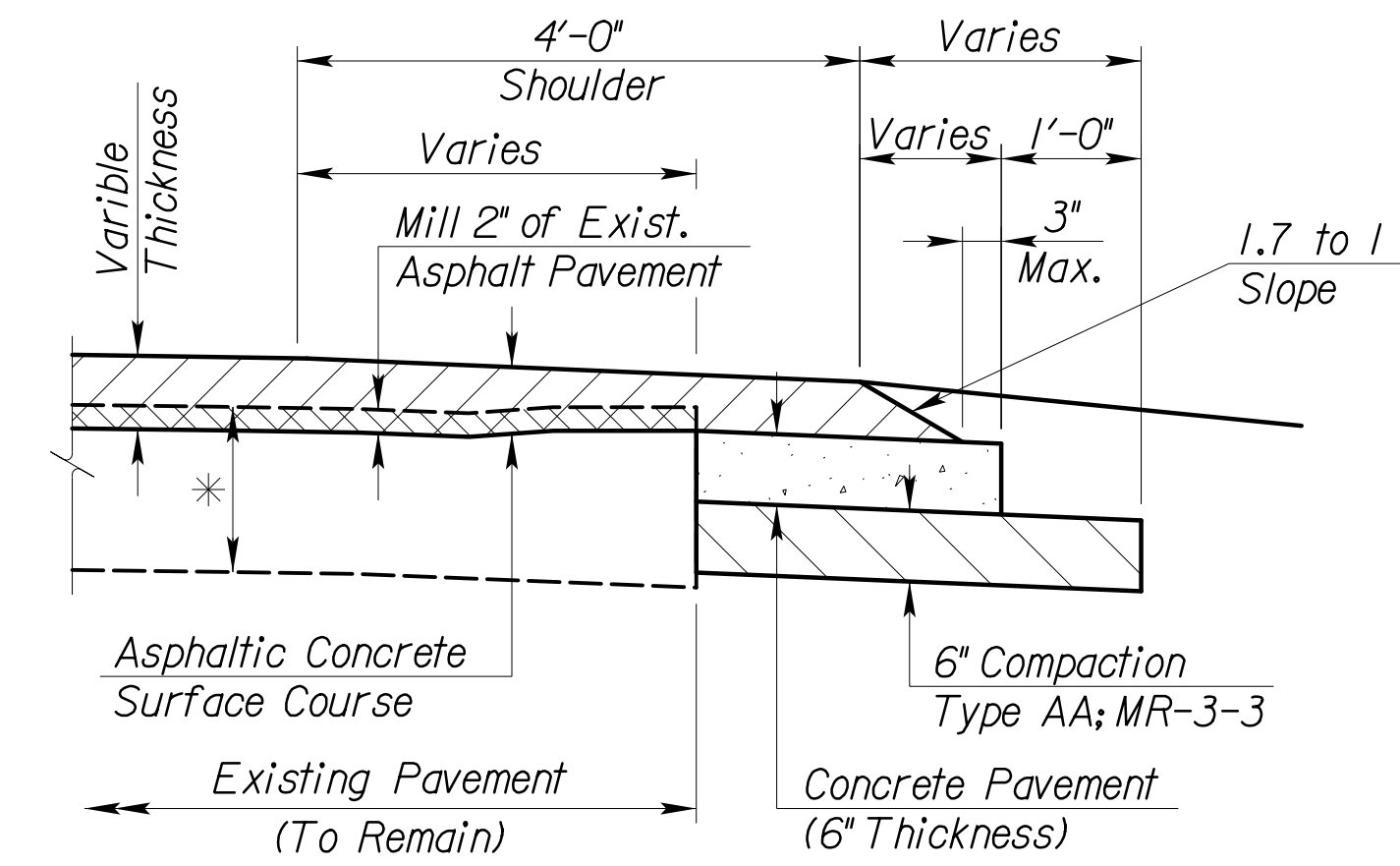
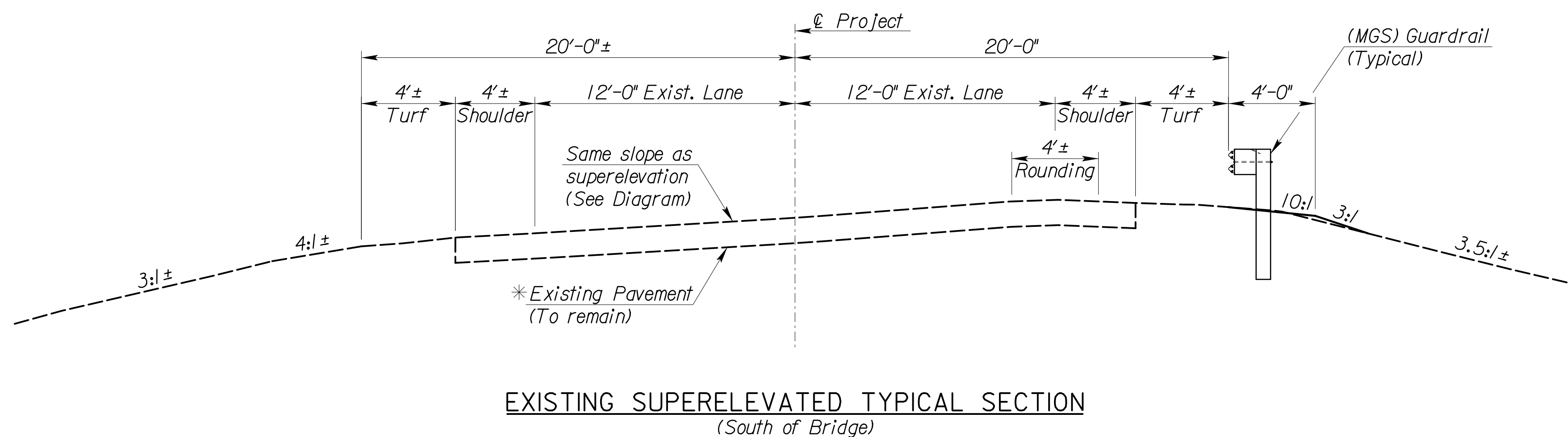
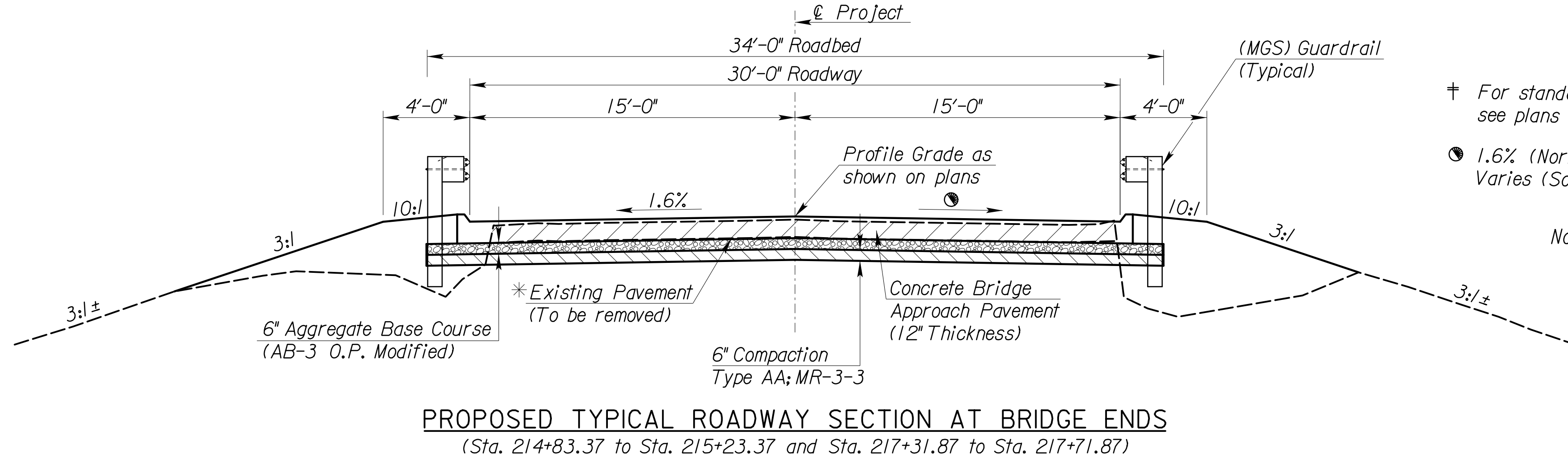
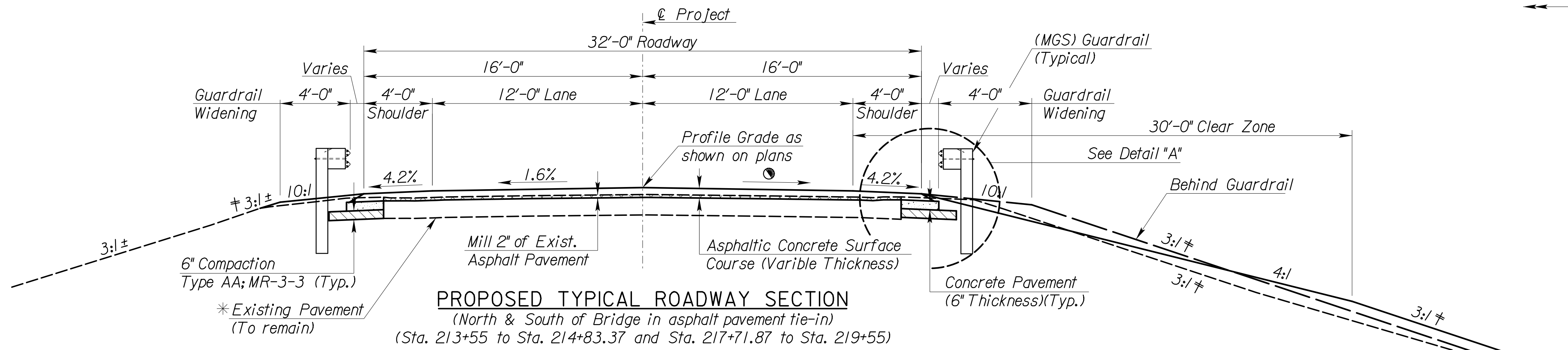
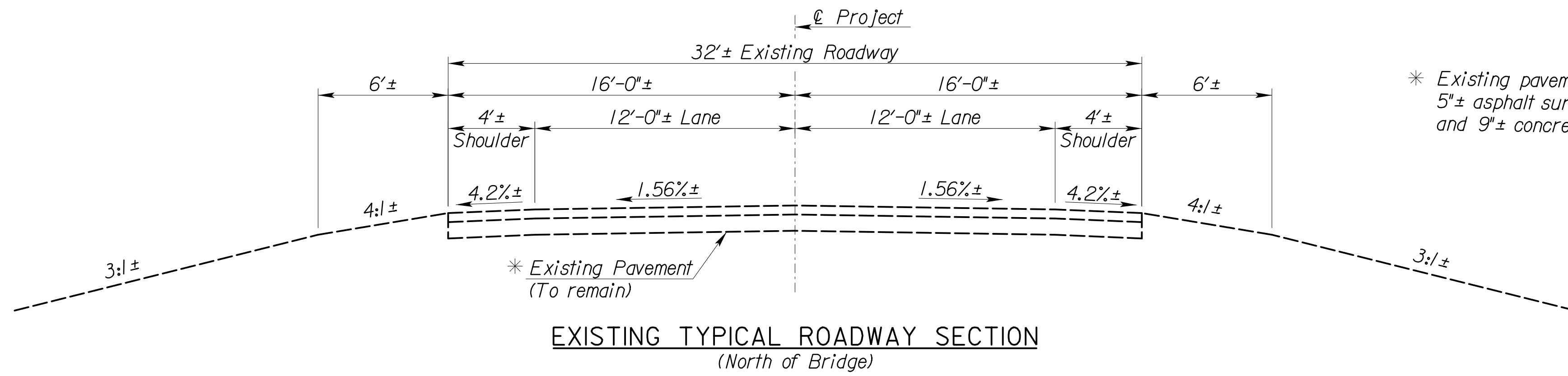
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**CITY OF OVERLAND PARK, KANSAS**  
**METCALF BRIDGE REDECKING**  
**METCALF AVENUE OVER BLUE RIVER**

PROJECT NO.	BR-1377
DRAWN BY	RCL DATE 1/2013
CHECKED BY	MAH DATE 2/2013
DESIGNED BY	TMR DATE 1/2013
REVISIONS	DATE

**GENERAL NOTES AND QUANTITIES**

2



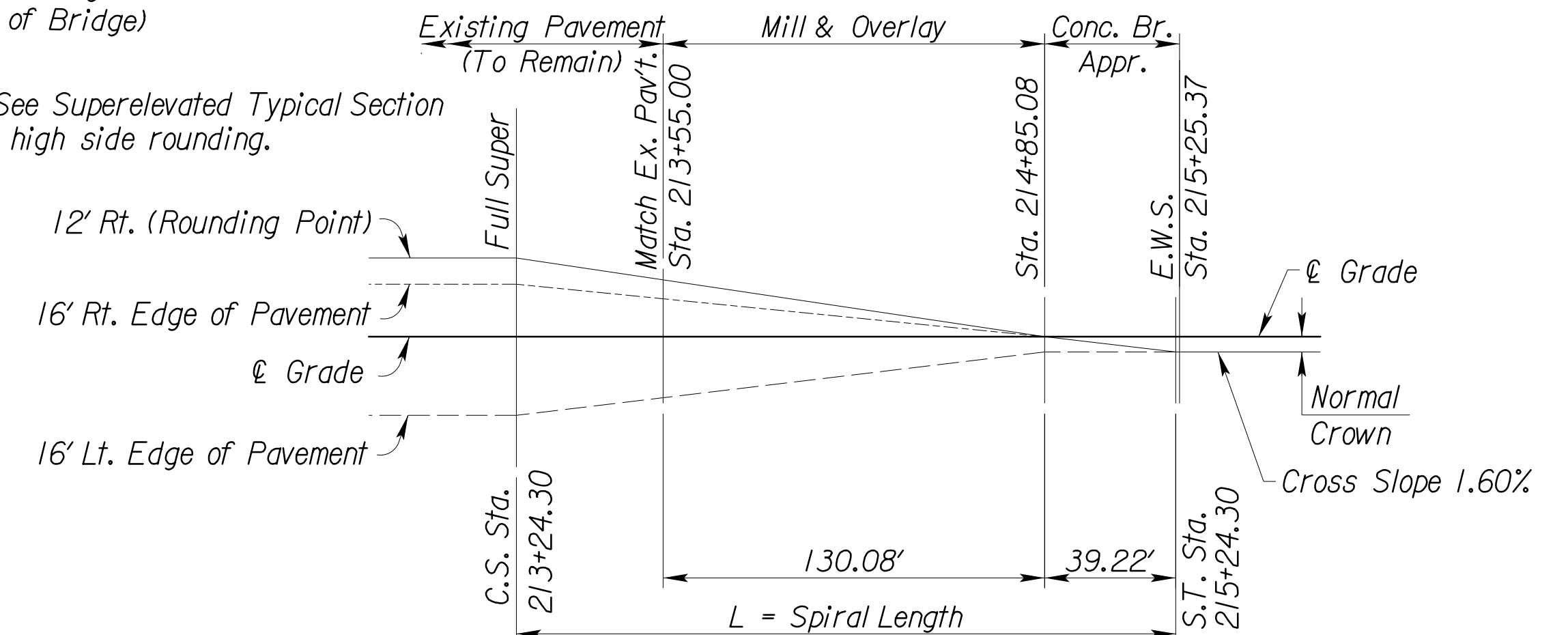
**DETAIL "A"**

**GENERAL NOTES**

Compaction:  
Compaction shall be Type B; MR-90 except where noted.

- ± For standard dimensions and slopes, see plans and cross-sections.
- 1.6% (North of Bridge)  
Varies (South of Bridge)

Note: See Superelevated Typical Section for high side rounding.



**PROFILE SHOWING METHOD OF ATTAINING SUPERELEVATION**

Sta. P.I. Curve	Radius	Design Speed	Super %	Transition - (Lin.Ft.)		
				L	A	B
208+38.11 Bk.	1909.859'	55 mph	8.0	200	-	-

PROJECT NO.	BR-1377
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HCP #1 - Sta. 205+34.33; 29.14' Rt. Elev. 958.26  
 N= 192,225,9870 E= 2,262,131,8900  
 1. Set 3/8" Bar & "LOCHNER 236" Cap, Flush  
 2. Mag Nail & Washer in Fog Line N.B. Metcalf 26.0' S.W.  
 3. Mag Nail & Washer in Fog Line N.B. Metcalf 22.60' N.W.  
 4. Delineator Post 24.95' South  
 5. Centerline of Metcalf Avenue 30.3' West

HCP #2 - Sta. 210+18.08; 30.57' Rt. Elev. 933.48  
 N= 192,715,1700 E= 2,262,160,0930  
 1. Set 3/8" Bar & "LOCHNER 236" Cap, Flush  
 2. Mag Nail & Washer in Top Guard Rail Post 26.25' N.N.W.  
 3. Mag Nail & Washer in Top Guard Rail Post 15.75' S.W.  
 4. Delineator Post 34.80' S.S.W.  
 5. Centerline of Metcalf Avenue 32.0' West

T.S. Sta. 201+28.74  
 N= 191,841,8268 E= 2,261,991,7110  
 1. Alignment Point not recovered (Office Set)  
 2. No other references available.

P.I. Sta. 202+62.09 (Bk.) = Sta. 202+62.06 (Ahd.)  
 N= 191,967,4859 E= 2,262,036,3504  
 1. Alignment Point not recovered (Office Set)  
 2. No other references available.

S.C. Sta. 203+28.74  
 N= 192,031,4050 E= 2,262,055,3535  
 1. Alignment Point not recovered (Office Set)  
 2. No other references available.

P.I. Sta. 208+38.11 Bk. = Sta.  
 N= 192,519,6519 E= 2,262,200,5090  
 1. Found 1/2" Bar, 0.1' above ground  
 2. 60d Nail in top of south end post of east Guard Rail 77.23' W.S.W.  
 3. East R/W Fence Line (at 90° to fence) 30.4' E.S.E.  
 4. Mag Nail & "LOCHNER 2012" washer in SE face of Oak Tree 2.15' N.W.  
 5. Mag Nail & "LOCHNER 2012" washer in N. face of Oak Trees 10.75' South  
 6. Mag Nail & "LOCHNER 2012" washer in W. face of Oak Tree 4.15' East

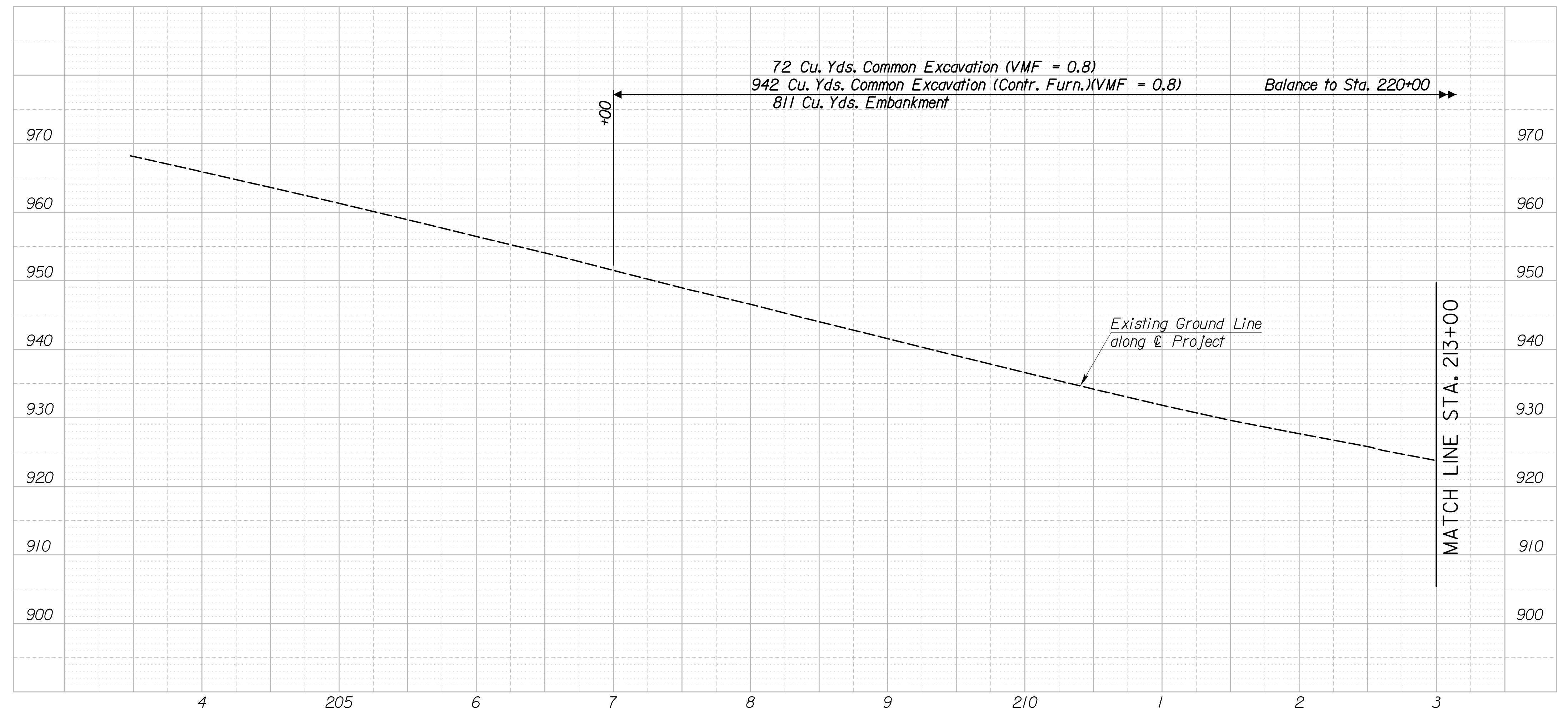
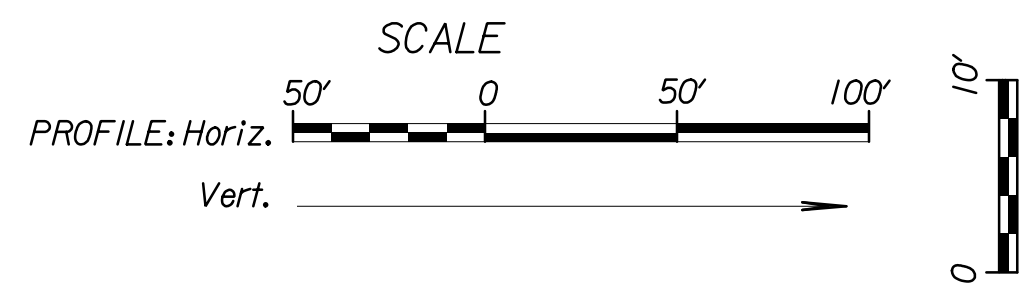
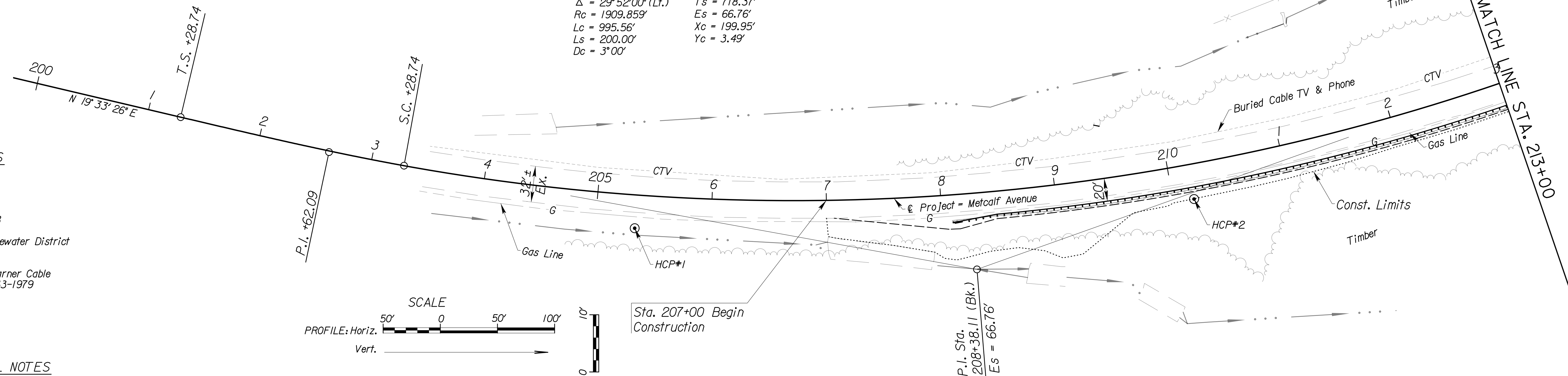
CURVE DATA (Chord Def.)  
 P.I. Sta. 208+38.11 (Bk.) = Sta. 208+14.93 (Ahd.)  
 $\Delta = 29^{\circ}52'00''$  (Lt.)  $Ts = 718.37'$   
 $Rc = 1909.859'$   $Es = 66.76'$   
 $Lc = 995.56'$   $Xc = 199.95'$   
 $Ls = 200.00'$   $Yc = 3.49'$   
 $Dc = 3^{\circ}00'$

**UTILITY CONTACTS**

Gas - Kansas Gas Service  
 (913) 599-8981  
 Telephone - AT&T  
 (913) 383-4858  
 Sewer - Johnson County Wastewater District  
 (913) 715-8684  
 Cable TV & Phone - Time Warner Cable  
 (913) 643-1979

**GENERAL NOTES**

- Specifications**  
 The project shall be constructed in accordance with the Overland Park, Kansas "Project Special Provisions" and the Project Manual unless otherwise noted.
- Existing Improvements**  
 The Contractor shall be responsible for the protection of all existing improvements and utilities during construction. Any damage due to construction activity shall be repaired or replaced at the Contractor's expense.
- Utility owners will move and adjust public and private facilities as necessary for the proposed construction unless noted otherwise on the plans or in the proposal. No utility adjustments are anticipated.
- Permits**  
 The contractor shall comply with the permit conditions. Property beyond the Right-of-Way shall not be disturbed.
- Geology**  
 A geotechnical investigation was not conducted for this project.
- Removals**  
 All trees, hedge rows, shelterbelts and woody shrubs located beyond the construction limits but within the Right-of-Way or easements shall be spared unless specifically shown as a removal on the plans. Trees within the construction limits shall be spared, if practical, as directed by the Owner.
- All bridge and pavement materials removed shall become the property of the Contractor and shall be removed from the site.
- Excavations and Earthwork**  
 The excavation and embankment quantities shown on the Plans are gross volumes with a adjustment factor for shrinkage (VMF=0.8). The placement and subsequent removal of temporary fills are included in the excavation and embankment quantities. The earthwork quantities assumed a 1" of existing pavement will be removed as part of removals. No change in unit price or quantities will be made due to variations in this assumed thickness. All borrow to be obtained from areas provided by the Contractor and approved by the Engineer, both as to suitability of material and site location. Locations which, in the opinion of the Engineer, contain unsuitable material or will leave an unsightly appearance on the project will not be approved. Embankment shall be compacted to the density shown in the Plans.
- Benchmarks**  
 The Contractor shall temporarily offset BM-117 during construction and permanently reset the benchmark in the top of the new southeast wing of the bridge. See "Survey Control Points" in the Project Manual for requirements. Contact the Johnson County Chief Surveyor at 913-715-8329 to obtain the new permanent survey monument. The bid item "Control Point (Vertical)(Reset)" includes all labor, materials, surveying and reporting necessary to temporarily offset BM-117 during construction and permanently reset the benchmark.

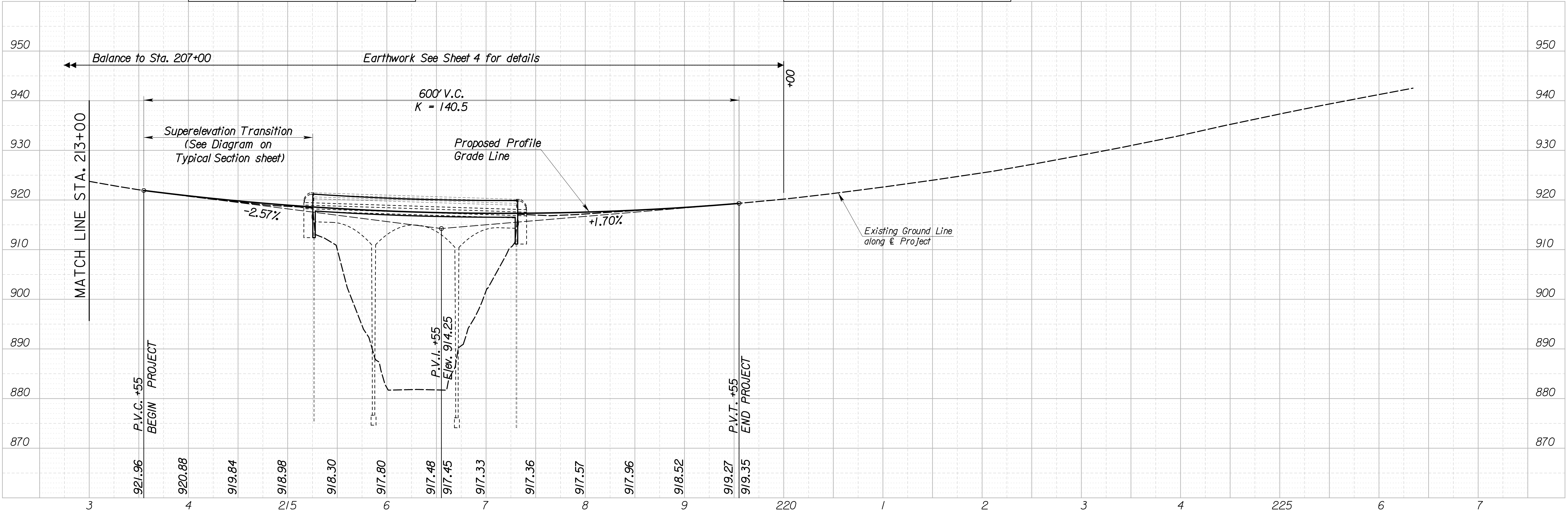
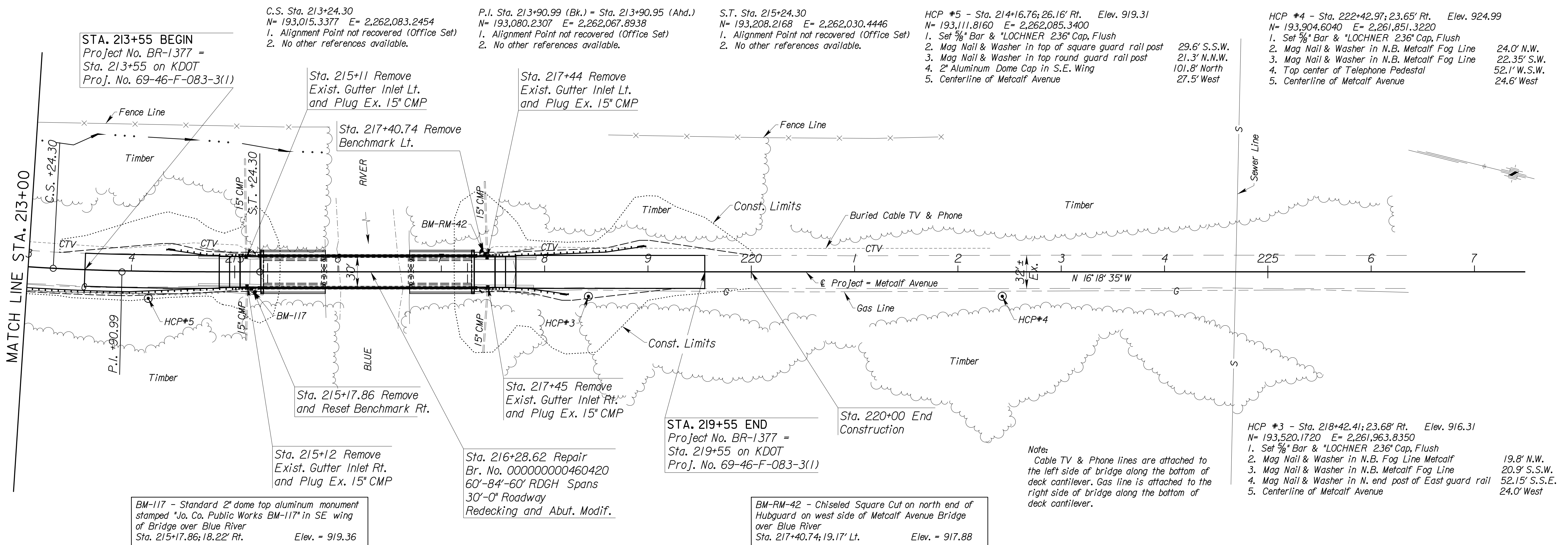


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CHECKED BY	TMR
DATE	2/2013
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DATE	1/2013
REVISIONS	DATE

ISSUE DATE  
**PLAN & PROFILE**  
 STA. 200+00 TO  
 STA. 213+00



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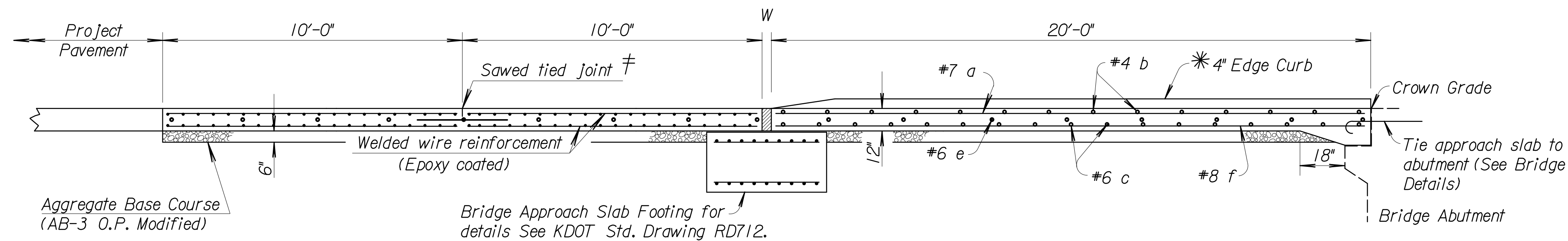
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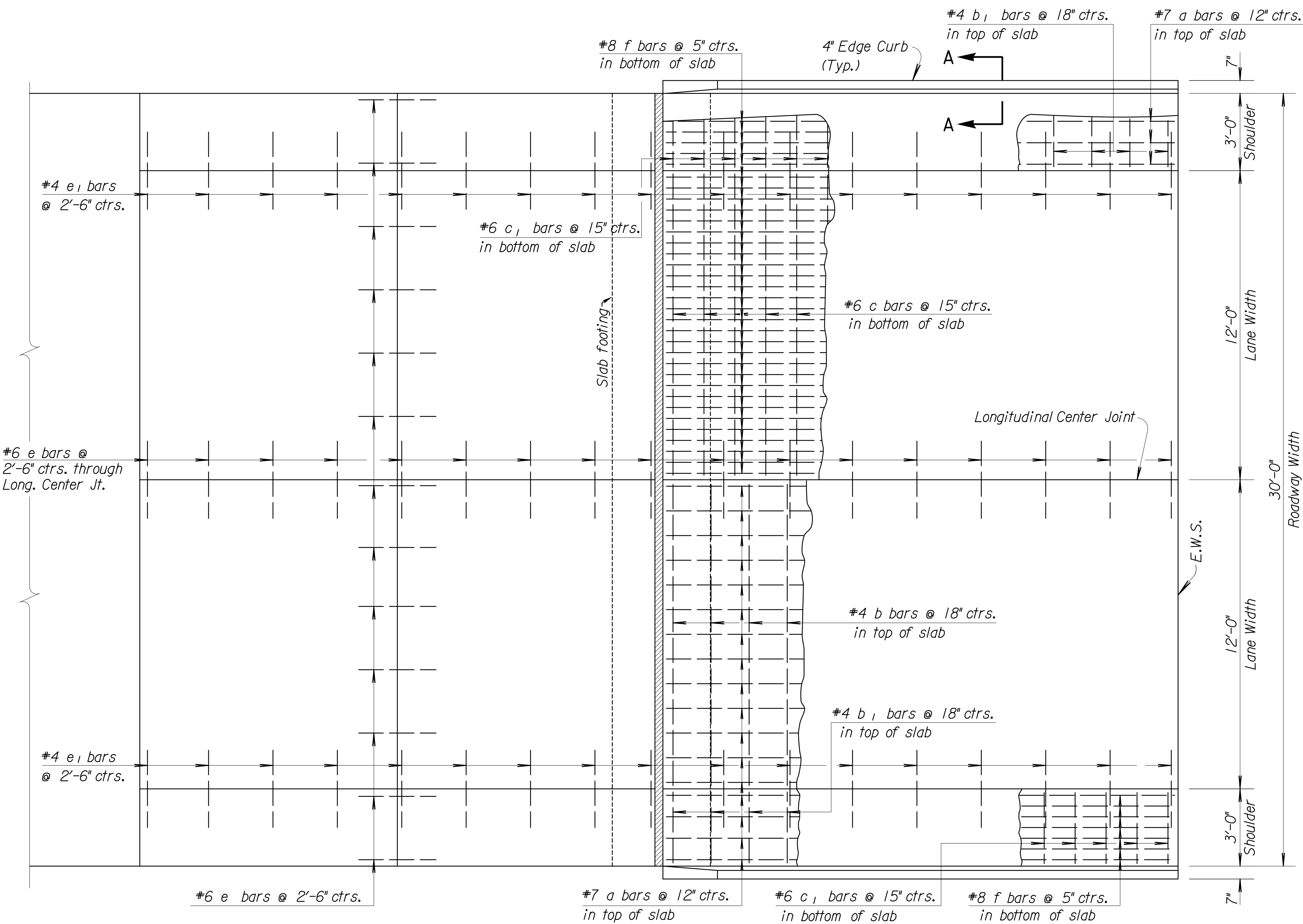
**PLAN & PROFILE**  
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**STA. 227+00**

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DATE	
BY	
REFERENCES NOTED	
REFERENCES CHECKED	



LONGITUDINAL SECTION



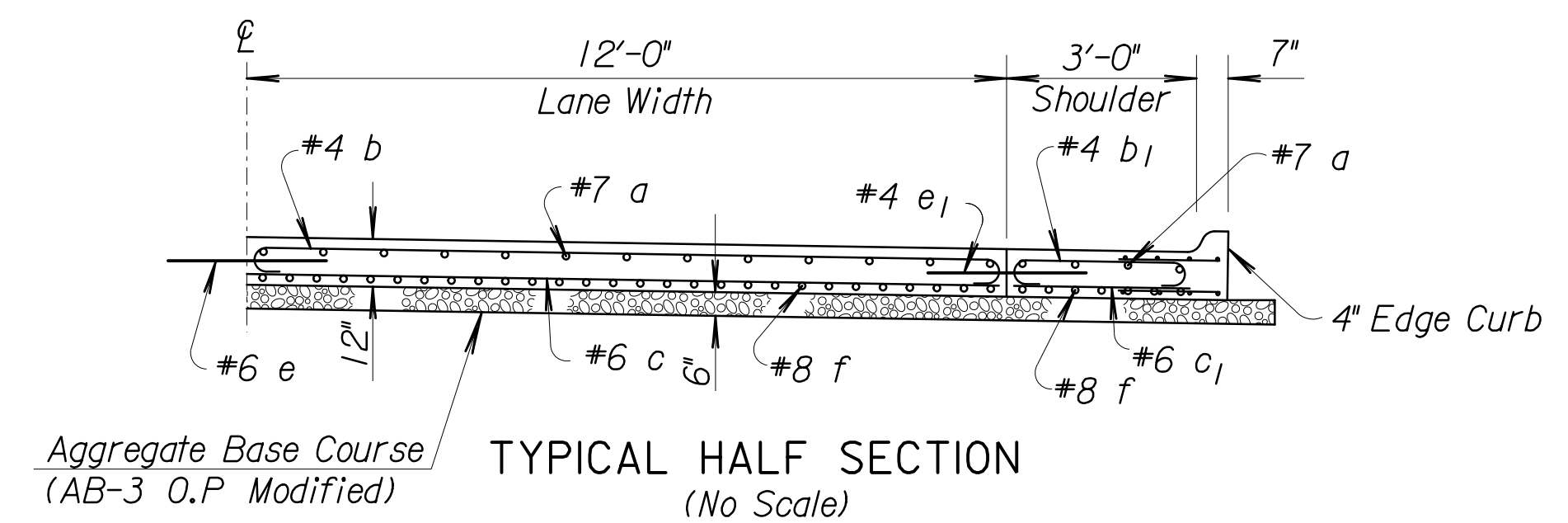
PLAN VIEW

**GENERAL NOTE**  
 Concrete Bridge Approach Pavement shall be paid for as Sq. Yds. of "Concrete Pavement (12" Uniform)(Bridge Approach)" and includes all work and materials required to construct the approach slab as shown on this sheet.  
 All work and materials required for installation of expansion joints shall be subsidiary to this bid item.  
 At the Contractor's option #4x3'-0" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.  
 All reinforcing steel shall be epoxy coated.  
 See Standard Drawing BAPM-1 for details of joints, welded wire reinforcement, and edge curb. Clearance from the face of concrete for all reinforcing steel shall be 2 inches.  
 Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.  
 Concrete for the bridge approach pavement shall be KCMMB 4K Concrete. Construct Concrete Bridge Approach Pavement on a special aggregate base course. Special aggregate base course shall be paid for as Sq. Yds. of "Aggregate Base Course (AB-3 O.P. Modified)" and includes all work and materials to construct the aggregate base course as shown on this sheet.

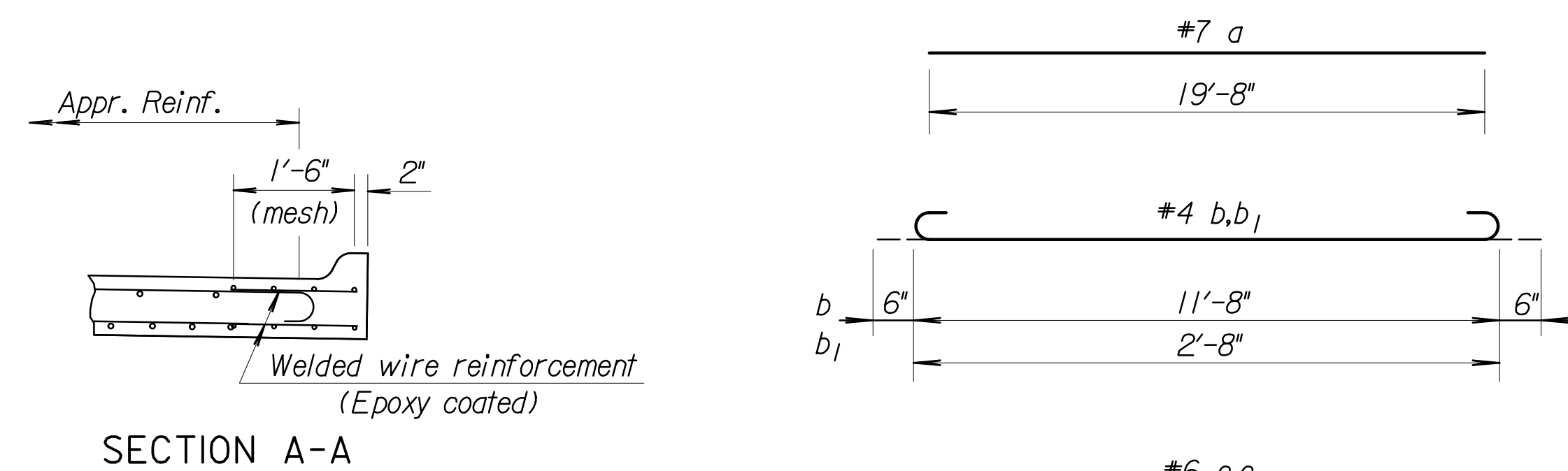
\* For details of 4" Edge Curb, See Standard Drawing BAPM-1.

W For expansion joint width and details see KDOT Standard Drawing RD712

‡ Contractor has the option of substituting a Tied Keyed Construction Joint.



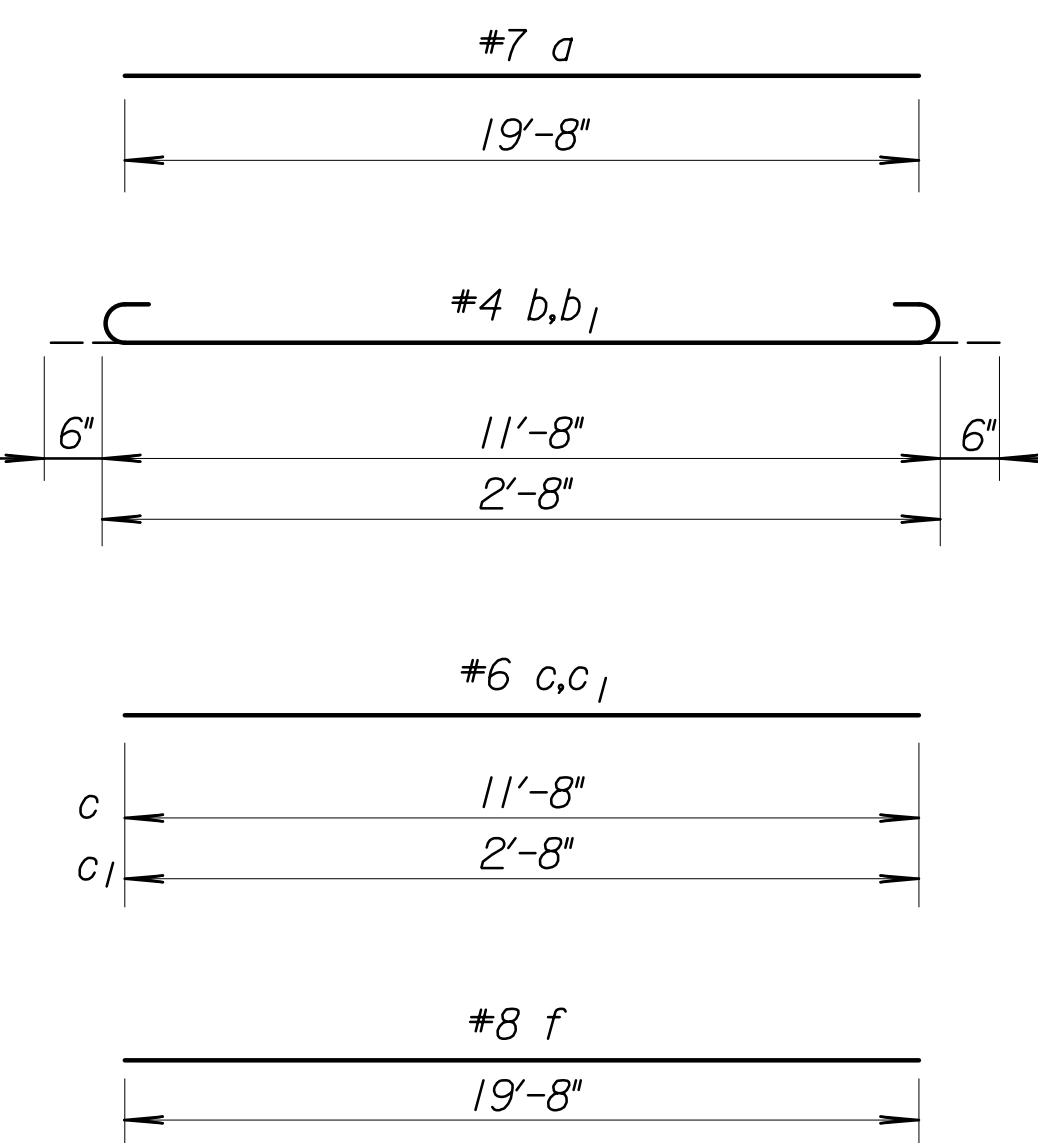
TYPICAL HALF SECTION (No Scale)



SECTION A-A

BILL OF MATERIALS								
Bar Schedule								
Bar No.	a	b	b <sub>1</sub>	c	c <sub>1</sub>	e	e <sub>1</sub>	f
34	28	28	34	34	30	34	70	
Size	#7	#4	#4	#6	#6	#6	#4	#8
Length	19'-8"	12'-8"	3'-8"	11'-8"	2'-8"	3'-0"	3'-0"	19'-8"
Reinforcing Steel (Grade 60)							6280 lbs.	
Expansion Joint							30 Lin. Ft.	
Concrete Pavement (12" Unif.)(Br. Appr.)							136 Sq. Yds.	
Bridge Approach Slab Footing							8.9 Cu. Yds.	
Aggregate Base Course (AB-3 O.P. Modified)							148 Sq. Yds.	

Note: Quantities listed for one approach slab only. Two required per bridge. Reinforcing steel and joint lengths shown for information only.



BENDING DIAGRAMS

Note: All dimensions are out to out on bars, unless noted otherwise.

CONCRETE BRIDGE APPROACH PAVEMENT  
 NORMAL APPROACH

BAPM-

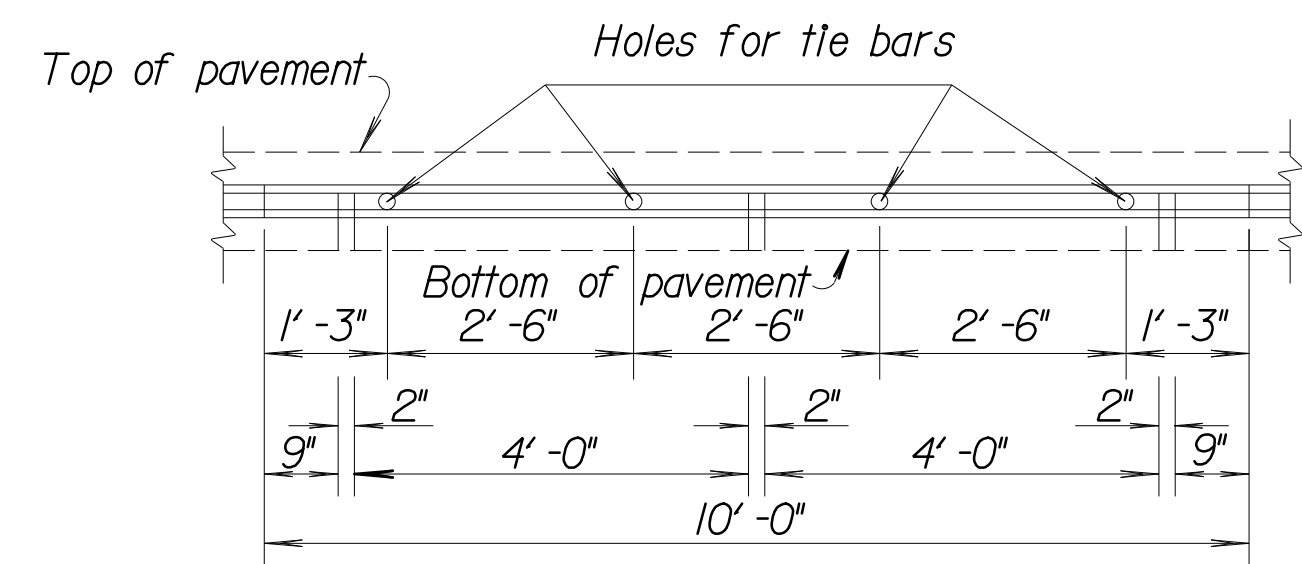
CITY OF OVERLAND PARK  
 DEPARTMENT OF PUBLIC WORKS

DESIGNED: TMR	DATE:	SCALE	SHEET
DETAILED: JTC		1" = _____ horz.	6
CHECKED: MAH		1" = _____ vert.	
APPROVED: MAH			

DRAWING:	
REVISIONS	
CITY PROJECT NUMBER:	

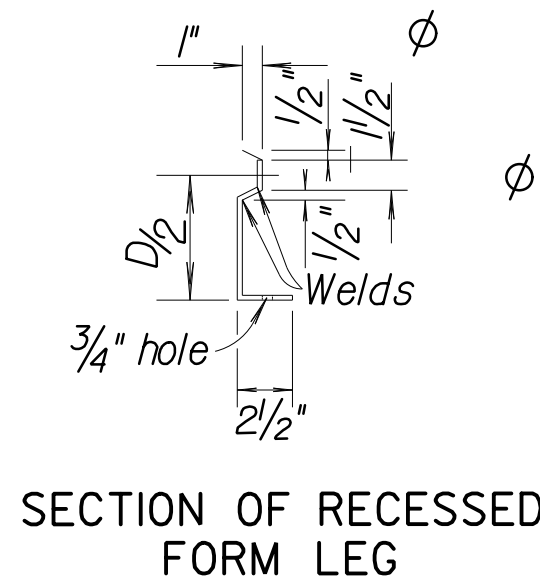
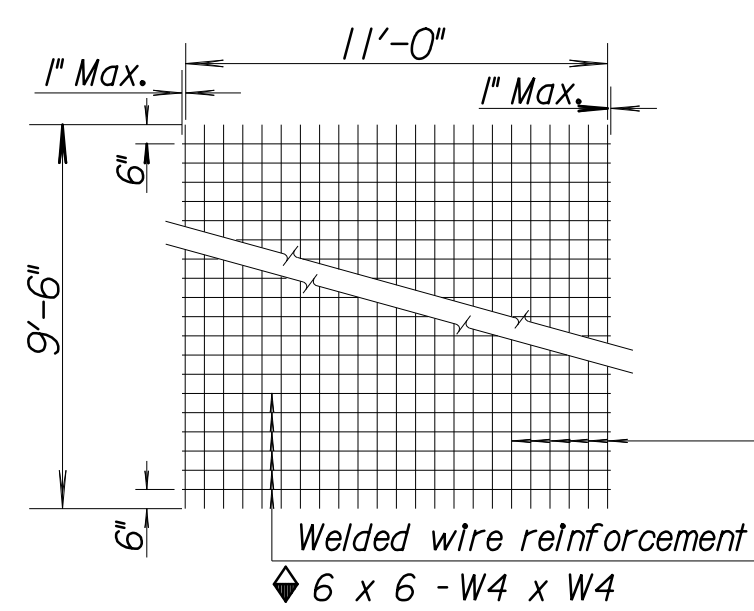
Drawn By: Plofted: 5/24/2013  
 File: I:\KAC\PRJ\000007443\01\STR\DGN\06.7443\_Approach Pvmnt\_01.dgn

DATE	
BY	
REFERENCES NOTED	
REFERENCES CHECKED	

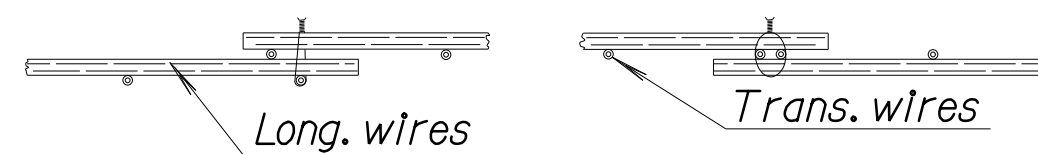


To be used only against forms. Shall not extend through contraction joints.

**METAL STRIP FOR LONGITUDINAL CONSTRUCTION JOINT (10'-0")**



Snap-in leg or other approved designs may be used in lieu of welded leg.



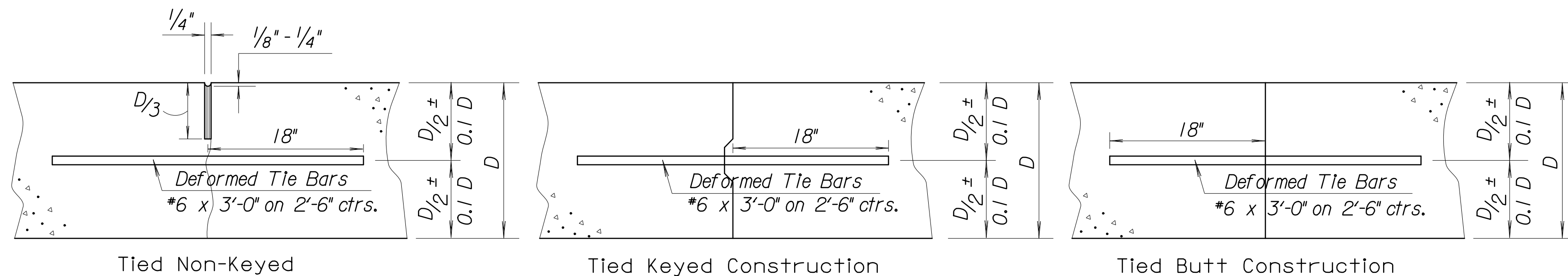
**DETAIL OF LAP FOR WELDED WIRE REINFORCEMENT**

The lap shall extend beyond the first transverse or bag wire of each sheet.

The sheet shall be wired securely at the edges and at intervals not to exceed 2'-6" for the full width of the sheet. Approximate weight of welded wire reinforcement = 58 lbs. per 100 sq. ft. Other methods for fastening the sheets of welded wire reinforcement at the laps may be used with the approval of the Engineer.

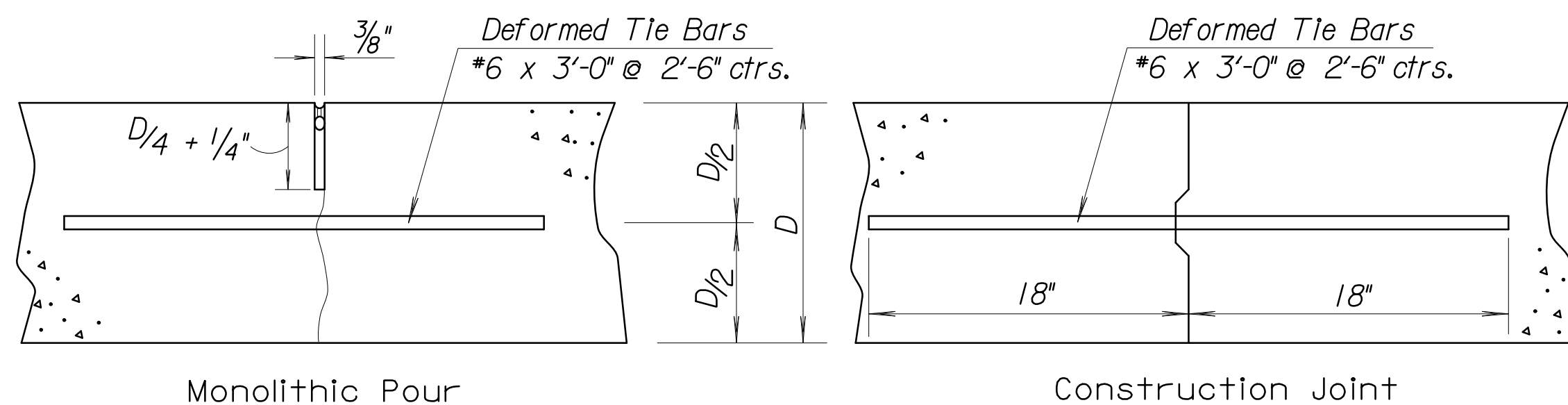
**TYPICAL SHEET OF WELDED WIRE REINFORCEMENT FOR SPECIAL BRIDGE APPROACH PAVEMENT**

Note: Epoxy coated #3 bars longitudinally @ 12" ctrs. & #3 bars transversely @ 18" ctrs. may be substituted for each layer of epoxy coated welded wire reinforcement.



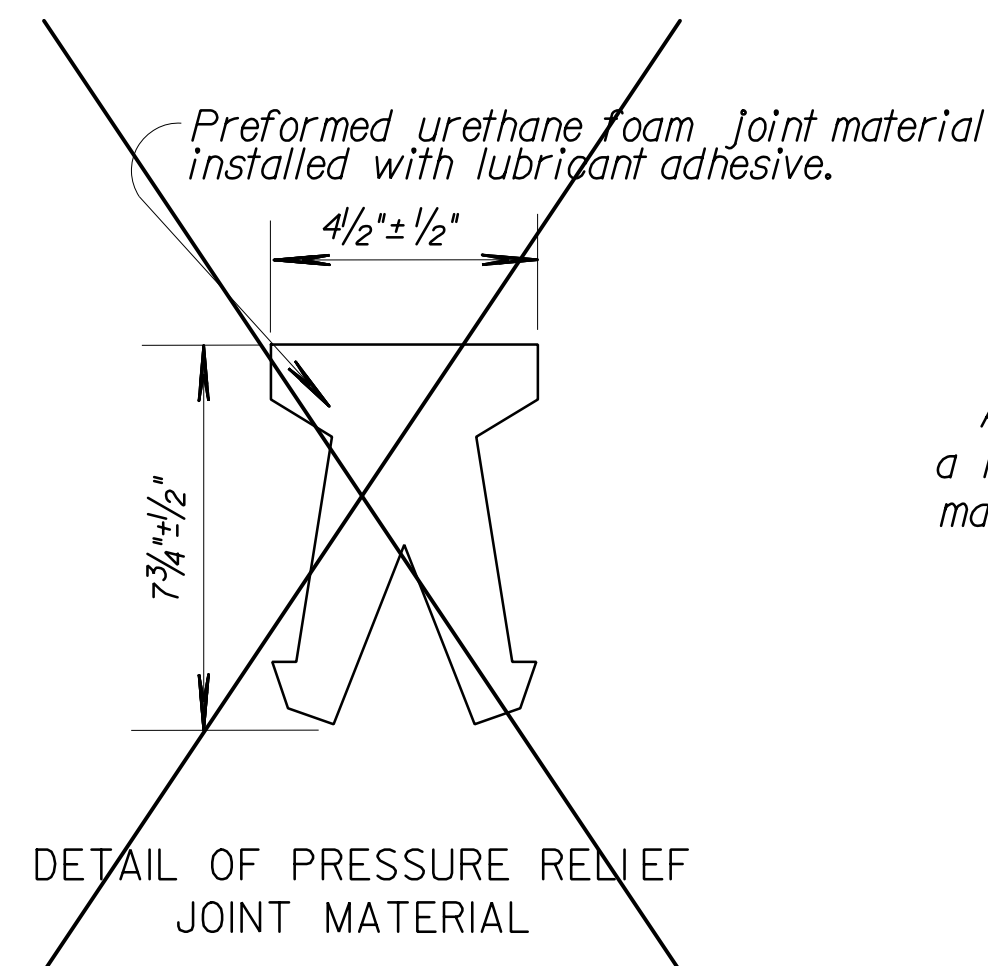
**LONGITUDINAL JOINTS**

Note: For longitudinal construction joints the contractor has the option of using either the keyed or butt type. For longitudinal construction joints at shoulders, #4 x 3'-0" @ 2'-6" ctrs. are used in lieu of #6 bars.

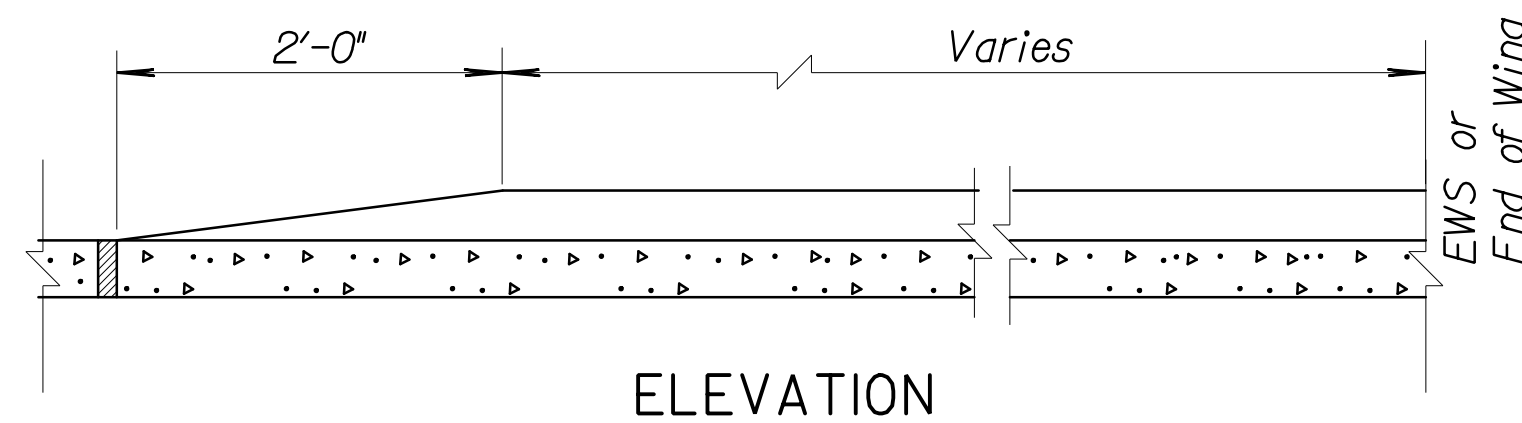


**TRANSVERSE JOINTS**

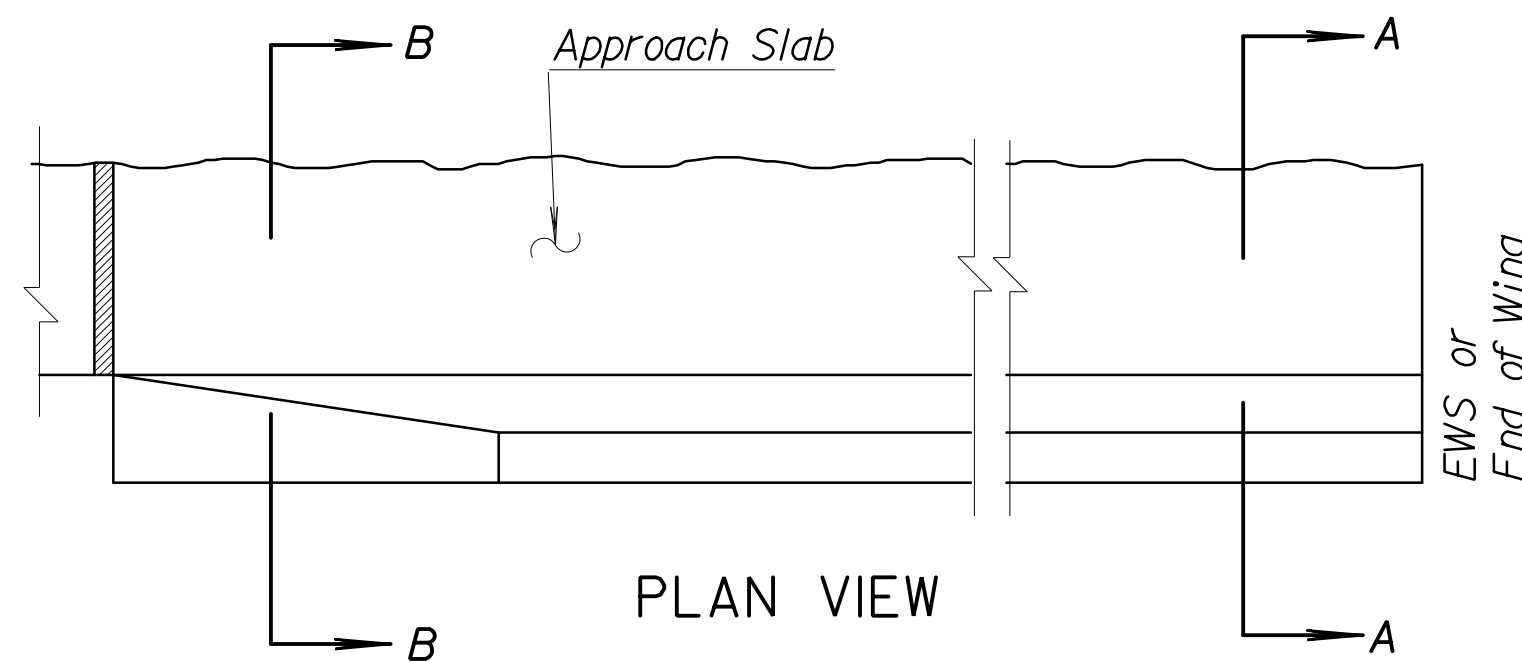
Note: A construction joint is required when the concrete placement has been interrupted for a substantial length of time or at the end of a day's placement.



**DETAIL OF PRESSURE RELIEF JOINT MATERIAL**



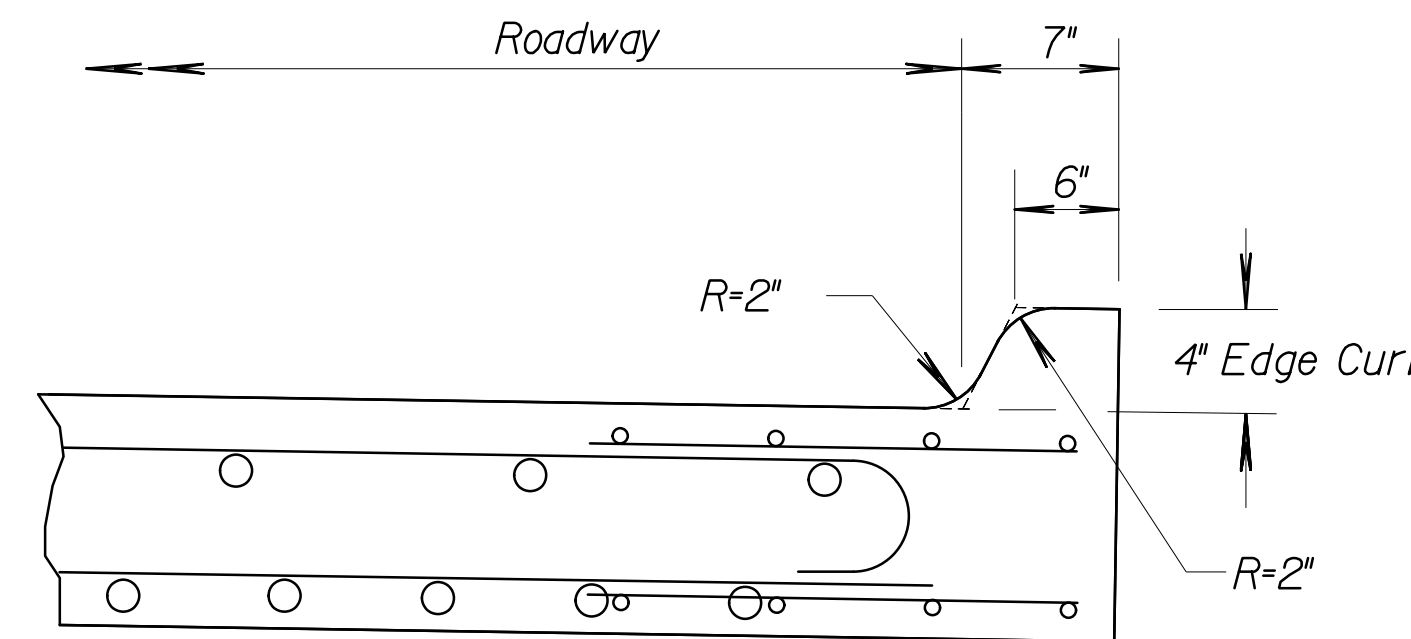
**ELEVATION**



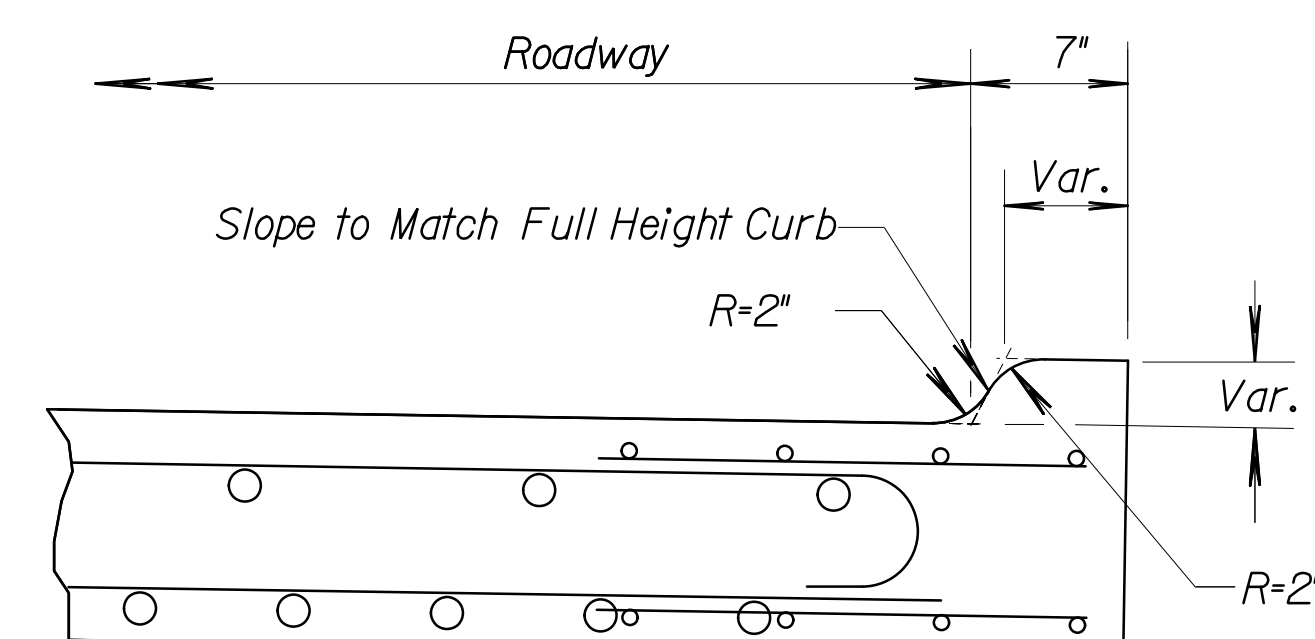
**PLAN VIEW**

**4" EDGE CURB DETAIL**

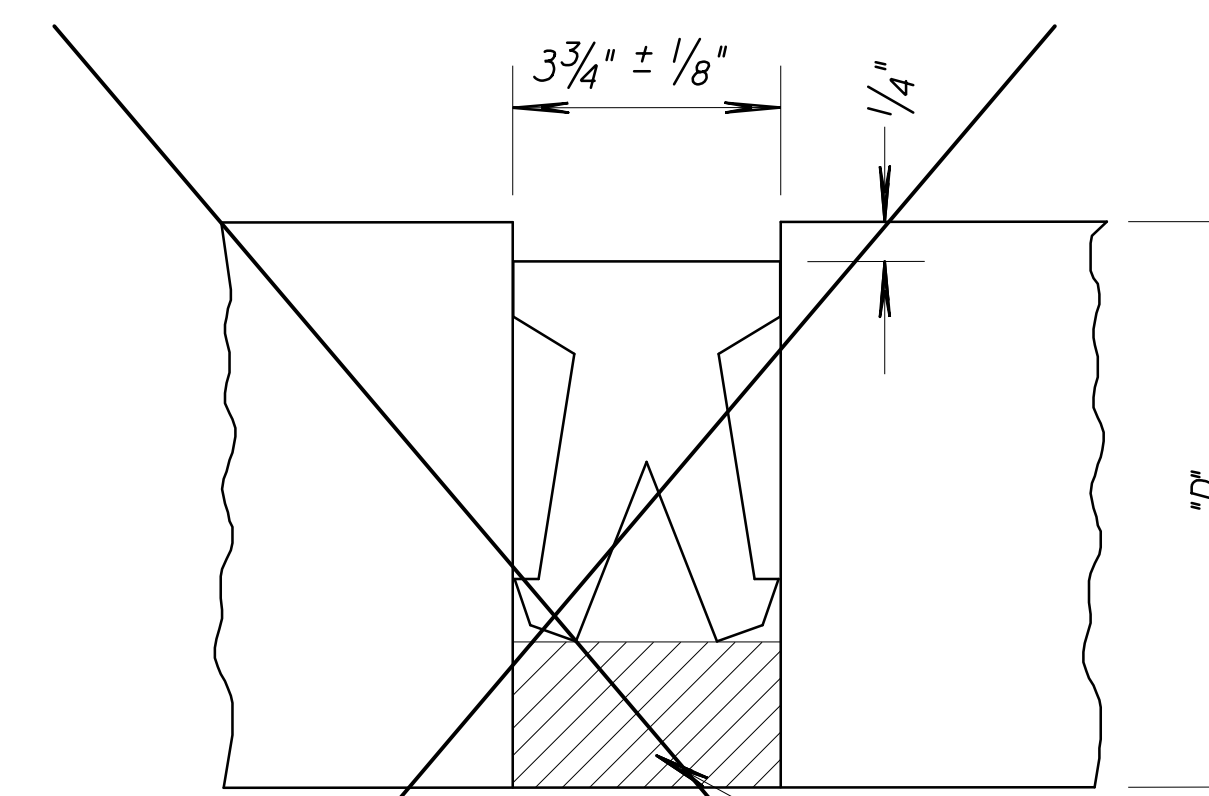
(Taper and end curb at end of 20' Slab if there is no curb and gutter on approaches.)



**SECTION A - A**



**SECTION B - B**



**ELEVATION PRESSURE RELIEF JOINT TREATMENT**

Adjust the bottom of the expansion joint trench and place a 1" x 3 3/4" polystyrene or polyurethane foam so that the joint material is positioned 1/4" below the pavement top surface.

**GENERAL NOTES**  
 All work shall be done in conformity with the KDOT Standard Specifications applicable to the project.  
 The cost of all bars and joint material shown on this sheet is to be included in the bid price for Concrete Pavement.  
 At each planned transverse joint location, a 4 to 6 inch wide strip of the pavement surface shall be protected from the texturing operation to provide a transverse textureless surface centered over the joint sawcut.  
 All sawed joints on this project shall be filled with sealant from the pre-approved KDOT product list, in accordance with the KDOT Standard Specifications, Section 502.  
 The 4 inch edge curb shall be constructed integral with the approach slab shoulder.  
 All materials and work required for this construction shall be Subsidiary to the concrete approach slab.  
 Tie bars shall be evenly spaced along the length of the slab and no tie bars shall be within 12" of contraction joint.

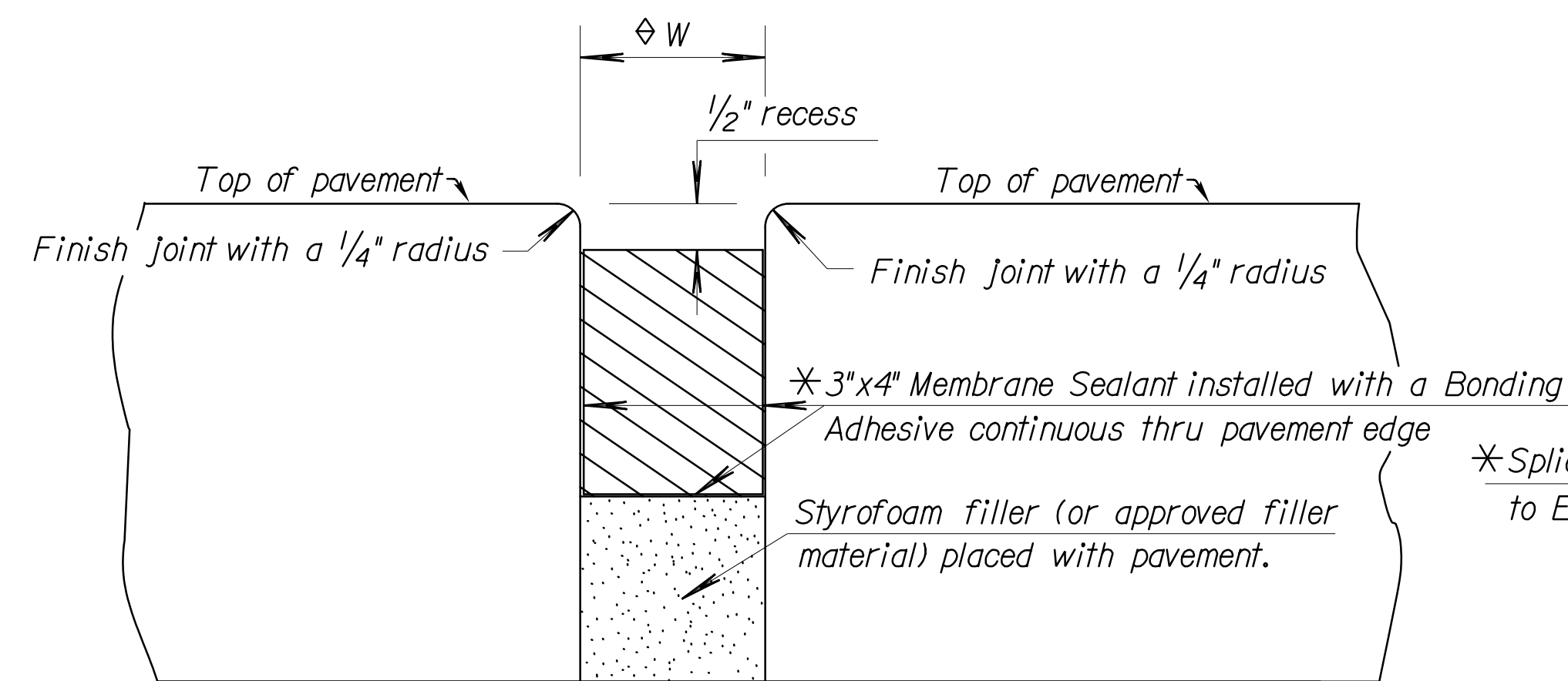
**MISCELLANEOUS DETAILS FOR CONCRETE BRIDGE APPROACH PAVEMENT**

DESIGNED: TMR		DATE:	
DETAILED: JTC		SCALE	
CHECKED: PRY		1" = _____ horz.	
APPROVED: TMR		1" = _____ vert.	
CITY PROJECT NUMBER:		SHEET 7	

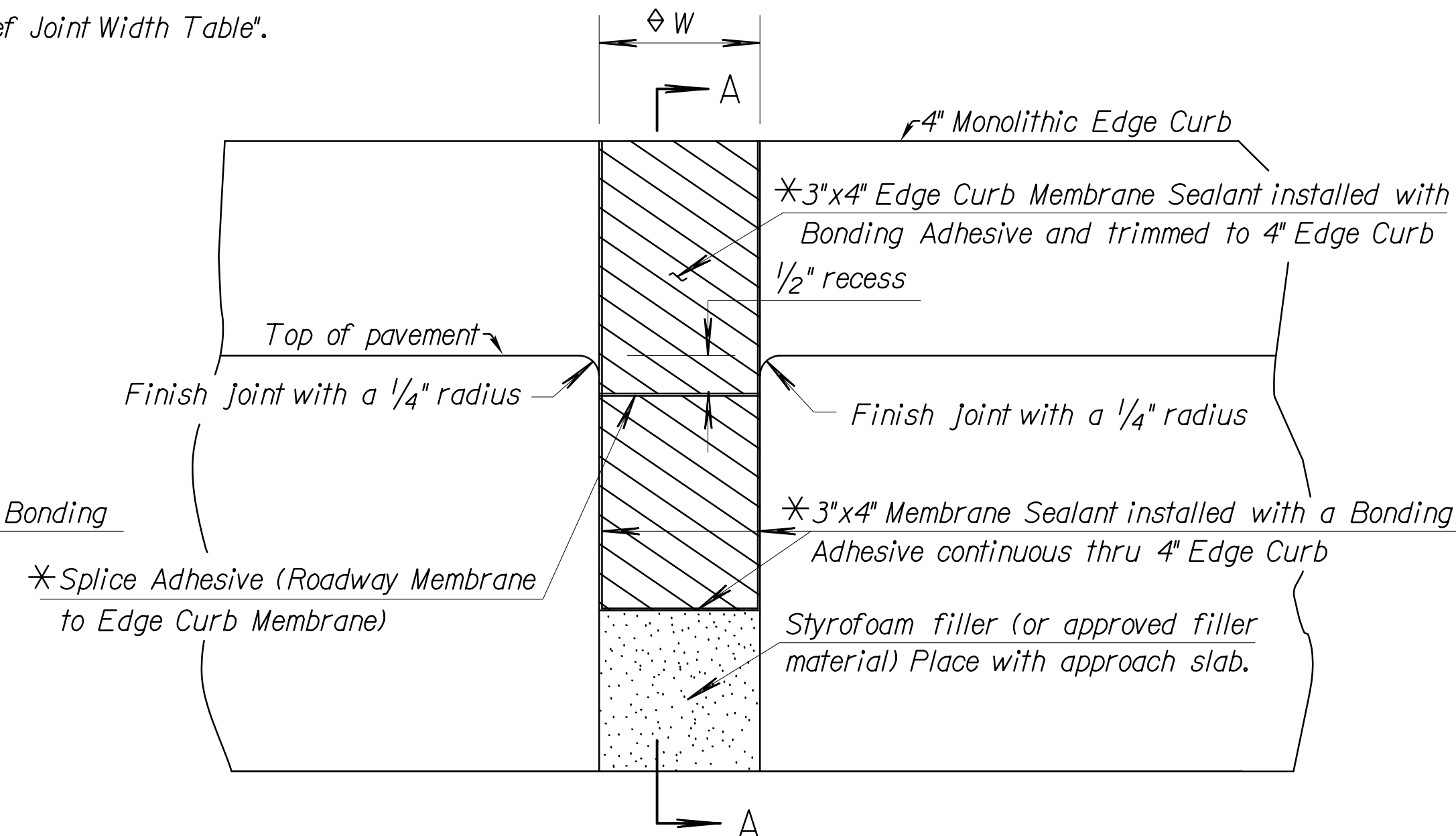
Drawn By: [Plotted: 5/24/2013] File: I:\KAC\PRJ\000007443\01\STR\DRG\07\_7443\_Approach Pvmnt\_02.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	BR-1377	2013	8	

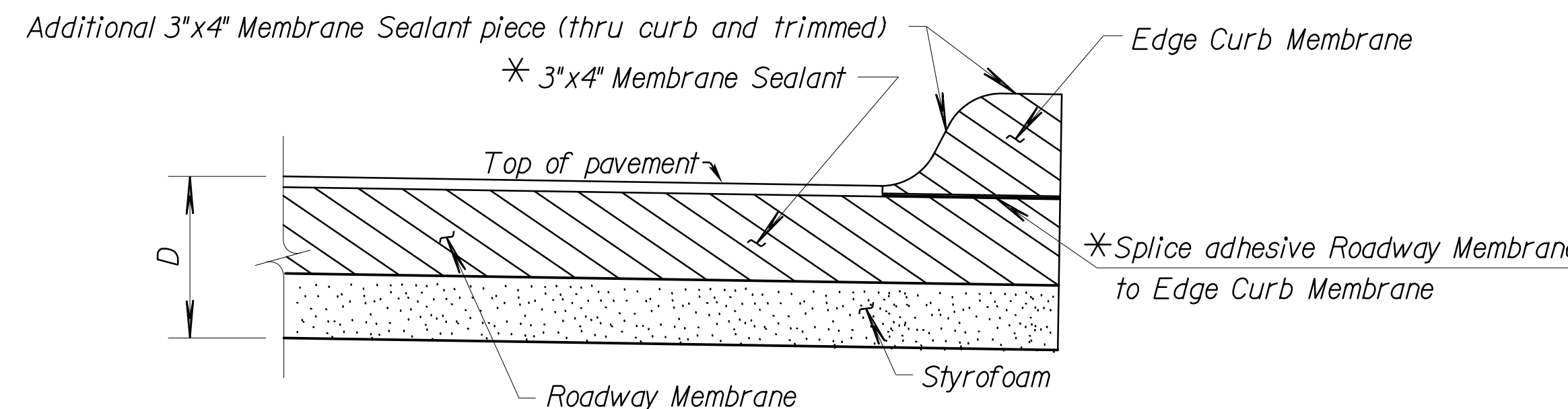
W = Formed Concrete Opening Size - See "Temperature Expansion/Pressure Relief Joint Width Table".



