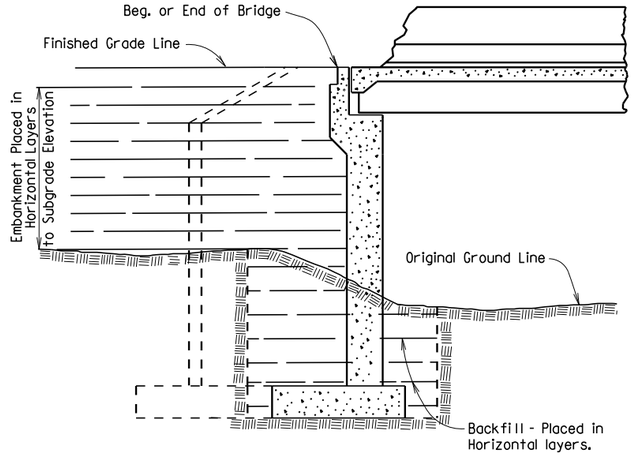
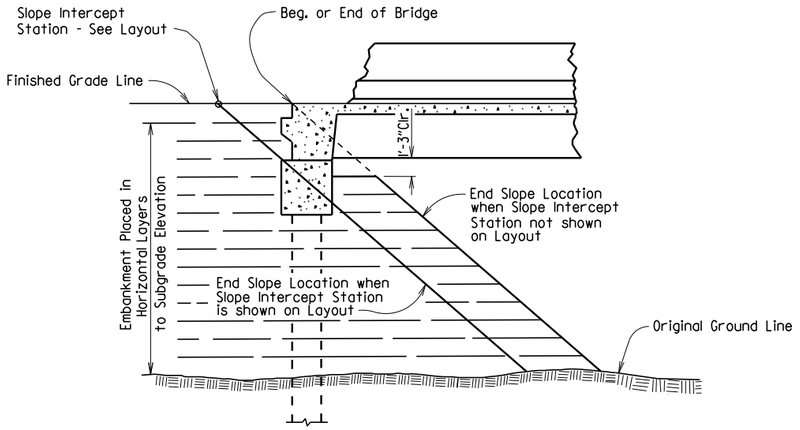
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				6	ARK.			
				JOB NO.				

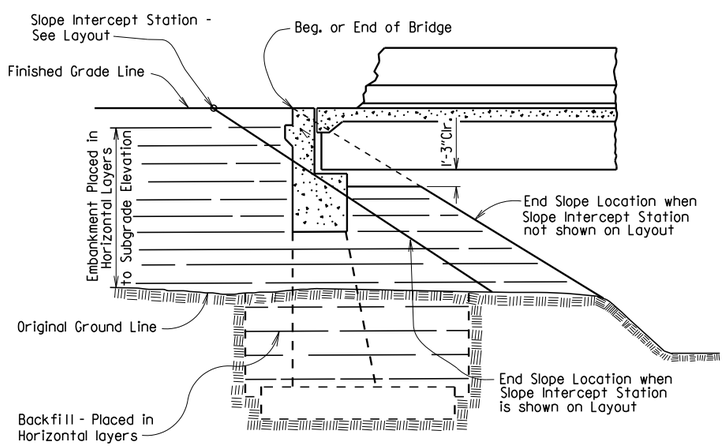
1 EMBANKMENT & BACKFILL 55000



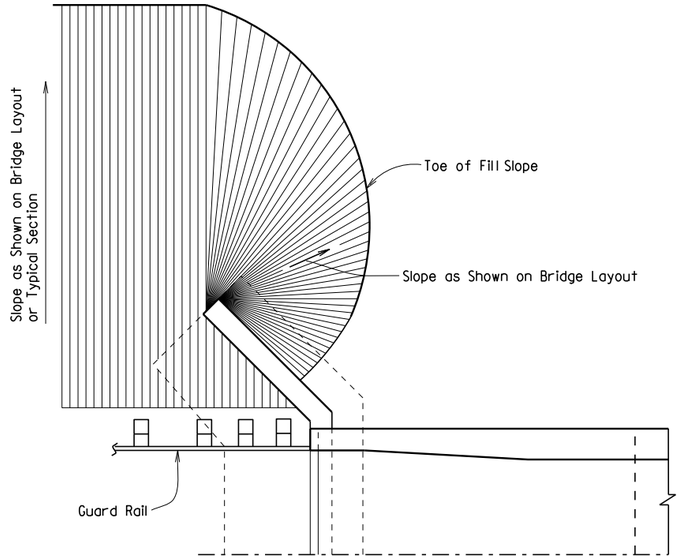
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



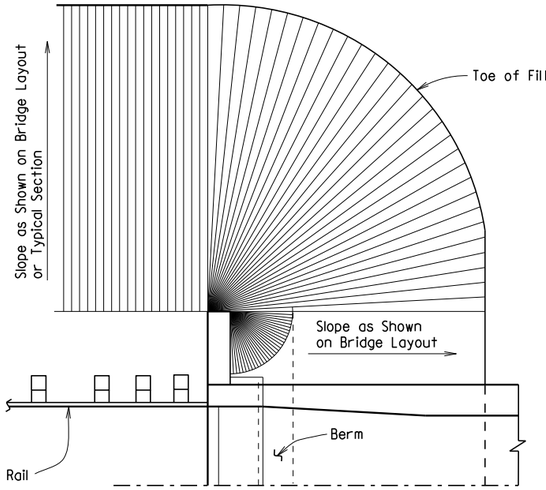
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



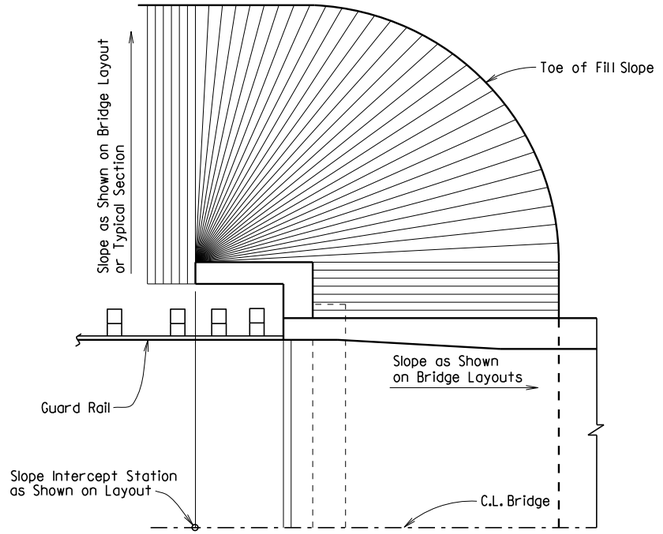
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



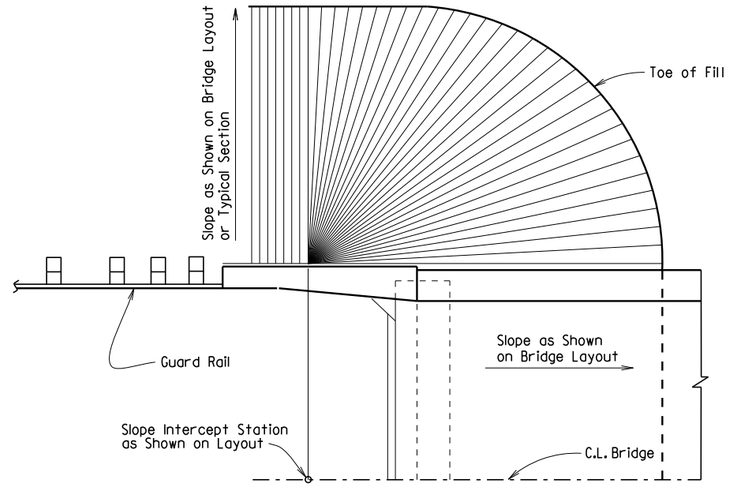
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn

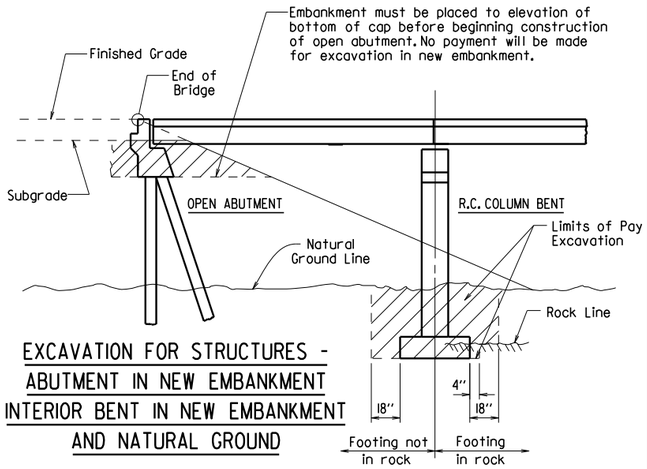
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

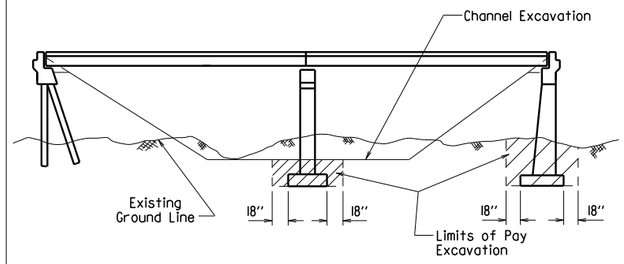
DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

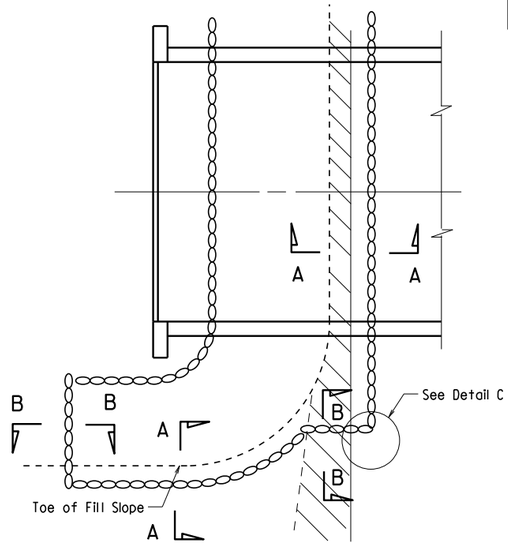
1 RIPRAP & EXCAV. 55001



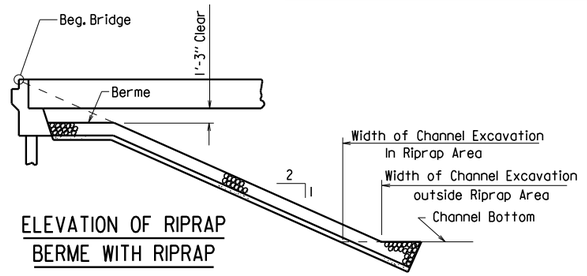
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



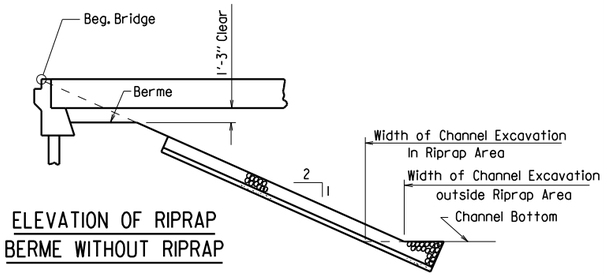
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



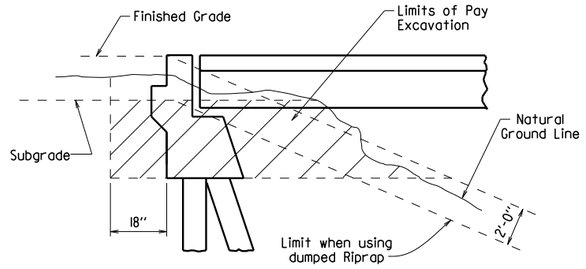
PLAN OF DUMPED RIPRAP



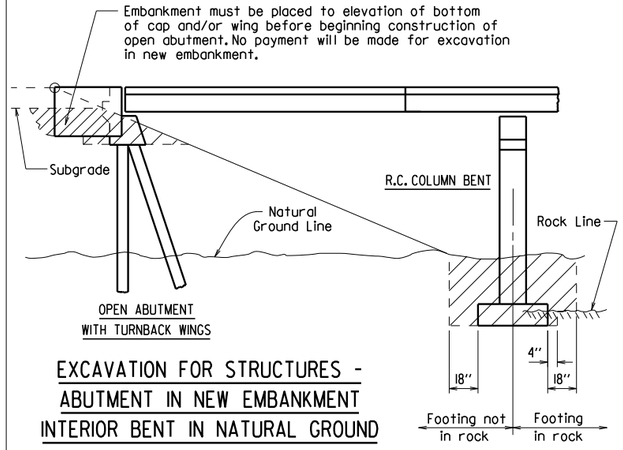
ELEVATION OF RIPRAP BERME WITH RIPRAP



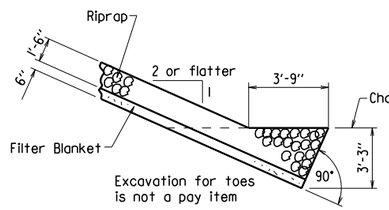
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



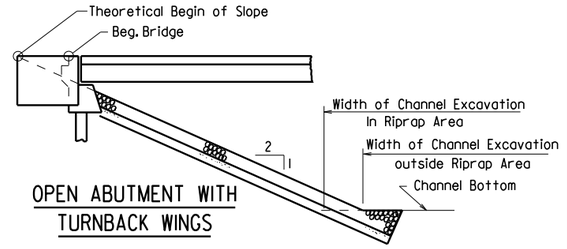
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



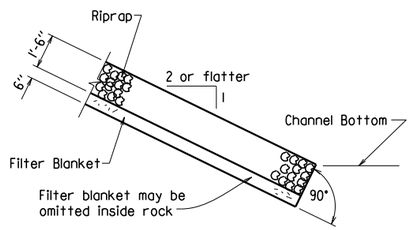
SECTION A-A

(Toe Excavation in Soil)

SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



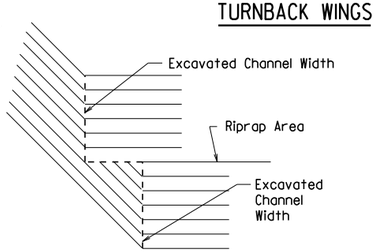
SECTION A-A

(Toe Excavation in Rock)

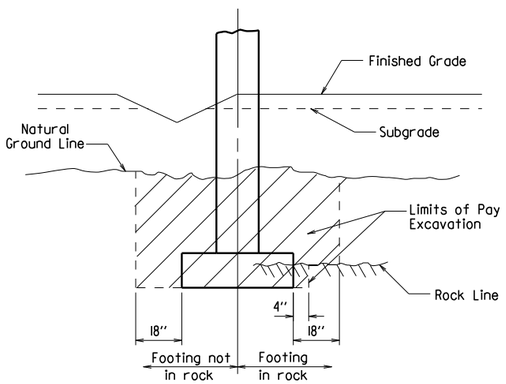
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

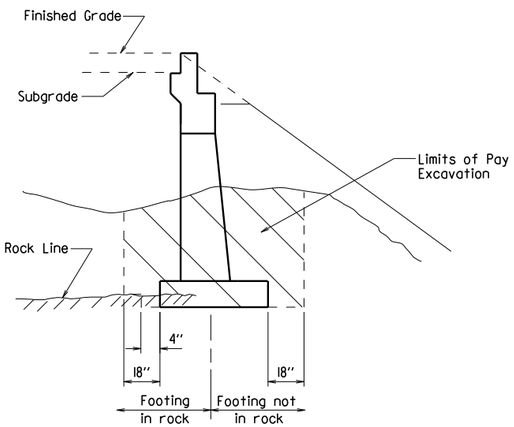
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



DETAIL C



EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500l.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

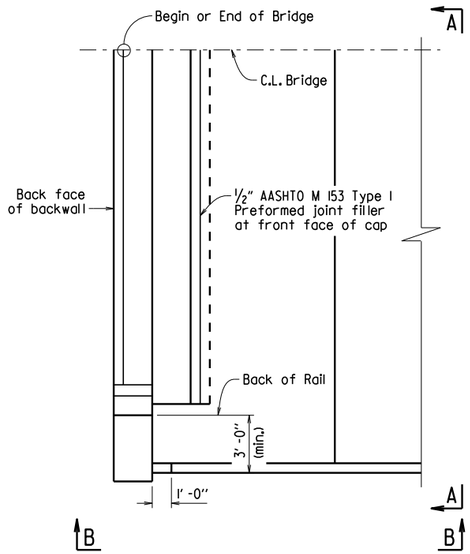
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

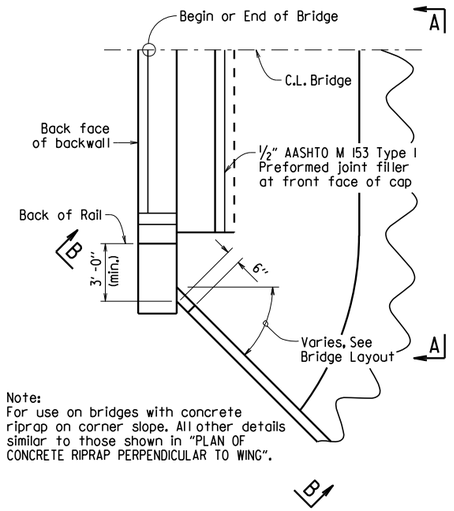
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

① CONCRETE RIPRAP 55002

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



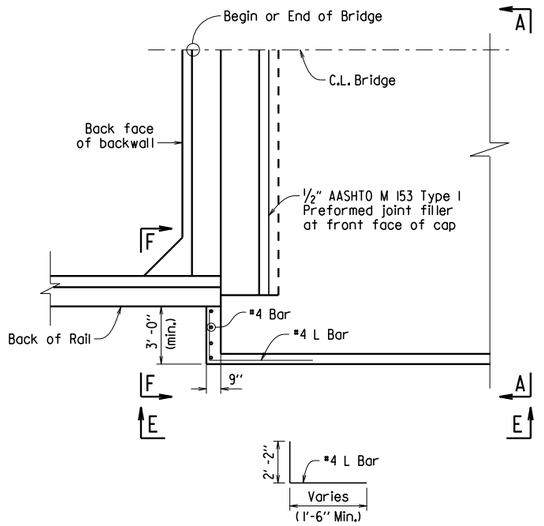
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



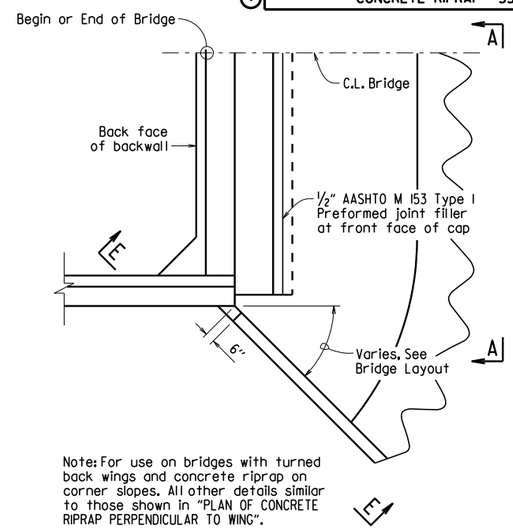
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
¼" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



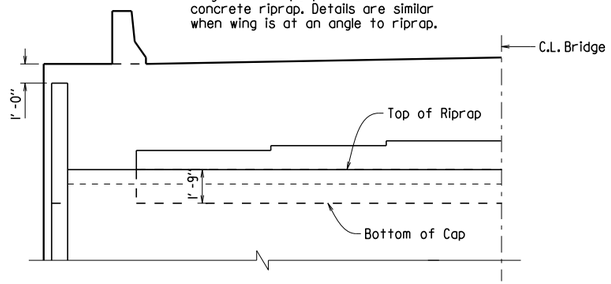
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

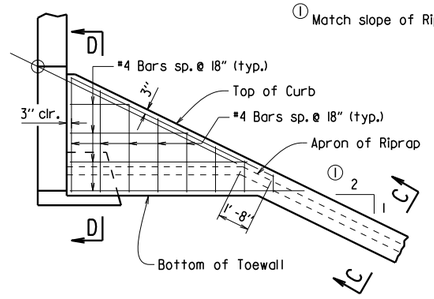
PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.

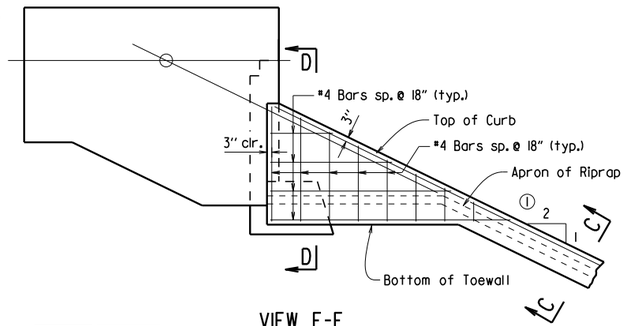


VIEW A-A
¼" = 1'-0"

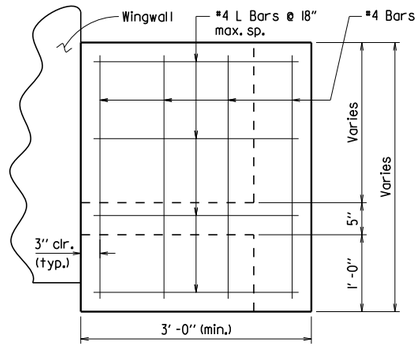
① Match slope of Riprap Apron.