ELEVATION PRESSURE RELIEF JT.



ELEVATION EXPANSION JT.



SECTION A-A

(See Std. Drawing RD711 for details of 4" Edge Curb.)

GENERAL NOTES  
EXPANSION/PRESSURE RELIEF JOINTS

See Concrete Bridge Approach Pavement standard drawings for location of expansion and pressure relief joints.  
The joint opening shall be formed prior to placement of the pavement approach. The material used to form the joint opening shall be removed after the pavement approach has been in place for a minimum of six days.  
Cleaning and construction of the joint shall not begin until the concrete in the approach slab has cured a minimum of 7 days.  
The joint shall be thoroughly cleaned by sandblasting and by high pressure air blast to remove all laitance and contaminants from the joint. When any part of the joint is shaped by saw cutting in lieu of forming, a water blast shall precede sandblasting and air cleaning.  
Sandblasting shall be accomplished in two passes to clean each face of the joint (one pass for each face). The nozzle shall be held at an angle to the joint face and within 1 to 2 inches of the face.  
Any contaminants such as oil, curing compound, etc. shall be removed by sandblasting to the satisfaction of the Engineer. Solvents, wire brushing, or grinding shall not be permitted.  
The joint shall be air blasted just prior to installation of Membrane Sealant. The air compressor used for joint cleaning shall be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. The joint shall be spot checked to ensure residual dust or dirt has been removed. It is required that the Engineer inspect the joint immediately prior to installation of the joint material.  
\* See KDOT Standard Specifications for Membrane Sealant, Bonding Adhesive and Splice Adhesive.  
Traffic shall not be allowed on the joint for a minimum of 3 hours unless otherwise directed by the Engineer.  
Splices will use materials & methods recommended by the Manufacturer.  
All work and materials necessary for the preparation, construction, and installation of the joint will be subsidiary to the concrete approach pavement.

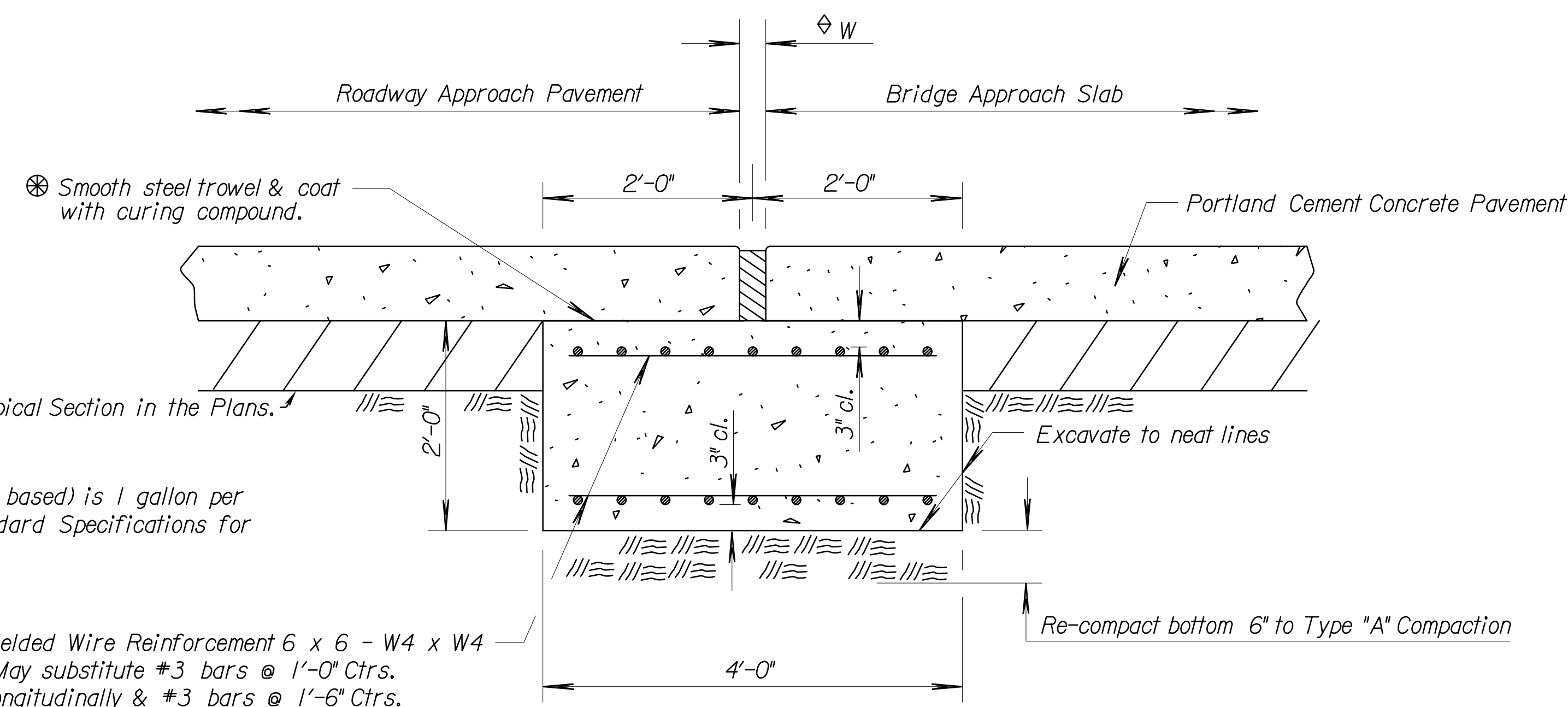
BRIDGE APPROACH SLAB FOOTING

Payment for the Bridge Approach Slab Footing shall be at the unit price bid per cubic yard for "Bridge Approach Slab Footing". This price shall be full compensation for furnishing all materials and labor including Concrete Grade 4.0 (AE) Pavement, Reinforcing Steel (Gr. 60) (Epoxy Coated), excavation, Type "A" Compaction and materials used to prevent bonding of concrete. At the contractor's option, the concrete for the slab footing may be concrete Grade 4.0 (AE) or the mix used in the concrete pavement.

EXPANSION JOINT WIDTH

Temperature (F°)	40°	50°	60°	70°	80°	90°	100°
Formed Concrete Opening Size	4.0"	3 3/4"	3 1/2"	3 1/4"	3.0"	2 3/4"	2 1/2"

⊗ Average Ambient Temperature over previous 24 hours.



BRIDGE APPROACH SLAB FOOTING

⊗ Rate of curing compound (wax based) is 1 gallon per 12 square yards. See the Standard Specifications for additional information.

Welded Wire Reinforcement 6 x 6 - W4 x W4  
(May substitute #3 bars @ 1'-0" Ctrs. longitudinally & #3 bars @ 1'-6" Ctrs. transversely (Short bars).

NO.	DATE	REVISIONS	BY	APP'D
7	7-10-09	Adjusted Expansion Joint table	S.W.K.	J.O.B.
6	5-13-09	Therm. width jt. & membrane sealant	S.W.K.	J.O.B.
5	8-8-07	Added Ins. Gap Temp. Corr. table note	S.W.K.	J.O.B.
4	4-6-05	Rev. reinforcing callout, conc. grade	S.W.K.	J.O.B.

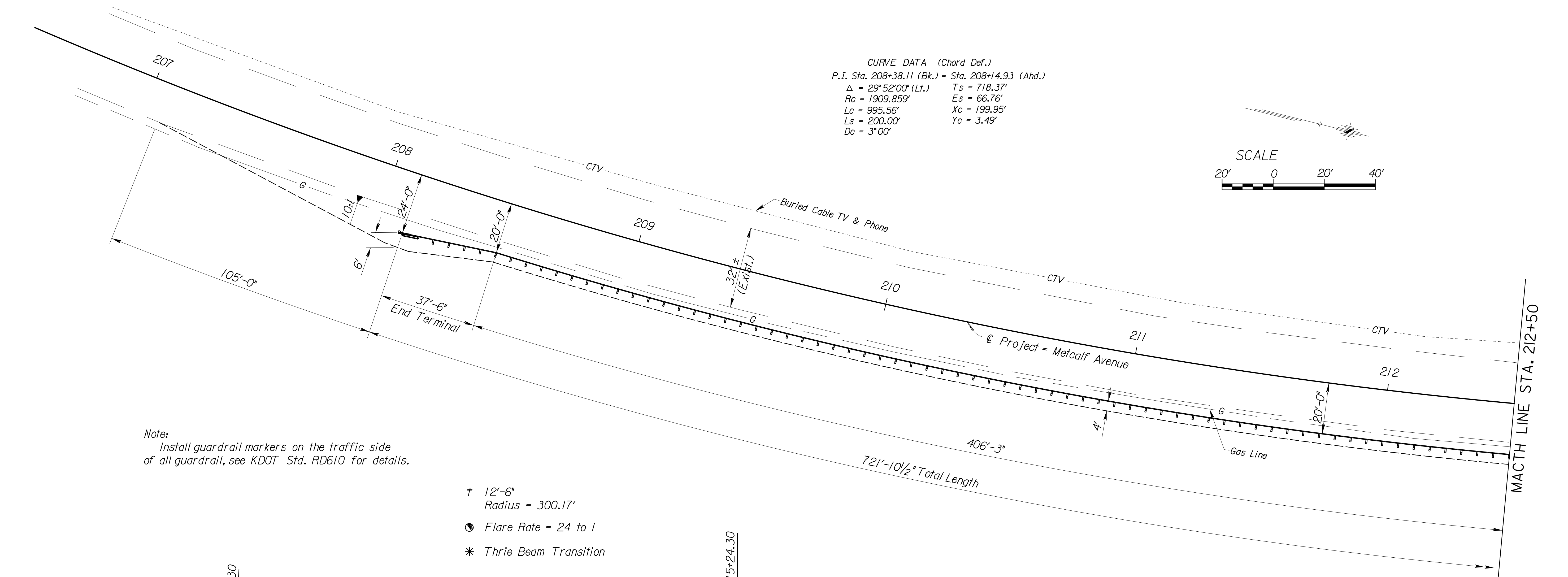
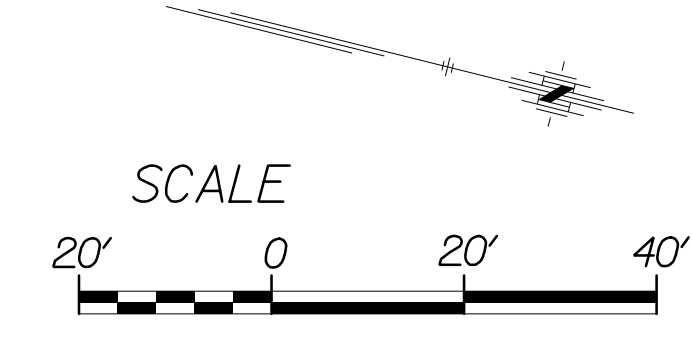
KANSAS DEPARTMENT OF TRANSPORTATION			
BRIDGE APPROACH SLAB DETAILS EXPANSION/PRESSURE RELIEF JOINT/ BRIDGE APPROACH SLAB FOOTING RD712			
DESIGNED	DETAILED	QUANTITIES	TRACED
APP'D. James O. Brewer	6-9-09		
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.
			King

Note to Designer: For Membrane Sealant Expansion Joint on Non-skewed Bridges the maximum length of expansion is: 380' for Steel Bridges, 410' for Concrete Bridges.

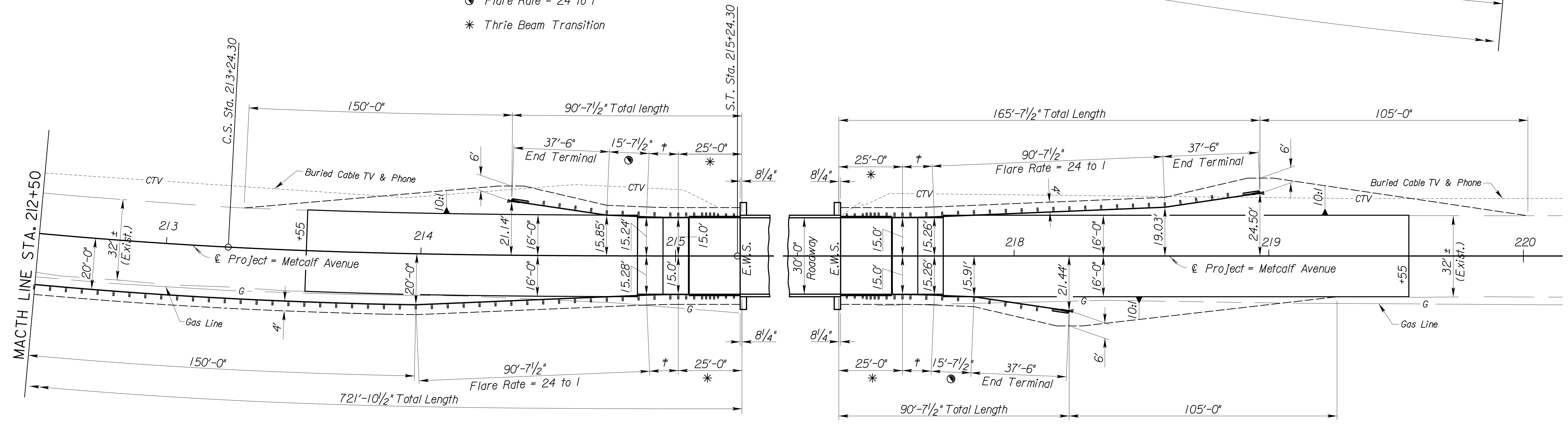
Drawn By: arobben  
Plotted: 5/24/2013  
File: I:\KAC\PRJ\000007443\01\STR\IGN08\_7443\_rdt712.dgn



CURVE DATA (Chord Def.)  
 P.I. Sta. 208+38.11 (Bk.) = Sta. 208+14.93 (Ahd.)  
 $\Delta = 29^\circ 52' 00''$  (Lt.)  $Ts = 718.37'$   
 $Rc = 1909.859'$   $Es = 66.76'$   
 $Lc = 995.56'$   $Xc = 199.95'$   
 $Ls = 200.00'$   $Yc = 3.49'$   
 $Dc = 3^\circ 00''$



- † 12'-6" Radius = 300.17'
- Flare Rate = 24 to 1
- \* Thrie Beam Transition



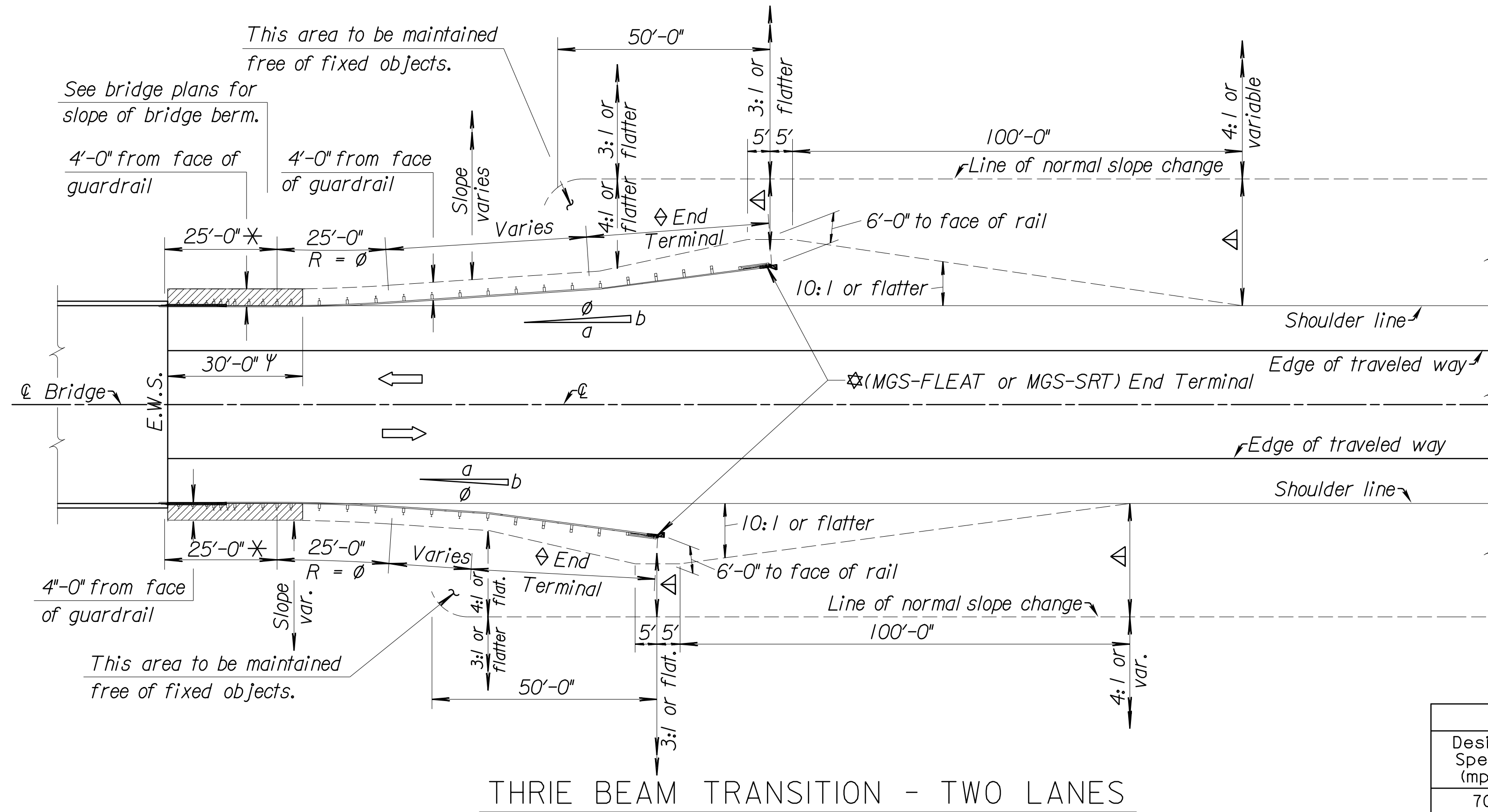
GUARDRAIL (MGS) LAYOUT

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	DATE

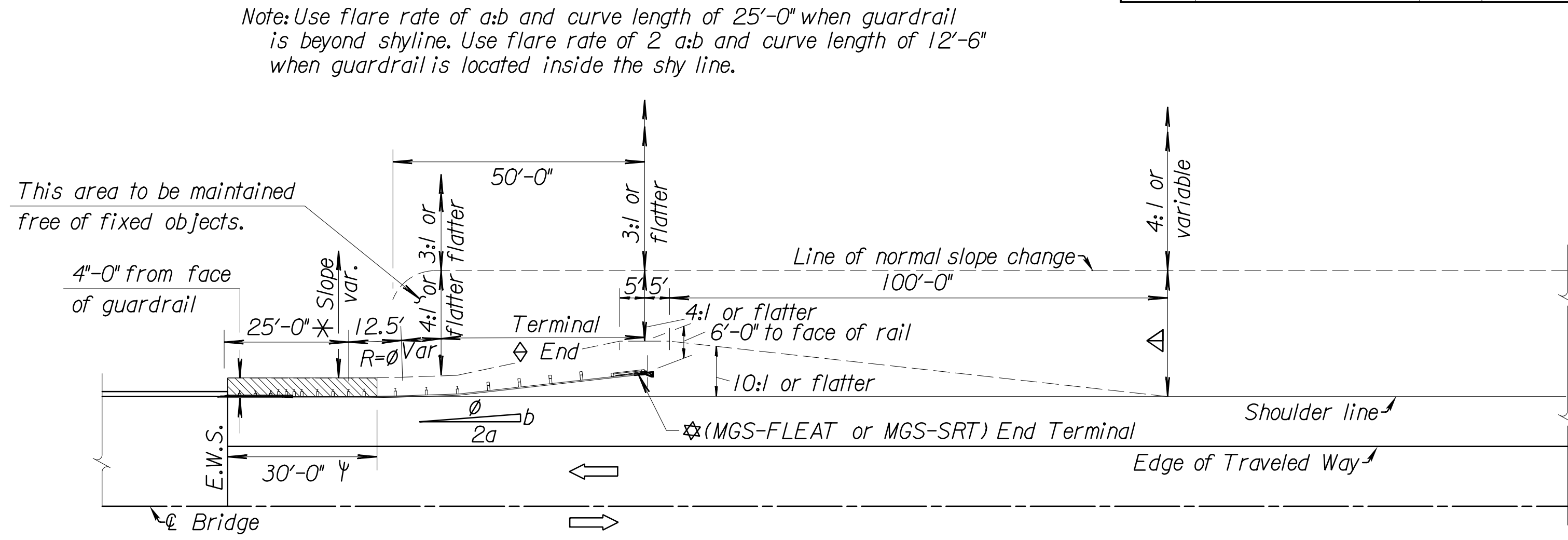
ISSUE DATE

Notes to Designer: Determine guardrail length of need using either KDOT's Length of Need Equation or a graphic design approach with an L<sub>1</sub> distance measured from the edge of the area of concern to the P.I. of the curved guardrail section. Combine materials for asphalt widening in the plan quantities.

Optional: If approach side is within the shyline, use a flare rate of 2a:b for all quadrants.

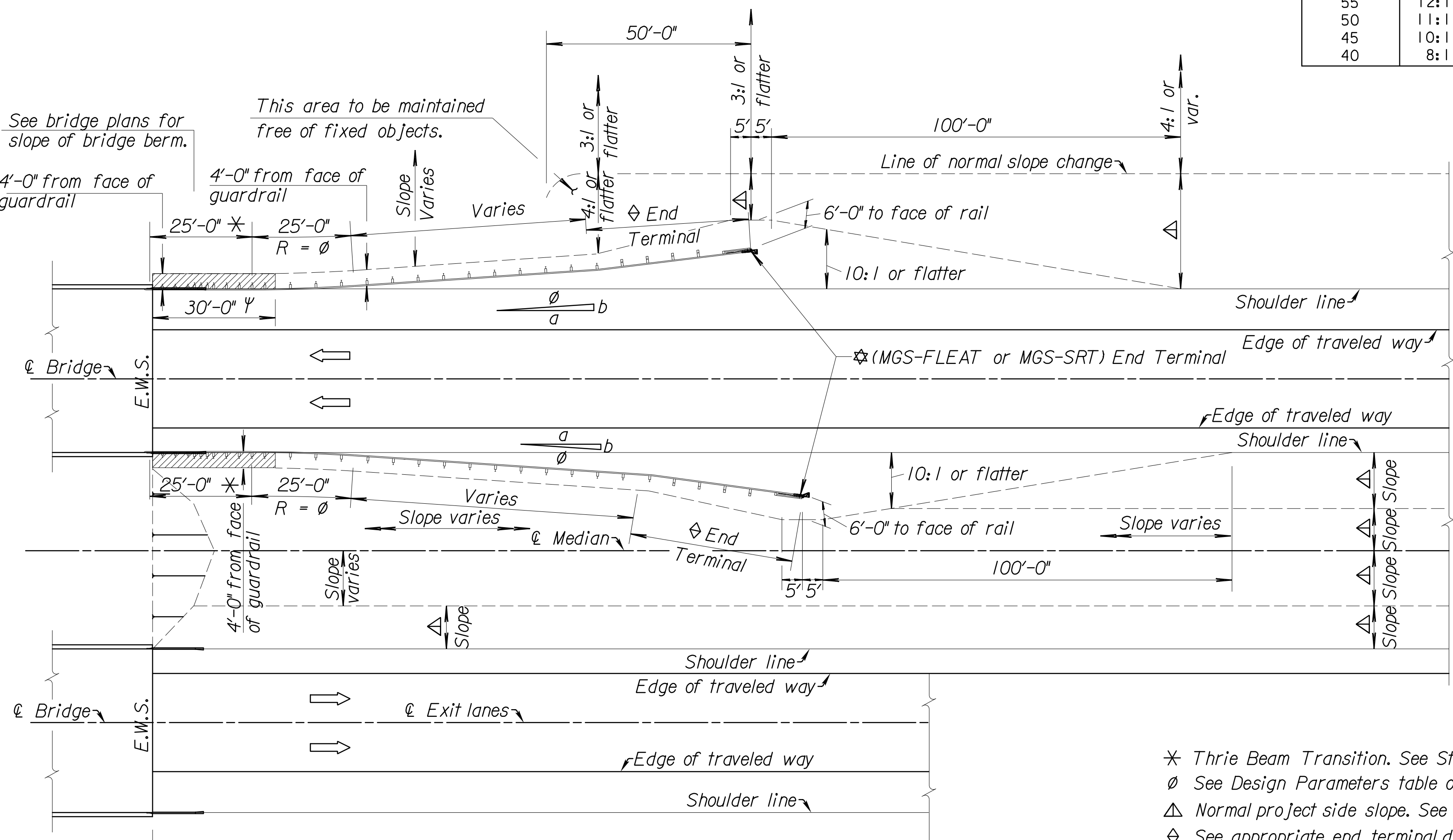


THRIE BEAM TRANSITION - TWO LANES



ALTERNATE TREATMENT - TWO LANES (Flare Rate = 2a:b)

Design Parameters				
Design Speed (mph)	Flare Rate (a:b)	Radius (R)	Flare Rate (2a:b)	Radius (R)
70	15:1	375.55'	30:1	375.14'
60	14:1	350.59'	26:1	325.16'
55	12:1	300.69'	24:1	300.17'
50	11:1	275.76'	21:1	262.70'
45	10:1	250.83'	18:1	225.23'
40	8:1	201.04'	16:1	200.26'



THRIE BEAM TRANSITION - FOUR LANES (DIVIDED)

- \* Thrie Beam Transition. See Std. Drawing RD613A for details and general note.
- ∅ See Design Parameters table on this sheet for radius, length of curve and flare rate information.
- △ Normal project side slope. See typical sections.
- ◇ See appropriate end terminal details.
- ψ 4" Asphalt material placed on 4'-0" embankment widening unless flume inlet and slope drain is constructed. See RD611A for "Post in Pavement" details.
- \* The minimum length of w-beam guardrail required between the thrie-beam transition and the guardrail end terminal is 12'-6" for all installations.

Drawn By: arobben  
File: I:\KAC\PRJ\000007443\01\STRIDGN\10\_7443\_rd612c.dgn  
Plotted: 5/24/2013

NO.	DATE	REVISIONS	BY	APP'D
2	6-7-12	Revised Note to Designer	S.W.K.	J.O.B.
1	1-25-12	Revised Layout, End Term.	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

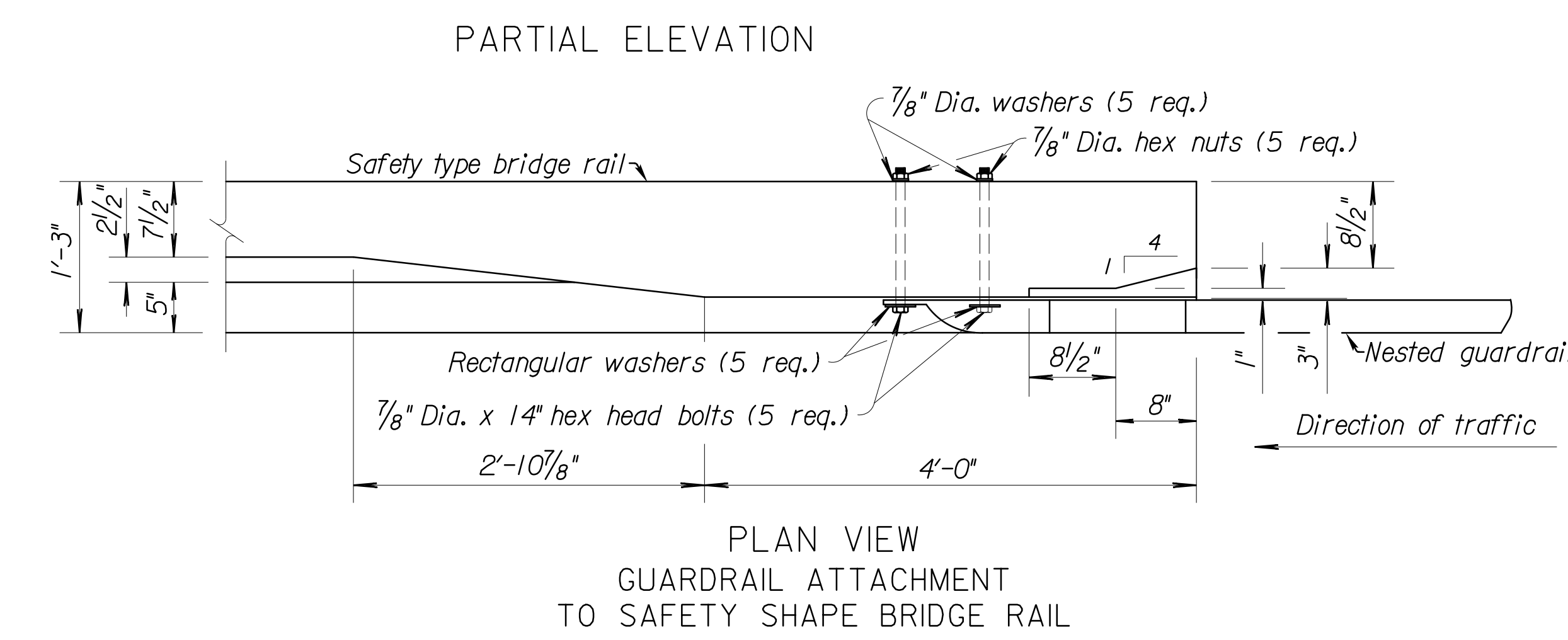
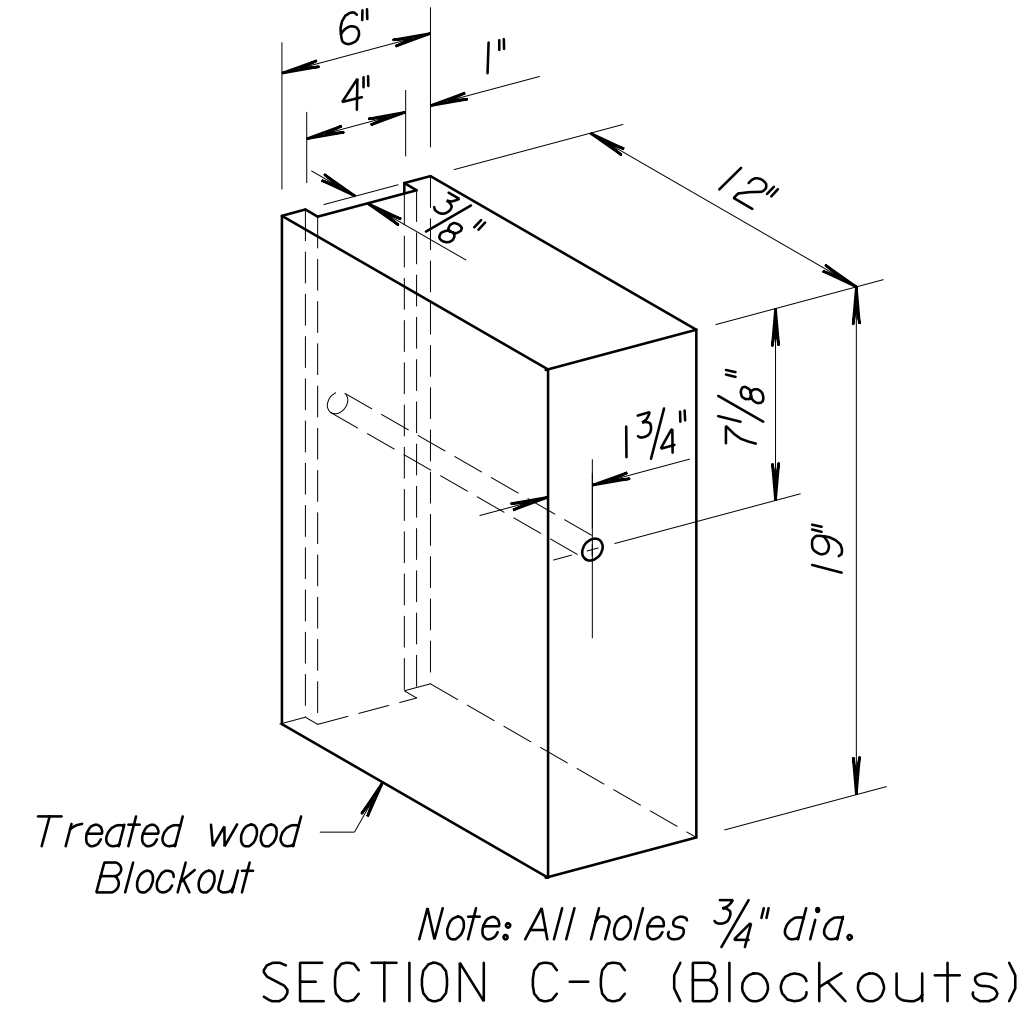
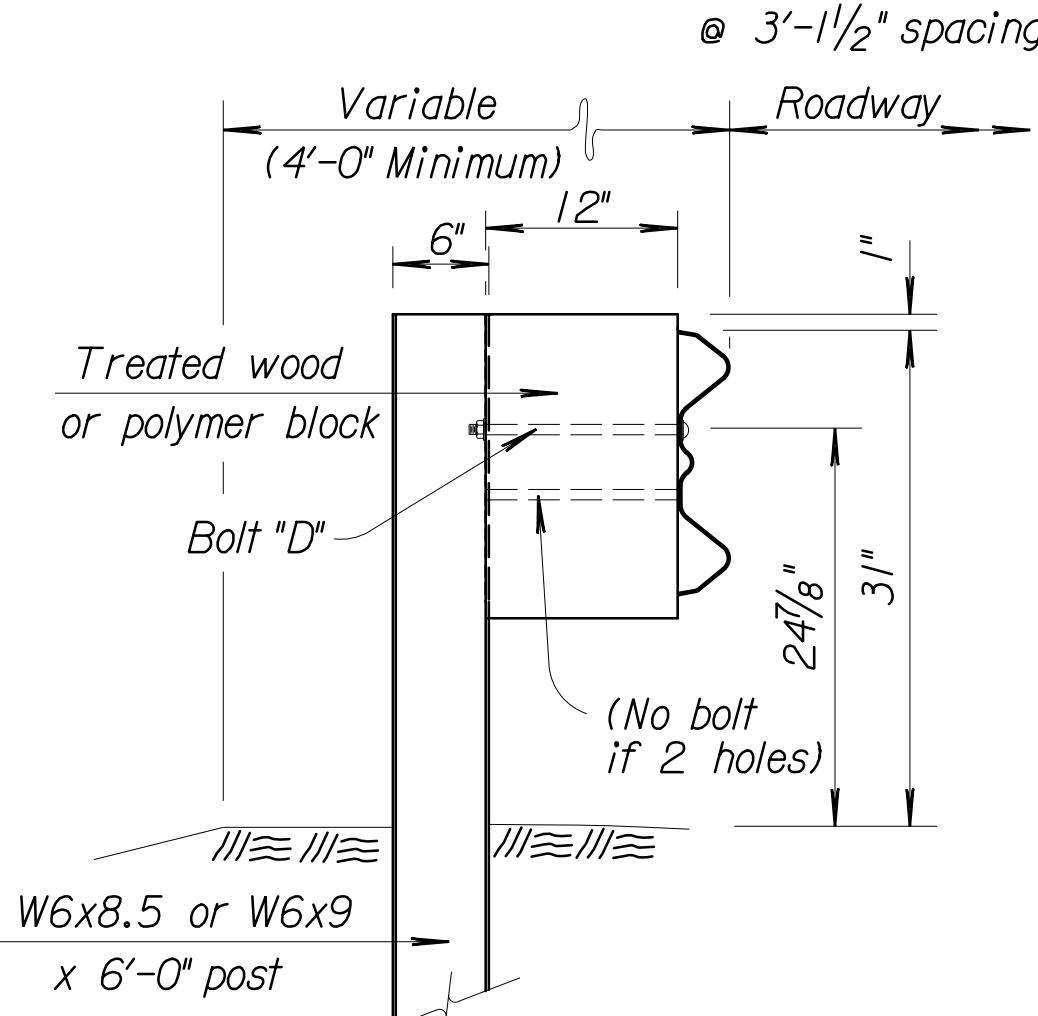
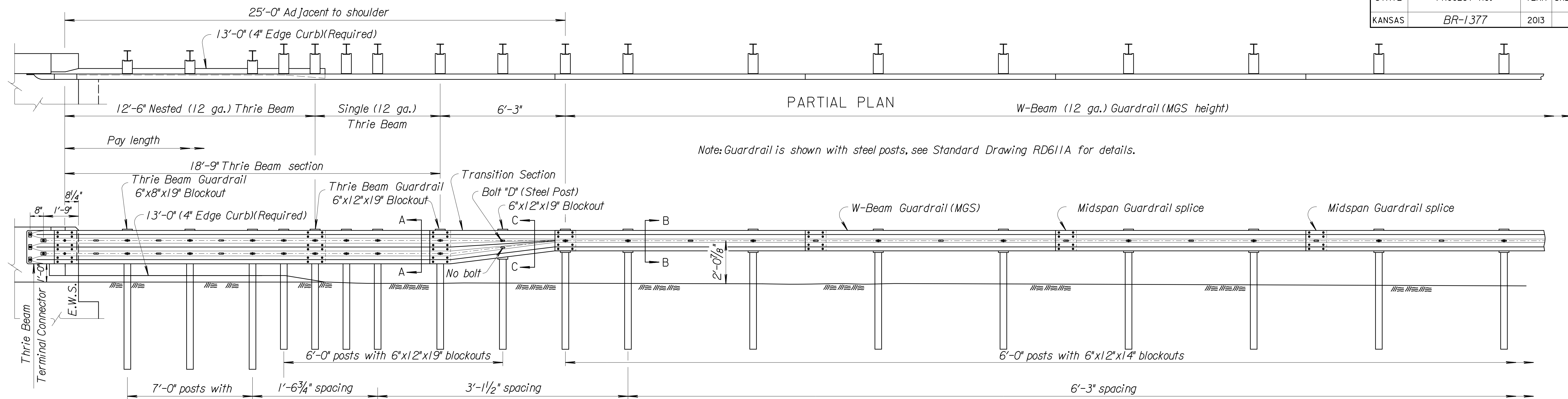
**THRIE BEAM GUARDRAIL (MGS)  
BRIDGE APPROACH TRANSITION  
TYPICAL ALIGNMENTS (FLARED)**

**RD612C**

FHWA APPROVAL	7-9-12	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

Bowser  
King

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	BR-1377	2013	11	

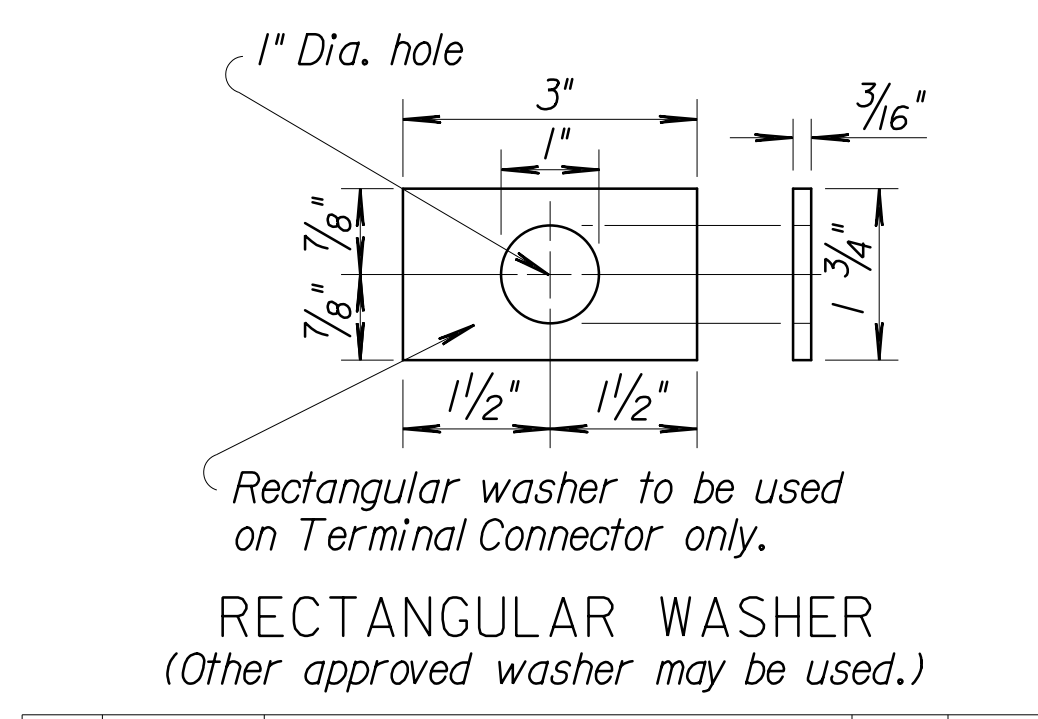
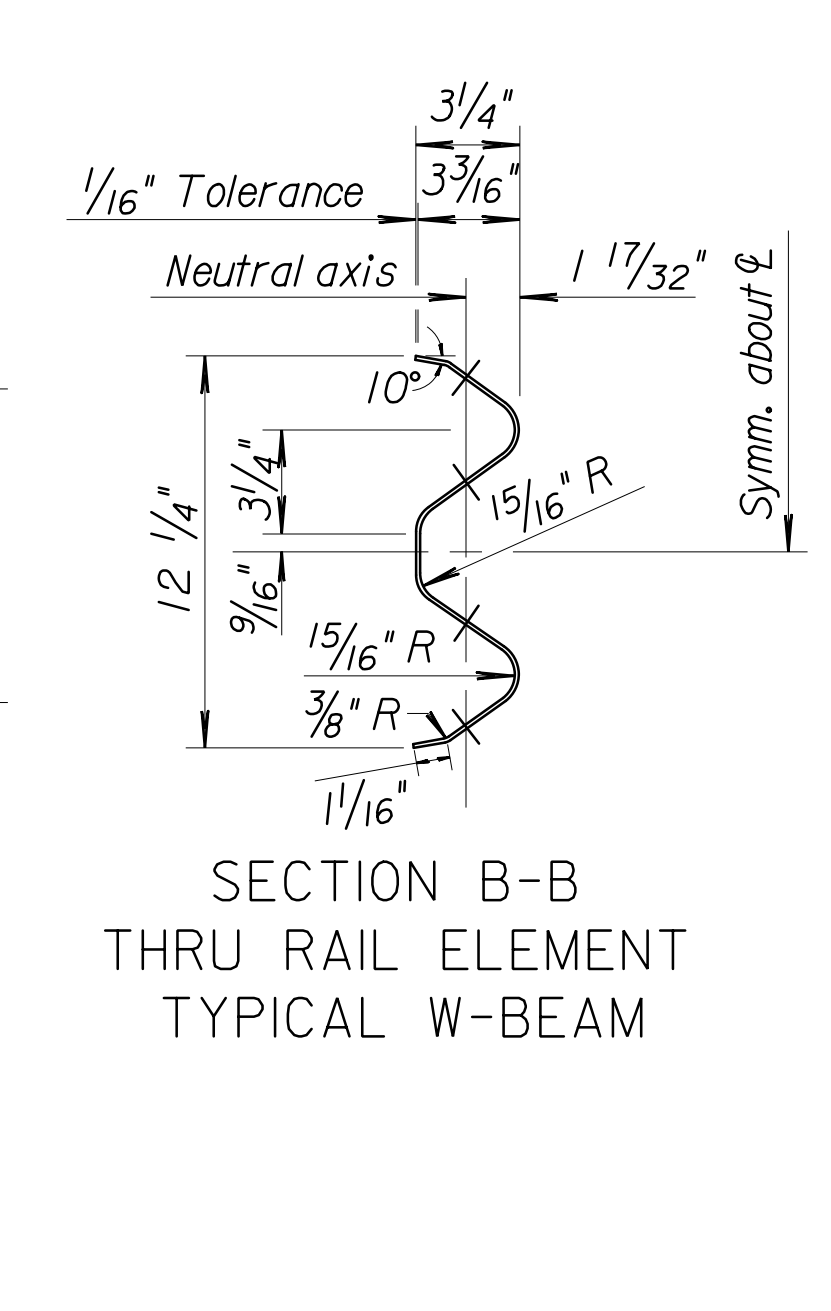
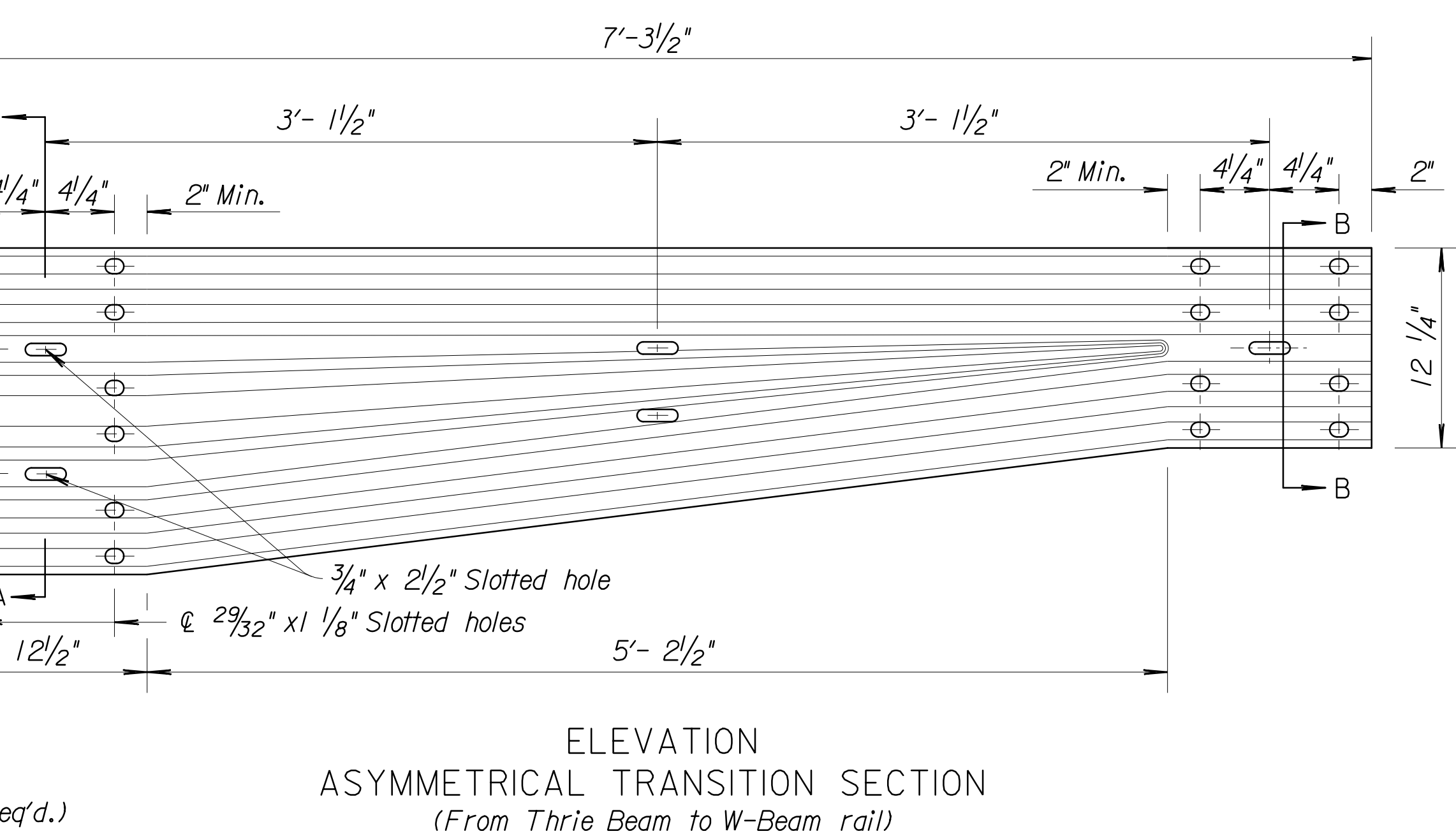
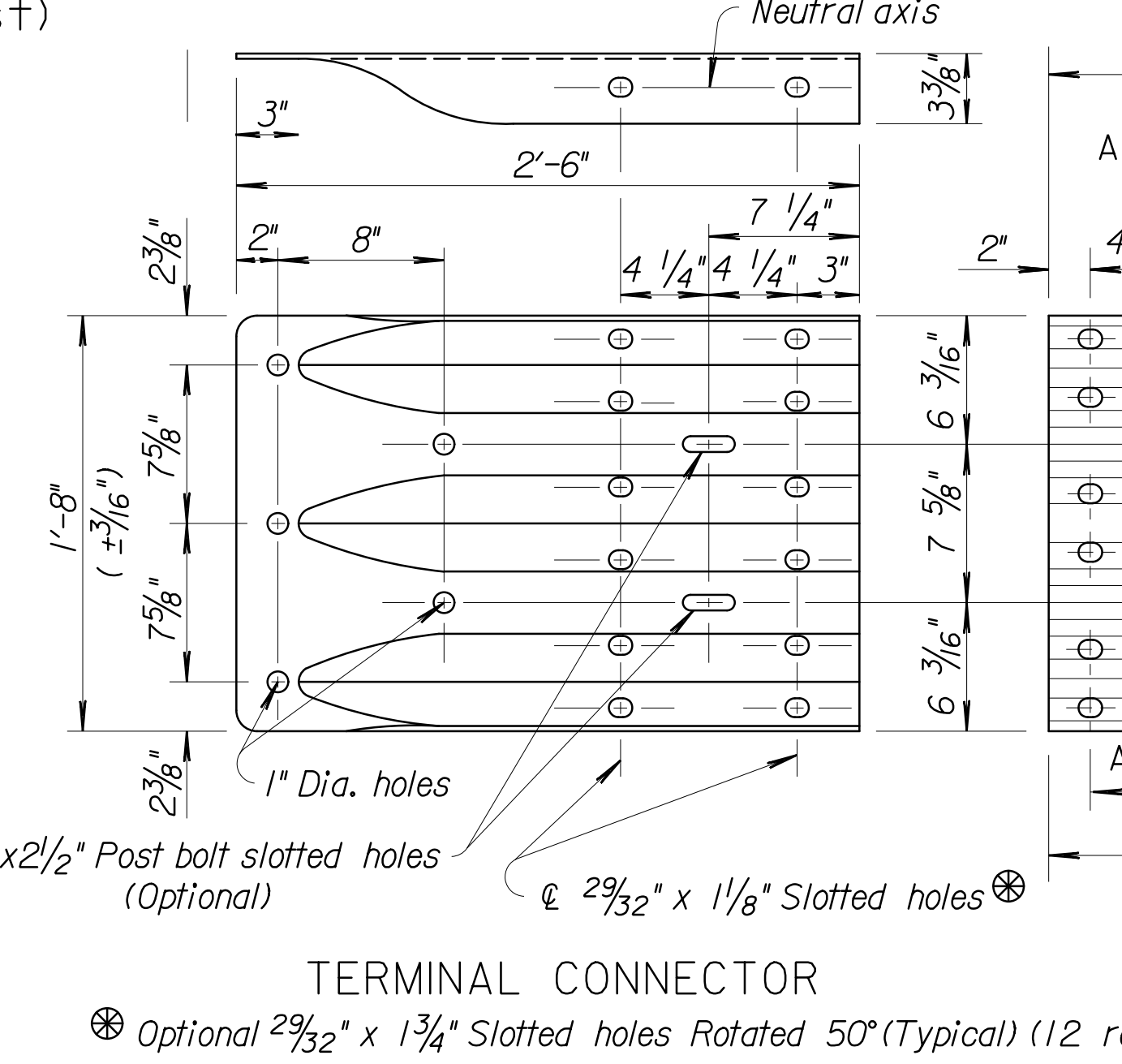
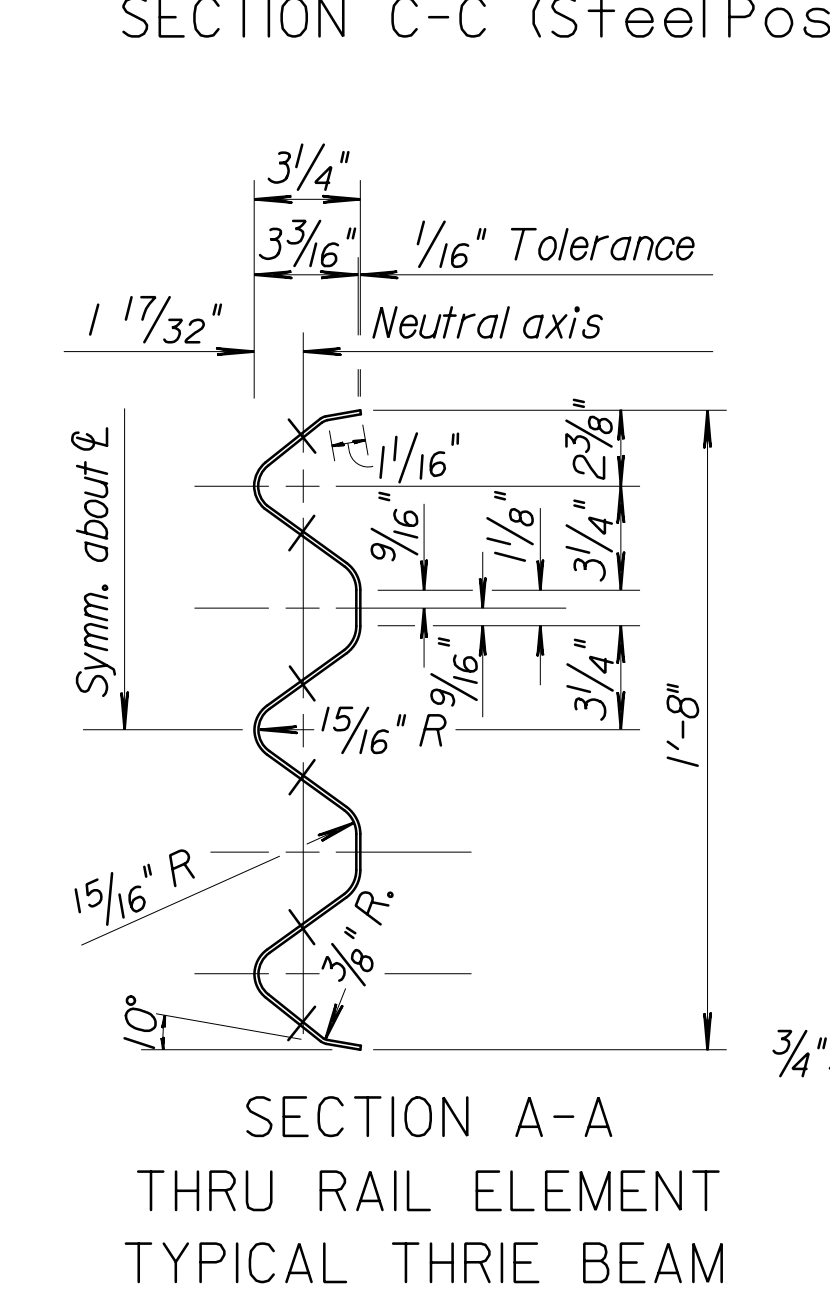


**GENERAL NOTE**

Use galvanized 12 gauge steel rail elements unless otherwise noted. Use galvanized anchor bolts and post rail fittings, see Standard Specifications regardless of source or manufacturer. Fabricate Terminal Connector from 10 gauge steel, see Standard Specification. The connector has the same section as thrie beam guardrail. Terminal connector is subsidiary to the bid item "Guardrail, Steel Plate".

Shop curve rails when radius is less than 150'. Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic. Bridge to guardrail transition consists of 1- 18'-9" thrie-beam with 1- 12'-6" thrie-beam section nested in back of 18'-9" section (See Layout), 1- Thrie beam to W-beam Asymmetrical transition section, use associated hardware with post sizes and location shown. For the remainder of installation use (MGS) W-beam guardrail with only one post/blockout type used within (MGS) guardrail run.

All material and work required for this construction are included in the bid item "Guardrail, Steel Plate".



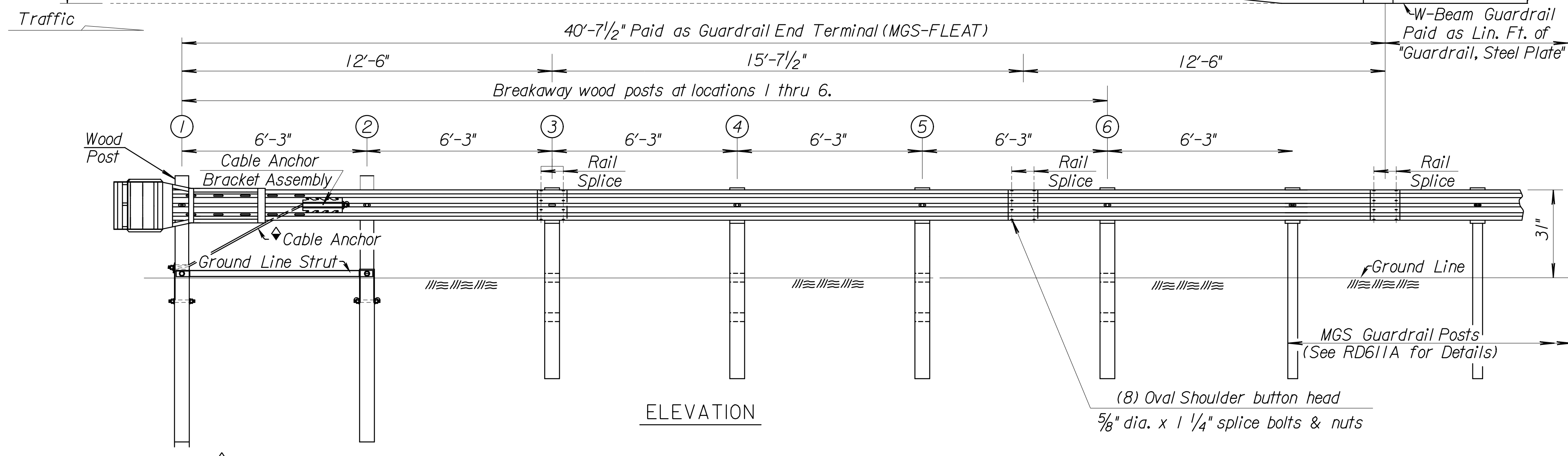
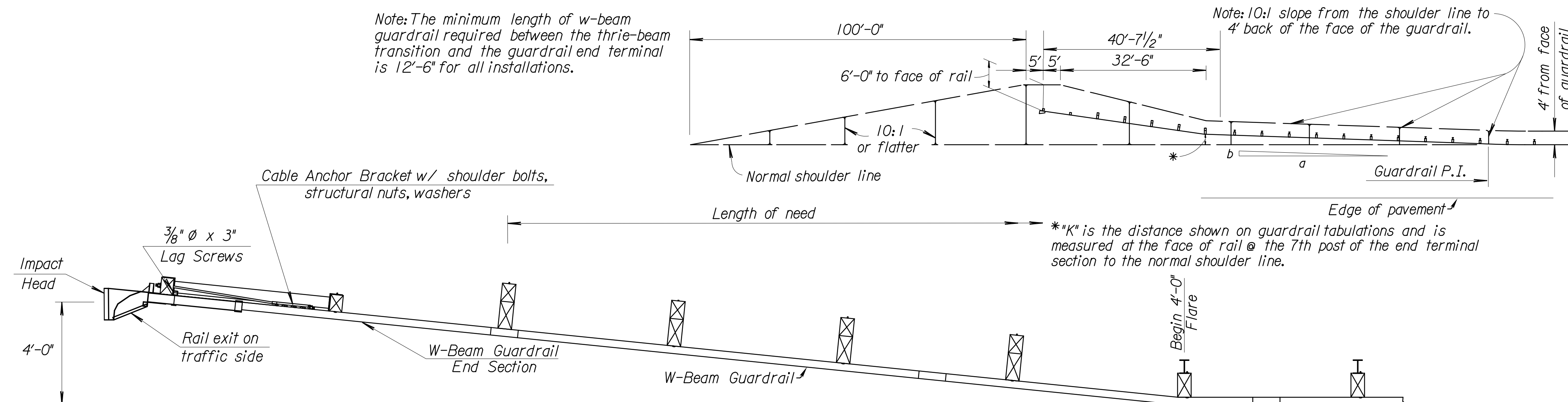
Drawn By: arobben  
 Plotted: 5/24/2013  
 File: I:\KAC\PRJ\0000744301\STR\DRGN\11\_7443\_rd613a.dgn

KANSAS DEPARTMENT OF TRANSPORTATION				
1	1-25-12	Revised Details, Thrie-Beam	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION				
RD613A				
FHWA APPROVAL	4-25-12	APP'D. James O. Brewer		
DESIGNED	TRACED	QUANTITIES	TRACED	Bowser
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.	King

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	BR-1377	2013	12	

Note: The minimum length of w-beam guardrail required between the three-beam transition and the guardrail end terminal is 12'-6" for all installations.

Note: 10:1 slope from the shoulder line to 4' back of the face of the guardrail.



After final assembly recheck cable to be taut.

**GENERAL NOTES**

Use approved wood (shown & described) or steel posts ① through ⑥ on the (MGS-FLEAT) provided by the manufacturer. Terminal post type used is independent of post type used on the remainder of the installation. No mixing of post types allowed in guardrail run.

Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

Drive the steel soil tubes with an approved driving head. Do not drive steel tubes with wood post in the tube. Backfill and satisfactorily compact around steel tubes placed in drilled holes to prevent tube settlement.

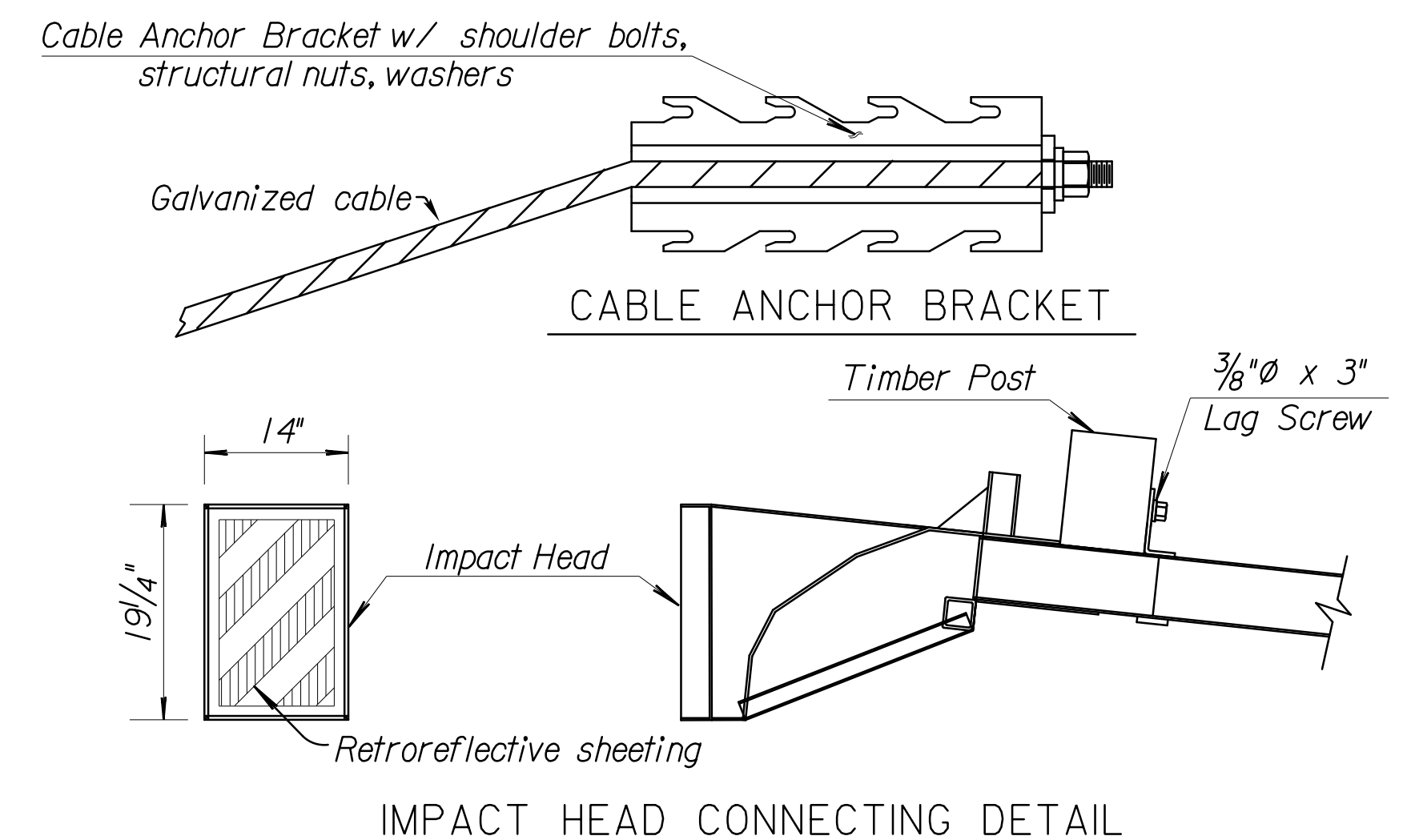
The soil tubes should not protrude more than 4" above ground (measured along a 5'-0" cord). If necessary grade the site to meet this requirement. When rock is encountered during installation, see Manufacturer's Installation Manual for procedure.

The cable anchor assembly must be taut. Use a locking device, (vice grips or channel lock pliers) to prevent the cable from twisting when tightening the nuts.

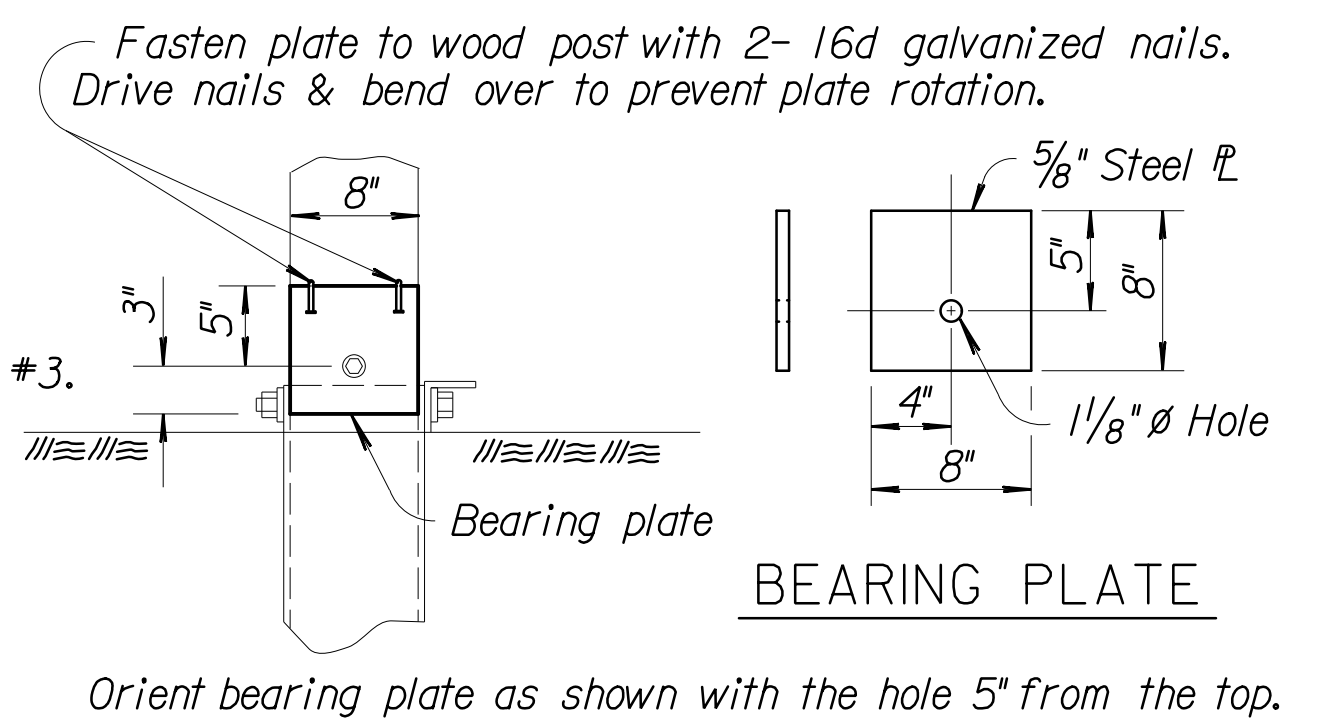
Apply retroreflective sheeting as shown on the face of the impact head prior to installation. Thoroughly clean and dry steel prior to applying sheeting. Galvanize all steel parts after fabrication.

All work and materials required for installation of this terminal are paid under the bid item "Guardrail End Terminal (MGS-FLEAT)".

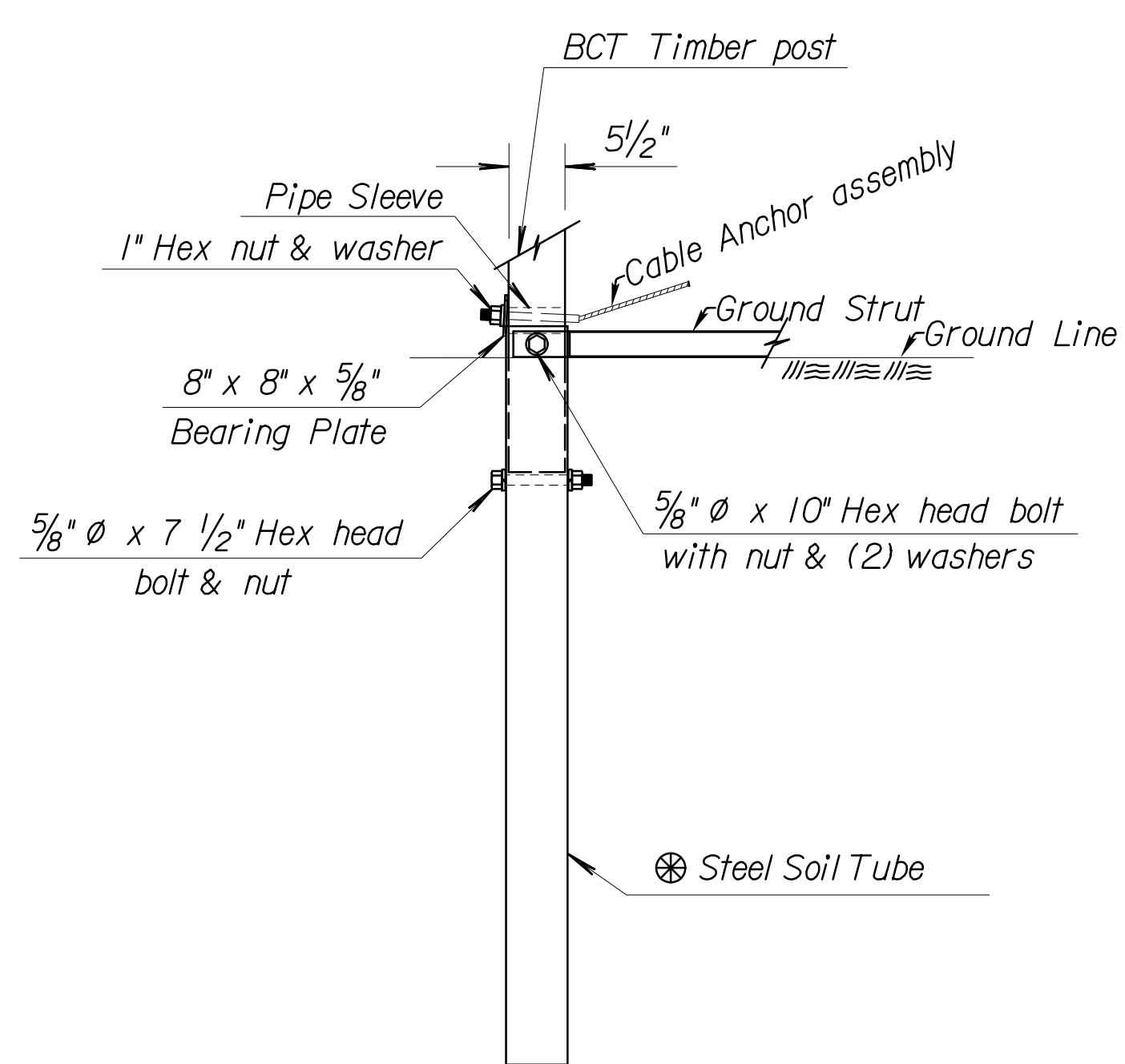
End Terminal (MGS-FLEAT) details shown on this sheet are for "Information Only" and may not be an exact detail. See Manufacturer's Installation Manual (furnished to Engineer) for component details and installation instructions. See Standard Drawing RD611A for guardrail post details.



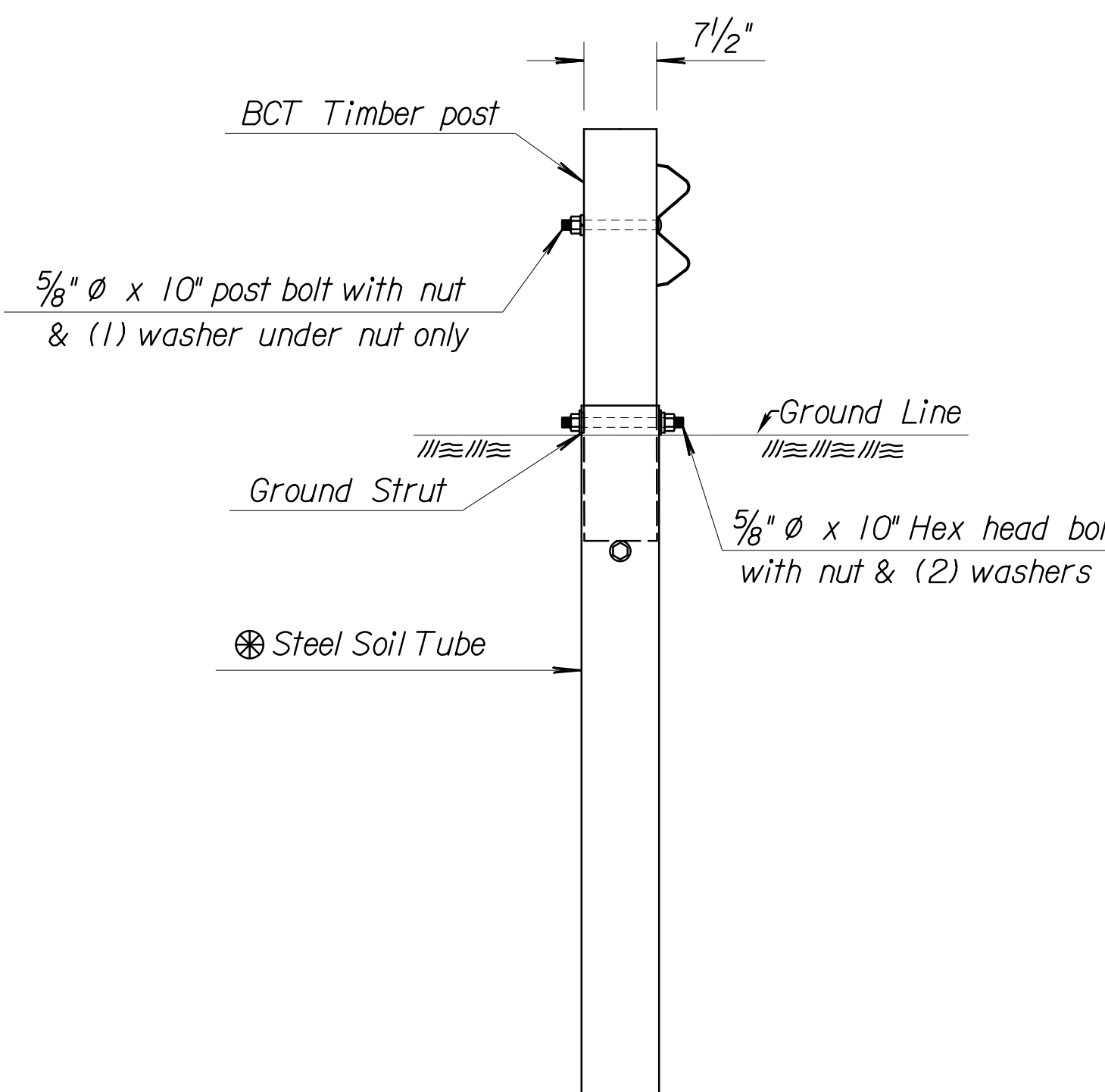
IMPACT HEAD CONNECTING DETAIL



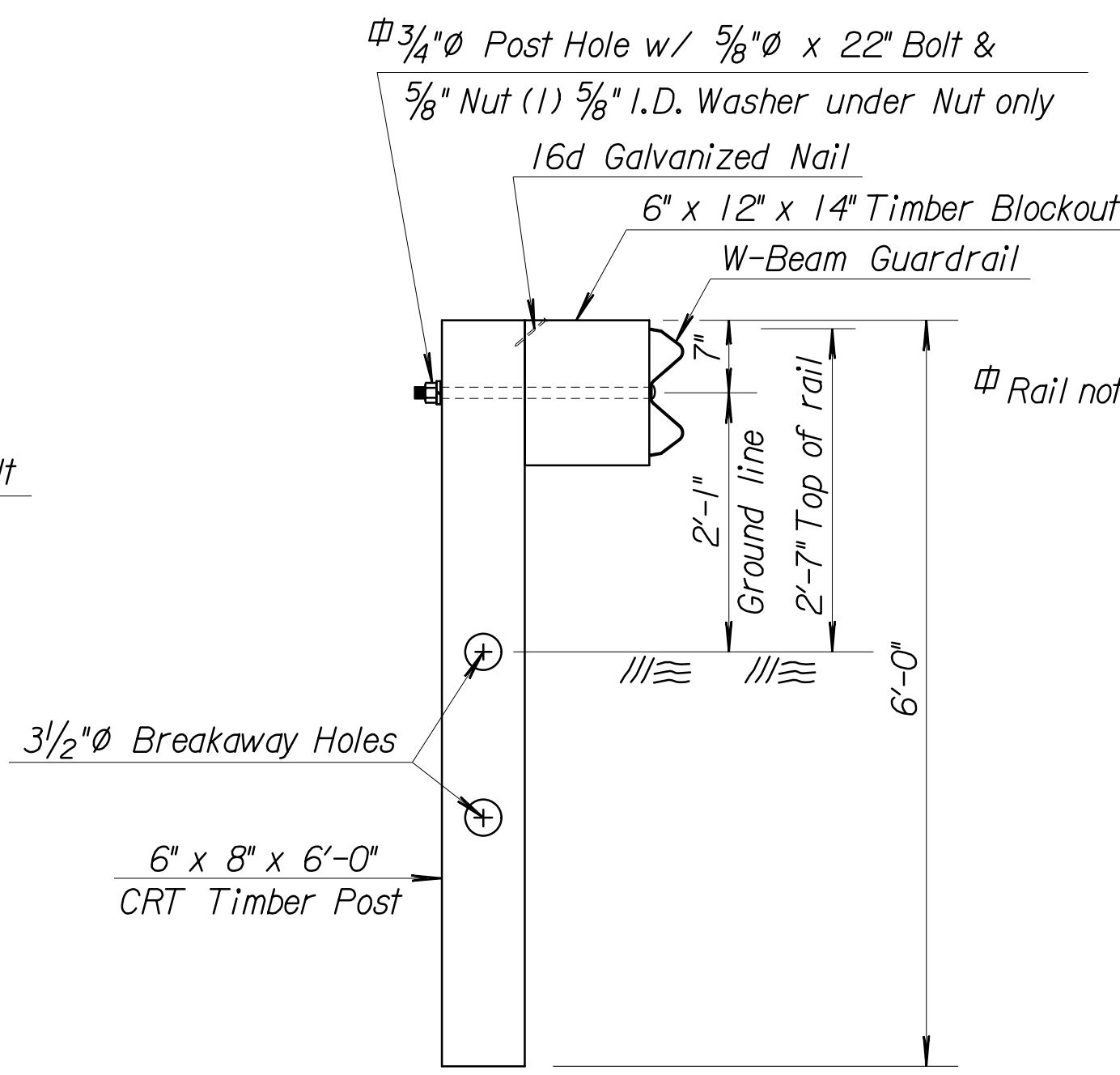
BEARING PLATE



PARTIAL VIEW OF POST 1



DETAIL OF POST #2



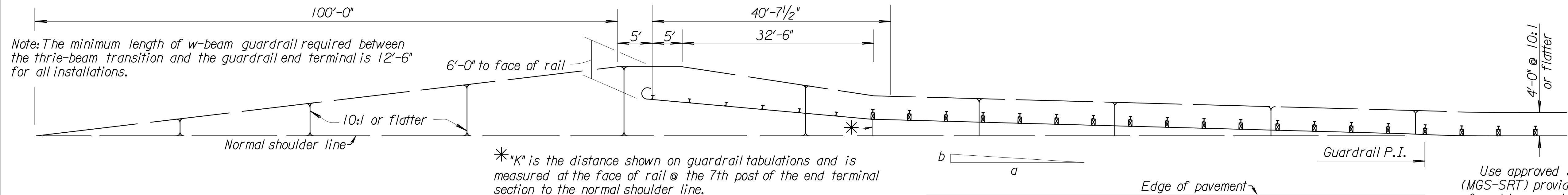
DETAIL OF CRT POST

(#3 through #6)

Optional 4'-6" or 5'-0" tube w/soil plate may be used as per the manufacturer's specifications.

KANSAS DEPARTMENT OF TRANSPORTATION				
GUARDRAIL END TERMINAL (MGS-FLEAT) FLARED				
RD606E				
DESIGNED	DATE	REVISED DIMENSION, END TERM.	APP'D.	J.O.B.
	1-24-12		James O. Brewer	
DESIGN CK.	DATE	REVISIONS	BY	APP'D.

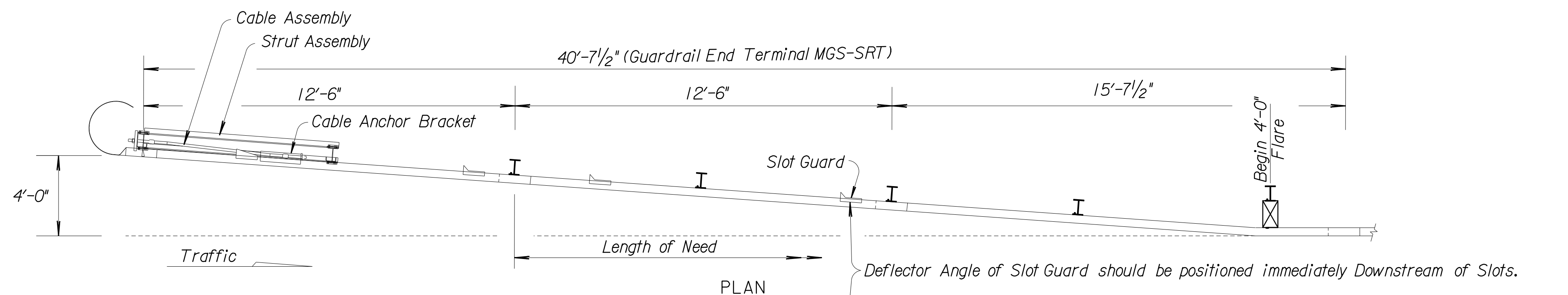
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	BR-1377	2013	13	



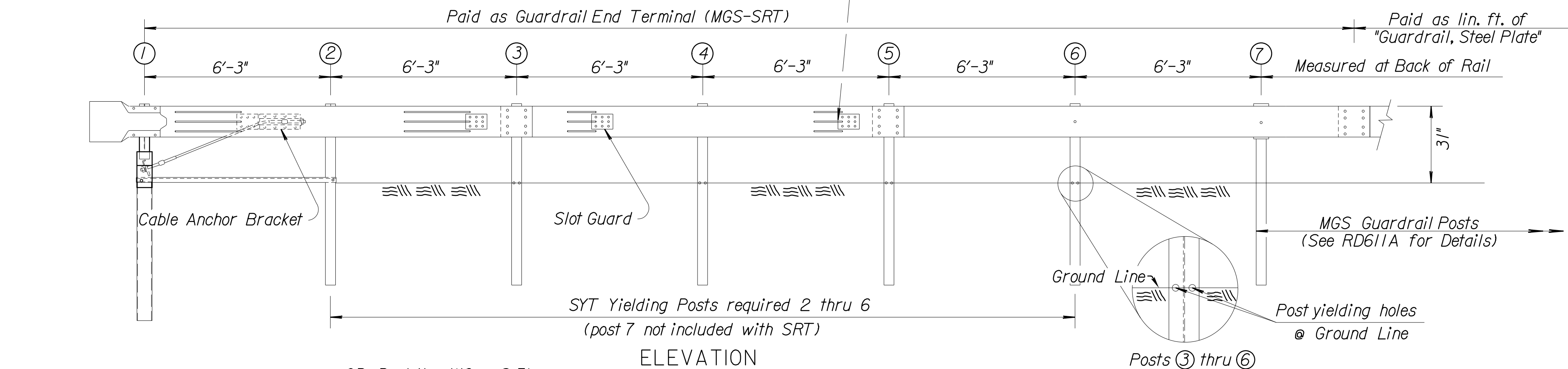
Note: The minimum length of w-beam guardrail required between the three-beam transition and the guardrail end terminal is 12'-6" for all installations.

\*"K" is the distance shown on guardrail tabulations and is measured at the face of rail @ the 7th post of the end terminal section to the normal shoulder line.

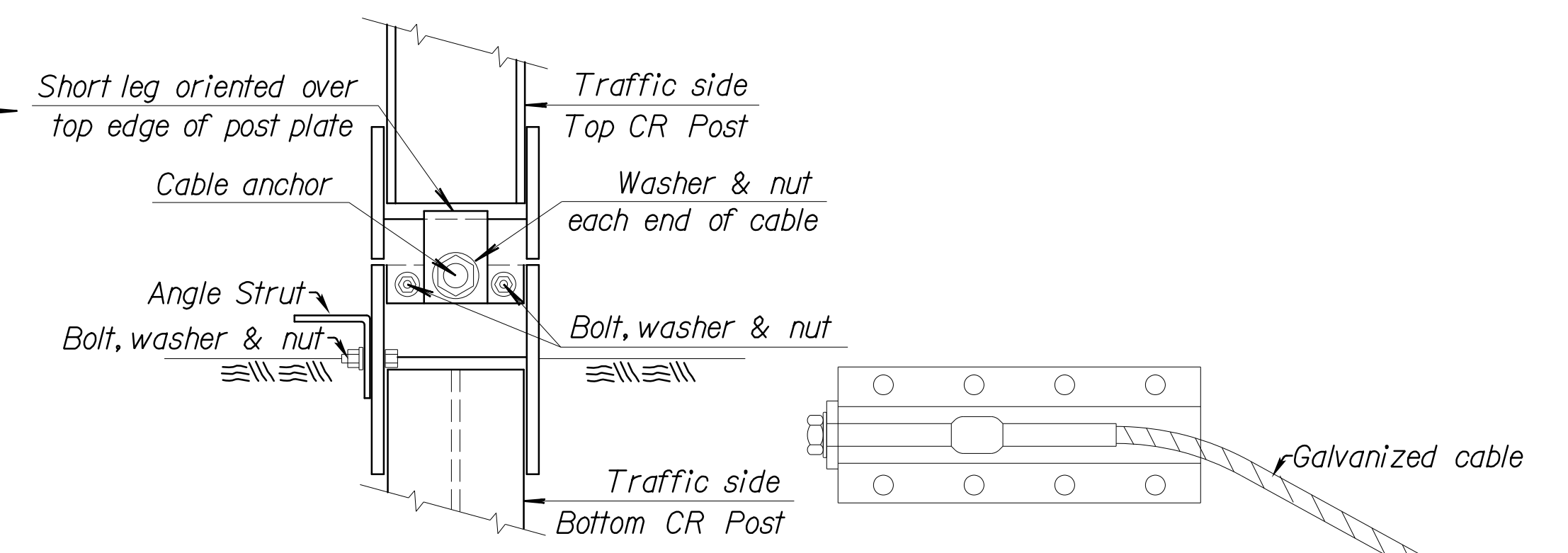
**GENERAL NOTE**  
 Use approved steel (shown & described) or wood posts ① through ⑥ on the (MGS-SRT) provided by the manufacturer. Terminal post type used is independent of post type used on the remainder of the installation. No mixing of post types allowed in guardrail run.  
 Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.  
 The cable anchor assembly must be taut. Use a locking device, (vice grips or channel lock pliers) to prevent the cable from twisting when tightening the nuts.  
 When rock is encountered during installation, see Manufacturer's Installation Manual for procedure.  
 End Terminal (MGS-SRT) details shown on this sheet are for "Information Only" and may not be an exact detail. See Manufacturer's Installation Manual (furnished to Engineer) for component details and installation instructions.  
 All work and materials required for installation of this terminal are paid under the bid item "Guardrail End Terminal (MGS-SRT)".  
 Galvanize all steel parts after fabrication.  
 See Standard Drawing RD611A for guardrail post details.



PLAN

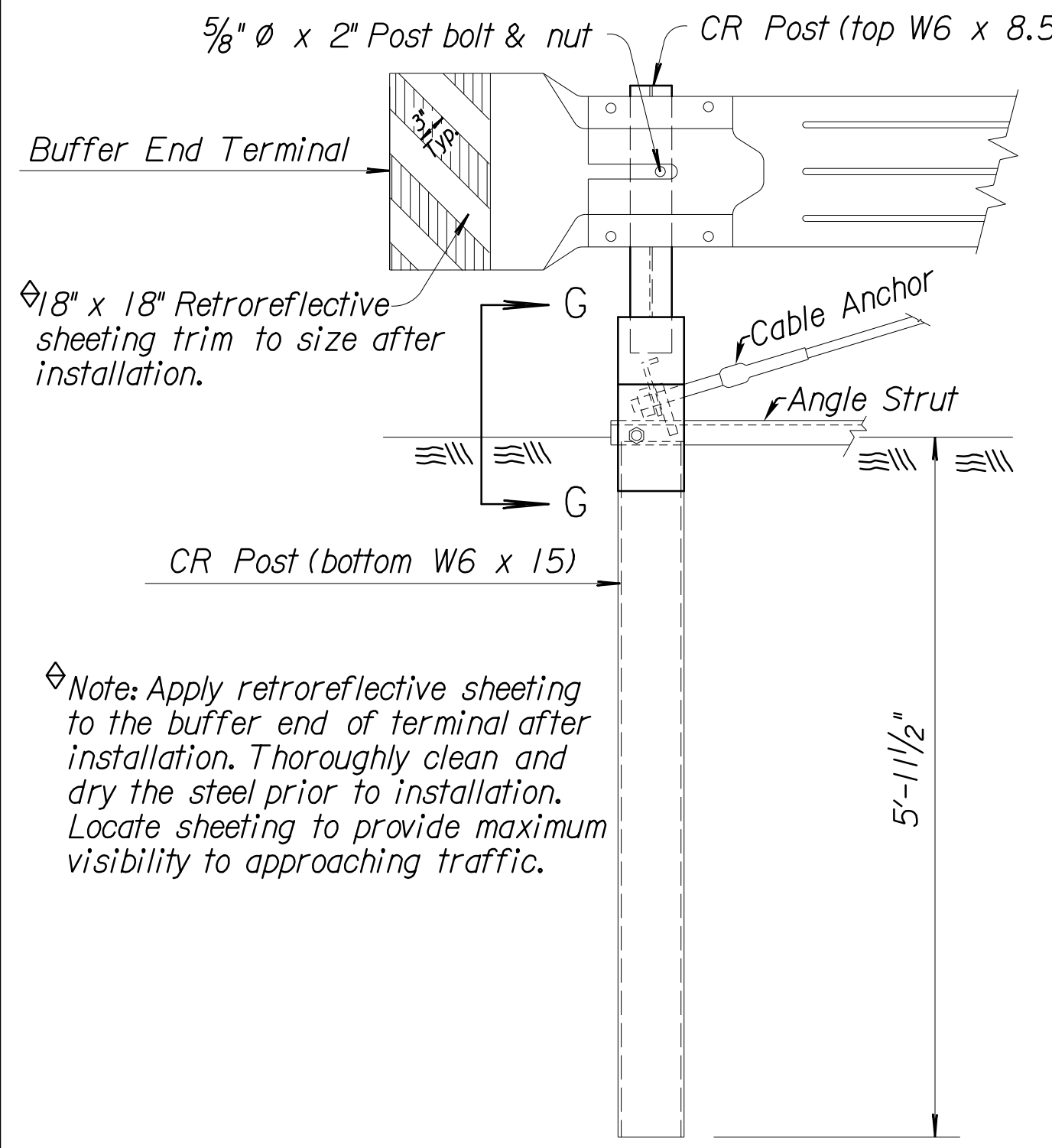


ELEVATION

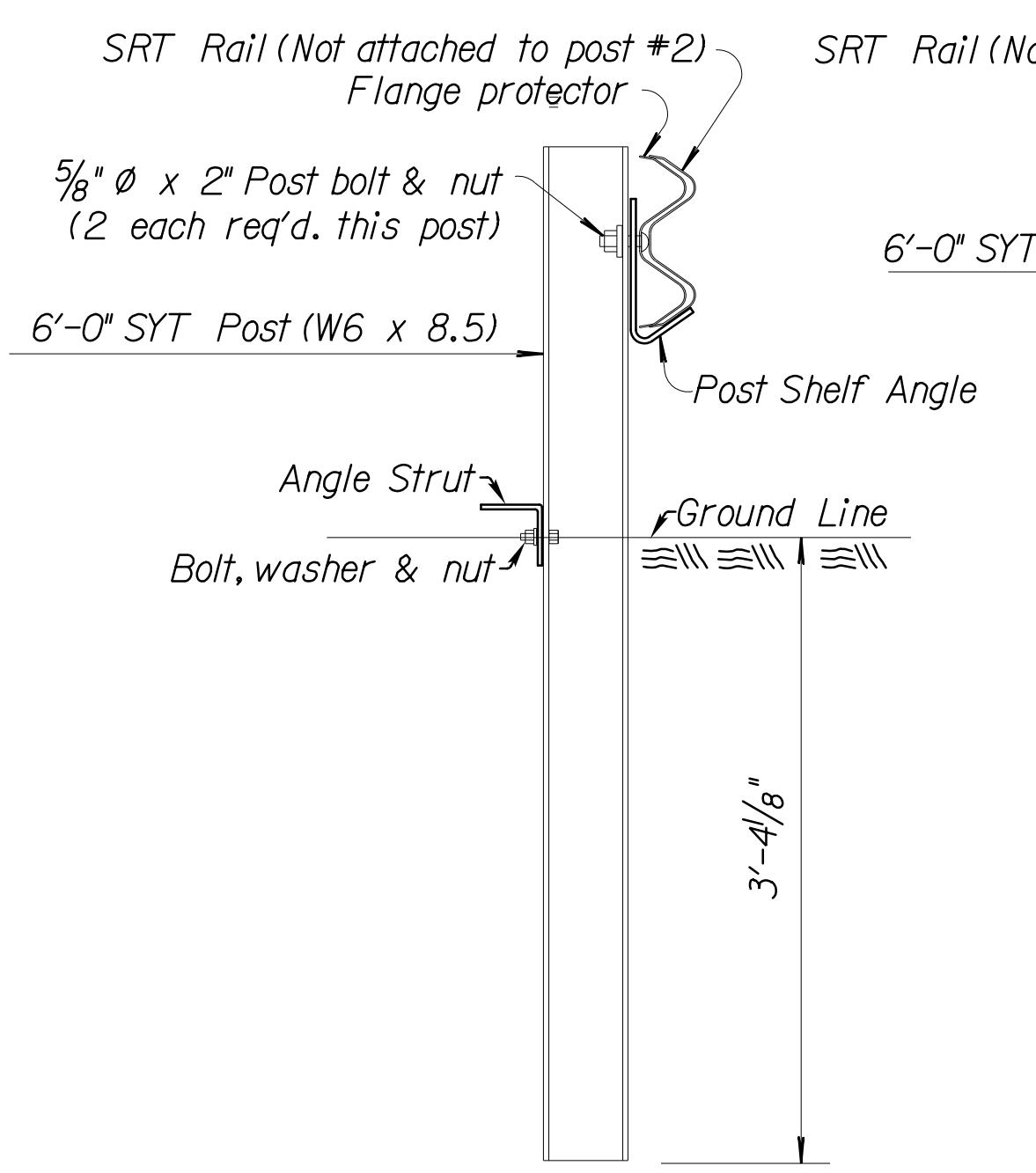


SECTION G-G (Post #1)

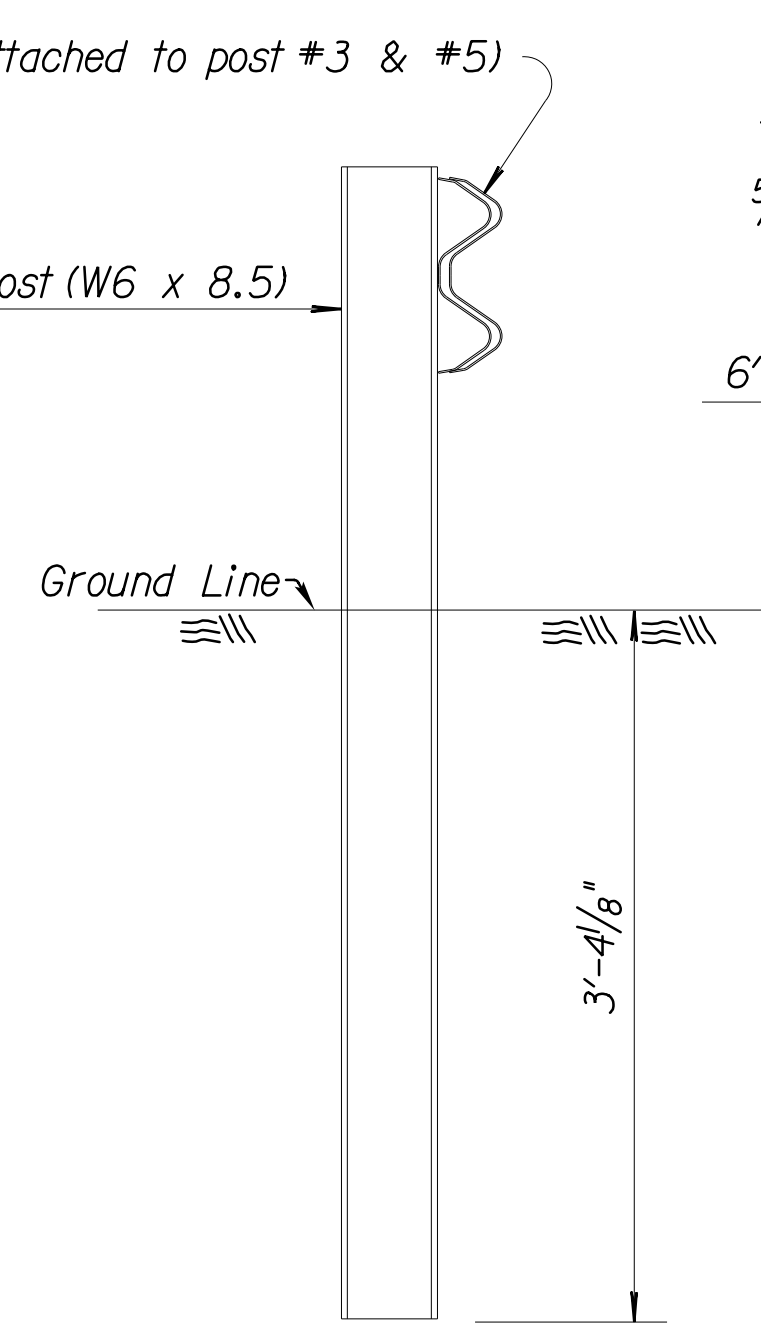
CABLE ANCHOR BRACKET



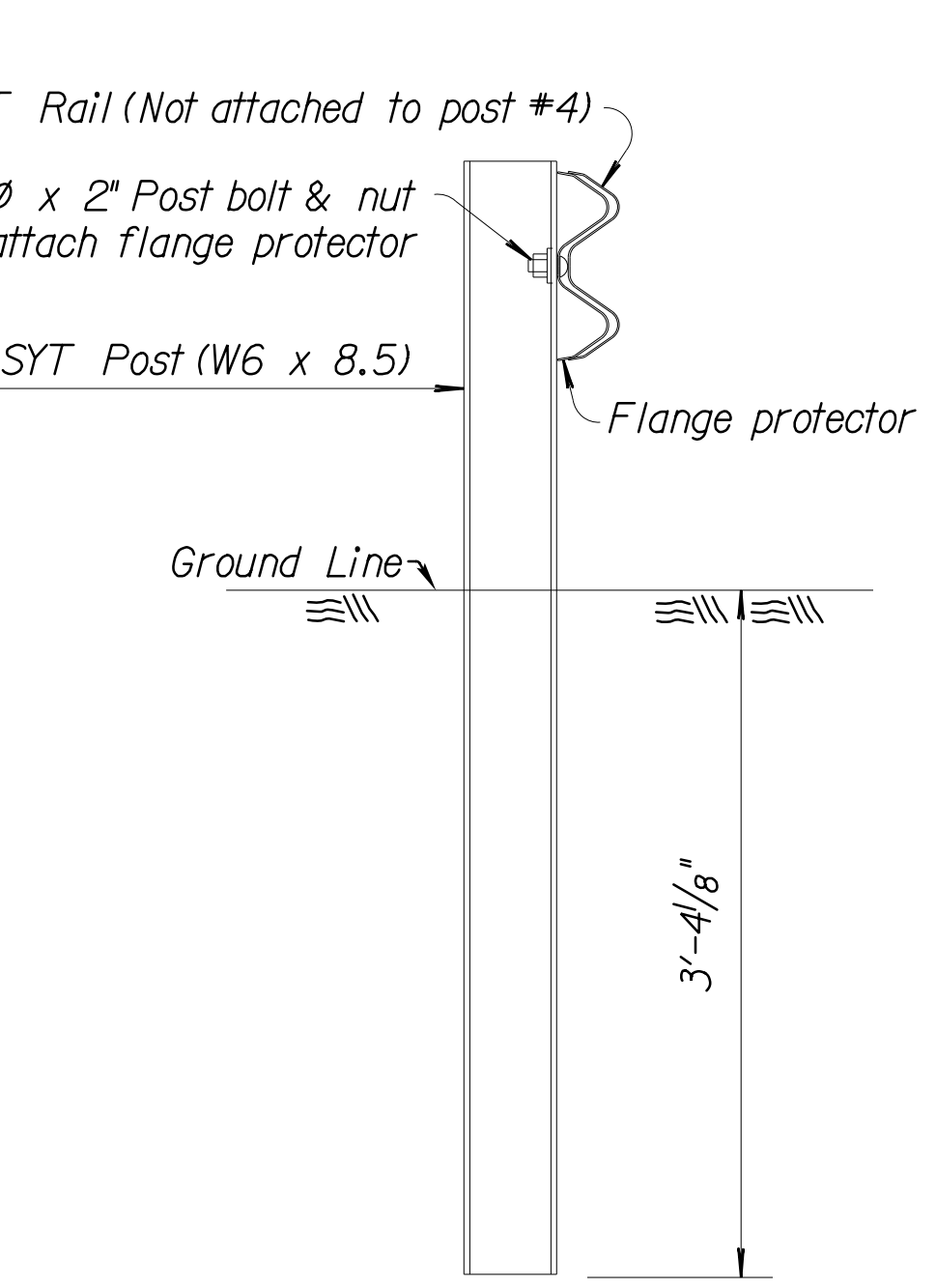
DETAIL OF POST #1



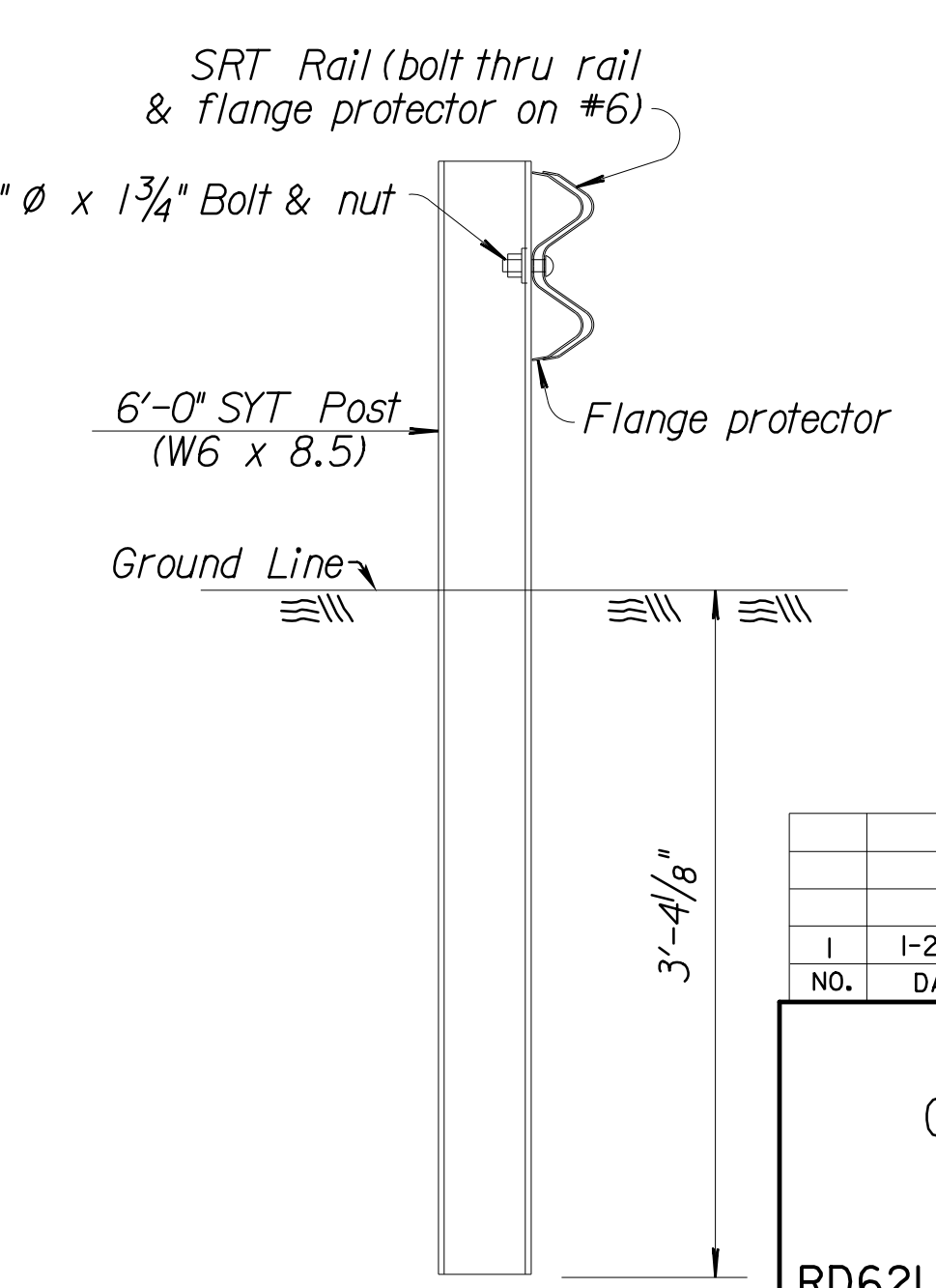
DETAIL OF POST #2



DETAIL OF POST #3 & #5



DETAIL OF POST #4

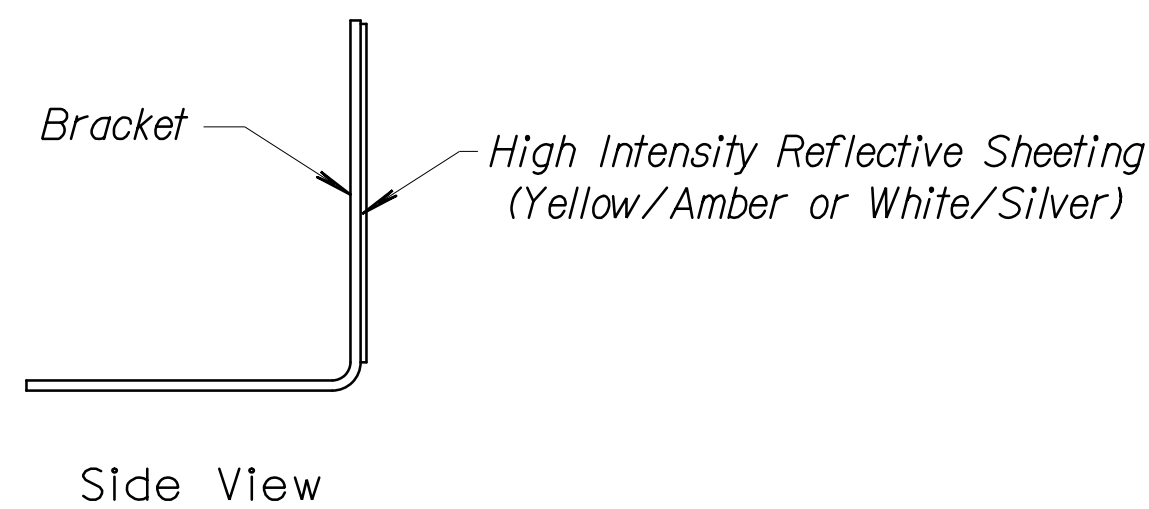


DETAIL OF POST #6

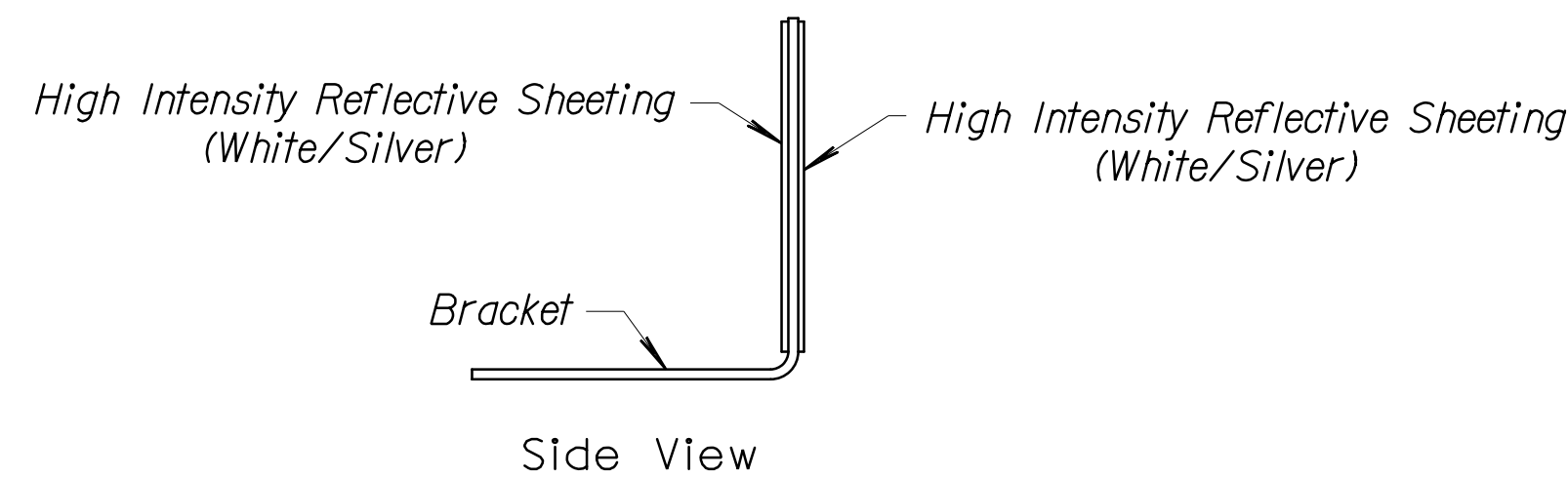
KANSAS DEPARTMENT OF TRANSPORTATION				
<b>GUARDRAIL END TERMINAL (MGS-SRT) FLARED</b>				
RD621B				
DESIGNED	4-25-12	APP'D.	James O. Brewer	
DESIGN CK.	DETAIL CK.	QUANTITIES	TRACED	Bowser
		QUAN. CK.	TRACE CK.	King

Drawn By: aroboben  
 Plotted: 5/24/2013  
 File: I:\KAC\PRJ\000007443\01\STR\DGN\13\_7443\_rd621b.dgn

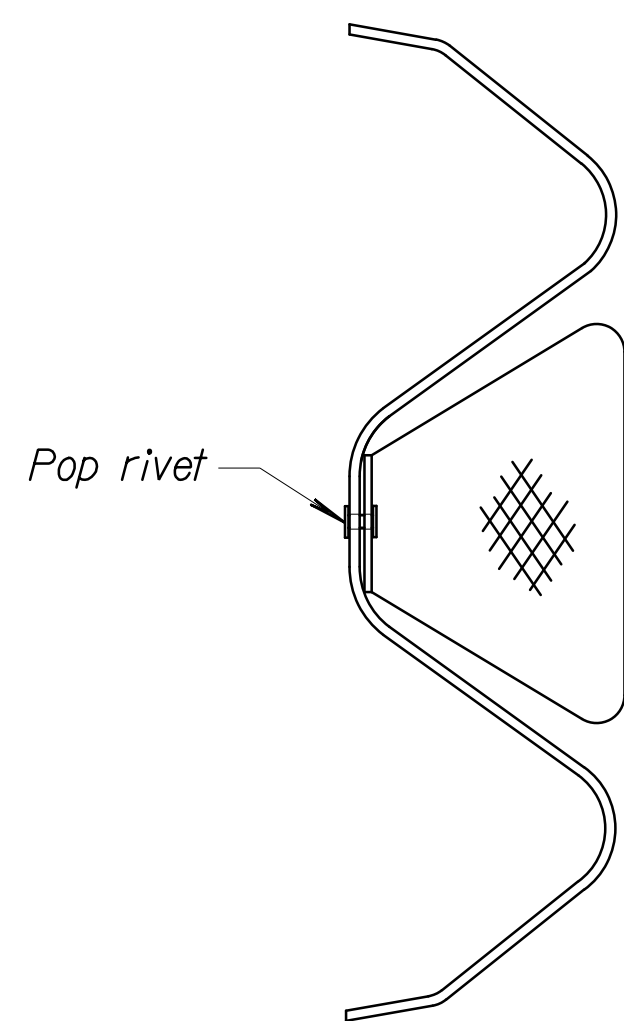
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	BR-1377	2013	14	



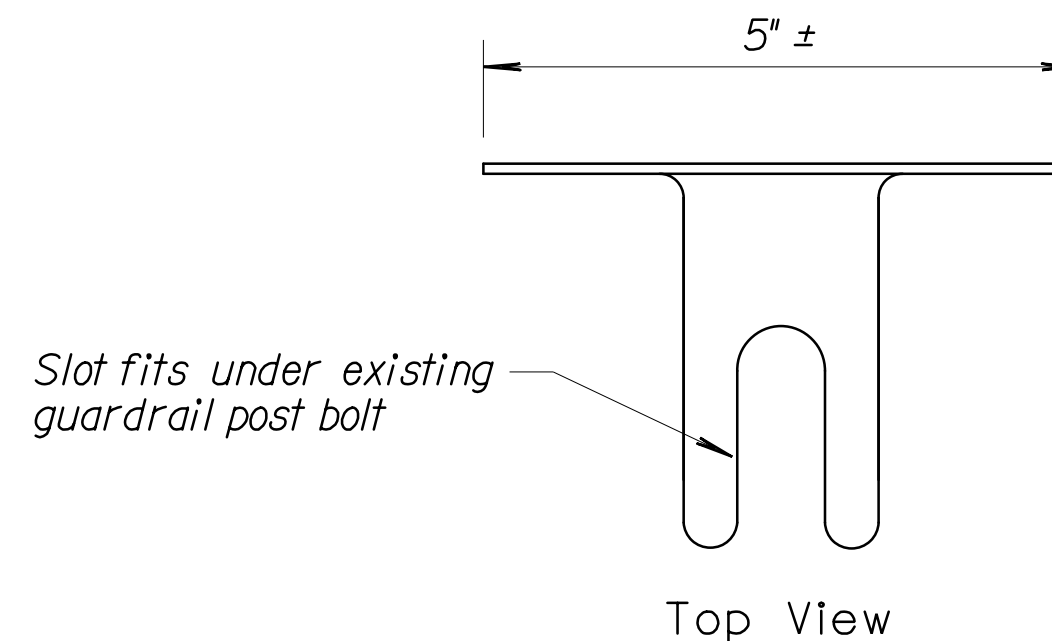
Flexible Guardrail Marker  
One-Way Traffic



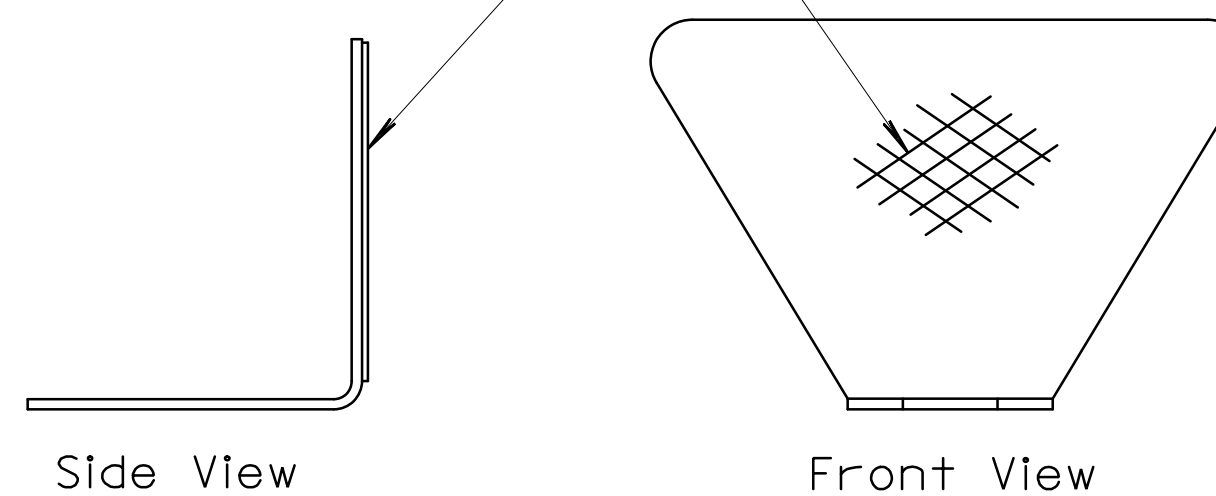
Flexible Guardrail Marker  
Two-Way Traffic



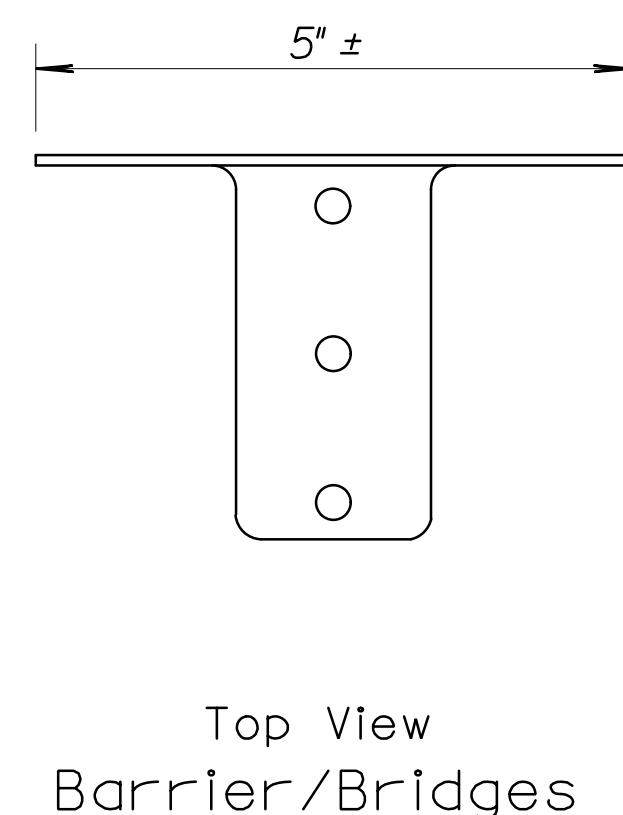
Typical Mounting on W-Beam  
Pop rivet attachment to Guardrail when necessary.



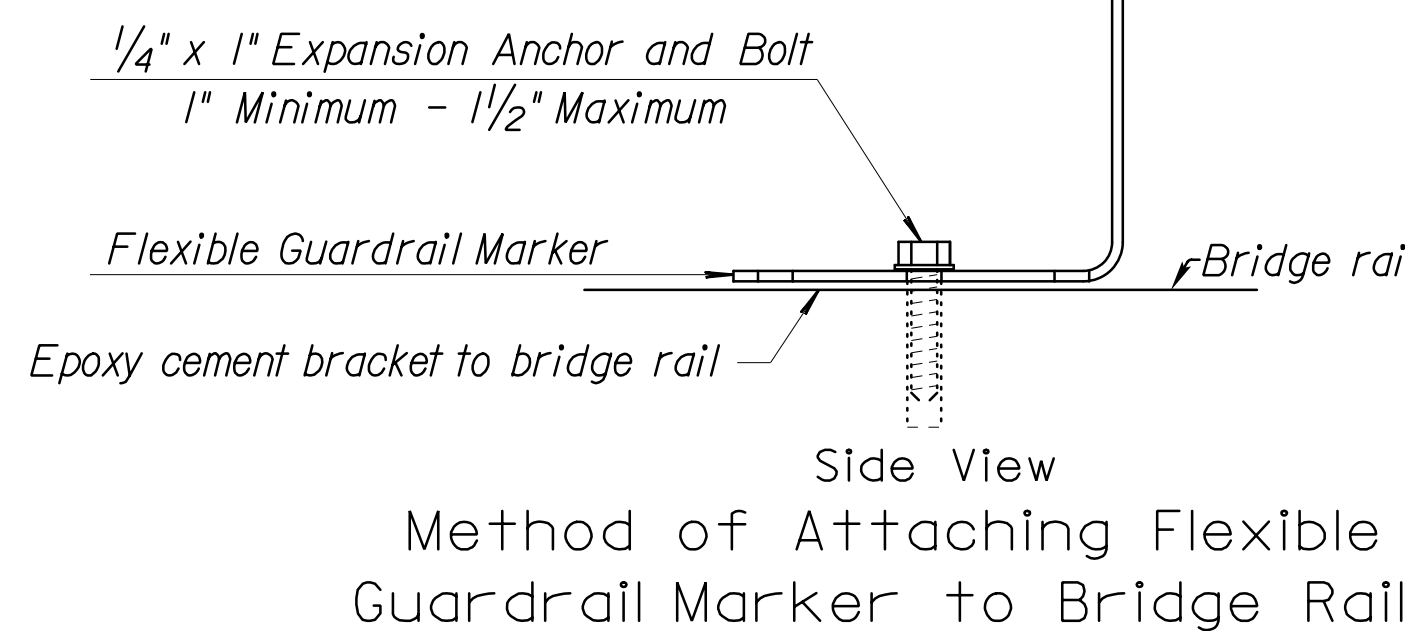
High Intensity Reflective Sheeting  
(Silver or Amber, one or both sides)



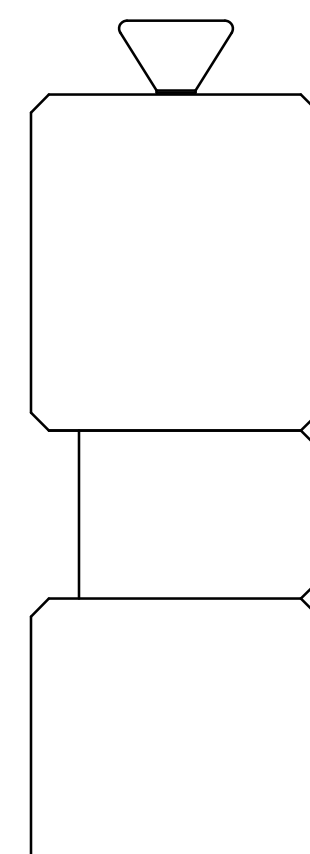
Flexible Guardrail Marker  
(High Impact Polycarbonate approx.  
.085" thick, 5 1/4" x 3")



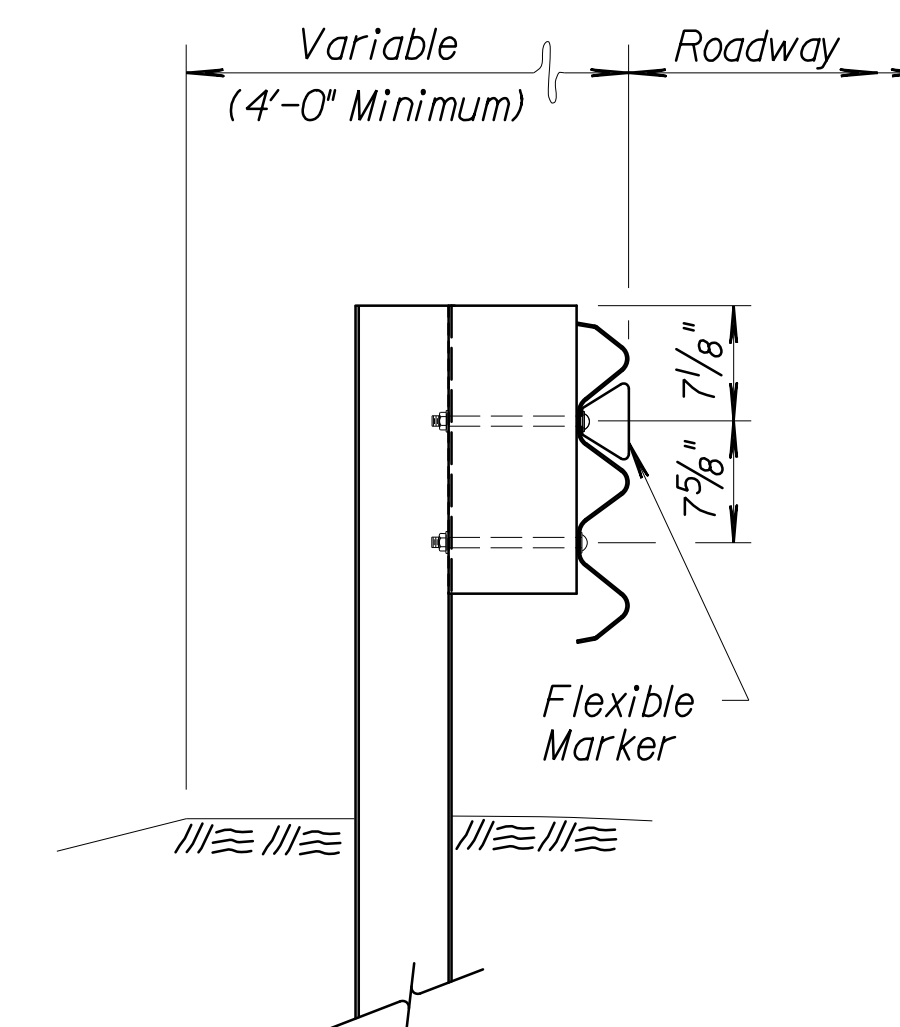
Top View  
Barrier/Bridges



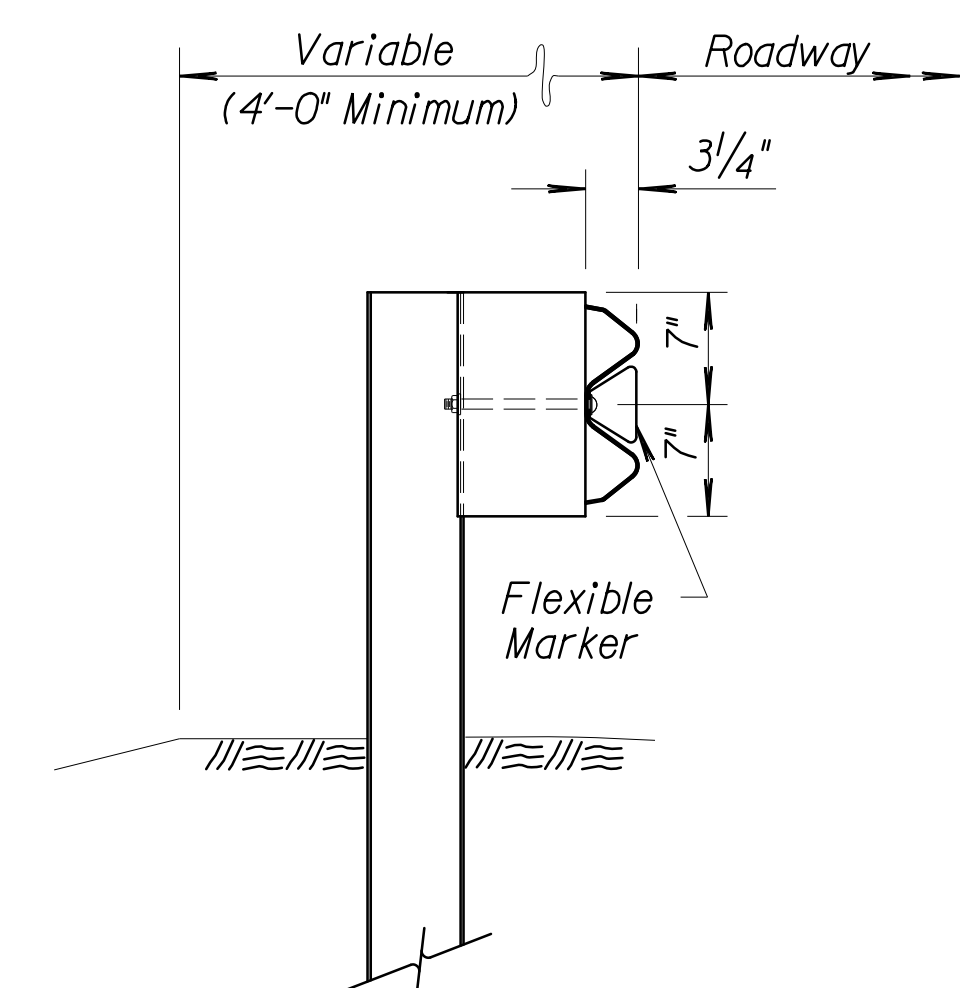
Method of Attaching Flexible  
Guardrail Marker to Bridge Rail



Typical Mounting on  
Corral Rail



Flexible Marker Mounting  
on Thrie Beam Guardrail



Flexible Marker Mounting  
on W-Beam Guardrail

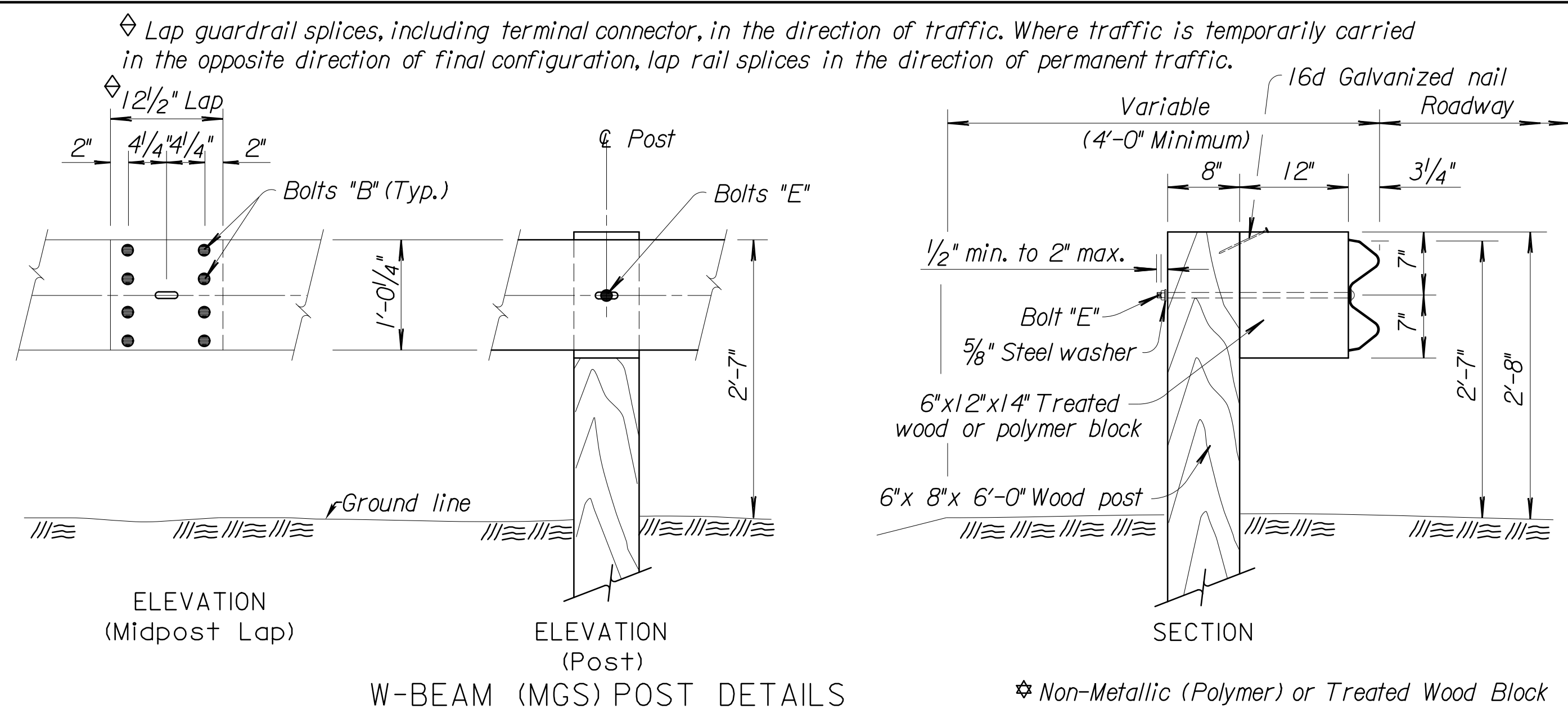
**General Notes**  
 Install markers on the traffic side of all guardrail installations. Do not exceed 25 foot spacing on markers. No marker is installed between the head and post #5 when the guardrail is terminated with a crashworthy end terminal. Install flexible markers on a post behind guardrail bolt head.  
 Install flexible markers on the top of bridge rails at a spacing not to exceed 50' except for long bridges (greater than 200' long) where spacing may be increased to 100'.  
 On two-way roadways use flexible markers with white/silver high intensity reflective sheeting on both sides.  
 On one-way or divided roadways use flexible markers installed on the approach traffic side of bracket only. Use marker color yellow/amber on the left side of roadway and white/silver on the right side of the roadway.  
 Use High Impact Polycarbonate Flexible Guardrail Marker with High Intensity Reflective Sheeting AKT Marker or approved equivalent marker, see Standard Specifications.  
 Use zinc or cadmium plated fasteners that complies with Standard Specifications.  
 Work and materials required for installation of markers on guardrail/bridge rail are Subsidiary to the bid item "Steel Plate Guardrail".  
 Install flexible markers for the final (permanent) traffic configuration on projects with staged construction. For example a divided highway with one side closed and two-way traffic during construction.)

8	11-15-10	Revised notes	S.W.K.	J.O.B.
7	12-21-08	AKT marker or approved equal	S.W.K.	J.O.B.
6	3-10-09	Add Flexible rem. Button define	S.W.K.	J.O.B.
5	7-20-04	Changed Guard Fence to Guardrail	S.W.K.	J.O.B.
NO.	DATE	REVISIONS	BY	APP'D

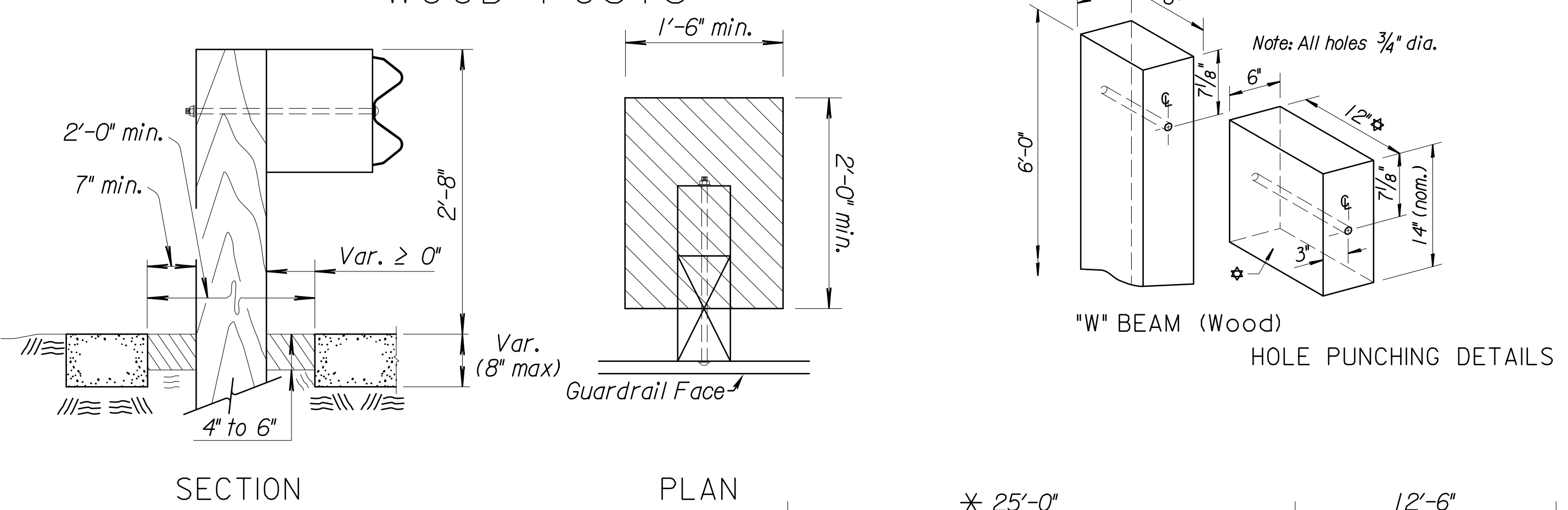
KANSAS DEPARTMENT OF TRANSPORTATION				
<b>MARKER DETAILS FOR GUARDRAIL AND BRIDGE RAILS</b>				
<b>RD610</b>				
DESIGNED	1-1-11	APP'D.	James O. Brewer	
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK. King	

Notes to Designer: For posts installed in pavement thicker than 8" or posts installed in rock formations refer to AASHTO's Roadside Design Guide for details then revise this drawing and all supporting drawings appropriately.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	BR-1377	2013	15	

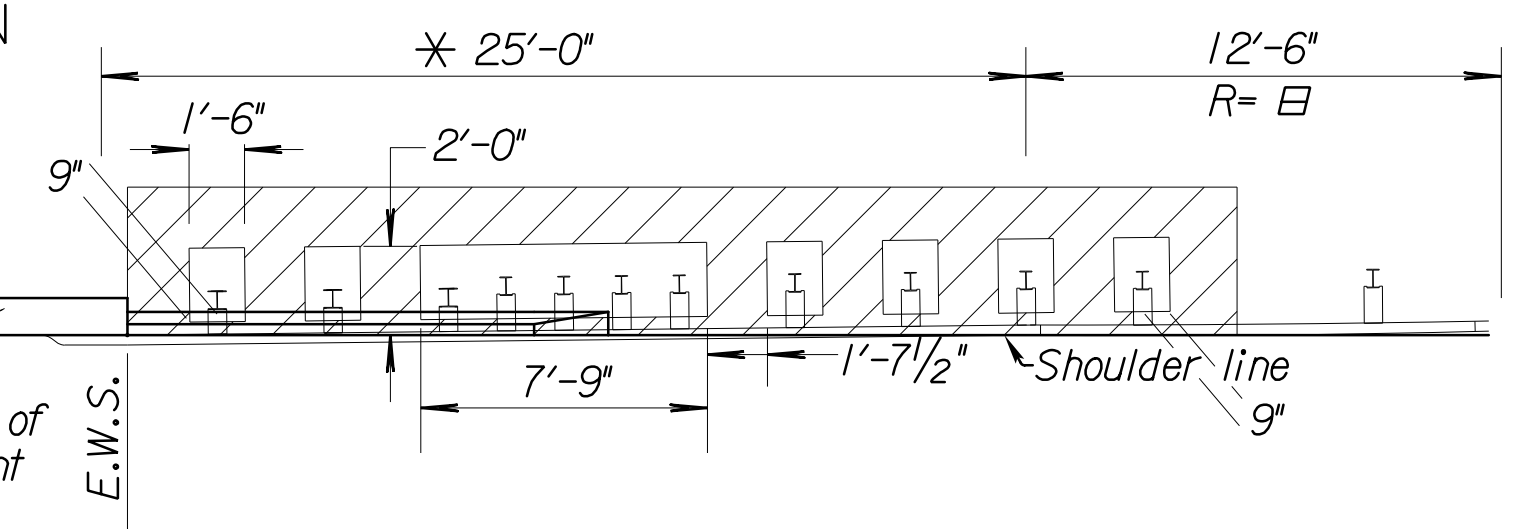


**W-BEAM (MGS) POST DETAILS  
WOOD POSTS**



**POSTS IN PAVEMENT**

Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items.

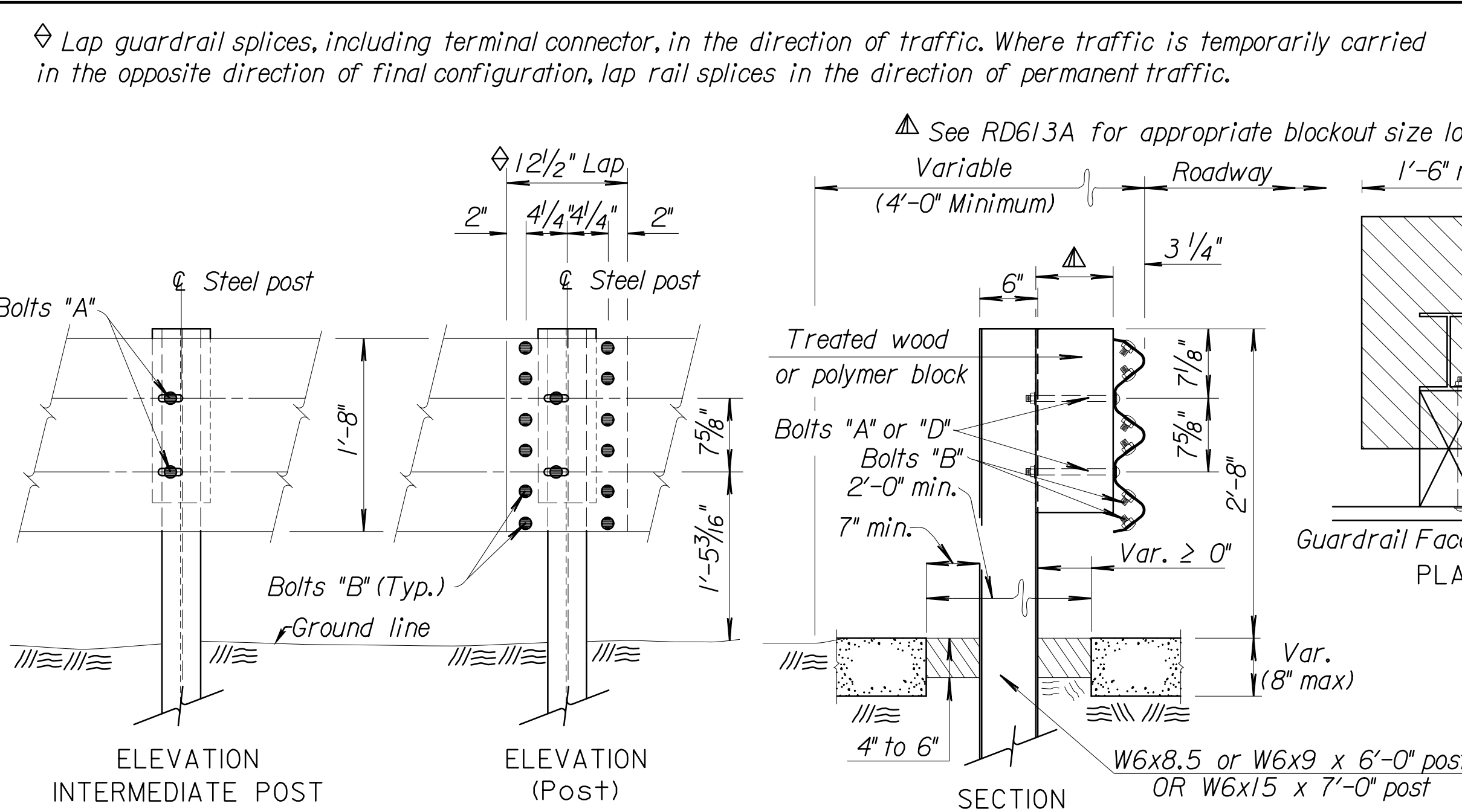


**POSTS IN PAVEMENT**

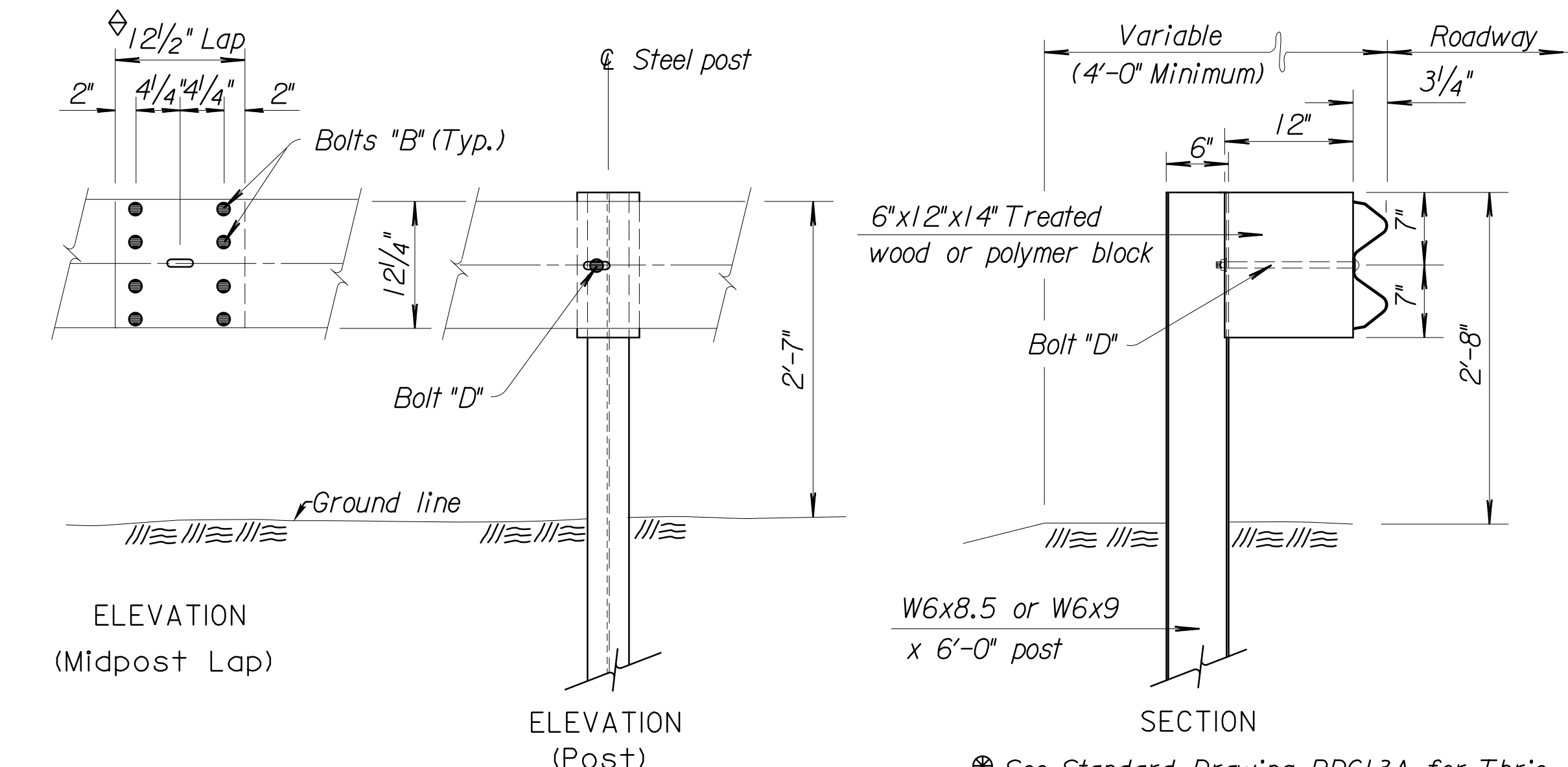
(Not to Scale)

**GENERAL NOTES (Wood Posts)**

Give all wood posts and wood blocks a preservative treatment, see standard specifications. Thoroughly saturate all cuts, injuries and bolt holes on wood posts and blocks with preservative. Use only one type of preservative treatment on a project.  
Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations.  
Use only one post/blockout type within MGS Guardrail run, this excludes the guardrail end terminals. For wood/polymer blockout requirements see standard specifications.  
Use S4S rectangular posts/blockouts for Thrie Beam/W-Beam installation. See standard specifications for additional information.  
Contractor must notify Engineer at the earliest time when a non-removable man-made object (footing, pipe, etc.) is encountered and prevents installation of a full length post.  
All dimensions are nominal and are subject to manufacturing tolerances.  
Excavation including rock, shale, and other materials for erection of Guardrail is subsidiary to various bid items for which payment is made.



**THRIE BEAM POST DETAILS/POSTS IN PAVEMENT**



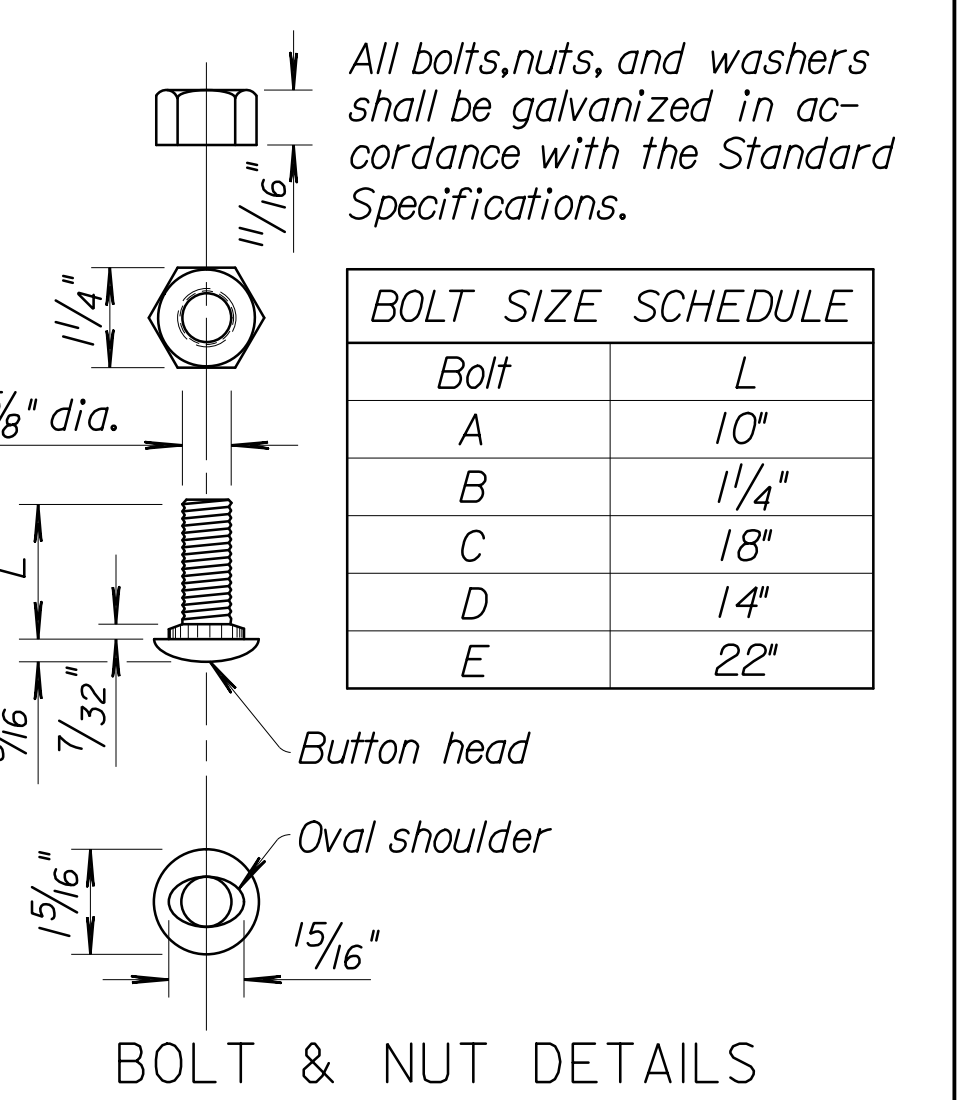
**W-BEAM (MGS) POST DETAILS**

See Standard Drawing RD613A for Thrie Beam Transition Section Blockout hole pattern.  
Non-Metallic (Polymer) or Treated Wood Block

**STEEL POSTS**

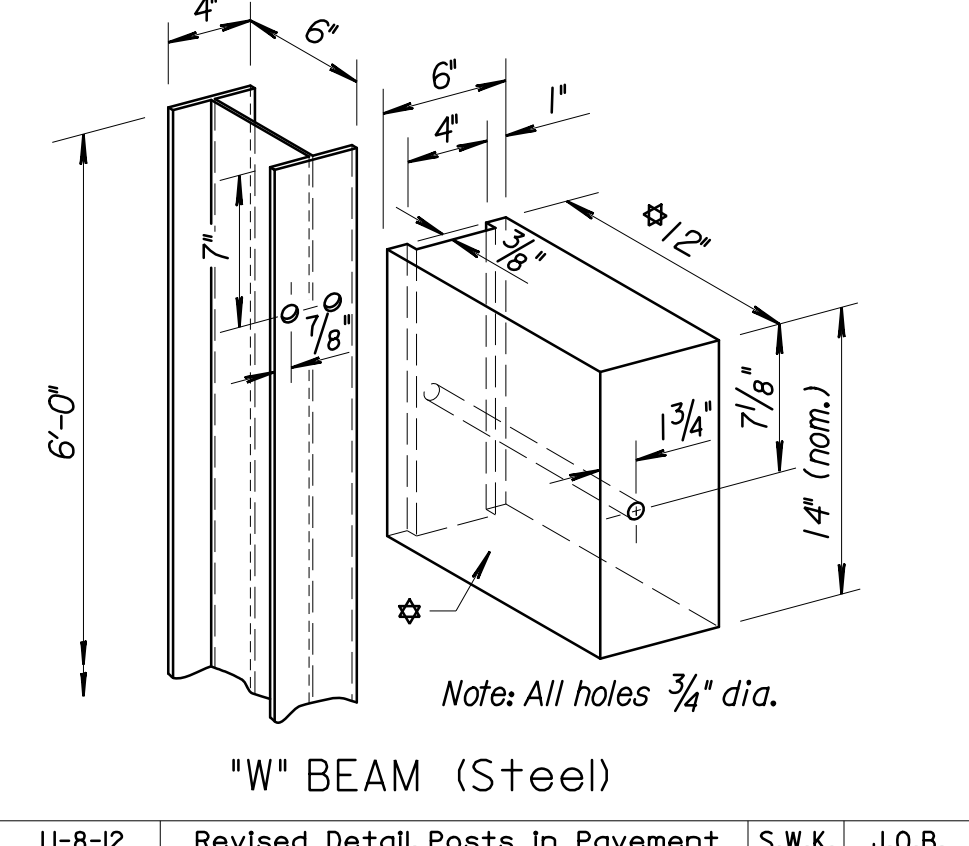
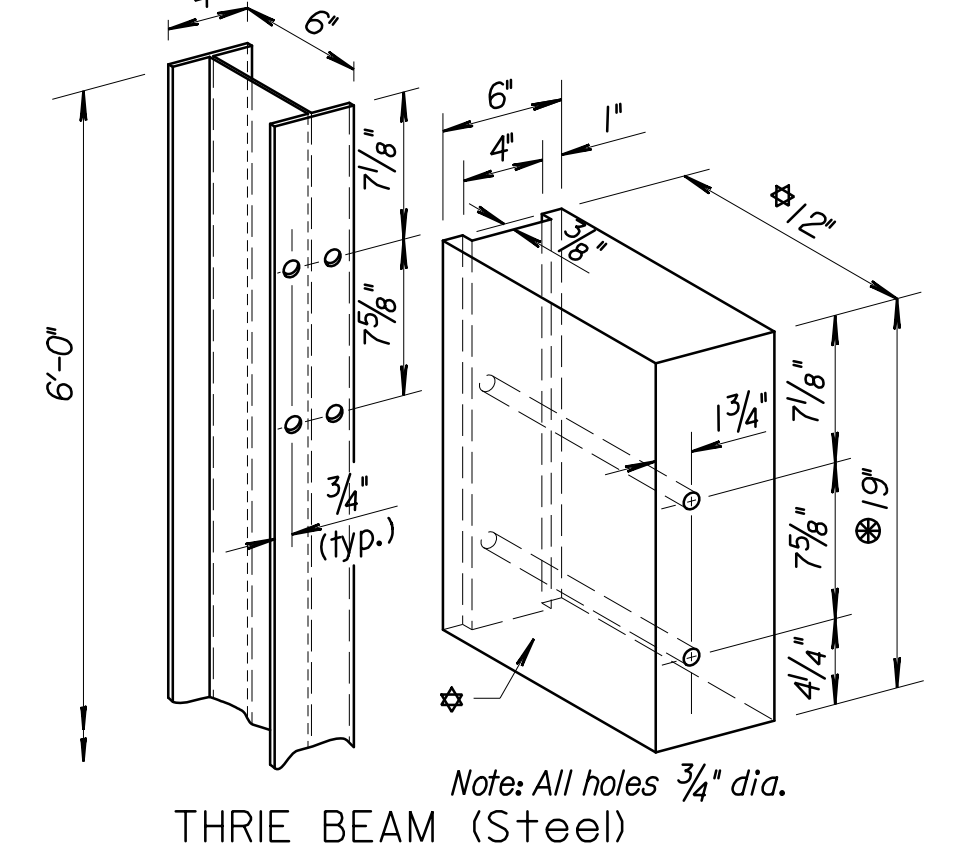
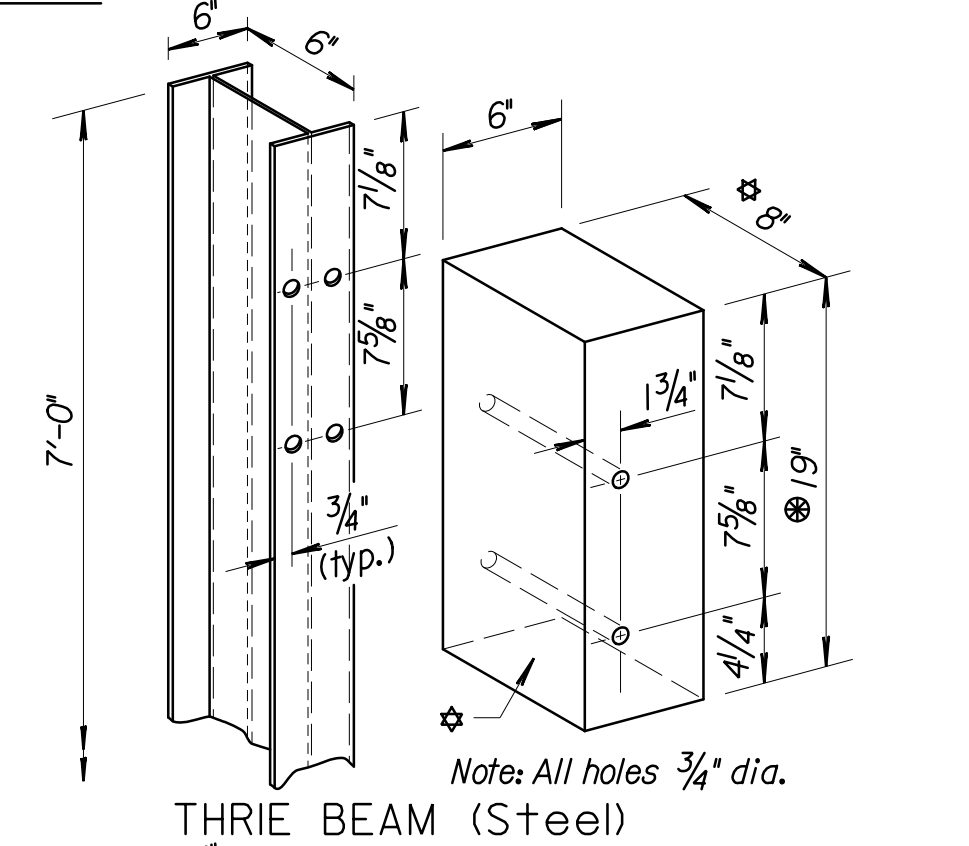
**GENERAL NOTES (Steel Posts)**

Use grade of steel for steel posts that meets the requirements of the standard specifications.  
Hot dip galvanize the posts after fabrication, see standard specifications.  
Use only one post/blockout type within MGS Guardrail run, this excludes the guardrail end terminals. For wood/polymer blockout requirements see standard specifications.  
Approved polymer blockouts may be substituted for wood blockouts. Only one type of blockout is permitted on each guardrail installation, this excludes the guardrail end terminals.  
Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations.  
Contractor must notify Engineer at the earliest time when a non-removable manmade object (footing, pipe, etc.) is encountered that prevents installation of a full length post.  
All dimensions are nominal and are subject to manufacturing tolerances. Excavation including rock, shale, and other materials for erection of Guardrail is subsidiary to various bid items for which payment is made.



Slurry Grout (Low Strength) See KDOT's Standard Specifications  
Pavement (Concrete or Asphalt)

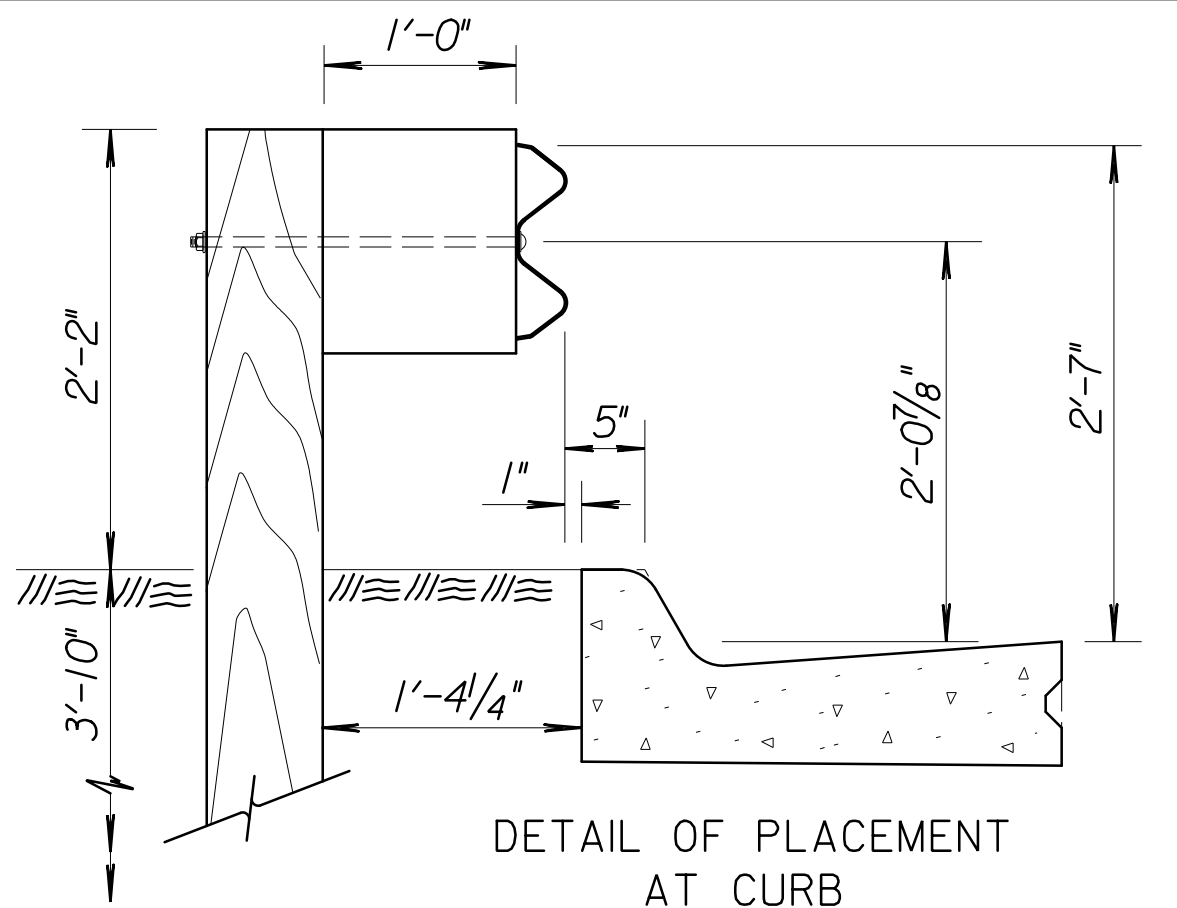
Note: Low Strength Grout must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items.



NO.	DATE	REVISIONS	BY	APP'D
4	11-8-12	Revised Detail, Posts In Pavement	S.W.K.	J.O.B.
3	8-1-12	Revised Note to Designer	S.W.K.	J.O.B.
2	5-24-12	Revised Detail, Posts In Pavement	S.W.K.	J.O.B.
1	12-22-11	Added Detail, Posts In Pavement	S.W.K.	J.O.B.

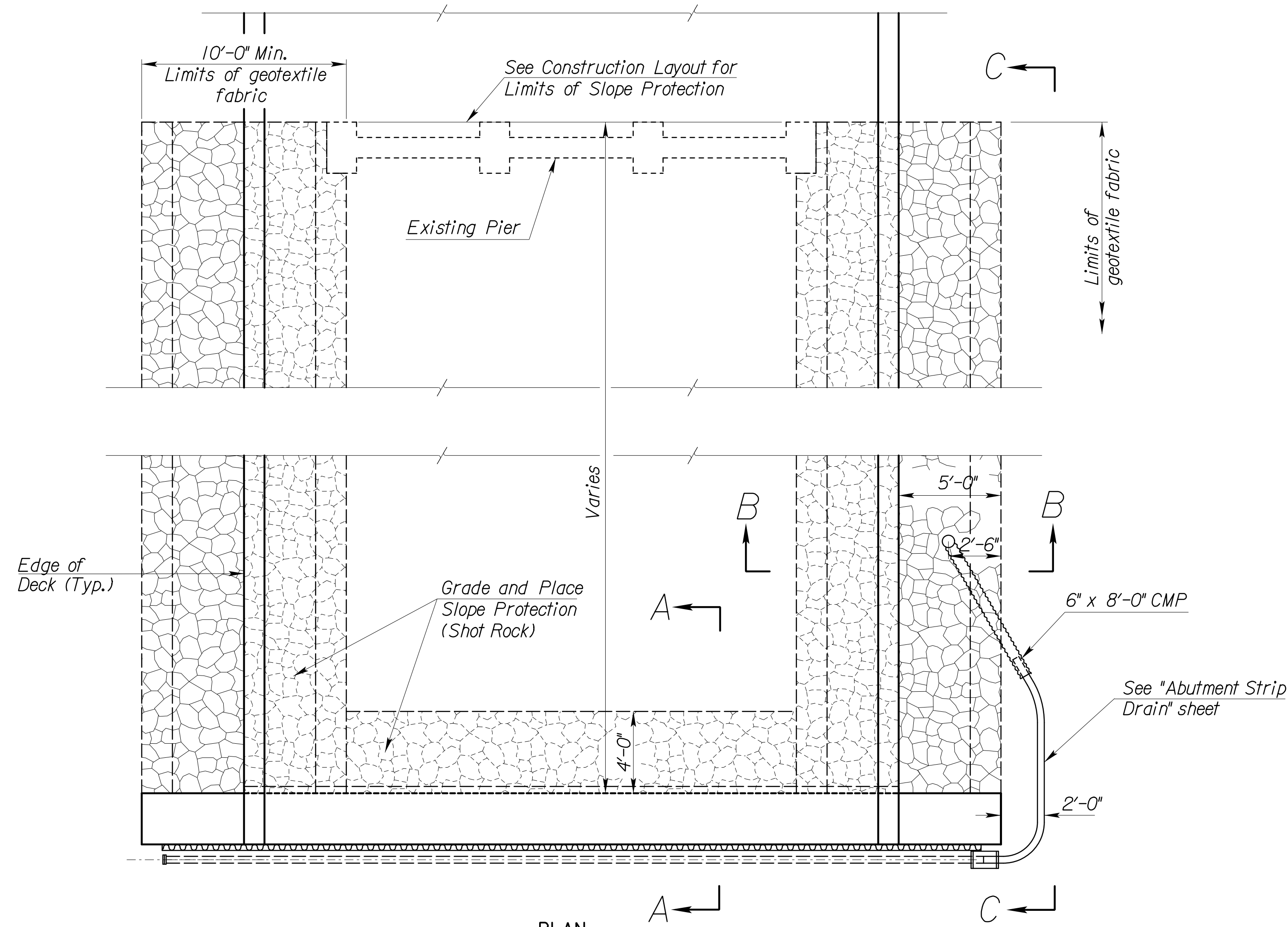
KANSAS DEPARTMENT OF TRANSPORTATION			
GUARDRAIL POST (MGS) DETAILS			
RD611A			
FHWA APPROVAL	1-3-13	APP'D.	James O. Brewer
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

Drawn By: arobbern Plotted: 5/24/2013 File: I:\KAC\PRJ\00000744301\STR\IGN\15\_7443\_rd611a.dgn

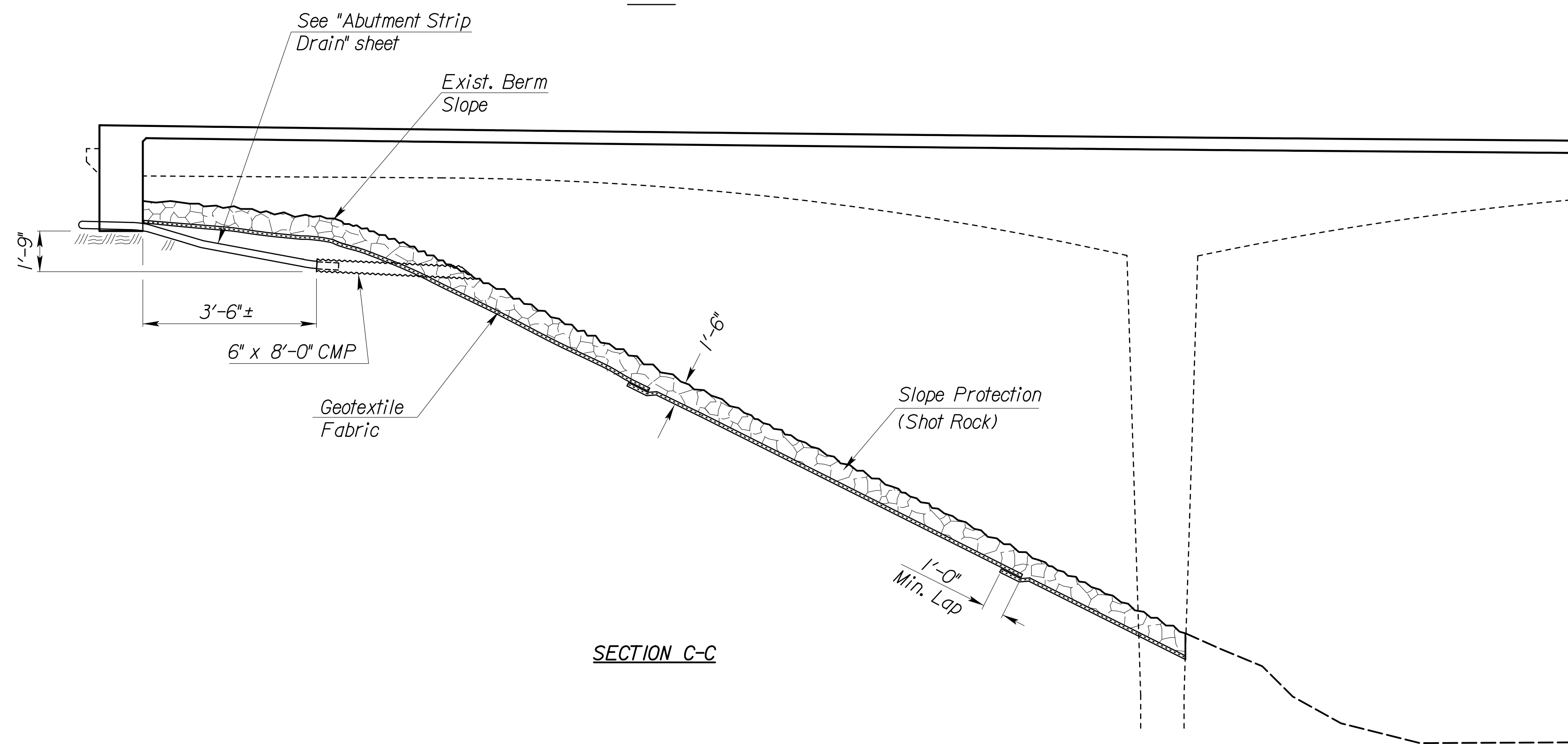


**DETAIL OF PLACEMENT AT CURB**

Note: Measure height of rail from the pavement surface at the curb/pavement joint as shown.  
A special design is needed when guardrail is not located as detailed.  
A Type II (laydown) curb & gutter is preferred when guardrail is adjacent to curb.