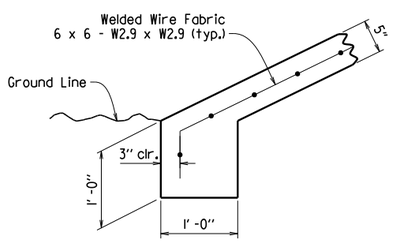
VIEW B-B
¼" = 1'-0"



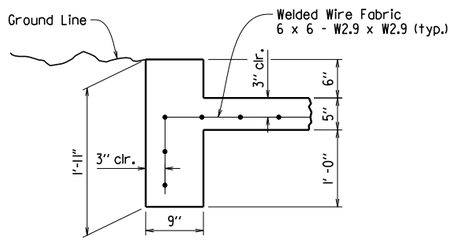
VIEW E-E
¼" = 1'-0"



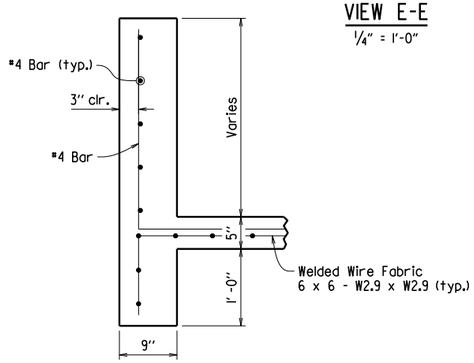
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

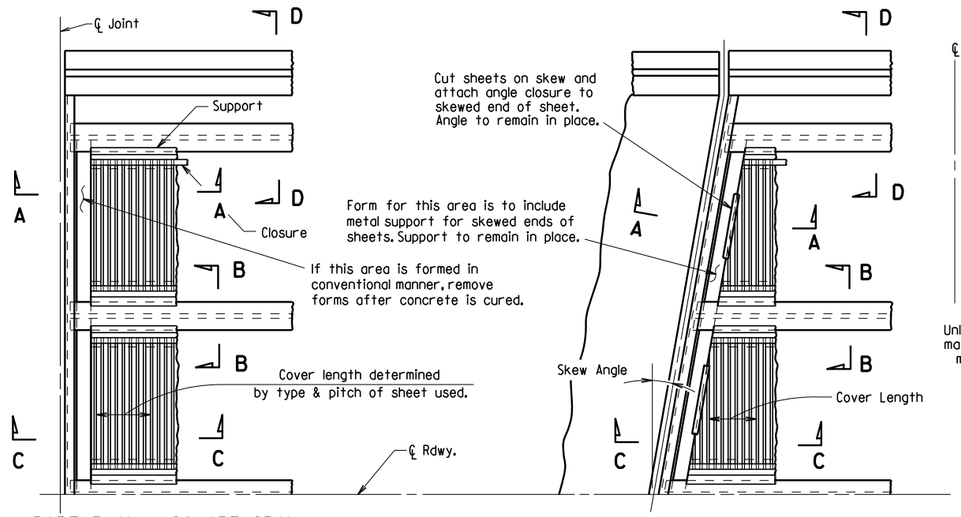
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014 FILENAME: b55002.dgn
CHECKED BY: BEF DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: Std. DATE: ---

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

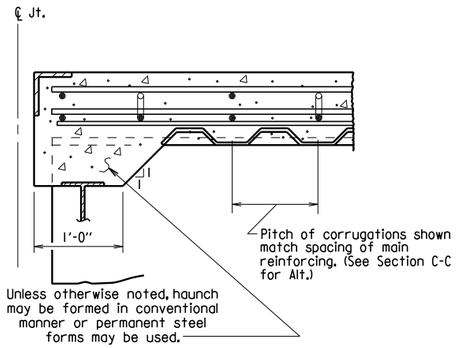


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

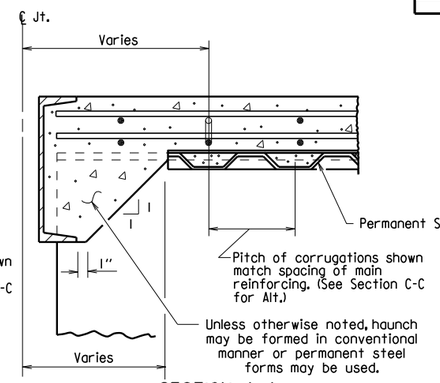
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



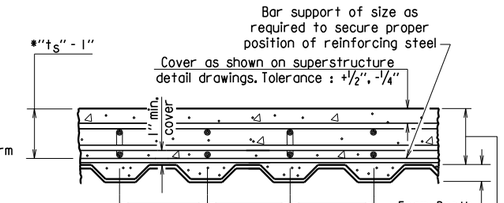
SECTION A-A

N.T.S.
(Angle at end of span)



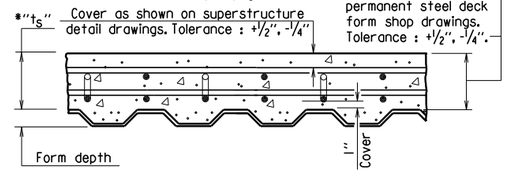
SECTION A-A

N.T.S.
(Channel at end of span)



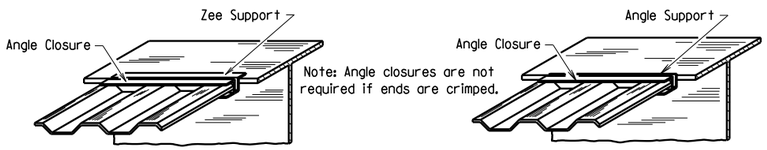
SECTION C-C

1" = 1'-0"



SECTION C-C - ALTERNATE

1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

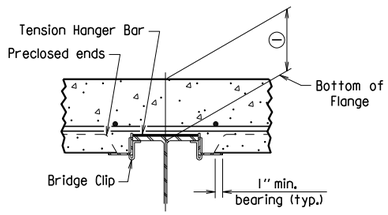
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)

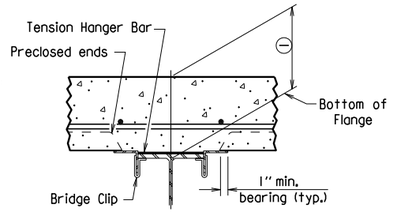
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



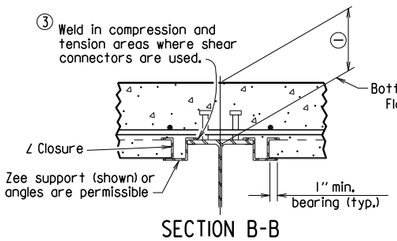
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



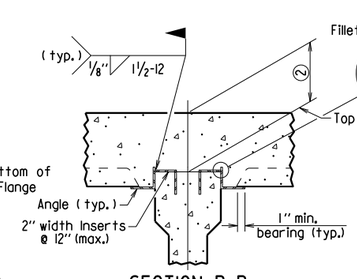
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



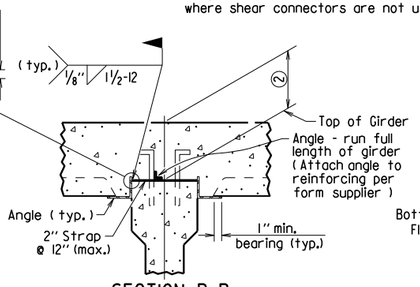
SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



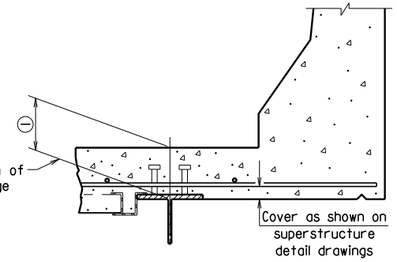
SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Insert cast in girder)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Strap)



SECTION D-D

1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_S + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

⚠ Revised weld dimension by KWY, Ck'd. by BEF, 3/24/16.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55005.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NONE
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		GENERAL NOTES		55006

GENERAL NOTES

These GENERAL NOTES are applicable unless otherwise shown in the Plan Details, Special Provisions, or Supplemental Specifications.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy =	60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy =	36,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. HPS70W)	Fy =	70,000 psi

See Plan Details for Grade(s) of Structural Steel required.

CONCRETE:

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered ¾" unless otherwise noted.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Use of a longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL (COMMON TO W-BEAMS AND PLATE GIRDERS):

Structural steel shall be AASHTO M 270 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 13/16 " ø open holes. Holes for ¾" ø high-strength bolts may be 15/16 " ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the Manufacturer.

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall be as specified in the plans.

STRUCTURAL STEEL (W-BEAMS):

All beams and field splice plates, and all diaphragms and connection plates attached to horizontally curved beams are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. ___)".

All beams in continuous units and simple spans with field splices shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All beams in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Bent plate diaphragms for horizontally curved beams shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved beams.

Unless otherwise noted, diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

STRUCTURAL STEEL (PLATE GIRDERS):

All references to cross-frames shall include "X" or "K" types.

All girder web and flange plates, all field splice plates, and all diaphragms, cross-frames and connection plates attached to horizontally curved girders are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

All girders in continuous units and simple spans with field splices shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All girders in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Web and flange plates for main members and flange splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment will be made for shop welded splices.

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. ___)".

Bent plate diaphragms for horizontally curved girders shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved girders.

Unless otherwise noted, cross-frames and diaphragms shall be installed as girders are erected. All bolts in cross-frames, diaphragms, and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

Concrete in drilled shafts shall be Class "S" as modified by Job SP "Drilled Shaft Foundations".

All exposed corners shall be chamfered ¾" unless otherwise noted.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

STRUCTURAL STEEL:

Structural steel in end bents shall be AASHTO M 270 with grade and payment as specified in the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

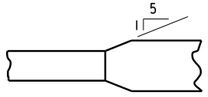
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn
CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55006

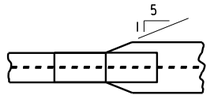
PRINT DATE: 11/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	STEEL BRIDGE STRUCTURES 55007			

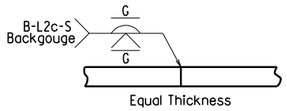


Plan-Unequal Width (Flg.)

FLANGE SPLICE

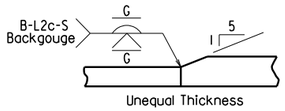


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

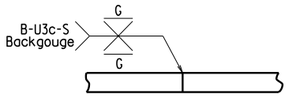
WEB & FLANGE SPLICE



Unequal Thickness

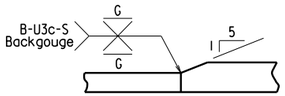
FLANGE SPLICE

(Use when Base Metal Thickness is Equal to or Less than 2")



Equal Thickness

WEB & FLANGE SPLICE

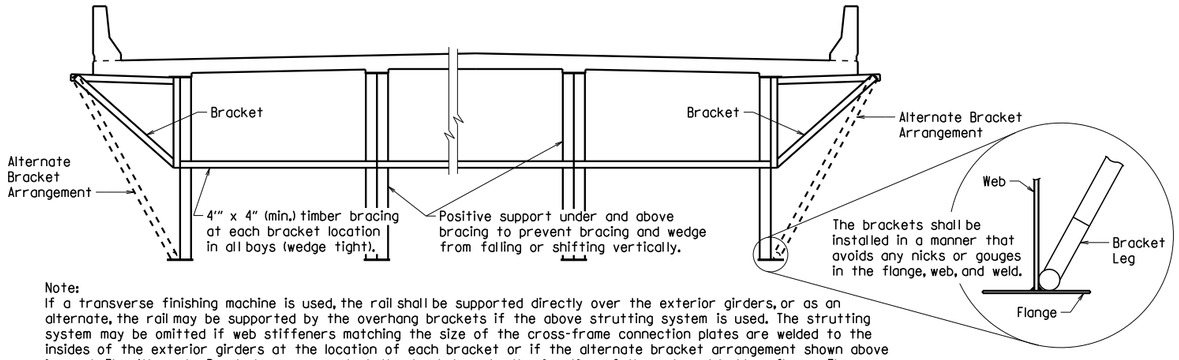


Unequal Thickness

FLANGE SPLICE

(Use when Base Metal Thickness is Greater than 2")

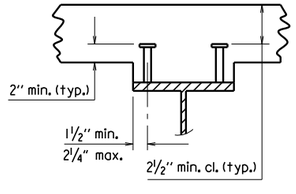
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



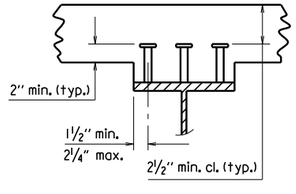
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the cross-frame connection plates are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on the plans. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (___)".

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



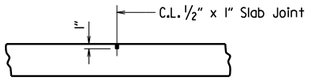
2 STUDS PER ROW



3 STUDS PER ROW

Stud Shear Connectors shall be automatically end welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

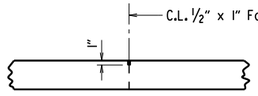
SHEAR CONNECTOR DETAIL



Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

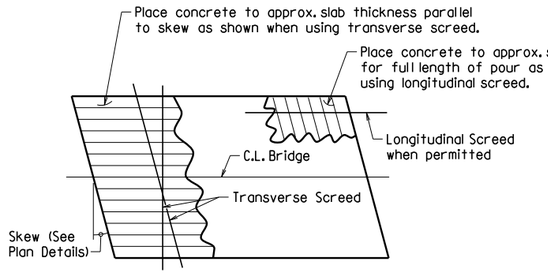
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and acrosss the top of the sidwalk or raised median to the edge of the slab. No joint sealer shall be placed on the deck slab under the sidewalk or raised median.

TRANSVERSE SLAB JOINT DETAIL



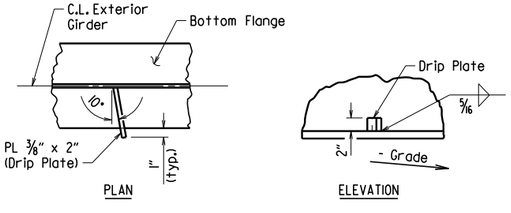
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C. L. Bridge.

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



PLAN

ELEVATION

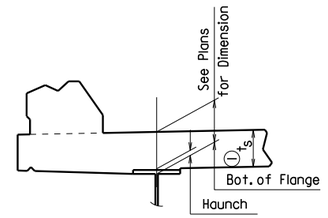
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

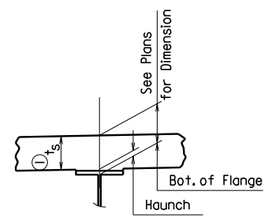
BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

t_s = slab thickness. See "Typical Roadway Section" in the plans.



EXTERIOR BEAM OR GIRDER



INTERIOR BEAM OR GIRDER

① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾" unless otherwise noted in the plans. No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	⅝"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

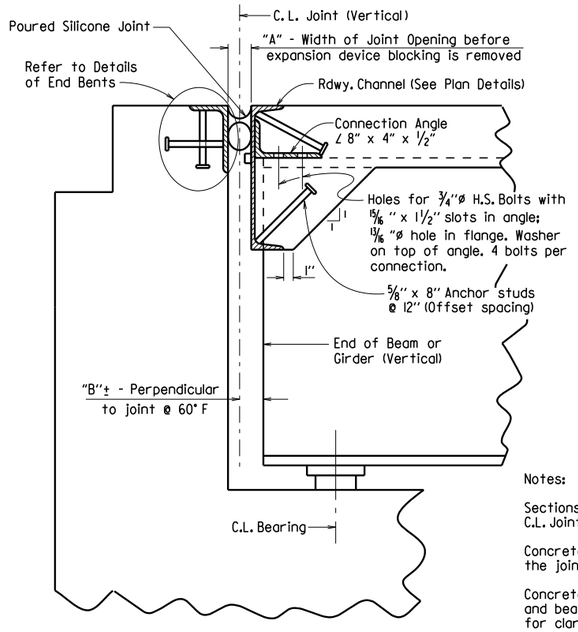
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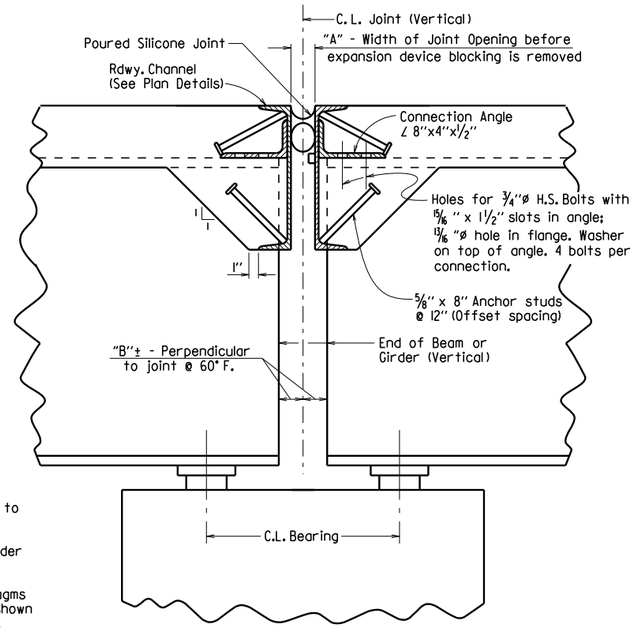
DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	POURED SILICONE JOINT			55008



SECTION THRU JOINT AT END BENT



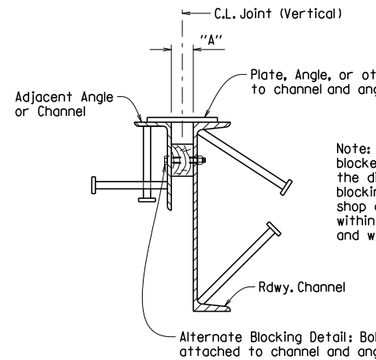
SECTION THRU JOINT AT INTERMEDIATE BENT

Notes:

Sections are taken perpendicular to C.L. Joint.

Concrete shall be hand packed under the joint armor.

Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

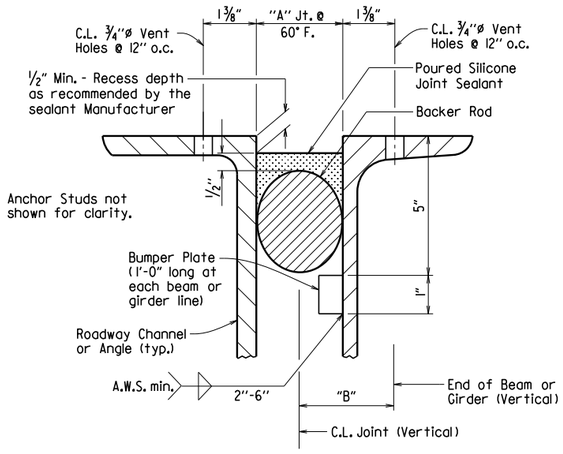
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.

2) The backwall shall be poured to the optional construction joint after beams or girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.



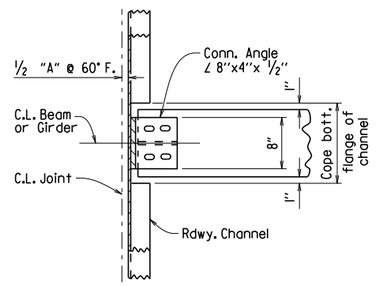
DETAIL OF POURED SILICONE JOINT

Silicone joint material and installation shall conform to Section 809. The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

Use an appropriately sized backer rod at the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

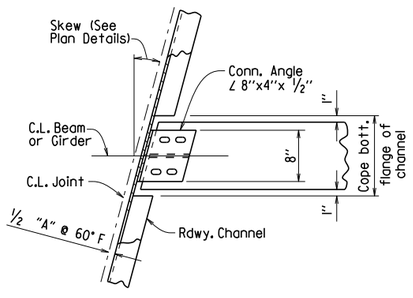
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.



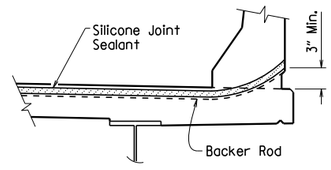
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

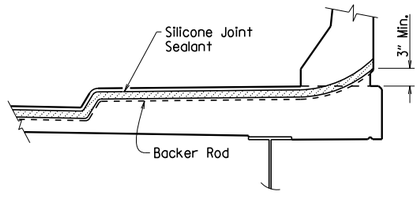


CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



JOINT SEAL PLACEMENT AT RAIL



JOINT SEAL PLACEMENT AT SIDEWALK

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF SILICONE JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A" AND "B", AND BUMPER PLATE SIZE.

STANDARD DETAILS FOR POURED SILICONE JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn

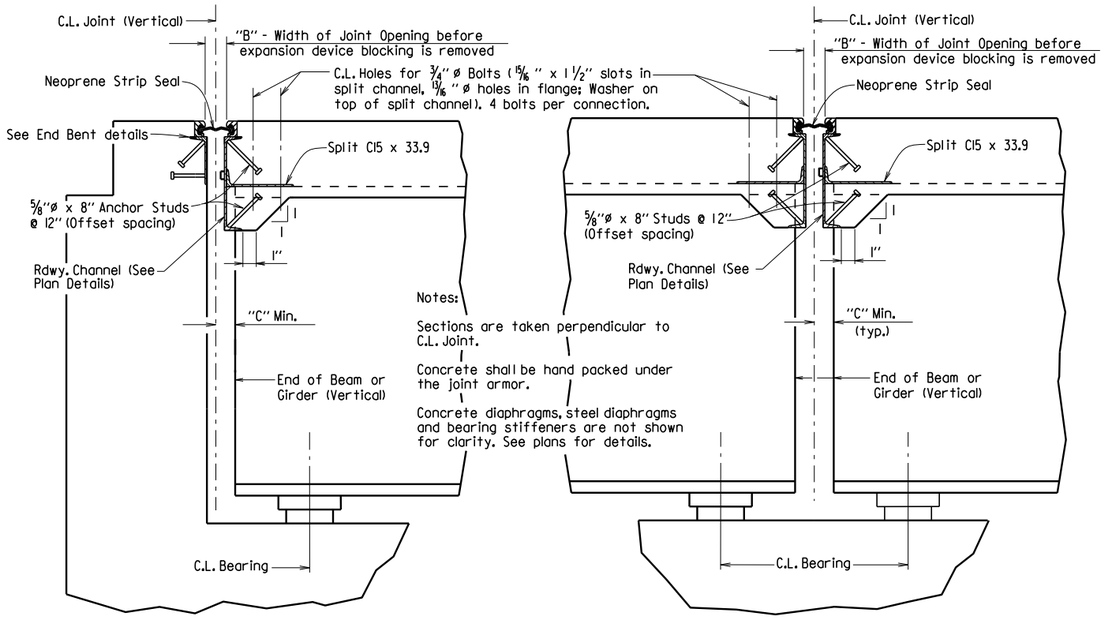
CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

DRAWING NO. 55008

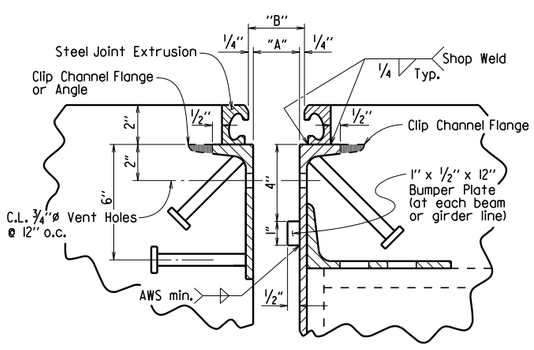
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

1 STRIP SEAL JOINT 55009



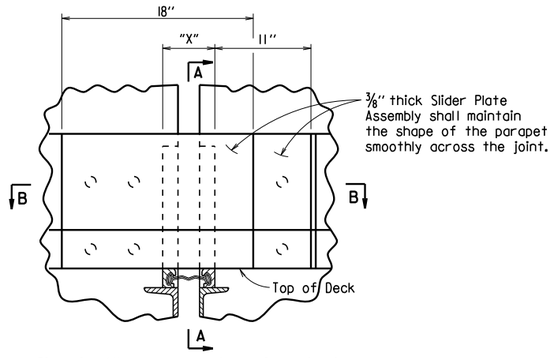
SECTION THRU JOINT AT END BENT

SECTION THRU JOINT AT INTERMEDIATE BENT



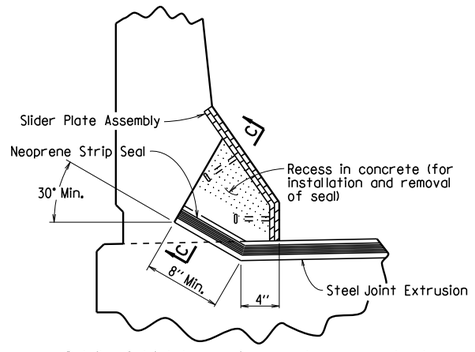
DETAIL OF STRIP SEAL JOINT

Detail shown at End Bent,
Details similar at Intermediate Bent



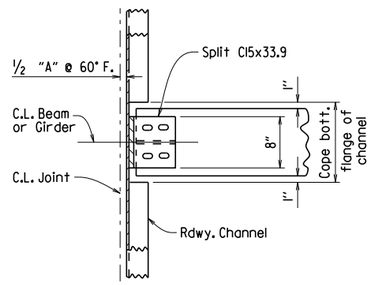
Dimension "X" equals the width of opening in parapet to allow for removal or repair of joint.

DETAIL OF PARAPET SLIDER PLATES



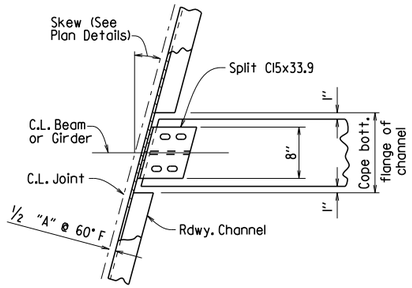
Details of Joint turn-up in parapet are general and show basic design controls only. See plan details for joint installation at sidewalks.

SECTION A-A



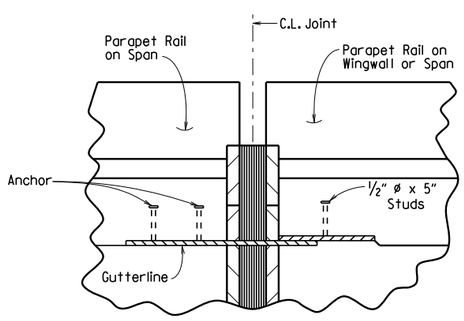
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW



CHANNEL CONNECTION DETAIL

BENTS WITH SKEW

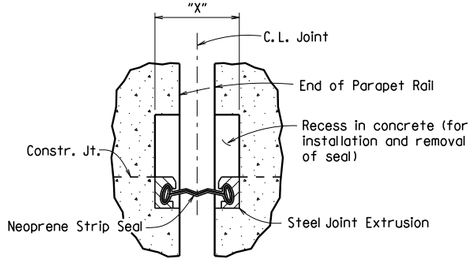


The method of attachment of the slider plate assembly shall allow for removal to provide for future replacement of the neoprene seal. Anchors shall not be paid for directly, but shall be considered subsidiary to the item "Armored Joint with Neoprene Strip Seal".

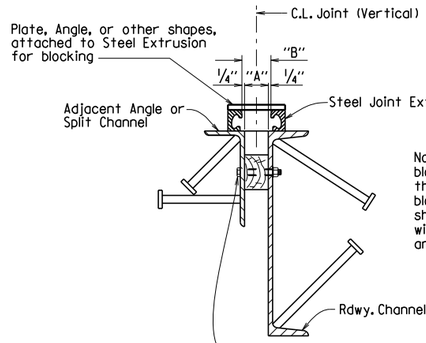
Method of installation and fabrication shall be determined by the Manufacturer.

SECTION B-B

BENTS WITHOUT SKEW SHOWN



SECTION C-C



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.

2) The backwall shall be poured to the optional construction joint after beams or girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

GENERAL NOTES FOR NEOPRENE STRIP SEAL JOINTS:

The steel extrusion and neoprene strip seal material and installation shall be in accordance with Section 809.

The expansion device shall provide for the movement rating(s) shown in the "TABLE OF STRIP SEAL JOINT DATA" in the plan details. The expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

Details of proposed slider plate assembly shall be submitted to the Engineer for approval prior to the fabrication of any structural steel at the expansion device.

All structural steel shall conform to AASHTO M 270, Grade 50W and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). The parapet slider plates and structural steel completely embedded in concrete shall conform to AASHTO M 270, Grade 36, 50 or 50W steel. Unless otherwise noted in the plans, all exposed surfaces of the parapet slider plates shall be cleaned and painted in accordance with Section 638. Painting shall not be paid for directly and structural steel completely embedded in concrete need not be painted. Payment for structural steel shall be as specified in the plans.

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF STRIP SEAL JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A", "B", AND "C".

STANDARD DETAILS FOR NEOPRENE STRIP SEAL JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

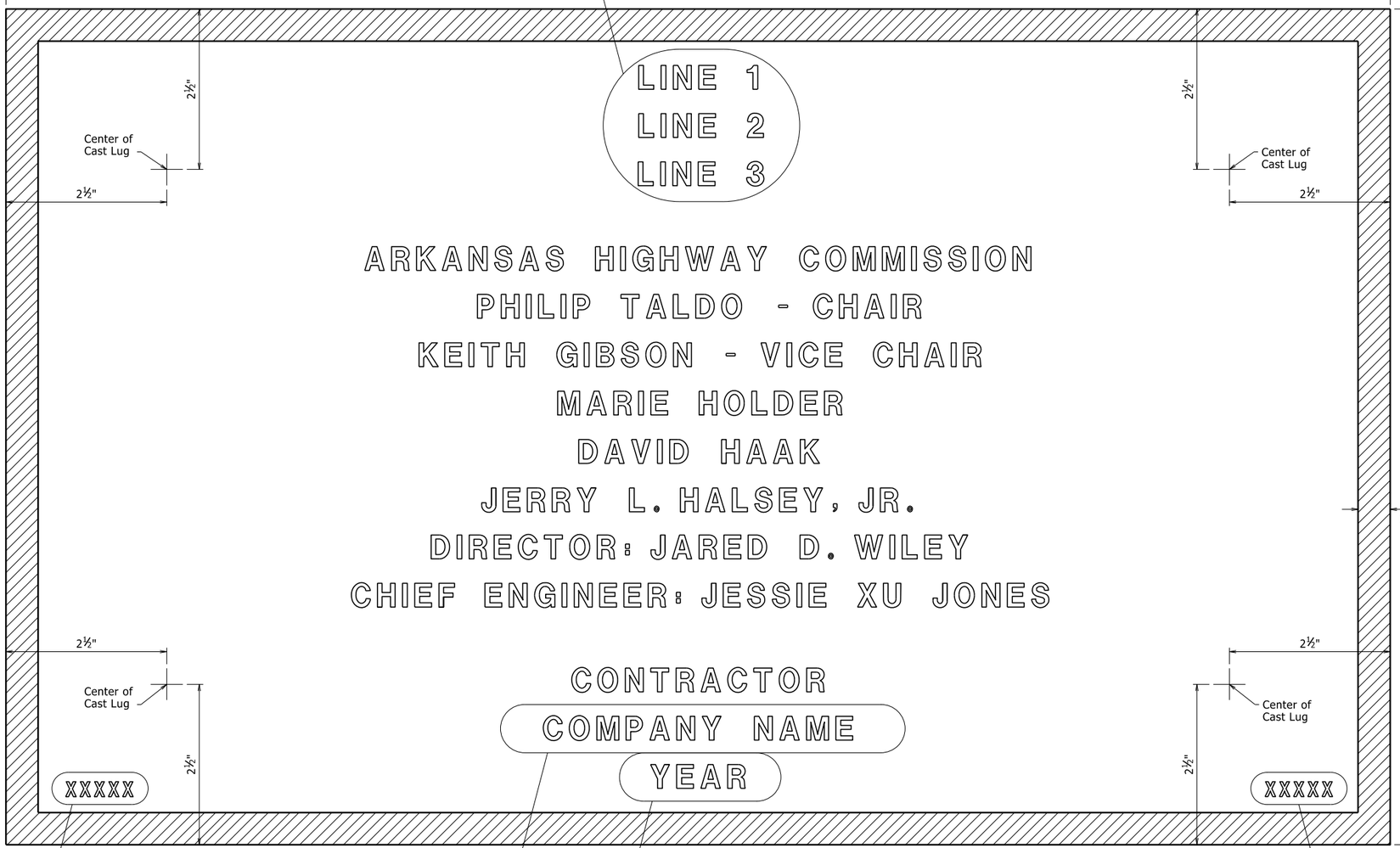
DRAWN BY: L.J.B. DATE: 2/11/2016 FILENAME: b55009.dgn
CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STD. DATE: —

DRAWING NO. 55009

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
4-14-23		6	ARK.			
1-28-25						
7-26-26		TYPE D NAME PLATE - 55010				

The name of the bridge as shown on the plans shall be placed on Lines 1-3 using ⅛" raised letters and numerals ⅜" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	RED RIVER	SOUTHERN	SALINE	
Line 2	RELIEF	RAILROAD	RIVER	HIGHWAY 5
Line 3		OVERPASS	RELIEF	



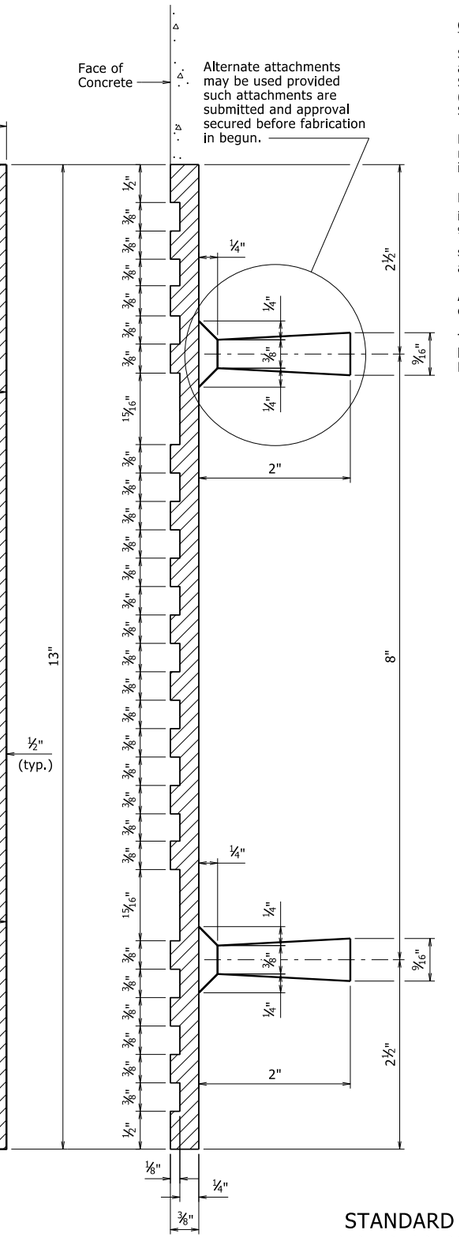
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

Place the Year in which Contract was awarded here using ⅛" raised numerals ⅜" high. Example: 2001

Place the name of the company awarded the construction contract here using ⅛" raised letters and numerals ⅜" high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using ⅛" raised letters and numerals ¼" high. Examples: A1234, 05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be ¼" thick and shall include four tapering cone lugs ⅜" to 9/16" x 2" long. The border and all lettering shall be raised ⅛" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

3 Updated names
7-26-26 CGP Checked By: CRE

2 Updated names
1-28-25 CGP Checked By: CRE

1 Revised and Redrawn
4-14-23 CGP Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

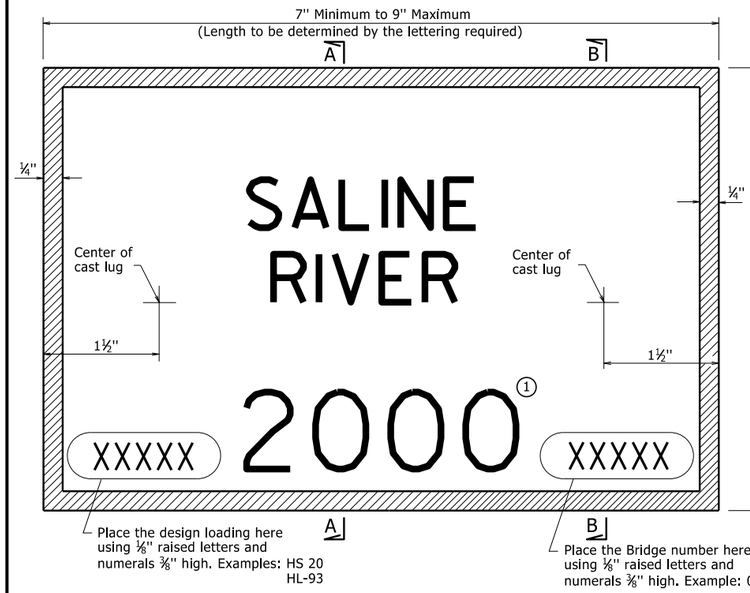
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014
CHECKED BY: BEF DATE: 2-27-2014
DESIGNED BY: STD. DATE:
FILENAME: b55010.dgn
SCALE: NO SCALE

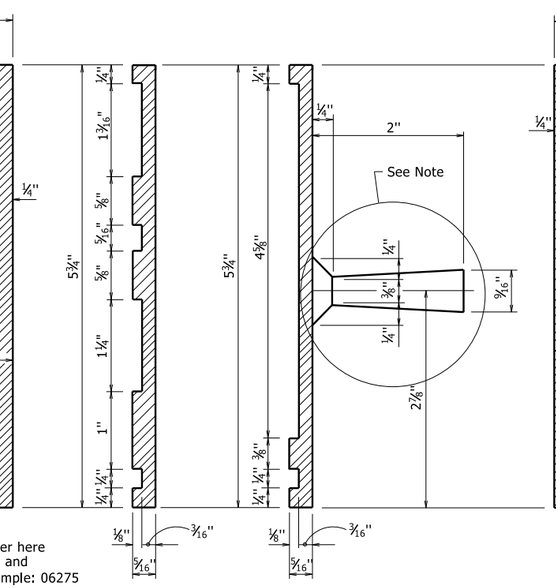
DRAWING NO. 55010

PRINT DATE: 9/15/2026

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
2/27/2020				6	ARK.			
				JOB NO.				
				①	TYPE C NAME PLATE	55011		

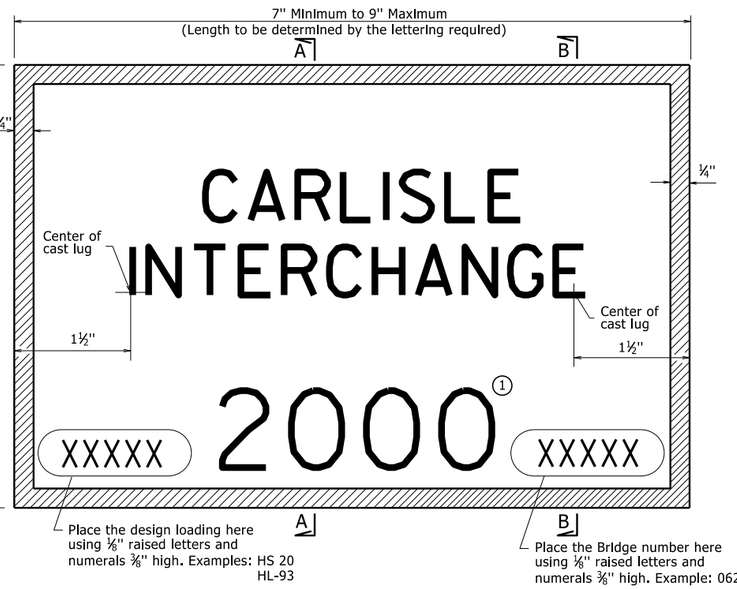


TYPICAL BRIDGE NAME PLATE-STYLE 1 - FULL SIZE
STREAM CROSSINGS



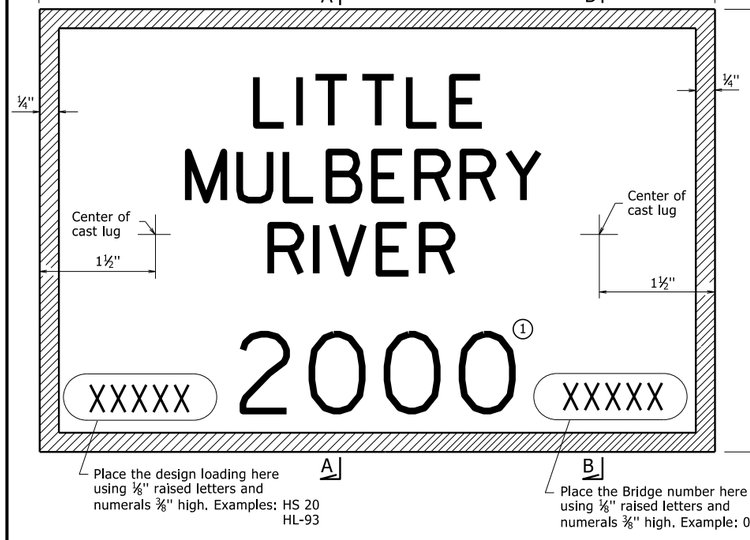
⚠1 SECTION A-A

SECTION B-B

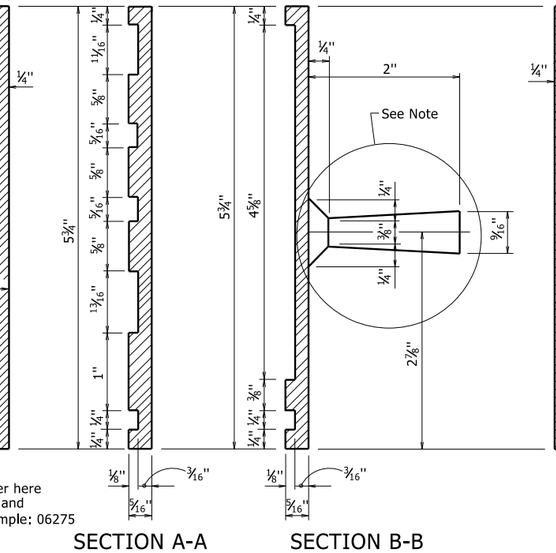


TYPICAL BRIDGE NAME PLATE-STYLE 3 - FULL SIZE
GRADE SEPARATION STRUCTURES

Note: Alternate attachments may be used provided such attachments are submitted and approval secured before fabrication is begun.

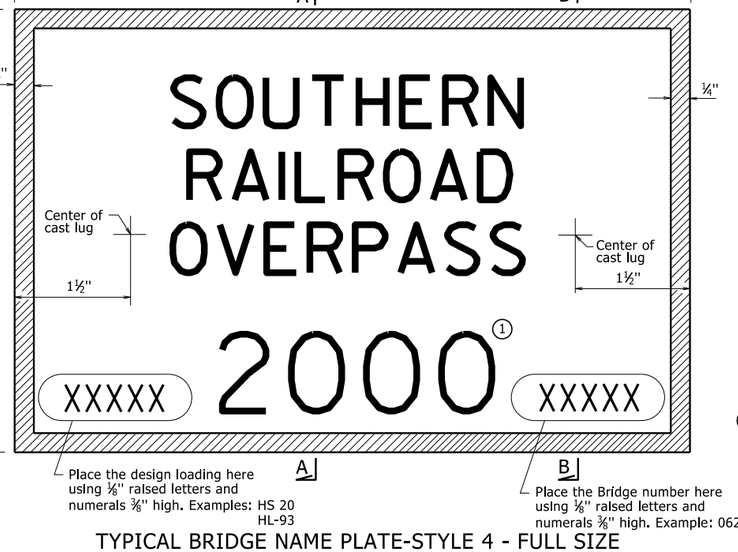


TYPICAL BRIDGE NAME PLATE-STYLE 2 - FULL SIZE
STREAM CROSSINGS



SECTION A-A

SECTION B-B



TYPICAL BRIDGE NAME PLATE-STYLE 4 - FULL SIZE
GRADE SEPARATION STRUCTURES

GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 3⁄16" thick and shall include two tapering cone lugs ⅜" to 9⁄16"x 2" long. The border and all lettering shall be raised ⅛" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

① Year in which contract is awarded.

⚠1 Corrected error in detail showing three lines of text for feature intersected instead of two.
By: KWY, Checked by: WAC; 2/27/2020.

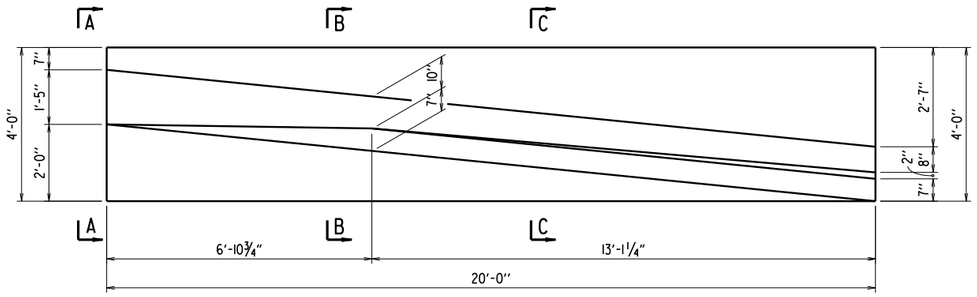
STANDARD DETAILS FOR
TYPE C BRIDGE NAME PLATES

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	2-27-2014	FILENAME:	b55011.dgn
CHECKED BY:	BEF	DATE:	2-27-2014	SCALE:	NO SCALE
DESIGNED BY:	STD.	DATE:	-------		

DRAWING NO. 55011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TRANSITIONAL RAIL		55013	



PLAN OF TRANSITIONAL APPROACH RAILING

(RAILINGS ON EACH SIDE OF ROADWAY ARE OPPOSITE HAND TO EACH OTHER)
½" = 1'-0"

GENERAL NOTES

Transitional Approach Railing shall be placed at locations shown in the plans.

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Construction. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Construction.

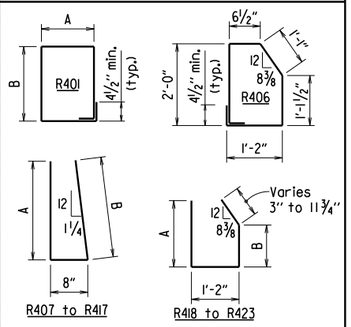
Unless otherwise required in the plans, curing and finishing shall be in accordance with Subsection 806.05(c) and the surface finish type and areas of application shall match that used on the adjacent bridge railing or concrete barrier wall. See Subsection 802.19(3) for Class 3 Textured Coating Finish or Subsections 803.03(a) or 803.03(b) for Class 1 or 2 Protective Surface Treatment, respectively. Payment for surface finishes shall not be paid for directly, but shall be considered incidental to the unit price bid for "Transitional Approach Railing".

When alternate surface and/or architectural finishes are specified in the plans, no direct payment will be made, and the alternate finish shall be considered incidental to the unit price bid for "Transitional Approach Railing". See plan details for additional information when architectural finishes are specified.

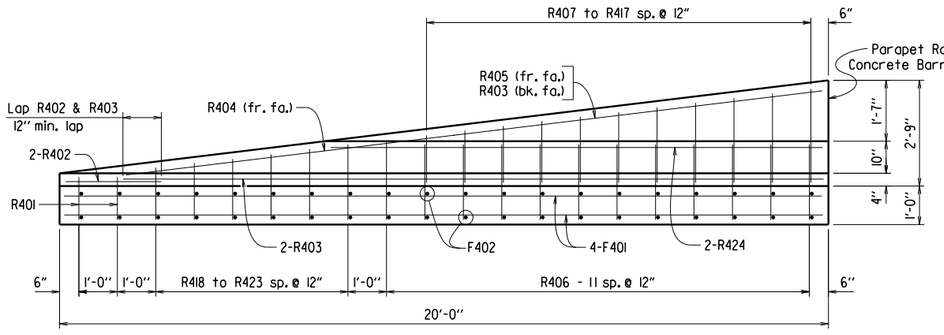
Transitional Approach Railing shall be paid for at the contract unit price bid for "Transitional Approach Railing". See Section 806 for additional information.

BAR LIST - ONE TRANSITIONAL RAIL

Mark	No. Req'd	Length	A	B	Pin Dia.	Bending Diagrams
F401	8	19'-8"			Str.	
F402	40	3'-8"			Str.	
R401	2	4'-10"	1'-2"	1'-1"	2"	
R402	2	3'-0"			Str.	
R403	3	17'-9"			Str.	
R404	1	5'-0"			Str.	
R405	1	12'-9"			Str.	
R406	12	6'-3"			2"	
R407 to R417	1 ea.	3'-0" to 5'-5"	1'-3" to 2'-5½"	1'-3" to 2'-5½"	2"	
R418 to R423	1 ea.	3'-9" to 5'-1"	1'-4" to 1'-11¼"	1'-1½"	2"	
R424	2	12'-0"			Str.	



Dimensions are out to out of bars.



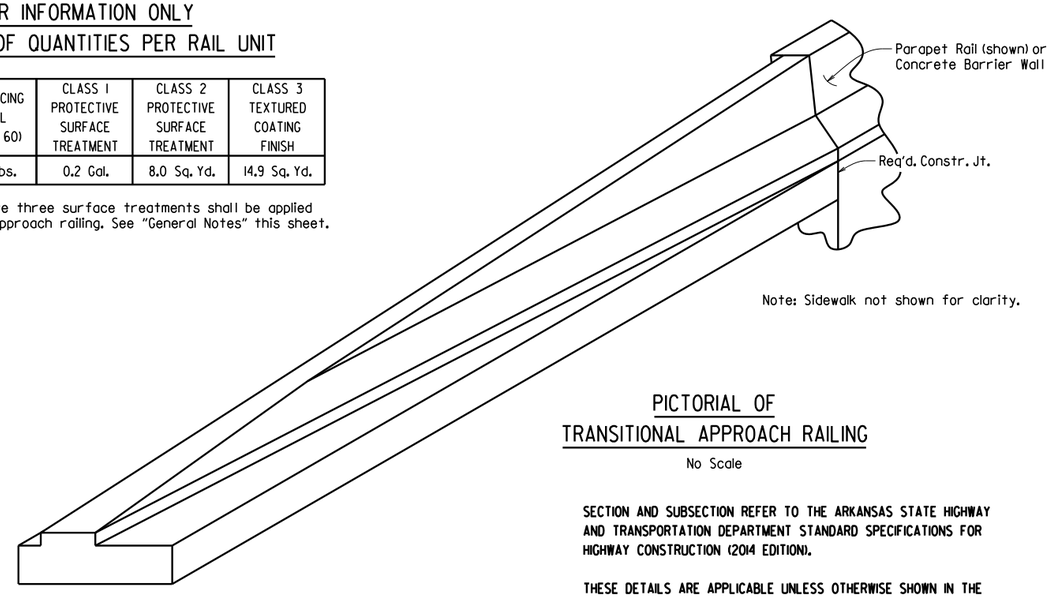
ELEVATION OF TRANSITIONAL APPROACH RAILING

½" = 1'-0"

FOR INFORMATION ONLY
SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS 1 PROTECTIVE SURFACE TREATMENT	CLASS 2 PROTECTIVE SURFACE TREATMENT	CLASS 3 TEXTURED COATING FINISH
4.20 Cu. Yds.	376 Lbs.	0.2 Gal.	8.0 Sq. Yd.	14.9 Sq. Yd.

Only one of the above three surface treatments shall be applied to the transitional approach railing. See "General Notes" this sheet.

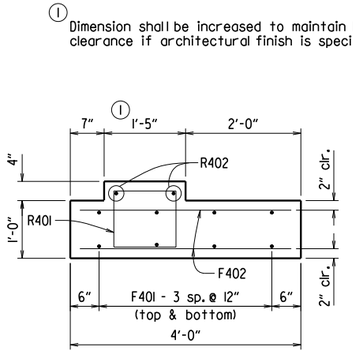


Note: Sidewalk not shown for clarity.

PICTORIAL OF TRANSITIONAL APPROACH RAILING

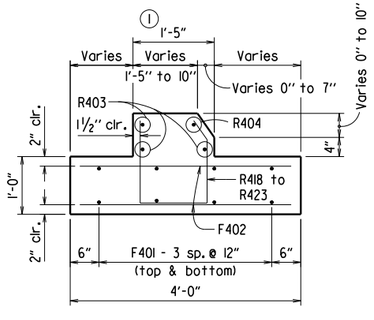
No Scale

① Dimension shall be increased to maintain 1½" clearance if architectural finish is specified.