PLAN



SECTION C-C

**GENERAL NOTES**

Place slope protection to limits as shown. Limits may be adjusted as needed at the direction of the Engineer to match ground elevations found at the site.

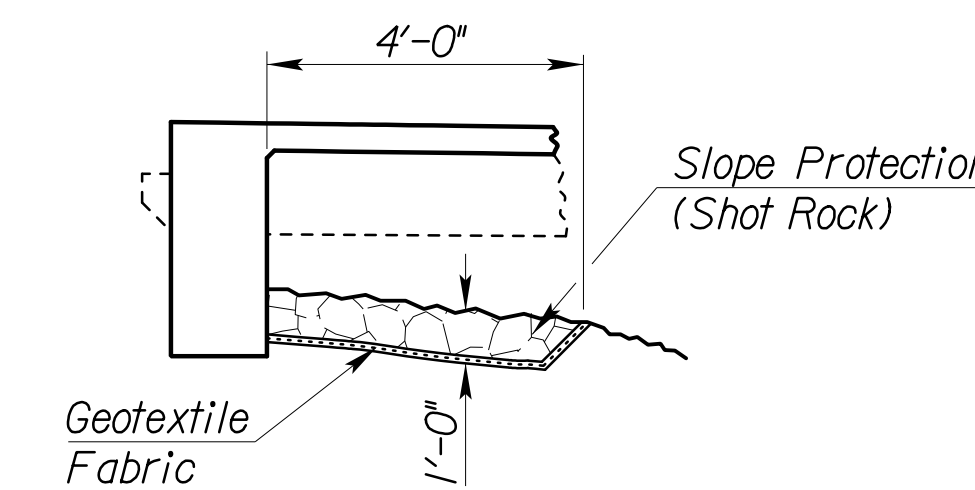
Excavation and grading for placement of slope protection and all work and material to install geotextile fabric shall be subsidiary to slope protection.

Slope protection shall be underlain with geotextile fabric approved for high survivability. Fabric damaged or displaced during construction shall be replaced at no cost to KDOT. Fabric shall be installed and secured as recommended by the fabric manufacturer. One (1) copy of the fabric manufacturer's installation procedure shall be submitted to the Engineer. The installation procedure shall show details of the splices, overlaps and pin layout. Minimum overlap of geotextile shall be 1 ft. Fabric shall be anchored along edges and splices at a maximum of 3 foot centers with staples or pins (w/washers). Interior area of fabric shall be pinned or stapled as recommended by the manufacturer but not more than 5 foot centers. Pins or staples shall be a minimum of 12 inches in length. Geotextile fabric shall meet the requirements of KDOT Specifications.

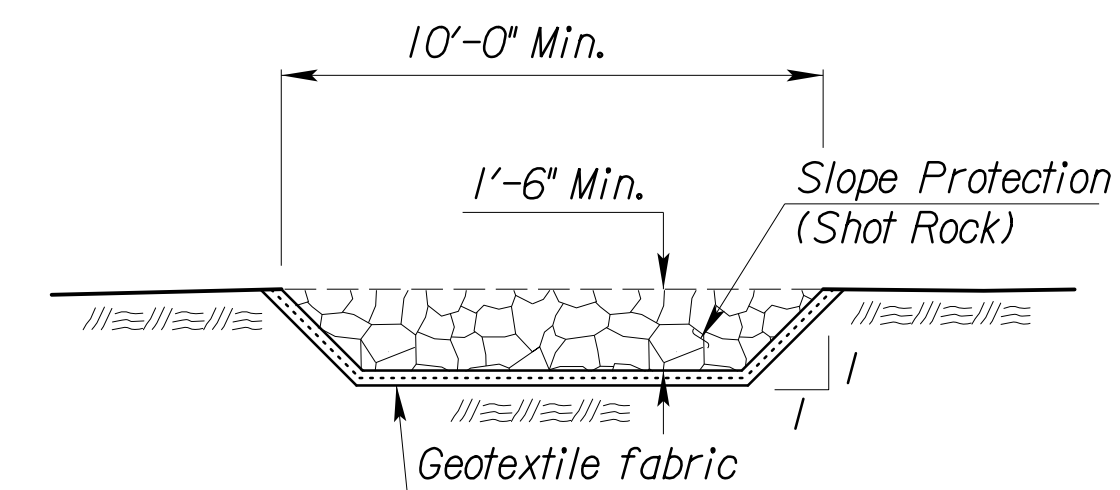
The Contractor shall place the rock from the bottom to the top of the slope. Place the rock in a manner which produces a reasonably well graded mass of rock without segregation of the material sizes. Placement, measurement, and payment shall conform to KDOT Specifications for Slope Protection. Quantity for Slope Protection (Shot Rock) are included in the bridge quantities.

Concrete rubble from the existing structure may be used along the driplines for slope protection.

Geotextile Fabric shall be lapped a minimum of 1'-0" at all splices.



SECTION A-A



SECTION B-B

SUMMARY OF QUANTITIES (2 Abutments)	
Slope Protection (Shot Rock)	129 Cu. Yds.
Item subsidiary to Slope Protection	
Geotextile Fabric	361 Sq. Yds.

PROJECT NO.	BR-1377
DRAWN BY	JTC
CHECKED BY	AFR
DESIGNED BY	MAH
REVISIONS	

ISSUE DATE

**SLOPE PROTECTION DETAILS**



5/24/2013 8:50:49 AM

HCP #1 - Sta. 205+34.33; 29.14' Rt. Elev. 958.26  
 N= 192,225.9870 E= 2,262,131.8900  
 1. Set 5/8" Bar & "LOCHNER 236" Cap, Flush  
 2. Mag Nail & Washer in Fog Line N.B. Metcalf 26.0' S.W.  
 3. Mag Nail & Washer in Fog Line N.B. Metcalf 22.60' N.W.  
 4. Delineator Post 24.95' South  
 5. Centerline of Metcalf Avenue 30.3' West

HCP #2 - Sta. 210+18.08; 30.57' Rt. Elev. 933.48  
 N= 192,715.1700 E= 2,262,160.0930  
 1. Set 5/8" Bar & "LOCHNER 236" Cap, Flush  
 2. Mag Nail & Washer in Top Guard Rail Post 26.25' N.N.W.  
 3. Mag Nail & Washer in Top Guard Rail Post 15.75' S.W.  
 4. Delineator Post 34.80' S.S.W.  
 5. Centerline of Metcalf Avenue 32.0' West

T.S. Sta. 201+28.74  
 N= 191,841.8268 E= 2,261,991.7110  
 1. Alignment Point not recovered (Office Set)  
 2. No other references available.

P.I. Sta. 202+62.09 (Bk.) = Sta. 202+62.06 (Ahd.)  
 N= 191,967.4859 E= 2,262,036.3504  
 1. Alignment Point not recovered (Office Set)  
 2. No other references available.

S.C. Sta. 203+28.74  
 N= 192,031.4050 E= 2,262,055.3535  
 1. Alignment Point not recovered (Office Set)  
 2. No other references available.

P.I. Sta. 208+38.11 Bk. = Sta. 208+38.11  
 N= 192,519.6519 E= 2,262,200.5090  
 1. Found 1/2" Bar, 0.1' above ground  
 2. 60d Nail in top of south end post of east Guard Rail  
 3. East R/W Fence Line (at 90° to fence) 77.23' W.S.W.  
 4. Mag Nail & "LOCHNER 2012" washer in SE face of Oak Tree 30.4' E.S.E.  
 5. Mag Nail & "LOCHNER 2012" washer in N. face of Oak Trees 2.15' N.W.  
 6. Mag Nail & "LOCHNER 2012" washer in W. face of Oak Tree 10.75' South  
 4.15' East

C.S. Sta. 213+24.30  
 N= 193,015.3377 E= 2,262,083.2454  
 1. Alignment Point not recovered (Office Set)  
 2. No other references available.

P.I. Sta. 213+90.99 (Bk.) = Sta. 213+90.95 (Ahd.)  
 N= 193,080.2307 E= 2,262,067.8938  
 1. Alignment Point not recovered (Office Set)  
 2. No other references available.

S.T. Sta. 215+24.30  
 N= 193,208.2168 E= 2,262,030.4446  
 1. Alignment Point not recovered (Office Set)  
 2. No other references available.

CURVE DATA (Chord Def.)  
 P.I. Sta. 208+38.11 (Bk.) = Sta. 208+14.93 (Ahd.)  
 $\Delta = 29^\circ 52' 00''$  (Lt.)  $T_s = 718.37'$   
 $R_c = 1909.859'$   $E_s = 66.76'$   
 $L_c = 995.56'$   $X_c = 199.95'$   
 $L_s = 200.00'$   $Y_c = 3.49'$   
 $D_c = 3^\circ 00''$

† Piles shall be removed or cut-off at least 2'-0" below ground line at the conclusion of construction.

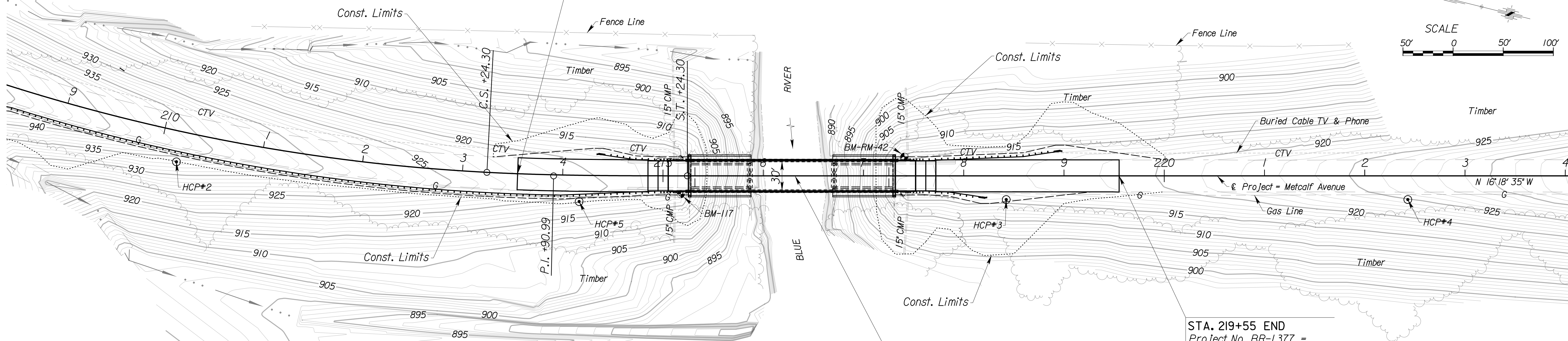
† Steel or Timber Piles

STA. 213+55 BEGIN  
 Project No. BR-1377 =  
 Sta. 213+55 on KDOT  
 Proj. No. 69-46-F-083-3(1)

TEMPORARY STREAM CROSSING

\* Temporary bridge structure shall be removed at the conclusion of construction.

SCALE  
 50' 0 50' 100'

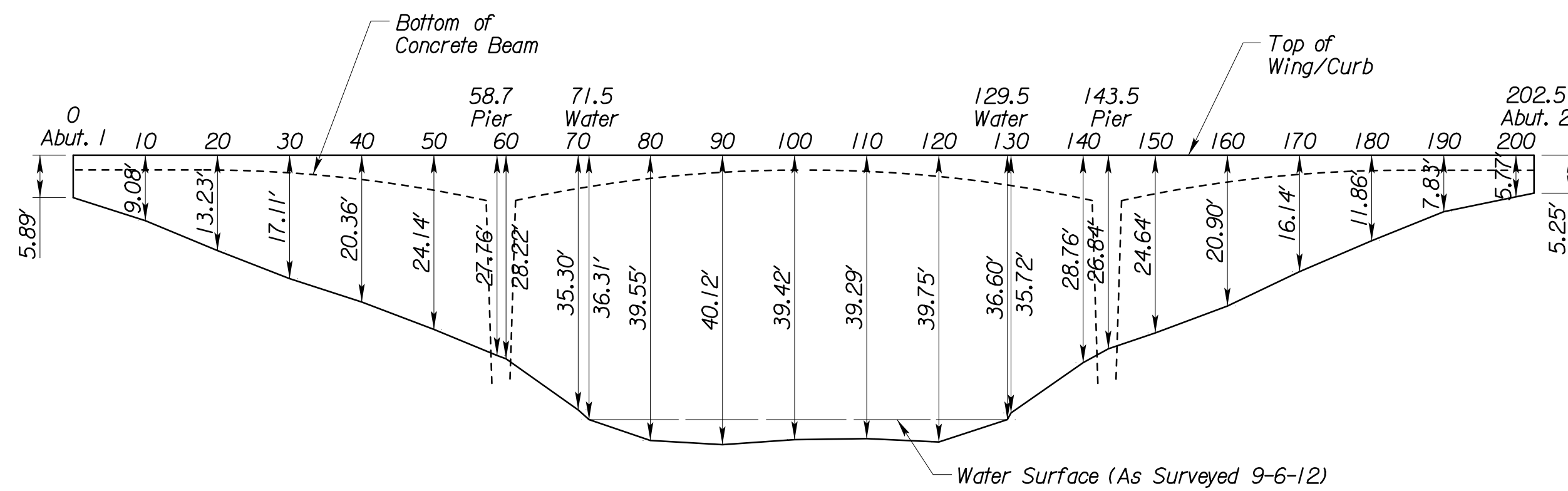


Sta. 216+28.62 Repair  
 Br. No. 00000000460420  
 60'-84'-60' RDGH Spans  
 30'-0' Roadway  
 Redecking and Abut. Modif.

STA. 219+55 END  
 Project No. BR-1377 =  
 Sta. 219+55 on KDOT  
 Proj. No. 69-46-F-083-3(1)

HCP #3 - Sta. 218+42.41; 23.68' Rt. Elev. 916.31  
 N= 193,520.1720 E= 2,261,963.8350  
 1. Set 5/8" Bar & "LOCHNER 236" Cap, Flush  
 2. Mag Nail & Washer in N.B. Fog Line Metcalf 19.8' N.W.  
 3. Mag Nail & Washer in N.B. Metcalf Fog Line 20.9' S.S.W.  
 4. Mag Nail & Washer in N. end post of East guard rail 52.15' S.S.E.  
 5. Centerline of Metcalf Avenue 24.0' West

HCP #5 - Sta. 214+16.76; 26.16' Rt. Elev. 919.31  
 N= 193,111.8160 E= 2,262,085.3400  
 1. Set 5/8" Bar & "LOCHNER 236" Cap, Flush  
 2. Mag Nail & Washer in top of square guard rail post 29.6' S.S.W.  
 3. Mag Nail & Washer in top round guard rail post 21.3' N.N.W.  
 4. 2" Aluminum Dome Cap in S.E. Wing 101.8' North  
 5. Centerline of Metcalf Avenue 27.5' West



EXISTING WATERWAY OPENING  
 (Looking Downstream - West Side)

HCP #4 - Sta. 222+42.97; 23.65' Rt. Elev. 924.99  
 N= 193,904.6040 E= 2,261,851.3220  
 1. Set 5/8" Bar & "LOCHNER 236" Cap, Flush  
 2. Mag Nail & Washer in N.B. Metcalf Fog Line 24.0' N.W.  
 3. Mag Nail & Washer in N.B. Metcalf Fog Line 22.35' S.W.  
 4. Top center of Telephone Pedestal 52.1' W.S.W.  
 5. Centerline of Metcalf Avenue 24.6' West

UTILITY CONTACTS

Gas - Kansas Gas Service  
 (913) 599-8981

Telephone - AT&T  
 (913) 383-4858

Cable TV - Time Warner Cable  
 & Telephone (913) 643-1979

**LOCHNER**  
 903 East 104th Street | Suite 800 | Kansas City, MO 64131

CITY OF OVERLAND PARK, KANSAS  
 METCALF BRIDGE REDECKING  
 METCALF AVENUE OVER BLUE RIVER

PROJECT NO. BR-1377  
 DRAWN BY AFR 1/2013  
 CHECKED BY TMR 2/2013  
 DESIGNED BY AFR 1/2013  
 REVISIONS DATE

ISSUE DATE

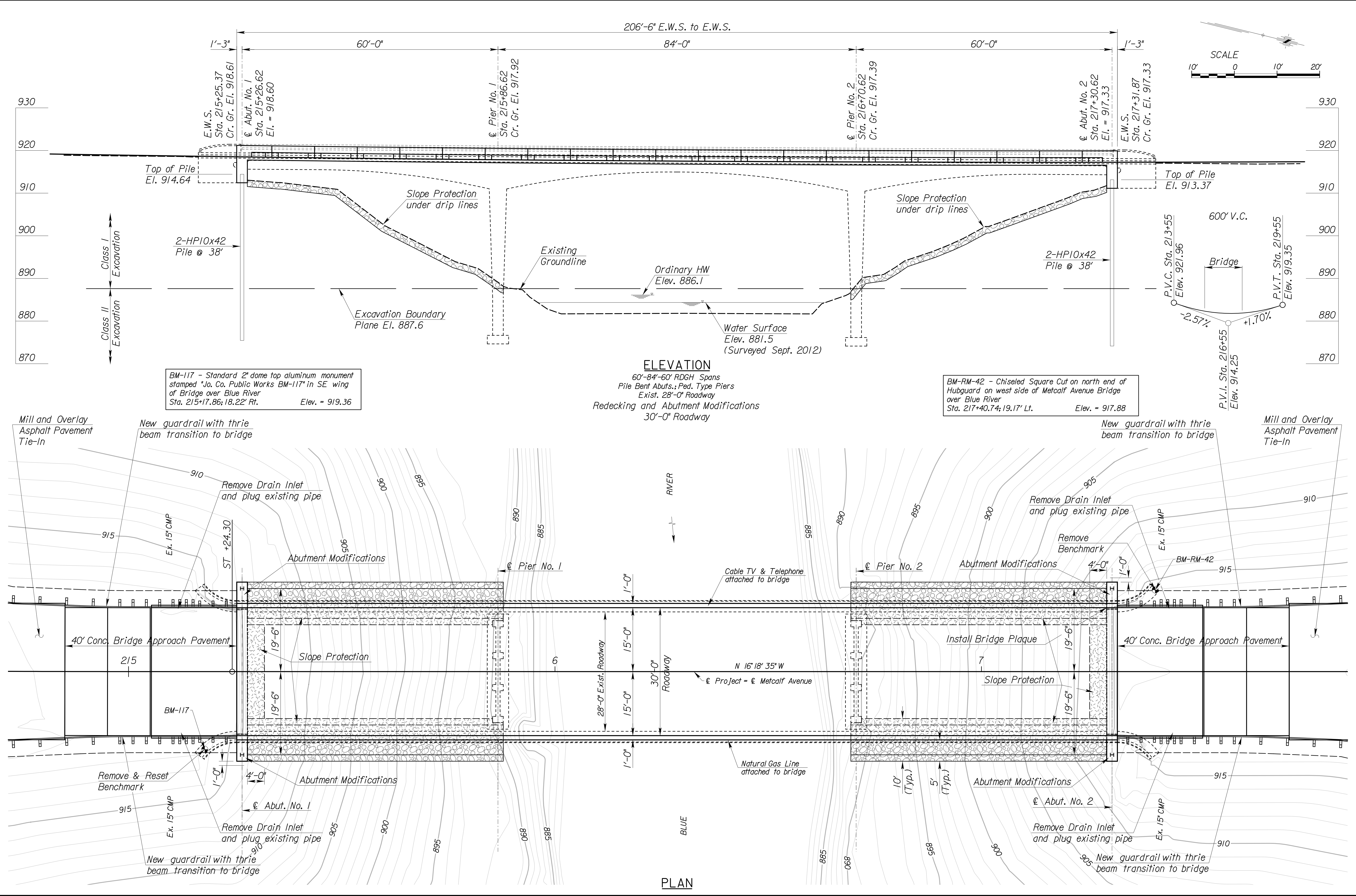
CONTOUR MAP

17

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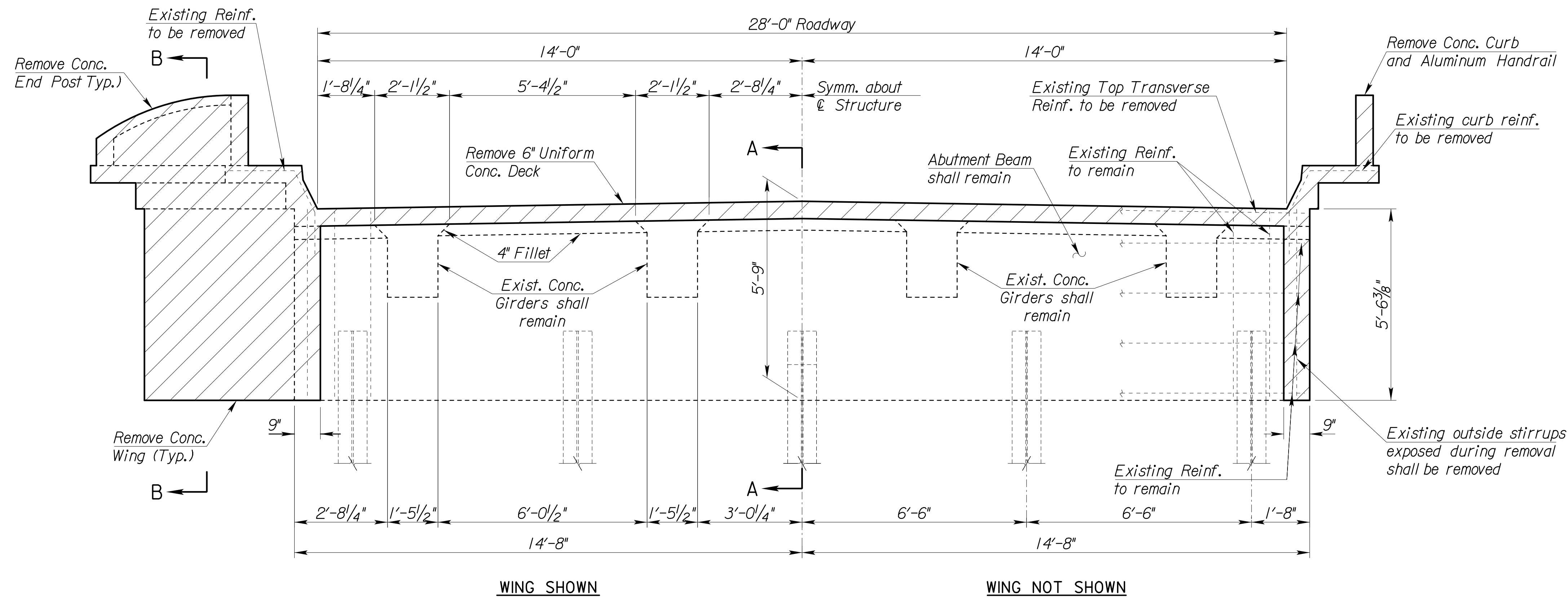


PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	MAH 2/2013
DESIGNED BY	TMR 1/2013
REVISIONS	DATE

CONSTRUCTION LAYOUT

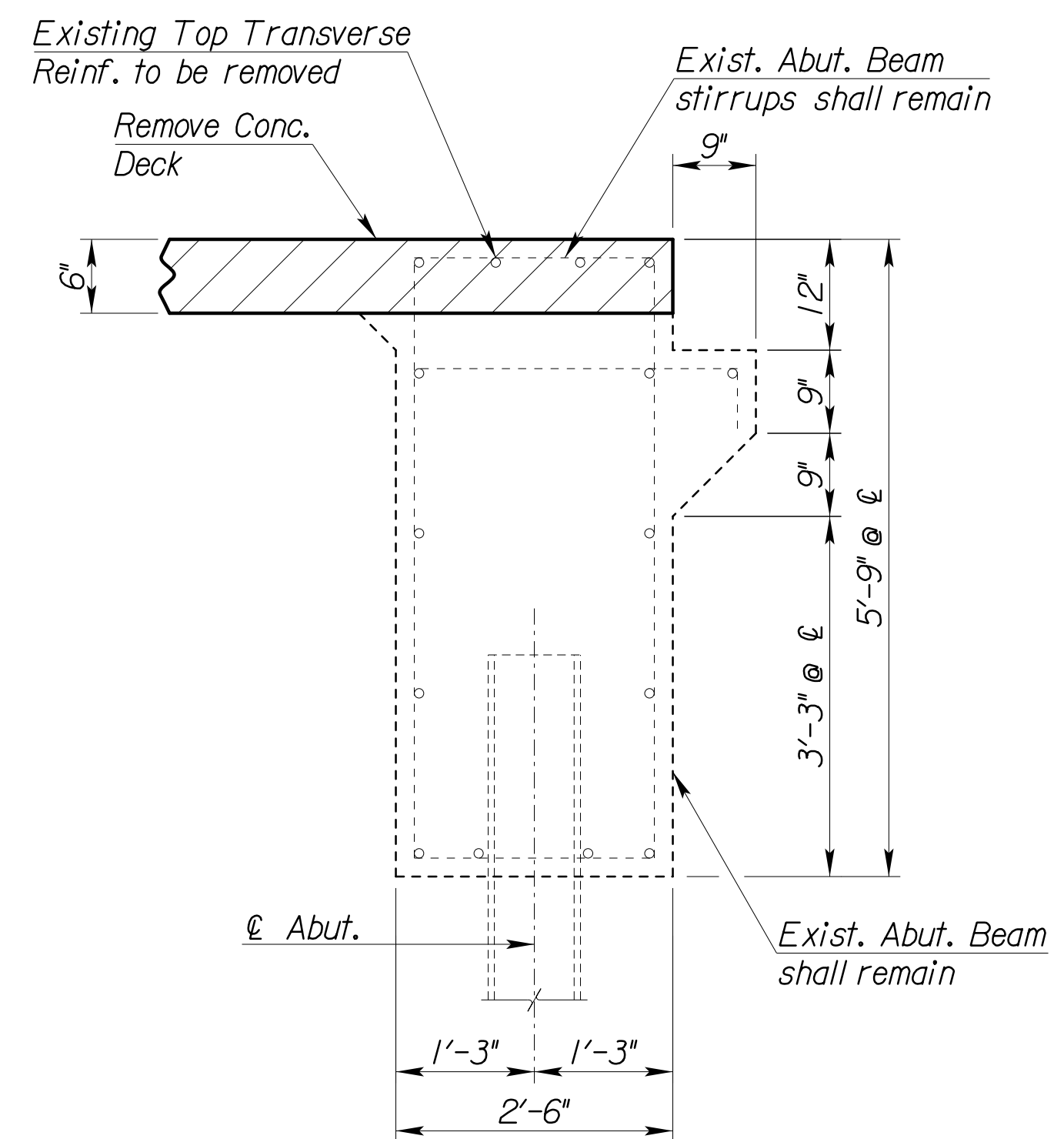
**18**

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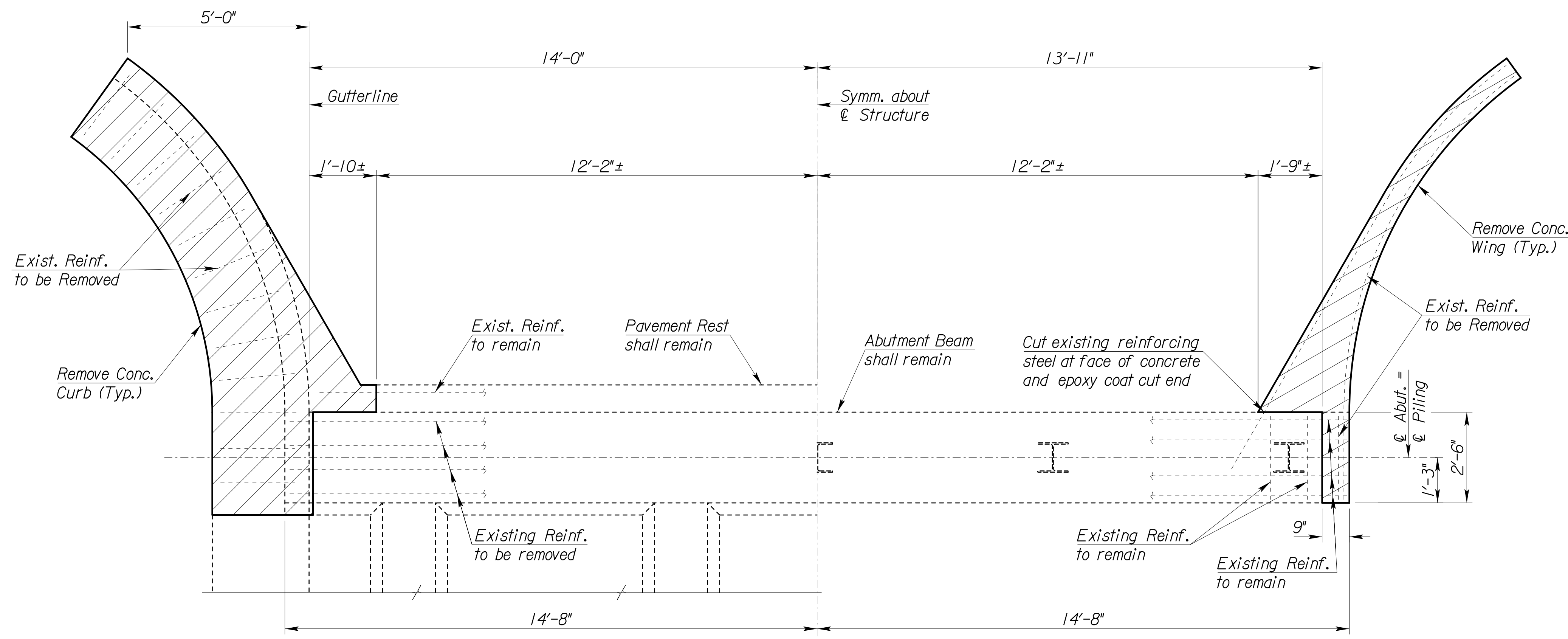


WING SHOWN WING NOT SHOWN

ELEVATION

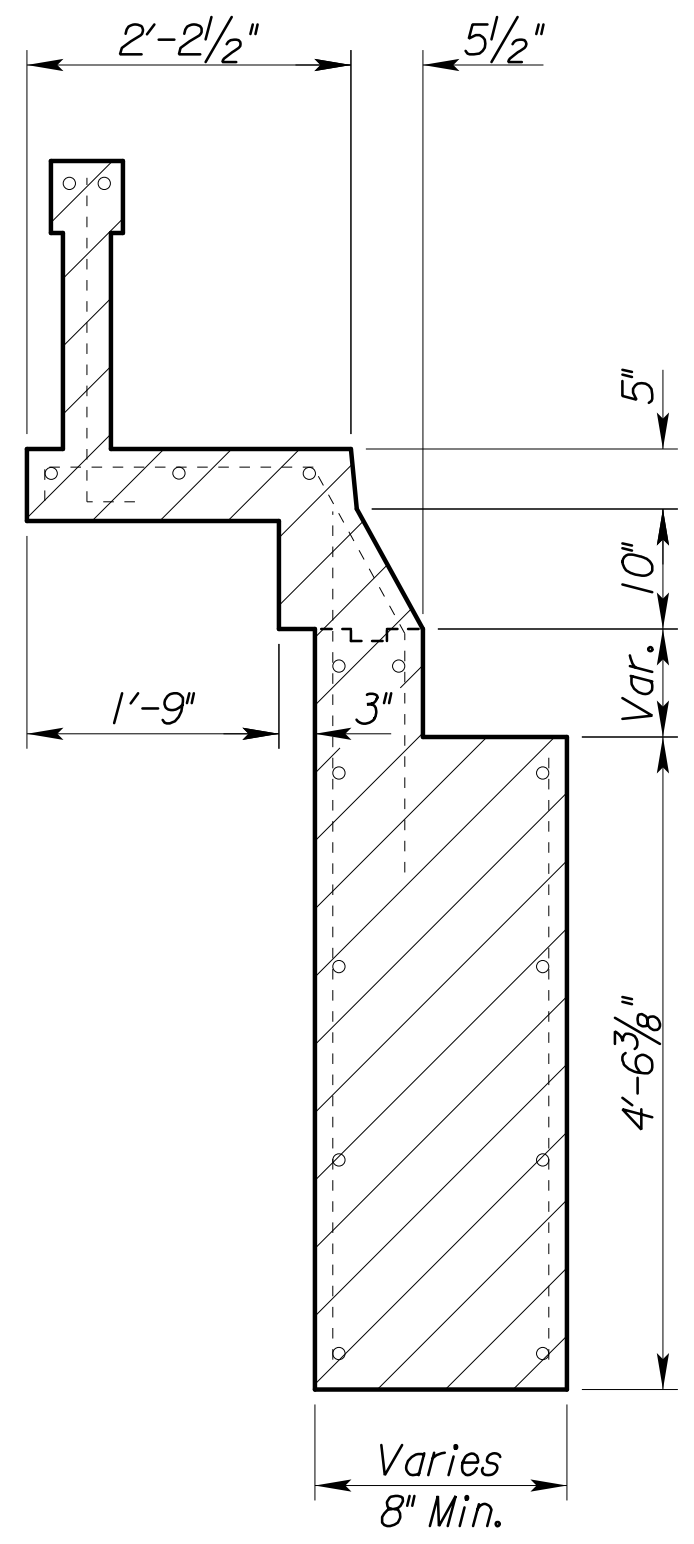


SECTION A-A



TOP OF ABUTMENT BEAM (Deck Removal not shown for clarity) BOTTOM OF ABUTMENT BEAM

PLAN



SECTION B-B

LEGEND

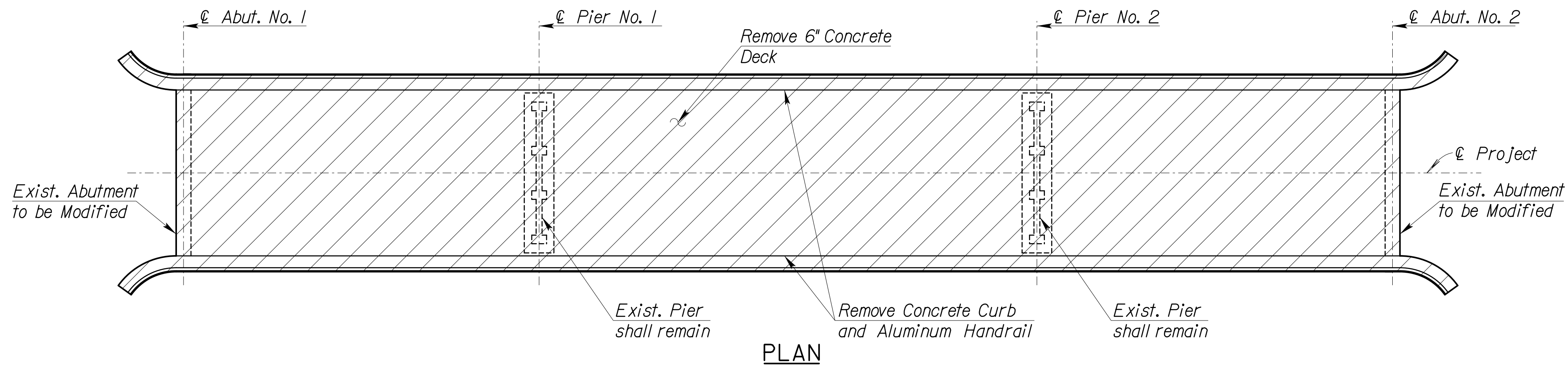


PROJECT NO.	BR-1377
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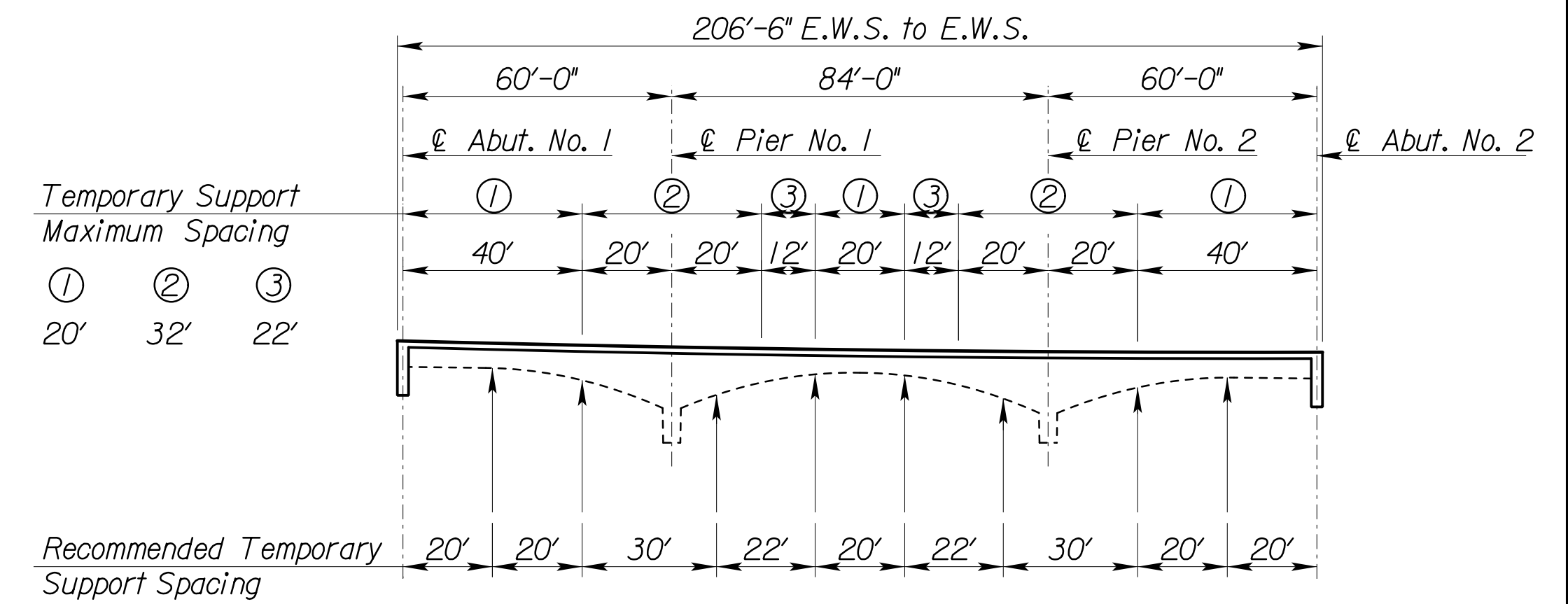
ISSUE DATE

ABUTMENT REMOVAL DETAILS

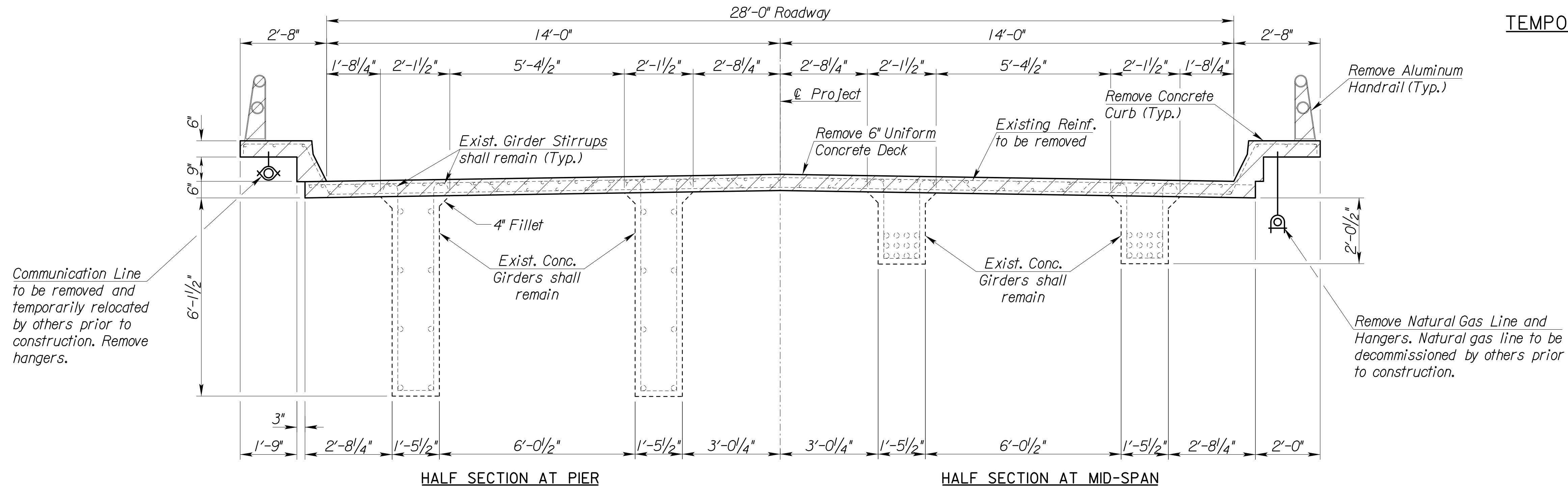
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PLAN



TEMPORARY SUPPORT SPACING DIAGRAM



TYPICAL SECTION

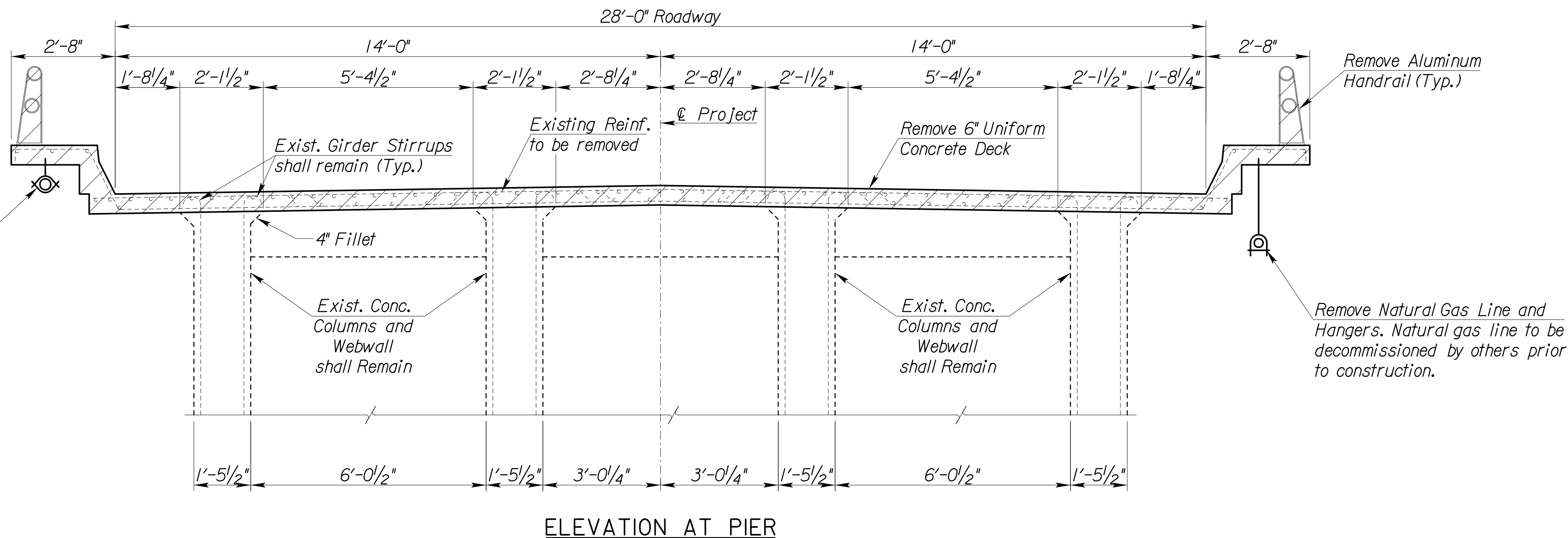
The Contractor shall design and install temporary shoring/falsework along the entire length and width of the bridge to support the existing concrete girders, new concrete deck and construction loads during redecking.

The shoring/falsework shall be in place supporting the existing concrete girders prior to removal of the existing bridge deck.

For protection of the existing girders, the maximum spacing of temporary supports along the existing concrete girders shall be as shown in Temporary Support Spacing Diagram. Edge of temporary walkways shall be fully supported along the length of the bridge.

The existing concrete girders may creep upward during removal of the existing bridge deck. The Contractor shall take care to keep the temporary supports tight against the existing girders at all times.

Do not remove forms and falsework until the slab has cured a minimum of 15 days. Do not remove forms and falsework without the Engineer's approval.

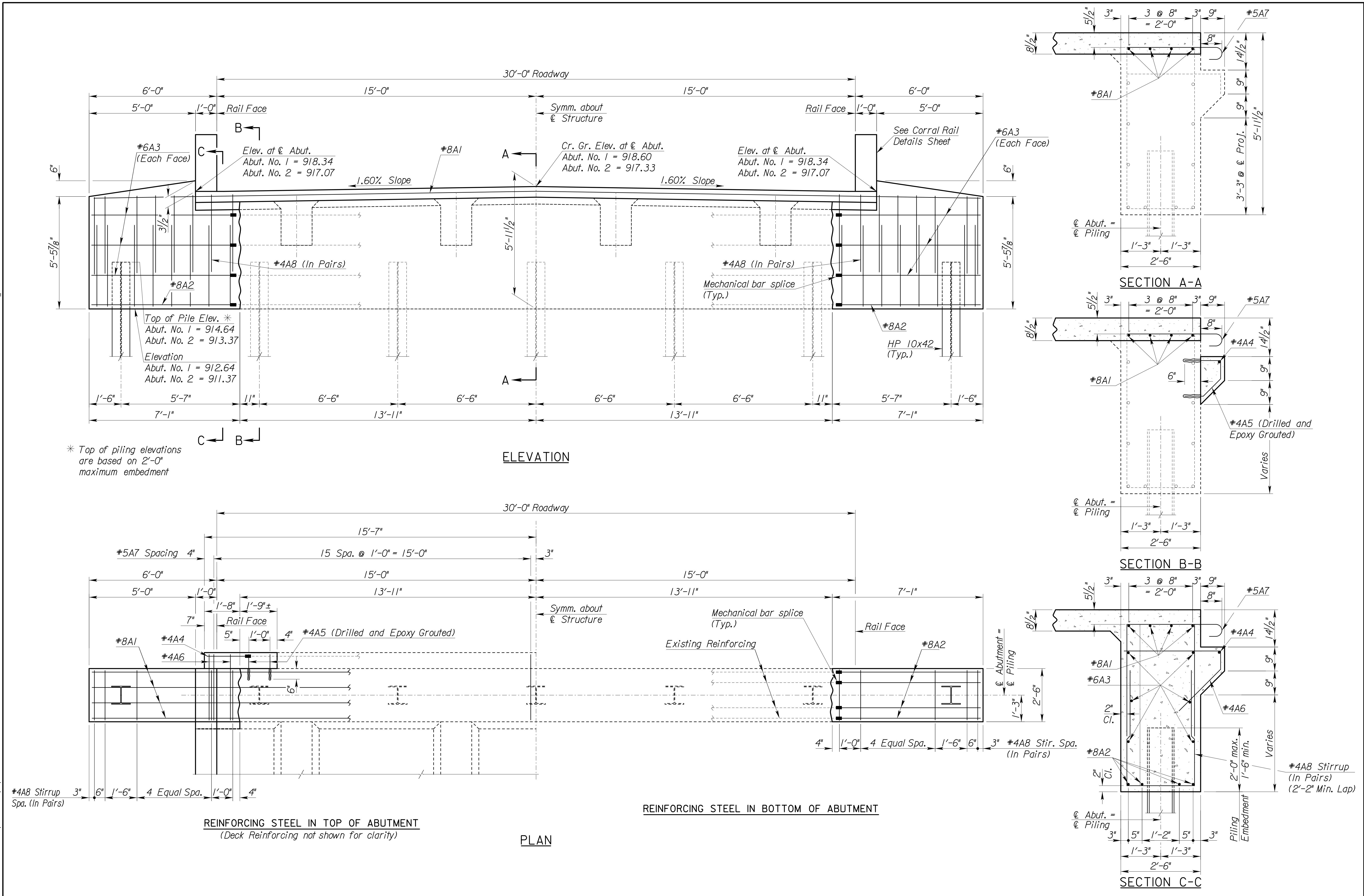


ELEVATION AT PIER

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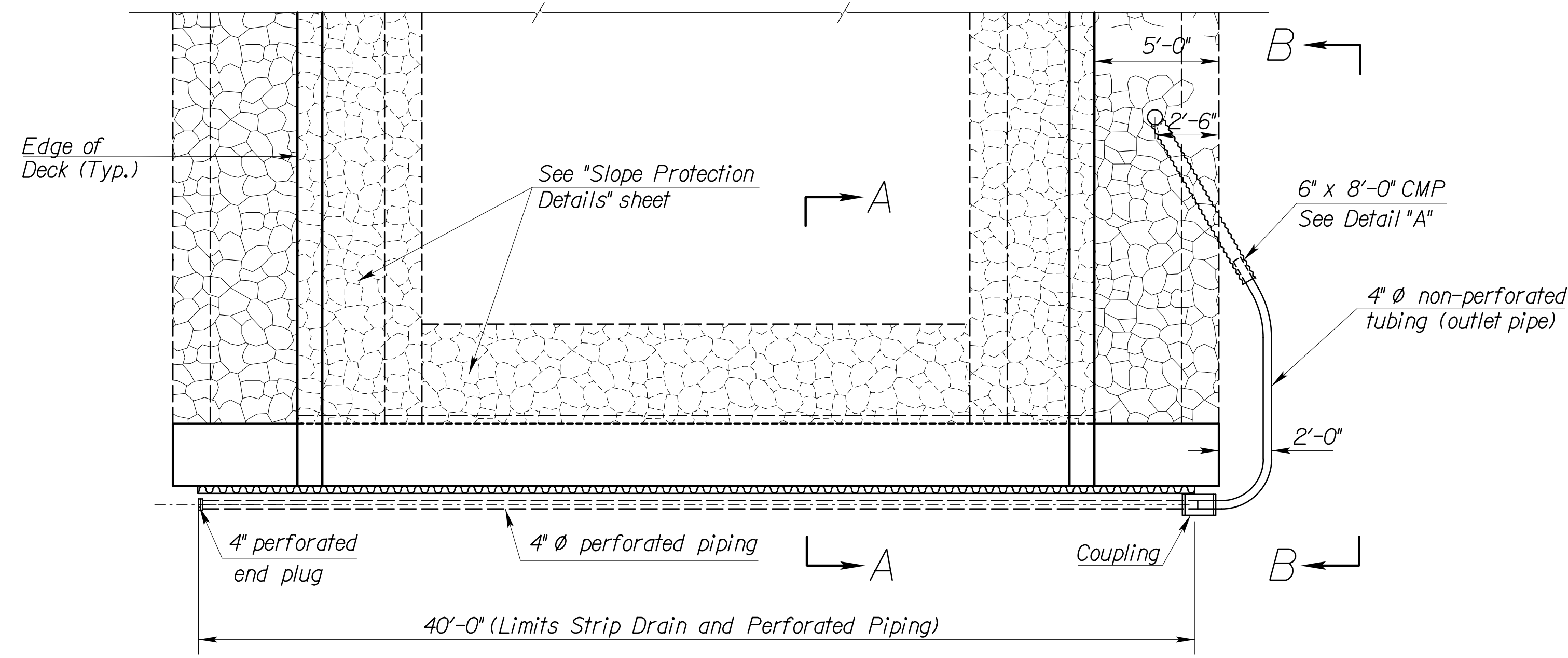
ISSUE DATE

**DECK REMOVAL DETAILS**

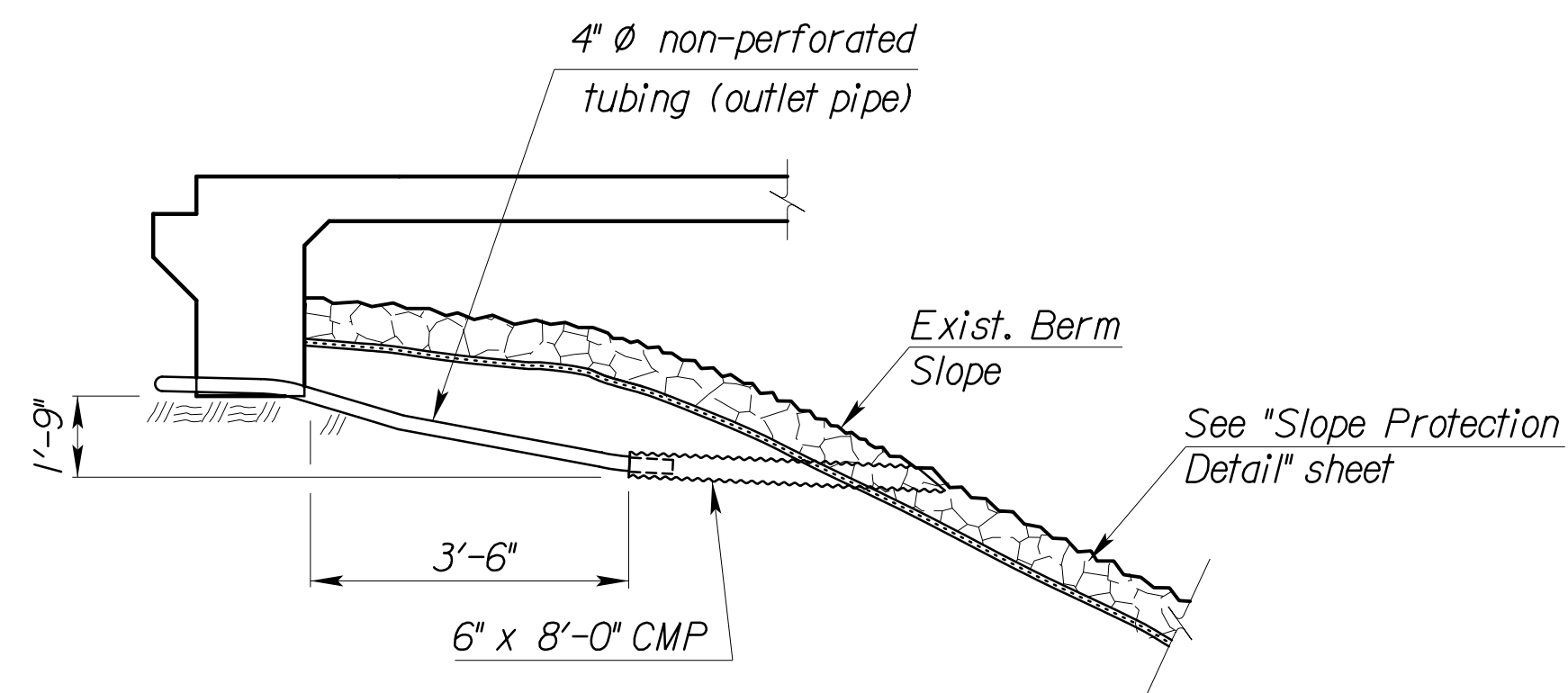


\* Top of piling elevations are based on 2'-0" maximum embedment

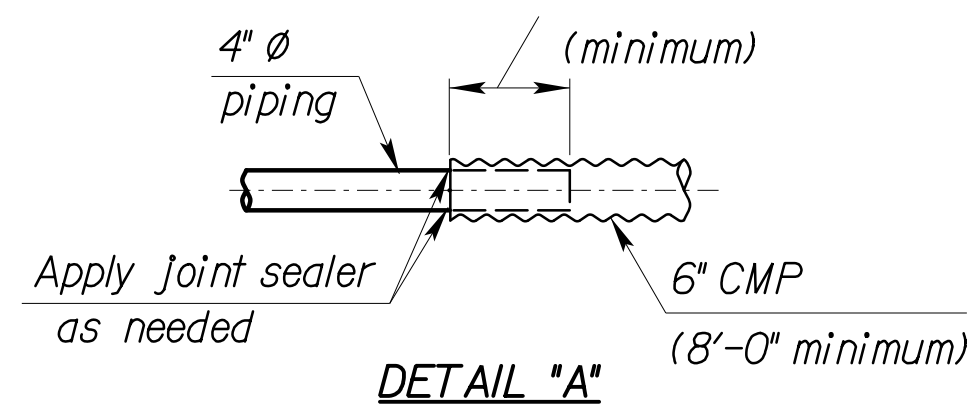
PROJECT NO.	BR-1377
DRAWN BY	JTC
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PLAN

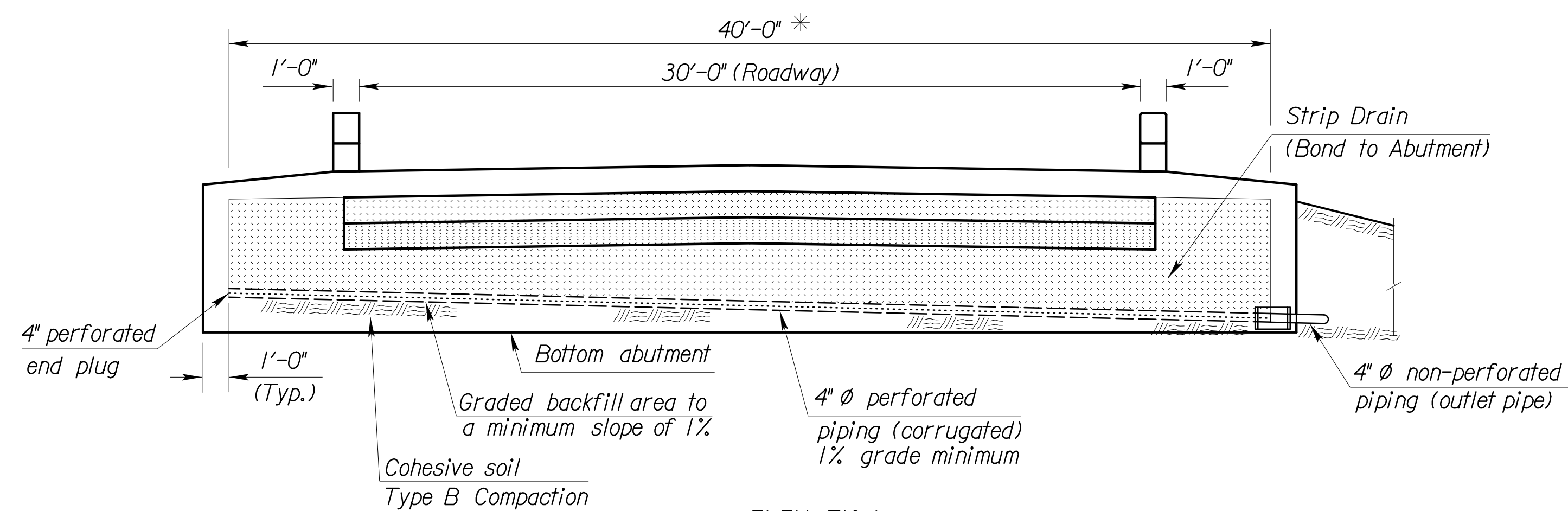


SECTION B-B



DETAIL "A"

Note: The 1'-0" lap and joint sealer may be replaced by a reducing coupler at the junction of the CMP and the 4" round tubing.



ELEVATION

**GENERAL NOTES**

**ABUTMENT STRIP DRAIN:** The Bridge Contractor shall excavate to the limits shown on the Bridge Excavation sheet, grade the bottom of the backfill area, place the strip drain, and place the perforated pipe, the outlet pipe, the CMP, and the backfill. Guide post and coarse aggregate are subsidiary to this bid item. Guide post and coarse aggregate are not required if the CMP empties onto riprap.

**BRIDGE BACKWALL PROTECTION SYSTEM:** Apply a Bridge Backwall Protective System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments and wings to the limits shown on the details. Prior to backfilling, repair any damage done to the system at no charge to the state.

Place perforated pipe next to the strip drain. Use non-perforated pipe outside the limits of the strip drain. Enclose the perforated pipe with the extension of the filter fabric.

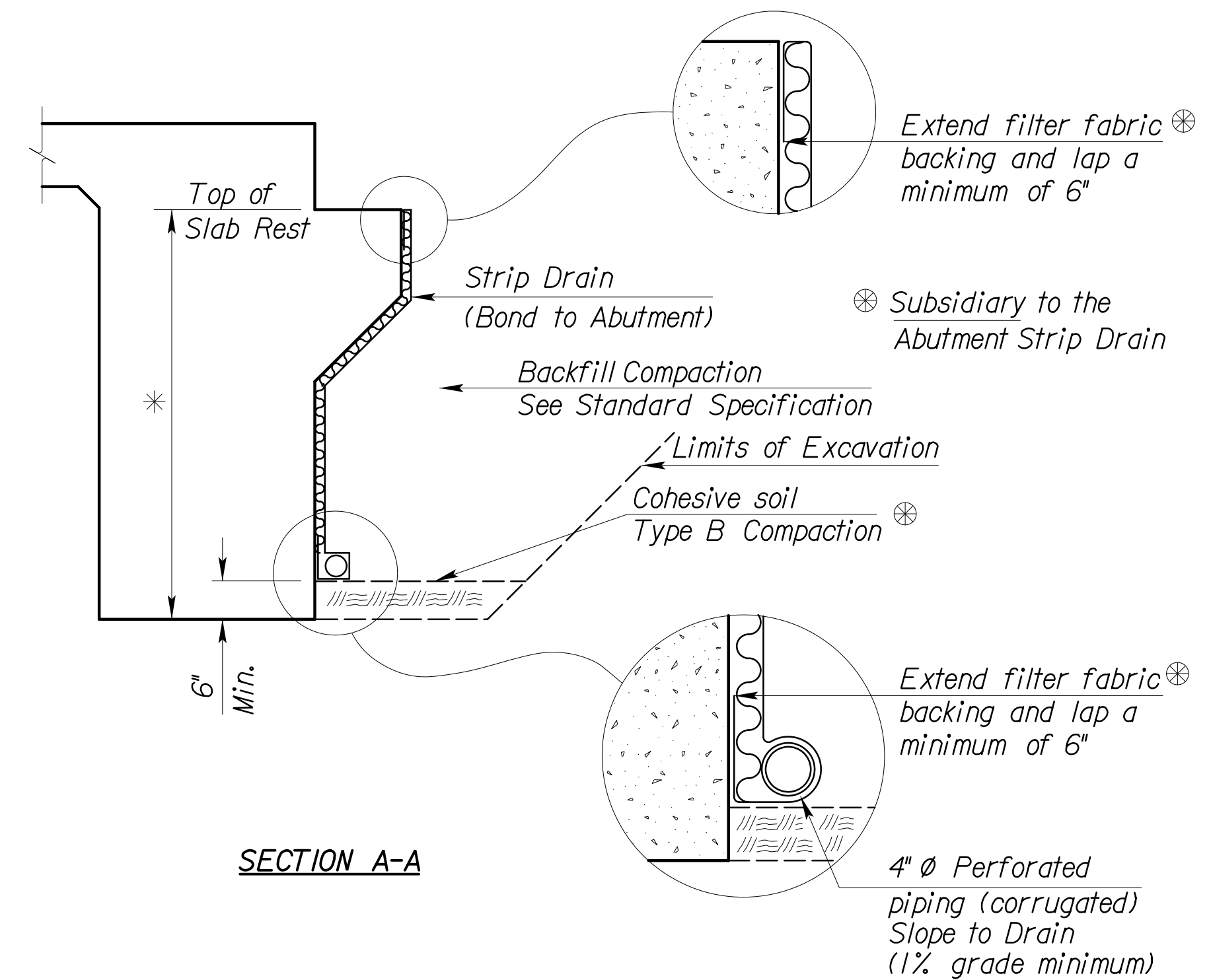
Compact the abutment backfill. See the KDOT Specifications.

Perforated pipe and non-perforated outlet pipe shall be corrugated polyethylene tubing conforming to the KDOT Specifications.

Fit the CMP end section with 1/4" galvanized mesh screen to prevent the entrance of rodents. Seal the joint between the outlet pipe and the end section with a joint sealer. Place coarse aggregate at the outlet end as shown.

Grade the bottom surface of the excavated area to drain. Backfill this area with a cohesive type soil. The soil should be a silty clay or clay under the Kansas Classification System with a minimum plasticity index of 13. Compact the material to Type B standards.

Place the outlet pipe on the downstream side of structures over streams and as shown or noted on other crossings (See the "Construction Layout" sheet).

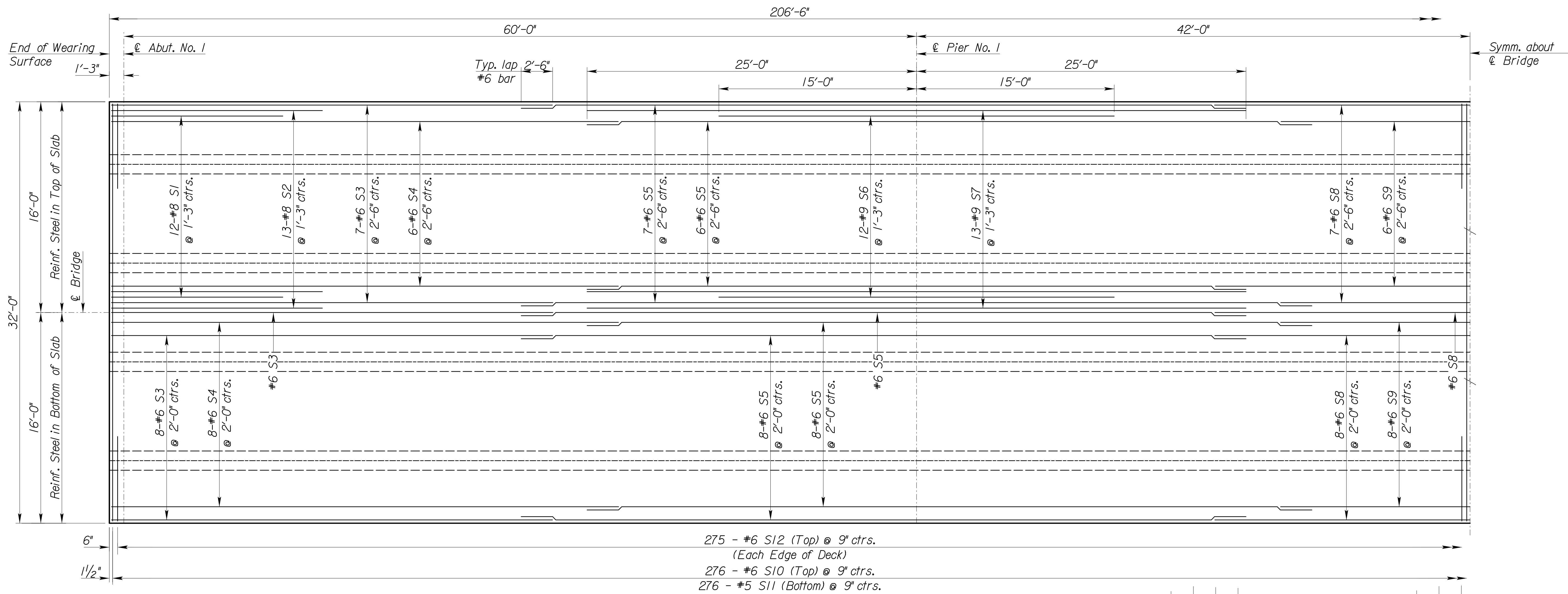


SECTION A-A

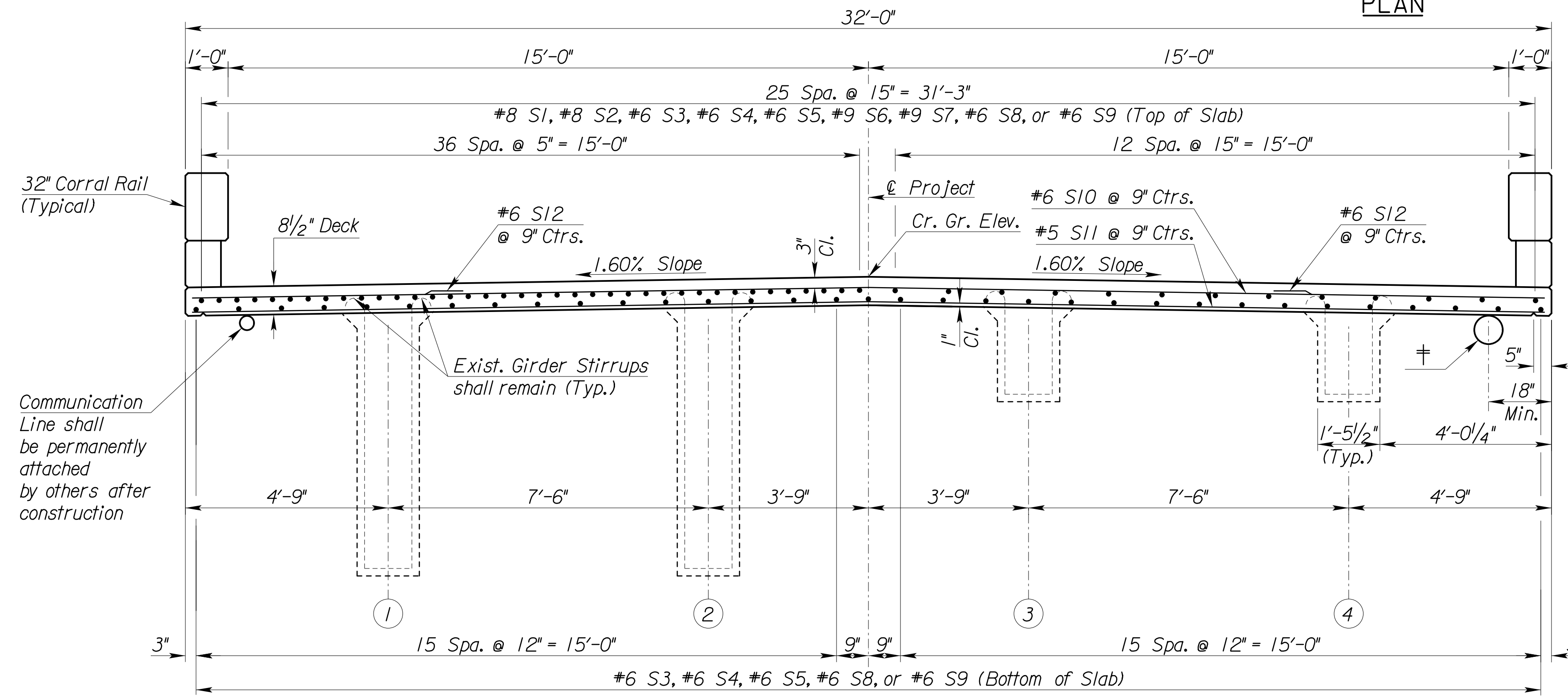
\* Limits of Bridge Backwall Protection System (by Bridge Contractor)

SUMMARY OF QUANTITIES (2 ABUTMENTS)	
Abutment Strip Drain	37 Sq. Yds.
Bridge Backwall Protection System	43 Sq. Yds.
Items subsidiary to Strip Drain	
4" Perforated Pipe	80 Lin. Ft.
4" Outlet Pipe	20 Lin. Ft.
6" CMP	16 Lin. Ft.

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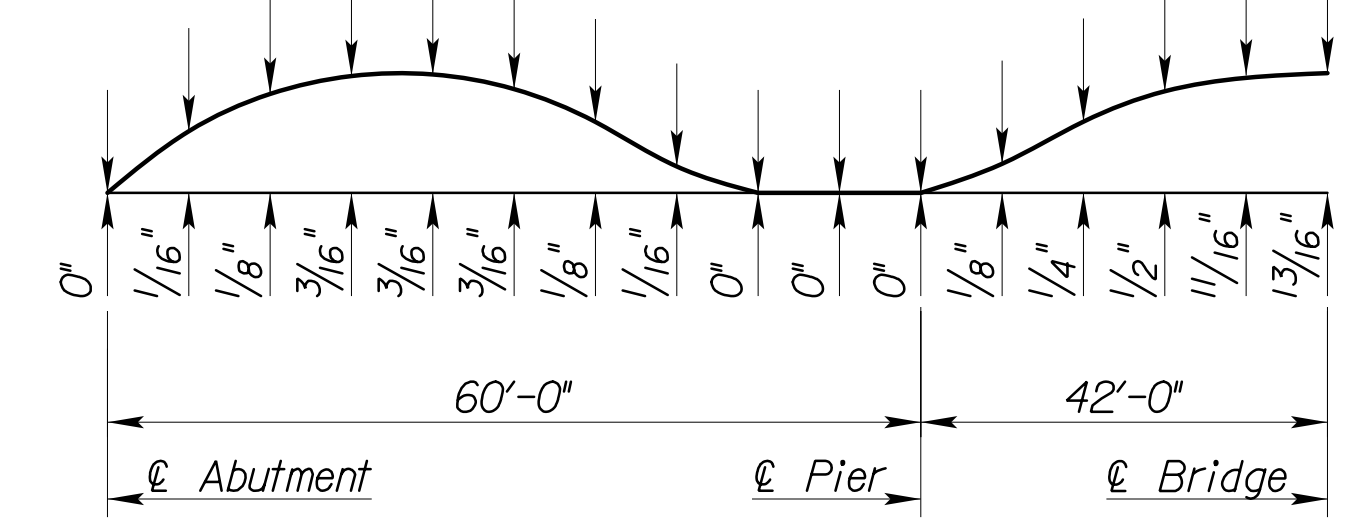
PLAN



HALF SECTION NEAR PIER      HALF SECTION NEAR MIDSPAN

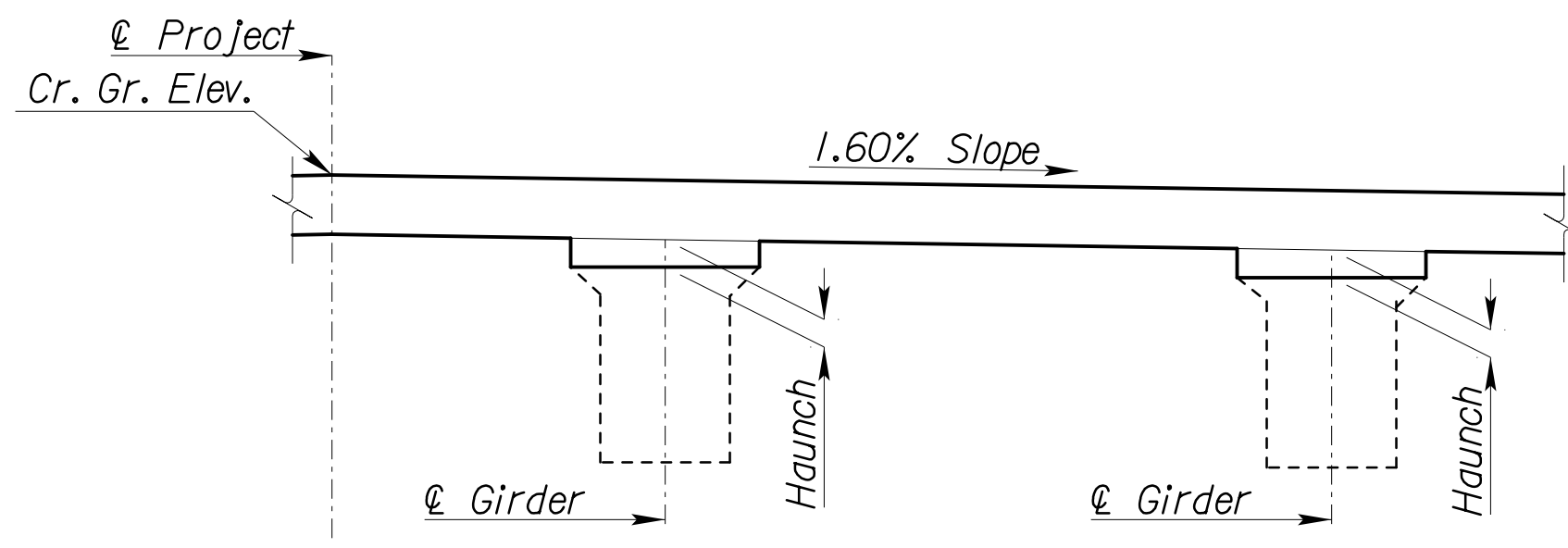
TYPICAL BRIDGE CROSS SECTION

† Natural Gas Line shall be permanently attached to bridge by others after deck is constructed. The Contractor shall embed hanger inserts for the line in the deck. See General Notes sheet.



DEAD LOAD DEFLECTION DIAGRAM AT TENTH POINTS

Long Term Deflections = Initial Deflections x 3.5  
 (Initial Deflections Based on  $E_c = 3834$  KSI)  
 Dead Load deflections shown here are due to the effects of the anticipated haunch, gas line, slab, and barrier weights.



HAUNCH DETAIL

Note:  
 The proposed Crown Grade at the bridge has been adjusted up to accommodate the change to a thicker bridge deck and to accommodate for construction variances from plan to as-built conditions. After removal of the deck, the Contractor shall field survey the tops of the existing concrete girders and calculate the haunch depths necessary to achieve the proper Crown Grade. Submit the haunch calculations to the Engineer for review prior to forming the deck.