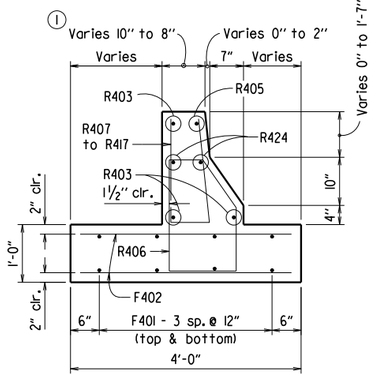
VIEW A-A

¾" = 1'-0"



SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR TRANSITIONAL APPROACH RAILING

ARKANSAS STATE HIGHWAY COMMISSION

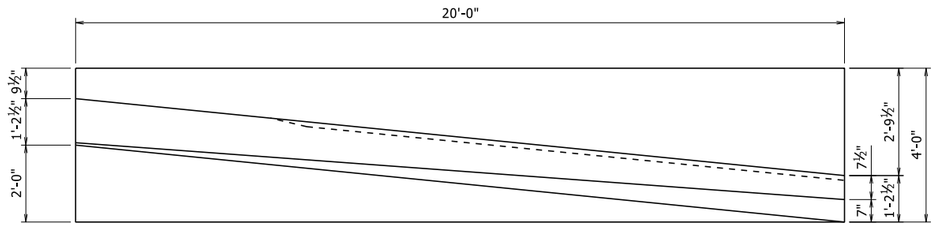
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55013.dgn
CHECKED BY: AMS DATE: 2/11/2016 SCALE: As Noted
DESIGNED BY: STD. DATE: —

DRAWING NO. 55013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

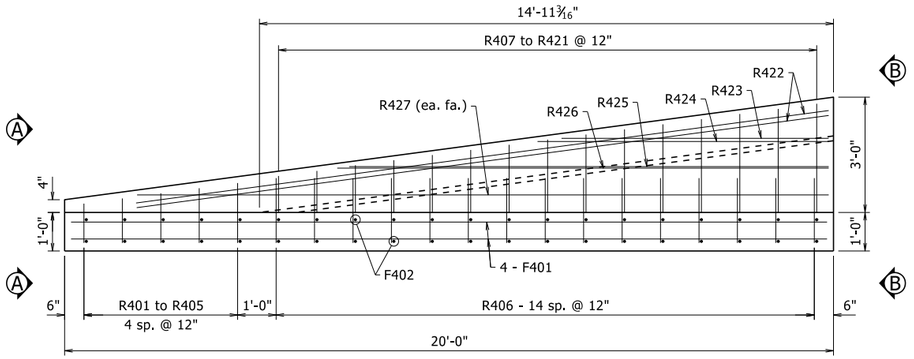
(1) TRANSITIONAL RAIL - 55013A



PLAN OF TRANSITIONAL APPROACH RAILING

Railings on each side of roadway are opposite hand to each other

½" = 1'-0"

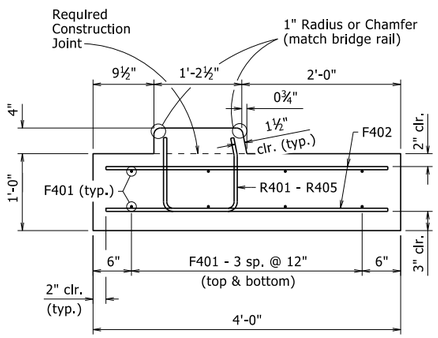


ELEVATION OF TRANSITIONAL APPROACH RAILING

½" = 1'-0"

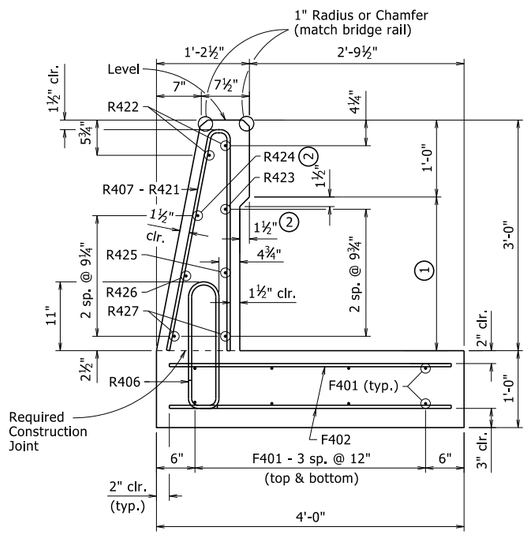
(1) Recess height varies as shown from 2'-0" to 0".

(2) Eliminate recess when formliner with architectural finish is used. See Plans for additional information.



VIEW A-A

1" = 1'-0"



VIEW B-B

1" = 1'-0"

GENERAL NOTES

Transitional Approach Railing Type SSTR36 shall be placed at locations shown in plans.

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners to be chamfered 1" unless otherwise noted.

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Construction. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Construction.

Unless otherwise required in the plans, curing and finishing shall be in accordance with Subsection 806.05(c) and the surface finish type and areas of application shall match that used on the adjacent bridge railing or barrier wall. See Subsection 802.19(3) for Class 3 Textured Coating Finish or Subsection 803.03(a) or 803.03(b) for Class 1 or 2 Protective Surface Treatment, respectively. Surface finishes shall not be paid for directly, but shall be considered incidental to the unit price bid for "Transitional Approach Railing."

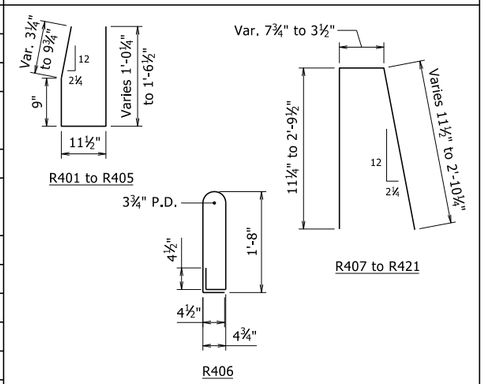
When alternate surface and/or architectural finishes are specified in the plans, no direct payment will be made, and the alternate finish shall be considered incidental to the unit price bid for "Transitional Approach Railing". See plan details for additional information when architectural finishes are specified.

Transitional Approach Railing Type SSTR36 shall be paid for at the contract unit price bid for "Transitional Approach Railing". See Section 806 for additional information.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

BAR LIST - ONE TRANSITIONAL APPROACH RAILING

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
F401	8	19'-8"	Str.	
F402	40	3'-8"	Str.	
R401 to R405	1 ea.	2'-10" - 3'-11"	2"	
R406	15	4'-5"	2"	
R407 to R421	1 ea.	2'-5" - 5'-9"	2"	
R422	2	18'-2"	Str.	
R423	1	6'-11"	Str.	
R424	1	7'-6"	Str.	
R425	1	12'-6"	Str.	
R426	1	12'-9"	Str.	
R427	2	17'-11"	Str.	

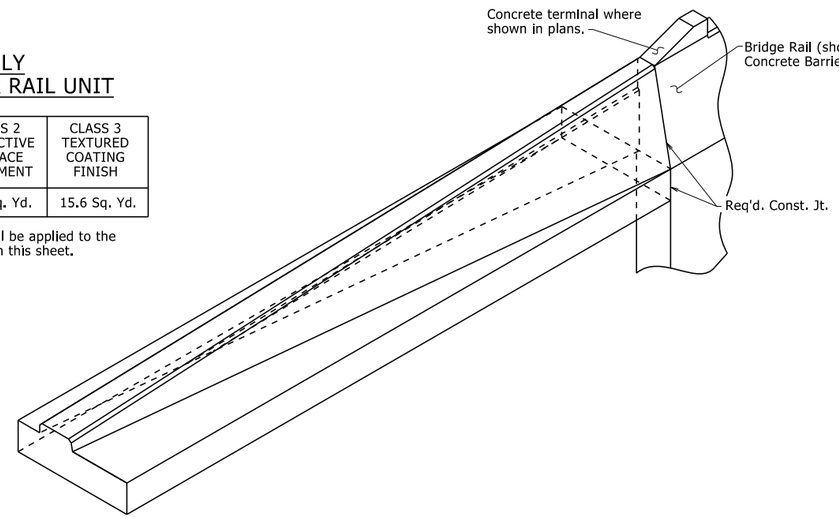


Dimensions are out to out of bars.

FOR INFORMATION ONLY
SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS 1 PROTECTIVE SURFACE TREATMENT	CLASS 2 PROTECTIVE SURFACE TREATMENT	CLASS 3 TEXTURED COATING FINISH
4.1 Cu. Yds.	374 Lbs.	0.2 Gal.	8.1 Sq. Yd.	15.6 Sq. Yd.

Only one of the above three surface treatments shall be applied to the transitional approach railing. See "General Notes" on this sheet.



PICTORIAL OF TRANSITIONAL APPROACH RAILING

Sidewalk not shown for clarity

No Scale

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR TRANSITIONAL APPROACH RAILING TYPE SSTR36

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 4/8/2021 FILENAME: b55013a.dgn

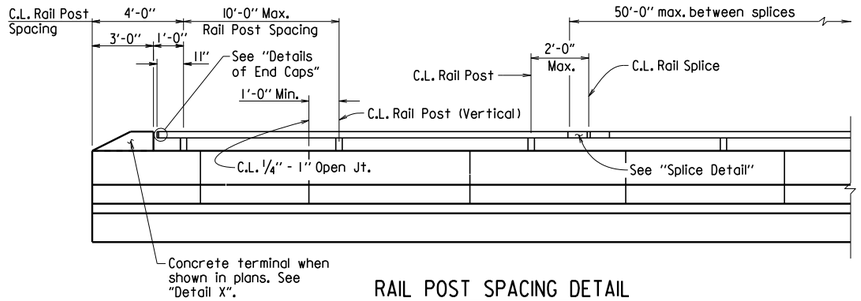
CHECKED BY: BHS DATE: 4/8/2021 SCALE: As Shown

DESIGNED BY: STD. DATE: --

DRAWING NO. 55013A

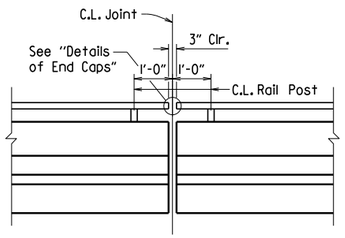
PRINT DATE: 4/9/2021

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TYPE H RAILING		55014	

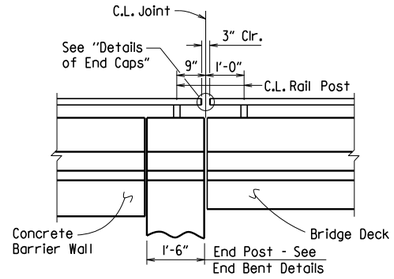


RAIL POST SPACING DETAIL

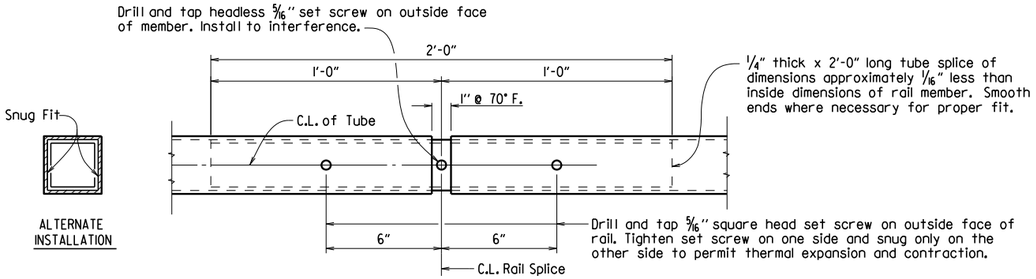
(Horizontal dimensions are along face of rail)



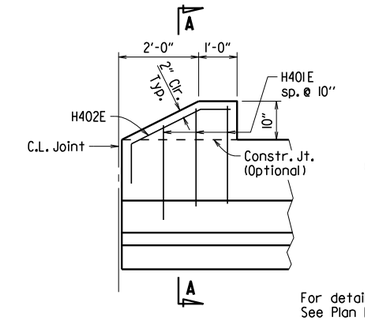
RAIL POST SPACING AT EXPANSION JOINTS



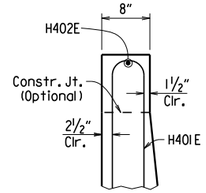
RAIL POST SPACING AT BRIDGE ENDS WITH CONCRETE BARRIER WALL



SPLICE DETAIL

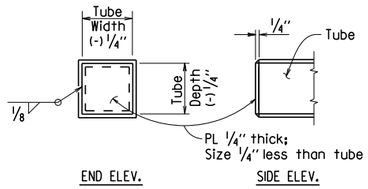


DETAIL X

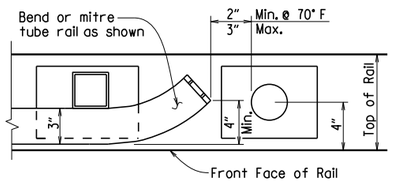


SECTION A-A

For details of reinforcing steel, See Plan Details.

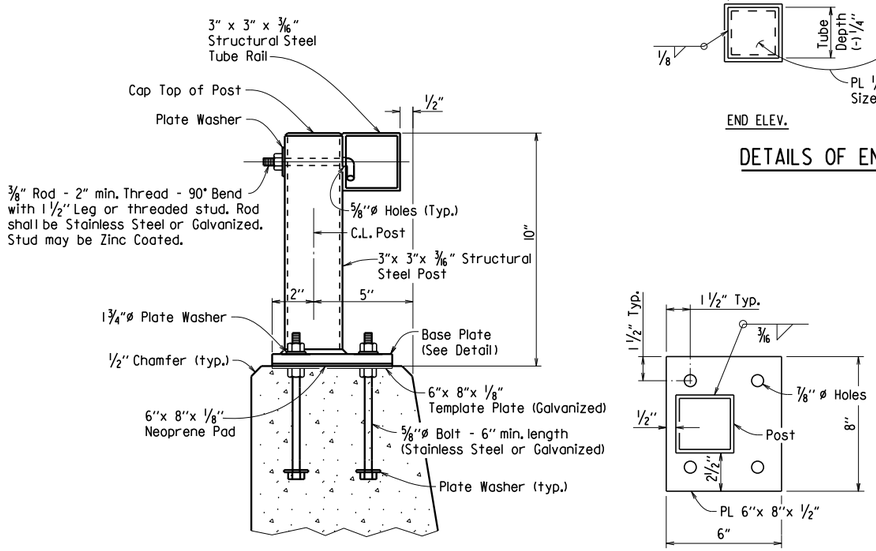


DETAILS OF END CAPS



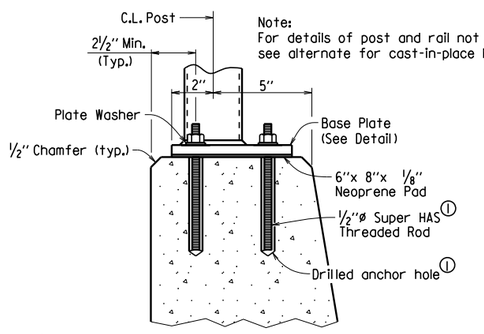
DETAILS OF RAIL TERMINUS AT FENCE POST

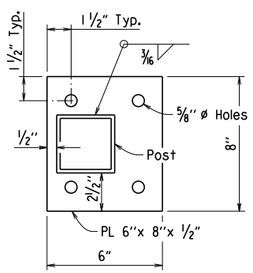
(When Chain Link Fence is required)



BASE PLATE

DETAILS OF POST ANCHOR SYSTEM (CAST-IN-PLACE BOLTS)





BASE PLATE

① HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal.

The HILTI Epoxy Adhesive Anchor System (or approved equal) shall be installed in accordance with Manufacturer's recommendations.

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

MATERIALS:

Rail tubing, posts, end caps, and base plates shall conform to AASHTO M 270, Gr. 36 or ASTM A 500-Grade B, and shall be galvanized after fabrication in accordance with Subsection 806.02(c). When required elsewhere in the plans, steel rail members shall receive a powder coating process after galvanizing. Galvanized surfaces shall be prepared in accordance with Subsection 807.87 and the manufacturer's recommendations prior to application of the powder coating process.

The powder coating process shall be a two coat system applied using electrostatic spray. The base coat shall be a thermosetting epoxy powder with a minimum thickness of 2 to 4 mils. The top coat shall be tough polyester powder with a minimum thickness of 2 to 4 mils. The color shall be as shown in the plans. Coated galvanized framework shall have a salt spray resistance of 3000 hours using ASTM B 117 without loss of adhesion. The powder coating process shall be in accordance with manufacturer's recommendations. Any damage to the powder coated finish shall be repaired with a compatible touch-up system in accordance with manufacturer's recommendations and to the satisfaction of the Engineer at the Contractor's expense.

Cast-in-place anchor bolts, nuts, washers, and set screws shall be galvanized high-strength steel or stainless steel. Mixing of galvanized fasteners and stainless steel will not be permitted.

High-Strength Steel:
Cast-in-place anchor bolts shall conform to ASTM A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M 292, Grade 2H.
Washers shall conform to ASTM F436.
Plate Washers shall conform to AASHTO M 270, Gr. 36.
Splice Set Screws shall conform to AASHTO M 270, Grade 36.
Anchor bolts, nuts, washers, plate washers, and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

Stainless Steel:
Cast-in-place anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi.
Nuts shall conform to AASHTO M 292, Grade 8 or ASTM A563.
Washers shall conform to ASTM A240, Type 302.
Plate Washers shall conform to ASTM A240, Type 302.
Splice Set Screws shall conform to ASTM A193 or A320-Grade B8.

Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B1.1. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series). Neoprene pads shall conform to the requirements of Subsection 807.15(b).

GENERAL NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of bridge. All posts shall be vertical.

Maximum post spacing = 10'-0". Minimum distance from centerline post to centerline open or contraction joints in parapet rail = 1'-0".

Splices in rail tubing shall be at 50' maximum spacing. The centerline of splices shall be located a maximum of 2 feet from centerline of post. Rail sections shall be fabricated to attach to at least three posts.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Bridge railing, including posts, template and base plates, fasteners, and neoprene pads shall be paid for at the contract unit price bid per linear foot for "Metal Bridge Railing (Type H)". When required elsewhere in the plans, powdered coating finish and repair of powdered coating finish shall be considered subsidiary to the item "Metal Bridge Railing (Type H)".

Shop drawings showing details of railing shall be submitted and approval secured prior to fabrication.

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR TYPE H RAILING

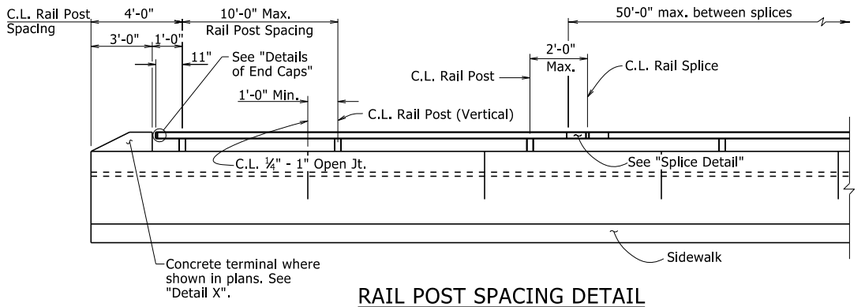
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55014.dgn
CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale
DESIGNED BY: STD. DATE: ——
BRIDGE NO. DRAWING NO. 55014

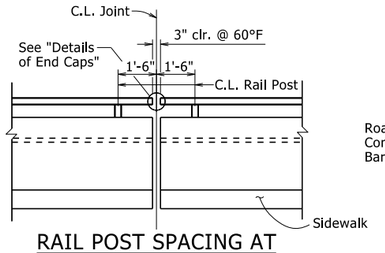
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				6	ARK.			
				JOB NO.				

(1) TYPE H2 RAILING - 55015

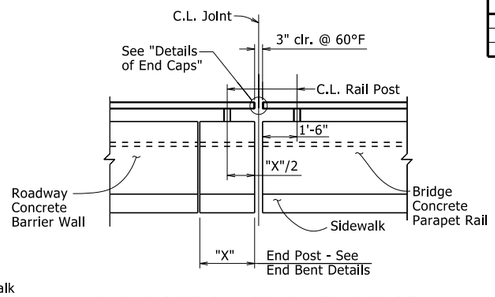


RAIL POST SPACING DETAIL

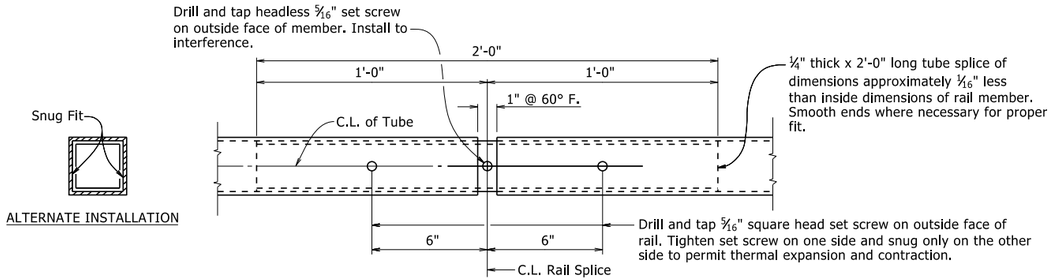
(Horizontal dimensions are along face of rail)



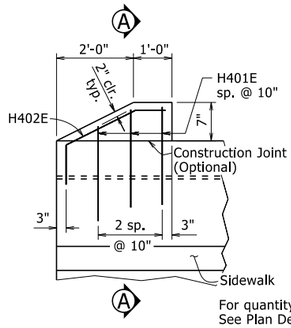
RAIL POST SPACING AT EXPANSION JOINTS



RAIL POST SPACING AT BRIDGE ENDS WITH CONCRETE BARRIER WALL

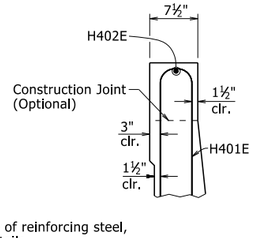


SPLICE DETAIL

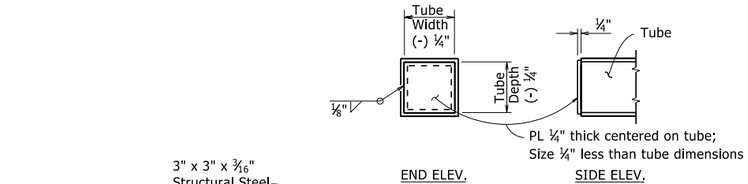


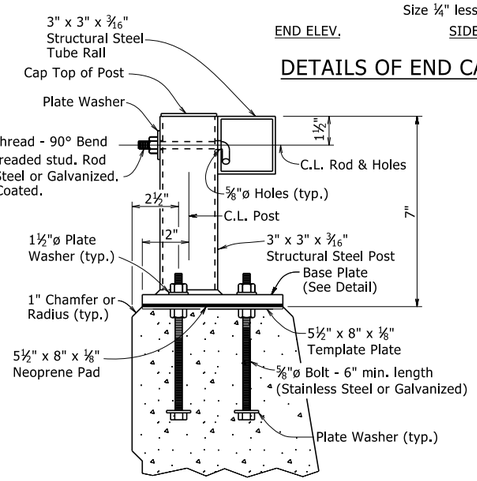
For quantity of reinforcing steel, See Plan Details.

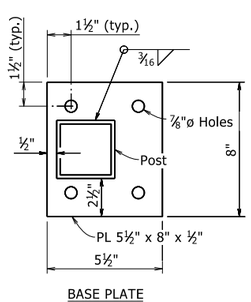
DETAIL X



SECTION A-A



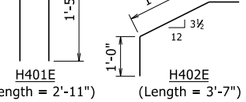




BASE PLATE

DETAILS OF POST ANCHOR SYSTEM

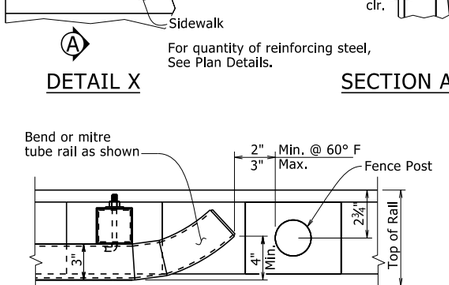
(Cast-in-Place Bolts)



Pin diameter for bending is 2". Bars shall be epoxy coated.

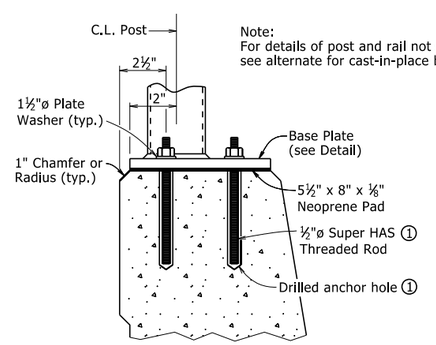
BENDING DIAGRAMS

(Dimensions are Out-to-Out of Bars)

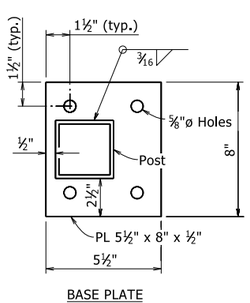


DETAILS OF RAIL TERMINUS AT FENCE POST

(When Chain Link Fence is Required)



Note:
For details of post and rail not shown, see alternate for cast-in-place bolts.