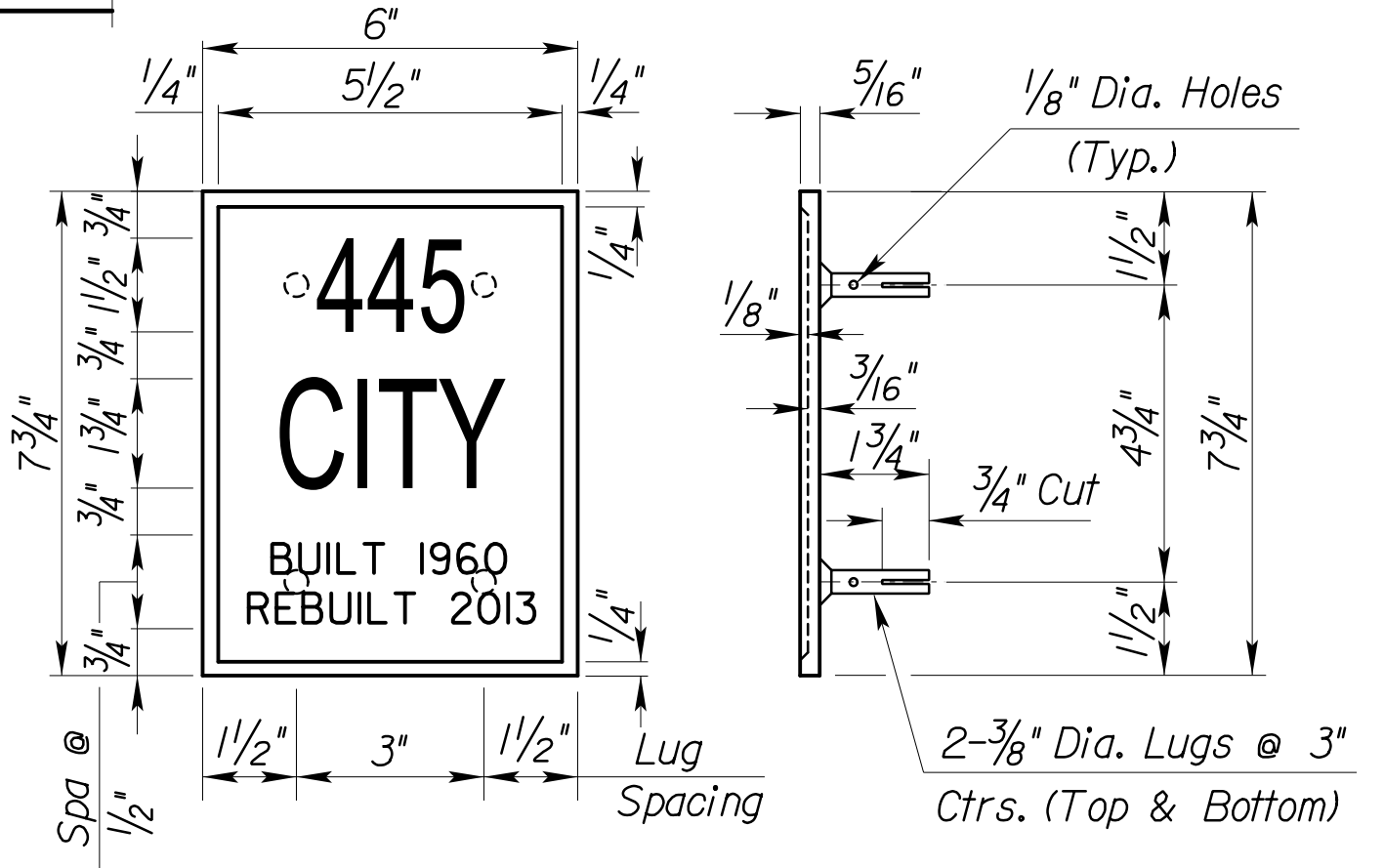
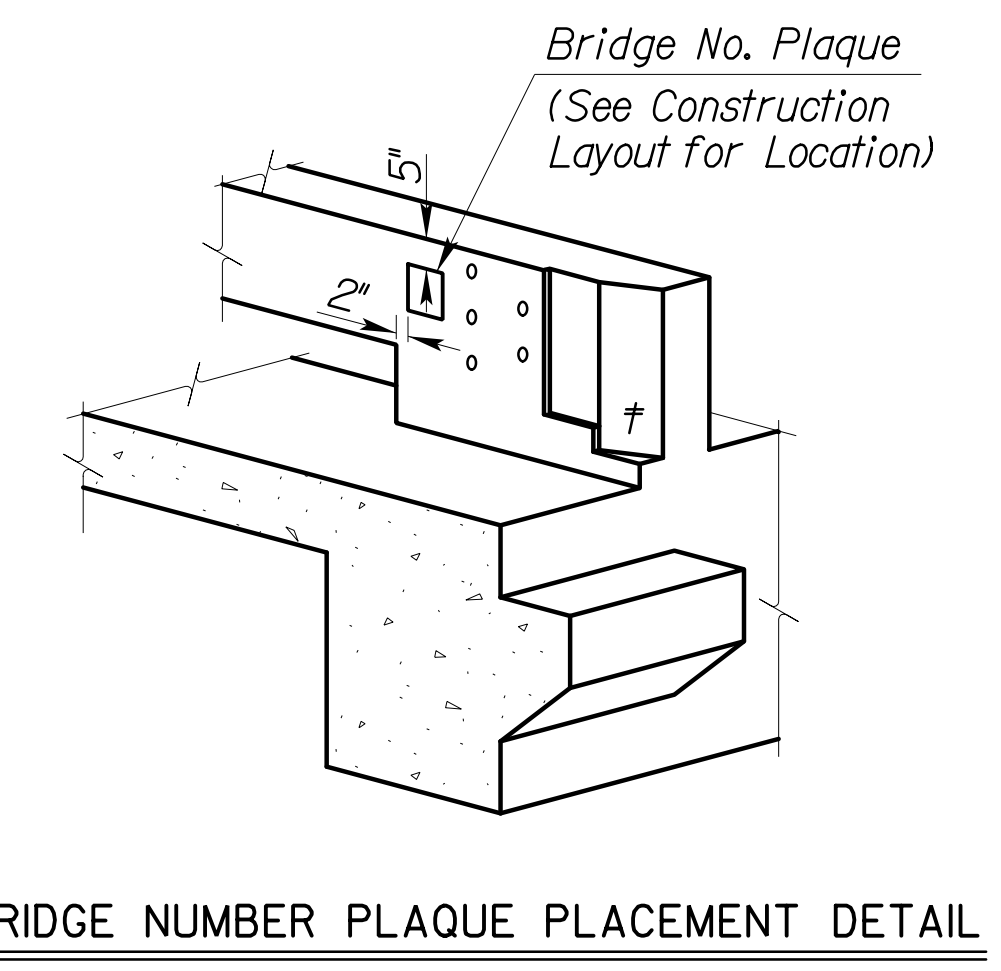
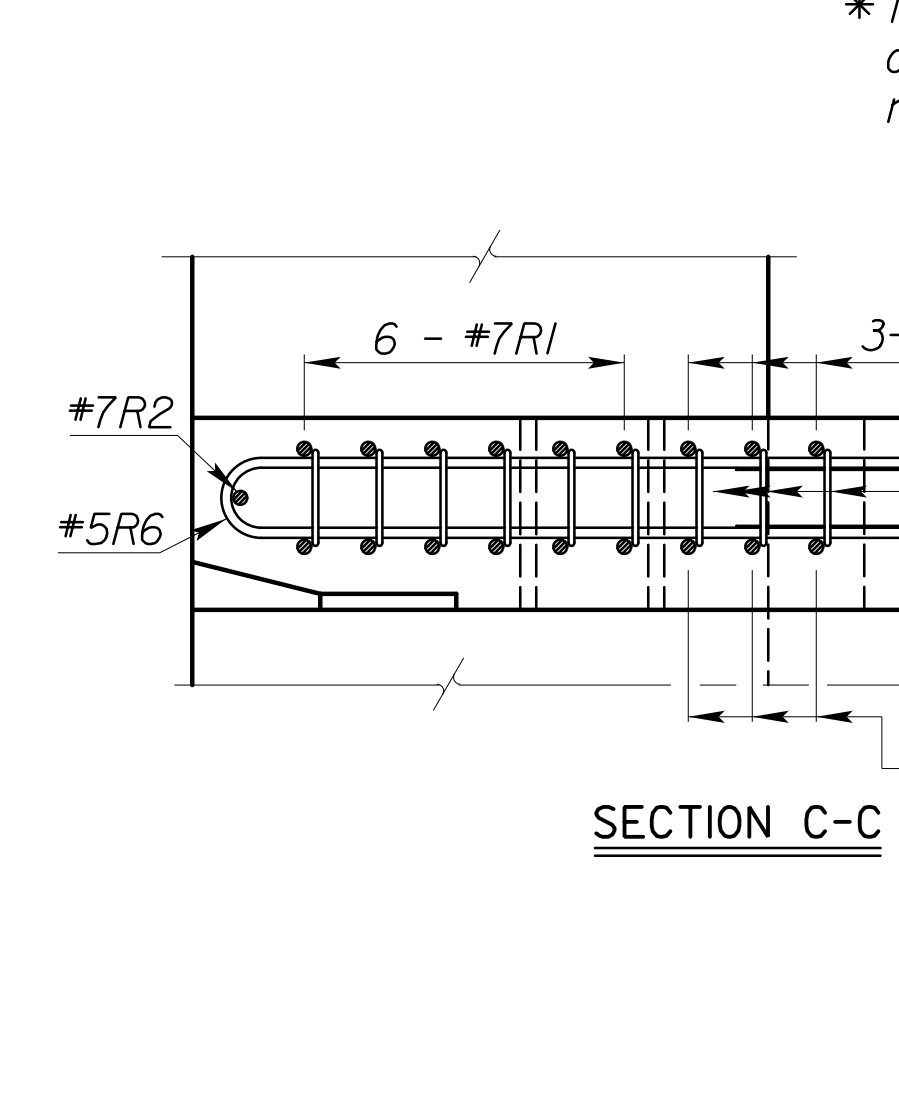
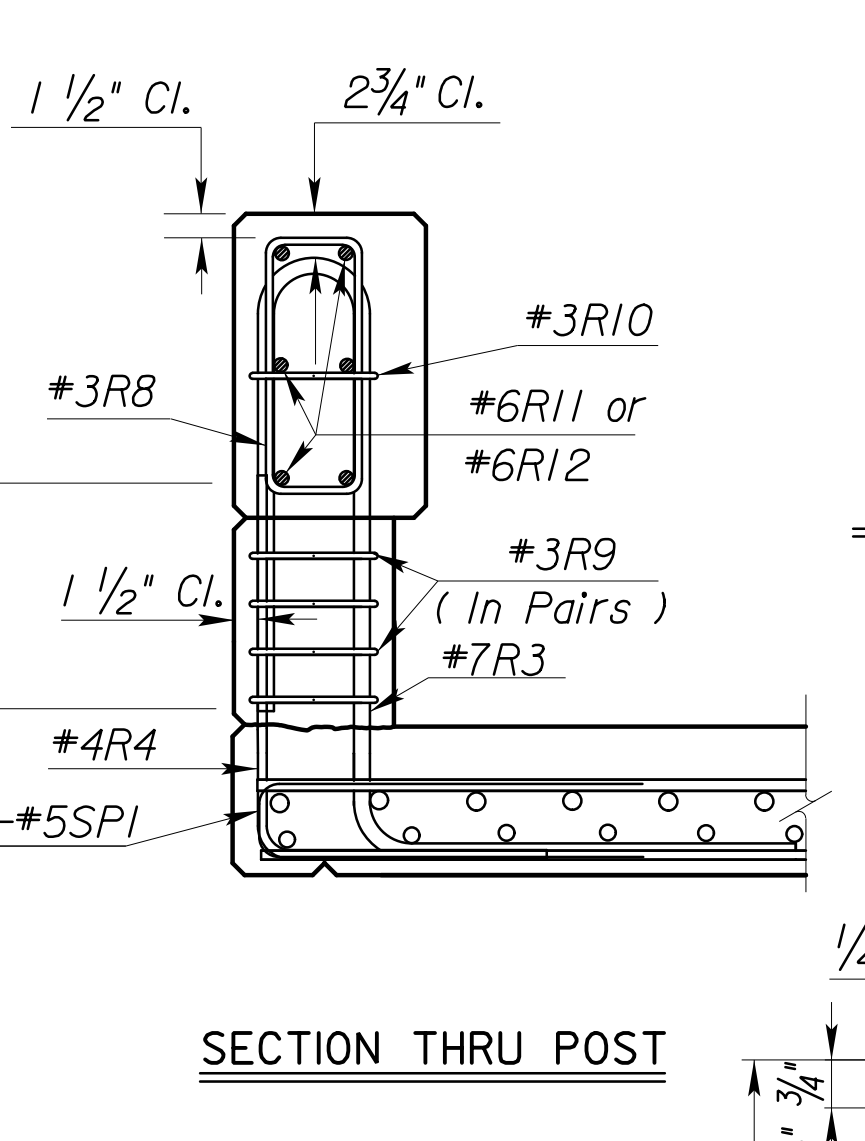
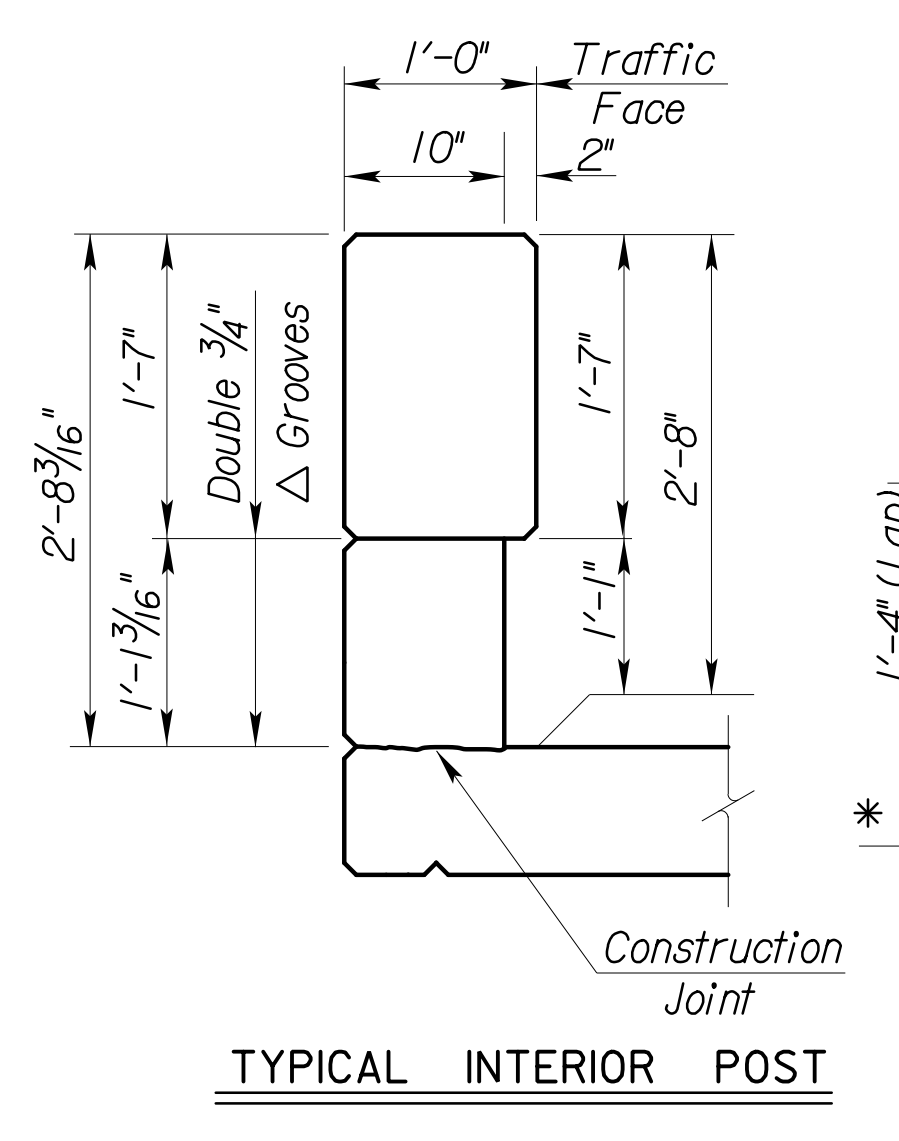
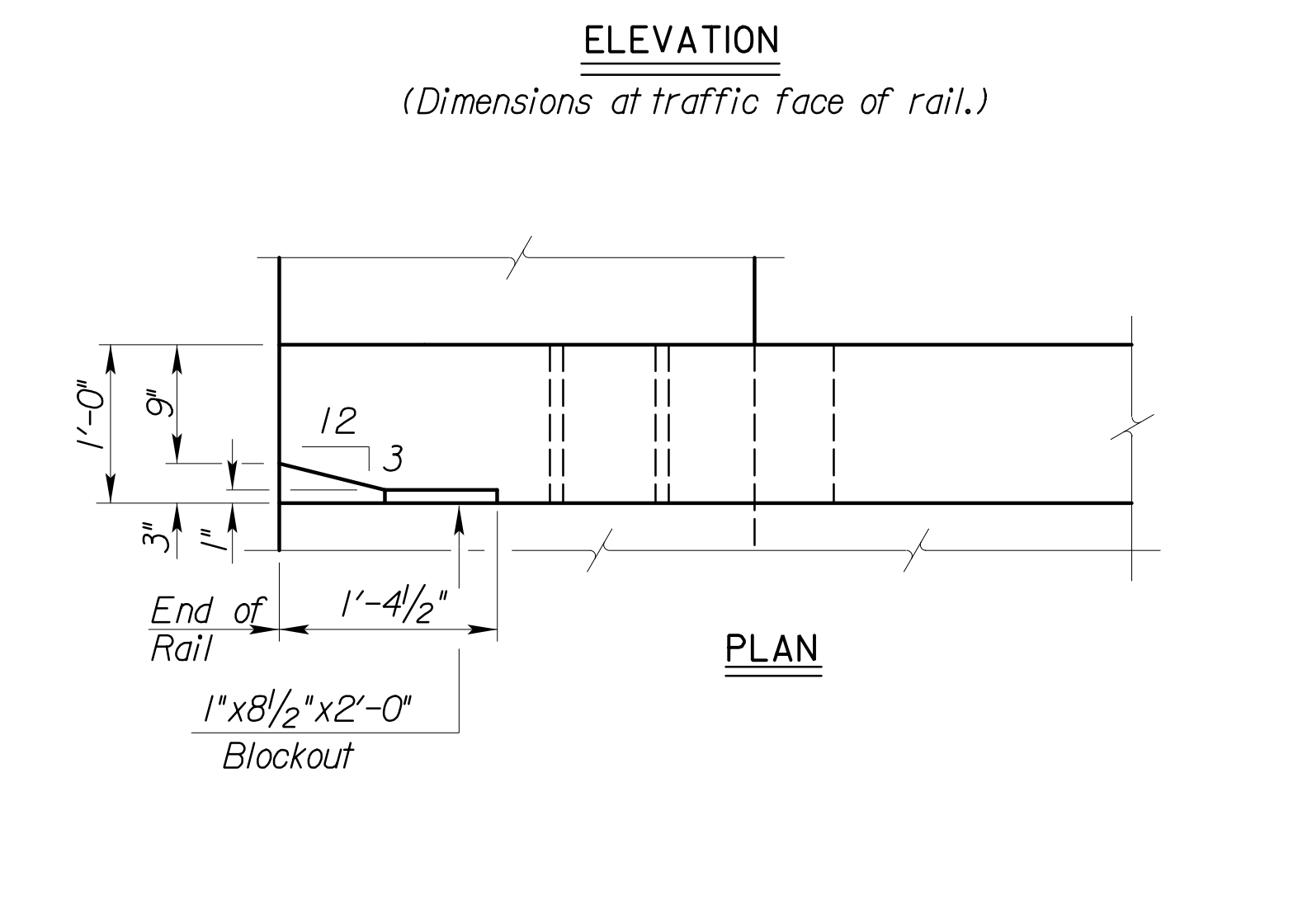
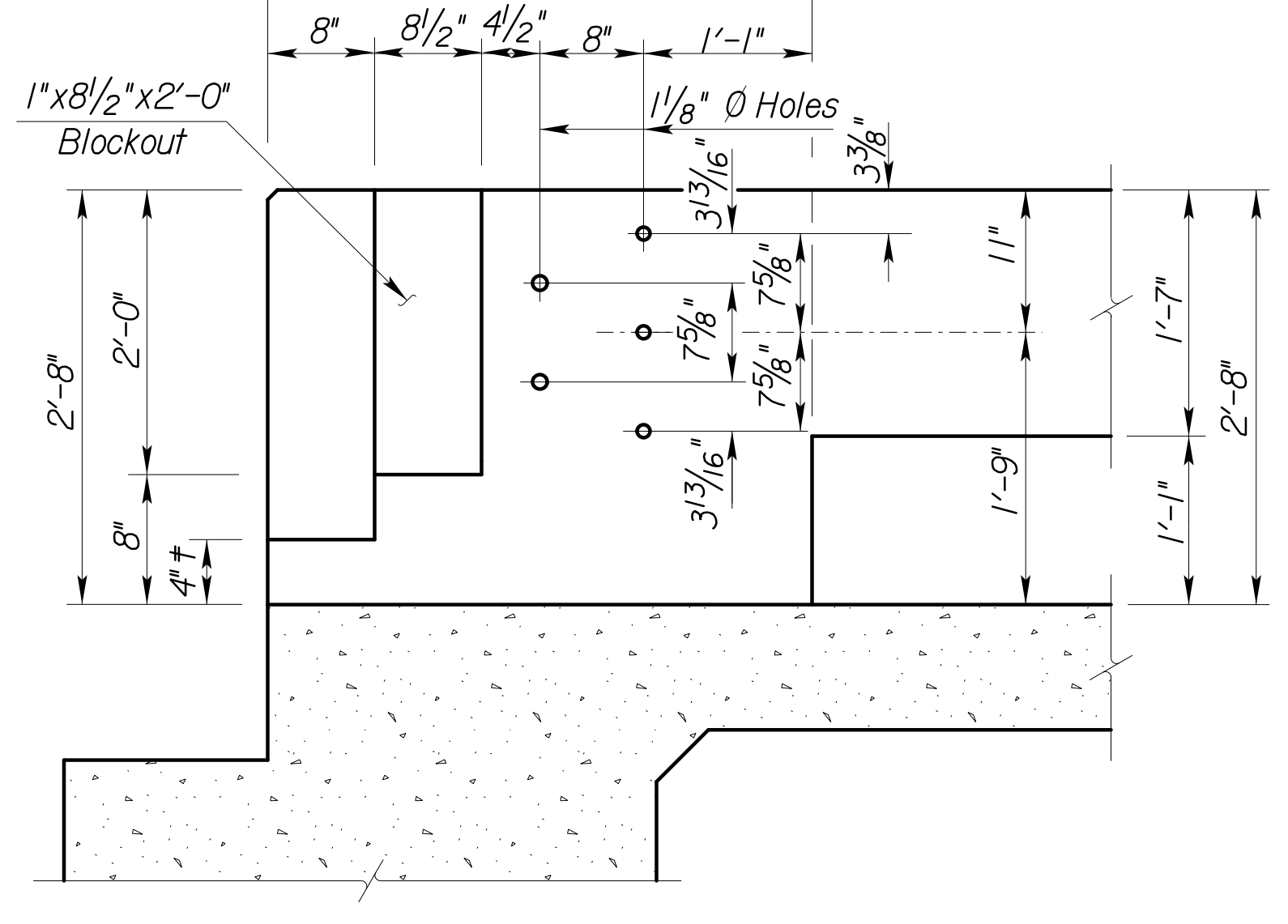
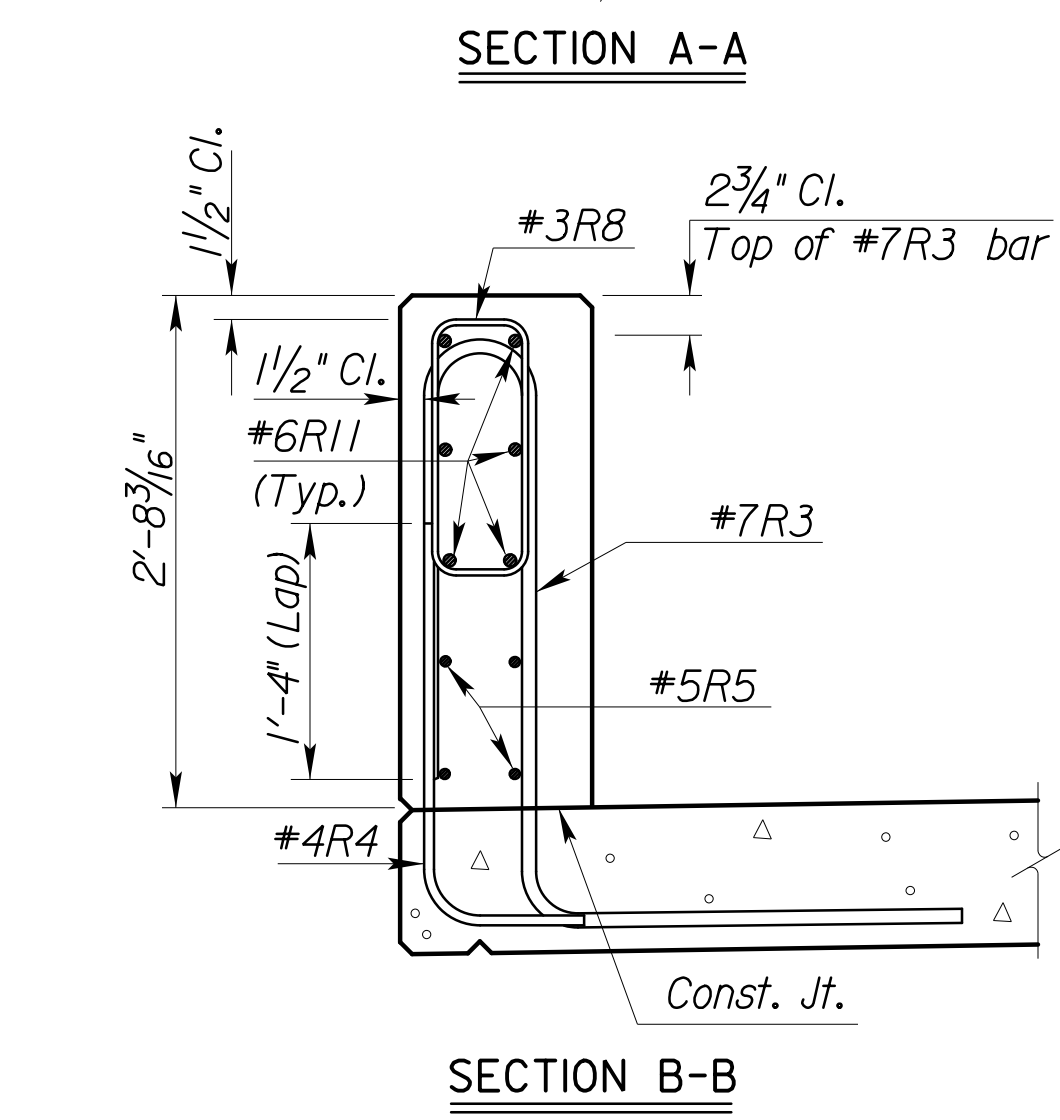
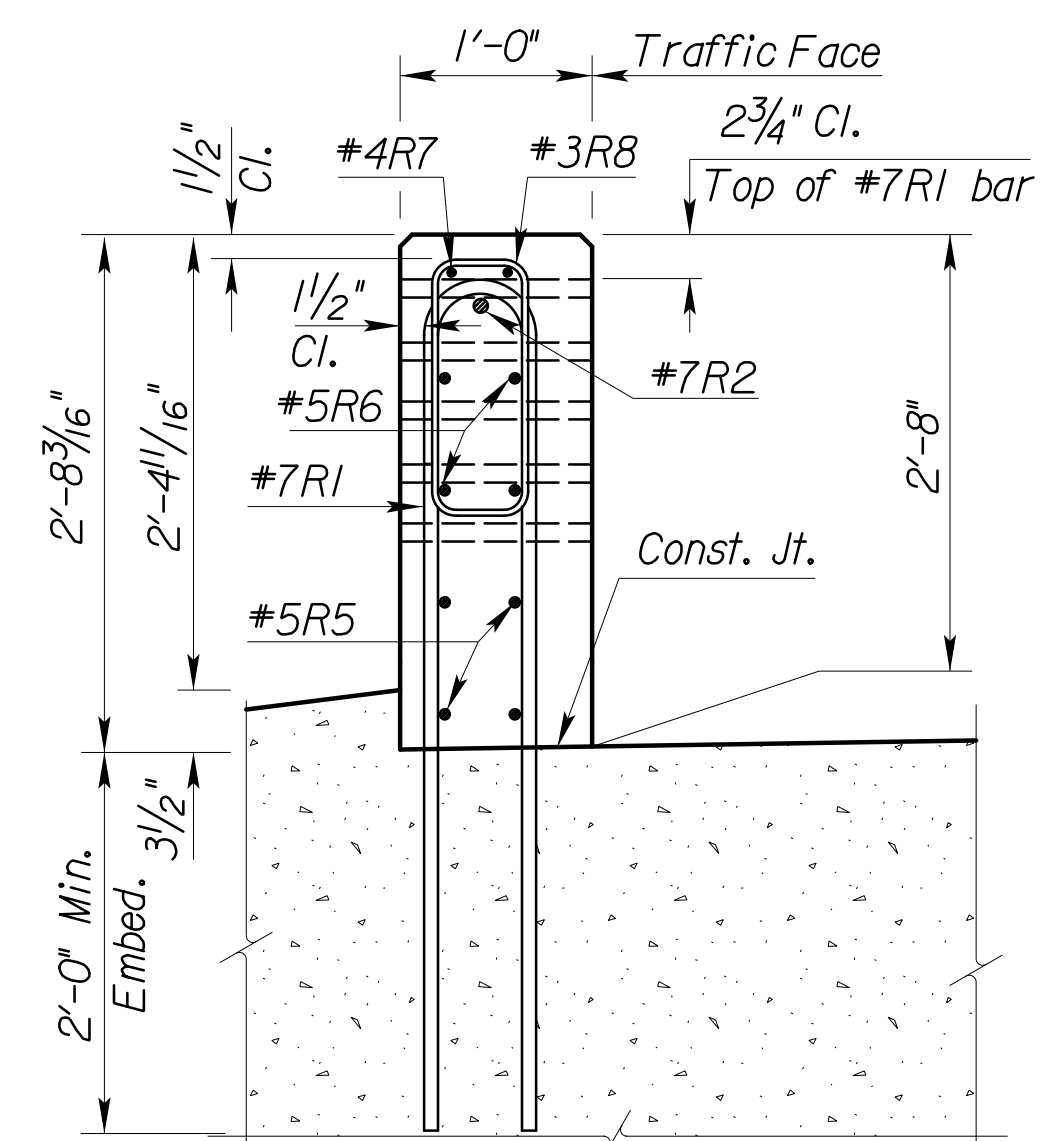
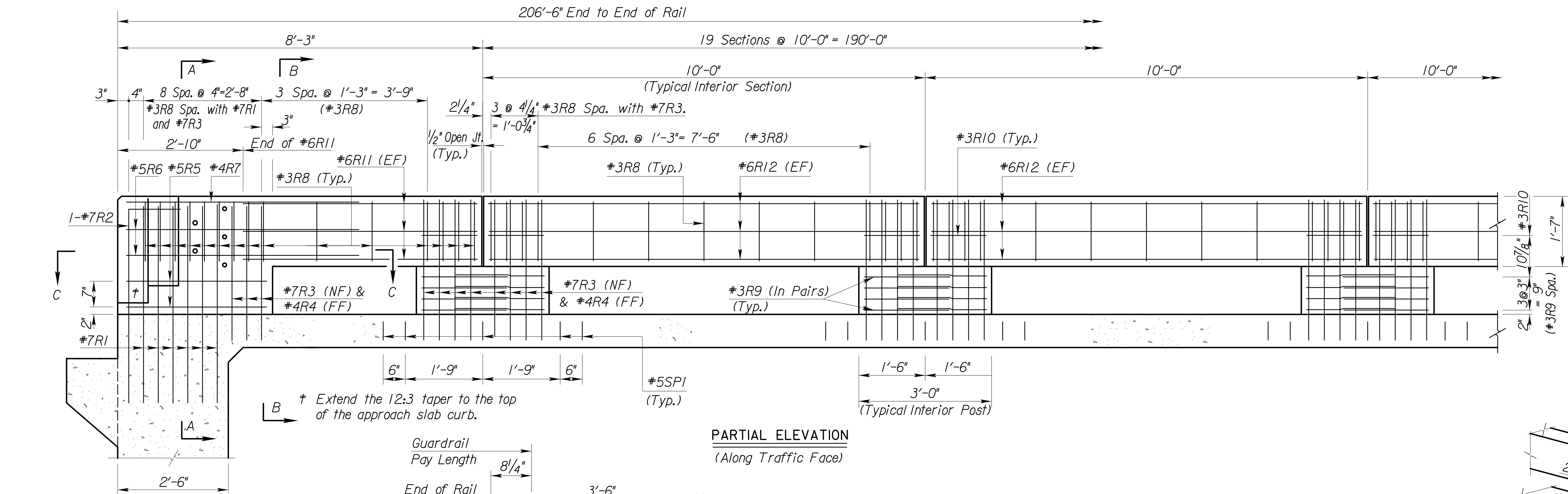
PROJECT NO.	BR-1377
DRAWN BY	JTC 1/2013
CHECKED BY	PRY 1/2013
DESIGNED BY	JCG 1/2013
REVISIONS	DATE

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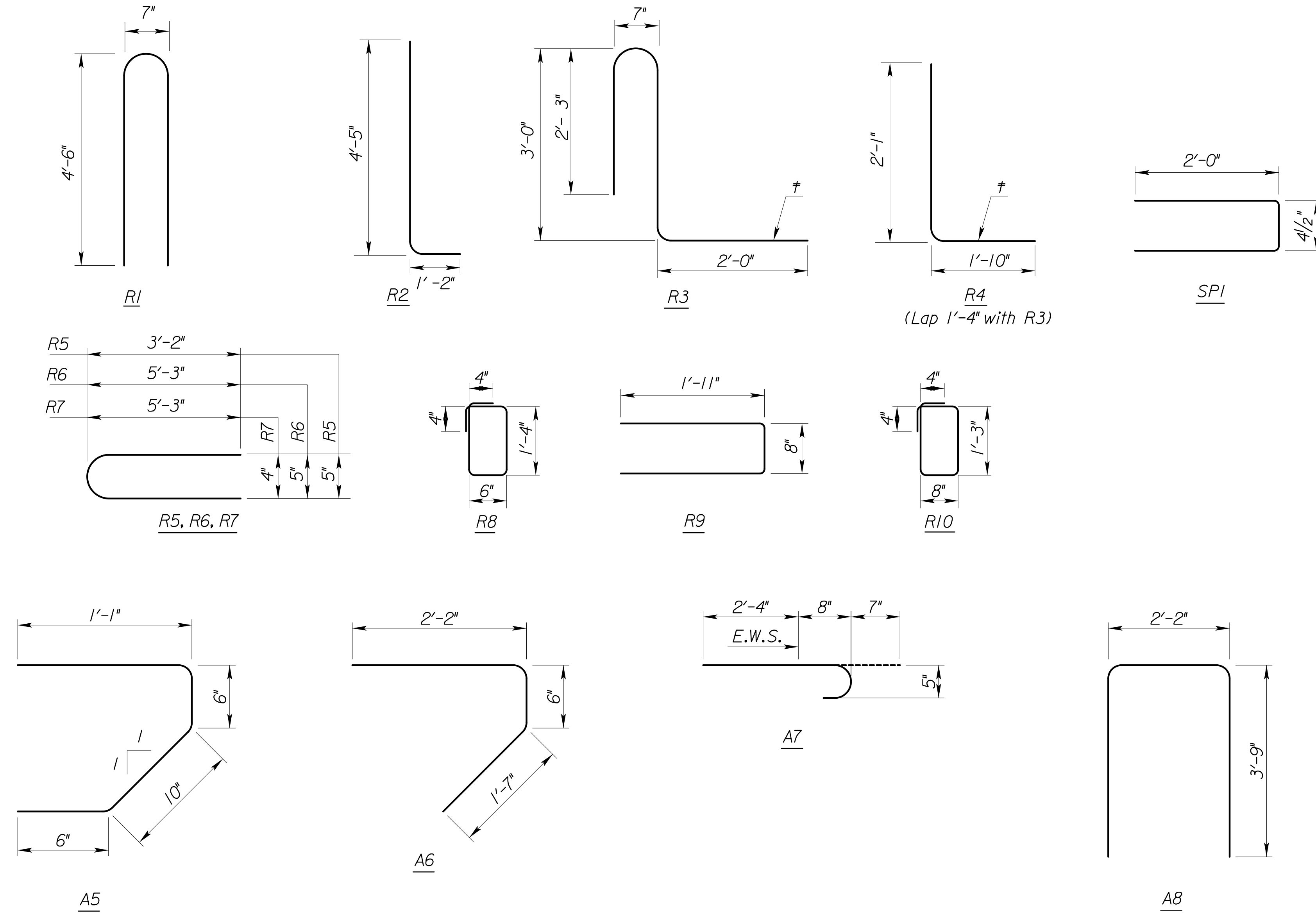


**BRIDGE NUMBER PLAQUE**

Notes:  
 1. Bridge Number Plaque shall be manufactured in accordance with KDOT Standard Specifications for State Road and Bridge Construction, 2007 Edition.  
 2. One plaque required per bridge. See Bridge Construction Layout for location.

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BILL OF REINFORCING STEEL Epoxy Coated (Gr. 60)							
Straight Bars				Bent Bars			
Mark	Size	Number	Length	Mark	Size	Number	Length
S6	#9	48	50'-0"	R1	#7	24	9'-3"
S7	#9	52	30'-0"	R2	#7	4	5'-7"
				R3	#7	332	7'-7"
A1	#8	8	41'-8"				
A2*	#8	16	6'-4"	A7	#5	64	3'-7"
S1	#8	48	13'-0"	R5	#5	8	6'-7"
S2	#8	52	16'-0"	R6	#5	8	10'-9"
				SPI	#5	200	4'-4 1/2"
A3*	#6	24	6'-4"				
R11	#6	24	5'-3"	A5	#4	8	2'-11"
R12	#6	228	9'-8"	A6	#4	8	4'-3"
S3	#6	45	33'-9"	A8	#4	64	5'-11"
S4	#6	40	38'-9"				
S5	#6	85	55'-0"	R4	#4	332	3'-11"
S8	#6	30	38'-8"	R7	#4	4	10'-8"
S9	#6	29	28'-8"				
S10	#6	276	31'-8"	R8	#3	554	4'-4"
S12	#6	550	6'-4"	R9	#3	320	4'-6"
				R10	#3	80	4'-6"
S11	#5	276	31'-8"				
A4*	#4	4	2'-9"				

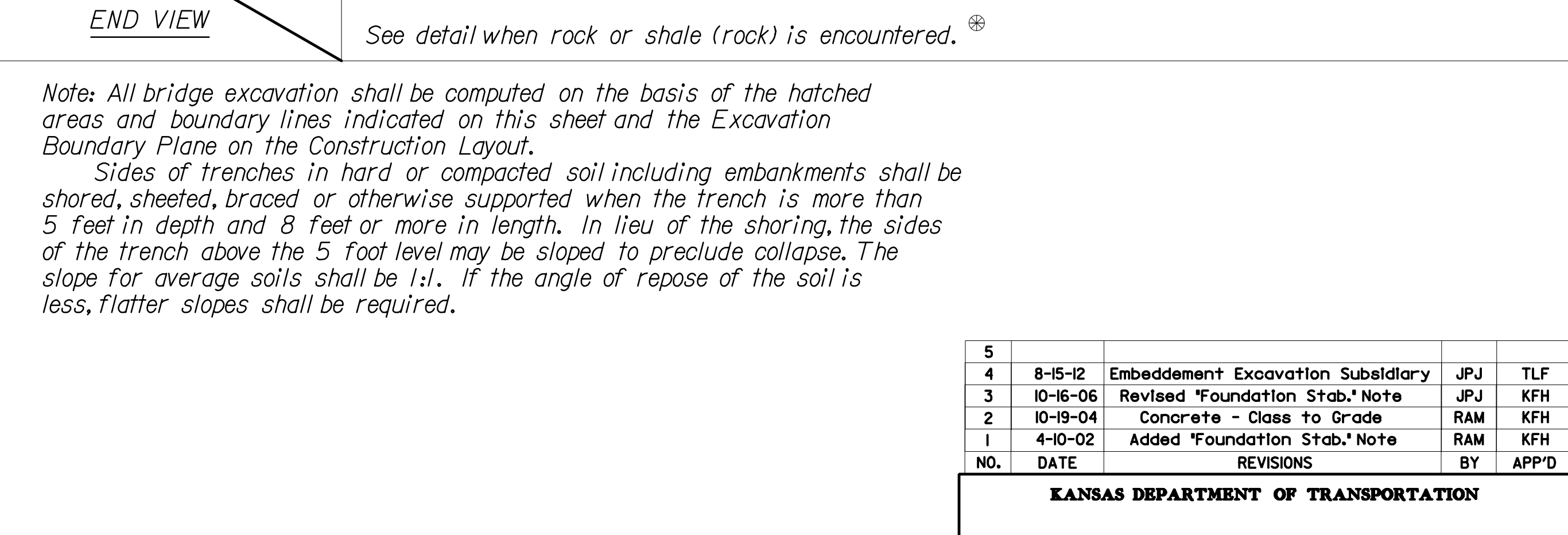
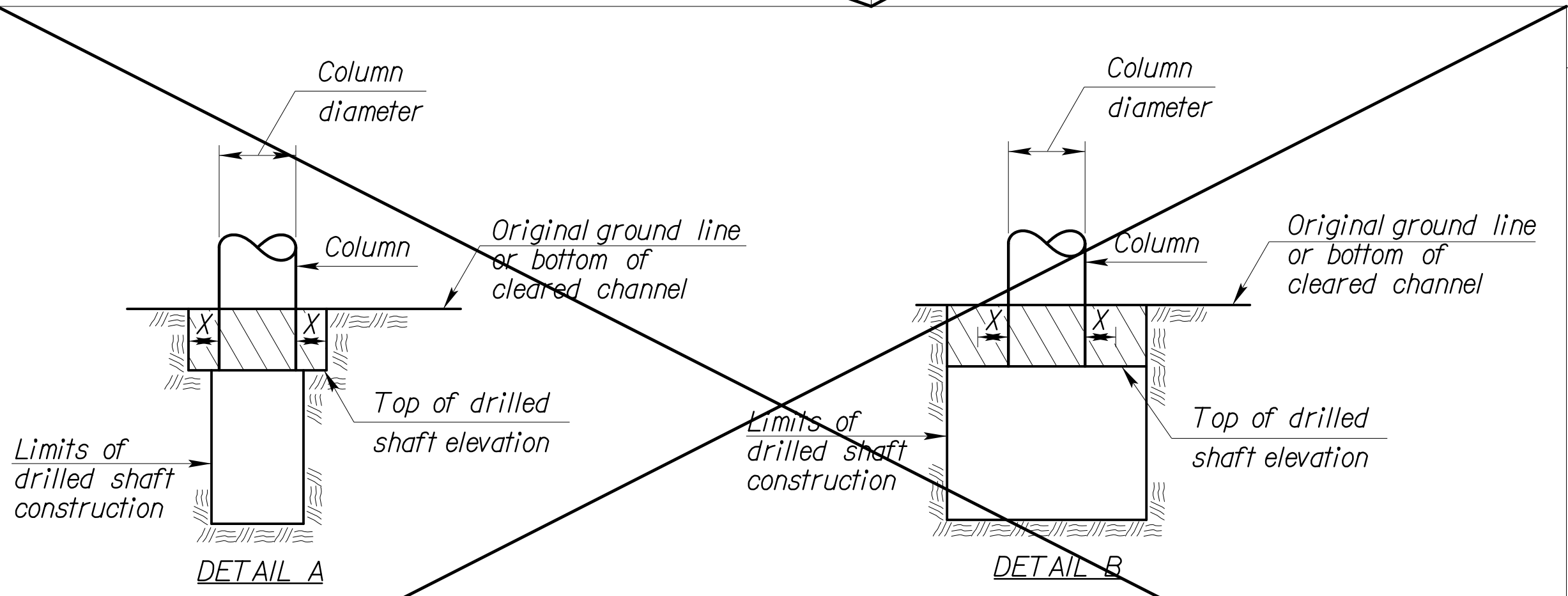
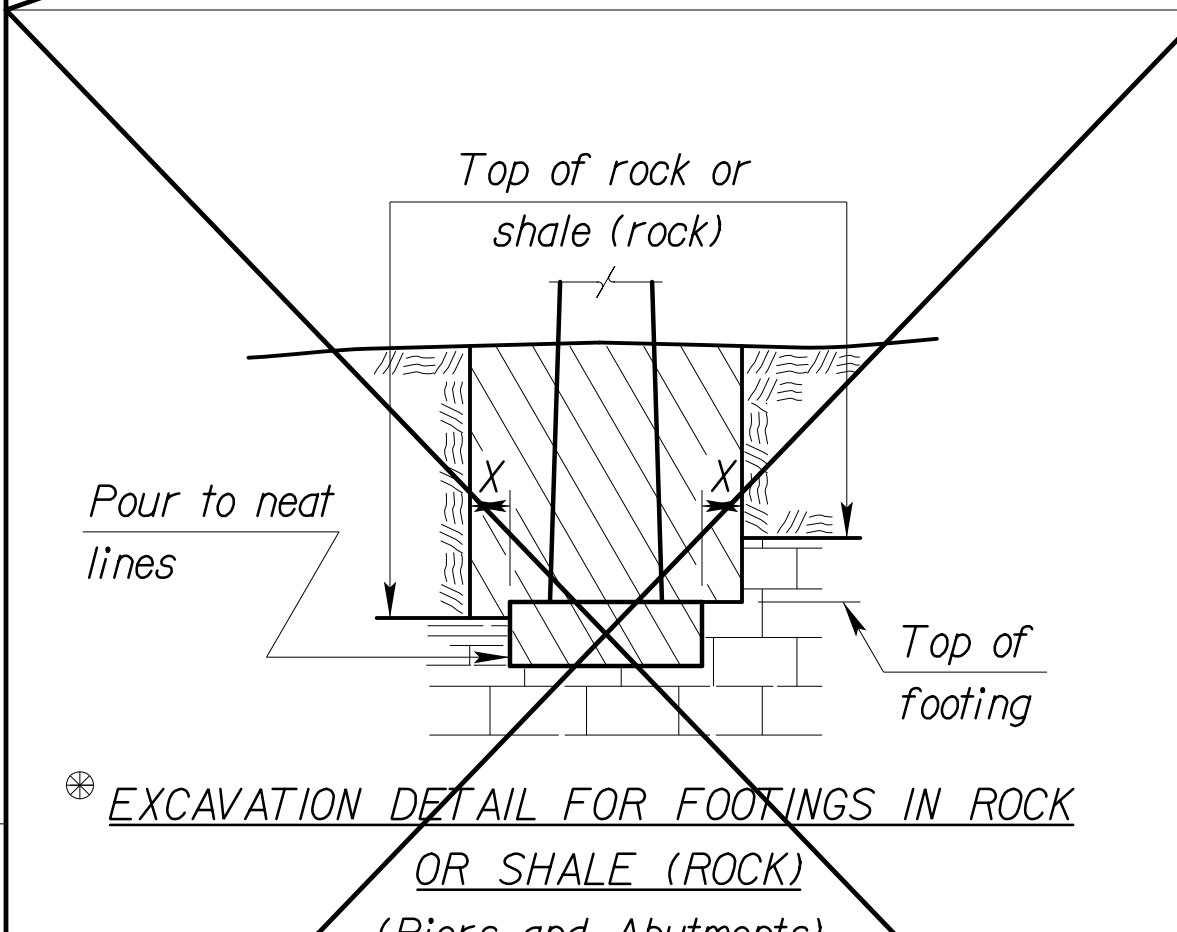
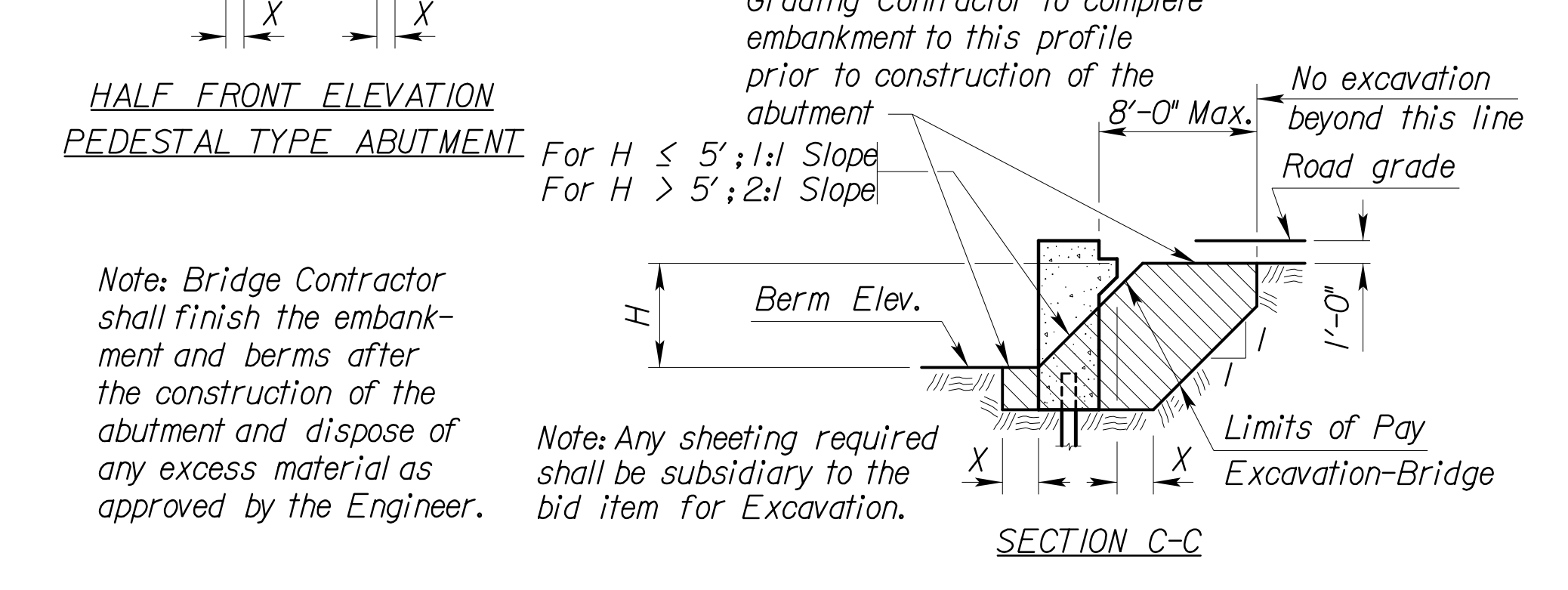
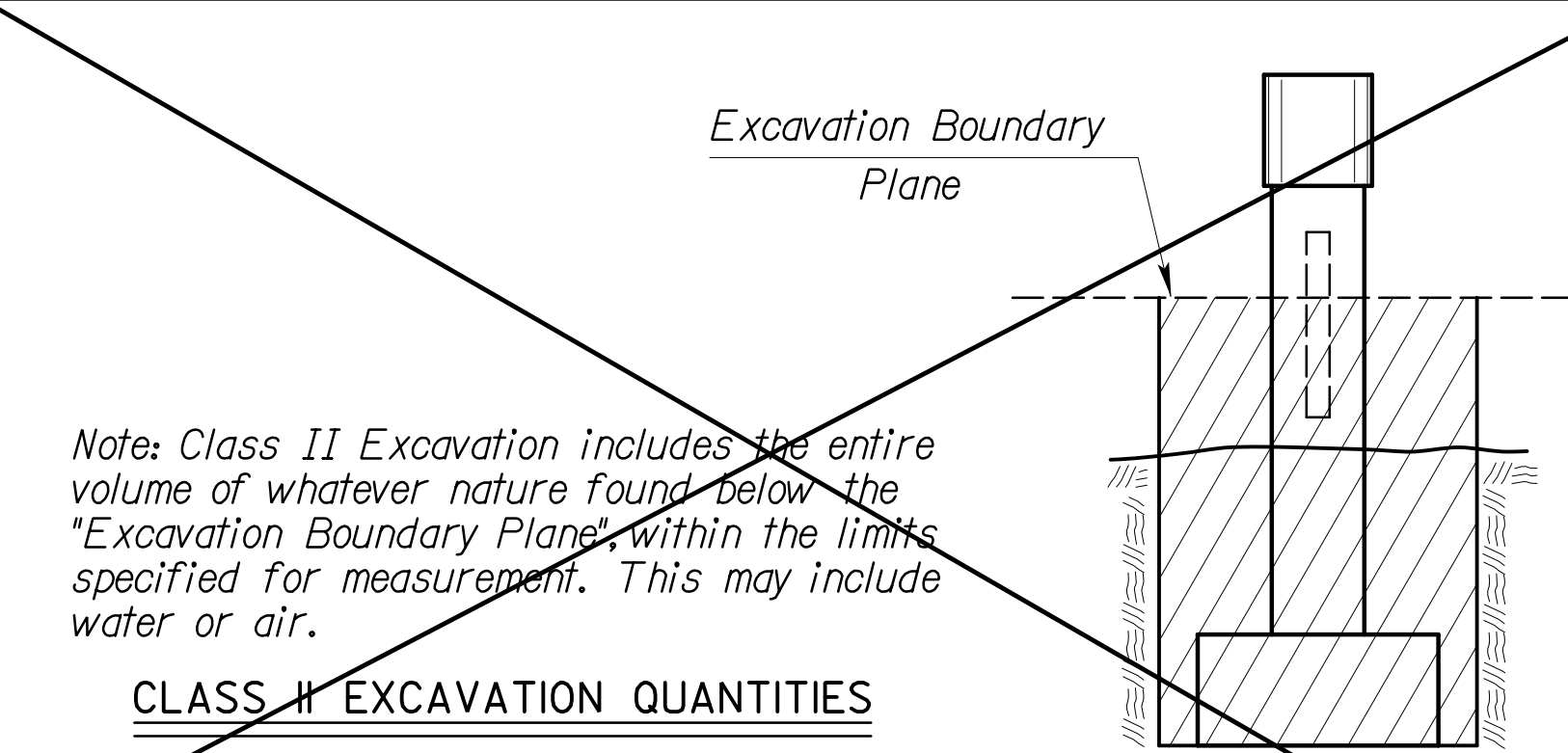
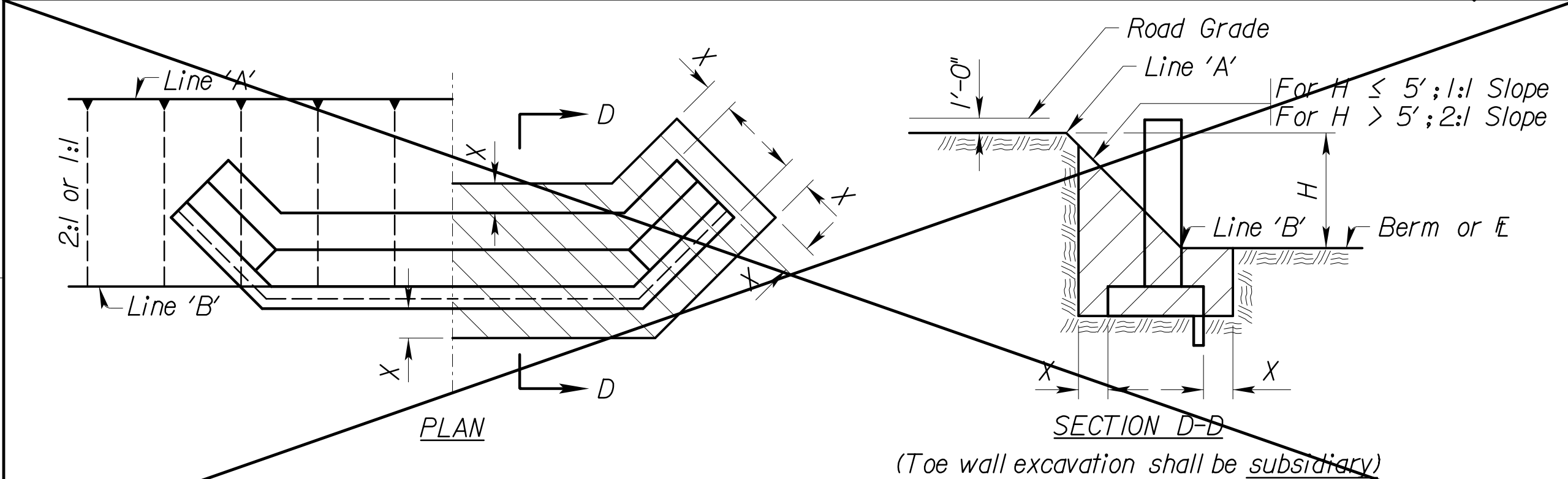
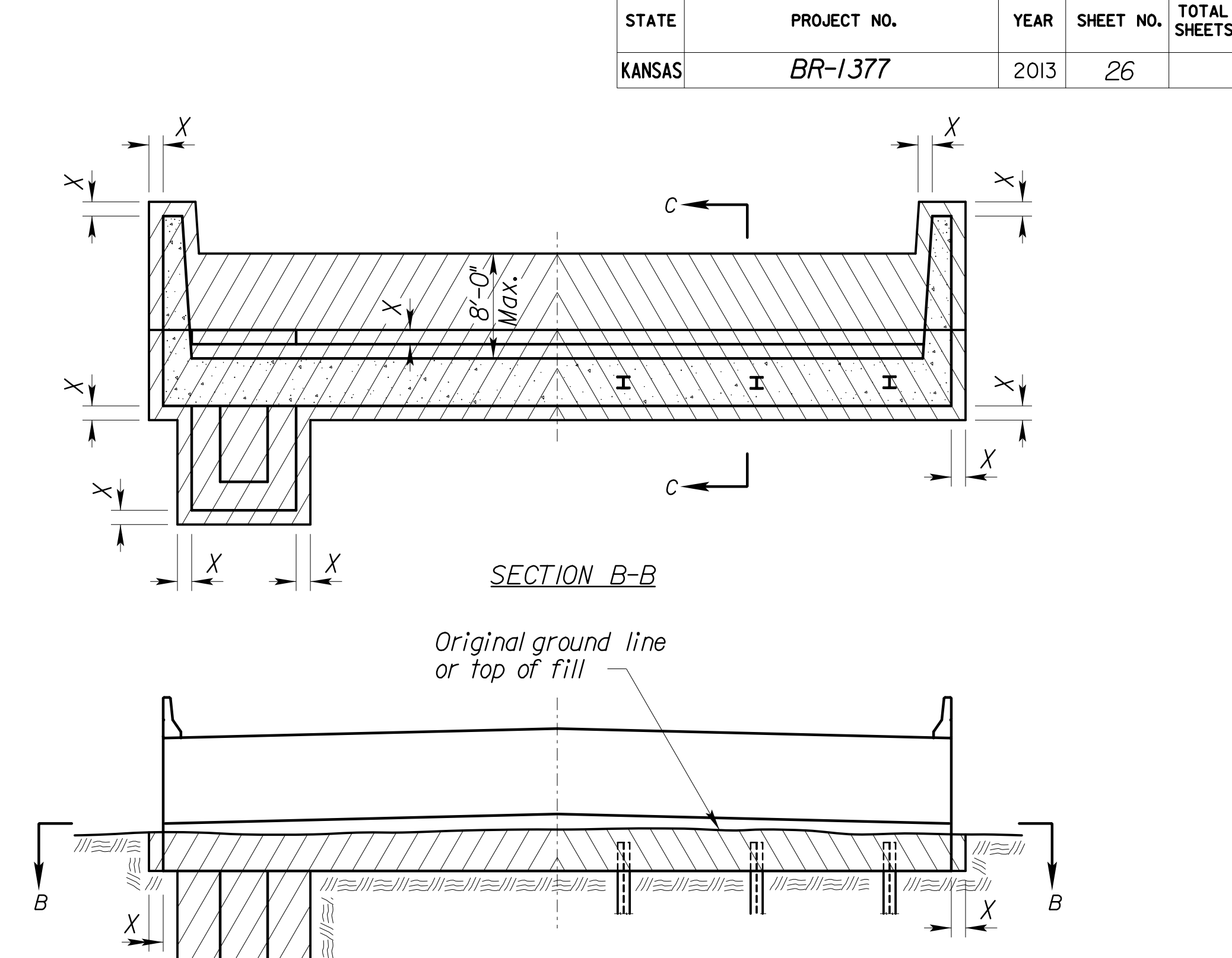
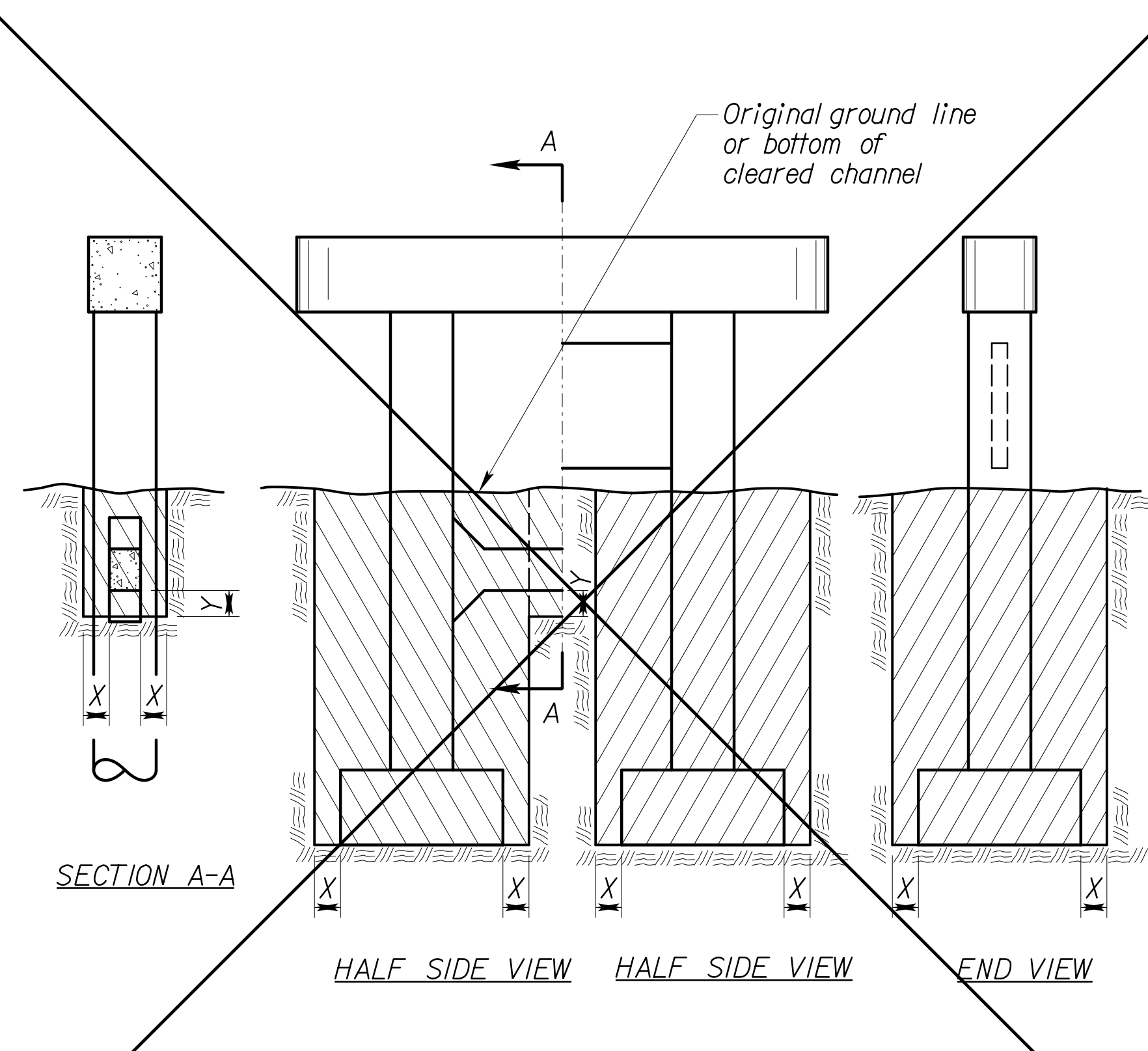
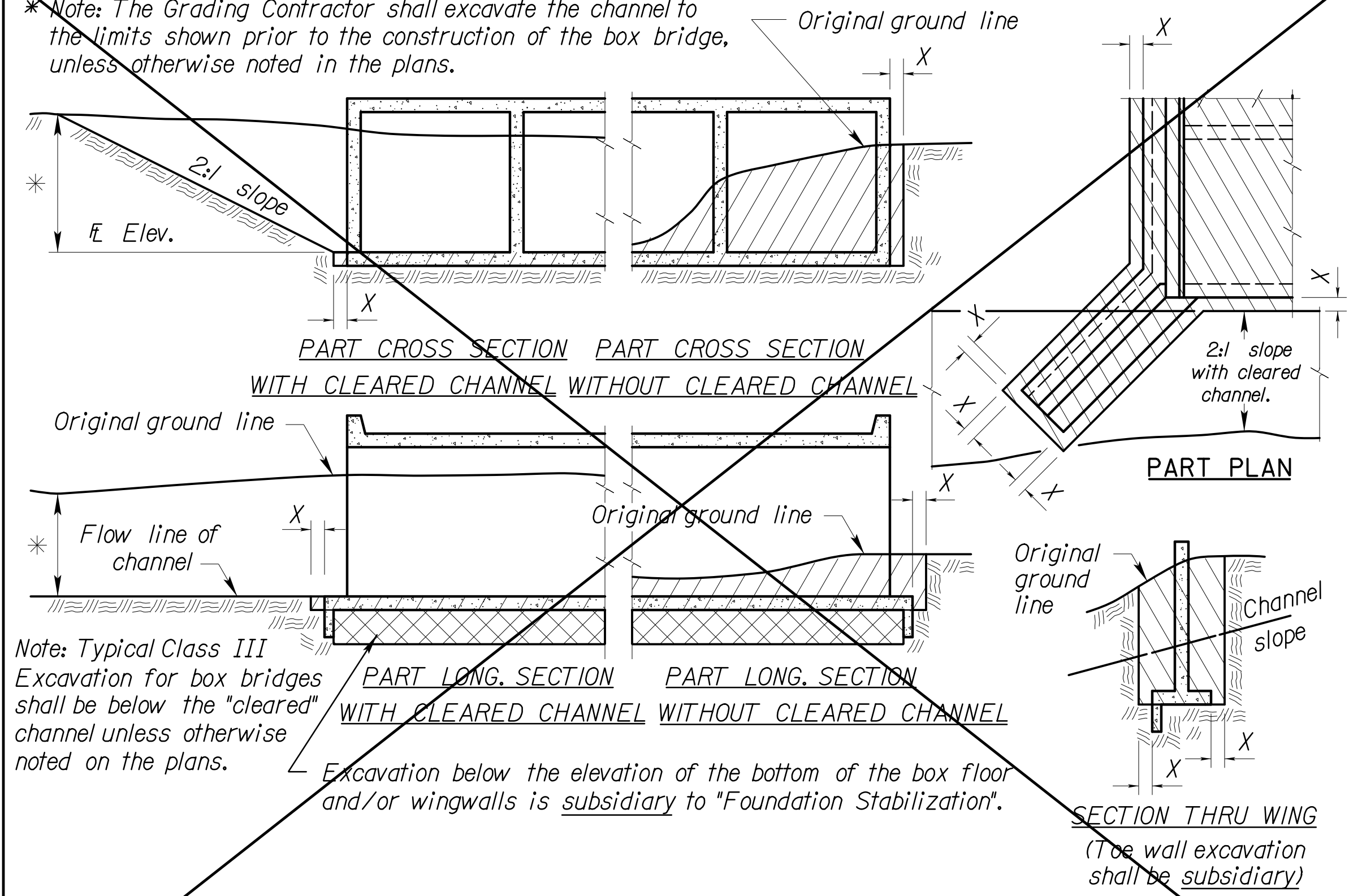
\* Mechanically fastened bar lengths are detailed from the free end to the existing bar.

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**BILL OF REINFORCING & BENDING DIAGRAM**

\* Note: The Grading Contractor shall excavate the channel to the limits shown prior to the construction of the box bridge, unless otherwise noted in the plans.



Std. Base File: br100.dgn  
 Plotted By: arabben  
 File: \\KACVPR\N000007443\01STR06W26\_7443\_br100a.dgn  
 Plot Date: 5/24/2013

NO.	DATE	REVISIONS	BY	APP'D
5				
4	8-15-12	Embedment Excavation Subsidiary	JPJ	TLF
3	10-16-06	Revised 'Foundation Stab.' Note	JPJ	KFH
2	10-19-04	Concrete - Class to Grade	RAM	KFH
1	4-10-02	Added 'Foundation Stab.' Note	RAM	KFH

**KANSAS DEPARTMENT OF TRANSPORTATION**

**BRIDGE EXCAVATION (LFD)**

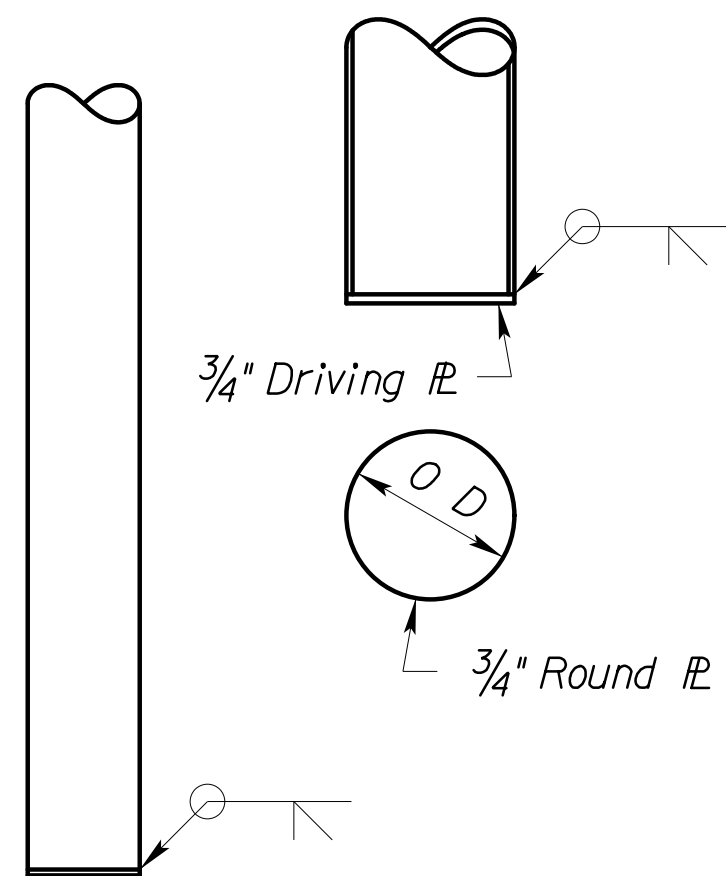
**BRICCA**

DESIGNED	II-01-06 APP'D	KENNETH F. HURST
DETAIL CK.	RDR QUANTITIES	CADD
DESIGN CK.	LRR QUAN. CK.	CADD CK.

$O D \ 10\frac{3}{4}" \ T. = 0.25"$   
 $O D \ 12\frac{3}{4}" \ T. = 0.25 \text{ Min.}$   
 $O D \ 14" \ T. = 0.25 \text{ Min.}$

Note:  
Pile shall be driven with a steel head having a projecting ring fitting inside the pipe. Clearance between ring and pipe should be  $\frac{1}{4}"$ .

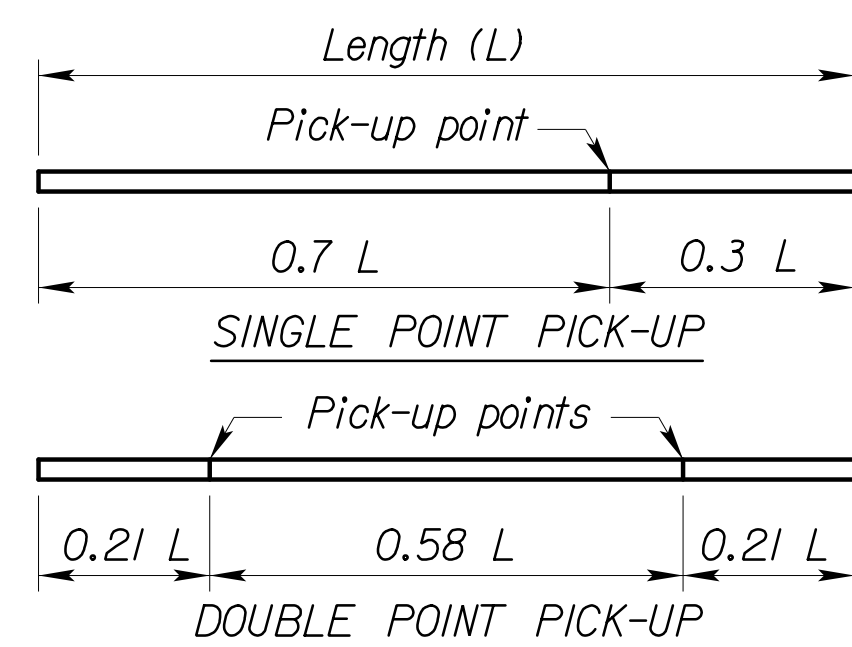
Note:  
Pile pipe may be spiral welded, longitudinal welded, or seamless steel pipe.



**PLAIN ROUND CAST-IN-PLACE CONCRETE PILES**

**CAST STEEL PILE POINT**

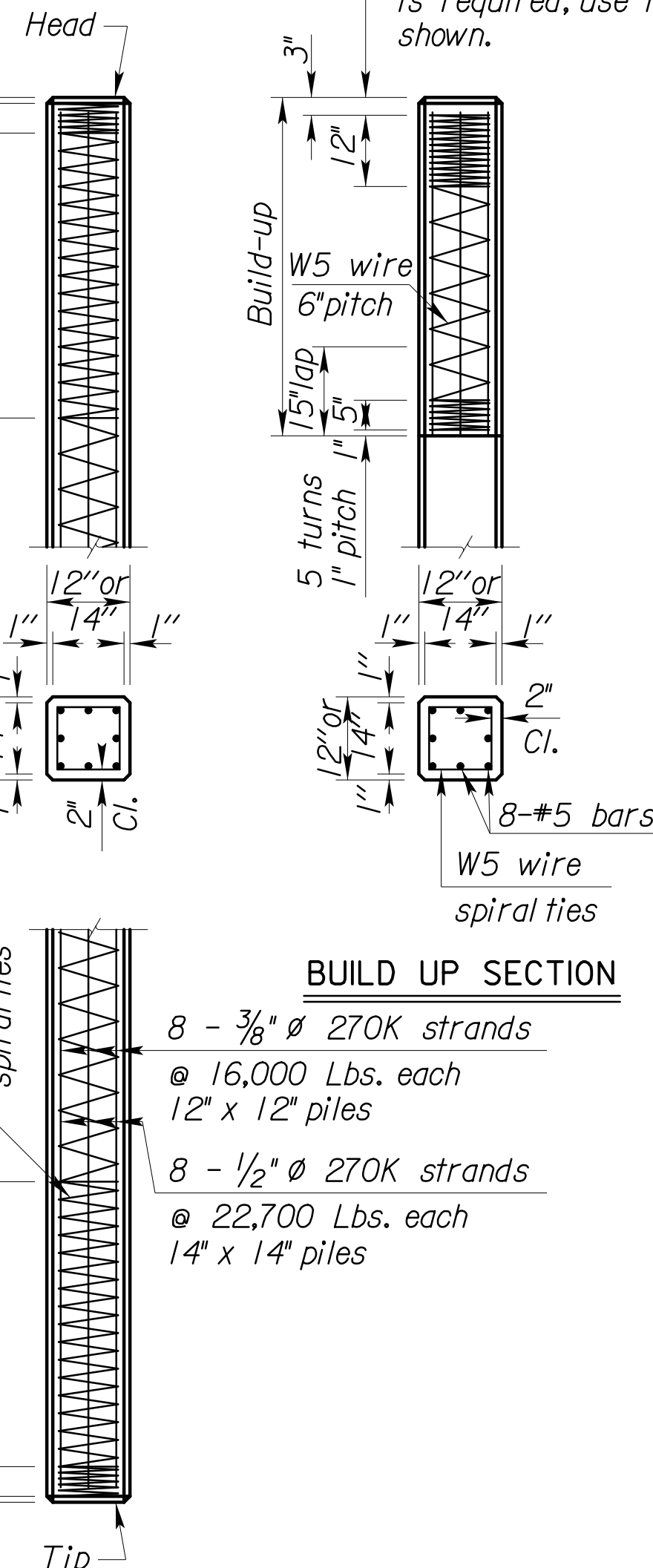
The pile point shall be a one-piece unit of cast steel. Weld points in accordance with manufacturer's recommendations to each steel pile before driving.



**PICK-UP POINTS FOR PRESTRESSED PILING**

Max. length - 55' single point pick-up  
Max. length - 80' double point pick-up

Note: Piles shall be marked at Pick-up points to indicate proper points for attaching handling lines.



**BUILD UP SECTION**

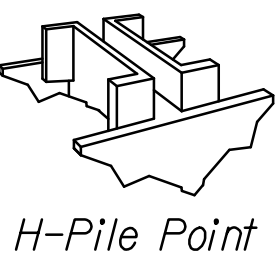
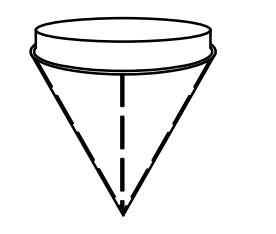
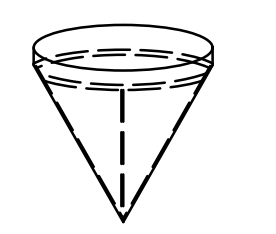
**BUILD UP WITHOUT DRIVING**

**BUILD UP WITH DRIVING**

**12" OR 14" PRESTRESSED CONCRETE PILES**

**16" PRESTRESSED CONCRETE PILES**

**Weld Symbology Definition**



**PIPE PILE POINT**

Use grinder to bevel edges of splice as shown in weld symbology and drawing. In addition to bevels, produce clean, bare, and shiny surfaces at and around the splice welding location.

Use E7018, 7016, or 7015 series welding rod (electrode) for all welding applications during pile splicing. See General Notes for proper storage of welding rod.

Lay full penetration root weld from beveled side of splice.

Back gouge root weld from side opposite of root welding application making sure to remove all foreign materials, porous steel, and inclusions from root weld. Finish welding the non beveled side of the splice.

Finish welding beveled side of the splice while removing slag, foreign materials, porous steel, and inclusions in between welding passes, use of a grinder may be needed.

Verify that enough filler metal has been correctly placed in all weld locations to obtain a flush or convex surface with no concavity produced upon completion of the final welds.

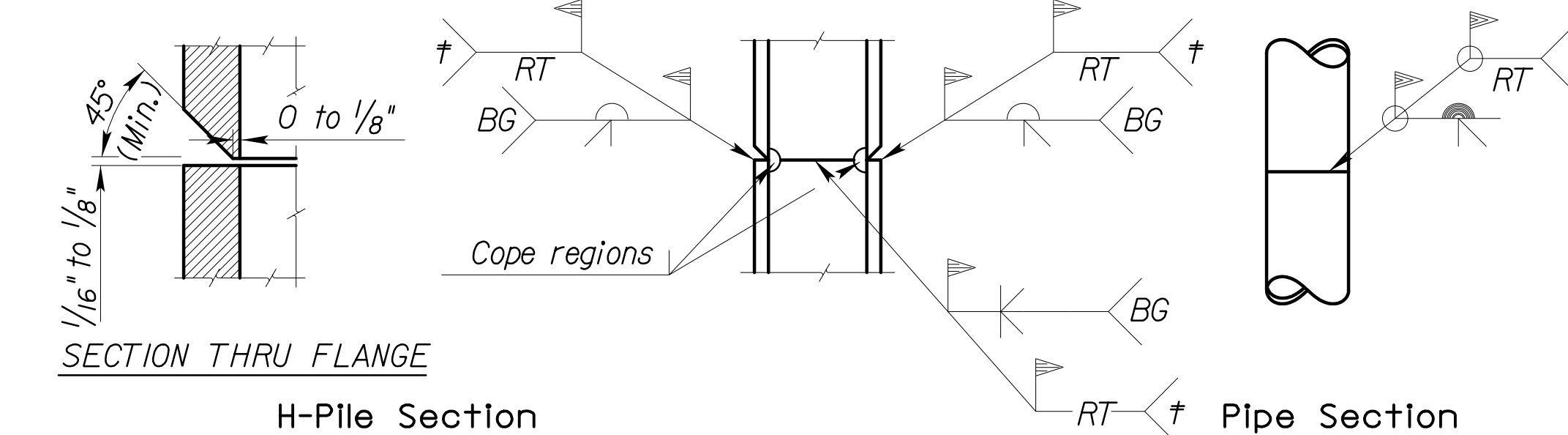
FOR INFORMATION ONLY EQUIVALENT POINT BEARING PILES		
STEEL PILES	CONCRETE PILES	
	Pipe	Pre-stress
HPI0x42	10 3/4	
HPI2x53	12 3/4	
HPI4x73	14	12
HPI4x102		14
HPI4x117		16

**SPLICES:** Splices for steel piles and shell piling shall be in accordance with details shown on this sheet and the Standard Specifications.

For integral pile bent abutments and piers, if a pile splice is required, do not locate the pile splice within a region extending 2'-0" above and 10'-0" below the bottom of the concrete web wall. For abutments, locate the pile splice at least 10'-0" below the bottom of concrete.

With the approval of the Engineer, one splice per bent may be allowed in the region described above without testing. If additional splices are anticipated, based on the geology, the Contractor will add a sufficient amount to the bottom of pile, prior to driving, so that the splice is below the regions described above in the completed pile.

† For integral pile bent abutments and piers, if a splice is located within the regions described above, then the Contractor will test the welds by Radiograph (RT) test methods. Repair and retest any welds not passing the test(s). Each weld tested will have written confirmation of results. Report these results to the Engineer. This work is not paid for directly, but is subsidiary to "Piles".



**PILE SPLICE DETAILS**

**GENERAL NOTES**

**PRESTRESSED PILES:** Fabricate prestressed concrete pile splices in accordance with the Manufacturer's recommendations subject to the approval of the Engineer.

Method of attachment of pile to build-up may be by any of the methods given in the notes on "Alternate Methods. If mild reinforcing steel is used for attachment, the area shall be no less than that used in the build-up.

**ALTERNATE METHODS:** Method of attachment of a pile to build-up may be by any of the following methods:

1. Cut off at least 2'-0" of pile and expose a minimum of 2'-0" of strands.
  2. Cast 8-#6, or 8-#5 bars (equally spaced into pile head. All bars shall extend into pile head and project from extend into pile head and project from the pile head a minimum of 2'-0".
  3. Drill 8 holes in pile head (equally spaced) for installation of 8 grouted dowel bars of same size and length as in 2.
  4. Provide core holes for bars as in 3.
- No bars or strands are to extend from head of pile or build-up into footing or pile cap unless approved by the Engineer.

**TEST PILES:** Drive test piles where called for on the bridge plans. The test piles located within the limits of the substructure will become a part of the bridge pile system.

**DRIVING FORMULA:** Driving formula shall conform to the Standard Specifications.

**MEASUREMENT AND PAYMENT:** Measurement and payment for all piles shall comply with the Standard Specifications.

The following items are covered in Division 1000 of the Standard Specifications:

**REINFORCEMENT:** Use reinforcing steel conforming to ASTM A615, Grade 60. Hoops and spirals may be either plain or deformed bars.

**PRESTRESSING STEEL:** Use uncoated seven-wire stress relieved or low relaxation prestressing strand conforming to ASTM A416, Gr. 270.

**SPECIFICATIONS:** Standard Specifications for State Road and Bridge Construction as currently used by the Kansas Department of Transportation. The following items are covered in Division 700 of the Standard Specifications:

**CONCRETE:** Concrete for cast-in-place shall be  $f'c = 3,500 \text{ PSI}$ . Concrete for prestressed shall be  $f'c = 5,000 \text{ PSI}$ .

**WELDING:** All field welding shall meet the requirements of the Standard Specifications.

Use only Shielded Metal Arch Welding SMAW (stick welding) for pile splices.

Use only low hydrogen E7018, 7016, or 7015 series welding rod (electrode) for all welding applications during pile splicing. See General Notes or proper storage of welding rod, welding filler rod (electrode) for field welding of splices.

New electrode are to be purchased for each KDOT project. The electrode shall arrive on the project in factory hermetically sealed containers opened and labeled with indelible ink in front of the engineer. The label shall include the current date and the project number. If the container seal is questionable or shows signs of damage the electrode is to be dried in an oven at least one hour at a temperature of 700°F to 800°F.

Upon removal from intact hermetically sealed factory packaging or the drying oven the electrode is to be placed in a storage oven with a minimum temperature of 250°F.

When electrodes are removed from the hermetically sealed container or storage oven and exposed to the atmosphere for less than 4 hours place into the storage oven for at least 4 hours before removing for use.

If electrode is exposed to the atmosphere for 4 hours or more (or 9 hours for moisture resistant electrodes designated with an R in their labeling) then electrode can be dried in a drying oven at a temperature of 450°F to 550°F.

If the electrode is exposed to the atmosphere for 4 hours or more a second time or the rod becomes wet discard rod.

**CAST-IN-PLACE SHELLS:** Steel shells for cast-in-place piles shall conform to the requirements of the Standard Specifications.

All piles driven without a mandrel shall be of the minimum thicknesses shown. Piles driven with a mandrel shall be of sufficient strength and thickness to withstand driving without injury and to resist harmful distortion and/or buckling due to soil pressure after the mandrel is removed.

Remove, replace or correct to the satisfaction of the Engineer improperly driven, broken or otherwise defective pipe piles. Otherwise drive an additional pile at no extra cost.

The Contractor shall maintain a light suitable for visual inspection of the pile on the job at all times prior to and during the filling of the pipe.

**STEEL PILE:** Steel pile shall conform to the requirements of the Standard Specifications.

**PILE POINTS:** Pile points shall conform to the dimensions shown and to requirements of the Standard Specifications.

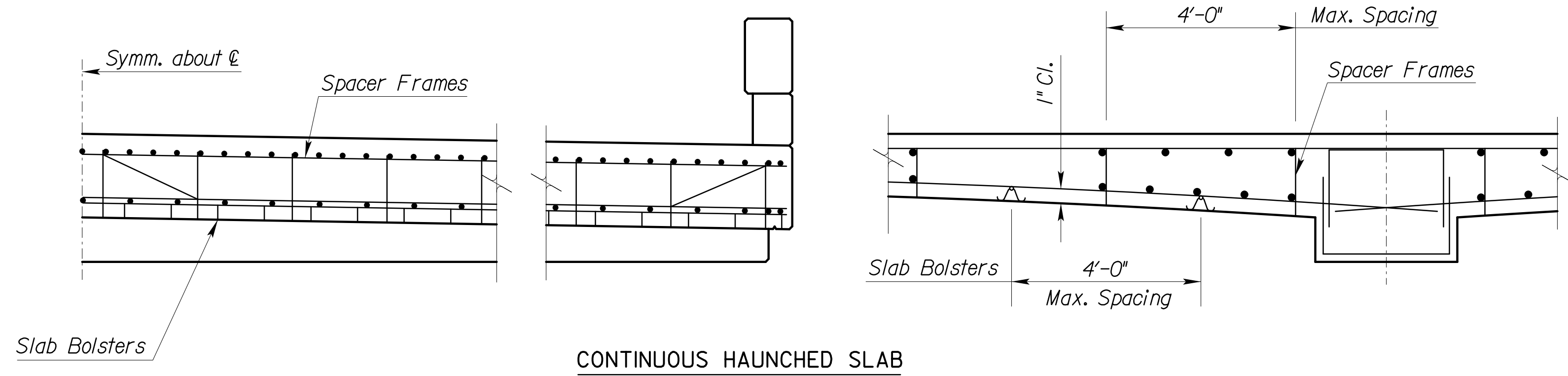
**PAINT:** All paint shall comply with the Standard Specifications, or as specified on the plans.

**MILL TEST REPORTS:** Steel piles test reports and steel shell test reports shall comply with the Standard Specifications.

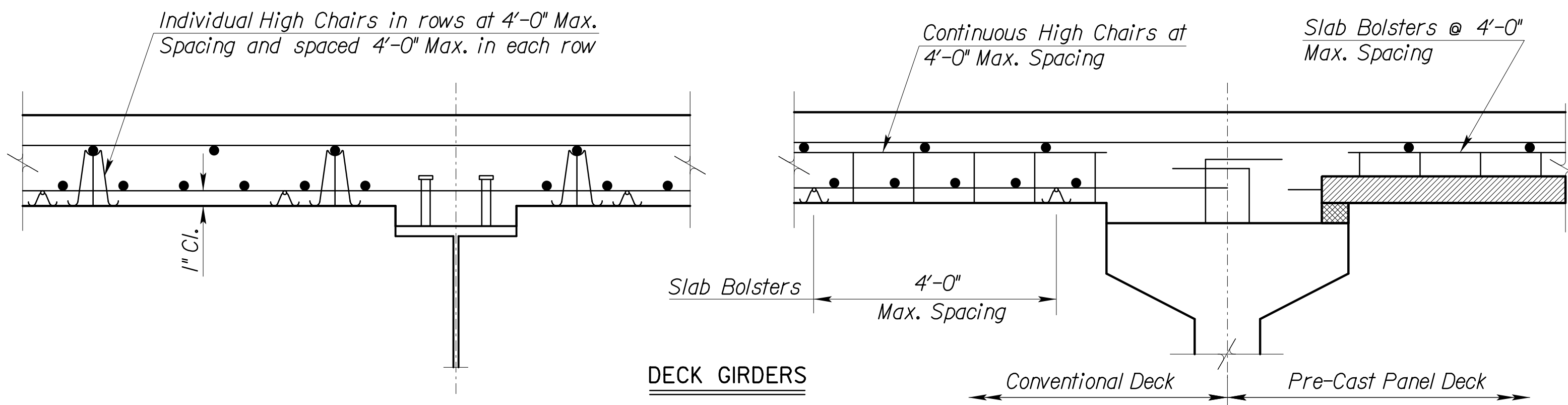
NO.	DATE	REVISIONS	BY	APP'D
4	06-18-12	Clarify fb, rod type, use and weld	JPJ	TLF
3	1-5-09	Pile Splice Location and Weld Test	JPJ	KEH
2	6-14-06	Rev. Pile Splice Note & Reinforcing	JPJ	KEH
1	11-12-03	Revised Notes	RAM	KEH

KANSAS DEPARTMENT OF TRANSPORTATION				
STANDARD PILE DETAILS				
BRI10		10-04-12 APP'D		Terry L. Fleck
DESIGNED	JPJ	DETAILED	QUANTITIES	CADD
DESIGN CK.		DETAIL CK.	QUAN. CK.	CADD CK.