BASE PLATE

① HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or approved equal.

The Hilti Epoxy Adhesive Anchor System (or approved equal) shall be installed in accordance with Manufacturer's recommendations.

DETAILS OF ALTERNATE POST ANCHOR SYSTEM

(Epoxy Adhesive Anchors)

MATERIALS:

Rail tubing, posts, end caps, and base plates shall conform to ASTM A709, Grade 36 or ASTM A500-Grade B, and shall be galvanized after fabrication in accordance with Subsection 806.02(c). When required elsewhere in the plans, steel rail members shall receive a powder coating process after galvanizing. Galvanized surfaces shall be prepared in accordance with Subsection 807.87 and the manufacturer's recommendations prior to application of the powder coating process.

The powder coating process shall be a two coat system applied using electrostatic spray. The base coat shall be a thermosetting epoxy powder with a minimum thickness of 2 to 4 mils. The top coat shall be tough polyester powder with a minimum thickness of 2 to 4 mils. The color shall be as shown in the plans. Coated galvanized framework shall have a salt spray resistance of 3,000 hours using ASTM B117 without loss of adhesion. The powder coating process shall be in accordance with manufacturer's recommendations. Any damage to the powder coated finish shall be repaired with a compatible touch-up system in accordance with the manufacturer's recommendations and to the satisfaction of the Engineer at the Contractor's expense.

Cast-in-place anchor bolts, nuts, washers, and set screws shall be galvanized high-strength steel or stainless steel. Mixing of galvanized and stainless steel fasteners will not be permitted.

High-Strength Steel:
Cast-in-place anchor bolts shall conform to ASTM F3125, Grade A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M 292, Grade 2H.
Washers shall conform to ASTM F436.
Plate Washers shall conform to ASTM A709, Grade 36.
Template Plates shall conform to ASTM A709, Grade 36.
Splice Set Screws shall conform to ASTM A307, Grade A.
Anchor bolts, nuts, washers, plate washers, and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

Stainless Steel:
Cast-in-place anchor bolts shall conform to ASTM A193, Grade B8, Class 2 or A320, Grade B8, Class 2 with a minimum yield strength of 80,000 psi.
Nuts shall conform to ASTM A194, Grade 8.
Washers shall conform to ASTM A240, Type 302.
Plate Washers shall conform to ASTM A240, Type 302.
Template Plates shall conform to ASTM A240, Type 302.
Splice Set Screws shall conform to ASTM A193, Grade B8, Class 1 or A320, Grade B8, Class 1.

Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B1.1. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series) unless otherwise noted. Neoprene pads shall conform to the requirements of Subsection 807.15(b).

GENERAL NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of bridge. All posts shall be vertical. Rail sections shall be fabricated to attach to at least three posts.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Bridge railing, including posts, templates, and base plates, fasteners, and neoprene pads shall be paid for at the contract unit price bid per linear foot for "Metal Bridge Railing (Type H2)". When required elsewhere in the plans, powdered coating finish and repair of powdered coating finish shall be considered subsidiary to the item "Metal Bridge Railing (Type H2)".

Shop drawings showing details of railing shall be submitted and approval secured prior to fabrication.

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR TYPE H2 RAILING

ARKANSAS STATE HIGHWAY COMMISSION

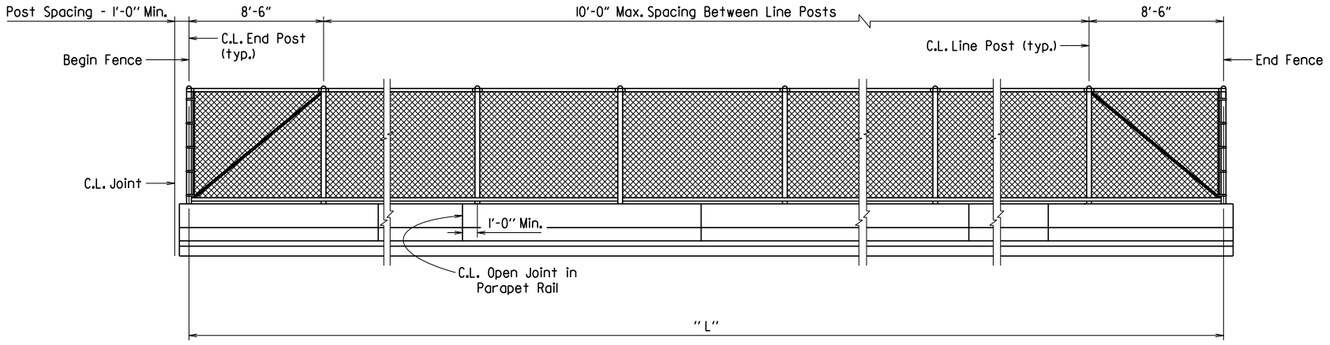
LITTLE ROCK, ARK.

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DRAWING NO. 55015

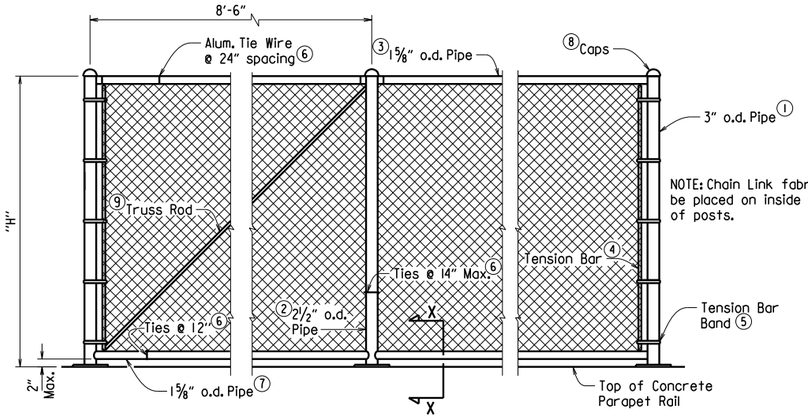
PRINT DATE: 4/6/2021

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				6	ARK.			
				JOB NO.				
				(1)		CHAIN LINK FENCE	55018	



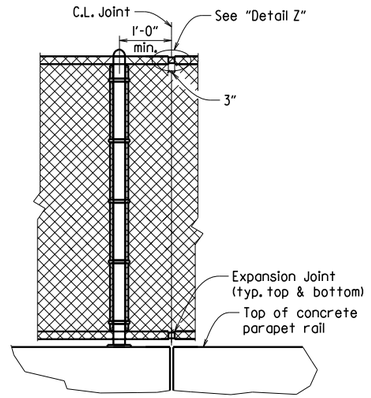
NOTE: The fence location, height "H", total length "L" and parapet panel spacing shall be as specified in plans.

LONGITUDINAL VIEW OF CHAIN LINK FENCE



NOTE: Chain Link fabric to be placed on inside face of posts.

DETAILS OF CHAIN LINK FENCE



DETAIL AT EXPANSION JOINTS

① END POST: 3" O.D.
② LINE POST: 2½" O.D.
③ TOP RAIL: 1⅝" O.D.
④ TENSION BAR: ⅜" x ¾" Bar
⑤ TENSION BAR BAND: ¾"x .074 w/⅝"ø x 1¼" Bolt (1 Band Top and Bottom w/15" Max. spaces)
⑥ TIE WIRE: 9 Ga. Aluminum
⑦ BOTTOM RAIL: 1⅝" O.D.
⑧ CAPS: All Posts shall be Capped and Shall Conform to ASTM F626-84
⑨ TRUSS ROD: Min. of ⅝" Round with Tighteners and Fittings

FABRIC: 9 Ga. 2" Mesh w/Knocklug or Twisting Selvage

GENERAL NOTES FOR CHAIN LINK FENCE:

Fence layout shall conform to the vertical and horizontal bridge alignments. Fence posts shall be set plumb (true vertical position). Parapet rail concrete shall be at least 7 days old before stretching and securing fabric to posts.

Base plates shall not be placed upon areas that are improperly finished, deformed, or irregular.

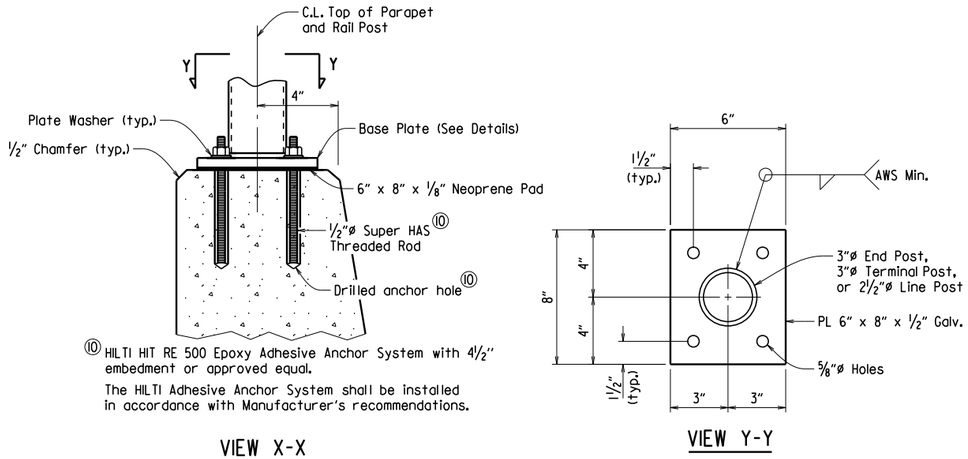
Chain Link Fence attached to Bridge, including neoprene pad and template plates, shall be paid for as "__' Steel Chain Link Fence". For additional details of Chain Link Fence, See Standard Drawing WF-3.

Cast-in-place anchor bolts, nuts, washers, and set screws shall be galvanized high-strength steel or stainless steel. Mixing of galvanized fasteners and stainless steel will not be permitted.

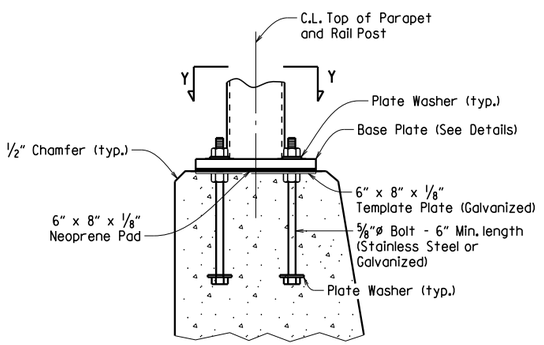
High-Strength Steel:
Cast-in-place anchor bolts shall conform to ASTM A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M 292, Grade 2H.
Washers shall conform to ASTM F436.
Plate Washers shall conform to AASHTO M 270, Grade 36.
Splice Set Screws shall conform to AASHTO M 270, Grade 36.
Anchor bolts, nuts, washers, plate washers, and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

Stainless Steel:
Cast-in-place anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi.
Nuts shall conform to AASHTO M 292, Grade 8 or ASTM A563.
Washers shall conform to ASTM A240, Type 302.
Plate Washers shall conform to ASTM A240, Type 302.
Splice Set Screws shall conform to ASTM A193 or A320-Grade B8.

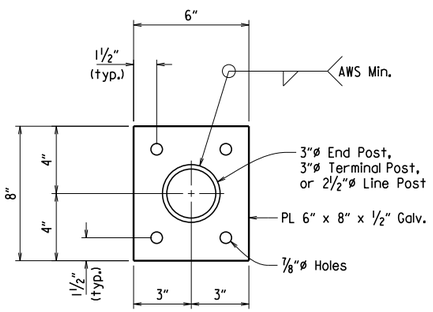
Threads on bolts, screws, and nuts shall conform to American Standard Course Series, Class 2 Fit, ASA Specification B1.1. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series). Neoprene pads shall conform to the requirements of Subsection 807.15(b).



DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

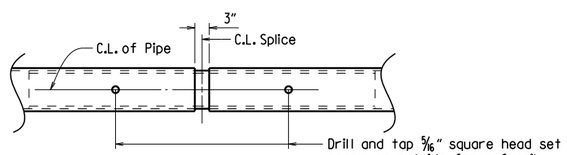


VIEW X-X



VIEW Y-Y

DETAILS OF POST ANCHOR SYSTEM
(CAST-IN-PLACE BOLTS)



DETAIL Z

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR CHAIN LINK FENCE

ARKANSAS STATE HIGHWAY COMMISSION

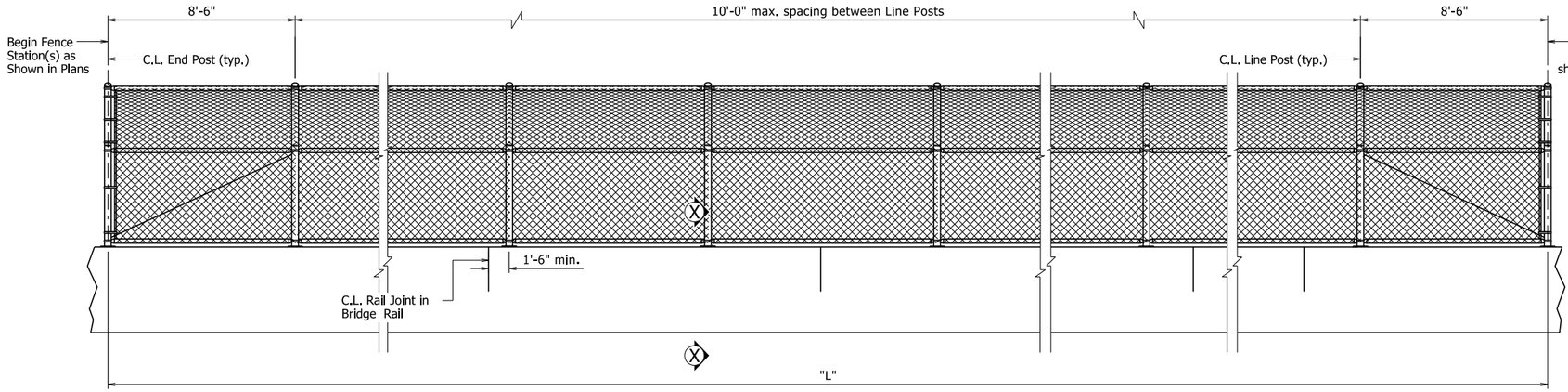
LITTLE ROCK, ARK.

DRAWN BY: E.O.R. DATE: 2-11-2016 FILENAME: b55018.dgn
CHECKED BY: A.M.S. DATE: 2-11-2016 SCALE: No Scale
DESIGNED BY: STD. DATE: ——

DRAWING NO. 55018

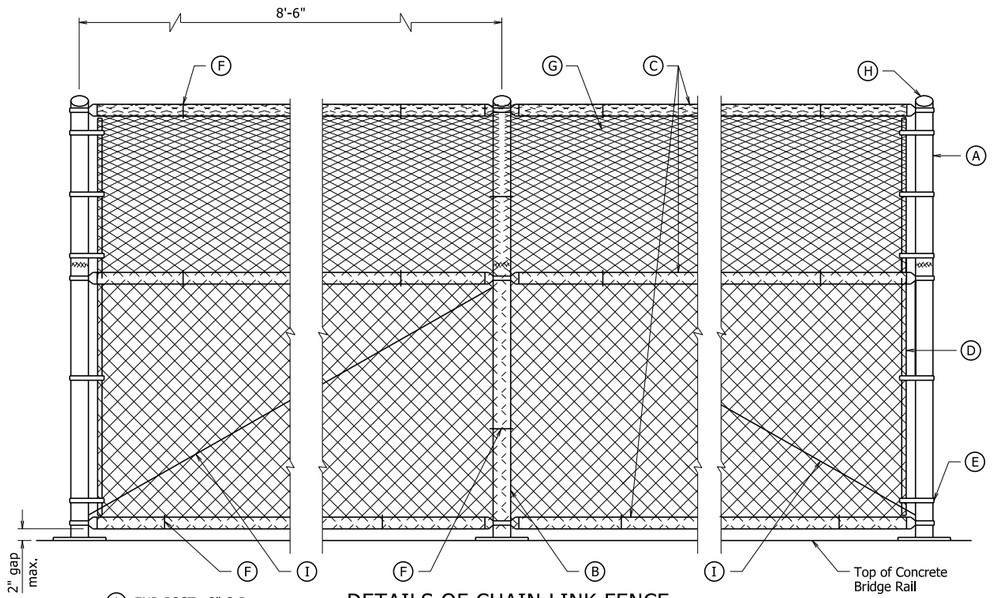
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				6	ARK.			
				JOB NO.				

(1) CURVED CHAIN LINK FENCE - 55019



LONGITUDINAL VIEW OF CHAIN LINK FENCE

NOTE: The fence location, total length, and bridge rail panel spacing shall be as specified in the plans.



DETAILS OF CHAIN LINK FENCE

(A) END POST: 3" O.D.

(B) LINE POST: 2½" O.D.

(C) HORIZONTAL RAIL: 1⅝" O.D.

(D) TENSION BAR: 3/16" x ¾" Bar

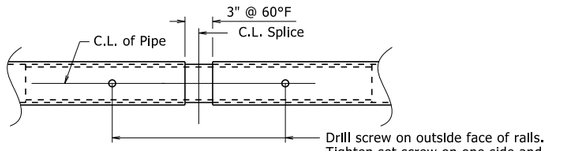
(E) TENSION BAR BAND: ¾" x 0.074 with 5/16"Ø x 1¼" Bolt
One Band Top and Bottom with 1'-3" max. spacing placed as shown. Bend tensions rods to conform to curve geometry shown.

(F) TIE WIRE: 9 Ga. Aluminum @ 12" max.

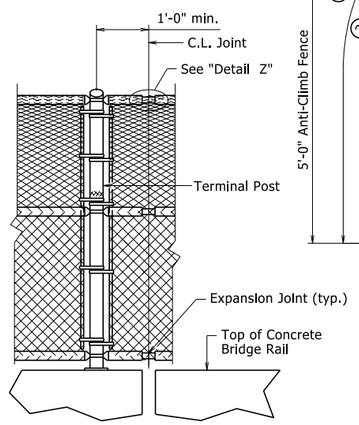
(G) FABRIC: 9 Ga. 2" Mesh w/Knucklug or Twisting Selvage. Chain link fabric to be placed on outside face of rails.

(H) CAPS: All post shall be capped and shall conform to ASTM F626.

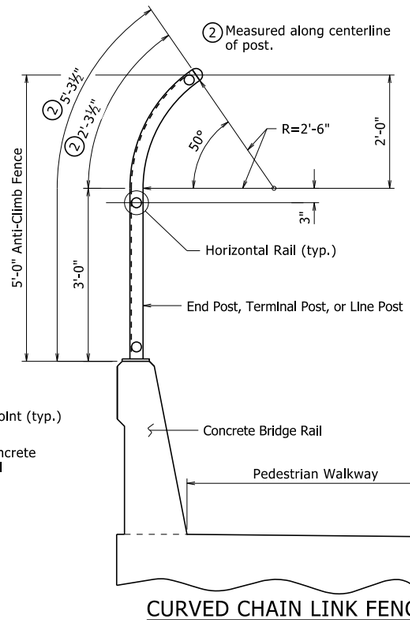
(I) TRUSS ROD: Min. of 5/16" round with Tighteners and Fittings



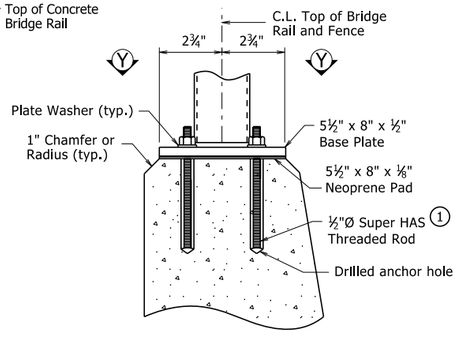
DETAIL Z



DETAILS AT BRIDGE DECK EXPANSION JOINTS



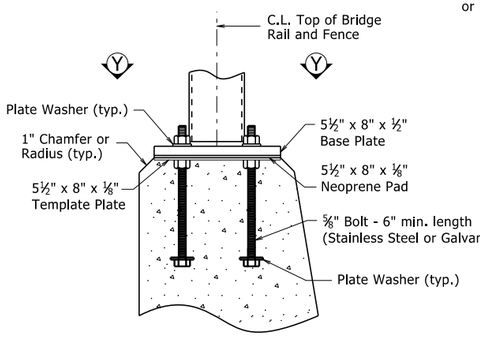
CURVED CHAIN LINK FENCE



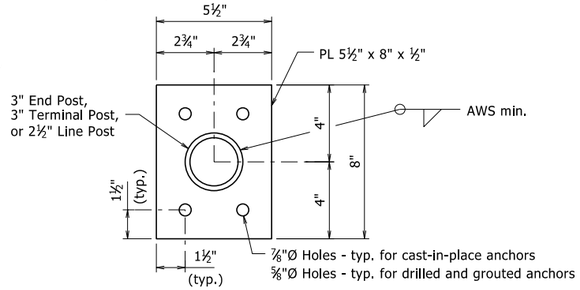
(1) HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or approved equal.

The HILTI Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

SECTION X-X
DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(Epoxy Adhesive Anchors)



SECTION X-X
DETAILS OF POST ANCHOR SYSTEM
(Cast In-Place Bolts)



VIEW Y-Y

MATERIALS:

Chain link fence attached to the bridge shall be paid for as "5' Steel Chain Link Fence". Material for chain link fence shall comply with AASHTO M 181 Type I, Class D; Type II; or Type III. Steel members for posts, rails, and expansion sleeves may be either Grade 1 or Grade 2. Hardware and fittings shall comply with ASTM F626. Any miscellaneous hardware or fittings not mentioned shall be galvanized according to AASHTO M 111 or M 232. When required elsewhere in the plans, steel fence members shall receive a powder coating process after galvanizing. Galvanized surfaces shall be prepared in accordance with Subsection 807.87 and the manufacturer's recommendations prior to application of the powder coating system.

The powder coating process shall be a two coat system applied using electrostatic spray. The base coat shall be a thermosetting epoxy powder with a minimum thickness of 2 to 4 mils. The top coat shall be tough polyester powder with a minimum thickness of 2 to 4 mils. The color shall be as shown in the plans. Coated galvanized framework shall have a salt spray resistance of 3,000 hours using ASTM B117 without loss of adhesion. The powder coating process shall be in accordance with manufacturer's recommendations. Any damage to the powder coated finish shall be repaired with a compatible touch-up system in accordance with the manufacturer's recommendations and to the satisfaction of the Engineer at the Contractor's expense.

Cast-in-place anchor bolts, nuts, washers, and set screws shall be galvanized high-strength steel or stainless steel. Mixing of galvanized and stainless steel fasteners will not be permitted.

High-Strength Steel:
Cast-in-place anchor bolts shall conform to ASTM F3125, Grade A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M 292, Grade 2H.
Washers shall conform to ASTM F436.
Plate Washers shall conform to ASTM A709, Grade 36.
Template Plates shall conform to ASTM A709, Grade 36.
Splice Set Screws shall conform to ASTM A307, Grade A.
Anchor bolts, nuts, washers, plate washers, and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

Stainless Steel:
Cast-in-place anchor bolts shall conform to ASTM A193, Grade B8, Class 2 or A320, Grade B8, Class 2 with a minimum yield strength of 80,000 psi.
Nuts shall conform to ASTM A194, Grade 8.
Washers shall conform to ASTM A240, Type 302.
Plate Washers shall conform to ASTM A240, Type 302.
Template Plates shall conform to ASTM A240, Type 302.
Splice Set Screws shall conform to ASTM A193, Grade B8, Class 1 or A320, Grade B8, Class 1.

Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B1.1. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series) unless otherwise noted. Neoprene pads shall conform to the requirements of Subsection 807.15(b).

GENERAL NOTES FOR CHAIN LINK FENCE:

Fence layout shall conform to vertical and horizontal alignment of bridge. Fence posts shall be set plumb (true vertical position). Bridge rail concrete shall be at least 7 days old before stretching and securing fabric to posts.

Base plates shall not be placed upon areas that are improperly finished, deformed, or irregular.

For additional details of chain link fence, see Standard Drawing WF-3 and Section 619. Neoprene pad, template plates, and anchor systems shall not be paid for directly, but shall be considered incidental to the unit price bid for the item "5' Steel Chain Link Fence".

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR CURVED CHAIN LINK FENCE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 4/8/2021 FILENAME: b55019.dgn
CHECKED BY: TMG DATE: 4/8/2021 SCALE: No Scale
DESIGNED BY: STD. DATE: -

DRAWING NO. 55019

PRINT DATE: 4/12/2021

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3/24/16				6	ARK.			
				JOB NO.				
				①		STEEL H-PILES		55020

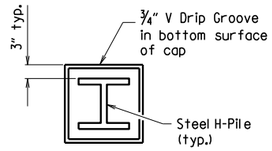
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

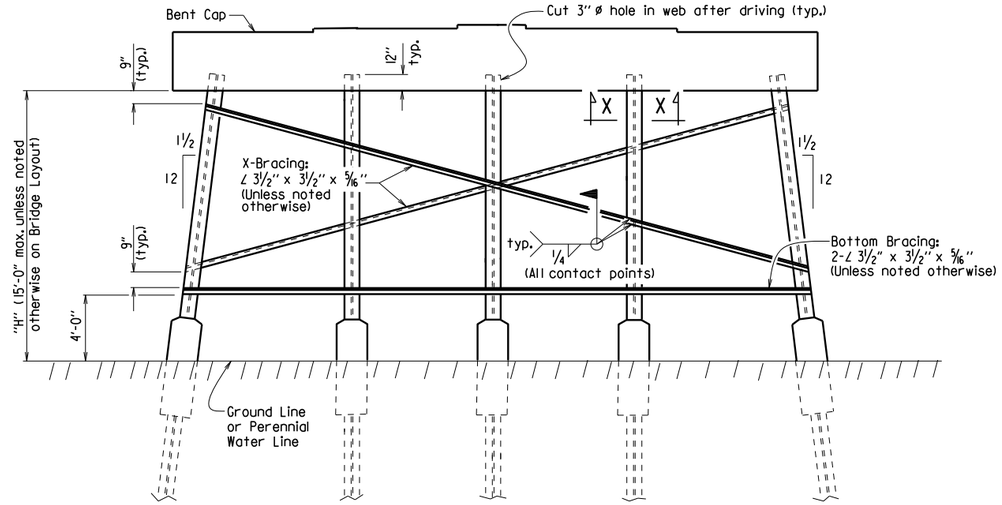
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

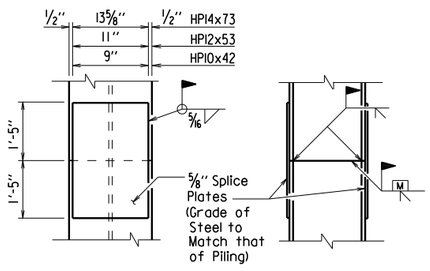
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



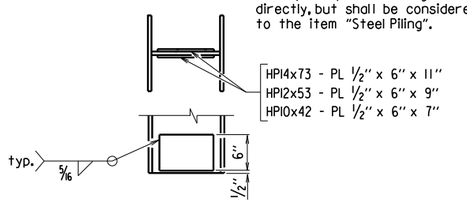
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

⚠ H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/16" fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifcations for Highway Construction (2014 Edition).

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

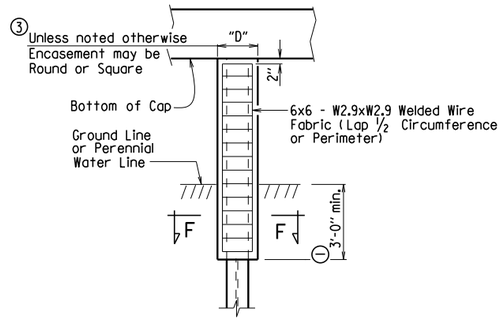
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

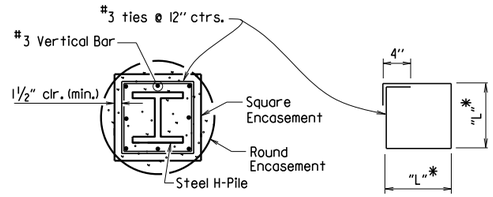
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

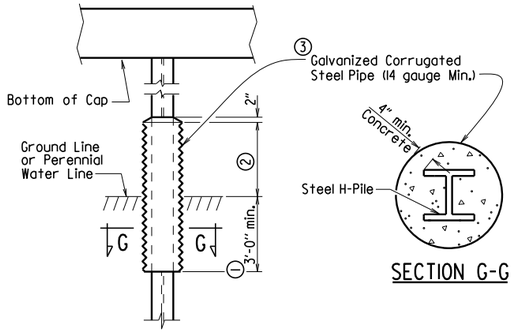


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HPI0x42	1'-7"	2'-0"	1'-4"
HPI2x53	1'-8"	2'-2"	1'-5"
HPI4x73	1'-11"	2'-6"	1'-8"



SECTION G-G

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

⚠ Added alternate method of splicing H-piles and revised pile encasement note.
3/24/2016 AMS

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

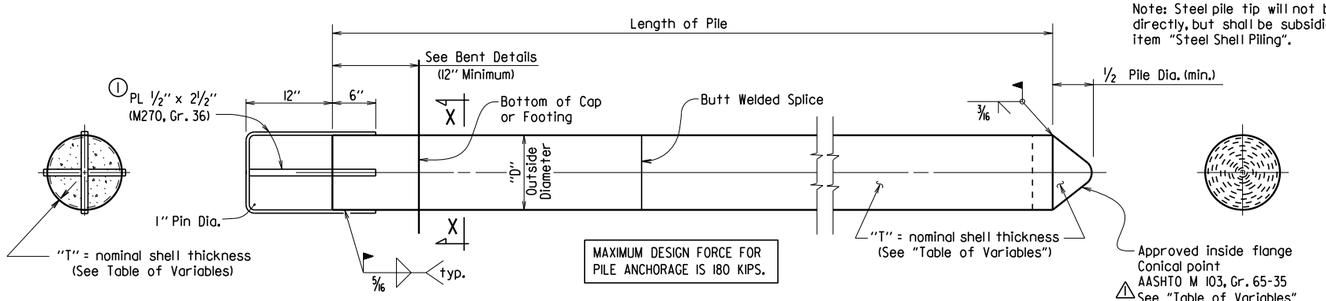
LITTLE ROCK, ARK.

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DESIGNED BY: STD. DATE: —

DRAWING NO. 55020

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				

(1) STEEL SHELL PILES 55021

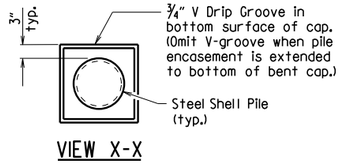


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

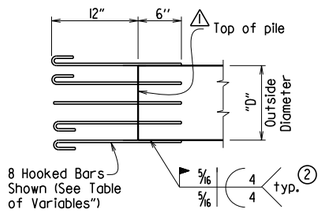
CONCRETE FILLED STEEL SHELL PILE

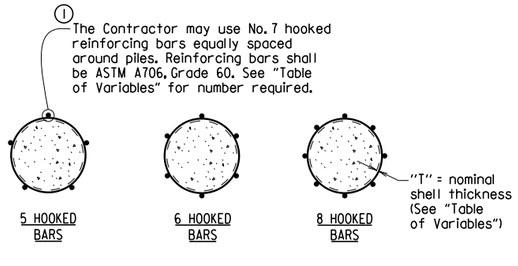
(1) Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

(2) Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.



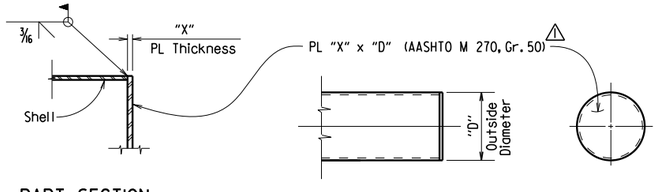
VIEW X-X





ALTERNATE PILE ANCHORAGE DETAIL

Note: Hooked bars shall be oriented to provide the required concrete clearances shown in the plans.

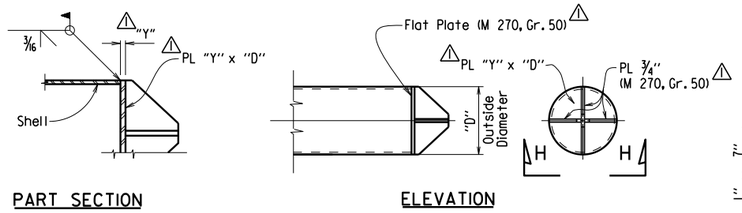


PART SECTION

ELEVATION

ALTERNATE FLAT TIP DETAIL

Note: The alternate flat tip detail shall not be used on steel shell piling to be driven through embankments constructed with internal geosynthetic reinforcement.

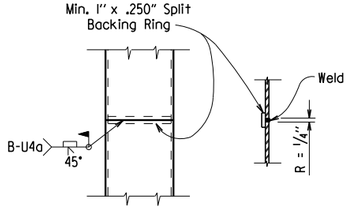


PART SECTION

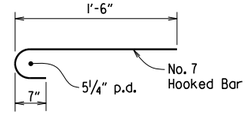
ELEVATION

VIEW H-H

ALTERNATE VANED TIP DETAIL



TYPICAL SPLICE DETAILS



HOOKED BAR DETAIL

TABLE OF VARIABLES

OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	(1) PLATE THICKNESS "X"	(1) PLATE THICKNESS "Y"	NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE	(1) MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
14"	0.50"	2¼"	1½"	5	859
16"	0.50"	2¼"	1½"	5	986
18"	0.50"	2½"	1½"	6	1,114
20"	0.50"	2½"	1¾"	6	1,241
24"	0.50"	2¾"	1¾"	8	1,495

(1) Revised and added various details by KWY, Ck'd. by BEF, 3/24/16.

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

Steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with Subsection 805.02.

See Bridge Layout for size and estimated length of steel shell piles and for driving information.

Concrete, structural steel, reinforcing steel (including welding), and painting shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".

GENERAL NOTES FOR PILE ENCASEMENTS:

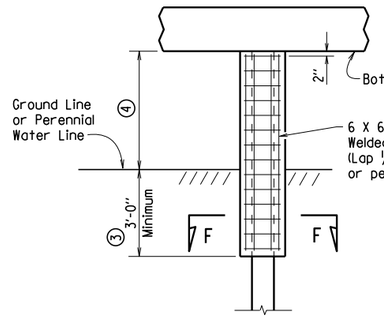
(1) See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

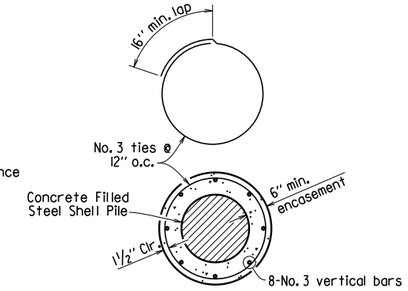
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

Welded wire fabric shall conform to AASHTO M 55 or M 221.

Concrete, welded wire fabric or reinforcing steel, and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".





SECTION F-F (REINF. ALTERNATE)

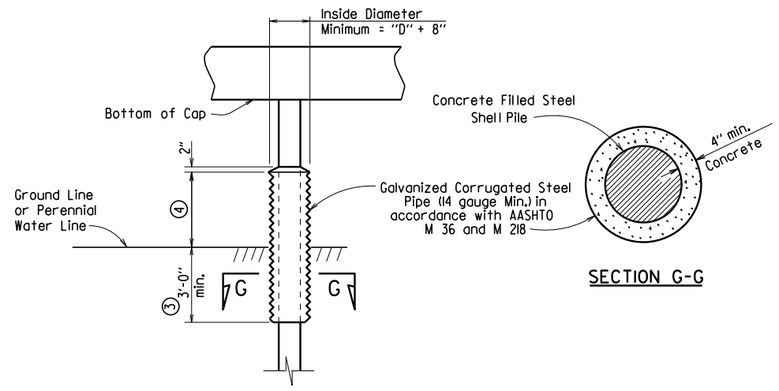
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(5) (Shown with Encasement to Bottom of Cap)

(3) Unless otherwise noted on Bridge Layout.

(4) See Bridge Layout for height of pile encasement (3'-0" Minimum).

(5) Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(Shown with Partial Height Encasement)

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

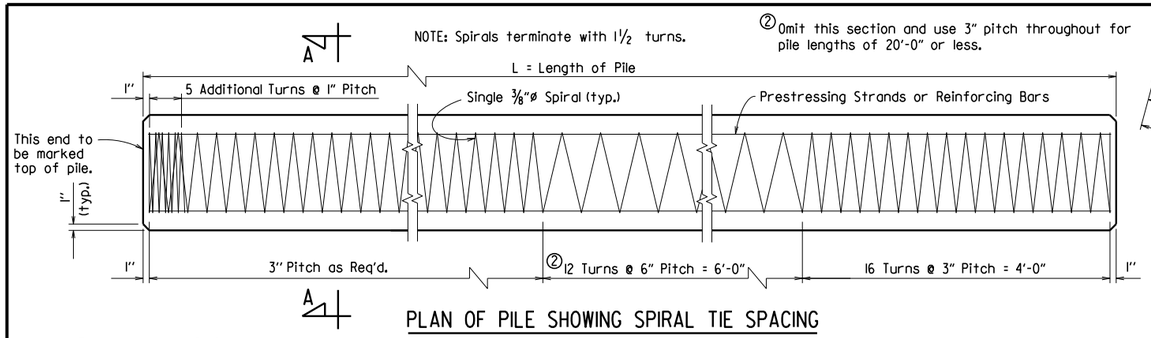
LITTLE ROCK, ARK.

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CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55021

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				

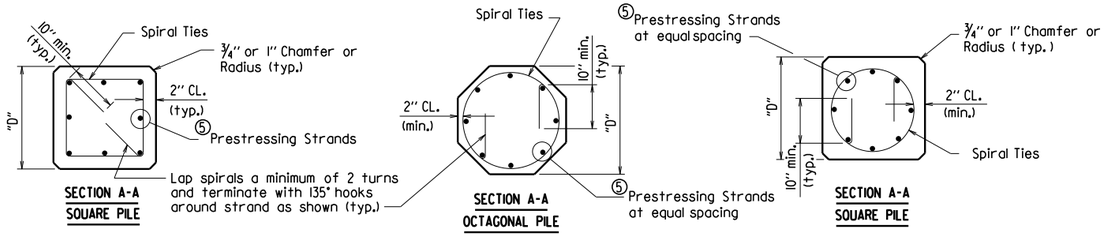
① CONC. PILES 55022



PLAN OF PILE SHOWING SPIRAL TIE SPACING

For anchorage of pile to bent, see Bent Details.

NOTE: Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



PRESTRESSED CONCRETE PILES

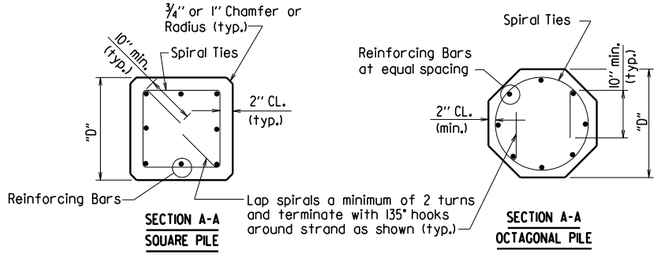
① Number based on initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation; 0.70 Stress-Relieved

⑤ See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

PRESTRESSED CONCRETE PILE PROPERTIES

	Grade	Strand Diameter	①Number of Strands per Size "D" 16" Oct.	18" Oct.	④ 14" Sq.	16" Sq.	18" Sq.	⚠ 20" Sq.	⚠ 24" Sq.	Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Initial Prestressing Force Per Strand (Lbs.)
Stress-Relieved	250	7/16"	11	13	10	13	16	20	28	27,000	18,900
		½"	8	10	8	10	12	15	21	36,000	25,200
	270	7/16"	9	11	8	12	14	17	24	31,000	21,700
		½"	7	9	6	8	10	13	18	41,300	28,900
Low Relaxation	250	7/16"	9	11	8	11	14	17	24	27,000	20,200
		½"	7	9	6	8	10	13	18	36,000	27,000
	270	7/16"	8	10	7	9	12	15	21	31,000	23,300
		½"	6	8	6	7	9	11	16	41,300	31,000



NON-PRESTRESSED CONCRETE PILES

NON-PRESTRESSED PILE REINFORCING

Pile Size	No. Req'd.	Bar Size
16" Oct.	8	#7
18" Oct.	8	#7
④ 14" Sq.	8	#7
16" Sq.	8	#7
18" Sq.	8	#8

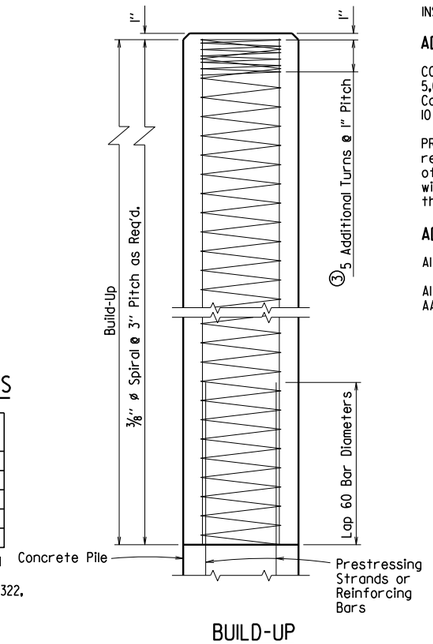
④ 14" sq. piles to be used in Seismic Performance Zone 1 only.

⚠ Revised to accommodate 20" and 24" square prestressed piles by KWY, Ck'd. by BEF, 3/24/16.

⚠ PILE BUILD-UP FOR 20" & 24" PRESTRESSED PILES

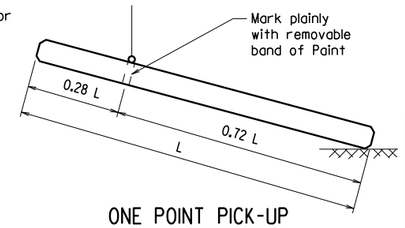
Pile Size	No. Req'd.	Bar Size
20" Sq.	8	#9
24" Sq.	12	#9

NOTE: Reinforcing bars shall meet the requirements for Grade 60, AASHTO M 31 or M 322, Type A.

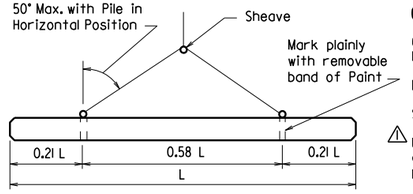


BUILD-UP

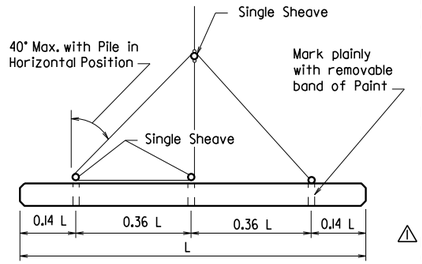
③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.



ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP

MAXIMUM PICKUP LENGTHS "L"

Type of Pick-Up	Prestressed 16" Oct.	18" Oct.	Non-Prestressed 16" or 18" Oct.	Prestressed ④ 14" Sq.	16" Sq.	18" Sq.	⚠ 20" Sq.	⚠ 24" Sq.	Non-Prestressed ④ 14" Sq.	16" Sq.	18" Sq.
One Point	52'	55'	46'	55'	59'	63'	66'	71'	52'	51'	55'
Two Point	75'	80'	67'	79'	84'	90'	95'	102'	75'	74'	79'
Three Point	105'	112'	93'	110'	117'	126'	132'	143'	104'	103'	111'

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, current Edition with interim Specifications.

SEISMIC PERFORMANCE ZONES: 1 & 2

⚠ Unless otherwise noted in the plans, the Contractor may use prestressed or non-prestressed piles for 14", 16" and 18" piles. The Contractor shall use prestressed piles for 20" and 24" piles. Prestressed and non-prestressed piling shall be measured and paid for at the contract unit price bid for "Concrete Piling".

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of Grade 60, AASHTO M 31 or M 322, Type A.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" for additional information.

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of ⅛" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 feet.

⚠ BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, the concrete in the pile shall be cut back to provide a 60 bar diameter lap splice. For piles equal to or less than 18", the reinforcing for build-up shall be the reinforcing shown for non-prestressed piles. Otherwise, the reinforcing for build-up shall be as shown in the table "Pile Build-Up for 20" & 24" Prestressed Piles" and the 60 bar diameter splice length shall be based on the bar sizes shown.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling".

ADDITIONAL NOTES FOR PRESTRESSED PILES ONLY:

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

PRESTRESSING REINFORCING: Seven-wire stress-relieved or low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

ADDITIONAL NOTES FOR NON-PRESTRESSED PILES ONLY:

All concrete shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 4,000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars and shall conform to the requirements of Grade 60, AASHTO M 31 or M 322, Type A.

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016.
This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE PILES

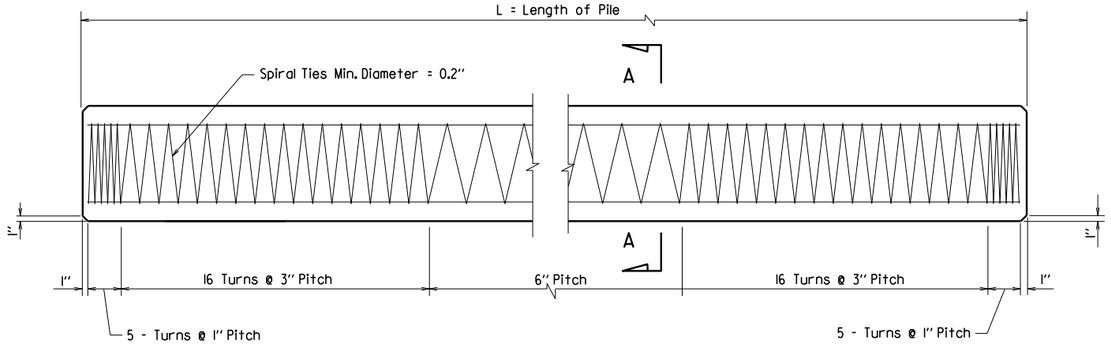
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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CHECKED BY: BEF DATE: 2-27-2014
DESIGNED BY: STD. DATE: ——
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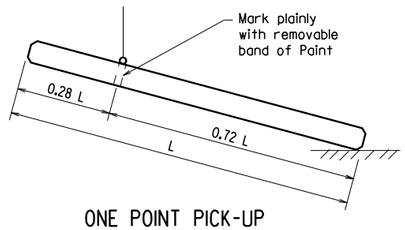
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				JOB NO.				
				①		CONC. PILES		55024



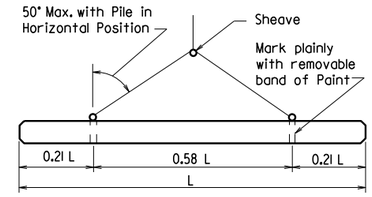
PLAN OF PILE SHOWING SPIRAL TIE SPACING

MAXIMUM PICKUP LENGTHS L

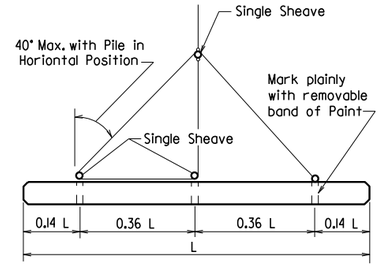
Type of Pick - Up	Prestressed		Precast	Prestressed			Precast		
	16" Oct.	18" Oct.	16" or 18" Oct.	14" Sq.	16" Sq.	18" Sq.	14" Sq.	16" Sq.	18" Sq.
One - Point	52'	55'	46'	55'	59'	63'	52'	51'	55'
Two - Point	75'	80'	67'	79'	84'	90'	75'	74'	79'
Three - Point	105'	112'	93'	110'	117'	126'	104'	103'	111'



ONE POINT PICK-UP

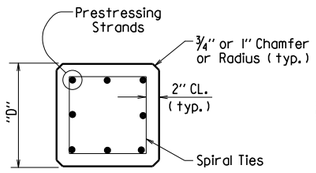


TWO POINT PICK-UP

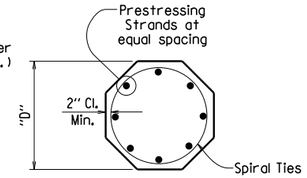


THREE POINT PICK-UP

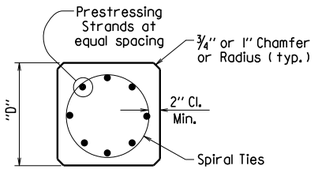
Note : Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



SECTION A-A SQUARE PILE



SECTION A-A OCTAGONAL PILE

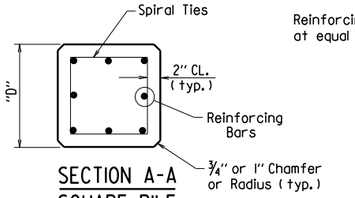


SECTION A-A SQUARE PILE

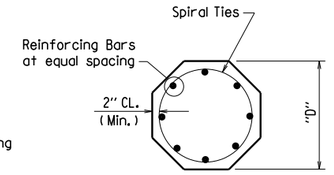
PRESTRESSED CONCRETE PILES

PRECAST PILE REINFORCING

Pile Size	No. Req'd.	Bar Size
16" Oct.	8	# 7
18" Oct.	8	# 7
14" Sq.	8	# 7
16" Sq.	8	# 7
18" Sq.	8	# 8



SECTION A-A SQUARE PILE



SECTION A-A OCTAGONAL PILE

PRECAST CONCRETE PILES

PRESTRESSED PILE PROPERTIES

	Grade	Strand Diameter	*Number of Strands per Size "D"					Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Intial Prestressing Force Per Strand (Lbs.)
			16" Oct.	18" Oct.	14" Sq.	16" Sq.	18" Sq.		
Stress Relieved	250	7/16"	11	13	10	12	16	27,000	18,900
		1/2"	8	10	8	10	12	36,000	25,200
	270	7/16"	9	11	8	12	14	31,000	21,700
		1/2"	7	9	6	8	10	41,300	28,900
Low Relaxation	250	7/16"	9	11	8	11	13	27,000	20,200
		1/2"	7	8	6	8	10	36,000	27,000
	270	7/16"	8	10	7	9	11	31,000	23,300
		1/2"	6	7	5	7	9	41,300	31,000

* Number based on initial presstress force of "B" x Ultimate Tensile Stress, Prestress Losses, and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation
0.70 Stress - Relieved

GENERAL NOTES

Construction Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted, references to Section and Subsection numbers in the plans refer to the Construction Specifications.