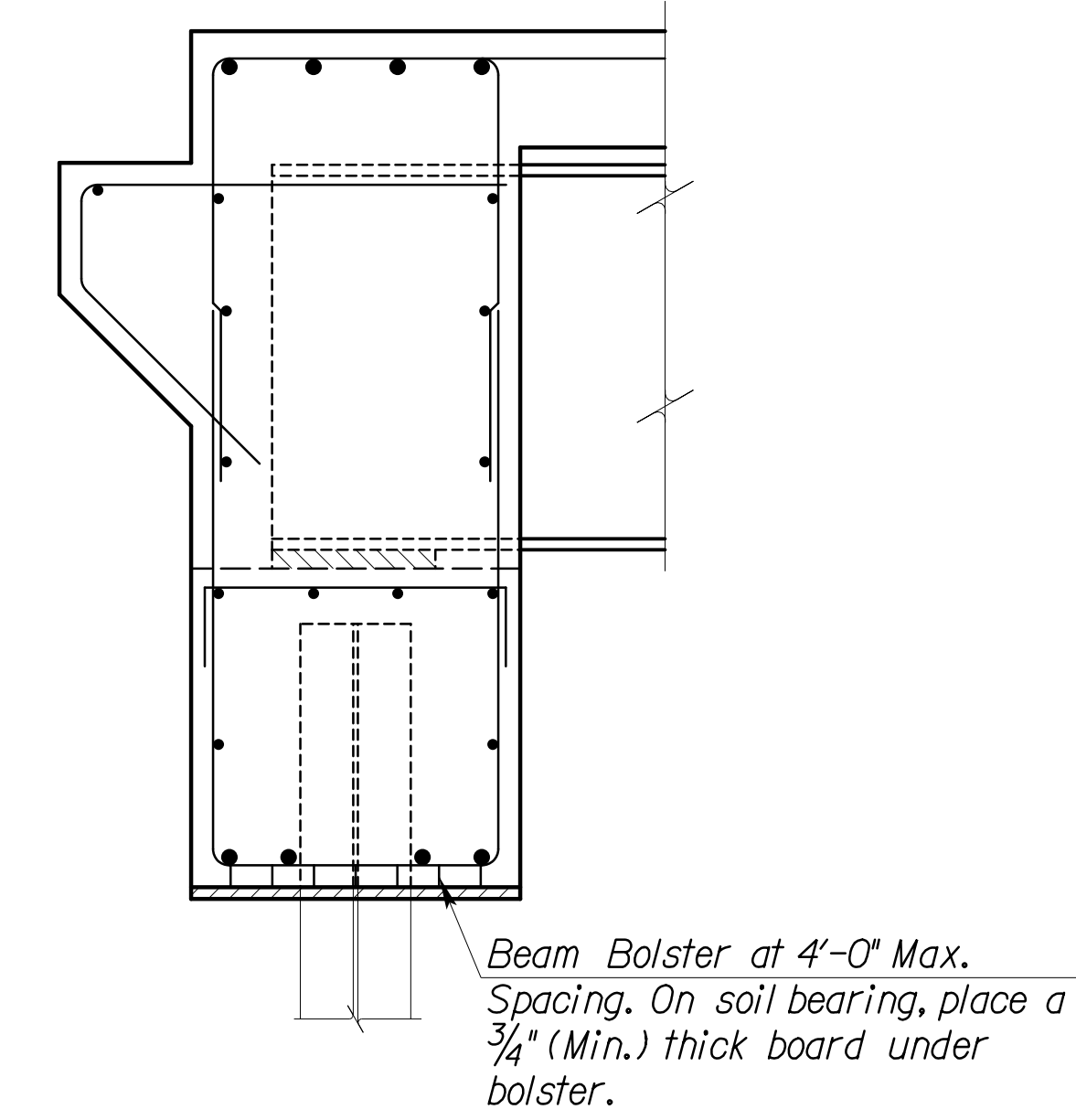
Std. Base File: br110.dgn  
 Plotted By: arabben  
 File: AKACVPRN000007443\01\STR06W27\_7443.br110.dgn  
 Plot Date: 5/24/2013



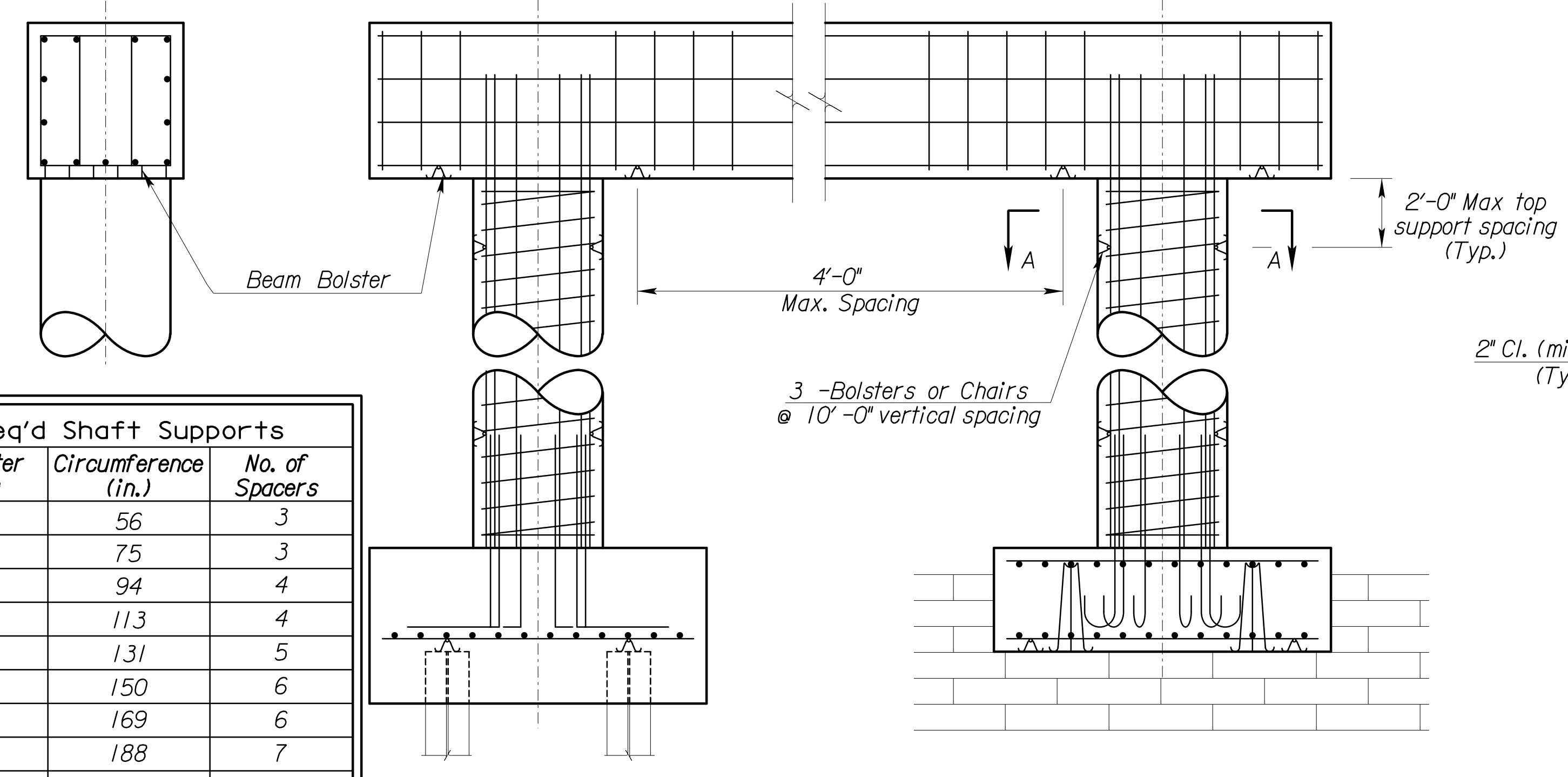
**CONTINUOUS HAUNCHED SLAB**



**DECK GIRDERS**

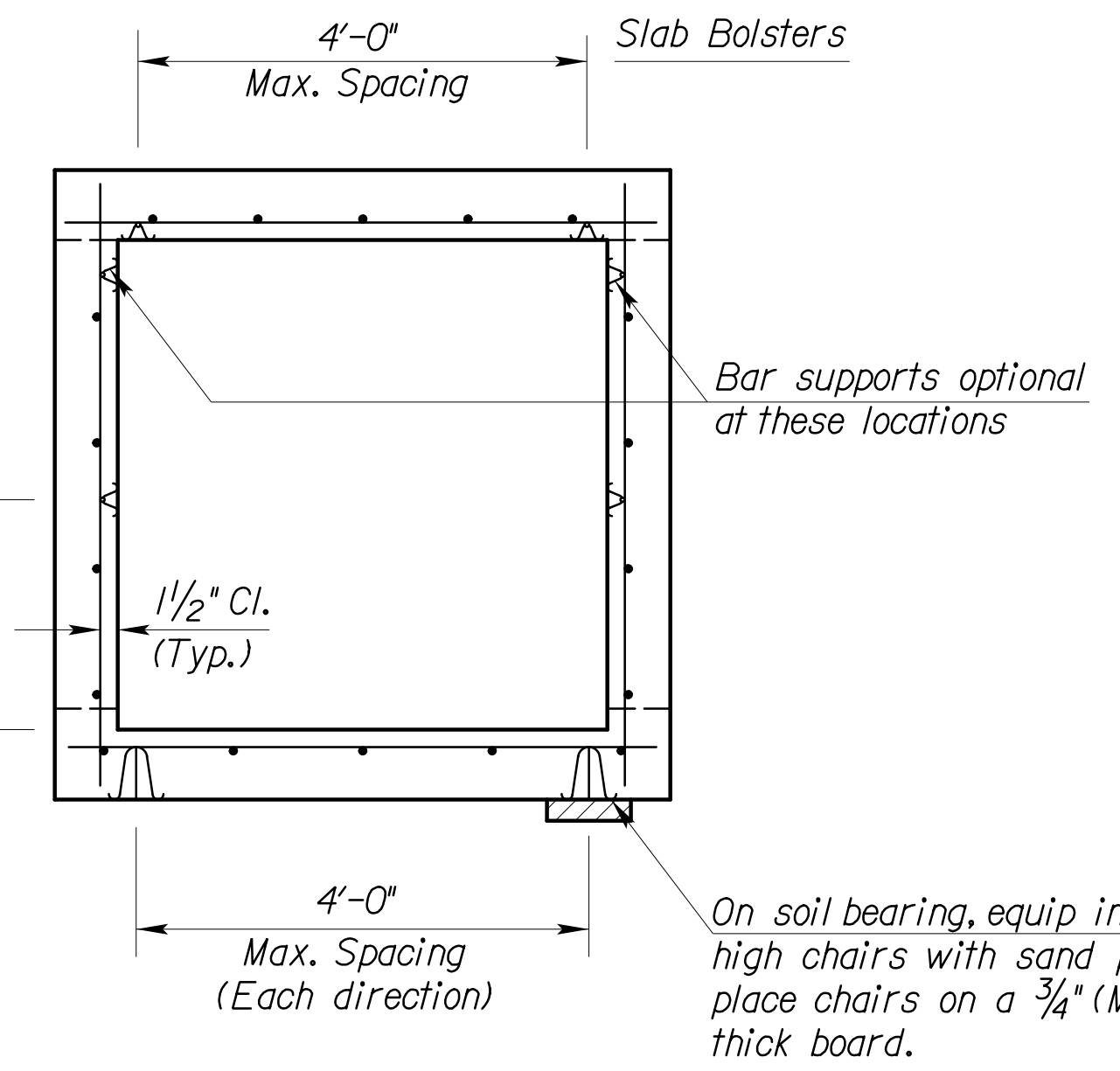


**ABUTMENT**

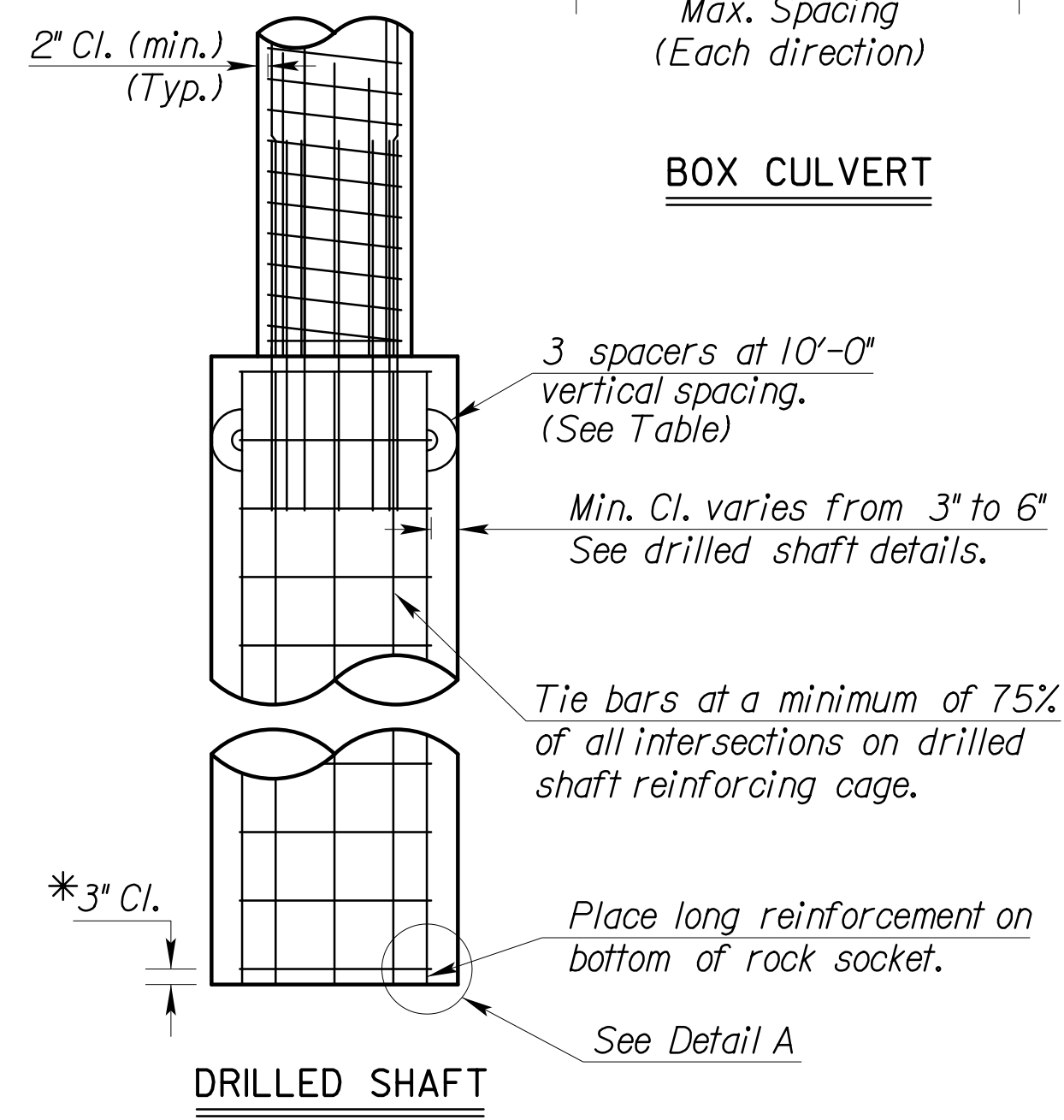


**PIER**

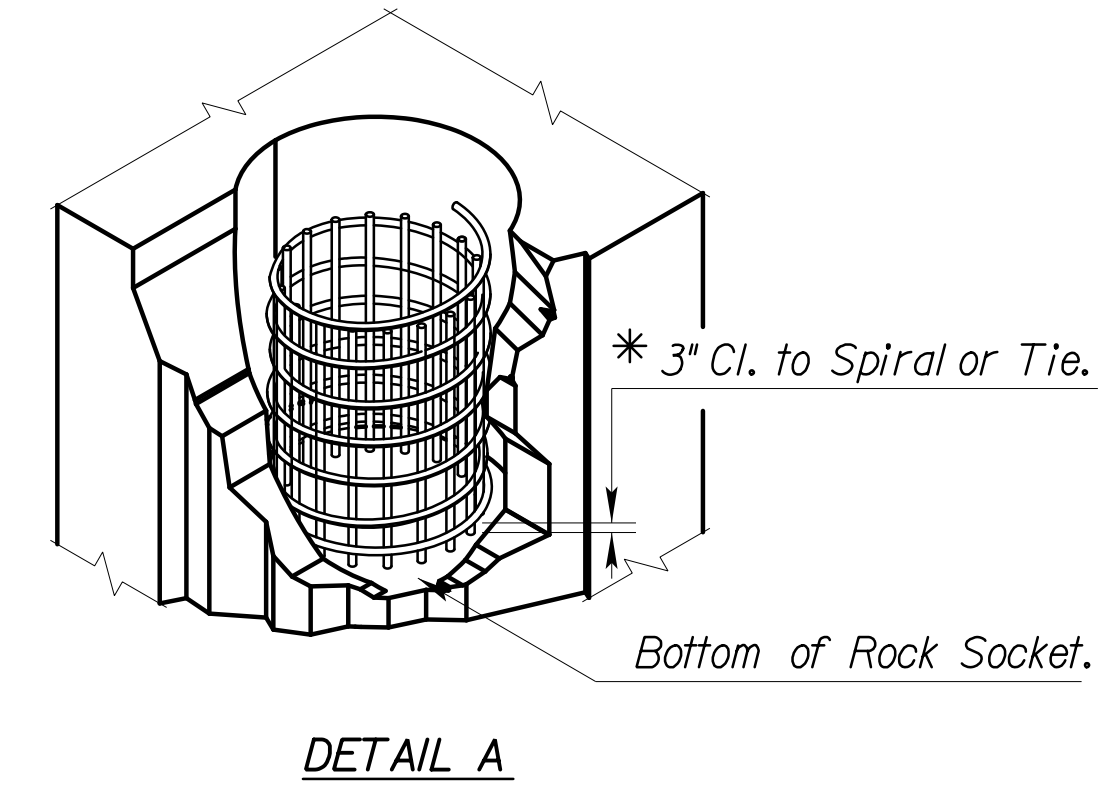
Req'd Shaft Supports		
Diameter (in.)	Circumference (in.)	No. of Spacers
18	56	3
24	75	3
30	94	4
36	113	4
42	131	5
48	150	6
54	169	6
60	188	7
66	207	7
72	226	8
78	244	9
84	263	9
90	282	10
96	301	11
102	320	11
108	339	12



**BOX CULVERT**

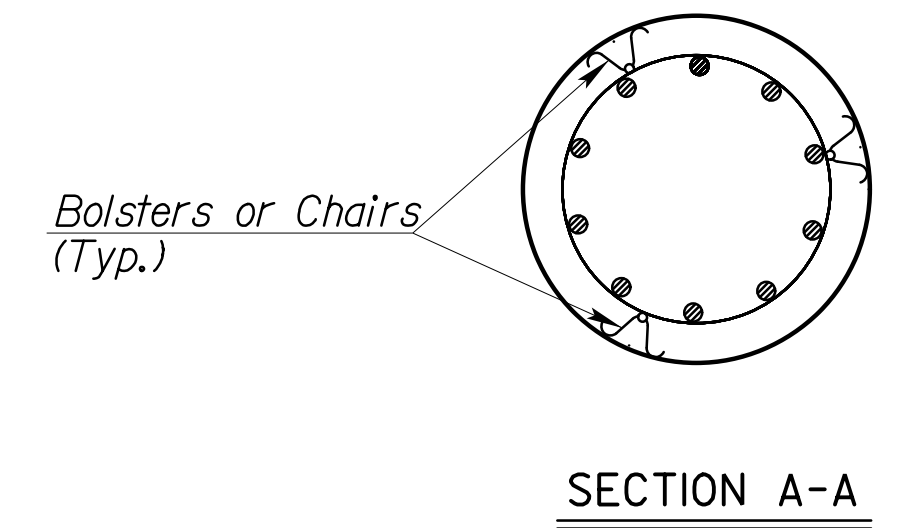


**DRILLED SHAFT**



**DETAIL A**

\* Note: Longitudinal reinforcing steel is placed on the bottom of the rock socket. Maintain 3" clearance from the bottom of rock socket to the first spiral or tie bar.



**SECTION A-A**

**TYPICAL SECTION**

Reference is made to the latest edition of the CRSI "Manual of Standard Practice" for recommended industry practices concerning reinforcing steel.

Use only the following types of bar supports:

- 1) Wire Bar Supports:
  - a) Epoxy coated reinforcing: Class 1 Protection
  - b) Non-epoxy coated reinforcing: Class 1, 2, or 3 Protection
- 2) Plastic Bar Supports
- 3) Supplementary bars

When securing epoxy coated reinforcement, use tie wires or metal clips that are epoxy or plastic coated.

Do not weld reinforcing steel to bar supports or to other reinforcing steel. Shop weld spacer frames for haunched slabs.

Tie bars at all intersections around the perimeter of each mat and at not less than 2'-0" centers or at every intersection, whichever is greater.

Where more than one length of bar support is required, lap the end legs so they are locked or tied together.

Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

Spacings shown are maximums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

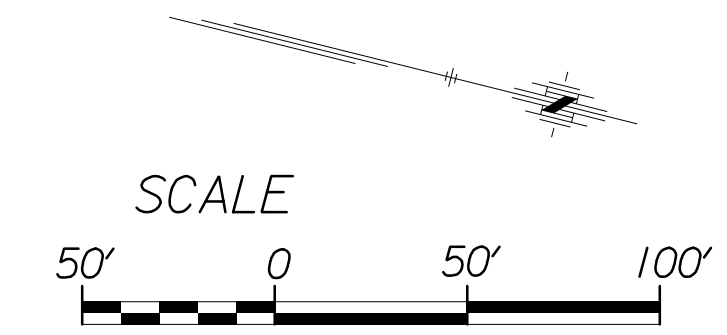
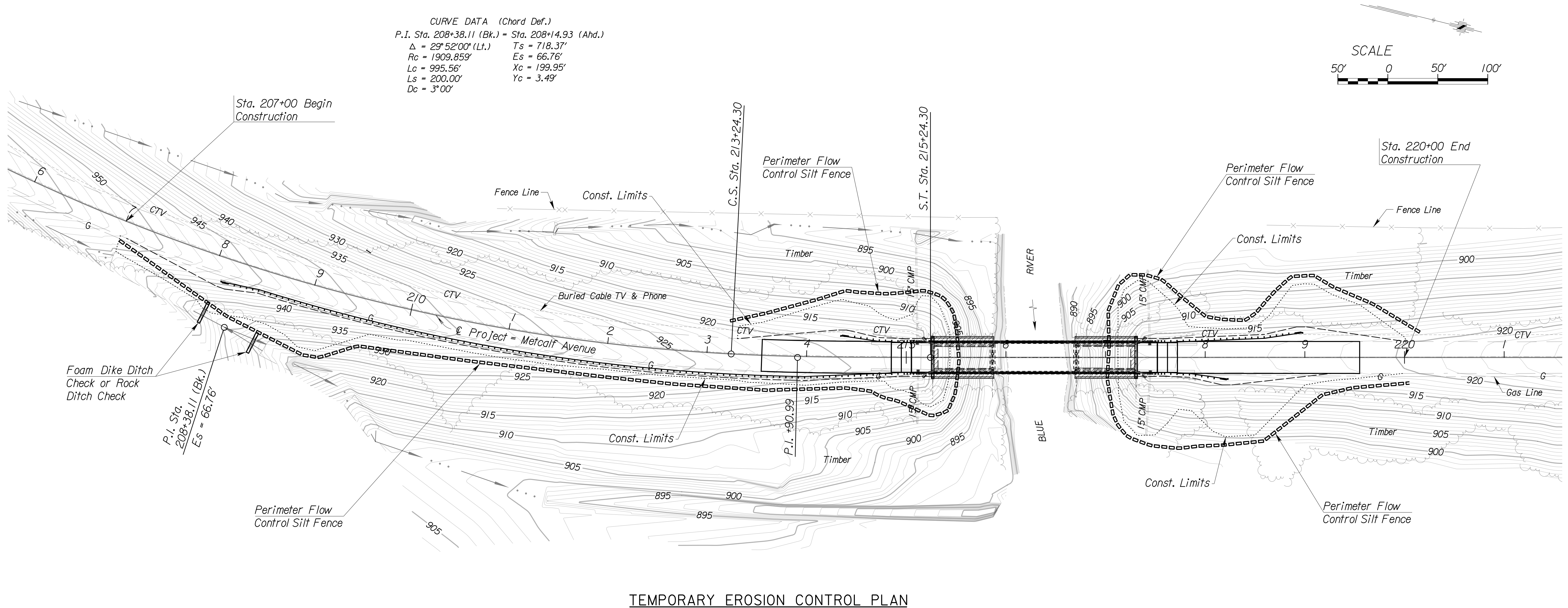
Construct any platforms, required for the support of workers and/or equipment during concrete placement, directly on the forms and not on the reinforcing steel.

Designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Engineer.

NO.	DATE	REVISIONS	BY	APP'D
5	11-10-10	Column Bar Supports Req'd	JPJ	TLF
4	12-01-05	Drilled Shaft Spiral Steel Placement	JPJ	KFH
3	8-21-00	Added Pre-Cast Panel Detail	RAM	KFH
2	12-20-99	Added Haunched Slab Bolsters	RAM	KFH
1	12-09-99	Revised Drilled Shaft Clearance	RAM	KFH

KANSAS DEPARTMENT OF TRANSPORTATION				
SUPPORTS AND SPACERS FOR REINFORCING STEEL				
BR120		II-17-10		APP'D Terry L. Fleck
DESIGNED	RAM	RAA	QUANTITIES	CADD
DESIGN CK.	LRR	DETAIL CK.	RAM	QUAN. CK.
				CADD CK. RAM

Std. Base File: br120.dgn  
 Plotted By: arabben  
 File: \\KACVPC\N000007\443\01\STR06W28\_7443\_br120.dgn  
 Plot Date: 5/28/2013



**TEMPORARY EROSION CONTROL PLAN**

Temporary Erosion Control

The Contractor shall provide temporary erosion control in accordance with the plans, specifications and permit requirements. See Temporary Erosion Control Plan for layout and standard details. All work and materials for temporary erosion control, including temporary seeding shall be paid as one lump sum.

Seeding (Permanent)

All fertilizer, seeding and mulching shall be paid as one lump sum. All disturbed areas shall be fertilized, seeded and mulched at the following rates in lbs/acre.

SEEDING	
ITEM	P.L.S. RATE/ACRE
Fertilizer (15-30-15)	80
Big Bluestem Grass Seed (Kaw)	1.6
Canada Wildrye Grass Seed	1.8
Little Bluestem Grass Seed (Aldous)	1.0
Indiangrass Seed (Osage)	1.5
Side Oats Grama Grass Seed (El Reno)	1.4
Switchgrass Seed (Blackwell)	0.5
Tall Drop Seed	0.1
Western Wheatgrass Seed (Barton)	1.6
Sterile Wheatgrass	4.8
Mulching	*

\* Apply as per KDOT Specification Section 904.

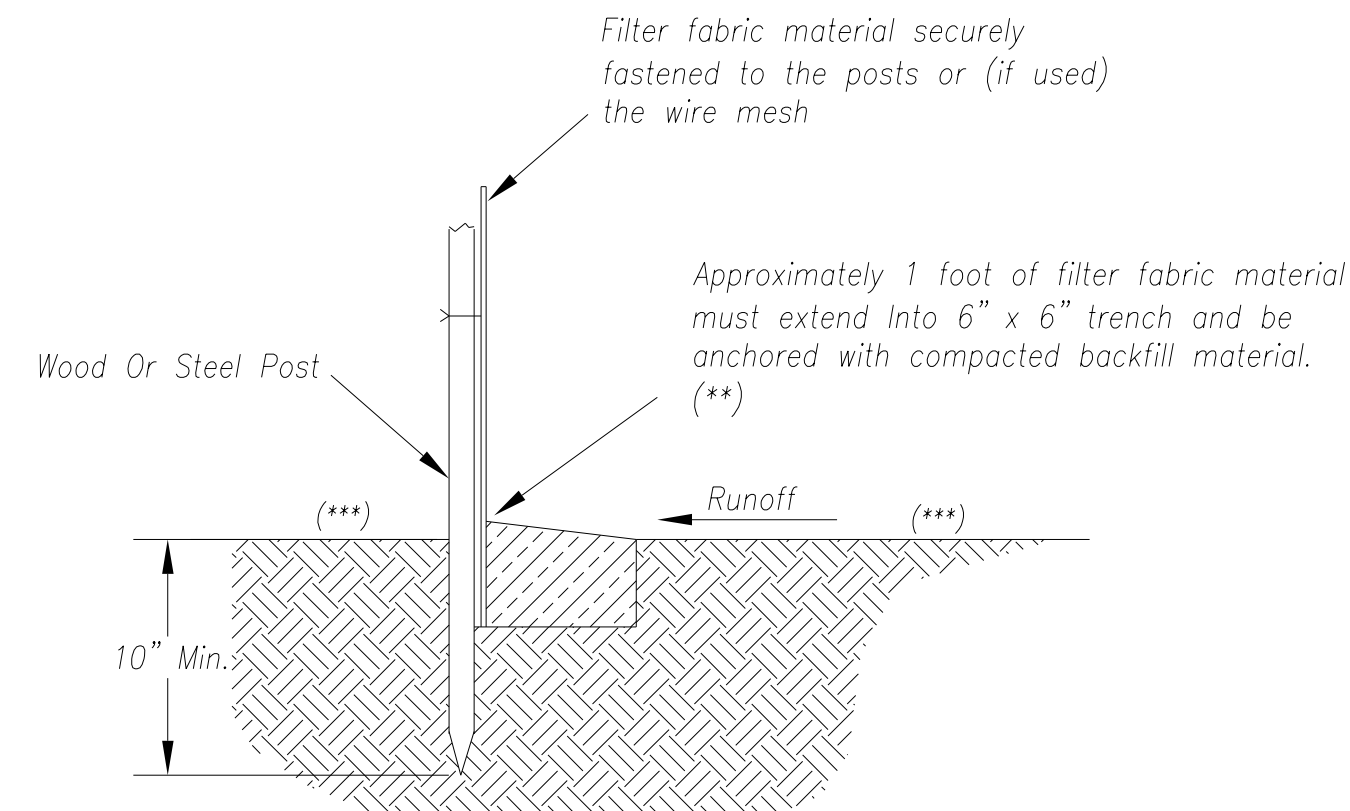
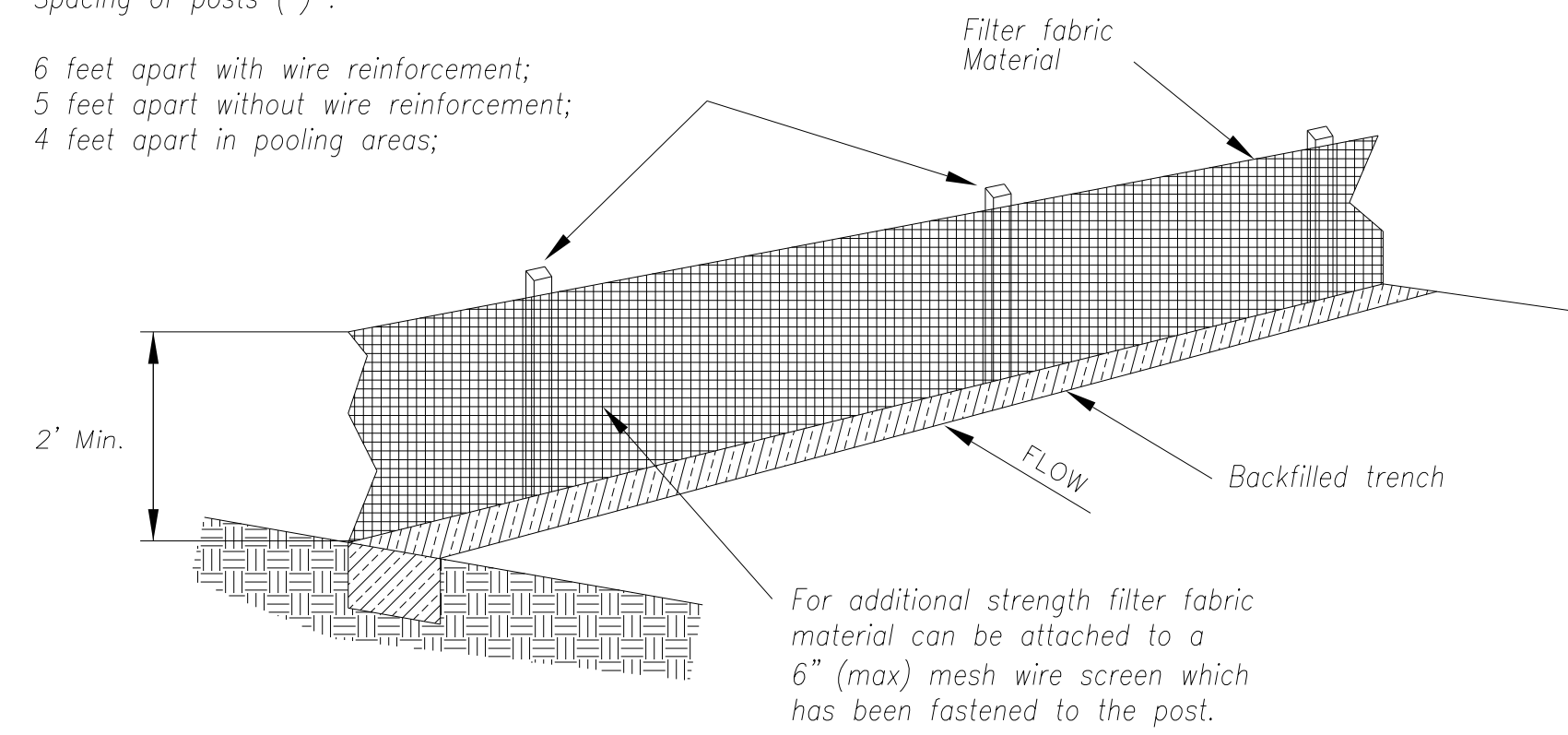
PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	DATE

ISSUE DATE

TEMPORARY EROSION CONTROL AND SEEDING

Spacing of posts (\*) :

- 6 feet apart with wire reinforcement;
- 5 feet apart without wire reinforcement;
- 4 feet apart in pooling areas;



**SPECIFICATIONS FOR SILT FENCE FABRIC**

PHYSICAL PROPERTY	MINIMUM REQUIREMENTS
FILTERING EFFICIENCY	85%
TENSILE STRENGTH AT 20% (MAXIMUM) ELONGATION: STANDARD STRENGTH = HIGH STRENGTH =	30 LB/LINEAR INCH 50 LB/LINEAR INCH

**(\*) POSTS**

- WITHOUT WIRE REINFORCEMENT 2" X 2" (NOMINAL) WOOD OR 1.0 LB/LINEAR FOOT STEEL
- WITH WIRE REINFORCEMENT 1.33 LB/LINEAR FOOT STEEL

(\*\*) - Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

(\*\*\*) - Drive along each side of silt fence 2 to 4 times with device exerting 60 PSI or greater after material is sliced into the round to achieve 100% compaction.

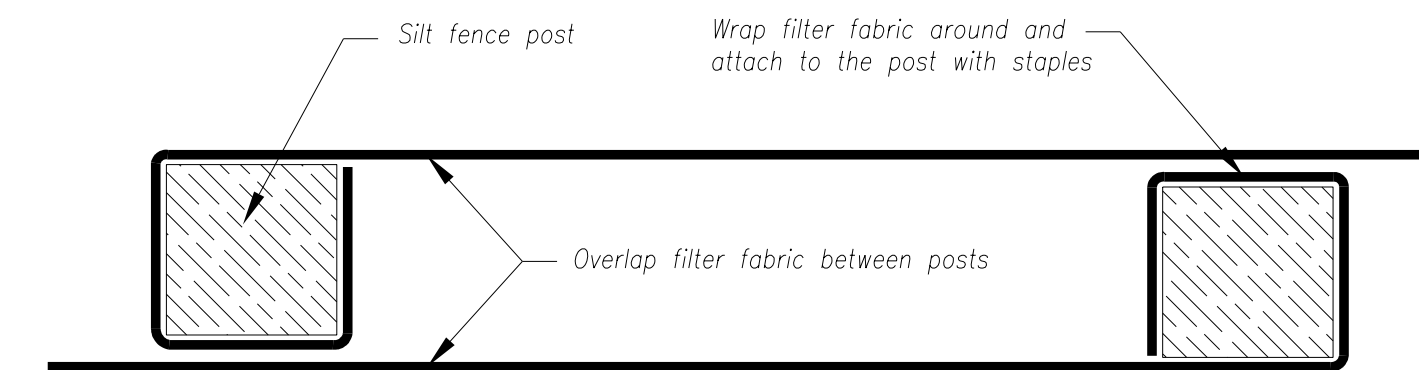
**SILT FENCE DETAILS**  
Not to Scale  
(2012 Edition)

**Silt Fence Installation Notes:**

- Overland Park Municipal Code (OPMC) and Overland Park Design and Construction Standards Manual (OPDCSM) are incorporated, except as otherwise noted.
- In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
- Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
- Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
- Limit ponding height to 24".
- Attach fabric to upstream side of post.
- Sink posts as far below ground as fabric above ground.

**Maintenance:**

Remove silt deposits when they exceed 1/3 of the fence height. Replace all broken, ripped, degraded or damaged sections of fence immediately with new fencing, including adequate overlap at ends to prevent leakage.



**JOINING FENCE SECTIONS**  
Not to Scale  
(2012 Edition)

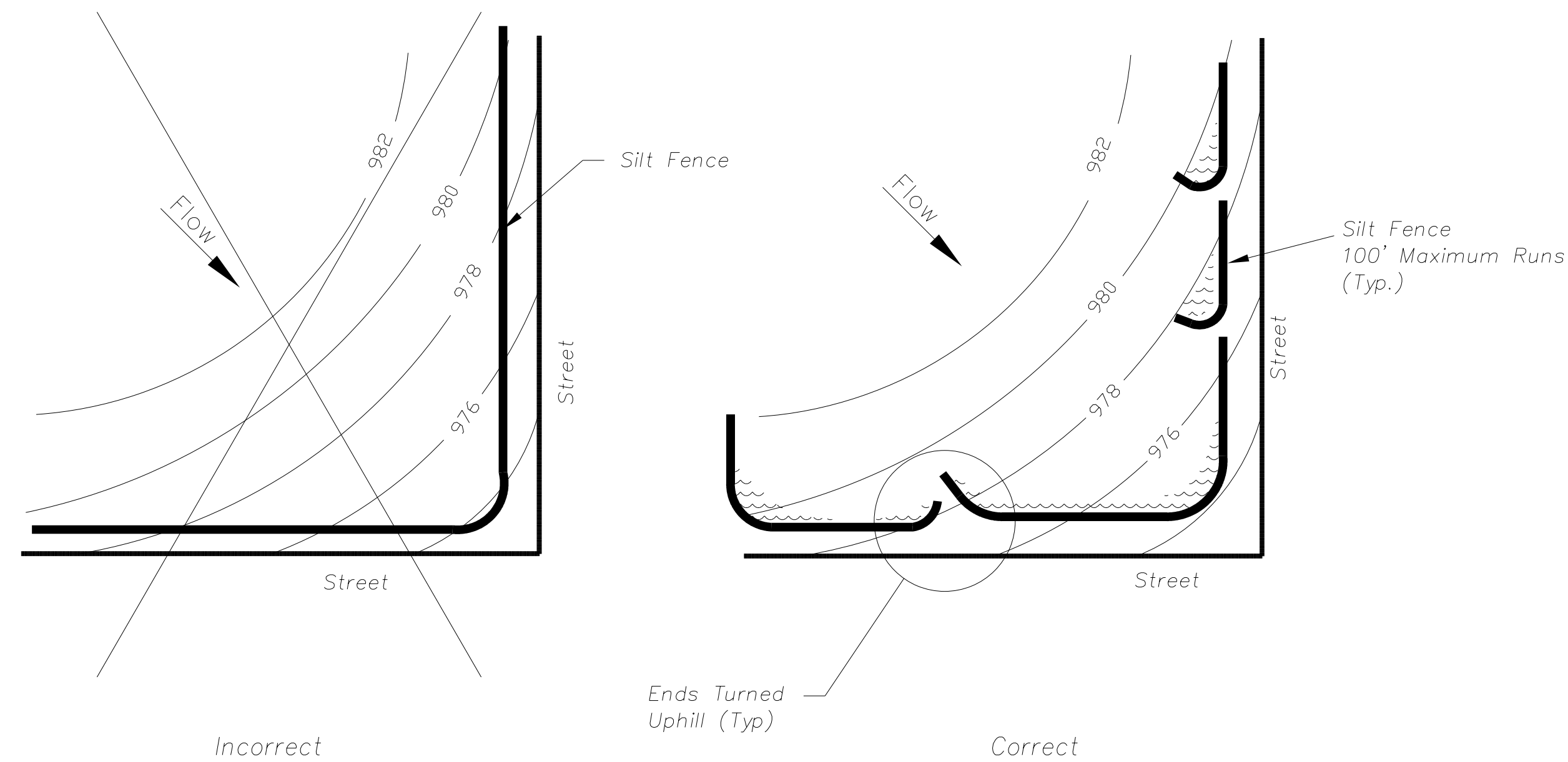
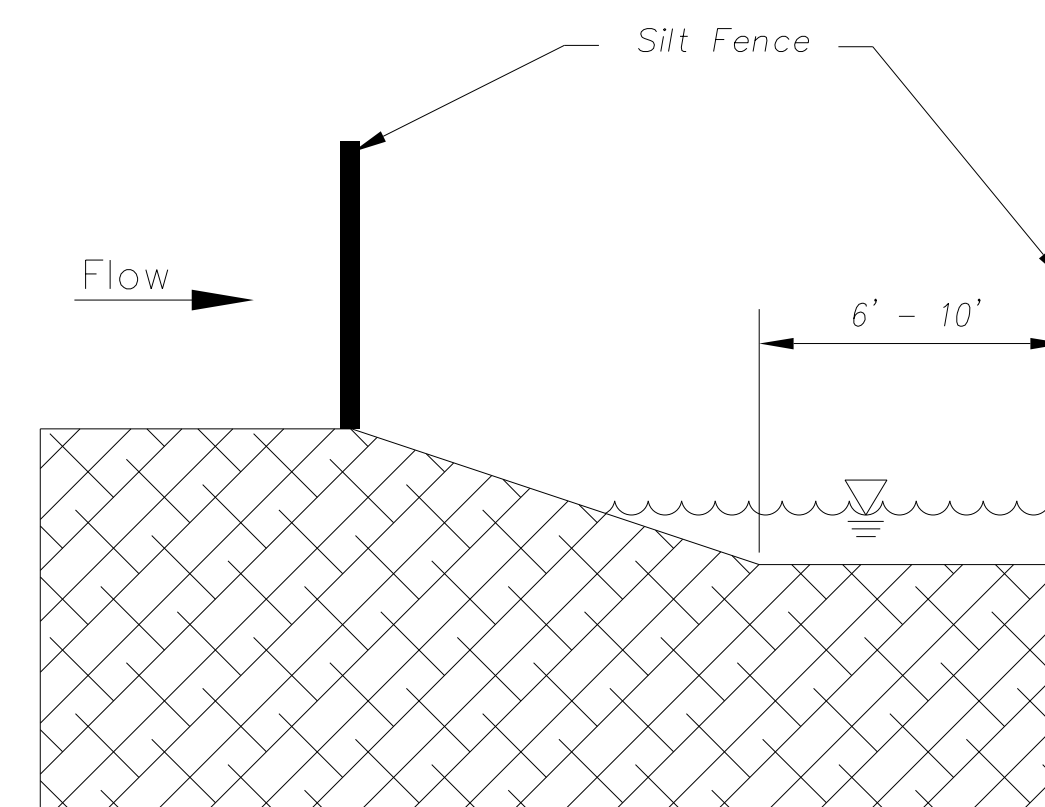


Figure A

**SILT FENCE LAYOUT**  
Not to Scale  
(2012 Edition)

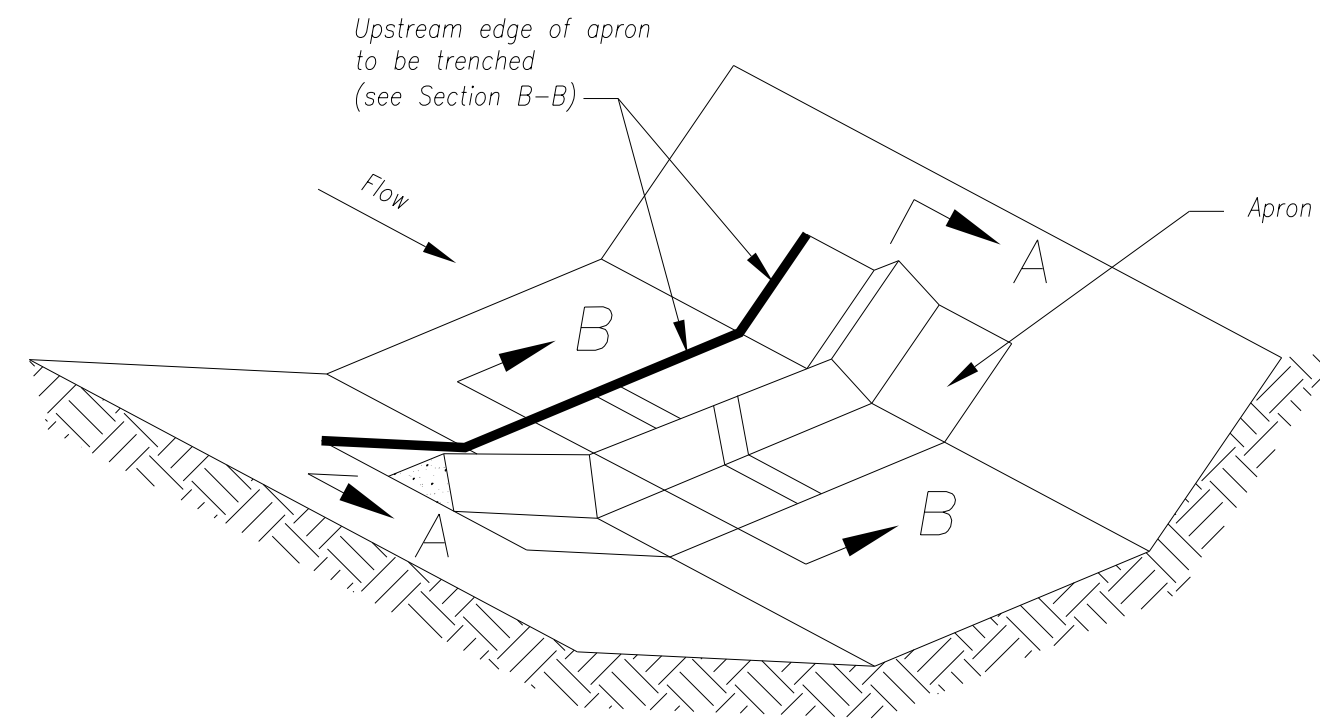


Install silt fence at the top of the slope to slow velocity and volume of water and 6' to 10' away from the toe to create a sediment storage area.

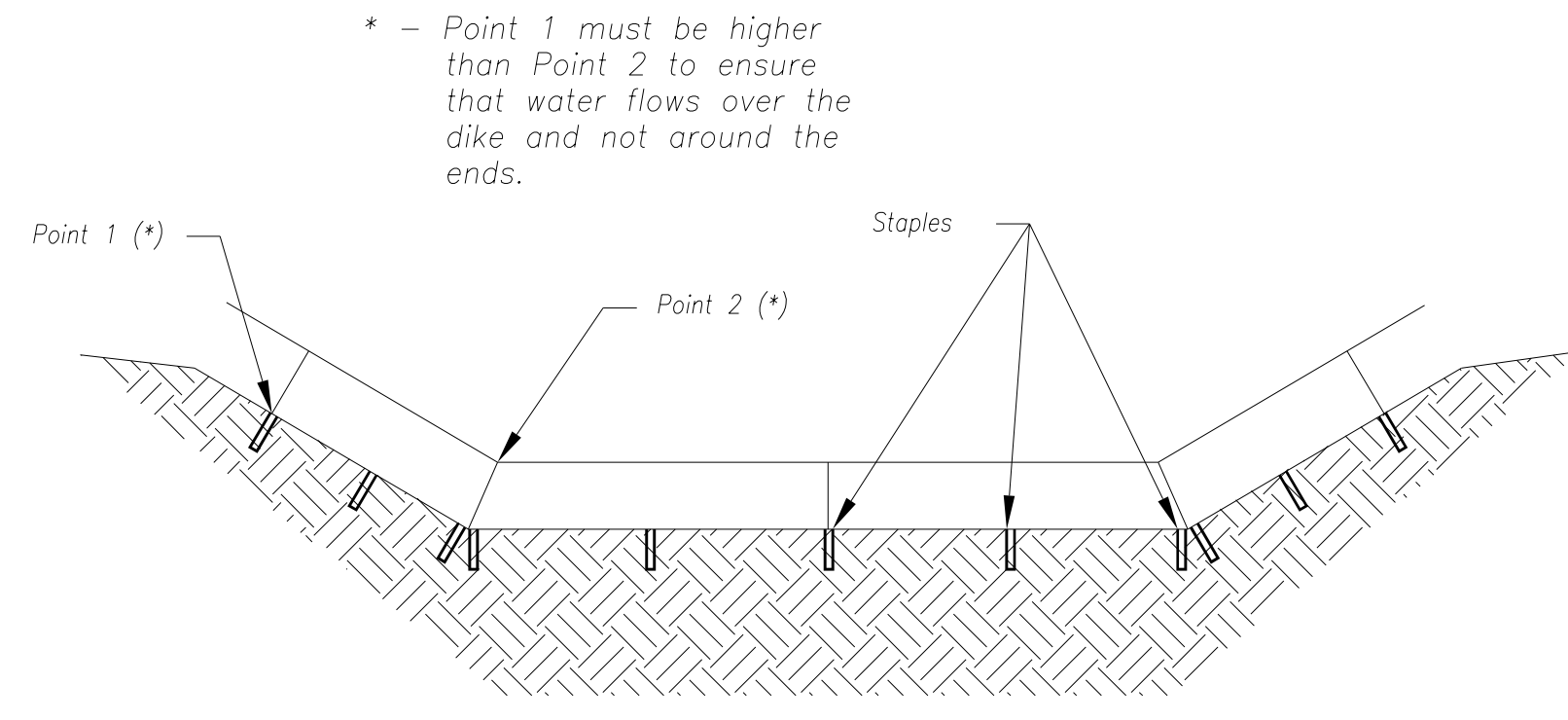
PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	DATE

Year 2012 Edition

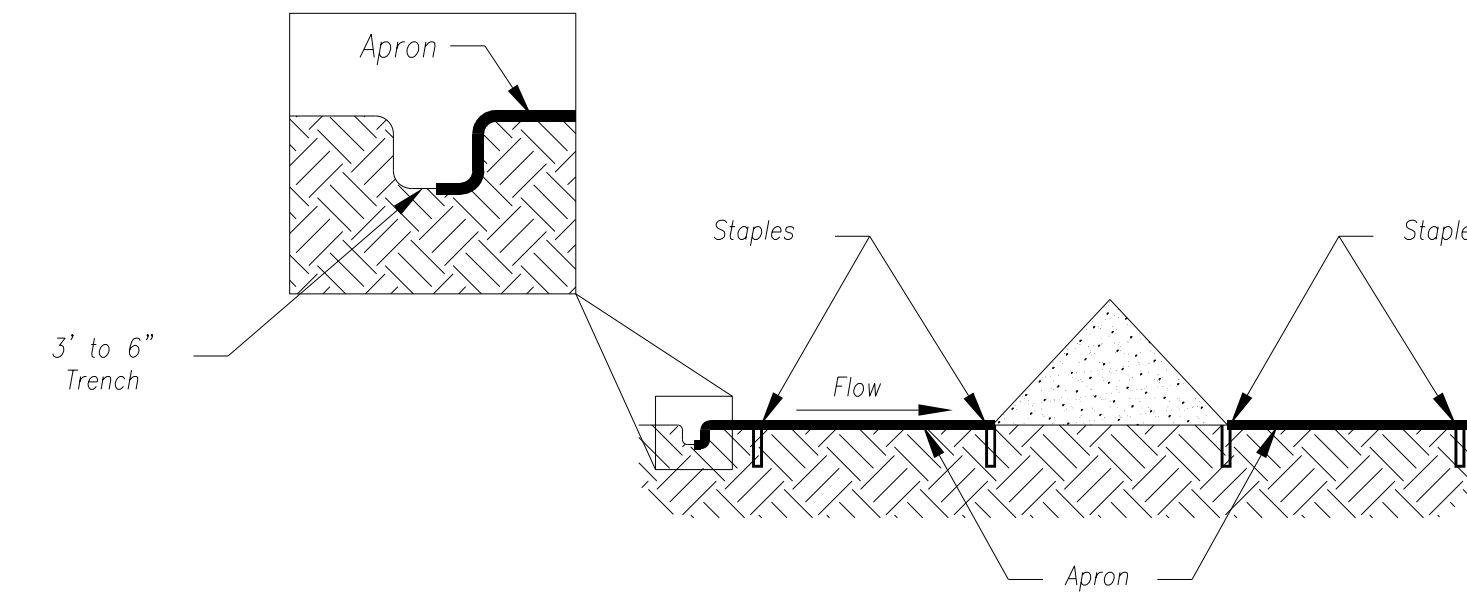
<p>REVISIONS:</p> <p>Jan. 2009 Miscellaneous;</p> <p>Dec. 2011 Maintenance Statement;</p>	<p><b>OVERLAND PARK</b> KANSAS</p> <p>ABOVE AND BEYOND BY DESIGN</p> <p>DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS</p> <p><b>SILT FENCE</b></p>
<p>RELATED ORDINANCES:</p> <p><b>OPMC Title 15</b></p>	
<p>WEB SITE ADDRESS: <a href="http://www.opkansas.org/_bus/pre-construction_resources">http://www.opkansas.org/_bus/pre-construction_resources</a></p>	<p>DATE: 11/01/05</p> <p>SHEET: 30</p>



**Foam Dike Unit**  
Not to Scale

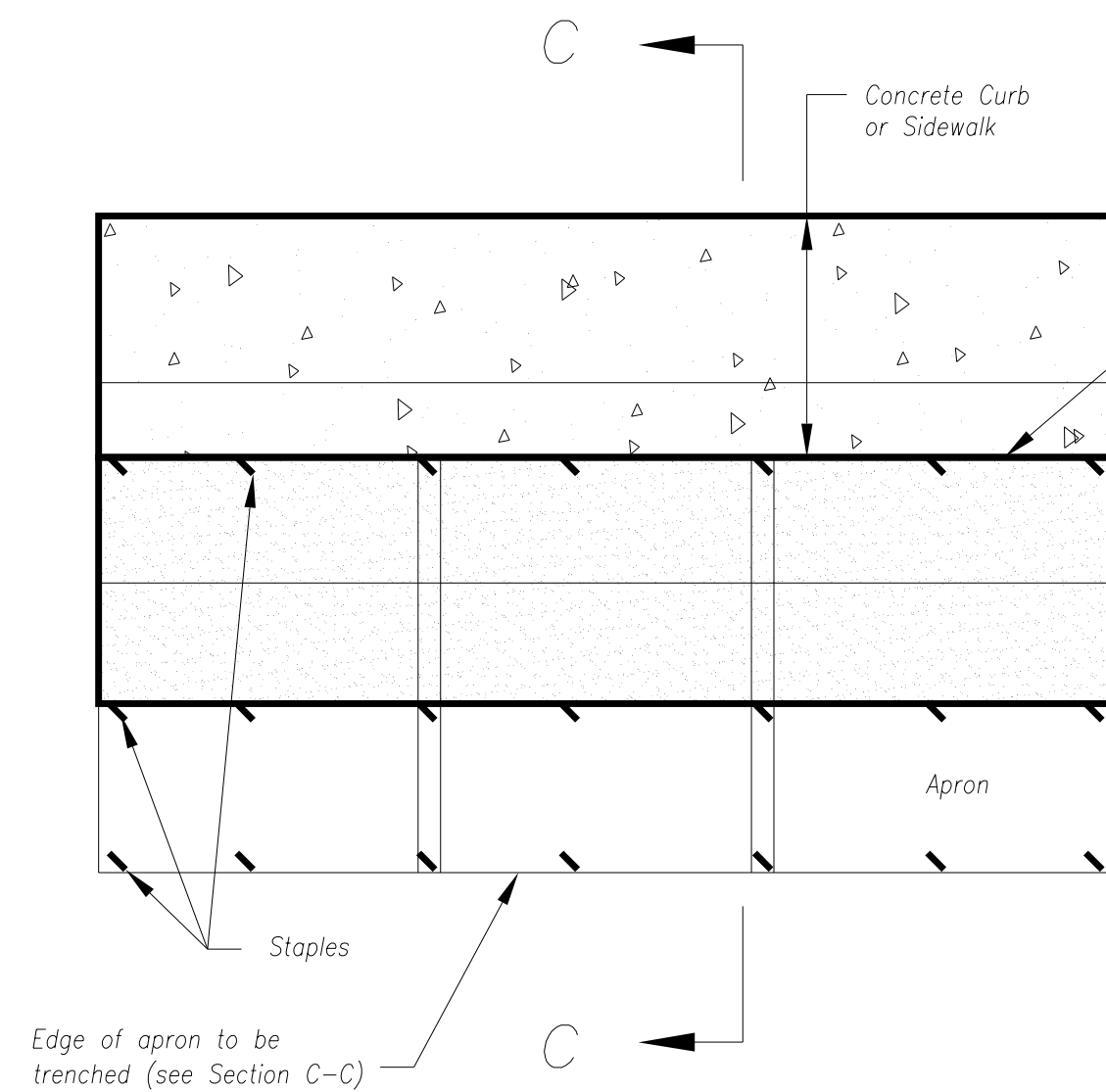


**Section A-A**  
Not to Scale



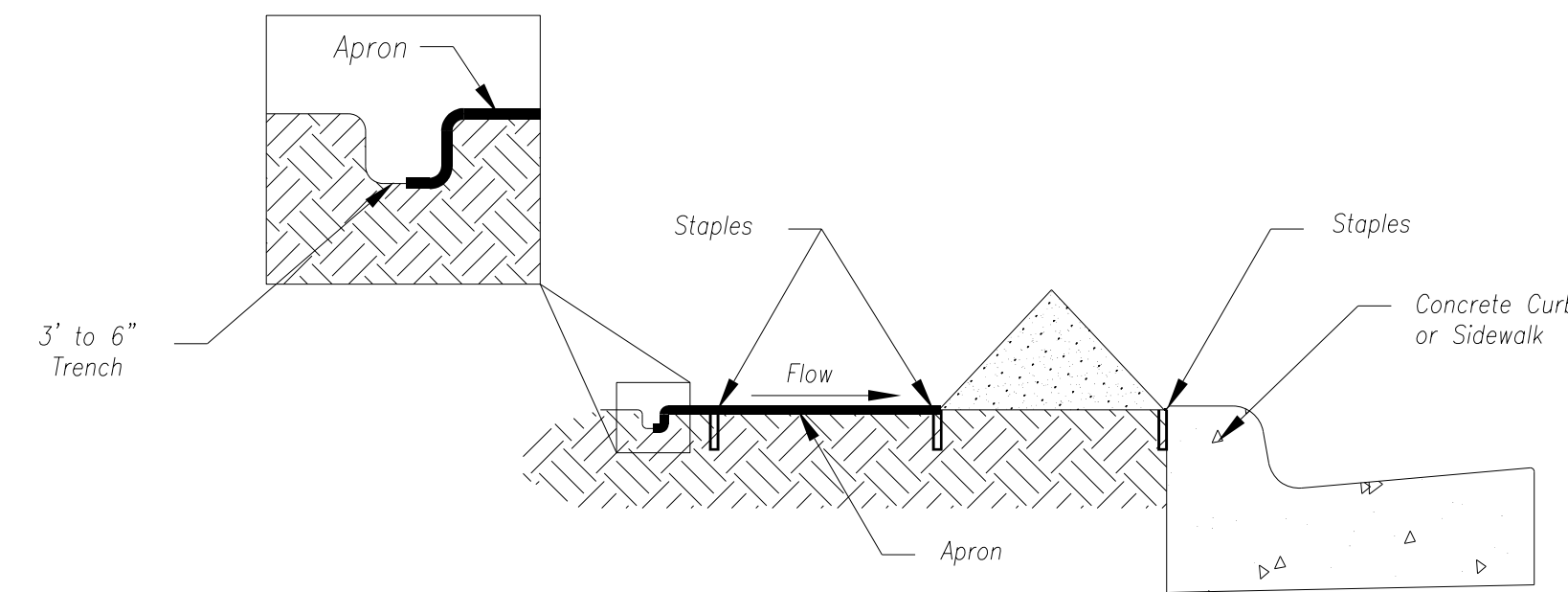
**Section B-B**  
Not to Scale

**FOAM DIKE DITCH CHECK**  
(2012 Edition)



**Plan View**  
Not to Scale

The apron should be folded under the dike section and stapled down on the side adjacent to curb or sidewalk



**Section C-C**  
Not to Scale

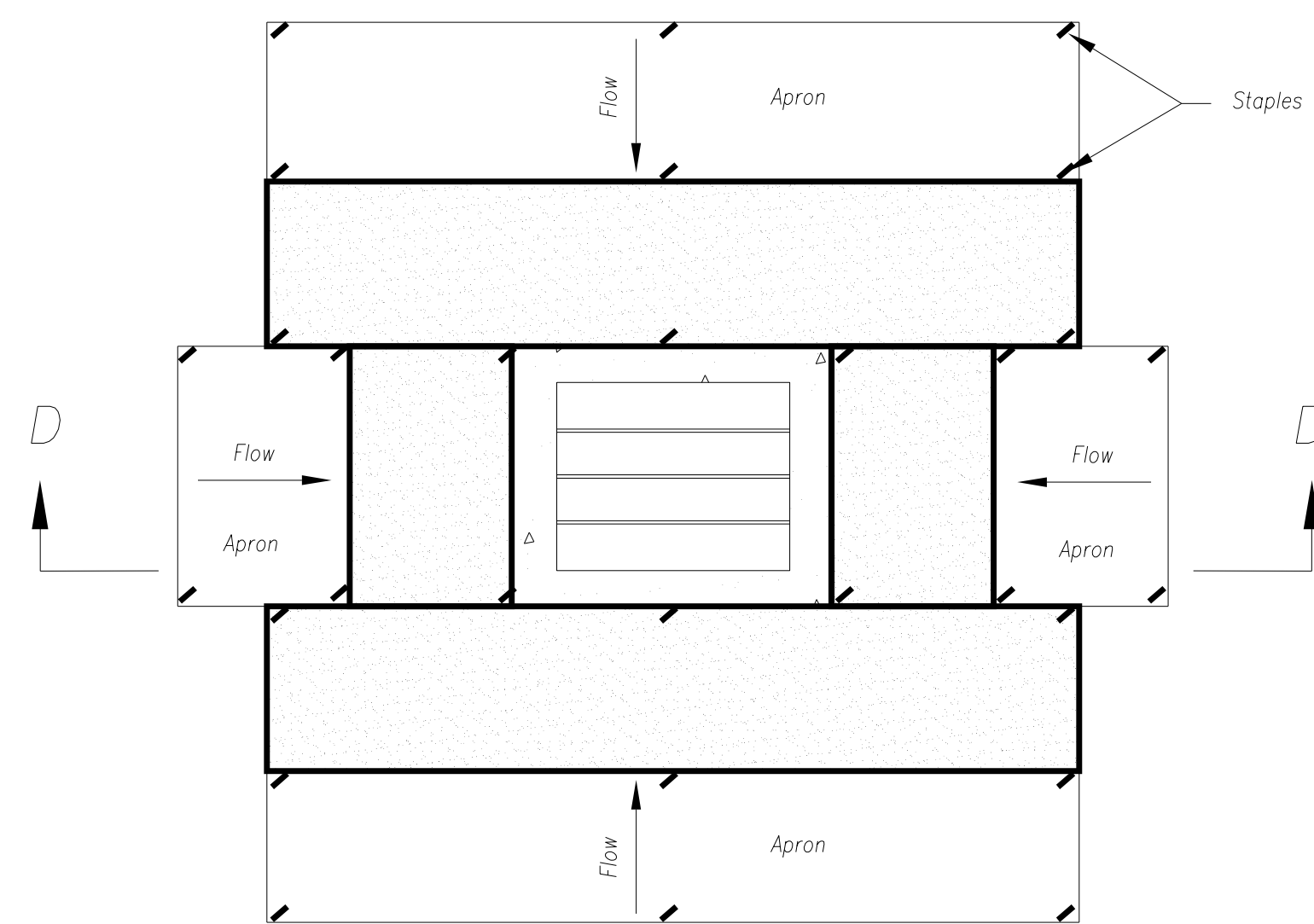
**FOAM DIKE CONTINUOUS BARRIER**  
(2012 Edition)

**Foam Dike Notes:**

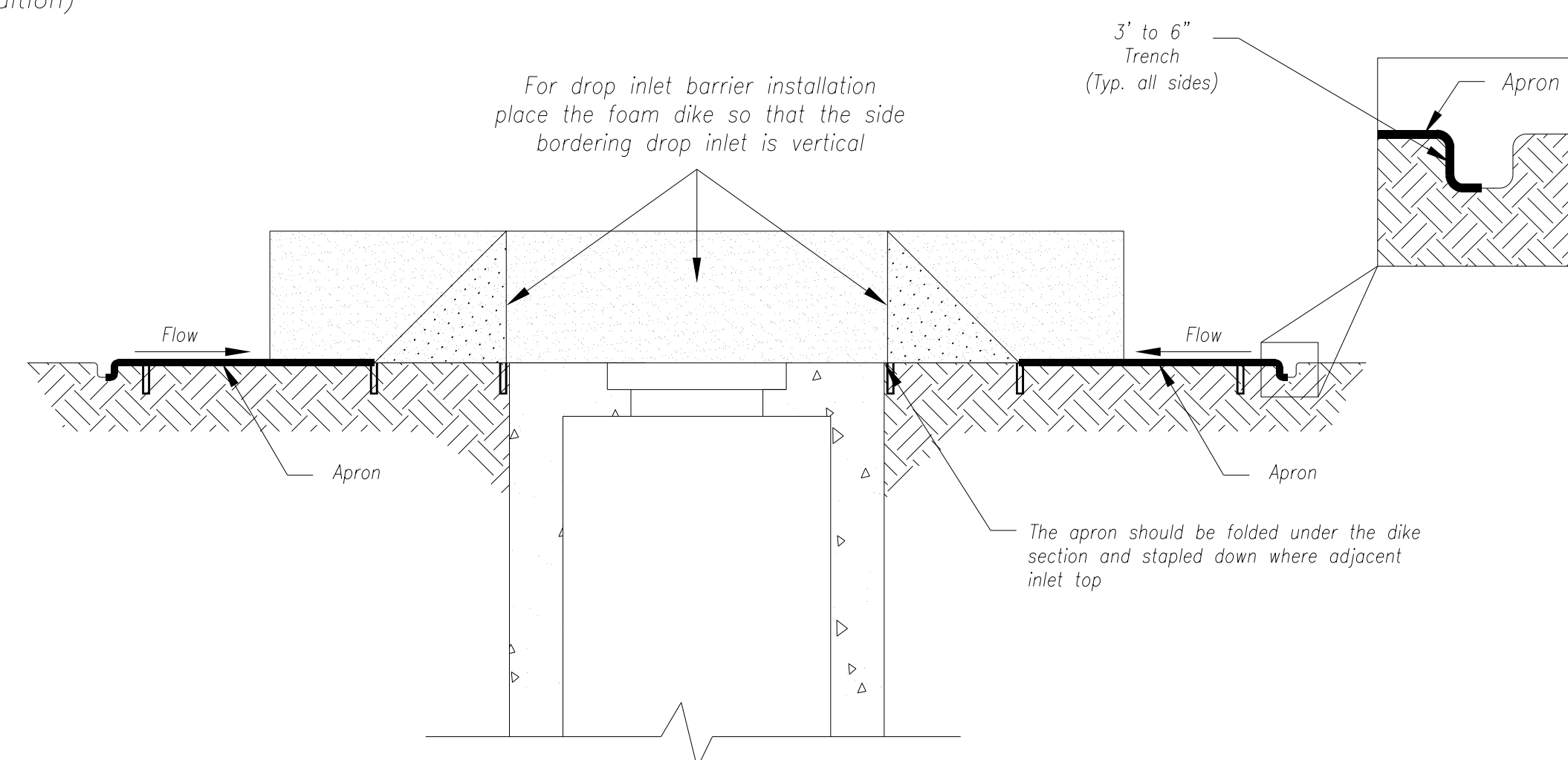
1. Foam dike shall be triangular shaped having a height of at least eight to ten inches in the center with equal sides and a sixteen- to twenty- inch base. The triangular shaped inner material shall be urethane foam. The outer cover shall be a woven geotextile fabric placed around the inner material and allowed to extend beyond both sides of the triangle two to three feet.
2. Standard length will be seven feet unless otherwise indicated on the plans. In no case the length shall be less than three feet.
3. The dikes shall be attached to the ground with wire staples. The staples shall be #11 gauge wire and be at least six to eight inches long. Staples shall be placed where the units overlap and in the center of the 7' unit as shown on the installation detail.

**Maintenance:**

Remove accumulated sediment when it reaches 1/2 the height of the foam dike. Repair torn, ripped or degraded segments. Avoid driving over foam dikes and repair any segments damaged by vehicles.



**Plan View**  
Not to Scale



**Section D-D**  
Not to Scale

**FOAM DIKE DROP INLET PROTECTION**  
(2012 Edition)

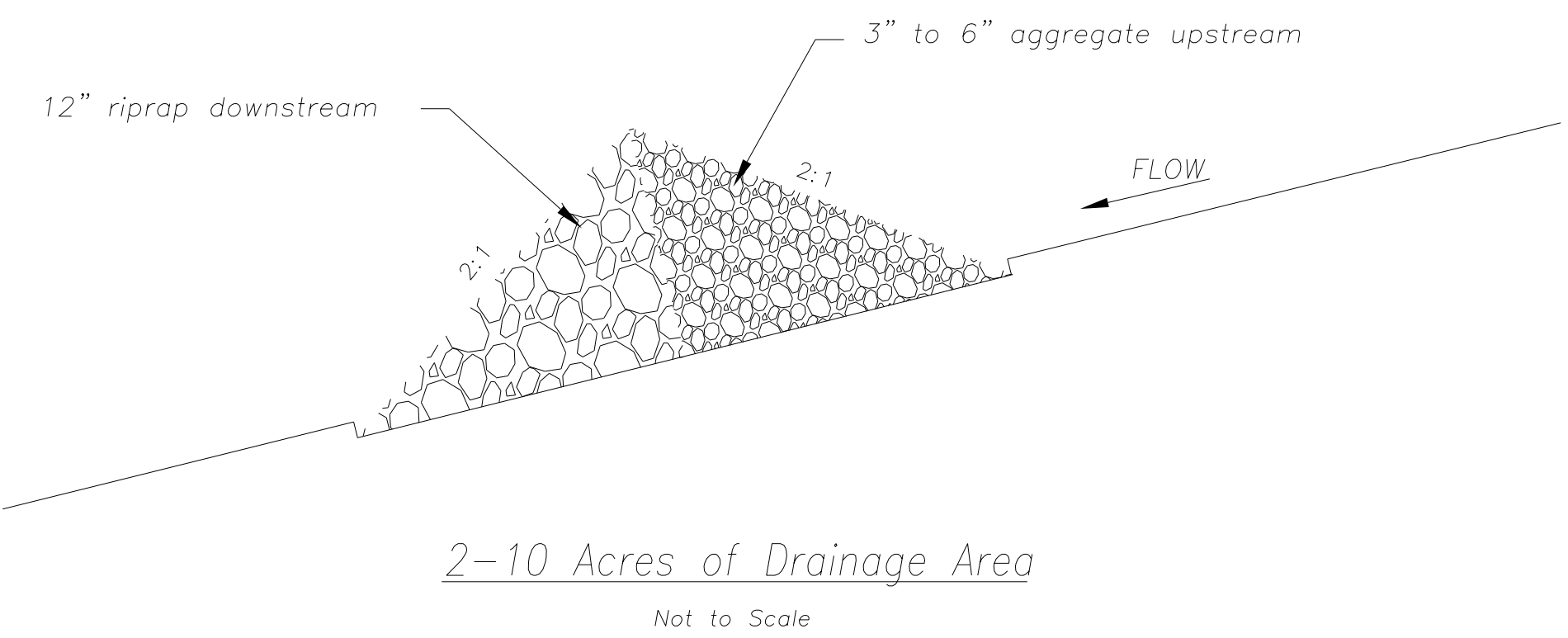
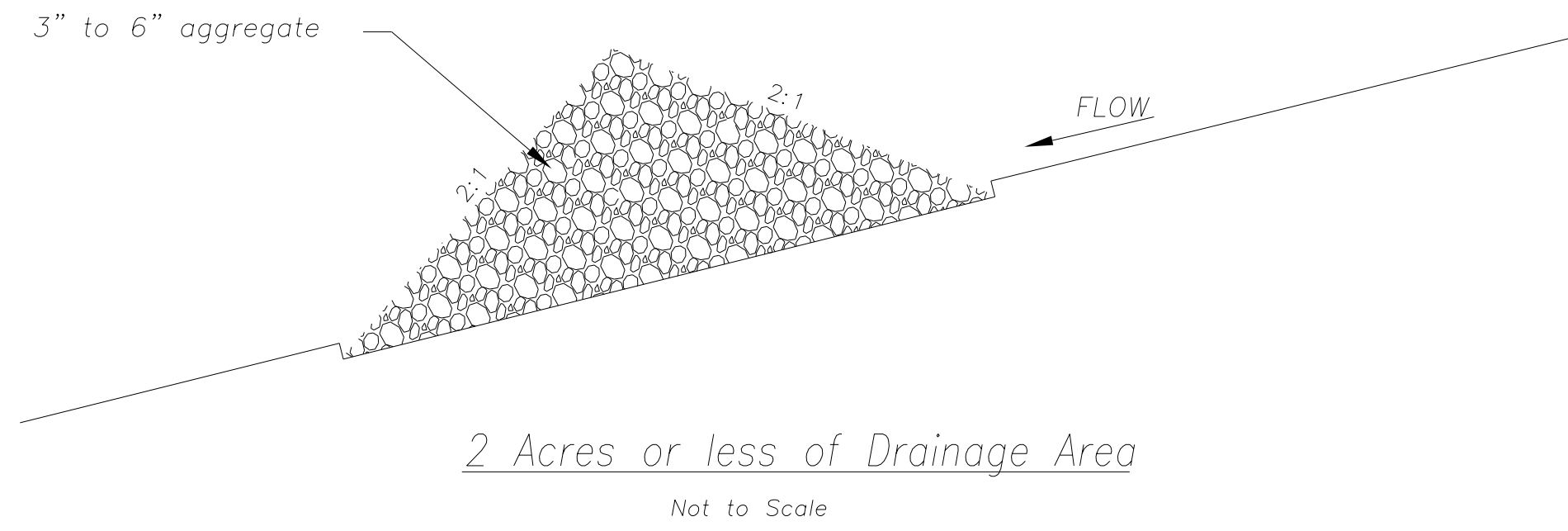
REVISIONS:		<b>OVERLAND PARK</b> K A N S A S DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS <b>FOAM DIKE</b>
RELATED ORDINANCES:		<b>OPMC Title 15</b>
WEB SITE ADDRESS: <a href="http://www.opkansas.org/_bus/pre-construction_resources">http://www.opkansas.org/_bus/pre-construction_resources</a>		DATE: 01/10/2012      SHEET: 33

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	DATE

ISSUE DATE

**FOAM DIKE**

**31**

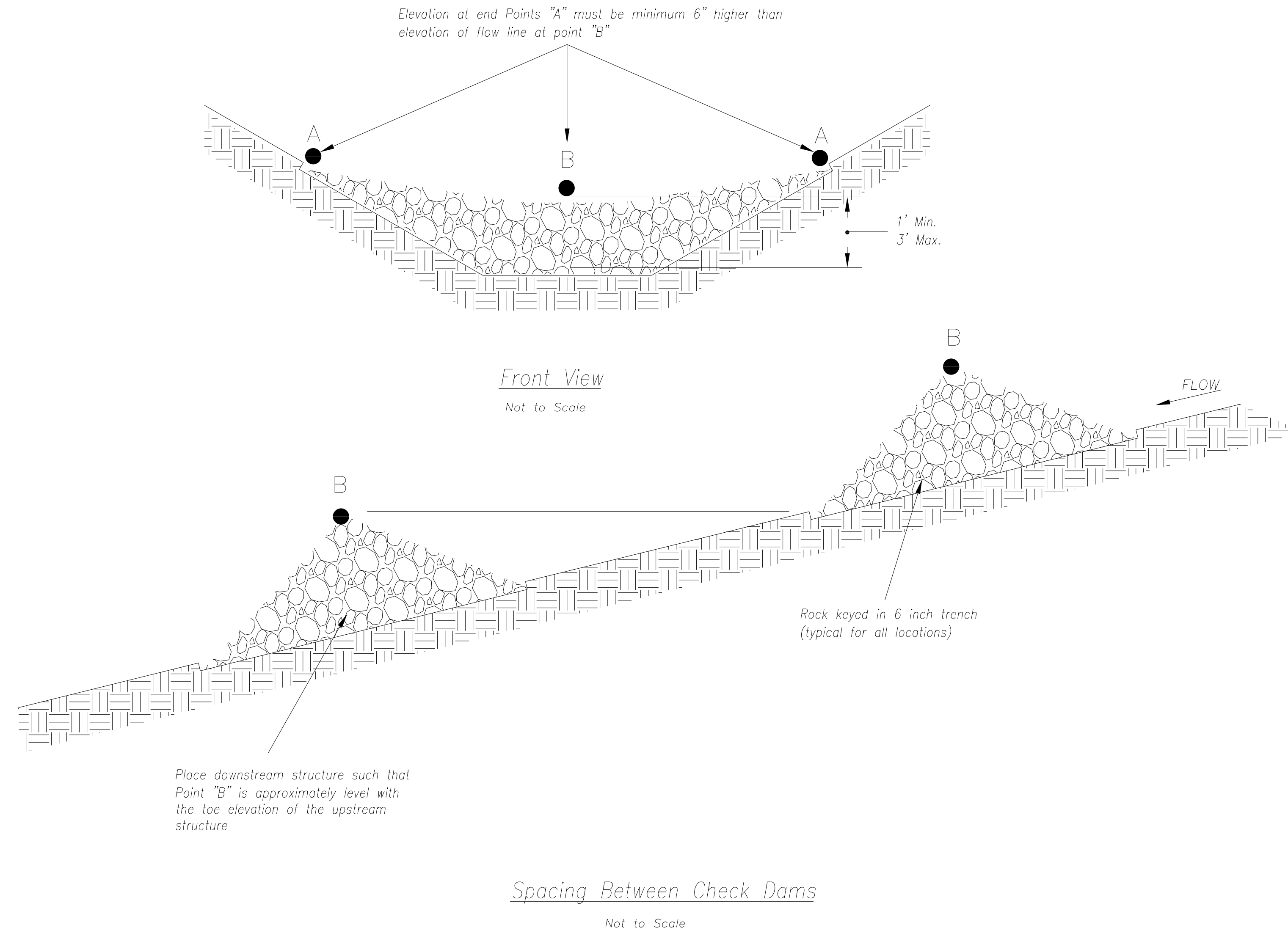


Note:

1. Overland Park Municipal Code (OPMC) and Overland Park Design and Construction Standards Manual (OPDCSM) are incorporated, except as otherwise noted.
2. Rock check dams shall be used only for drainage areas less than 10 acres unless approved by the City

Maintenance:

Remove silt when it accumulates 1/4 the height of the ditch check. If units are damaged or dislodged during the sediment removal process, repair and re-establish continuity.



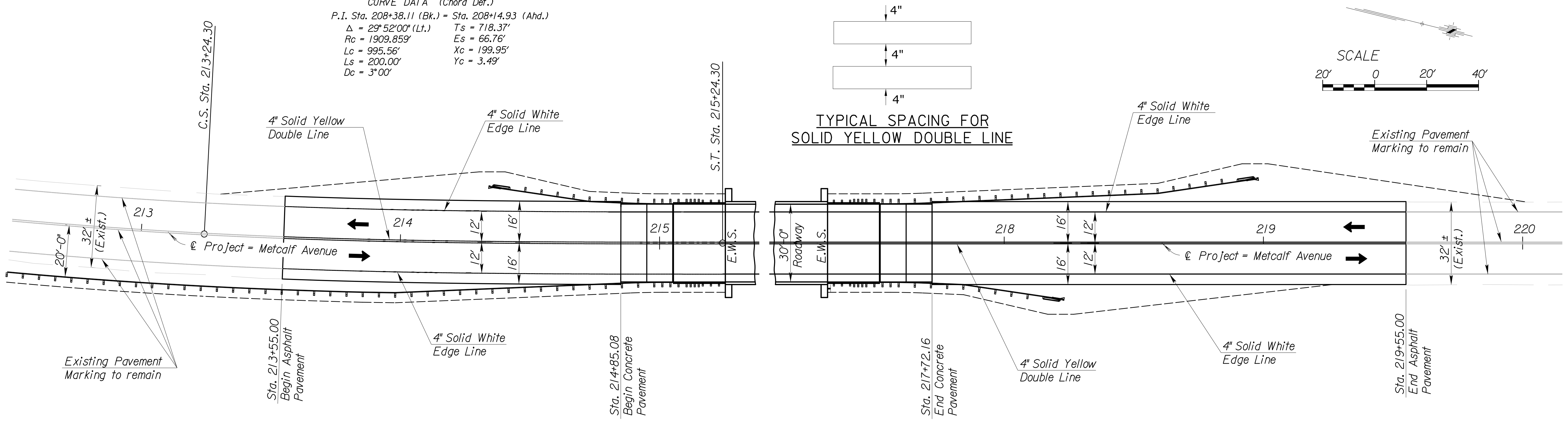
ROCK DITCH CHECK  
(2012 Edition)

REVISIONS: Dec. 2011 Maintenance Statement;		<b>OVERLAND PARK</b> KANSAS ABOVE AND BEYOND BY DESIGN
RELATED ORDINANCES: <b>OPMC Title 15</b>		
WEB SITE ADDRESS: <a href="http://www.opkansas.org/_bus/pre-construction_resources">http://www.opkansas.org/_bus/pre-construction_resources</a>		DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS <b>ROCK DITCH CHECK</b>
DATE: 11/01/05	SHEET: 28	

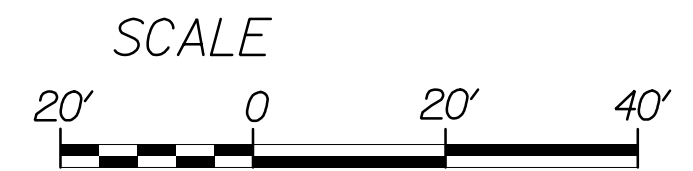


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**CURVE DATA (Chord Def.)**  
 P.I. Sta. 208+38.11 (Bk.) = Sta. 208+14.93 (Ahd.)  
 Δ = 29° 52' 00" (Lt.) Ts = 718.37'  
 R<sub>c</sub> = 1909.859' Es = 66.76'  
 L<sub>c</sub> = 995.56' X<sub>c</sub> = 199.95'  
 L<sub>s</sub> = 200.00' Y<sub>c</sub> = 3.49'  
 D<sub>c</sub> = 3° 00'



TYPICAL SPACING FOR SOLID YELLOW DOUBLE LINE



**PAVEMENT MARKING LAYOUT**

**PAVEMENT MARKING GENERAL NOTES**

- All permanent pavement markings shall be provided and installed by the contractor as indicated in the plans or as directed by the City Inspector.
- Pavement markings on concrete shall be per the specifications, unless otherwise indicated on the plans or directed by the City Inspector. See the Pavement Marking Material Matrix.
  - All longitudinal lines shall be epoxy material, or durable preformed, patterned cold plastic as indicated in the plans.
  - All transverse lines and symbol markings shall be inlaid durable preformed, patterned cold plastic, or sprayed epoxy as indicated in the plans. Spray epoxy shall be applied with appropriate templates.
- Pavement markings on asphalt shall be per the specifications, unless otherwise indicated on the plans or directed by the City Inspector. See the Pavement Marking Material Matrix.
  - All longitudinal lines shall be hot applied thermoplastic material.
  - All transverse lines and symbol markings shall be pre-formed thermoplastic material unless otherwise stipulated below.
- Liquid pavement marking material may be used for transverse lines under the following stipulations:
  - Shall be applied by a push cart.
  - Only one pass with the thermoplastic pavement marking equipment shall be allowed in order to provide the required line width according to the plans. Multiple passes of narrower lines with overlaps to provide the required width shall not be allowed.
  - Liquid pavement marking material shall not be used for word or symbol markings, unless applied with appropriate templates as indicated in the plans.
- Crosswalk lines shall be installed such that the minimum distance between the inside edge of the line to the inside edge of the line is 6 feet.
- Stop lines shall be installed such that the minimum distance between the outside edge of the back crosswalk line and the trailing edge of the stop line is 4 feet.
- Skip lines shall not extend past the stop bar or into the crosswalk.
- White broken lane lines shall be carried through intersections with private streets unless there is a left turn bay into the private street. Then a gap should be left in the broken white lane lines for the left turn movement to pass through.
- The proposed permanent markings shall be laid out by the contractor in advance of the marking installation. Markings shall not be applied until the layout and conditions of the surface have been approved by the City Inspector.

PAVEMENT MARKING MATERIAL MATRIX					
MARKING MATERIAL	PAVEMENT TYPE				
PERMANENT MARKINGS	ASPHALT	CONCRETE	MICROSURFACE	CAPE SEAL	CHIP SEAL
Thermoplastic	X		X	X	
Pre-Formed Thermoplastic	X		X	X	
Epoxy		X			
Urethane Acrylate					X
Durable Preformed, Patterned Cold Plastic		X-inlaid w/binder			X
Cold Plastic					X
Paint					X
Temporary Markings	ASPHALT	CONCRETE			
Cold Plastic	X	X			
Paint	X	X			

SUMMARY OF PAVEMENT MARKINGS								
STATION TO STATION	LOCATION	ASPHALT PAVEMENT (Thermoplastic)			CONCRETE PAVEMENT (Durable Pre-formed Patterned Cold Plastic)			REMARKS
		4\"/>						
213+55.00	214+85.08	Lt. Side Edge Line	130.1'					
213+55.00	214+85.08	Center Line		260.2'				Double Line
213+55.00	214+85.08	Rt. Side Edge Line	130.1'					
214+85.08	217+72.16	Lt. Side Edge Line			287.1'			
214+85.08	217+72.16	Center Line					574.2'	Double Line
214+85.08	217+72.16	Rt. Side Edge Line			287.1'			
217+72.16	219+55.00	Lt. Side Edge Line	182.8'					
217+72.16	219+55.00	Center Line		365.6'				Double Line
217+72.16	219+55.00	Rt. Side Edge Line	182.8'					
TOTALS			625.8'	625.8'	574.2'		574.2'	

Note:  
 Summary of Pavement Markings is shown for information only.  
 Pavement Marking is bid as a lump sum item.

**LOCHNER**  
 903 East 104th Street | Suite 800 | Kansas City, MO 64131

CITY OF OVERLAND PARK, KANSAS  
 METCALF BRIDGE REDECKING  
 METCALF AVENUE OVER BLUE RIVER

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	DATE

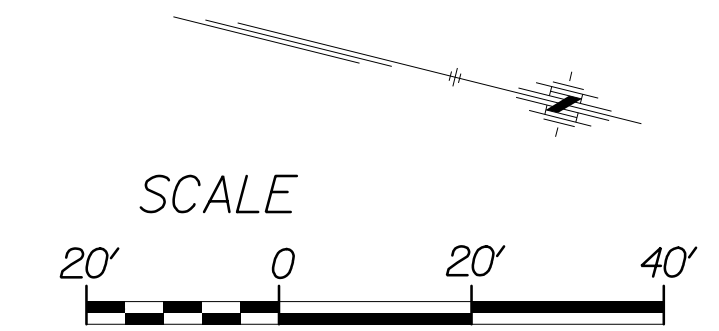
ISSUE DATE

**PAVEMENT MARKING**

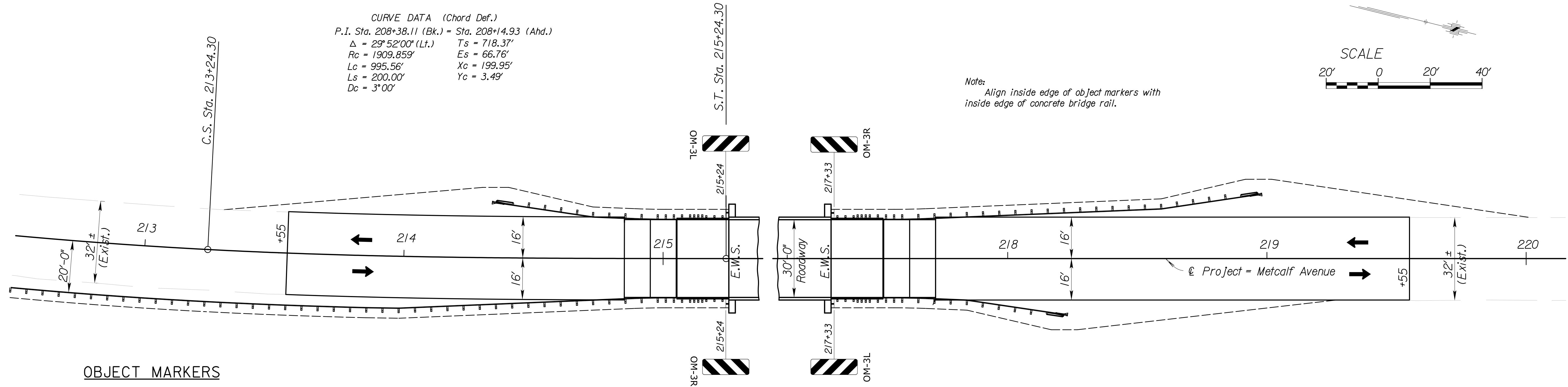
**33**

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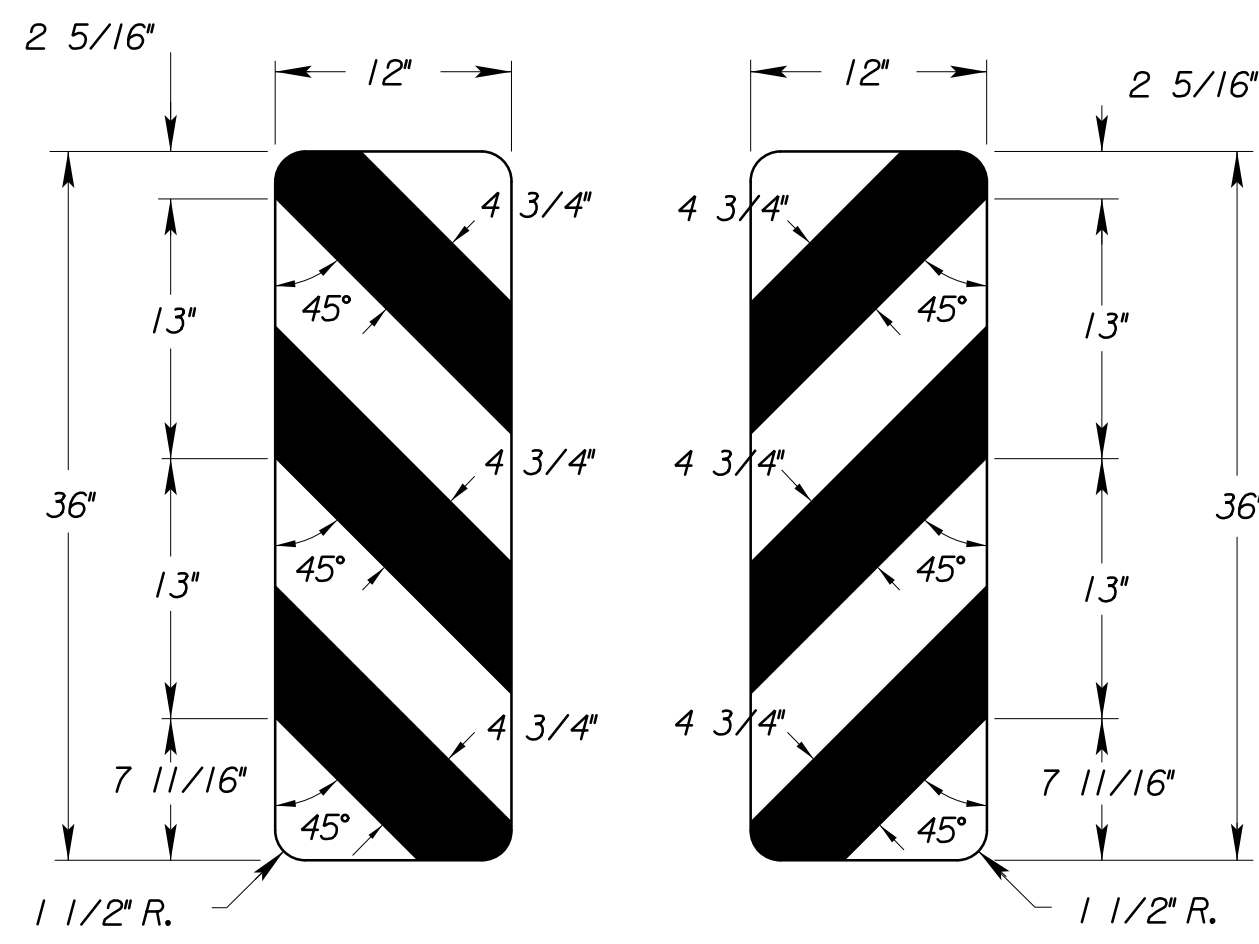
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 $R_c = 1909.859'$   $E_s = 66.76'$   
 $L_c = 995.56'$   $X_c = 199.95'$   
 $L_s = 200.00'$   $Y_c = 3.49'$   
 $D_c = 3^{\circ}00'$



Note: Align inside edge of object markers with inside edge of concrete bridge rail.