Design Specification: AASHTO Standard Specifications for Highway Construction (2002 Edition), with interim Specifications.

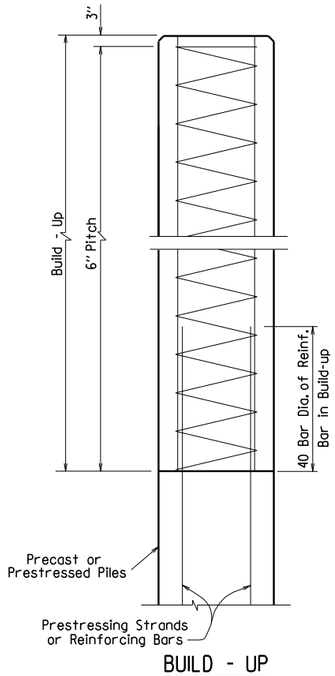
Concrete: Concrete in the Precast Prestressed Piles shall be Class S(AE) and shall have a Minimum Compressive Strength (f'c) of 5000 psi at 28 days. Compressive Strength at transfer of the Prestressing Force shall be not less than 4000 psi. Concrete in Build-Ups shall have a minimum Compressive Strength (f'c) of 4000 psi.

Prestressing Reinforcement: Seven wire stress relieved or low relaxation strands shall conform to the general requirements of AASHTO M203. Broken wires within individual strands will be permitted up to 2 % of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2 % limitation.

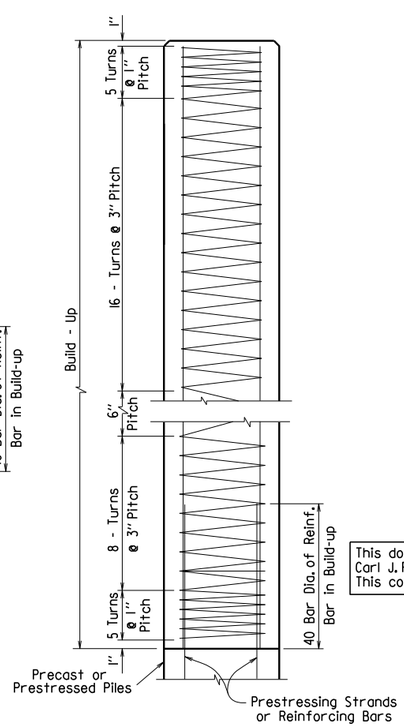
Build-Ups: To provide for Build-Ups of Piles where authorized by the Engineer, concrete shall be cut back to expose the strands for a distance sufficient to provide a lap of 40 diameters of the reinforcing bars required for Build-Up. Reinforcing of Build-Ups shall have a minimum area equal to 1½ % of the gross section of pile. Placement of bars shall be in a symmetrical pattern of not less than four bars. See Subsection 805.11(b).

Forms: For forming exterior of piles, the use of steel forms on concrete founded casting beds is required, unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding 1/4" per foot.

Tolerances: Pile ends shall be plane surfaces and perpendicular to axis of pile with a maximum tolerance of 1/8" per foot transversely.



BUILD - UP WITHOUT DRIVING



BUILD - UP WITH DRIVING

PRECAST CONCRETE PILES

GENERAL NOTES

The maximum sweep (deviation from straightness measured along two perpendicular faces of the pile, while not subject to bending forces) shall not exceed 1/8" in 10 ft. of its length.

General: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Piles may be removed from casting bed to a nearby storage any time after transfer of stress.

Spiral Reinforcing: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M32 with a minimum diameter of 0.2" or shall be plain round steel bars meeting the requirements of Grade 60, AASHTO M31 or M322, Type A with a minimum diameter of 0.25".

Manufacture, Transportation and Storage: See Section 802 "Concrete for Structures".

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

Installation, Measurement and Payment: See Section 805 "Piling". Precast Prestressed Concrete Piling will be paid for at the contract unit price per Linear Foot bid for "Concrete Piling".

The Contractor may elect to use a Precast Concrete Pile in lieu of the Prestressed Concrete Pile. The following notes apply to Precast Concrete Piles:

All concrete shall be Class S (AE) and shall have a minimum compressive strength (f'c) of 4000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars of Grade 60, AASHTO M31 or M322, Type A.

All spiral reinforcing shall be the same as that shown for prestressed concrete.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE PILES (LOAD FACTOR DESIGN)

ARKANSAS STATE HIGHWAY COMMISSION

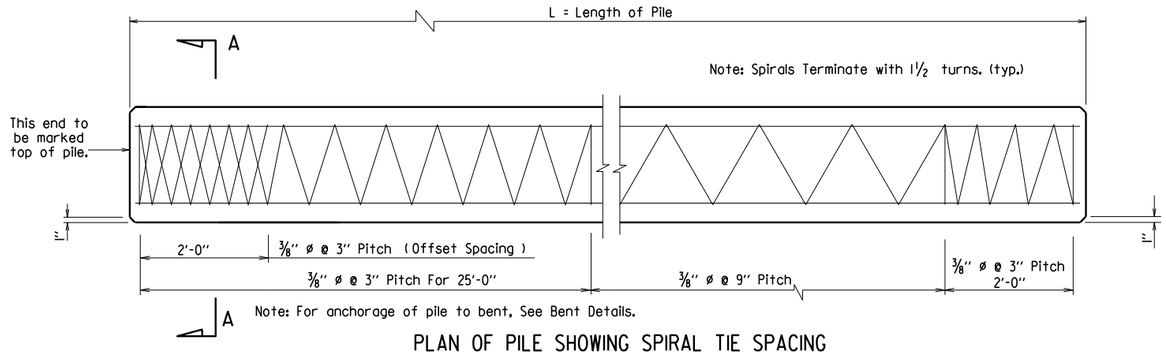
LITTLE ROCK, ARK.

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DESIGNED BY: STD. DATE: -

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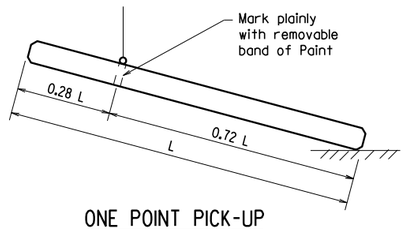
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				JOB NO.				
				①		CONC. PILES		55025



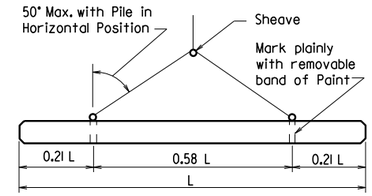
PLAN OF PILE SHOWING SPIRAL TIE SPACING

MAXIMUM PICKUP LENGTHS L

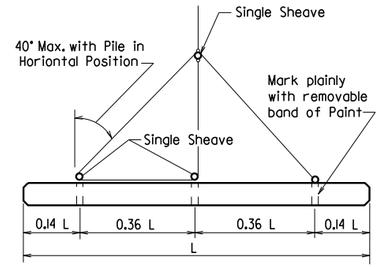
Type of Pick - Up	Prestressed		Precast	Prestressed		Precast	
	16" Oct.	18" Oct.	16" or 18" Oct.	16" Sq.	18" Sq.	16" Sq.	18" Sq.
One - Point	52'	55'	46'	59'	63'	51'	55'
Two - Point	75'	80'	67'	84'	90'	74'	79'
Three - Point	105'	112'	93'	117'	126'	103'	111'



ONE POINT PICK-UP

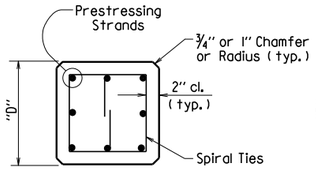


TWO POINT PICK-UP

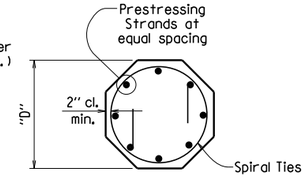


THREE POINT PICK-UP

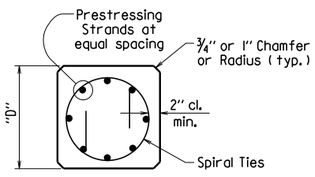
Note : Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



SECTION A-A SQUARE PILE



SECTION A-A OCTAGONAL PILE

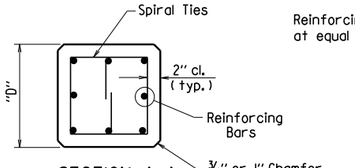


SECTION A-A SQUARE PILE

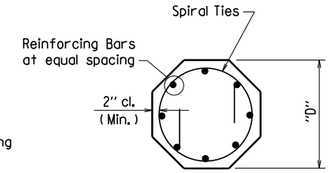
PRESTRESSED CONCRETE PILES

PRECAST PILE REINFORCING

Pile Size	No. Req'd.	Bar Size
16" Oct.	8	# 7
18" Oct.	8	# 7
14" Sq.	8	# 7
16" Sq.	8	# 7
18" Sq.	8	# 8



SECTION A-A SQUARE PILE



SECTION A-A OCTAGONAL PILE

PRECAST CONCRETE PILES

PRESTRESSED PILE PROPERTIES

	Grade	Strand Diameter	*Number of Strands per Size "D"				Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Intial Prestressing Force Per Strand (Lbs.)
			16" Oct.	18" Oct.	16" Sq.	18" Sq.		
Stress Relieved	250	7/16"	11	13	12	16	27,000	18,900
		½"	8	10	10	12	36,000	25,200
	270	7/16"	9	11	12	14	31,000	21,700
		½"	7	9	8	10	41,300	28,900
Low Relaxation	250	7/16"	9	11	11	13	27,000	20,200
		½"	7	8	8	10	36,000	27,000
	270	7/16"	8	10	9	11	31,000	23,300
		½"	6	7	7	9	41,300	31,000

* Number based on initial presstress force of "B" x Ultimate Tensile Stress, Prestress Losses, and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation; 0.70 Stress - Relieved

GENERAL NOTES

Construction Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted, references to Section and Subsection numbers in the plans refer to the Construction Specifications.

Design Specification: AASHTO Standard Specifications for Highway Construction (2002 Edition), with interim Specifications.

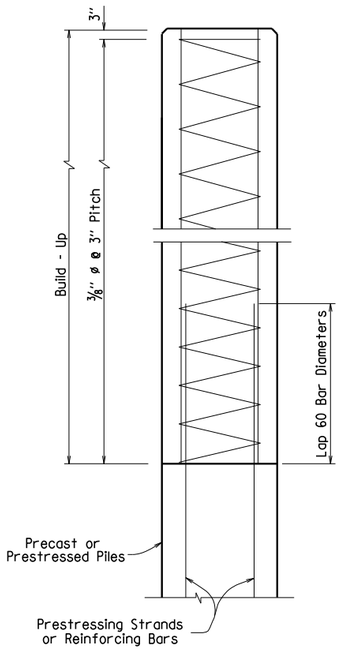
Concrete: Concrete in the Precast Prestressed Piles shall be Class S(AE) and shall have a Minimum Compressive Strength (f'c) of 5000 psi at 28 days. Compressive Strength at transfer of the Prestressing Force shall be not less than 4000 psi. Concrete in Build-Ups shall have a minimum Compressive Strength (f'c) of 4000 psi.

Prestressing Reinforcement: Seven wire stress relieved or low relaxation strands shall conform to the general requirements of AASHTO M203. Broken wires within individual strands will be permitted up to 2 % of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2 % limitation.

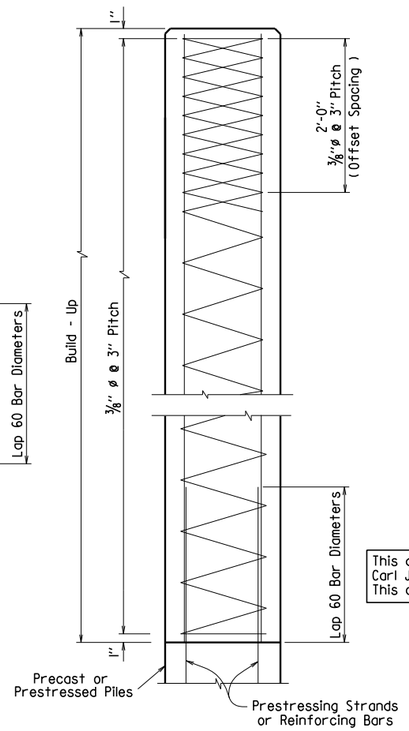
Build-Ups: To provide for Build-Ups of Piles where authorized by the Engineer, concrete shall be cut back to expose the strands for a distance sufficient to provide a lap of 40 diameters of the reinforcing bars required for Build-Up. Reinforcing of Build-Ups shall have a minimum area equal to 1½ % of the gross section of pile. Placement of bars shall be in a symmetrical pattern of not less than four bars. See Subsection 805.11(b).

Forms: For forming exterior of piles, the use of steel forms on concrete founded casting beds is required, unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

Tolerances: Pile ends shall be plane surfaces and perpendicular to axis of pile with a maximum tolerance of ⅛" per foot transversely.



BUILD - UP WITHOUT DRIVING



BUILD - UP WITH DRIVING

GENERAL NOTES

The maximum sweep (deviation from straightness measured along two perpendicular faces of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 ft. of its length.

General: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Piles may be removed from casting bed to a nearby storage any time after transfer of stress.

Spiral Reinforcing: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M32 with a minimum diameter of 0.2" or shall be plain round steel bars meeting the requirements of Grade 60, AASHTO M31 or M322, Type A with a minimum diameter of 0.25".

Manufacture, Transportation and Storage: See Section 802 "Concrete for Structures".

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

Installation, Measurement and Payment: See Section 805 "Piling". Precast Prestressed Concrete Piling will be paid for at the contract unit price per Linear Foot bid for "Concrete Piling".

The Contractor may elect to use a Precast Concrete Pile in lieu of the Prestressed Concrete Pile. The following notes apply to Precast Concrete Piles:

All concrete shall be Class S (AE) and shall have a minimum compressive strength (f'c) of 4000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars of Grade 60, AASHTO M31 or M322, Type A.

All spiral reinforcing shall be the same as that shown for prestressed concrete.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE PILES SEISMIC REGION B (LOAD FACTOR DESIGN)

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

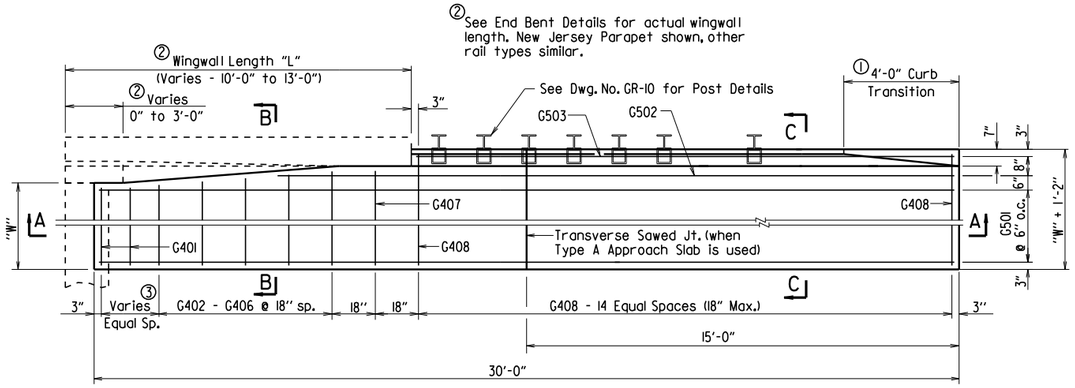
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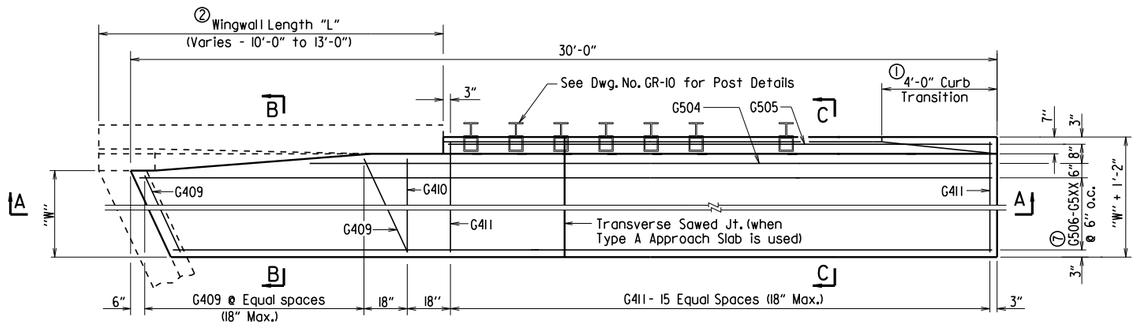
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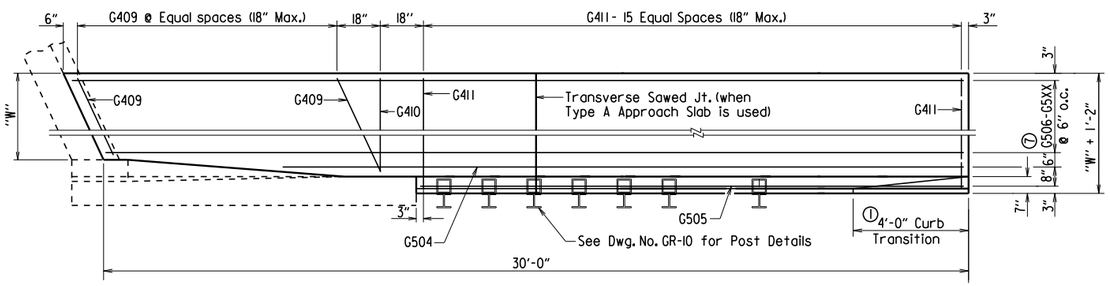
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				JOB NO.				
				①	TYPE A GUTTERS		55030A	



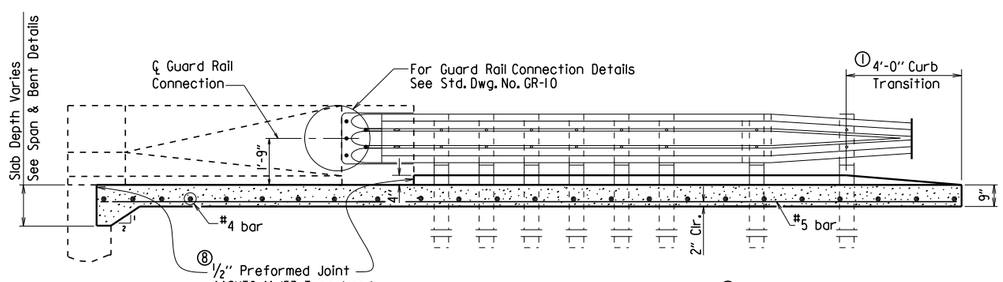
③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





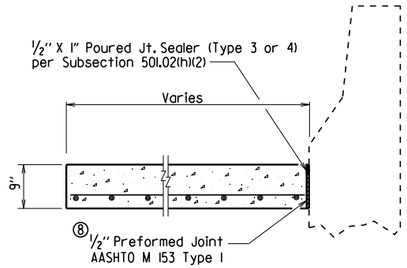
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



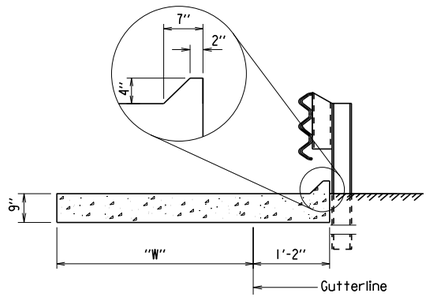
SECTION A-A

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

BAR LIST FOR ONE TYPE A GUTTER

	Mark	⚠ No. Req'd. for Width "W" 2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	④	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	1	"W"+3"
	G408	15	15	15	15	15	"W"+ 10"
	G501	4	6	8	12	16	29'-8"
	G502	1	1	1	1	1	(35'-5") - "L"
	G503	1	1	1	1	1	30'-8"-"L"
Skewed Bridge	G409	⑥	⑥	⑥	⑥	⑥	⑤
	G410	1	1	1	1	1	"W"+3"
	G411	16	16	16	16	16	"W"+ 10"
	G504	1	1	1	1	1	⑤
	G505	1	1	1	1	1	⑤
	G506 - G5XX ⑦	1 each	1 each	1 each	1 each	1 each	⑤

④ 0 for "L" = 10'
1 for "L" = 11'
2 for "L" = 12'
2 for "L" = 13'

⑦ G509 for "W" = 2' ⚠
G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ No. Req'd. varies with Skew and Wingwall length.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

⚠ "W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2	210	2.55
3	285	3.40
4	360	4.25
6	515	5.90
8	665	7.55

Quantities are based on "L" = 10'-0".