**OBJECT MARKERS**



OM-3L

OM-3R

**COLORS:**  
 YELLOW (RETROREFLECTIVE)  
 BLACK (NON-REFLECTIVE)

**PERMANENT SIGNING LAYOUT**

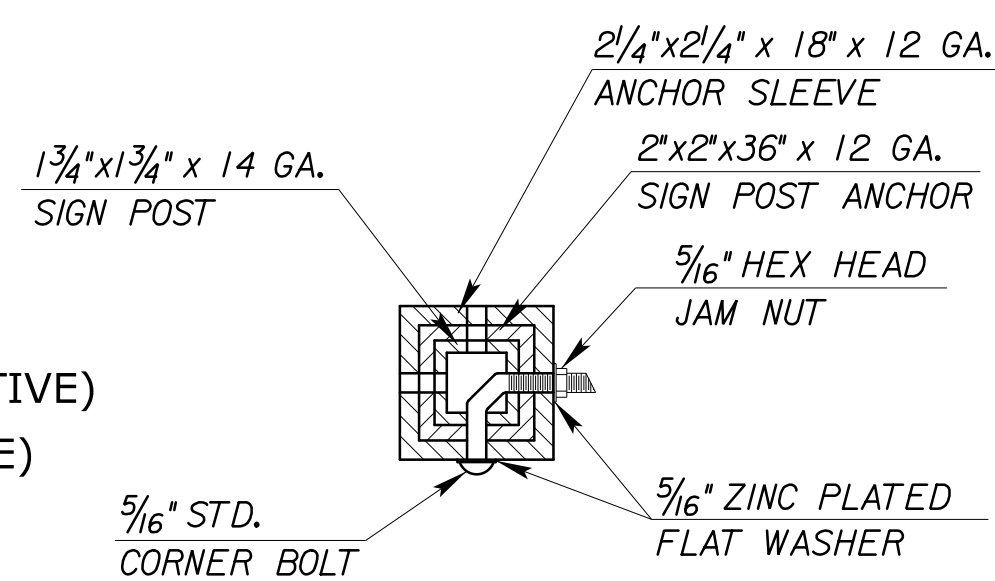
FLAT SHEET OBJECT MARKERS:  
 SEE SIGNING GENERAL NOTES ON THIS SHEET FOR THE ALUMINUM ALLOYS AND THICKNESS.

**SIGN INFORMATION TABLE**

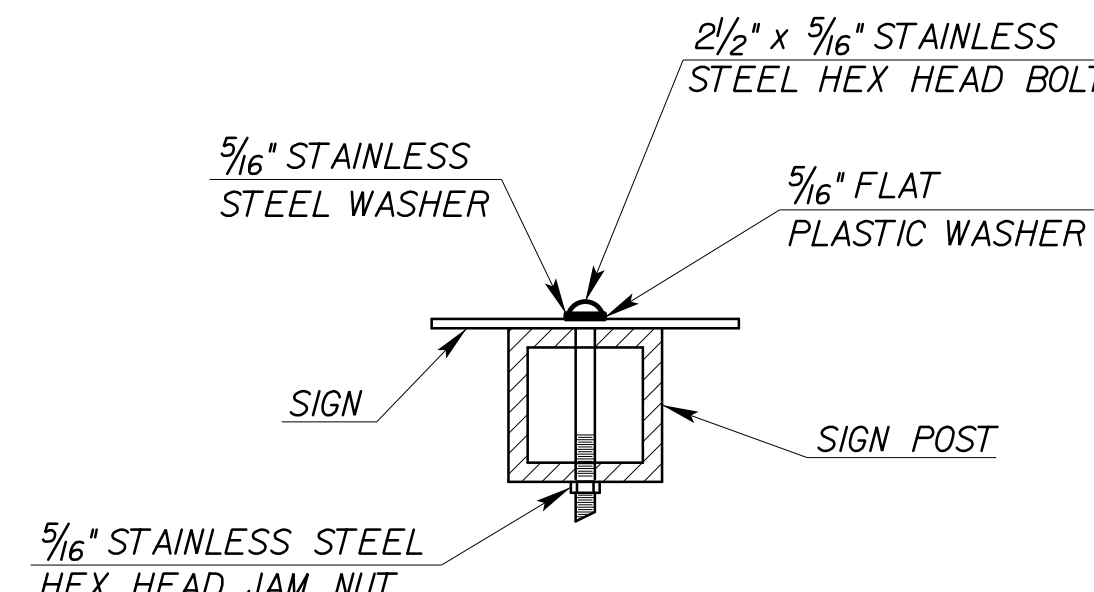
CLASSIFICATION	TYPE	PROCESS	SHEETING TYPE	SIZE	AREA
OBJECT MARKERS					
OM-3 (L, R OR C)	Object Marker (Type 3)	Direct Screen	Micro-Encapsulated Prismatic (Type XI)	12'x36'	3.00 Sq. Ft.

**PERMANENT SIGNING GENERAL NOTES**

- All permanent signing shall be provided and installed by the Contractor as indicated in the plans and specifications, and according to the City of Overland Park Standard Details.
- All letter, number and symbol sizes, spacing and sign colors shall conform to the current Manual on Uniform Traffic Control Devices (MUTCD).
- All school signing shall have a fluorescent yellow-green background with a black legend and border. All other warning signs shall have a standard yellow background.
- The Contractor is responsible for avoiding any and all utilities when setting sign posts and will be required to coordinate his activities with all utility companies, including the City of Overland Park, 913-327-6600, for street light, traffic signal and fiber optic facilities whether their facility is indicated on the plans or not.
- All new signs shall be located within public right-of-way.
- All sign sheeting shall be retro-reflective according to the sheeting type shown in the "Sign Information Table" in these details. (Unless otherwise indicated in the plans or specifications).
- All sign blank material shall be made of 0.08" aluminum except all overhead street name signs shall be made of 0.125" aluminum..
- All post mounted signs shall be mounted on breakaway sign posts according to the standard details.
- All signs and posts shown in the plans shall be new unless otherwise indicated in the plans or by the Engineer.
- Any existing permanent signs shown to be removed by the Contractor for construction purposes other than stop signs, yield signs or street name signs shall be stockpiled in one location and delivered to the Traffic Services Maintenance Facility (6869 W. 153rd Street). Contact Marvin Furgison at 913-327-6600 to arrange for the delivery of the stockpiled signs. At least 24-hour advance notice shall be provided. The Contractor shall be responsible for removing and stockpiling equipment in good condition and is fully responsible for the equipment until they are delivered to the maintenance facility.



SECTION A-A



SECTION B-B

**PAVEMENT INSTALLATION SEQUENCE**

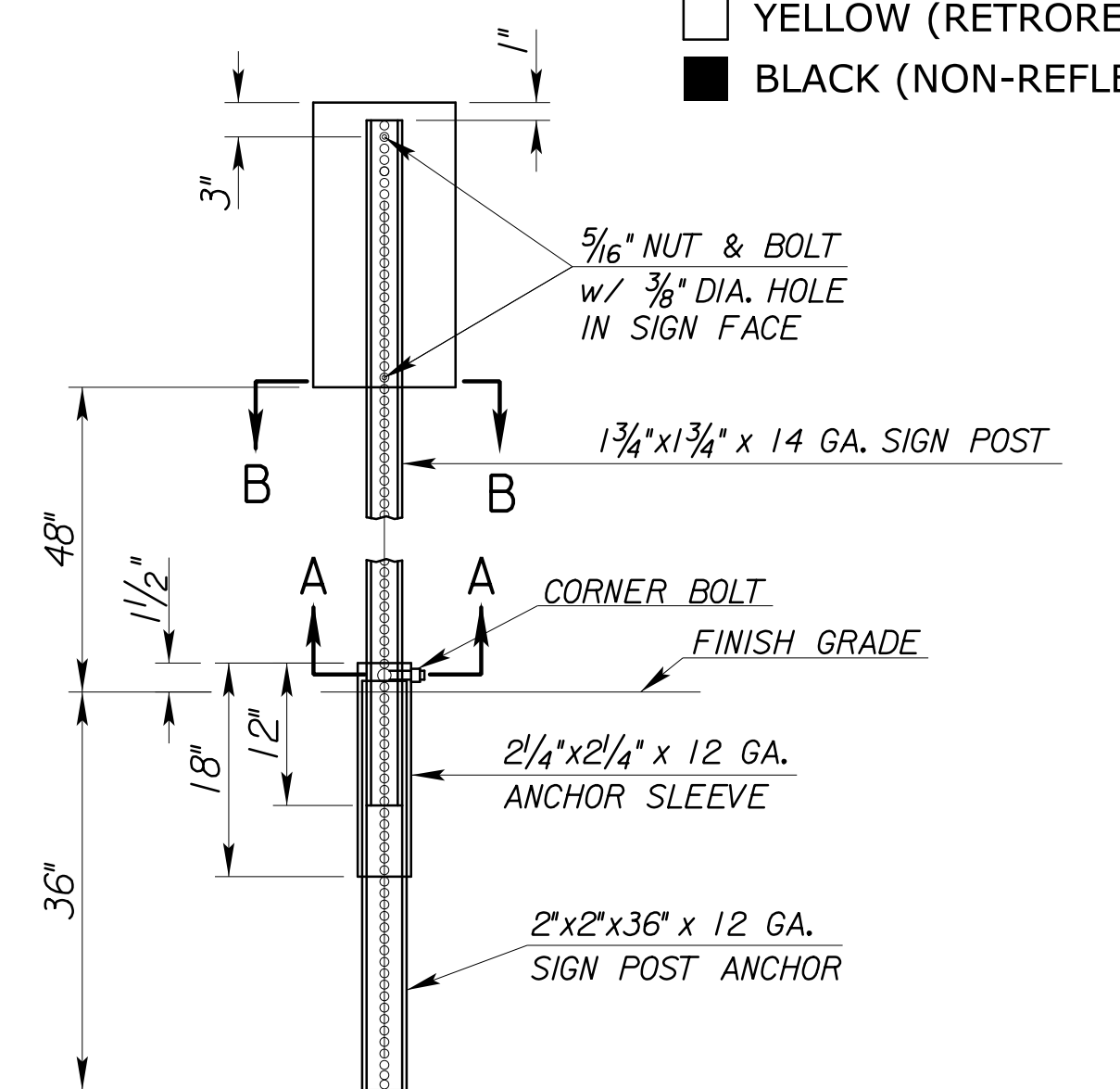
- Sign post anchor driven partially into subgrade using a drive cap with sledge or power equipment prior to the placement of the pavement.
- Anchor sleeve slipped over anchor and driven into subgrade together with the sign post anchor prior to the placement of the pavement.
- Insert sign post into the post anchor and bolt in place.

**GROUND INSTALLATION SEQUENCE**

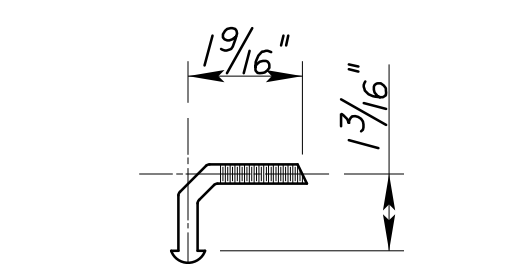
- Sign post anchor driven partially into the ground using a drive cap with sledge or power equipment.
- Anchor sleeve slipped over anchor and driven into the ground together with the sign post anchor.
- Insert sign post into the post anchor and bolt in place.

NOTE: In all installations the first hole above the finished grade level in all three units must be in line for insertion of the corner bolt.

All corner bolts and nuts for fastening the signs and sign post assembly and all washers shall comply with appropriate sections of the standard specifications (latest edition) and shall be a subsidiary item.



BREAK-AWAY SIGN POST DETAIL



5/16" BOLT DETAIL

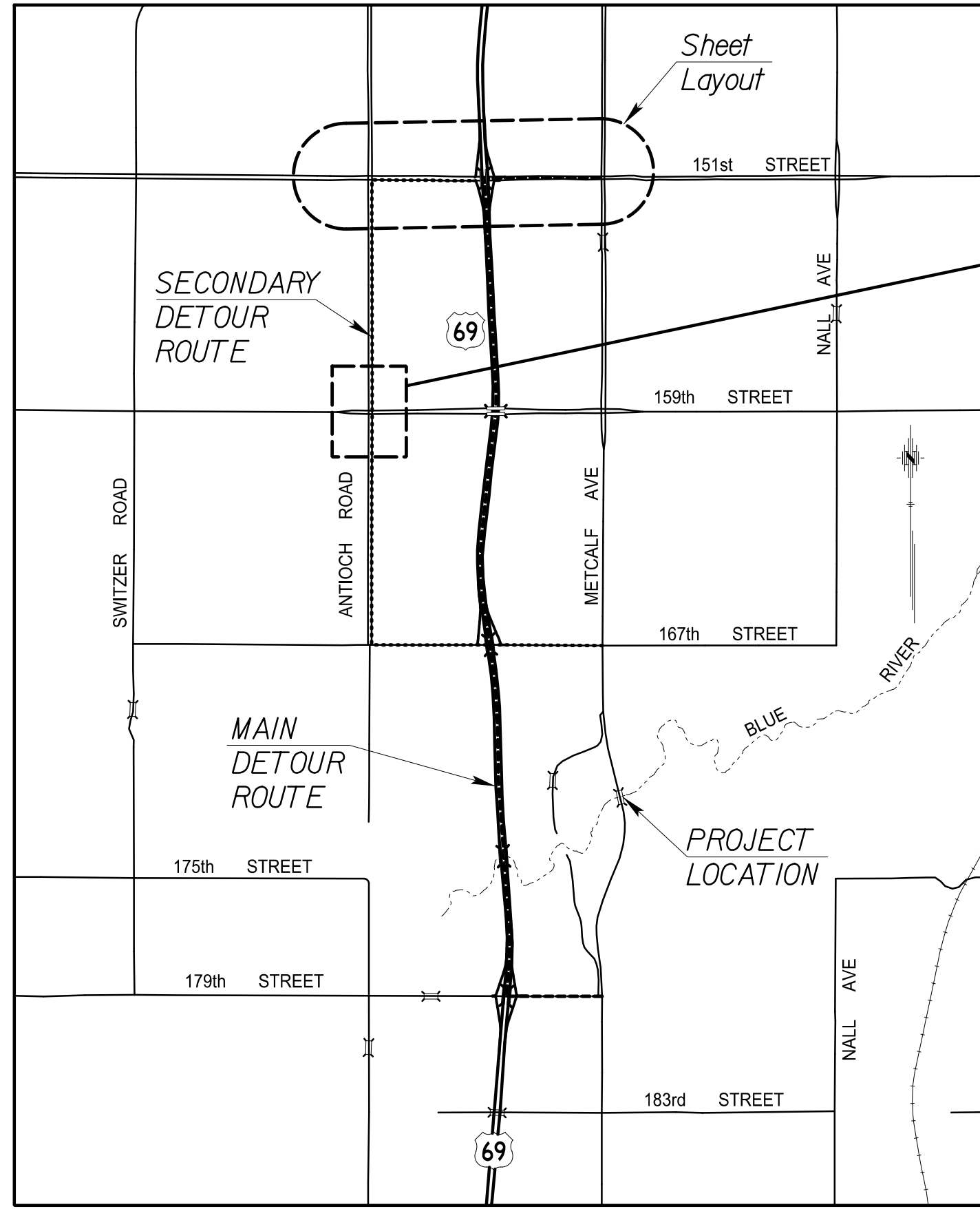
**SUMMARY OF OBJECT MARKERS AND SIGNS**

STATION TO STATION	SIDE	TYPE OF STRUCT.	OBJECT MARKER $\phi$		REMARKS
			TYPE	NO.	
215+24	Rt.	Bridge	OM-3R	1	At Bridge E.W.S.
215+24	Lt.	Bridge	OM-3L	1	At Bridge E.W.S.
217+33	Rt.	Bridge	OM-3L	1	At Bridge E.W.S.
217+33	Lt.	Bridge	OM-3R	1	At Bridge E.W.S.
TOTAL =					4

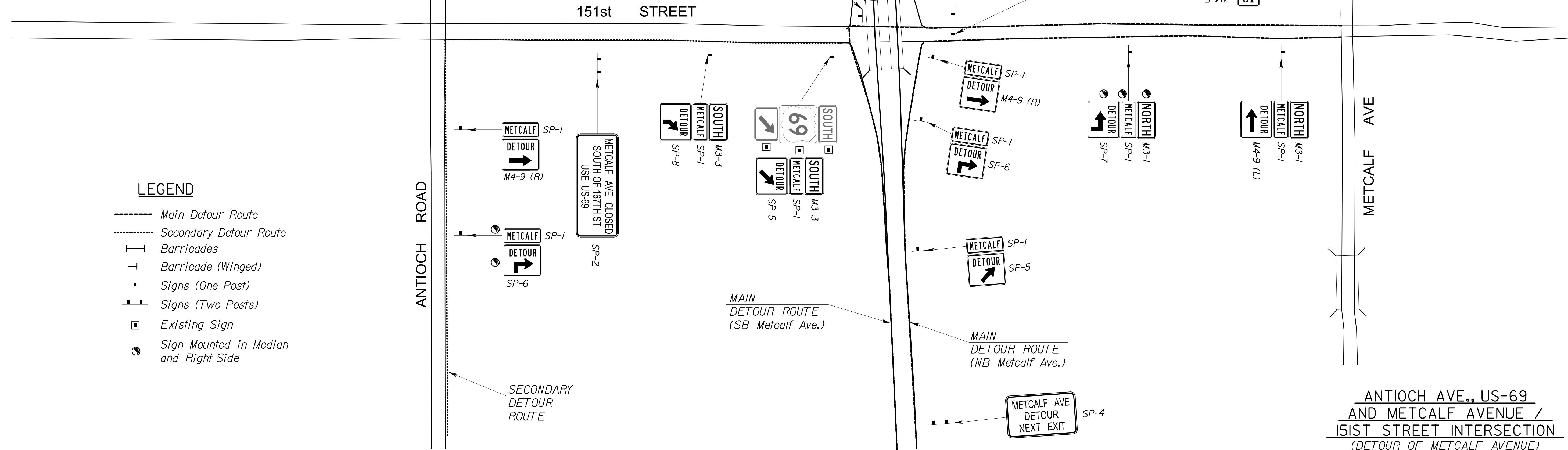
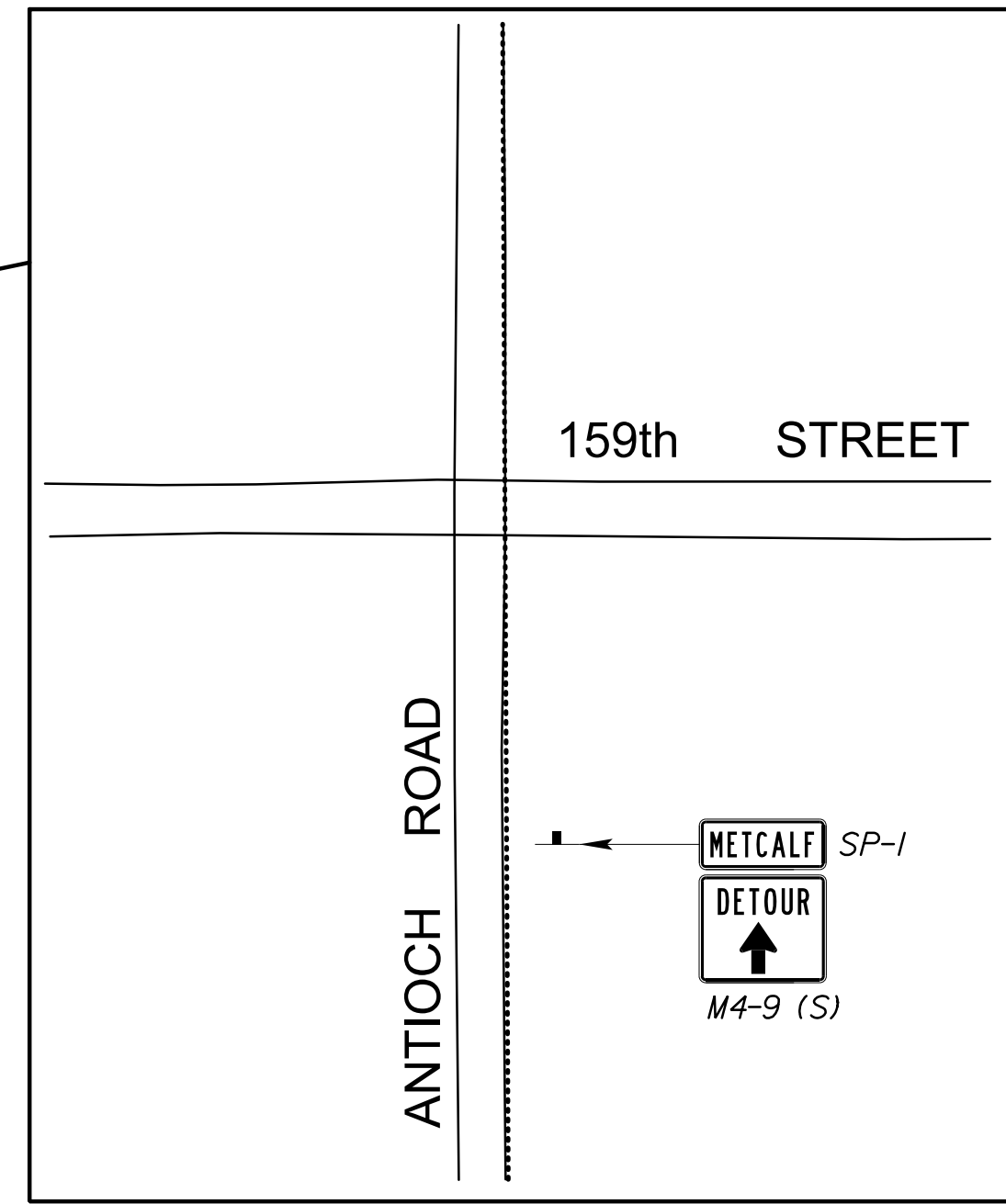
$\phi$  As you face bridge end from approach

PROJECT NO.	BR-1377
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DESIGNED BY	AFR 1/2013
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ISSUE DATE  
**PERMANENT SIGNING PLAN**

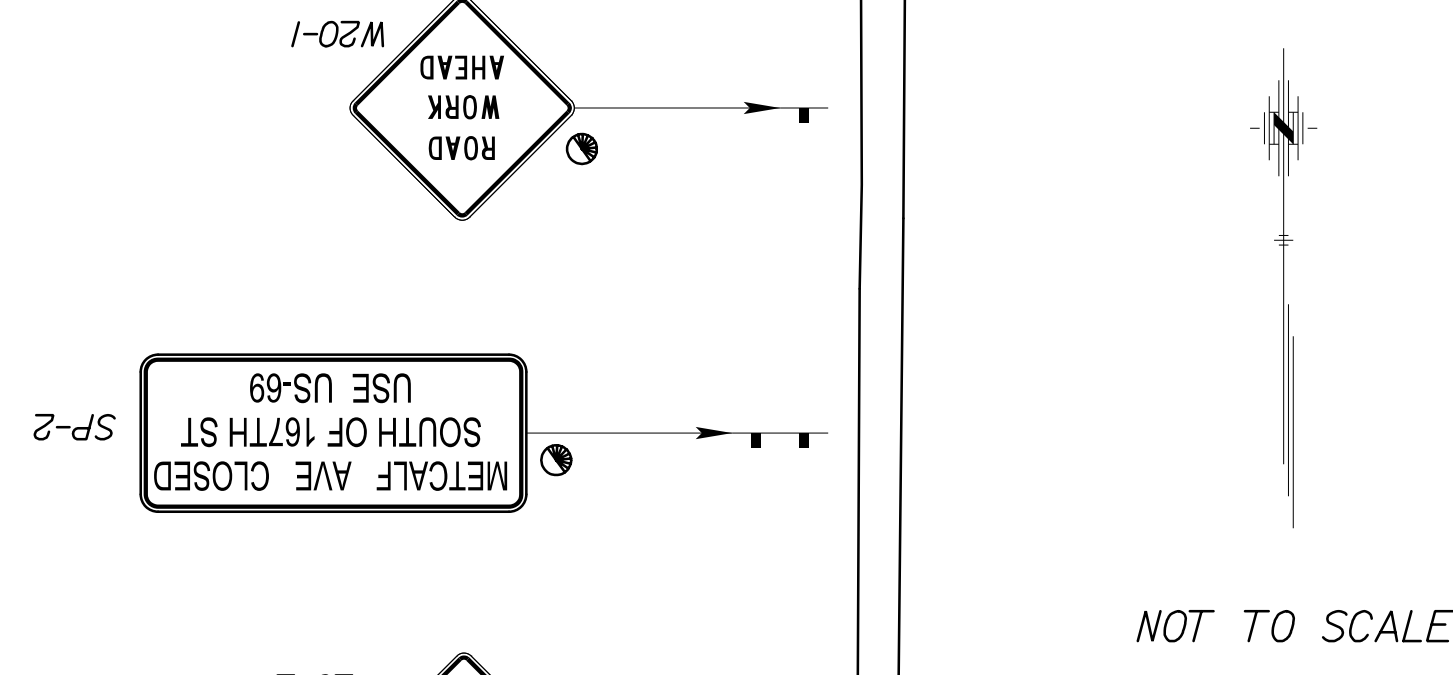


VICINITY MAP



LEGEND

- Main Detour Route
- Secondary Detour Route
- ┆ Barricades
- ┆ Barricade (Winged)
- ┆ Signs (One Post)
- ┆ Signs (Two Posts)
- ▣ Existing Sign
- Sign Mounted in Median and Right Side



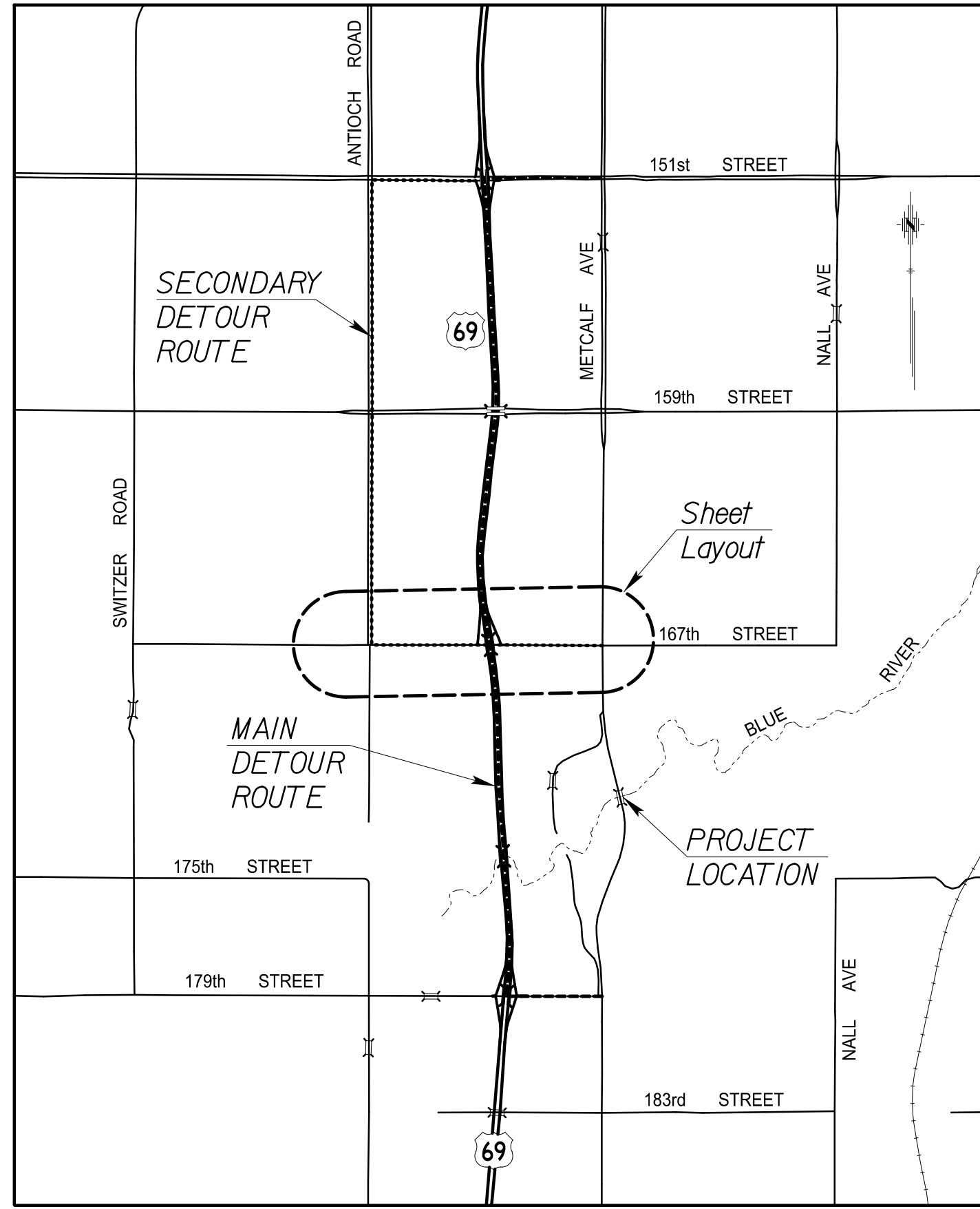
**LOCHNER**  
 903 East 104th Street | Suite 800 | Kansas City, MO 64131

CITY OF OVERLAND PARK, KANSAS  
 METCALF BRIDGE REDECKING  
 METCALF AVENUE OVER BLUE RIVER

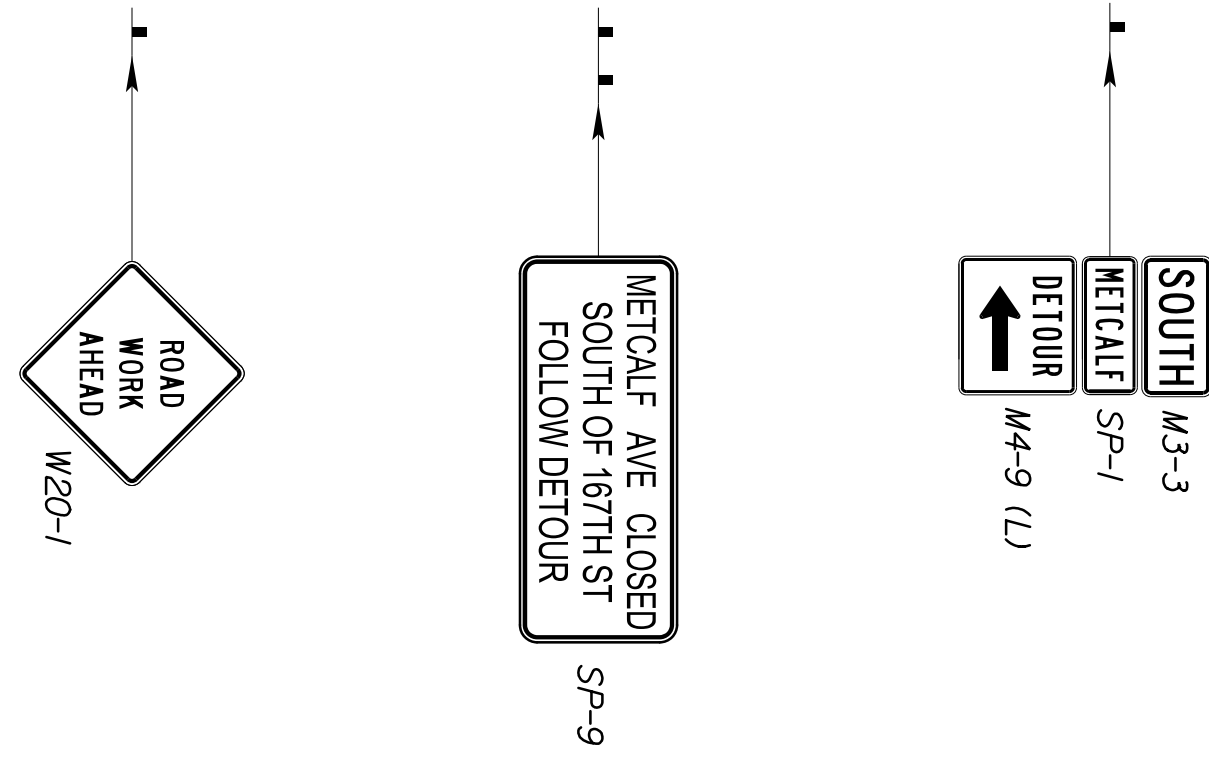
PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	DATE

TRAFFIC CONTROL PLAN

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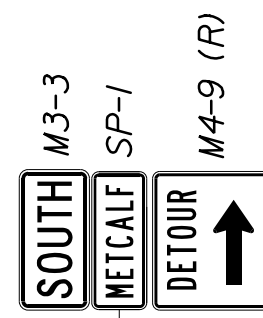
VICINITY MAP



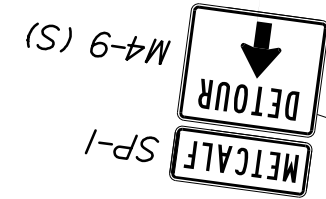
**LEGEND**

- Main Detour Route
- Secondary Detour Route
- |—|—| Barricades
- |—|—| Barricade (Winged)
- |—|—| Signs (One Post)
- |—|—| Signs (Two Posts)
- Existing Sign

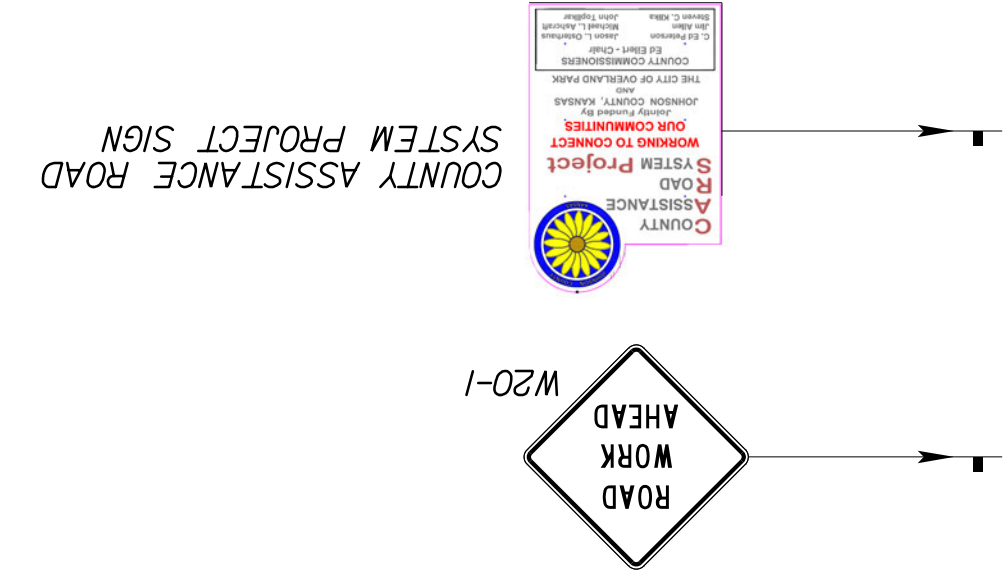
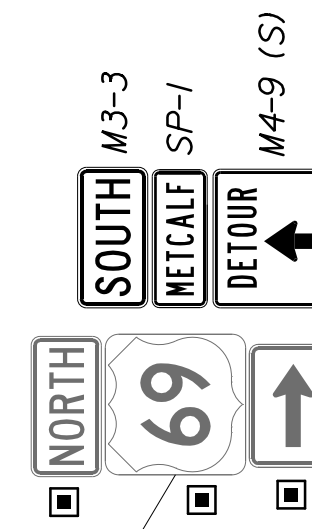
ANTIOCH ROAD



167th STREET

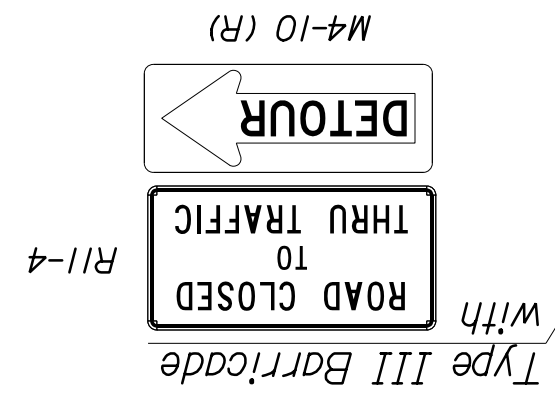
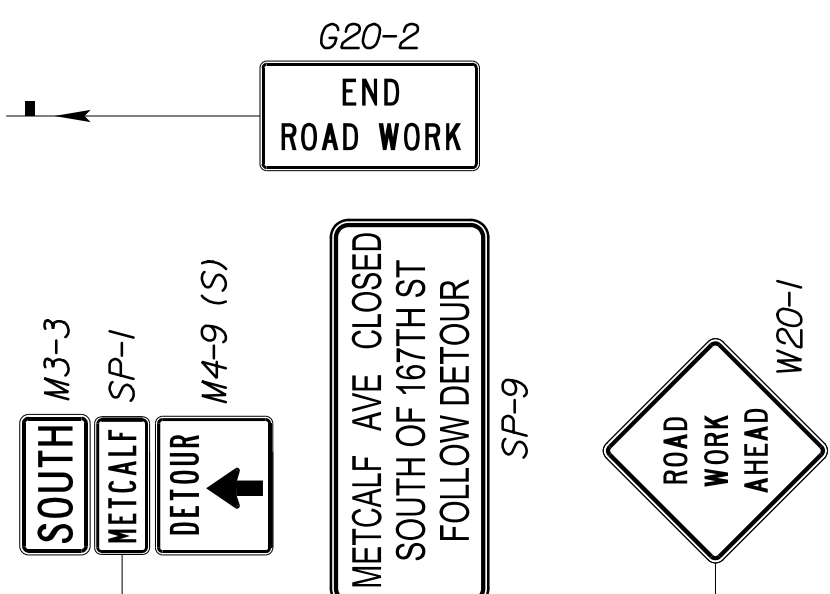


MAIN  
DETOUR ROUTE  
(SB Metcalf Ave.)

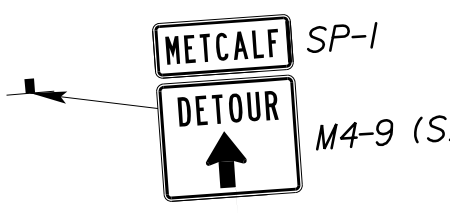


COUNTY ASSISTANCE ROAD SYSTEM PROJECT SIGN

NOT TO SCALE



MAIN  
DETOUR ROUTE  
(NB Metcalf Ave.)

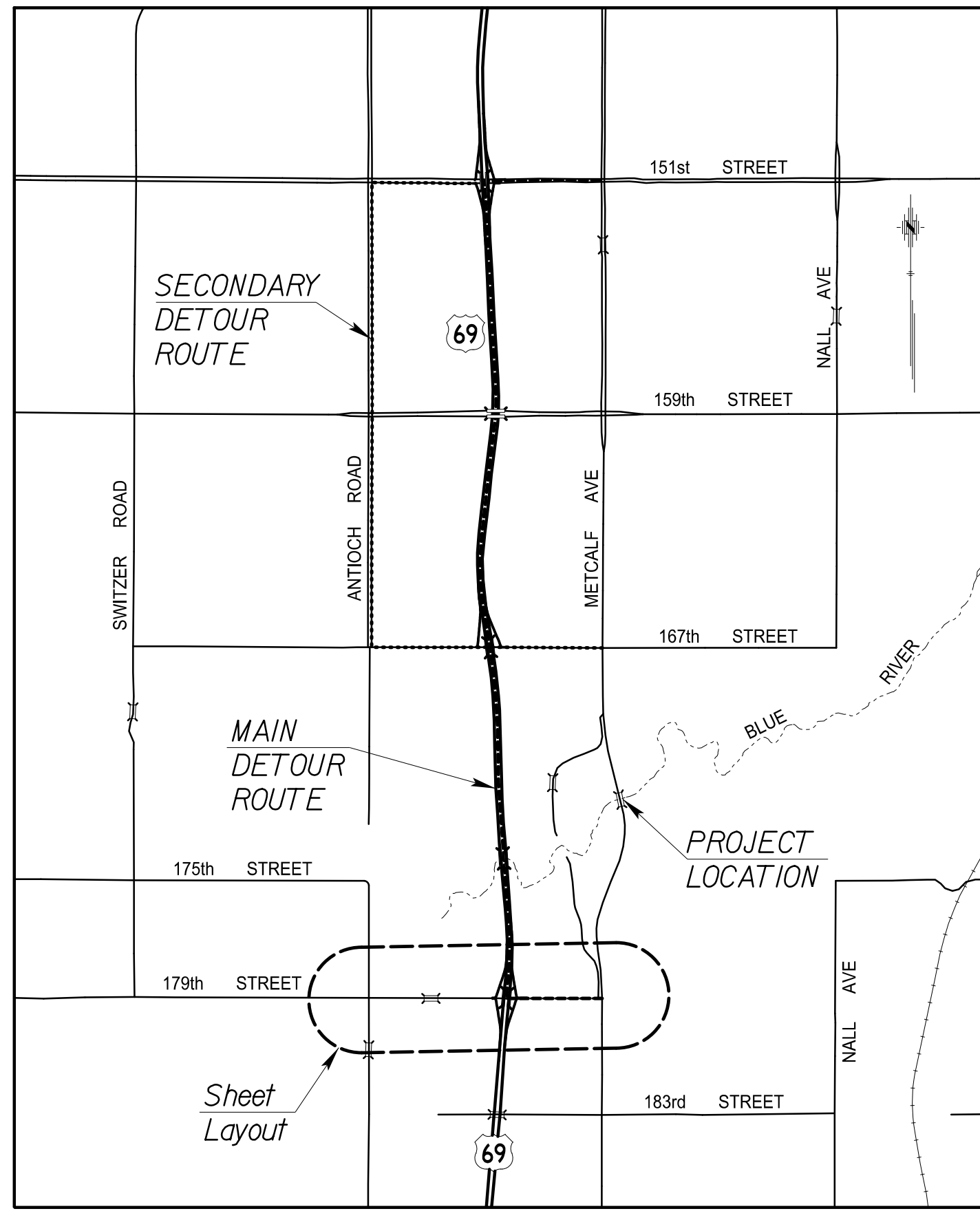


METCALF AVE

ANTIOCH AVE., US-69  
AND METCALF AVENUE /  
167TH STREET INTERSECTION  
(DETOUR OF METCALF AVENUE)

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
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TRAFFIC CONTROL PLAN

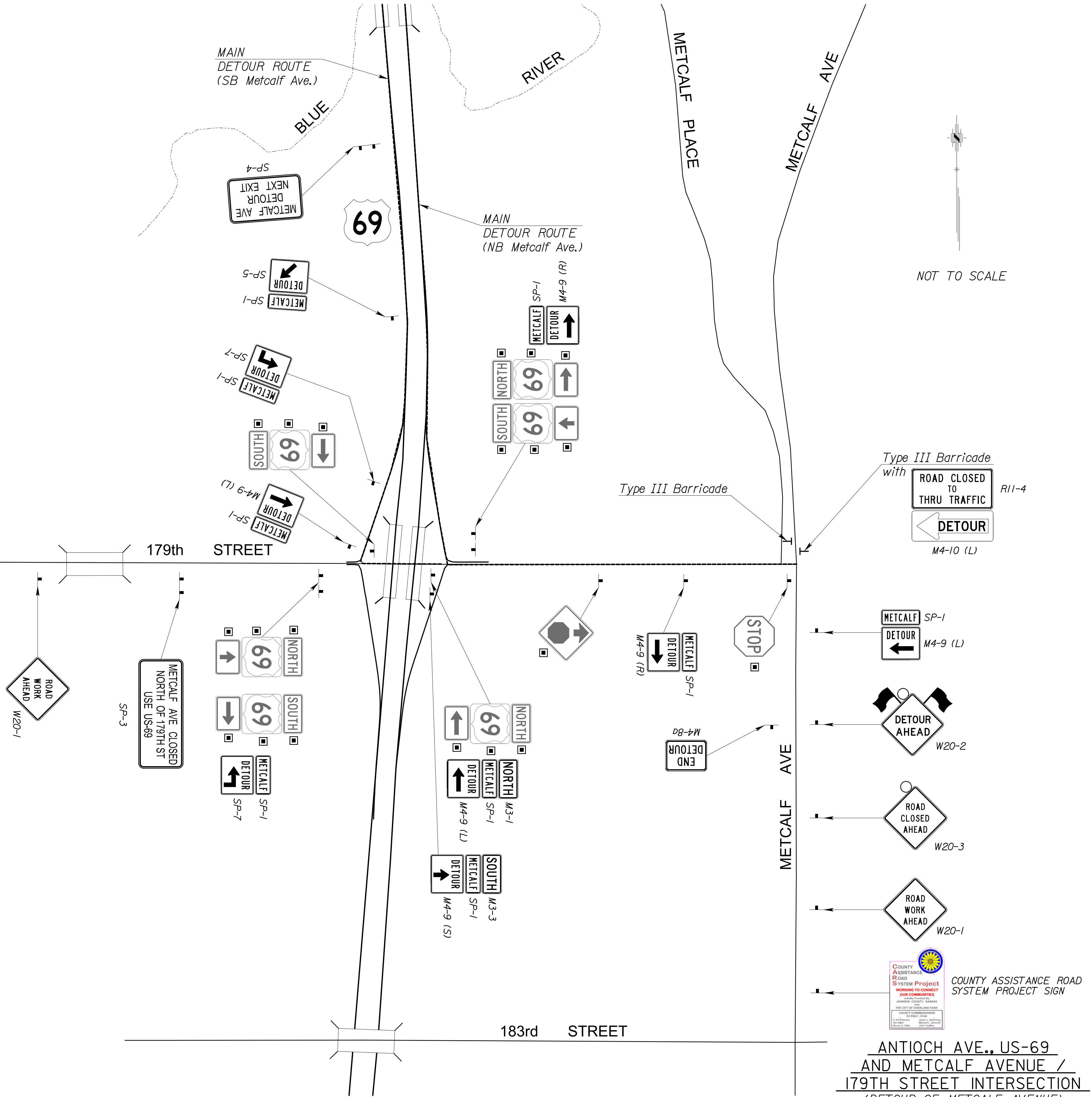


VICINITY MAP

LEGEND

- Main Detour Route
- ..... Secondary Detour Route
- |— Barricades
- |— Barricade (Winged)
- |— Signs (One Post)
- |— Signs (Two Posts)
- Existing Sign

ANTIOCH ROAD



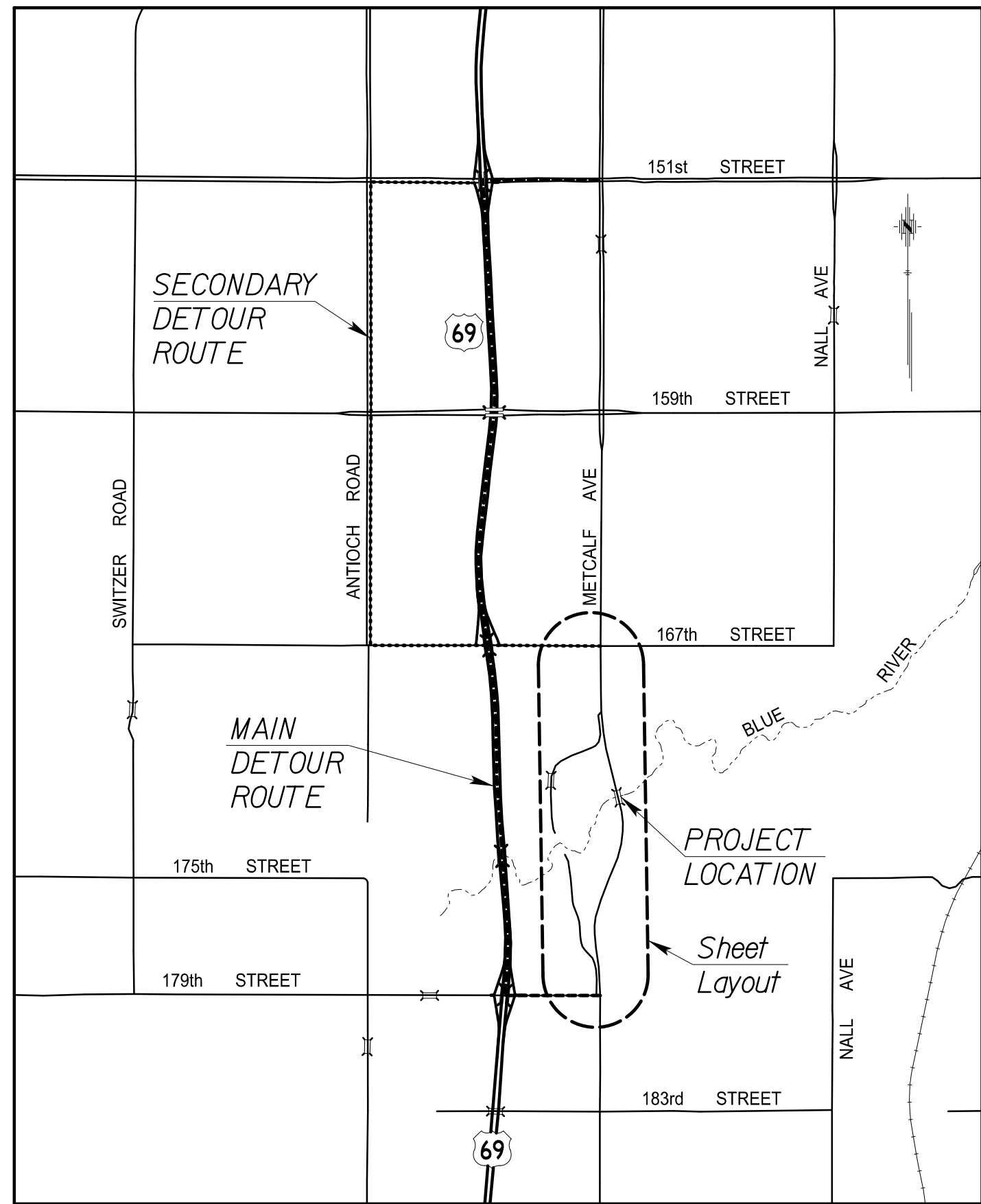
NOT TO SCALE

ANTIOCH AVE., US-69  
AND METCALF AVENUE /  
179TH STREET INTERSECTION  
(DETOUR OF METCALF AVENUE)

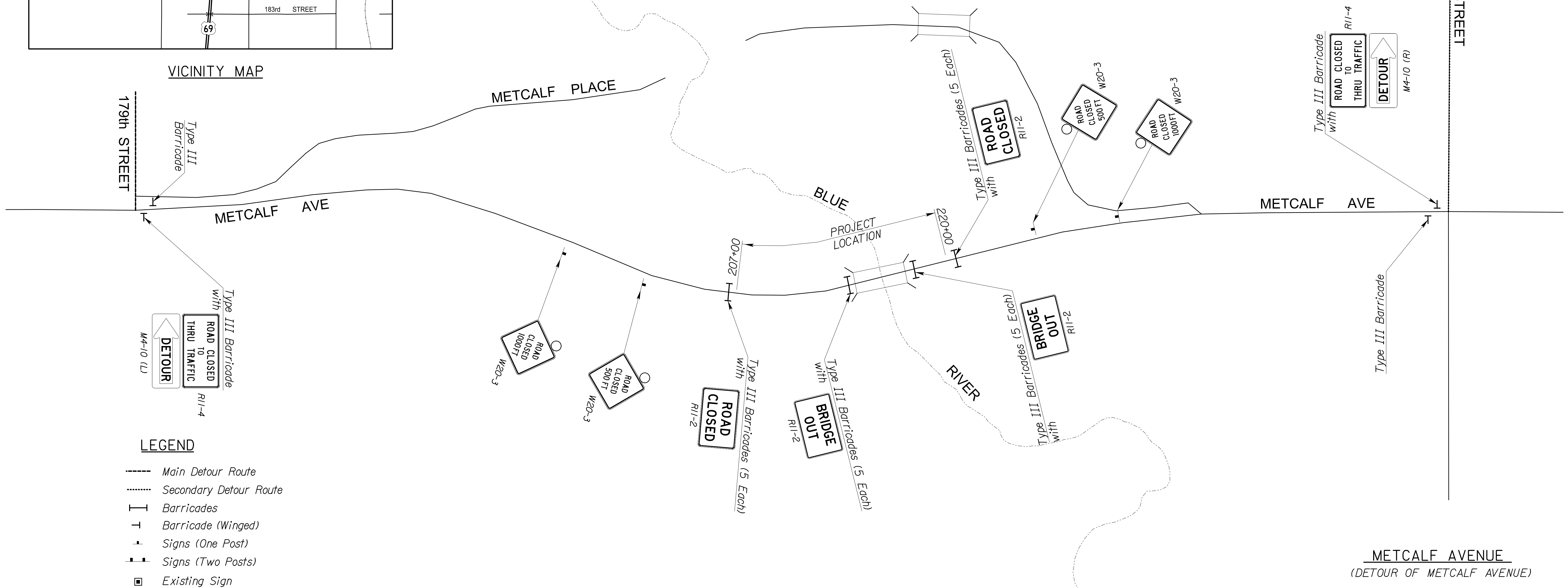
PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
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REVISIONS	DATE

ISSUE DATE

TRAFFIC CONTROL PLAN

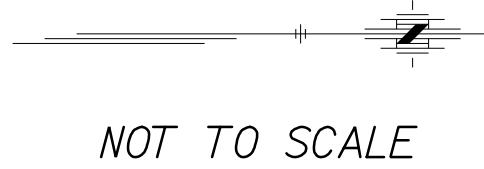


VICINITY MAP



LEGEND

- Main Detour Route
- - - Secondary Detour Route
- | | Barricades
- ├─ Barricade (Winged)
- ├─ Signs (One Post)
- ├─ Signs (Two Posts)
- Existing Sign



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 903 East 104th Street | Suite 800 | Kansas City, MO 64131

**CITY OF OVERLAND PARK, KANSAS**  
**METCALF BRIDGE REDECKING**  
**METCALF AVENUE OVER BLUE RIVER**

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TRAFFIC CONTROL PLAN

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### SPECIAL WORK ZONE SIGNS

<small>SP-1 (36"x12") (Black on Orange) 4" Series C All Caps</small>	<small>SP-2 (48"x30") (Black on Orange) 4" Series C All Caps</small>	<small>SP-3 (48"x30") (Black on Orange) 4" Series C All Caps</small>	<small>SP-4 (48"x42") (Black on Orange) 6" Series C All Caps</small>	<small>SP-5 (30"x30") (Black on Orange)</small>	<small>SP-6 (30"x30") (Black on Orange)</small>	<small>SP-7 (30"x30") (Black on Orange)</small>	<small>SP-8 (30"x30") (Black on Orange)</small>	<small>SP-9 (48"x30") (Black on Orange) 4" Series C All Caps</small>

### MUTCD STANDARD WORK ZONE SIGNS

<small>W20-3 (36"x36")</small>	<small>W20-3 (36"x36")</small>	<small>M1-4 (30"x24")</small>	<small>M3-1 (24"x12")</small>	<small>M3-3 (24"x12")</small>	<small>M4-5 (24"x12")</small>	<small>R11-2 (48"x30")</small>

### SUMMARY OF TRAFFIC CONTROL DEVICES

WORK ZONE SIGN (SPECIAL)		
SIGN NO.	16.25 SQ.FT. & LESS	16.26 SQ.FT. & OVER
SP-1	31	
SP-2	2	
SP-3	1	
SP-4	2	
SP-5	3	
SP-6	5	
SP-7	6	
SP-8	1	
SP-9	2	

BARRICADES*	CHANNELIZING DEVICES*	
TYPE III (4' TO 12')	FIXED	PORTABLE
24 †		

† Use warning lights (Type "A" Low Intensity)

LIGHTED DEVICES *	
WORK ZONE WARNING LIGHT (TYPE "A" LOW INTENSITY)	26
WORK ZONE WARNING LIGHT (RED TYPE "B" HIGH INTENSITY)	
ARROW DISPLAY	
PORTABLE CHANGEABLE MESSAGE SIGN	

### SUMMARY OF TRAFFIC CONTROL DEVICES

SIGN	MUTCD NO.	WORK ZONE SIGNS *			Work Zone Warning Light Required
		SIZE - SQ.FT.			
		0-9.25	9.26-16.25	16.26 & OVER	
ROAD WORK AHEAD	W20-1	6			
DETOUR AHEAD	W20-2	3			Yes
ROAD CLOSED 500 FT	W20-3	2			Yes
ROAD CLOSED 1000 FT	W20-3	2			Yes
ROAD CLOSED AHEAD	W20-3	2			Yes
US-69	M1-4	3			
NORTH	M3-1	3			
SOUTH	M3-3	10			
TO	M4-5	3			
END DETOUR	M4-8a	2			
DETOUR (Arrow Left)	M4-9(L)	6			
DETOUR (Arrow Right)	M4-9(R)	7			
DETOUR (Arrow Straight)	M4-9(S)	6			
DETOUR Arrow	M4-10(L)	1			
DETOUR Arrow	M4-10(R)	1			
ROAD CLOSED	R11-2		2		
BRIDGE OUT	R11-2		2		
ROAD CLOSED TO THRU TRAFFIC	R11-4		2		
END ROAD WORK	G20-2	1			

\* QUANTITY MOST USED ON THE PROJECT AT ANY ONE TIME

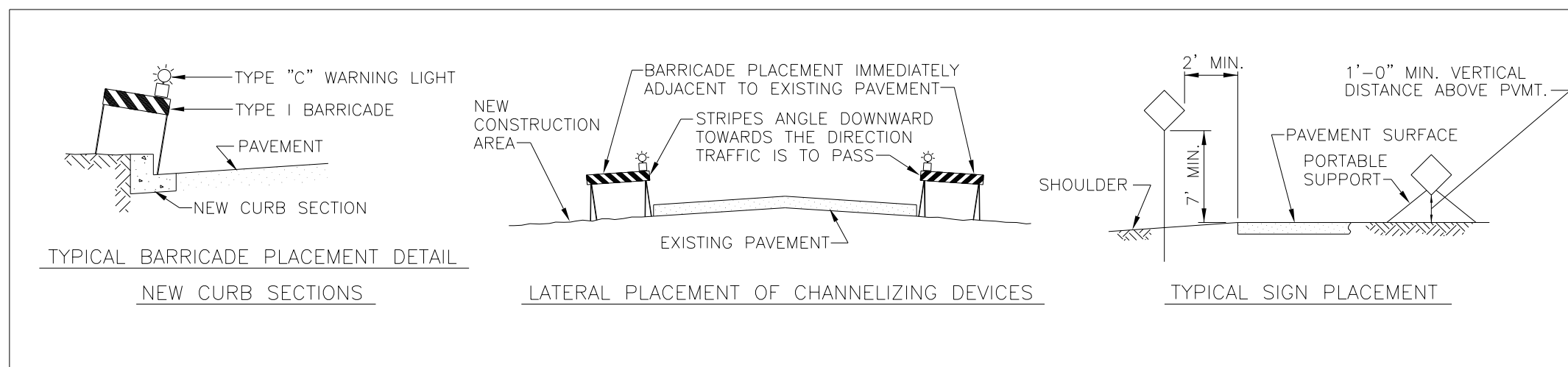
RECAPITULATION OF QUANTITIES		
Item	Quantity	Unit
Traffic Control	L.S.	Lump Sum

Note: Summary of Traffic Control Devices is shown for information only. Traffic Control is bid as a lump sum item. Minor adjustments in the illustrated set-ups shall be made at no additional cost to the Owner.

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**TRAFFIC CONTROL QUANTITIES**



**Traffic Control General Notes**

**Traffic Control Device Requirements:**

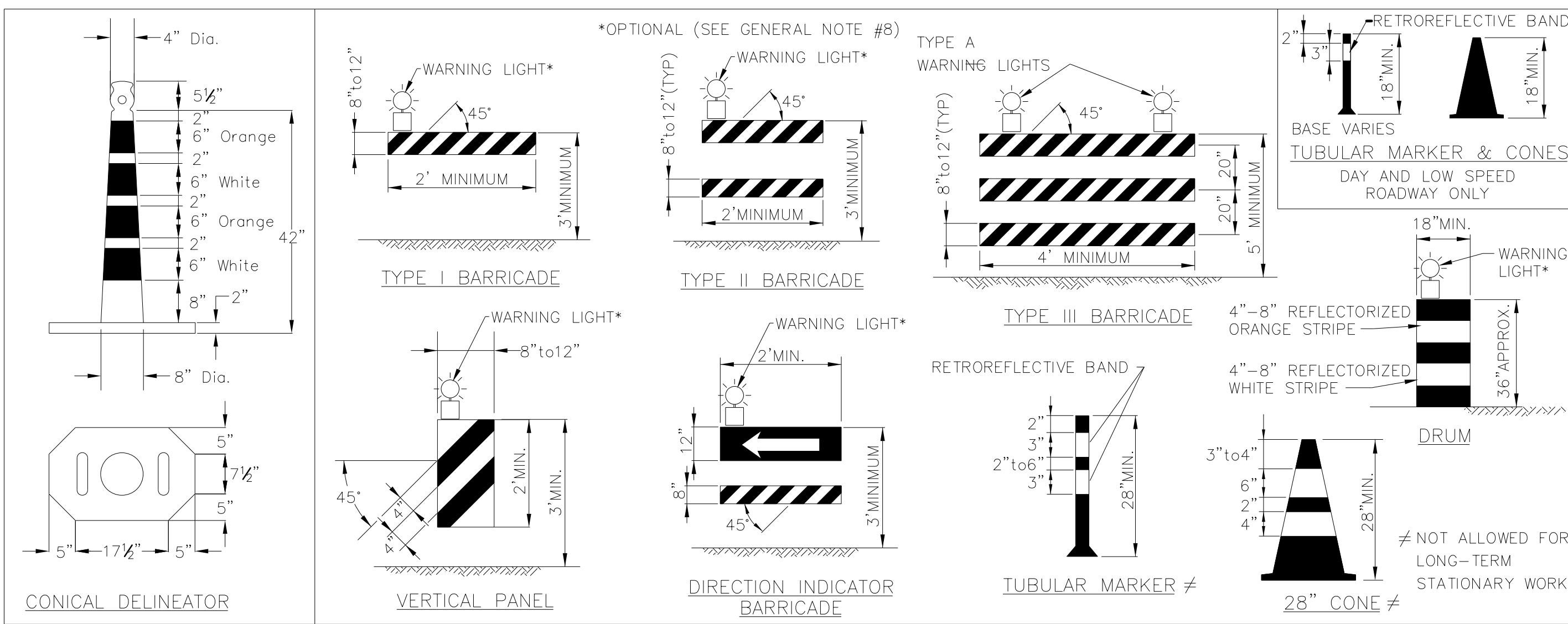
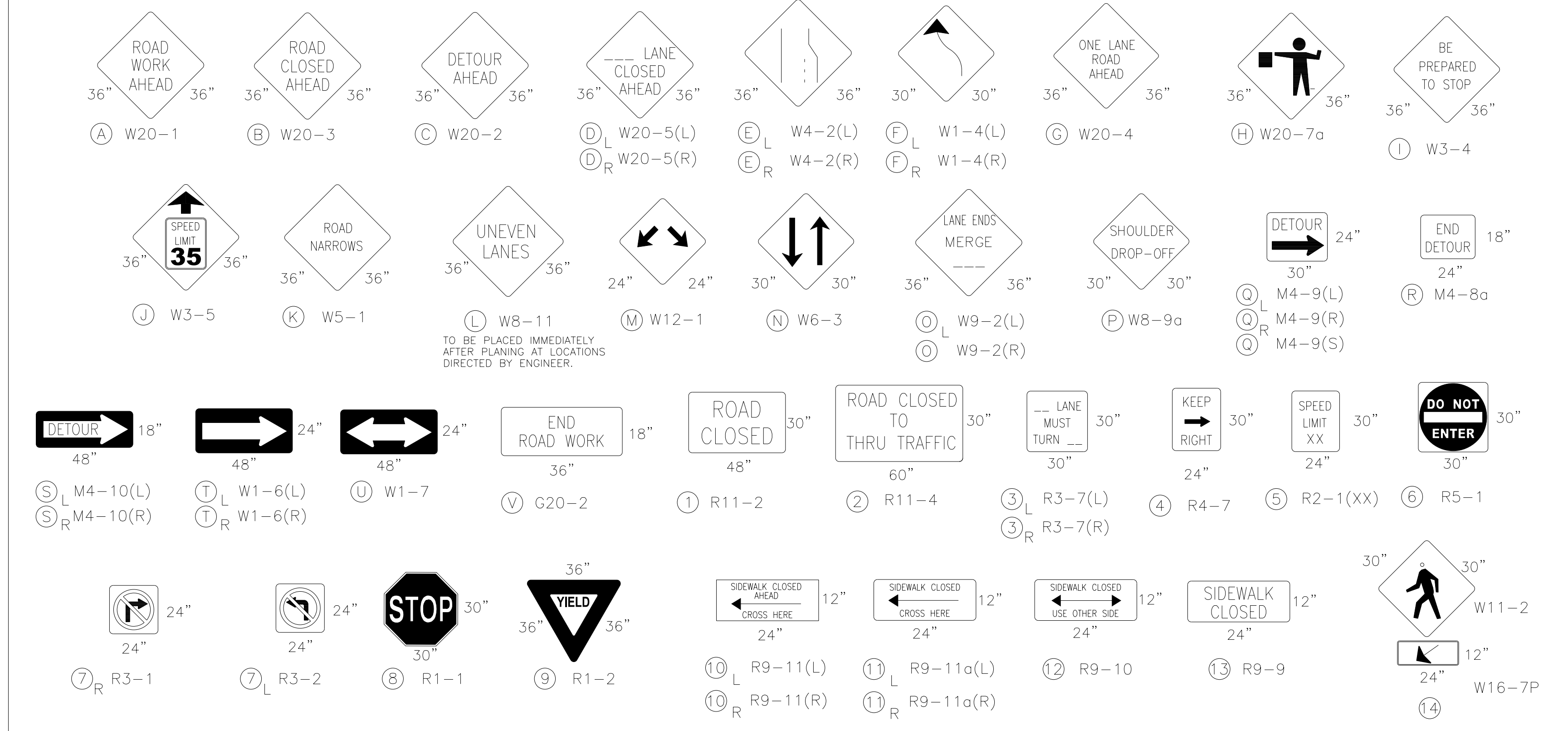
- All traffic control devices shall be fabricated and installed in accordance with the M.U.T.C.D., N.C.H.R.P 350 and the City of Overland Park "Traffic Control Handbook for Maintenance and Construction Operations" latest editions. This traffic control plan (T.C.P.) will cover a major portion of the work involved in this project. The contractor may develop his own T.C.P upon submission and approval by the engineer before it can be implemented for this project.
- All orange construction signs shall be reflectorized with fluorescent orange prismatic grade retroreflective sheeting. All regulatory signs used in the construction traffic control shall be reflectorized with micro-encapsulated prismatic retroreflective sheeting. All type I, II, III and indicator barricades and channelizing devices shall be reflectorized with a Kansas Department of Transportation approved high intensity grade retroreflective sheeting. White bands on conical delineators, tubular markers, drums and cones shall be Kansas Dept. of Transportation approved High Intensity grade retroreflective sheeting. Orange bands shall be fluorescent prismatic grade sheeting. All markings shall be reflectorized with glass beads.
- All barricades 3' in length or longer shall have 6" wide stripes of alternating high intensity grade retroreflective white and orange sheeting. All barricades less than 3' in length shall use 4" wide stripes.
- Drums, conical delineators, direction indicator barricades, and type I or II barricades are acceptable channelization devices for use in tapers and transition areas.
- Vertical panels, 28" retro-reflective cones and 28" retro-reflective tubular markers may be used for taper channelization and transition areas where space restrictions don't allow for other more visible devices or for short duration maintenance or utility work. 18" reflectorized orange tubular markers or non-reflective 18" orange cones may be used during daylight construction or under low speed conditions only.
- Type III barricades shall be used at street closings at the point of closure, and where new streets, under construction, connect to an existing street.
- The spacing of channelizing devices should not exceed a distance in feet equal to the speed limit for taper channelization, and when used in tangent channelization areas.
- Warning lights shall be used at night on all barricades and shall conform to the latest edition of the M.U.T.C.D. and N.C.H.R.P. 350 for crashworthiness. Flashing warning lights shall be used when barricades or drums are used singly. Steady burn lights shall be used when channelizing devices are used in a series, i.e. lane closure, delineation of edge of traveled construction, etc.
- Properly equipped flaggers shall be used to direct traffic for a lane closure of a two-lane street when construction vehicles are entering and exiting the work area or at other locations as directed by the City. Flaggers' clothing and equipment shall conform to the latest edition of the M.U.T.C.D.
- Advance warning arrow displays shall be used at all lane closures on multilane streets but should not be used in lieu of proper traffic control signs, barricades, or channelizing devices. Preferred placement of the arrow display should be at the start of the taper area.
- Traffic control devices when not in use shall be completely covered or removed from the construction site.
- The contractor shall be responsible for maintaining all traffic control devices on an around the clock basis, whether or not work is actively being pursued and any deficiencies noted shall be corrected immediately.
- The traffic control requirements shown on these plans are minimum requirements only and do not attempt to address in depth the variety of situations that may occur once construction has started. In no way do the requirements shown on these plans relieve the contractor of his responsibility for selecting the proper traffic control devices and implementation procedures that will assure the safety of motorists, pedestrians, and workers at all times. Any additional quantities of traffic control devices necessary to complete the contract or as ordered installed by the engineer shall be considered subsidiary to the contract Lump Sum bid price.
- Should the contractor fail to enforce the traffic control plan or fail to clean, repair, replace or otherwise maintain the traffic control devices when directed to do so by the engineer or his representative, the City may take one or more of the following actions:
  - Employ another agency to correct deficiencies in signing or warning devices and deduct the cost from the contractor's pay estimate.
  - Suspend all pay estimates until deficiencies are corrected.
  - Stop the work until deficiencies are corrected.
  - Place the contractor in default.
- Any existing permanent signs removed by the contractor for construction purposes other than stop, yield and street name signs shall be returned to the city of overland park maintenance facilities. All stop, yield and street name signs removed shall be temporarily erected in the appropriate locations (no less than 7 feet vertical from grade) until the permanent signing can be installed. Any temporary stop or yield sign installation to be left in place overnight will require prior approval from the engineer.
- Any permanent sign or existing pavement markings that conflict with this traffic control plan shall be covered, obliterated or removed as directed by the engineer.
- The contractor shall provide as many barricades with appropriate warning lights as needed to effectively protect pedestrians or traffic from exposed objects or excavations. Lighted barricades shall be used at removed sidewalk sections and temporary rock placed for a walking surface until concrete is placed.
- During all construction periods, the contractor shall have at the jobsite all necessary traffic control devices (appropriate signs, lighted arrow display, channelizing devices, etc.) to properly close at least one lane of traffic.
- Any two consecutive drop-off conditions that exist within 50' or more of each other will be considered as one hazard and will require type "C" lights on standard devices in a series. Any drop-off condition 100' or more in length will also require type "C" lights on standard devices to delineate traffic from the hazard. Any drop-off condition existing under 50' in length will require type "A" lights on standard devices used singly to warn of the hazard. These requirements shall apply to any drop-off greater than three inches in height. Appropriate warning signs (SHOULDER DROP-OFF) shall be placed in advance of the hazard.
- All W20-1 advance warning signs shall be post mounted.
- Place G20-2 signs 250' minimum past construction. If the G20-2 sign will be less than 1,000 feet from other construction improvements, it can be omitted. Placement of advance work zone signing shall be as indicated in the "advance warning signing spacing" table based on the speed of the facility.

**Construction Requirements:**

- Construction shall be sequenced to provide the least possible adverse effect to residences.
- Construction materials shall be kept off sidewalks and consolidated in areas within the City right-of-way unless otherwise approved by the engineer.
- Mud and construction debris on streets or sidewalks shall be cleaned off immediately.
- Access shall be maintained to all drives and side streets or as indicated in the traffic control plan.
- Construction vehicles shall be parked along streets so as not to restrict sight distance for vehicles exiting at streets or any drives.
- The contractor shall be responsible for contacting the following emergency services advising them of all street closure locations and times:
 

Fire Station	888-6066
Fire Emergency Communications	432-1717
Police Dispatch	895-6300
Med Act	491-1600
- No construction shall be performed on holidays and weekends unless prior approval is received in writing from the engineer.
- The contractor is responsible for avoiding any and all utilities when setting sign posts and will be required to coordinate his activities with any and all utility companies whether their facility is indicated on the plans or not.
- Street plates, when used shall be A36 certified steel at least 1" thick with lift hooks and securely fastened to the pavement with stakes, pins or asphalt wedge course.
- Any construction activities which require the closing of a lane of traffic on thoroughfares (arterial streets) or collector streets shall not occur during the hours of 7:00 a.m. to 8:30 a.m. and 4:00 p.m. to 6:00 p.m. or on holidays or weekends unless prior approval is received through the City Engineer or if there are emergency repairs necessary by a utility company or their representative.
- There shall be no work within 500 feet of any signalized intersection between the hours of 6:30 a.m. and 8:00 a.m.
- Mill and Overlay operations shall be performed between the hours of 10:00 p.m. and 6:00 a.m. Sunday through Thursday unless otherwise indicated in the plans or approved by the engineer in charge of construction.

**CONSTRUCTION SIGNS**



**LENGTH AND DEVICE SPACING FOR LANE CLOSURE AND CHANNELIZATION TAPERS**

SPEED LIMIT	MINIMUM TAPER LENGTH (L)**				MIN. NO. OF DEVICES FOR TAPER (12FT. LANE)	MAXIMUM DEVICE SPACING
	LANE WIDTH IN FEET	10	11	12		
20	70	75	80	5	20	
25	105	115	125	6	25	
30	150	165	180	7	30	
35	205	225	245	8	35	
40	270	295	320	9	40	
45	450	495	540	13	45	
50	500	550	600	13	50	
55	550	605	660	13	55	

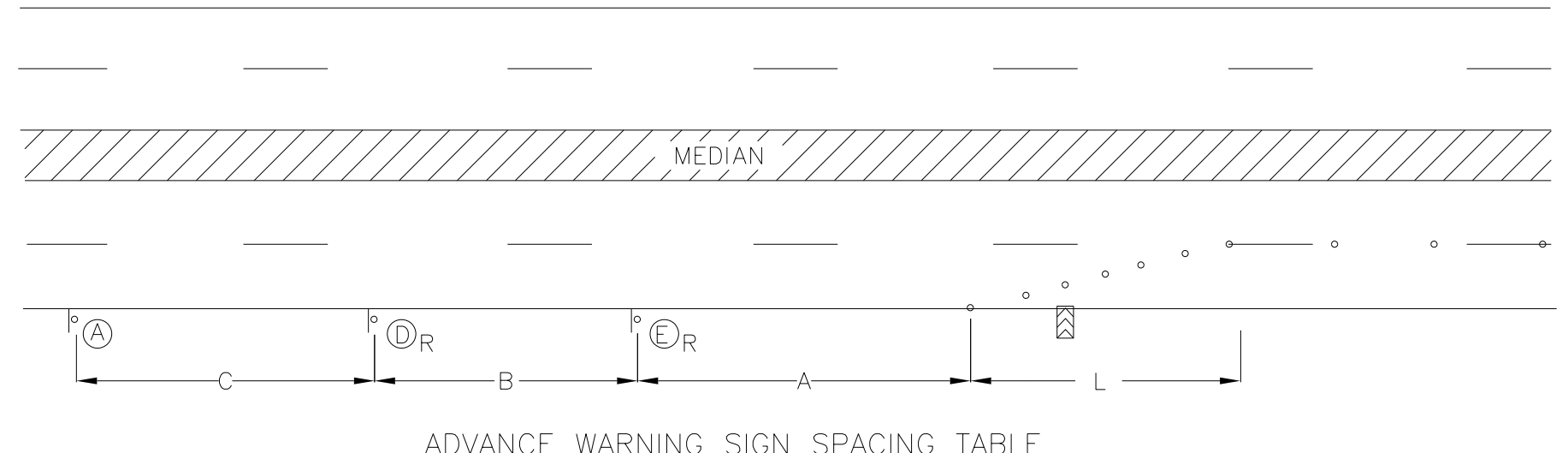
\*\*NOTE: TAPER FORMULA -  $L = \frac{S \times W}{L}$   $S \geq 45$  MPH  
 $L = \frac{S^2 \times W}{60}$   $S \leq 40$  MPH

WHERE  
 L = MINIMUM TAPER LENGTH  
 S = POSTED SPEED LIMIT (PRIOR TO CONSTRUCTION)  
 W = WIDTH OF OFFSET

**DISTANCE BETWEEN SIGNS\*\***

ROAD TYPE	DISTANCE BETWEEN SIGNS**		
	A	B	C
RESIDENTIAL AND COLLECTOR (30 MPH AND UNDER)	100'	100'	100'
URBAN ARTERIALS (35 MPH TO 45 MPH)	350'	350'	350'
URBAN ARTERIALS (50 MPH AND OVER)	350'	350'	350'
RURAL ROADS (40 MPH AND OVER)	500'	500'	500'

\*\* THE COLUMN HEADINGS A, B, AND C ARE THE DISTANCES BETWEEN ADVANCED WARNING SIGNS AND RESTRICTION POINTS AS INDICATED BELOW.



TYPE	MIN. SIZE	MIN.# LAMPS	USAGE
A	48"x24"	12	LOW SPEED STREETS 25-30 MPH
B	60"x30"	13	INTERMEDIATE SPEED STREETS 35-45 MPH
C	96"x48"	15	HIGH SPEED STREETS 50-55 MPH

ARROW DISPLAY SHALL BE SET IN THE (LEFT OR RIGHT) SEQUENTIAL CHEVRON MODE FOR LANE CLOSURES.

ARROW DISPLAY SHALL BE SET IN THE CAUTION MODE FOR WORK NEAR ROADSIDE.

USE OF A TYPE "C" PANEL AT AN "A" OR "B" LOCATION OR USE OF A TYPE "B" PANEL AT AN "A" LOCATION IS ALLOWABLE.

**ARROW DISPLAY**

All information appearing on this sheet is intended only for use on this project and shall not be duplicated, disclosed, or otherwise used without the written consent of the City of Overland Park, Kansas.

CITY OF OVERLAND PARK  
DEPARTMENT OF PUBLIC WORKS

TRAFFIC CONTROL INSTALLATION

TRAFFIC CONTROL DETAILS

DESIGNED: BLW		LAST REVISED: 12/15/08	
DETAILED: TLL		SCALE	SHEET
CHECKED: BCS		1" = N.T.S. horz.	00 of 00
APPROVED: BCS		1" = N.T.S. vert.	

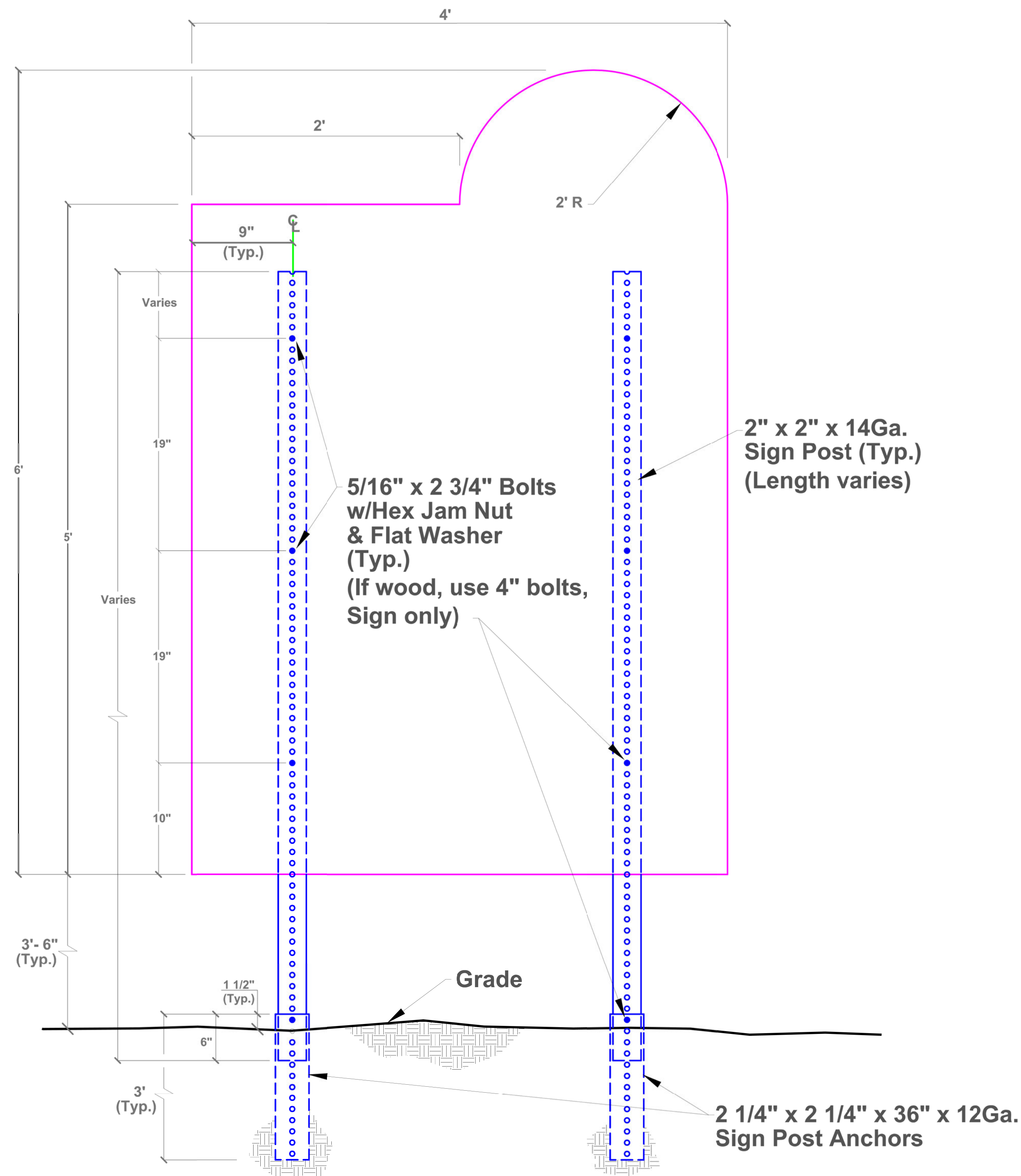
PROJECT NO.	BR-1377
DRAWN BY	AFR DATE 11/2012
CHECKED BY	TMR DATE 2/2013
DESIGNED BY	AFR DATE 11/2012
REVISIONS	DATE

ISSUE DATE

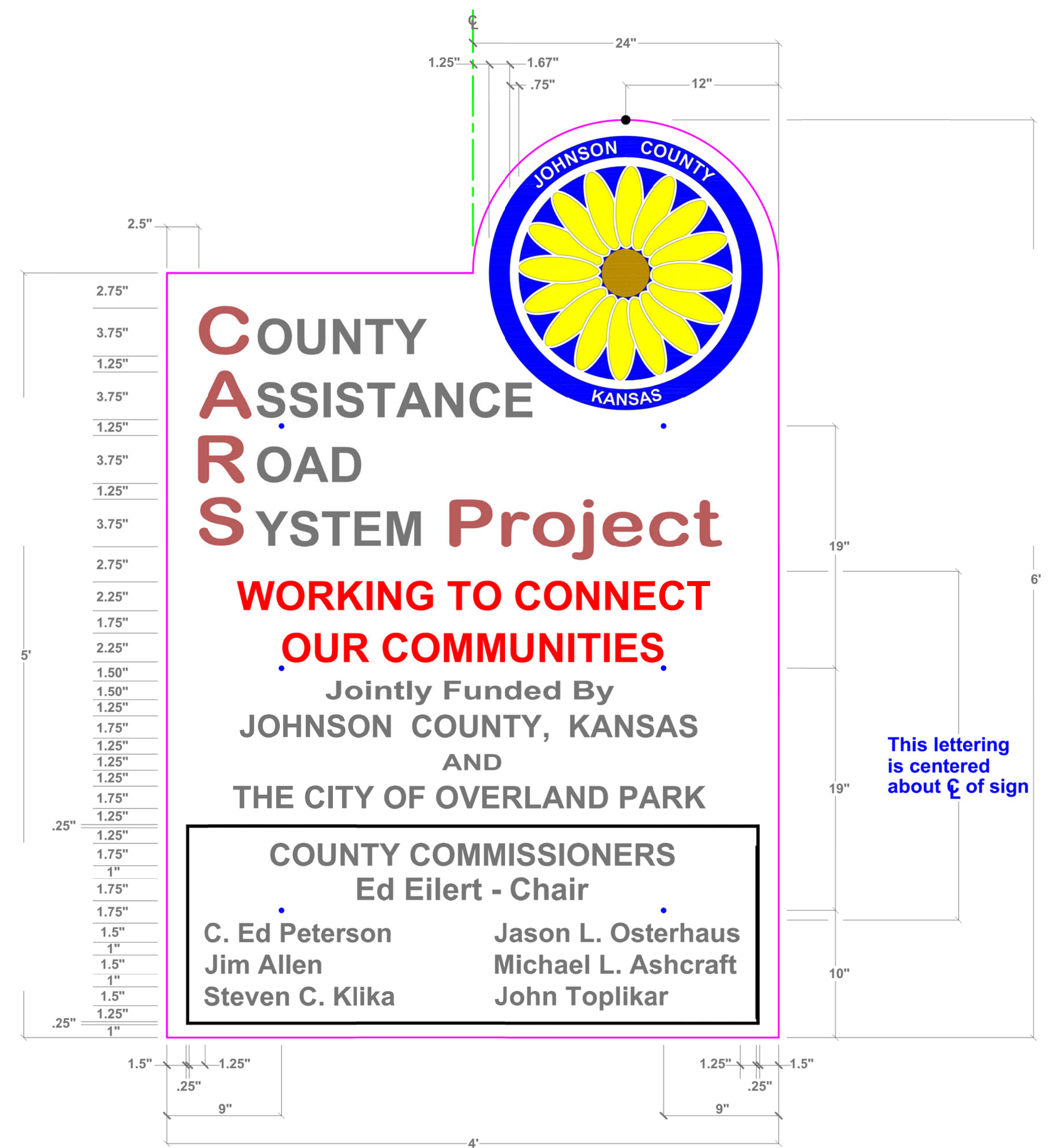
**TRAFFIC CONTROL DETAILS**

**40**





**NOTE :**  
 LOCATION OF SIGN TO BE DETERMINED BY THE ENGINEER.  
 SIGN TO BE ERCTED PRIOR TO ANY CONSTRUCTION ACTIVITY; MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION AND REMOVED UPON COMPLETION OF THE PROJECT.  
 NAME OF THE CO-OPERATING CITY TO BE SUPPLIED BY THE ENGINEER.  
 IF METAL IS USED, THE SIGN SHALL BE .080 GA ALUMINUM , SHEETED WITH AVERY WHITE PC500-101-0 VINYL.  
 IF WOOD IS USED, THE SIGN SHALL BE 3/4" MDO, 1 SIDE PREPRIMED WITH FACE & EDGES PAINTED WITH SHERWIN WILLIAMS KEM LUSTRUL PAINT, F65W1GLSWHT (WHITE).  
 ALL SIGN HARDWARE AND INSTALLATION IS AS PER KDOT DETAIL DWG. TE466 (Details for Perforated Square Steel Tube Posts (PSST) 7-1-03)



**Lettering - Color / Font As Follows:**  
 (to be sized as shown)  
 Dark Brown Vinyl - Avery (UC-900-995-0) / Swis 721 EX BD:  
 C  
 A  
 R  
 S Project  
 Black Opaque Vinyl - Avery (PC-500-190-0) / Arial Bold:  
 UNTY, SSISTANCE, OAD, YSTEM  
 Jointly Funded By  
 JOHNSON COUNTY, KANSAS  
 AND  
 THE CITY OF OVERLAND PARK  
 COUNTY COMMISSIONERS  
 Cardinal Red Opaque Vinyl - Avery (HP-700-430-0) / Arial Bold:  
 WORKING TO CONNECT  
 OUR COMMUNITIES

**Johnson County (Sunflower) Logo:**  
 Vibrant Blue - Avery HP-700-608-0):  
 Johnson County Logo Background  
 Dark Brown - Avery (UC-900-995-0):  
 Sunflower Center  
 Yellow - Avery (UC-900-240-0):  
 Sunflower

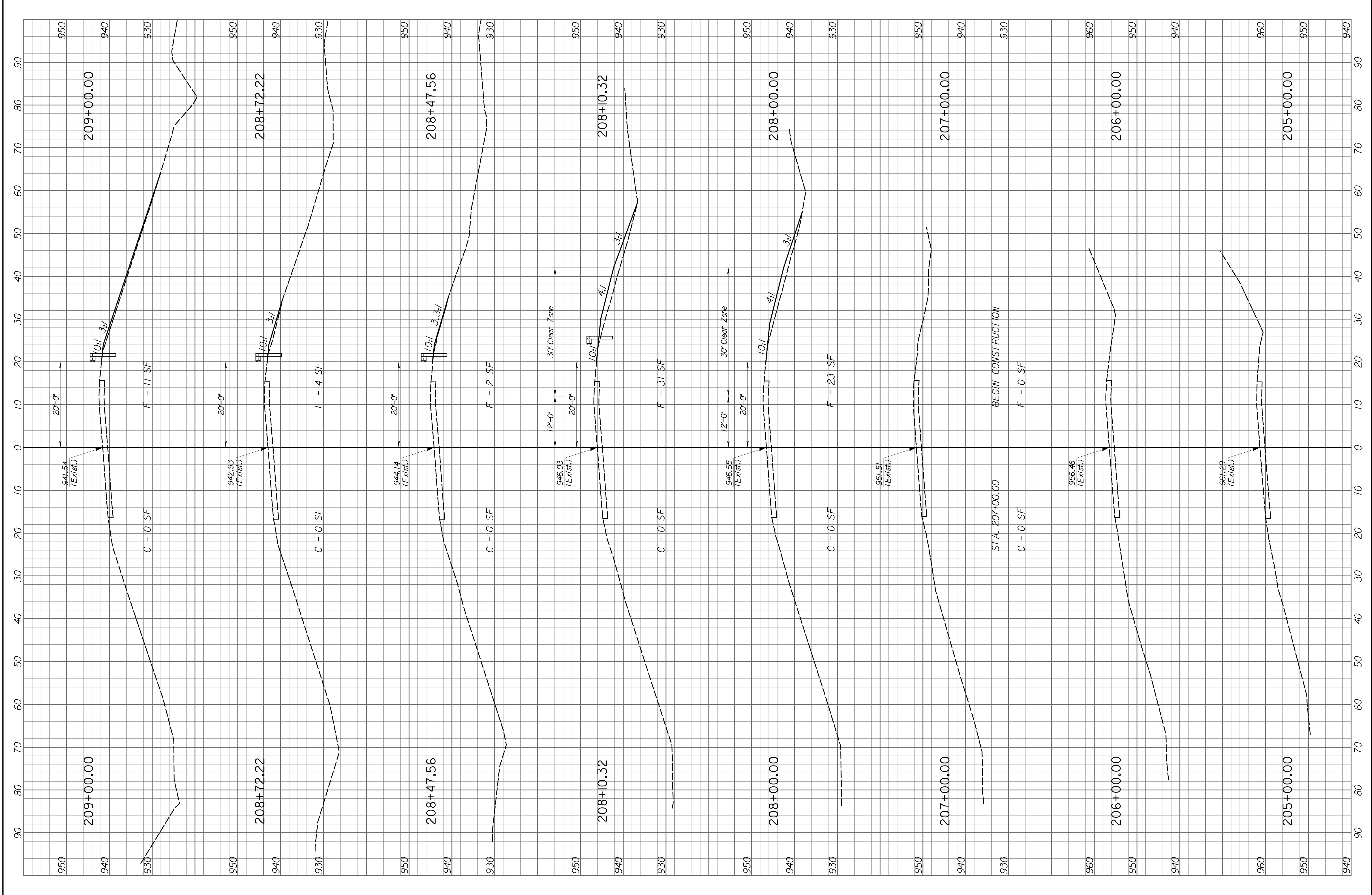
**LOCHNER**  
 903 East 104th Street | Suite 800 | Kansas City, MO 64131

CITY OF OVERLAND PARK, KANSAS  
 METCALF BRIDGE REDECKING  
 METCALF AVENUE OVER BLUE RIVER

PROJECT NO.	BR-1377
DRAWN BY	AFR 5/2013
CHECKED BY	MAH 5/2013
DESIGNED BY	AFR 5/2013
REVISIONS	

CARS PROJECT SIGN

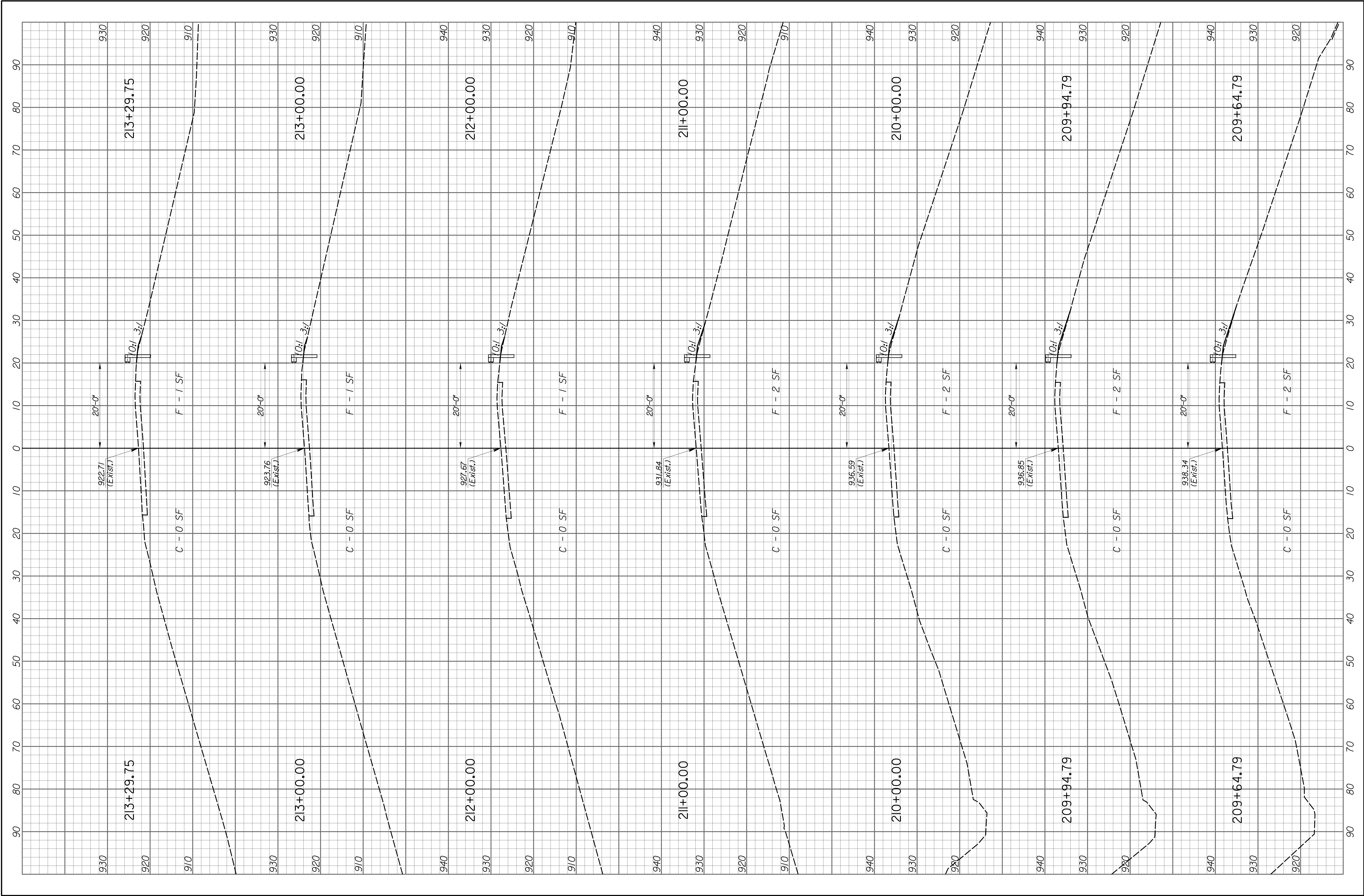
41



**CITY OF OVERLAND PARK, KANSAS**  
**METCALF BRIDGE REDECKING**  
**METCALF AVENUE OVER BLUE RIVER**

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	

ISSUE DATE  
**CROSS SECTIONS**  
**STA. 205+00.00 TO**  
**STA. 209+00.00**

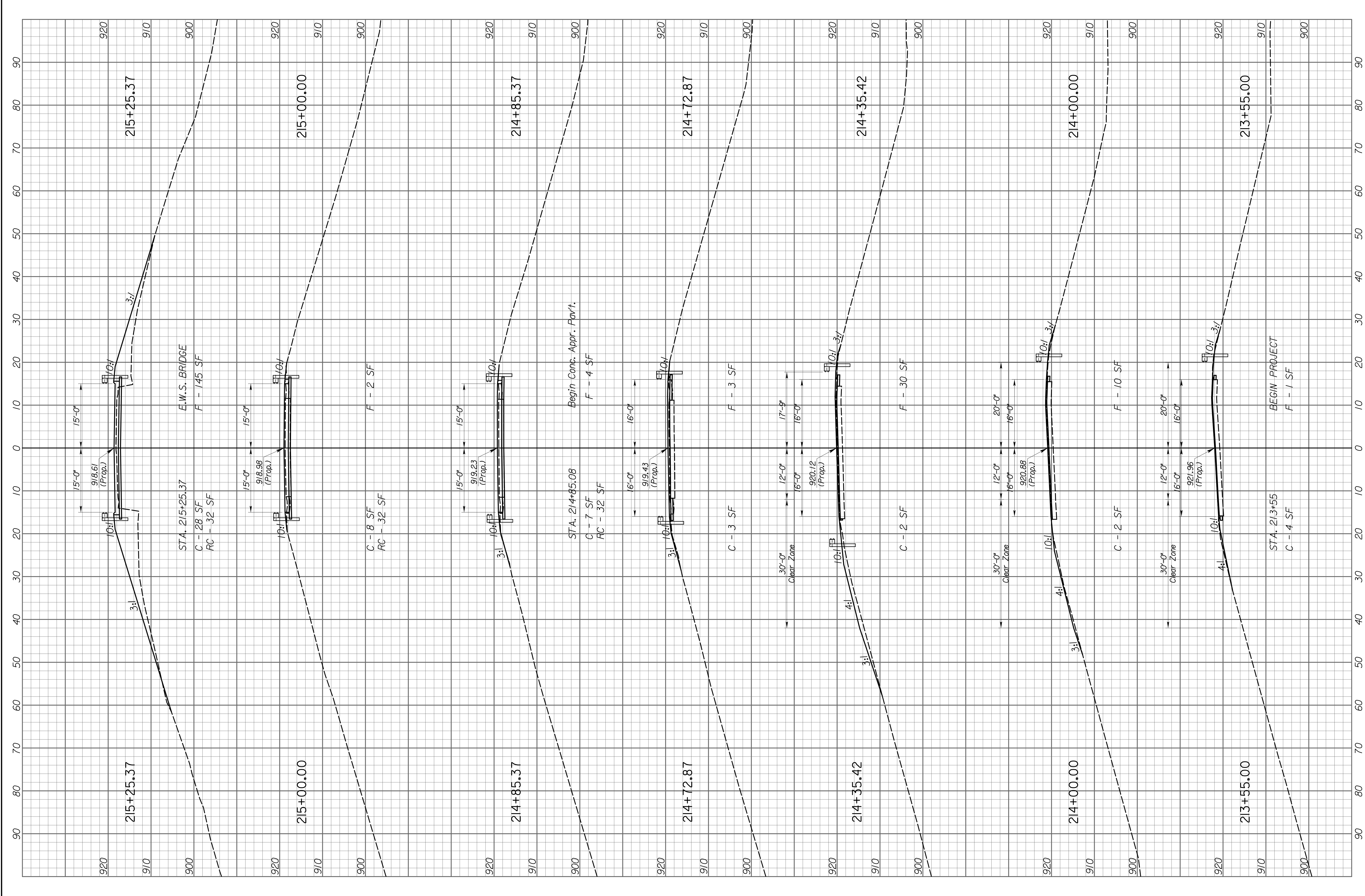


**CITY OF OVERLAND PARK, KANSAS**  
**METCALF BRIDGE REDECKING**  
**METCALF AVENUE OVER BLUE RIVER**

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	

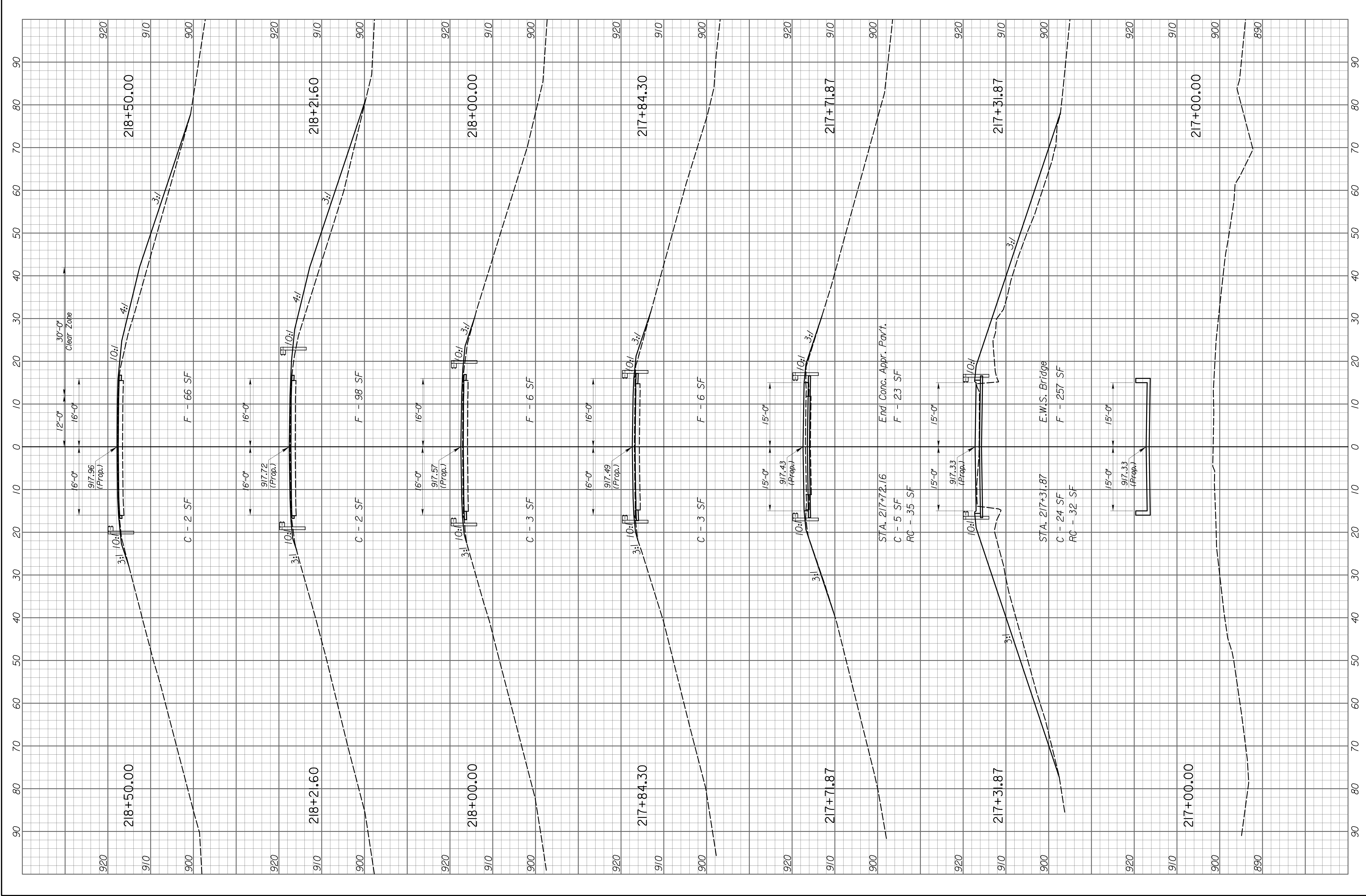
ISSUE DATE	
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**CROSS SECTIONS**  
**STA. 209+64.79 TO**  
**STA. 213+29.75**



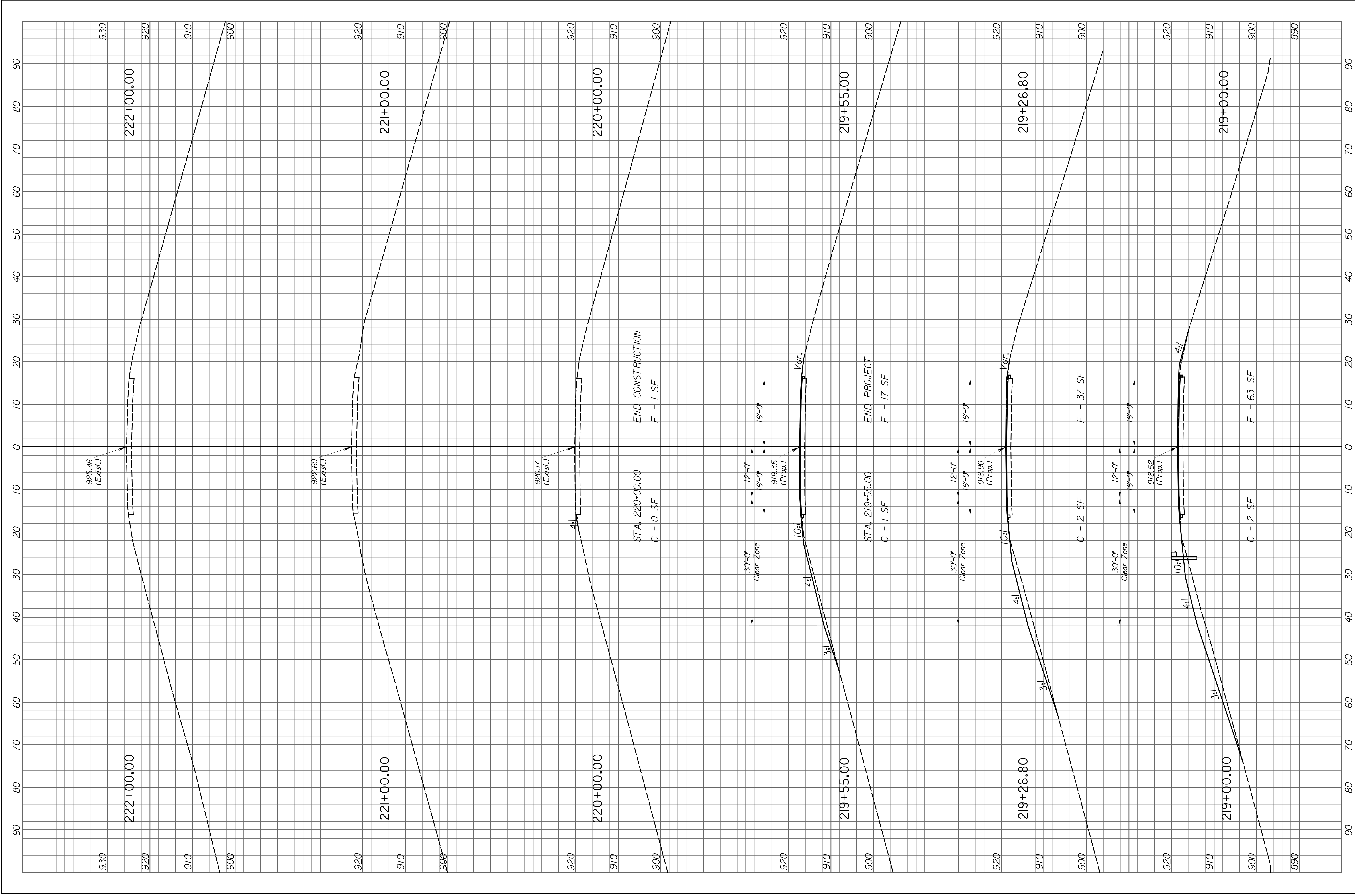
**CITY OF OVERLAND PARK, KANSAS**  
**METCALF BRIDGE REDECKING**  
**METCALF AVENUE OVER BLUE RIVER**

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	
ISSUE DATE	
<b>CROSS SECTIONS</b> STA. 213+55.00 TO STA. 215+25.37	



**CITY OF OVERLAND PARK, KANSAS**  
**METCALF BRIDGE REDECKING**  
**METCALF AVENUE OVER BLUE RIVER**

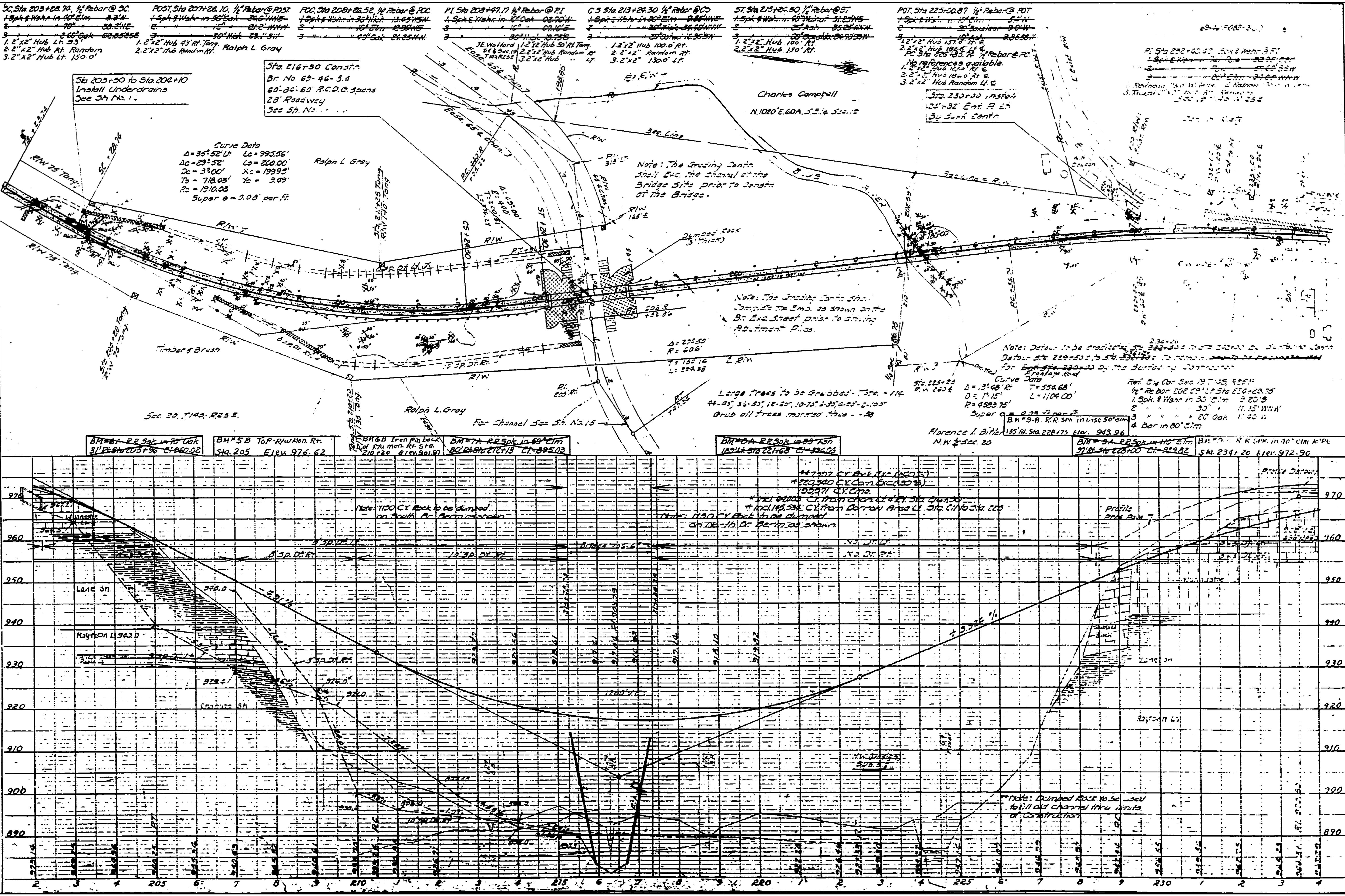
PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	TMR 2/2013
DESIGNED BY	AFR 1/2013
REVISIONS	
ISSUE DATE	



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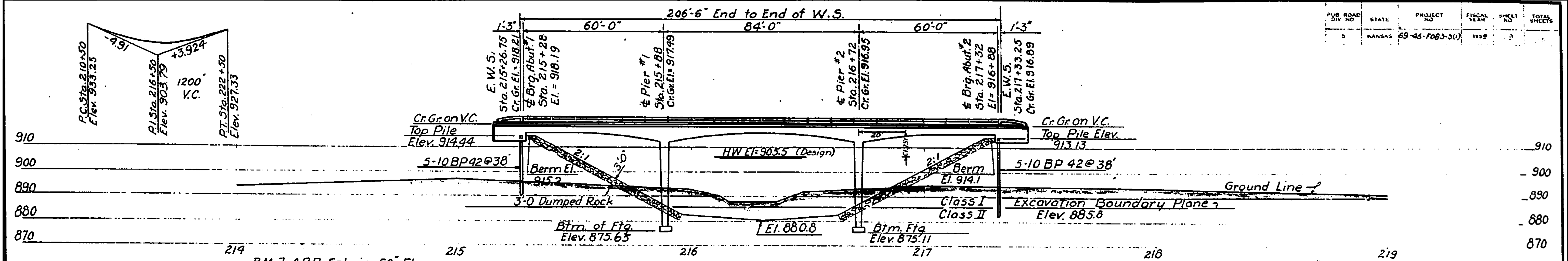


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CITY OF OVERLAND PARK, KANSAS  
**METCALF BRIDGE REDECKING**  
**METCALF AVENUE OVER BLUE RIVER**

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	DAE
DESIGNED BY	AFR 1/2013
REVISIONS	DAE
ISSUE DATE	
EXISTING PLANS	
PLAN AND	
PROFILE	



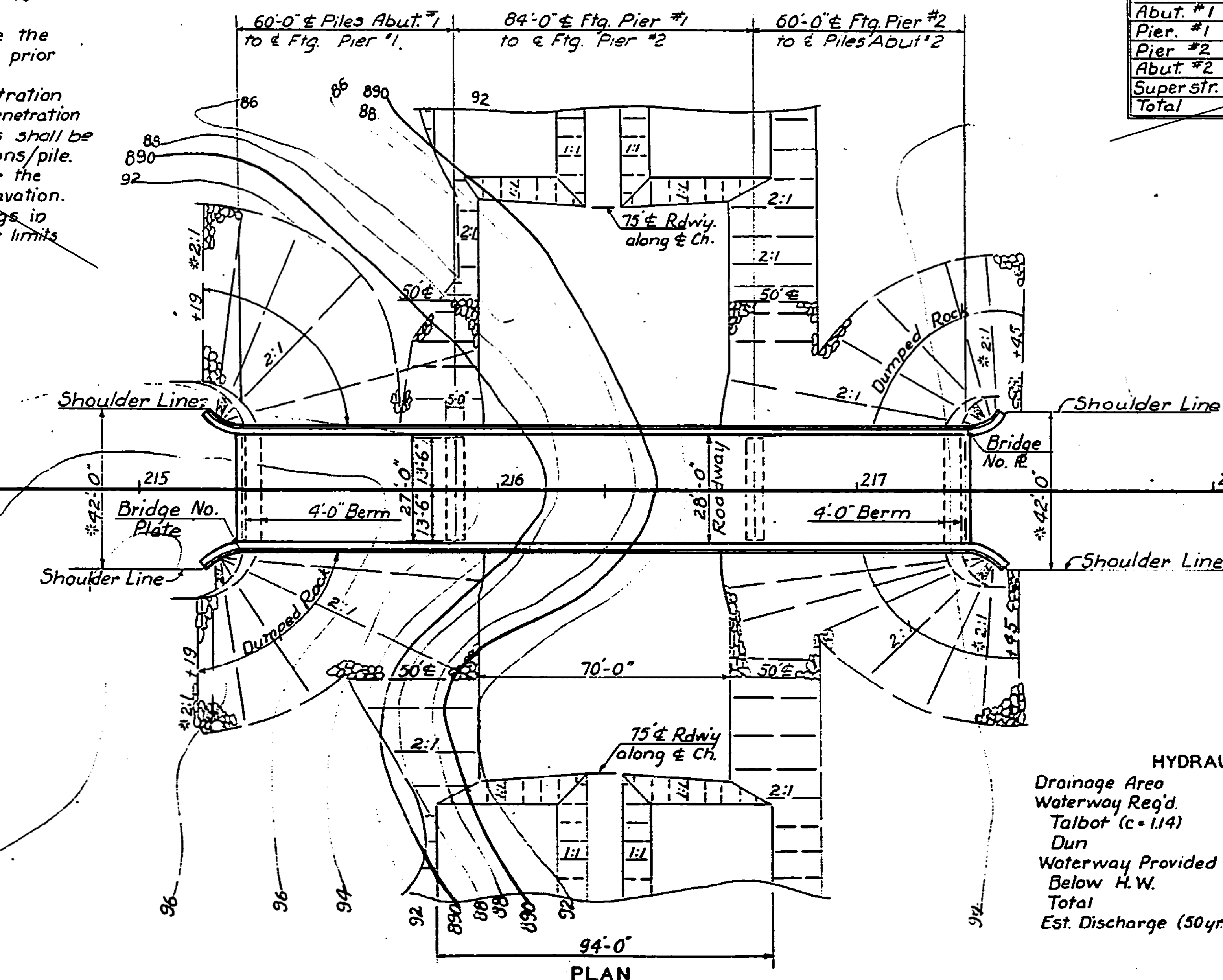
PUB. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
0	KANSAS	69-46-F083-3(1)	1958	3	3

**GENERAL NOTES**

**LOADING:** H20-S16-44 A.A.S.H.O. Specifications, Edition of 1957.  
**UNIT STRESSES:**  $f_s = 20,000$  p.s.i.;  $f_c = 4,000$  p.s.i.;  $f_r = 1,600$  p.s.i.  
**CHANNEL CHANGE:** The Grading Contractor shall excavate the channel at the Bridge Site to the limits shown prior to construction of the bridge.  
**EMBANKMENT:** The Grading Contractor shall complete the embankment as shown on the Bridge Excavation sheet prior to driving abutment piles.  
**PILES:** All Abutment Piles shall be driven to a penetration into shale unless in the opinion of the Engineer such penetration cannot be obtained without injury to the pile. All piles shall be driven to a minimum computed bearing value of 37 Tons/pile.  
**BRIDGE EXCAVATION:** Elevation 885.8 shall designate the Excavation Boundary Plane of Class I and Class II excavation. Class I above the plane, Class II below. Excavate footings in shale to neat lines. See Bridge Excavation sheet for limits of pay excavation.

	Excavation		Class AAA Conc.	Class AAA Conc. (AE)	Reinf. Steel	Cast Iron	Piles Lin.	Alum. Lin. Ft.
	Class I	Class II	Cu. Yds.	Cu. Yds.	Lbs.	Lbs.	Ft.	Lbs.
Abut. #1	50							
Pier #1	5	71	5725				190	
Pier #2	5	79	5725				190	
Abut. #2	50							
Superstr.				3279		217		400
<b>Total</b>	<b>110</b>	<b>150</b>	<b>114.5</b>	<b>3279</b>	<b>108170</b>	<b>217</b>	<b>380</b>	<b>400</b>

\* Includes 10 @ 38'



**HYDRAULIC DATA**

Drainage Area	45.2 sq. mi.
Waterway Reg'd	
Talbot (c = 1.14)	2520 sq. ft.
Dun	1435 sq. ft.
Waterway Provided	
Below H.W.	2520 sq. ft.
Total	4050 sq. ft.
Est. Discharge (50 yr.)	8,000 c.f.s.

STATE HIGHWAY COMMISSION OF KANSAS  
 BRIDGE NO. 69-46-54 STA. 216 + 30

**CONSTRUCTION LAYOUT**  
**BLUE RIVER**

PROJ. NO. 69-46-F083-3(1) JOHNSON COUNTY  
 SHEET NO. 3 OF 3  
 DATE 1/2013  
 DRAWN BY AFR  
 CHECKED BY  
 DESIGNED BY AFR  
 REVISIONS

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CITY OF OVERLAND PARK, KANSAS  
 METCALF BRIDGE REDECKING  
 METCALF AVENUE OVER BLUE RIVER

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	
DESIGNED BY	AFR 1/2013
REVISIONS	

EXISTING PLANS  
 CONSTRUCTION LAYOUT

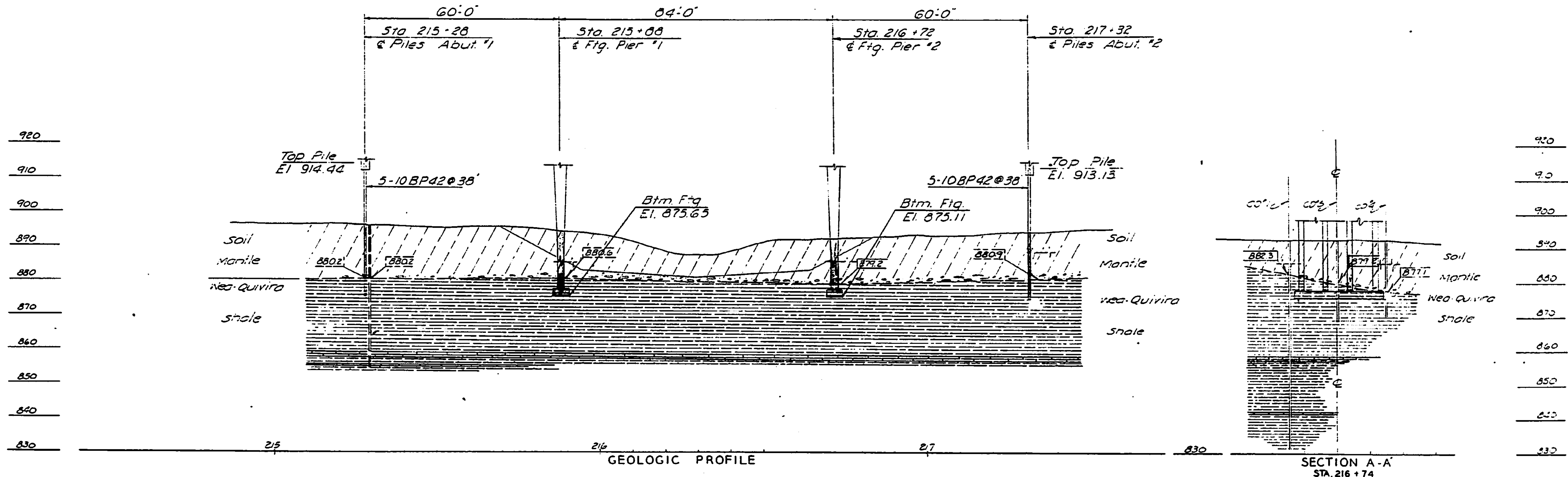
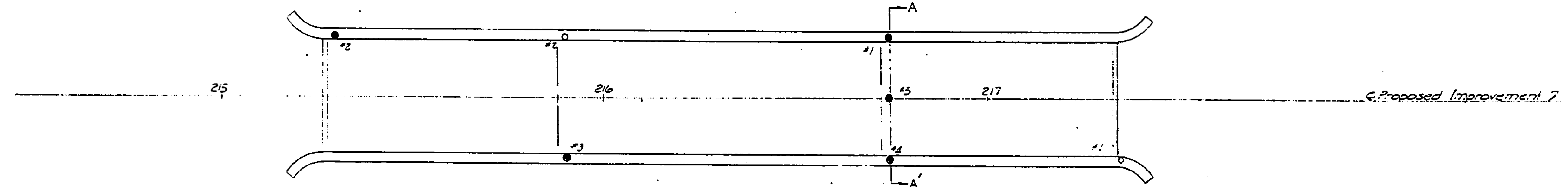
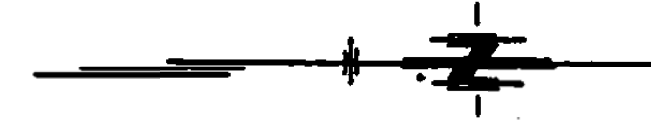


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JOB ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	KANSAS	69-46-F083-3(1)	1959	23	23



LEGEND

- Silt
- Silt with Limestone & Shale fragments
- weathered Shale
- Shale
- Limy Shale
- Limestone

- Drive Test Started
- Test refusal
- Soundings Core drill
- Hand auger
- Elevation interpolated, or from adjacent Soundings
- Actual Soundings elevations
- Water level June 1959

**NOTE:**  
 The soundings shown on these plans are taken from notes obtained in the field and represent the best information available to the Kansas Highway Commission. The logs of these soundings are in the files of the State Highway Commission of Kansas and are available at their offices at Topeka, Kansas for inspection by interested and qualified bidders.

Scale 1" = 15ft. Horiz. 1" = 5ft. Vert.

STATE HIGHWAY COMMISSION OF KANSAS  
 BR. NO. 69-46-54 STA. 216 + 30  
 ENGINEERING GEOLOGY  
 BLUE RIVER BRIDGE

PROJ. 69-46-F083-3(1) JOHNSON CO.  
 SHEET NO. 23 OF 23  
 DESIGNED BY: AFR DATE: 1/2013  
 CHECKED BY: DATE: 1/2013  
 DRAWN BY: DATE: 1/2013

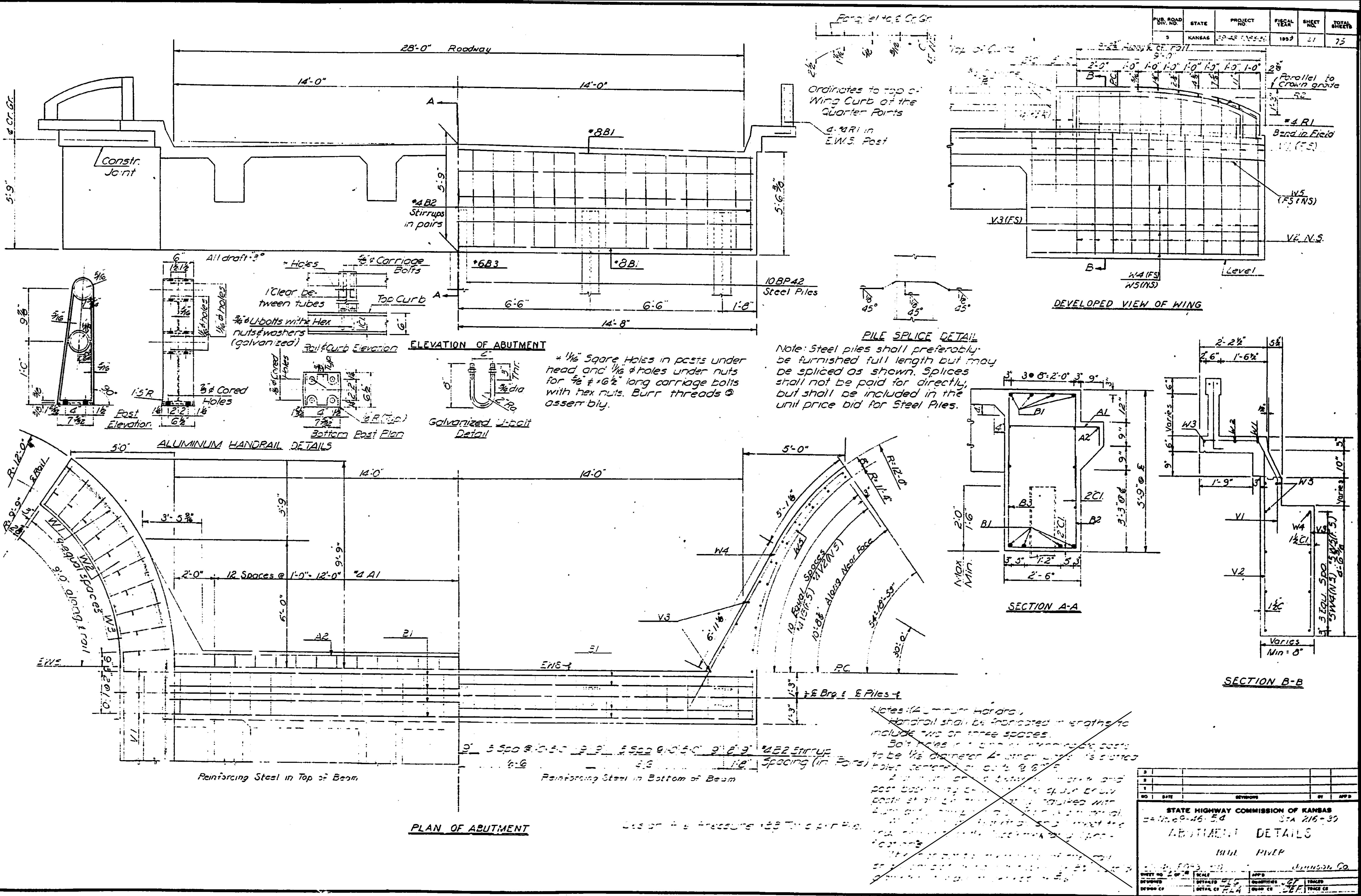
CITY OF OVERLAND PARK, KANSAS  
 METCALF BRIDGE REDECKING  
 METCALF AVENUE OVER BLUE RIVER

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	DATE
DESIGNED BY	AFR 1/2013
REVISIONS	DATE

EXISTING PLANS  
 ENGINEERING  
 GEOLOGY

49

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PR. ROAD NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	KANSAS	SP-45 (P. 55-5)	1997	21	75

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**CITY OF OVERLAND PARK, KANSAS**  
**METCALF BRIDGE REDECKING**  
**METCALF AVENUE OVER BLUE RIVER**

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	DAE
DESIGNED BY	AFR 1/2013
REVISIONS	DAE

EXISTING PLANS  
 ABUTMENT  
 DETAILS

**50**

STATE HIGHWAY COMMISSION OF KANSAS		BR-1377	
SP-45 (P. 55-5)		STA 216-30	
ABUTMENT DETAILS			
BLUE RIVER			
JOHNSON CO.			
SHEET NO.	2 OF 2	SCALE	AS SHOWN
DRAWN BY	AFR	QUANTITIES	CF
DATE	1/2013	BY	DAE

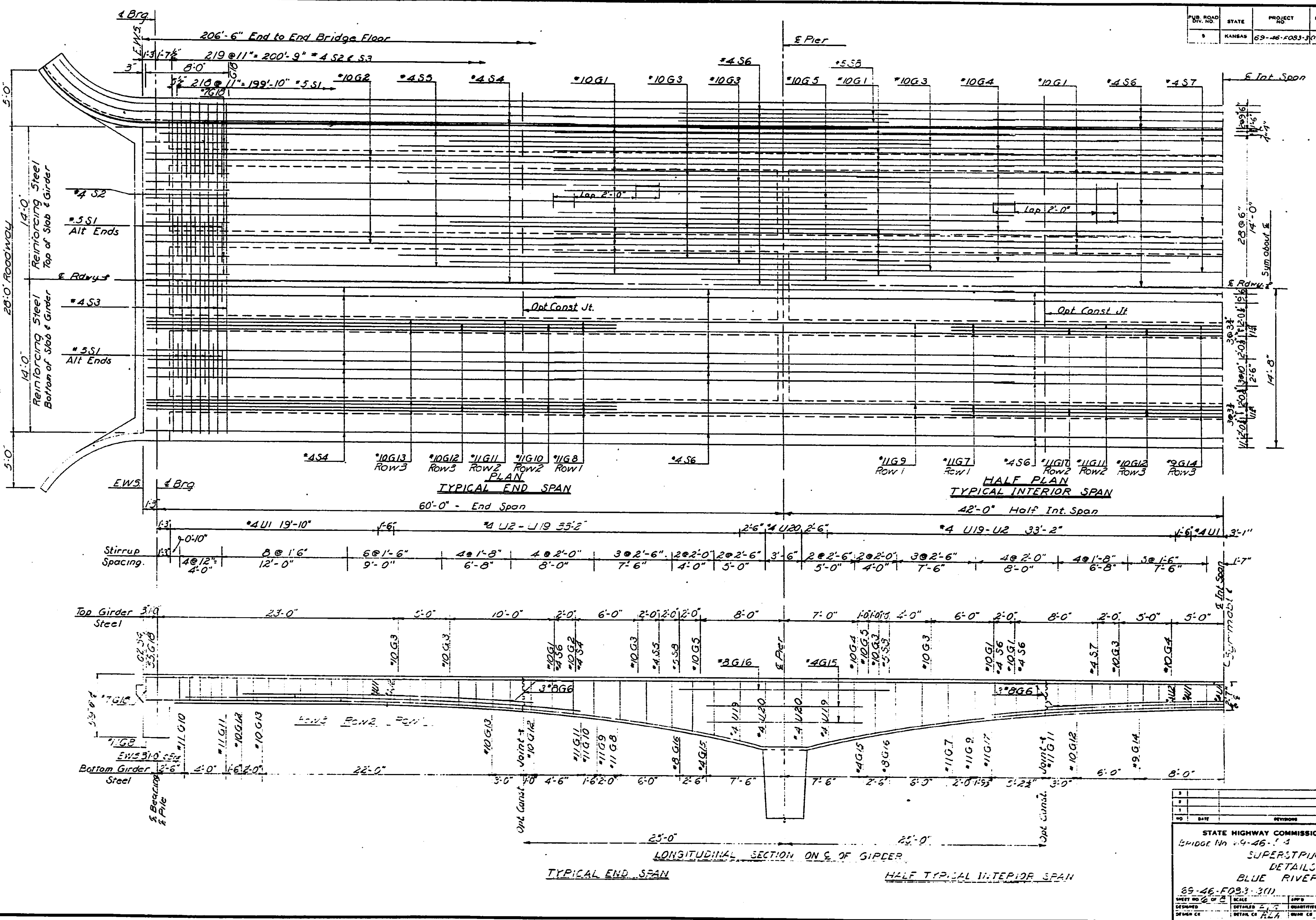


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PUB. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	KANSAS	69-46-FDS3-3	01/1997	23	75



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CITY OF OVERLAND PARK, KANSAS  
 METCALF BRIDGE REDECKING  
 METCALF AVENUE OVER BLUE RIVER

PROJECT NO.	BR-1377
DRAWN BY	AFR 1/2013
CHECKED BY	DAE
DESIGNED BY	AFR 1/2013
REVISIONS	DAE

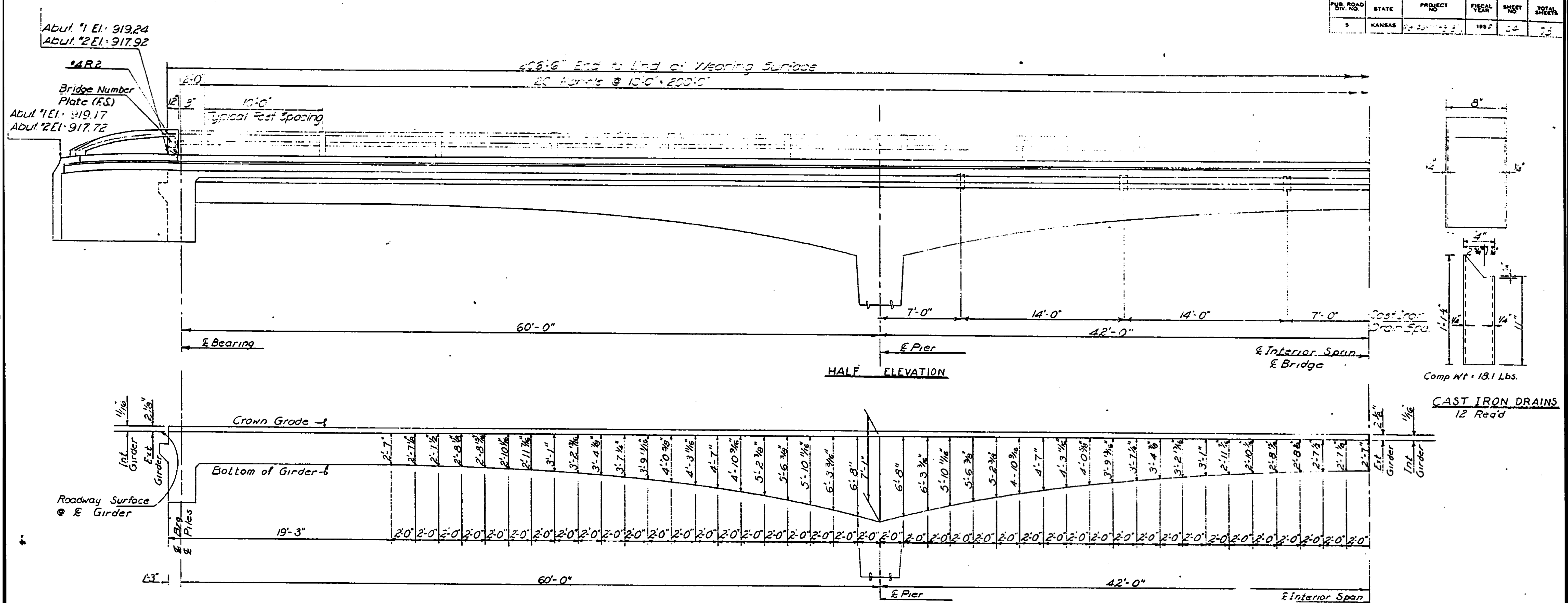
EXISTING PLANS  
 SUPERSTRUCTURE  
 DETAILS

**52**

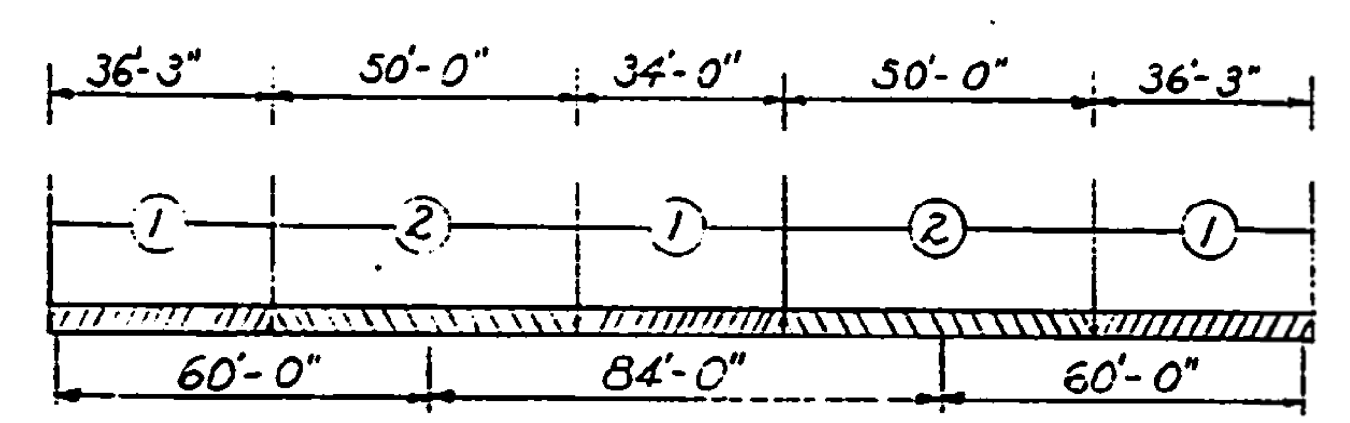
STATE HIGHWAY COMMISSION OF KANSAS  
 BRIDGE No. 49-46-1-3 STA 216+..5  
 SUPERSTRUCTURE  
 DETAILS  
 BLUE RIVER  
 69-46-FDS3-3(1) JOHNSON CO.

SHEET NO. 23 OF 75	SCALE	APP'D
DESIGNED	DATE	QUANTITIES
DRAWN	DATE	TRACES

PR. ROAD NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	KANSAS	2-2-2013-3	1002	22	75

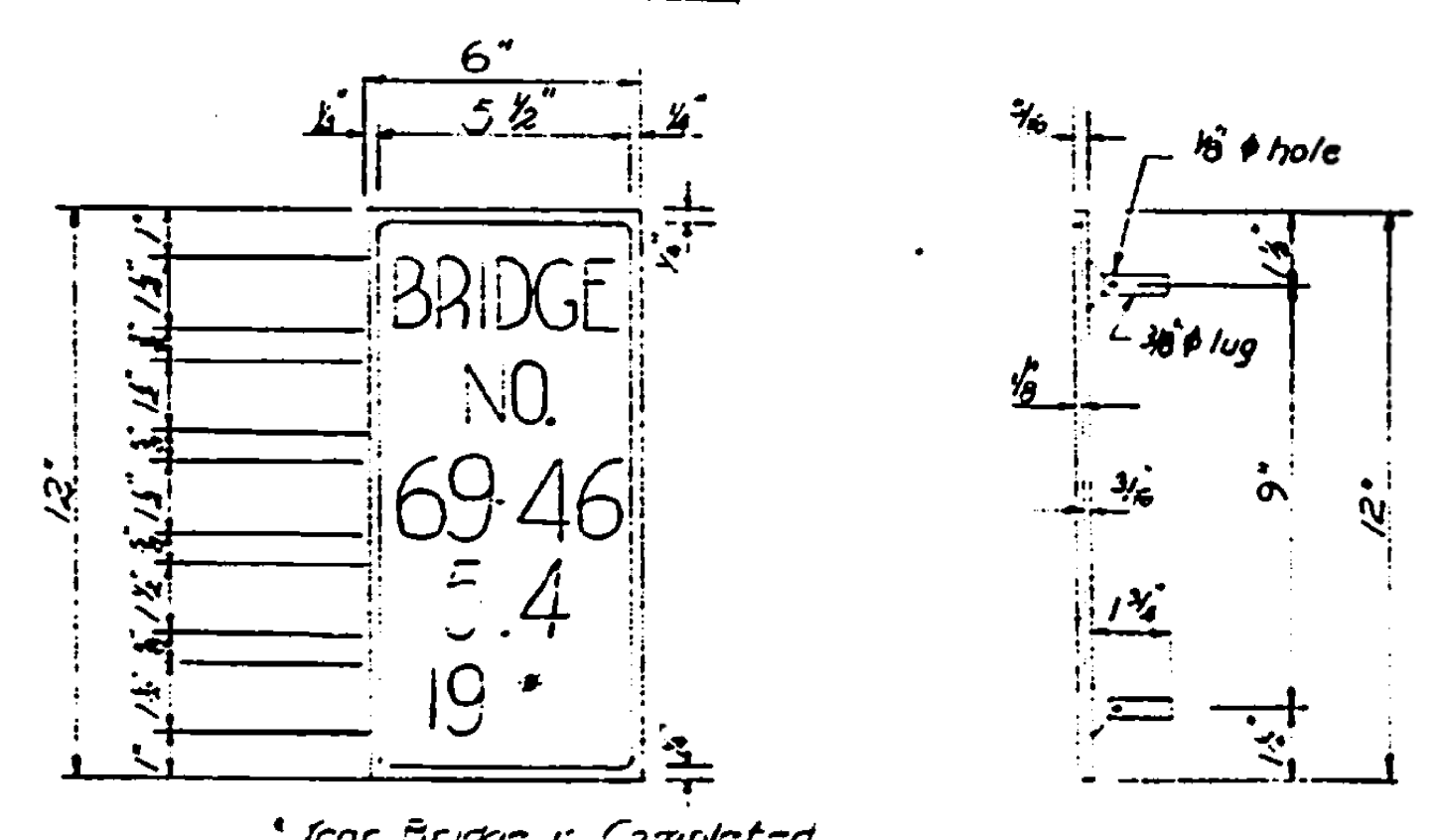
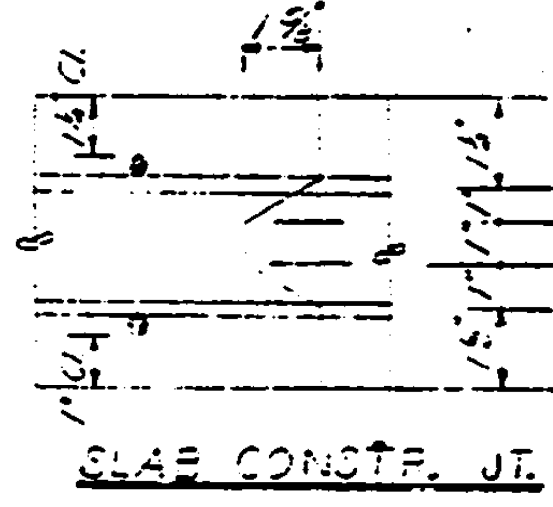
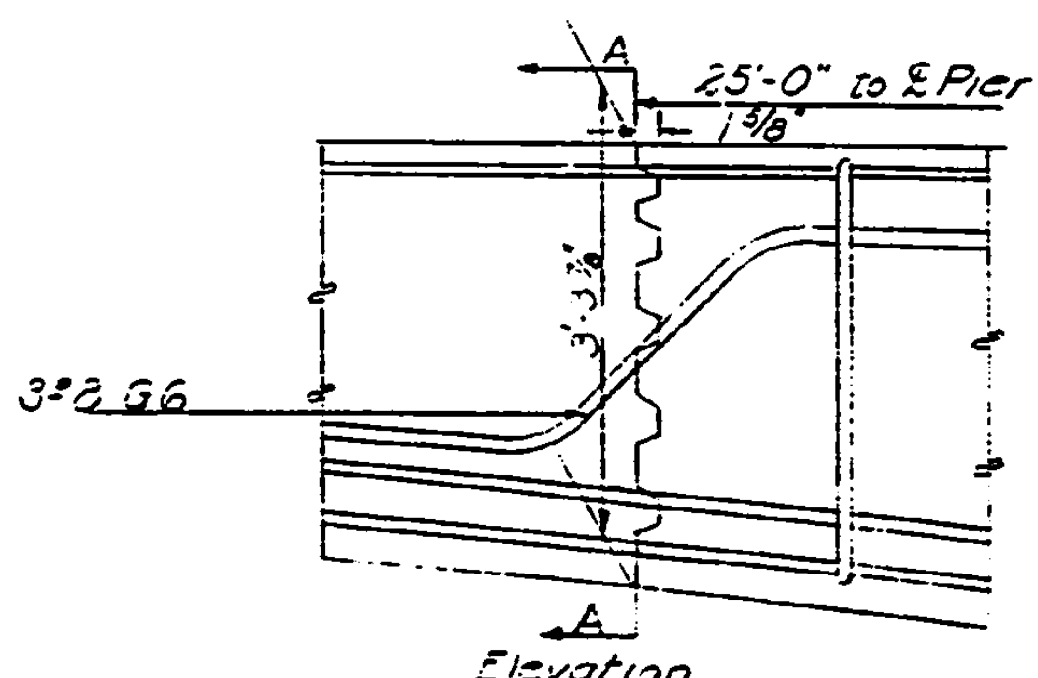
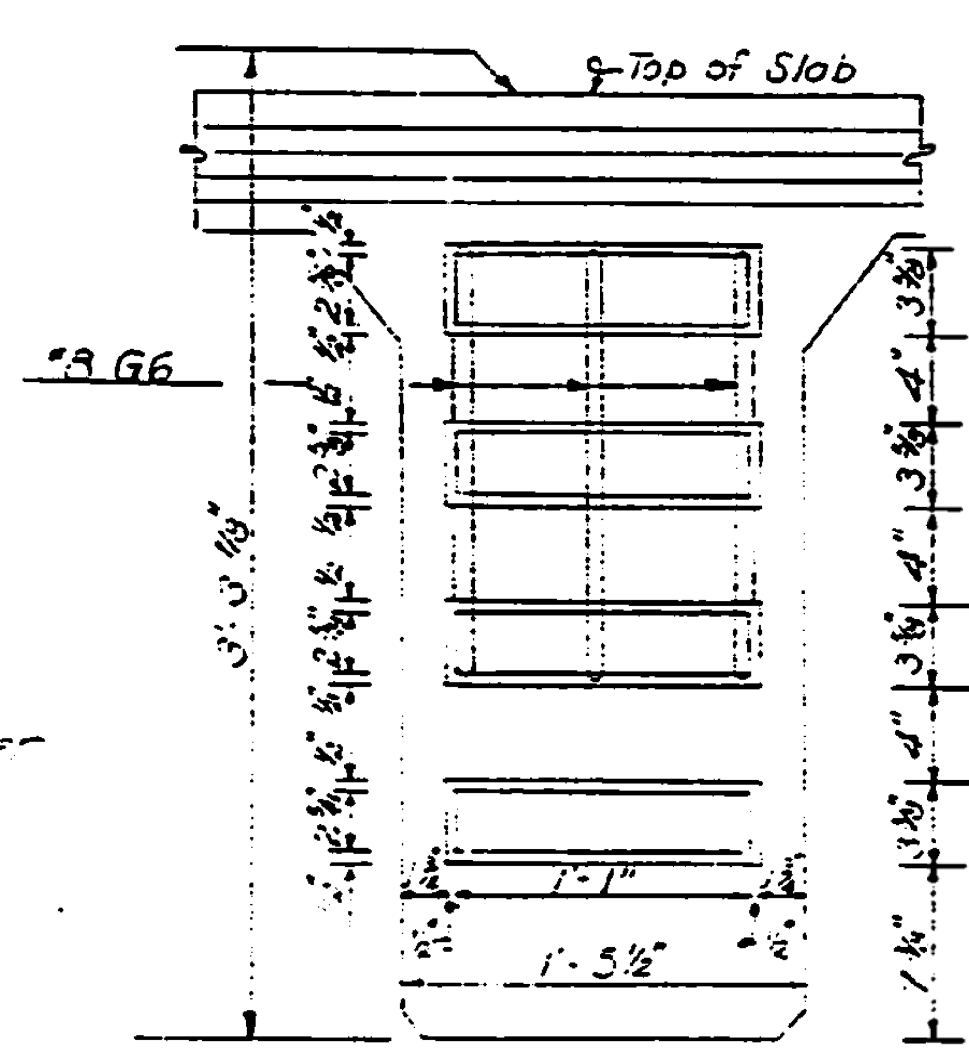
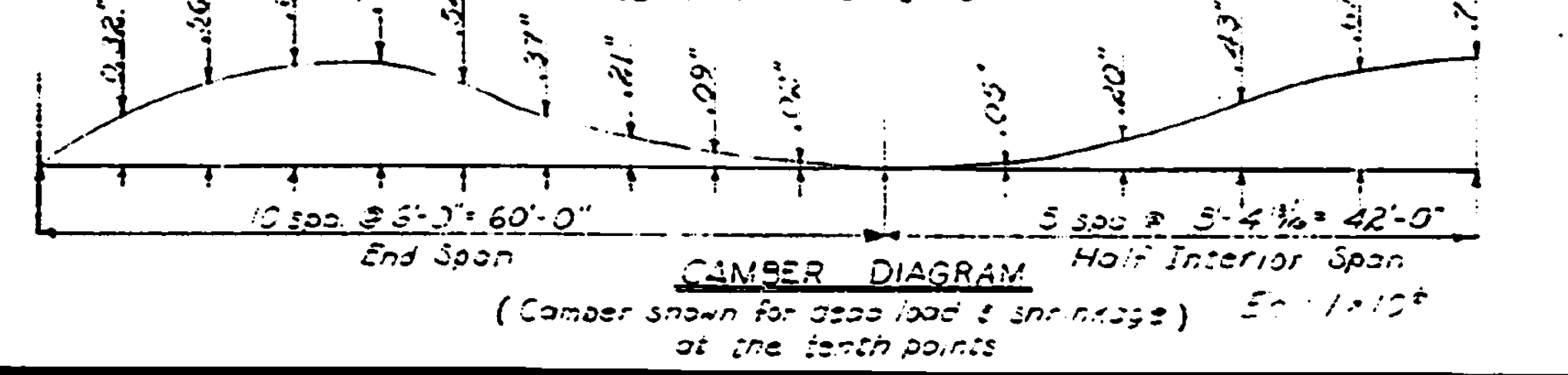


ORDINATES ALONG & OF GIRDER



\* This sequence to be used when long span steel beams are used for falsework.

Note: Camber shall be provided as shown in the camber diagram. Additional camber to be provided for support steel beams and falsework.



3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
STATE HIGHWAY COMMISSION OF KANSAS					
DESIGNED BY: AFR 1/2013					
CHECKED BY: AFR 1/2013					
DESIGNED BY: AFR 1/2013					
REVISIONS: AFR 1/2013					
SCALE: 1" = 20'-0"					
SHEET NO. 22 OF 75					

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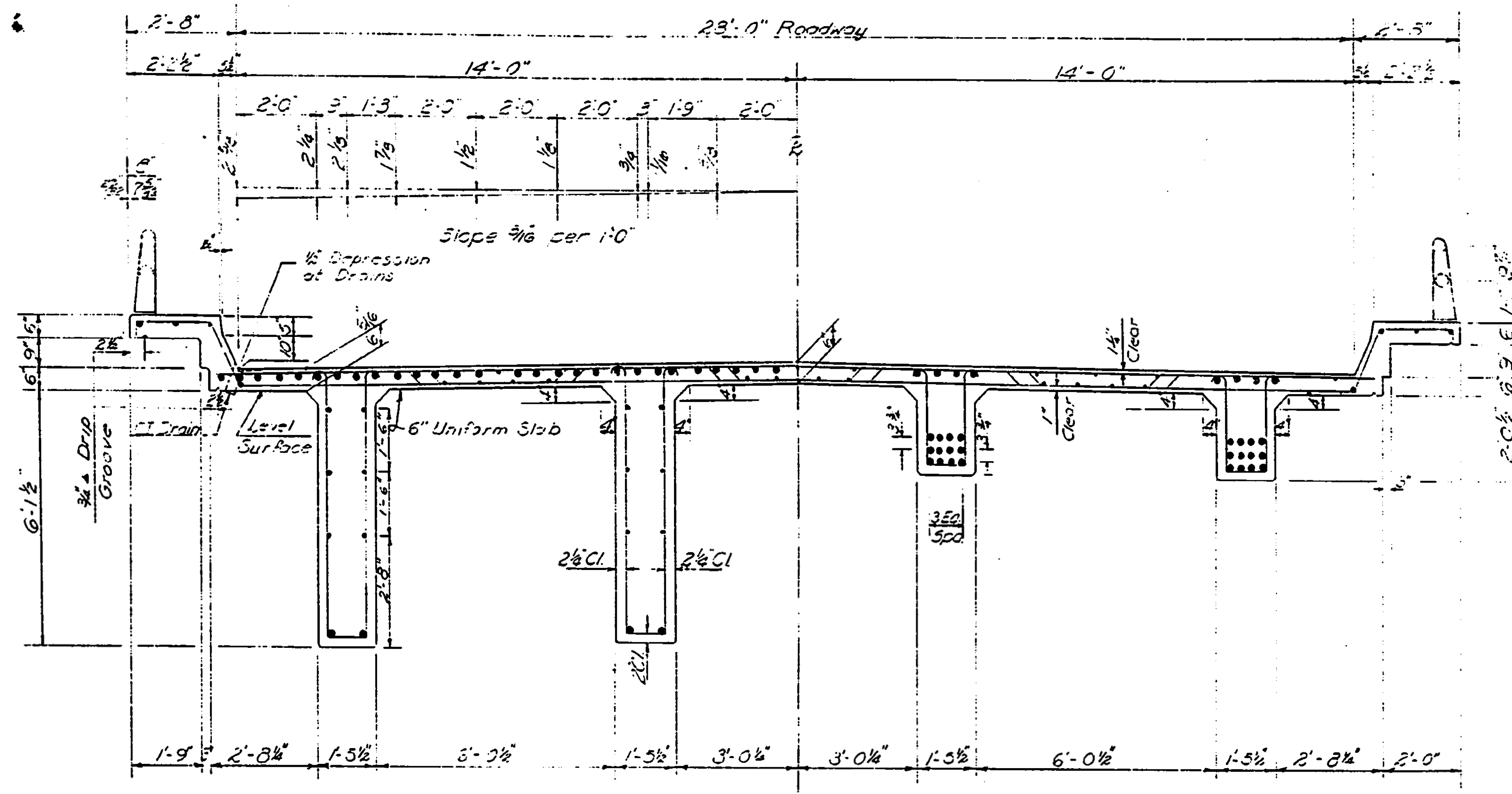
CITY OF OVERLAND PARK, KANSAS  
METCALF BRIDGE REDECKING  
METCALF AVENUE OVER BLUE RIVER

PROJECT NO. BR-1377  
DRAWN BY: AFR 1/2013  
CHECKED BY: AFR 1/2013  
DESIGNED BY: AFR 1/2013  
REVISIONS: AFR 1/2013

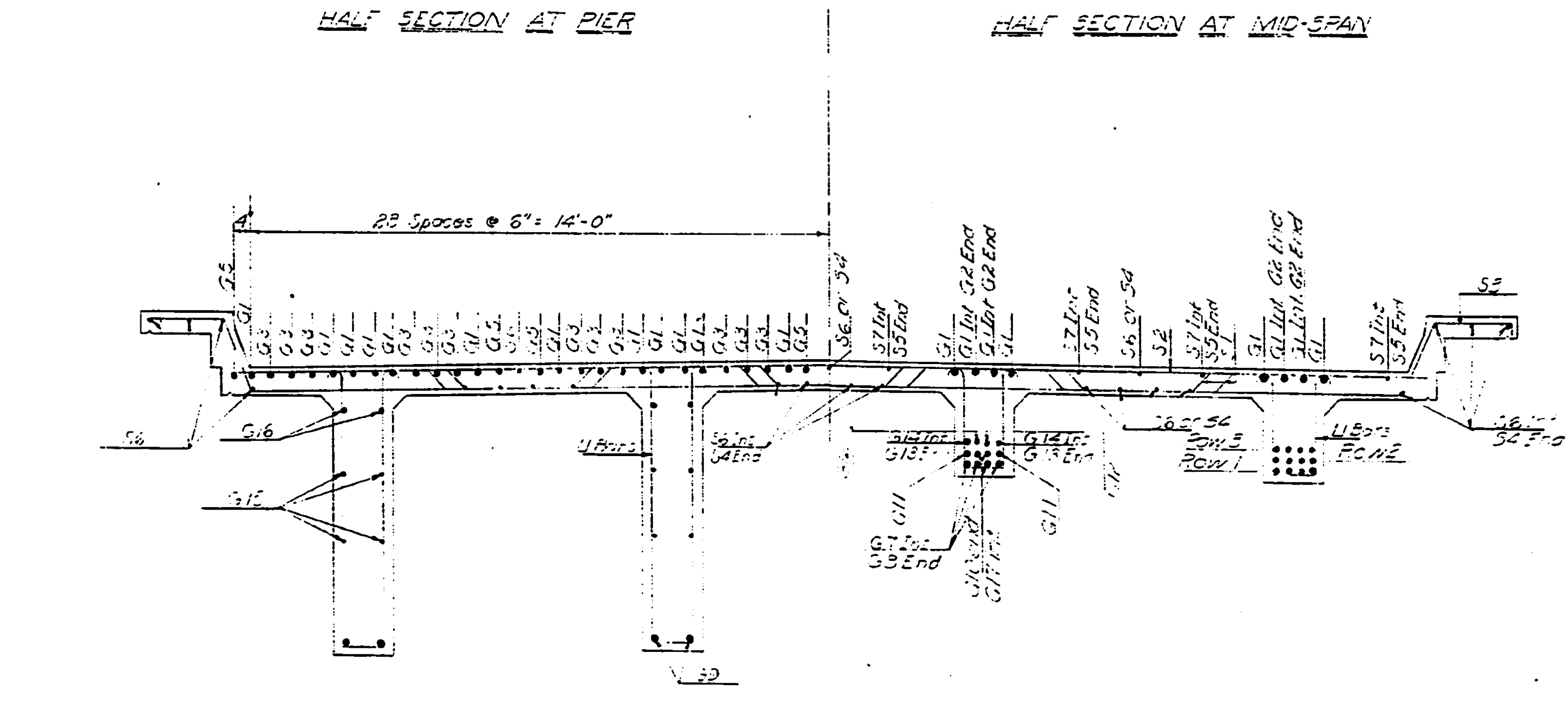
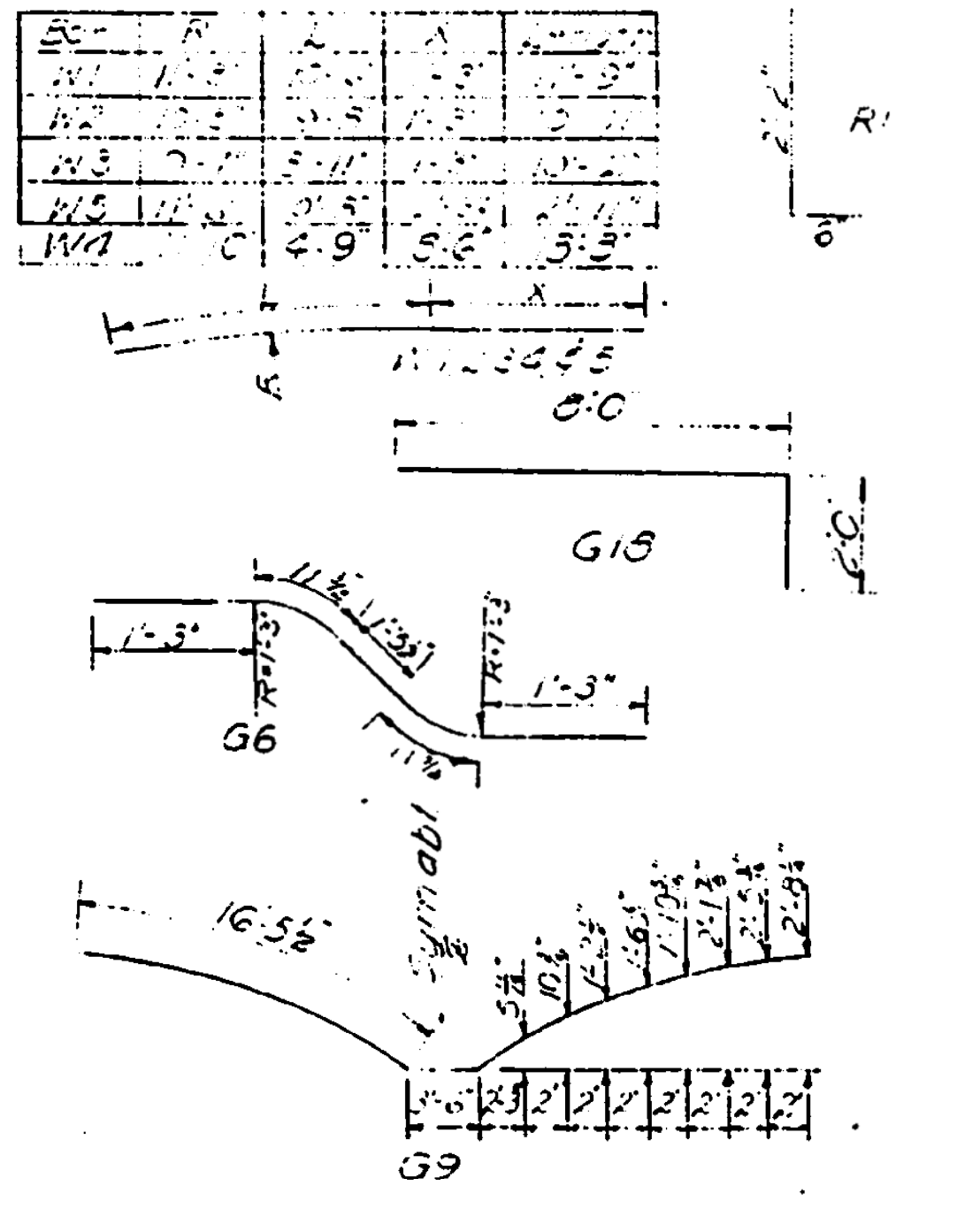
EXISTING PLANS  
SUPERSTRUCTURE  
DETAILS

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PUB. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	KANSAS	BR-1377	1999	56	75

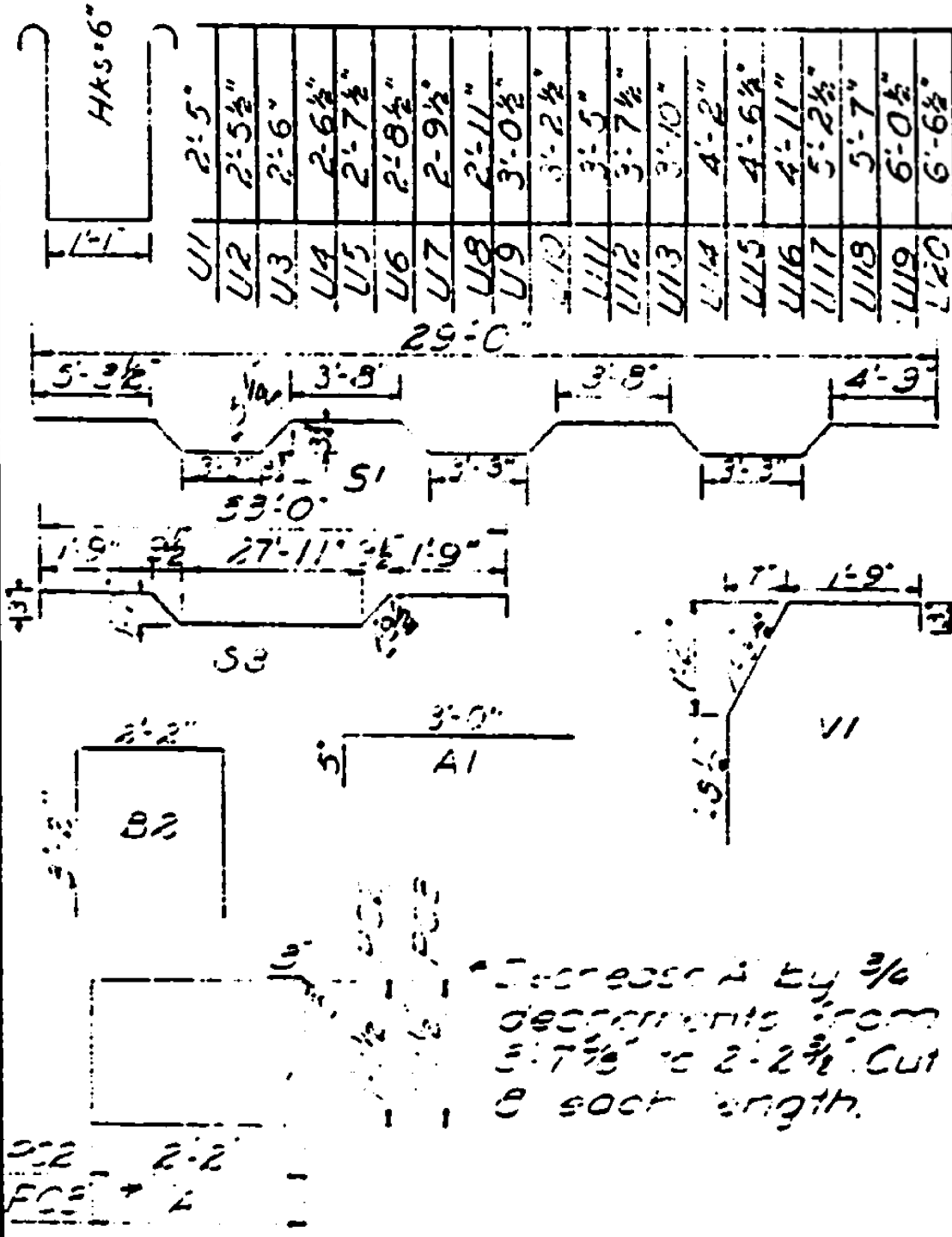


SPAN		PIER		SPAN	
No.	Length	No.	Length	No.	Length
G1	44'-0"	U1	16'-0"	U1	16'-0"
G2	41'-0"	U2	16'-0"	U2	16'-0"
G3	46'-0"	U3	16'-0"	U3	16'-0"
G4	32'-0"	U4	16'-0"	U4	16'-0"
G5	16'-0"	U5	16'-0"	U5	16'-0"
G6	23'-0"	U6	16'-0"	U6	16'-0"
G7	44'-0"	U7	16'-0"	U7	16'-0"
G8	41'-0"	U8	16'-0"	U8	16'-0"
G9	46'-0"	U9	16'-0"	U9	16'-0"
G10	32'-0"	U10	16'-0"	U10	16'-0"
G11	16'-0"	U11	16'-0"	U11	16'-0"
G12	23'-0"	U12	16'-0"	U12	16'-0"
G13	44'-0"	U13	16'-0"	U13	16'-0"
G14	41'-0"	U14	16'-0"	U14	16'-0"
G15	46'-0"	U15	16'-0"	U15	16'-0"
G16	32'-0"	U16	16'-0"	U16	16'-0"
G17	16'-0"	U17	16'-0"	U17	16'-0"
G18	23'-0"	U18	16'-0"	U18	16'-0"
G19	44'-0"	U19	16'-0"	U19	16'-0"
G20	41'-0"	U20	16'-0"	U20	16'-0"
G21	46'-0"	U21	16'-0"	U21	16'-0"
G22	32'-0"	U22	16'-0"	U22	16'-0"
G23	16'-0"	U23	16'-0"	U23	16'-0"
G24	23'-0"	U24	16'-0"	U24	16'-0"
G25	44'-0"	U25	16'-0"	U25	16'-0"
G26	41'-0"	U26	16'-0"	U26	16'-0"
G27	46'-0"	U27	16'-0"	U27	16'-0"
G28	32'-0"	U28	16'-0"	U28	16'-0"
G29	16'-0"	U29	16'-0"	U29	16'-0"
G30	23'-0"	U30	16'-0"	U30	16'-0"



REVISIONS

NO.	DATE	REVISIONS	BY	APP'D
1				
2				
3				



SHEET NO. 56 OF 75		SCALE	APP'D
DESIGNED	DETAILS	QUANTITIES	TRACES
DATE	DATE	DATE	DATE

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CITY OF OVERLAND PARK, KANSAS  
METCALF AVENUE BRIDGE REDECKING  
METCALF AVENUE OVER BLUE RIVER

PROJECT NO. BR-1377  
DRAWN BY AFR 1/2013  
CHECKED BY  
DESIGNED BY AFR 1/2013  
REVISIONS

EXISTING PLANS  
AUXILIARY  
DETAILS

54