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⑧ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type A Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

⚠ Revised to add "W" = 2'-0"; By LJB
Checked By: KWY 9/2/15

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

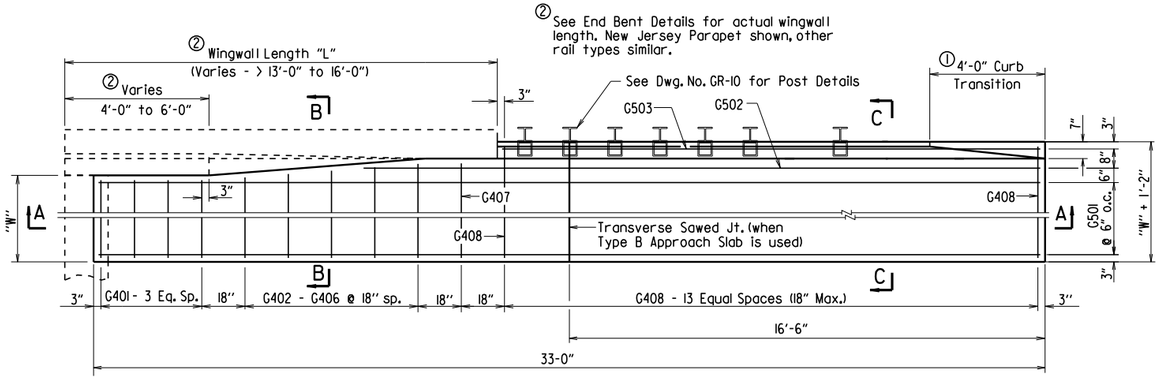
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

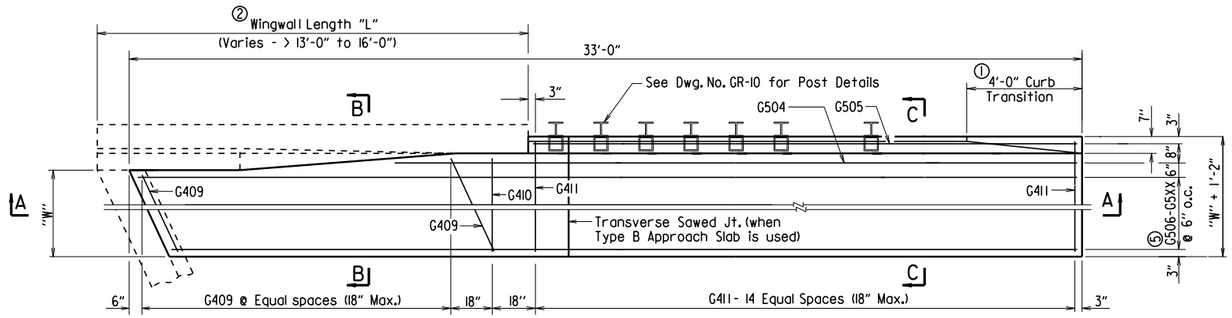
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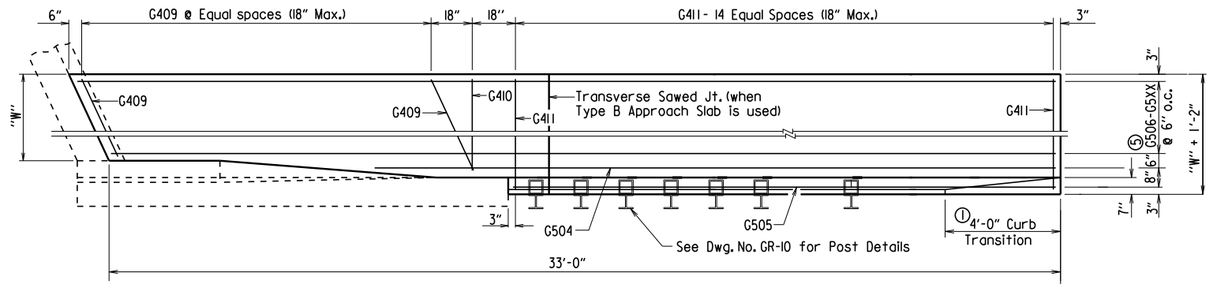
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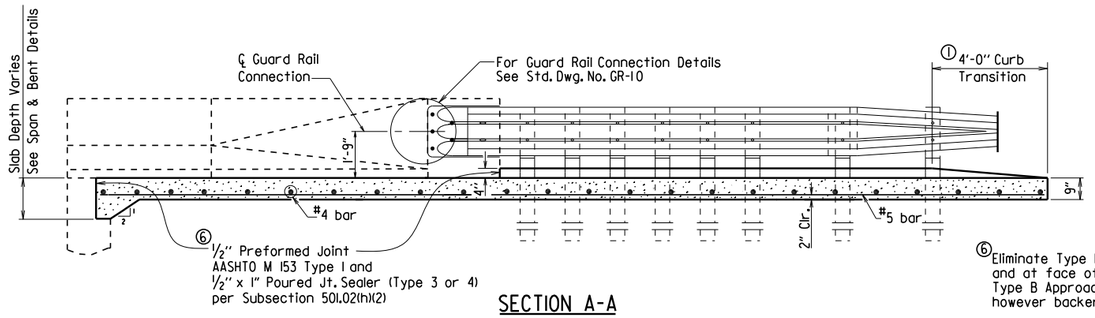


HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





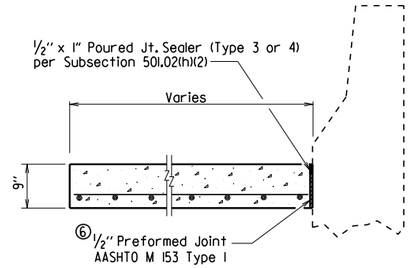
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



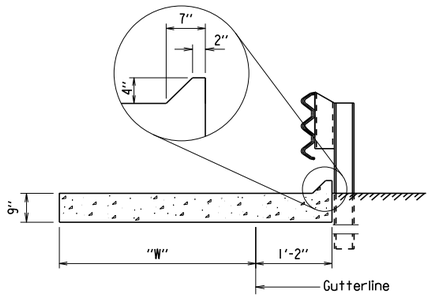
SECTION A-A

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⚠ Revised to add "W" = 2'-0"; By LJB
Checked By: KWY 9/2/15

⑥ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type B Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE B GUTTER

	Mark	No. Req'd. for Width "W" ⚠ 2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	4	4	4	4	4	"W"-4"
	G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	1	"W"+3"
	G408	14	14	14	14	14	"W"+10"
	G501	4	6	8	12	16	32'-8"
	G502	1	1	1	1	1	(38'-5")-"L"
	G503	1	1	1	1	1	(33'-8")-"L"
Skewed Bridge	G409	③	③	③	③	③	④
	G410	1	1	1	1	1	"W"+3"
	G411	15	15	15	15	15	"W"+10"
	G504	1	1	1	1	1	④
	G505	1	1	1	1	1	④
	G506 - G5XX ⑤	1 each	1 each	1 each	1 each	1 each	④

③ No. Req'd. varies with Skew and Wingwall length.

④ Bar Lengths vary with Skew and Wingwall Length.

⑤ G509 for "W" = 2' ⚠
G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

⚠ "W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2	225	2.70
3	310	3.60
4	390	4.55
6	560	6.35
8	730	8.20

Quantities are based on "L" = 14'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE B APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

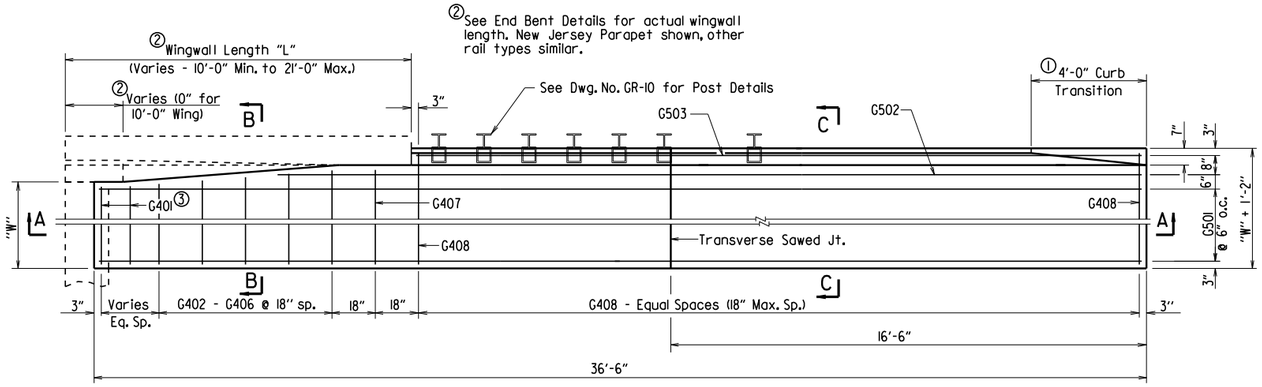
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				6	ARK.			
				JOB NO.				
				①	TYPE C GUTTERS		55030C	

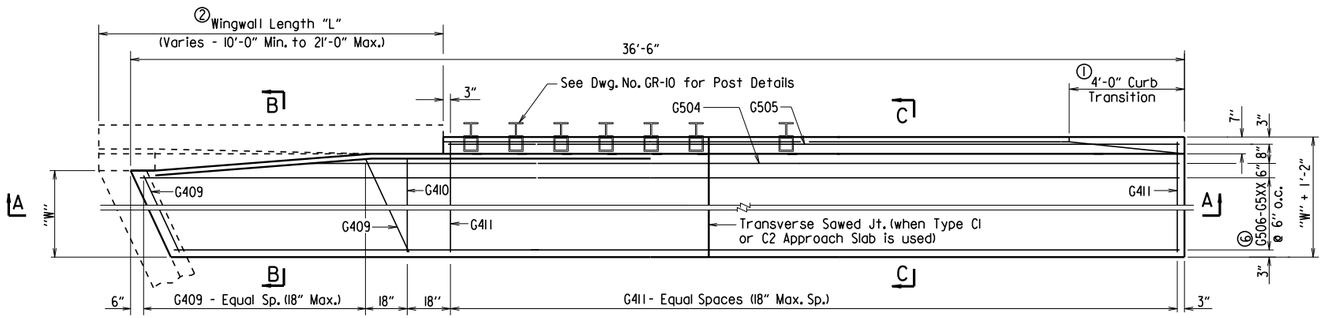
① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

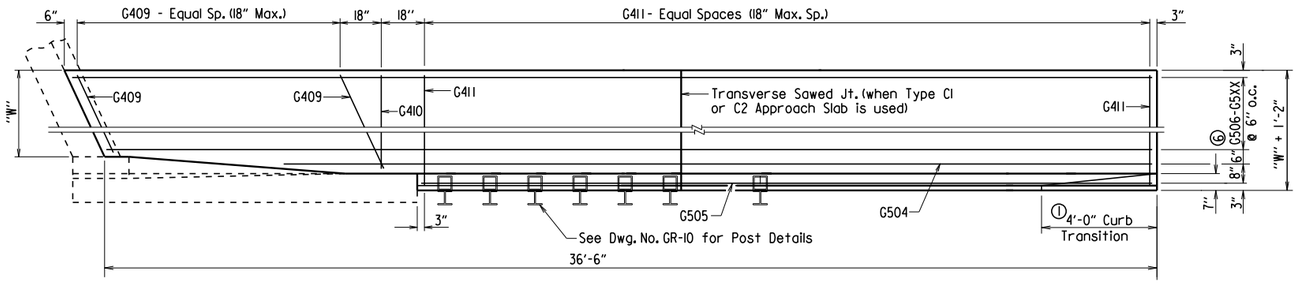
Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



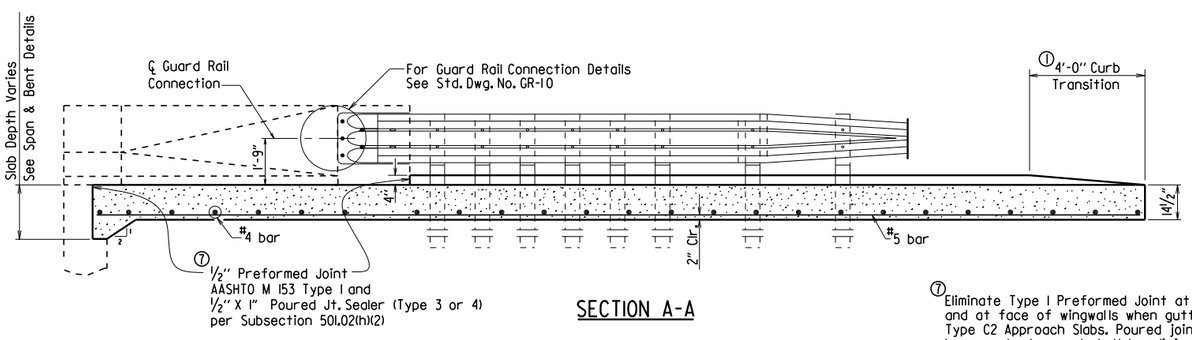
③ Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

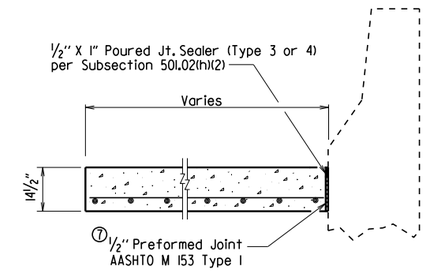




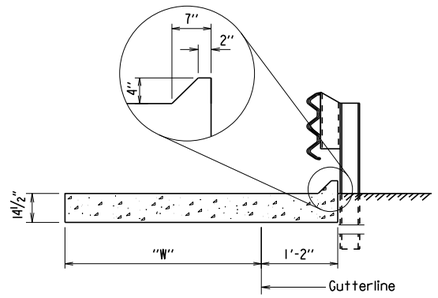
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



SECTION A-A



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

BAR LIST FOR ONE TYPE C GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	④	④	④	④	"W"+ 10"
	G501	8	12	16	20	36'-2"
	G502	1	1	1	1	(41'-11") - "L"
	G503	1	1	1	1	(37'-2") - "L"
Skewed Bridge	G409	④	④	④	④	⑤
	G410	1	1	1	1	"W"+3"
	G411	④	④	④	④	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑥	1 each	1 each	1 each	1 each	⑤

④ No. Req'd. varies with Skew and Wingwall Length.

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

Quantities are based on "L" = 10'-0".

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⑦ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

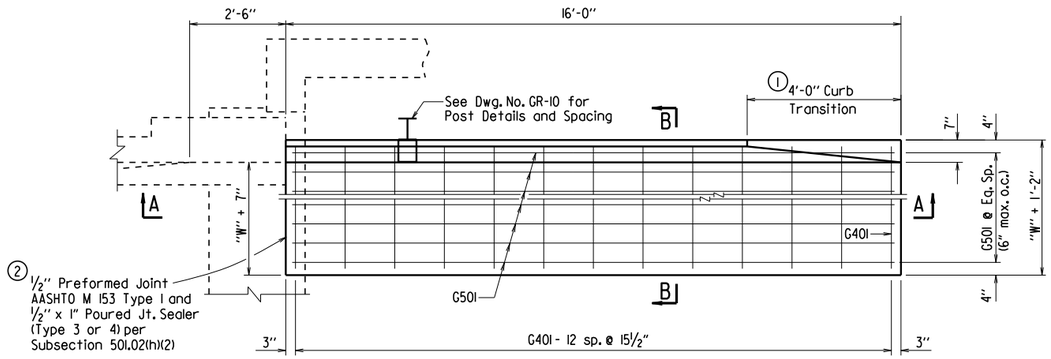
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030C

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TYPE D GUTTERS		55030D	



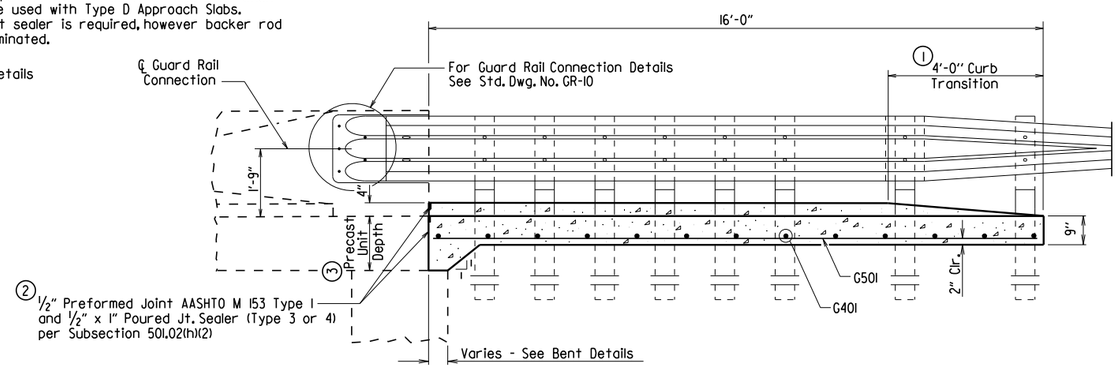
HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

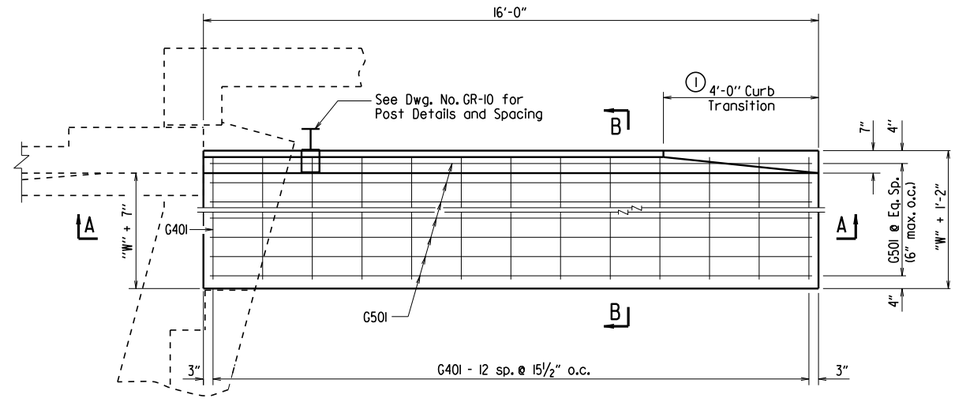
Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

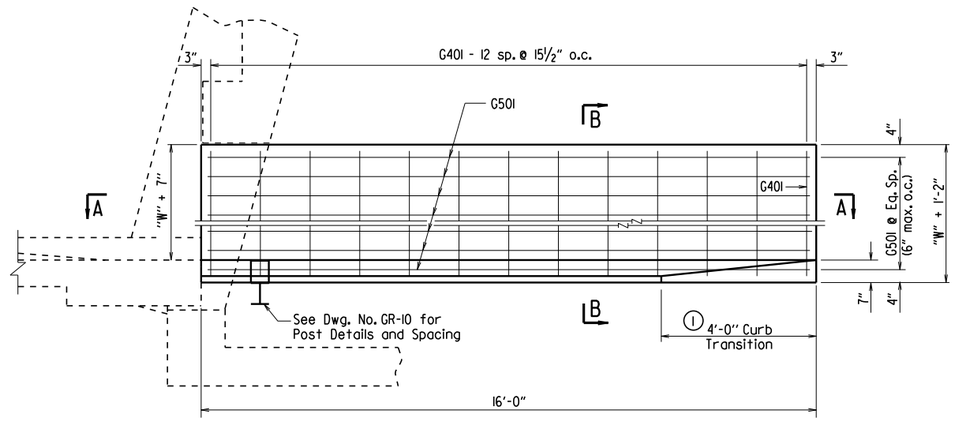
② Eliminate Type I Preformed Joint at end bent when gutters are used with Type D Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

③ See Span Details

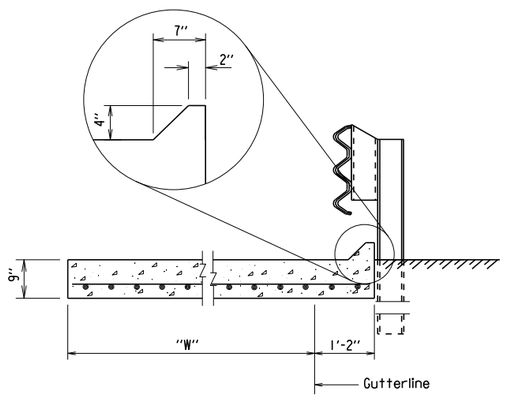


SECTION A-A





PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



SECTION B-B
N.T.S.

BAR LIST FOR ONE TYPE D GUTTER

Mark	No. Req'd. for Width "W"						Length
	2'-3"	3'-0"	3'-9"	4'-0"	4'-9"	5'-0"	
G401	13	13	13	13	13	13	"W" + 10"
G501	7	8	10	10	12	12	15'-8"

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width	No Approach Slab		With Approach Slab	
	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2'-3"	——	——	141	1.66
3'-0"	164	2.01	164	2.01
3'-9"	——	——	203	2.36
4'-0"	205	2.48	205	2.48
4'-9"	——	——	245	2.83
5'-0"	247	2.94	——	——

GENERAL NOTES

This drawing is for use with Precast Concrete Spans.

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE D APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

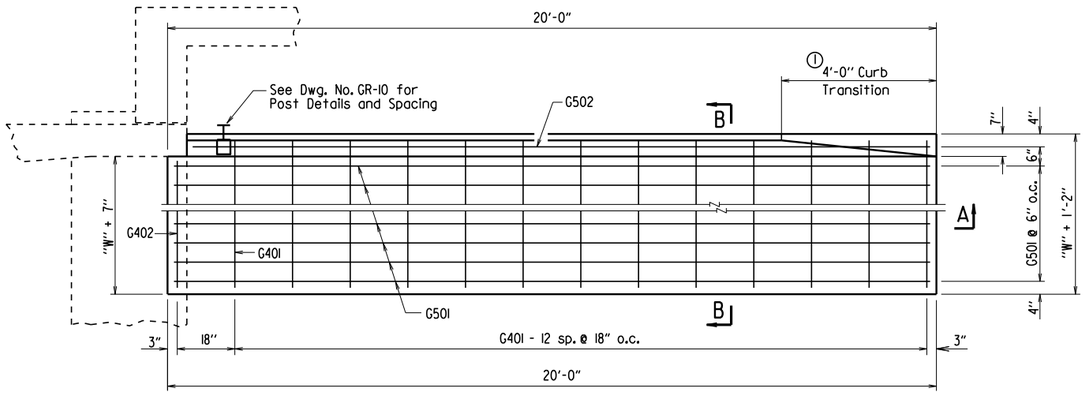
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014
CHECKED BY: K.W.Y. DATE: 2/27/2014
DESIGNED BY: STD. DATE:

FILENAME: b55030d.dgn
SCALE: ½" = 1'-0" or As Shown

DRAWING NO. 55030D

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TYPE E GUTTERS			55030E

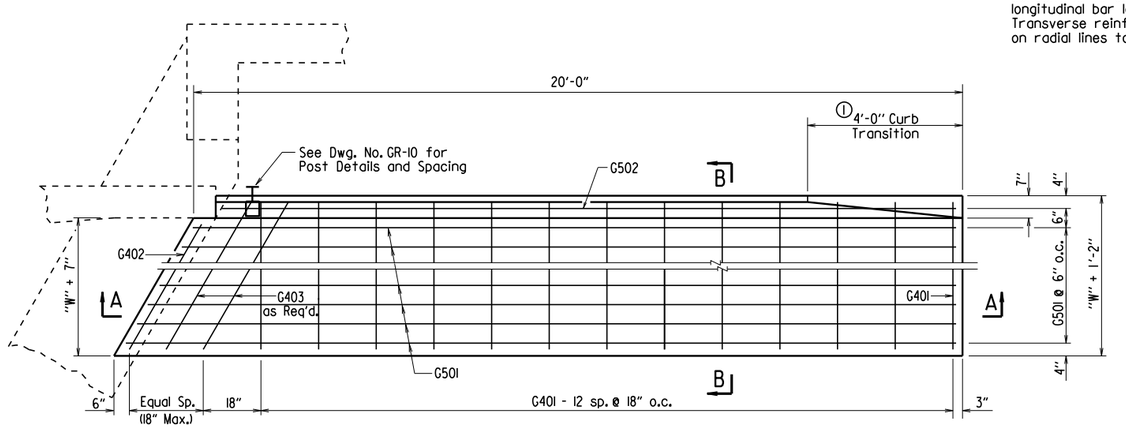


HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

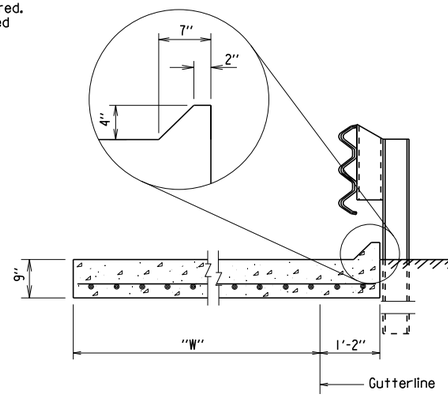
① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



HALF PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



SECTION B-B
N.T.S.

BAR LIST FOR ONE TYPE E GUTTER

Mark	No. Req'd. for Width "W"				Length
	3'-0"	4'-0"	6'-0"	8'-0"	
G401	13	13	13	13	"W" + 10"
④ G402	1	1	1	1	"W" + 3"
⑤ G403	⑥	⑥	⑥	⑥	Varies
④ G501	7	9	13	17	19'-8"
G502	1	1	1	1	19'-2"

④ Bar Lengths vary with Skew.
Lengths shown are for Square Bridges.

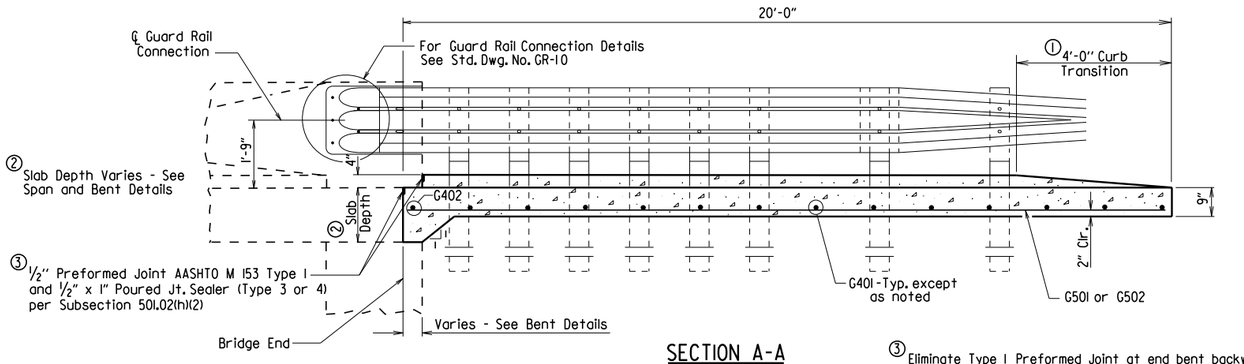
⑤ Required at skewed bridges only.

⑥ No. Req'd. varies with skew.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
3	200	2.40
4	255	3.00
6	355	4.10
8	455	5.20



SECTION A-A

③ Eliminate Type I Preformed Joint at end bent backwall when gutters used with Type E Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

GENERAL NOTES

This drawing is for use with Reinforced Concrete Slab Spans.

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE E APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

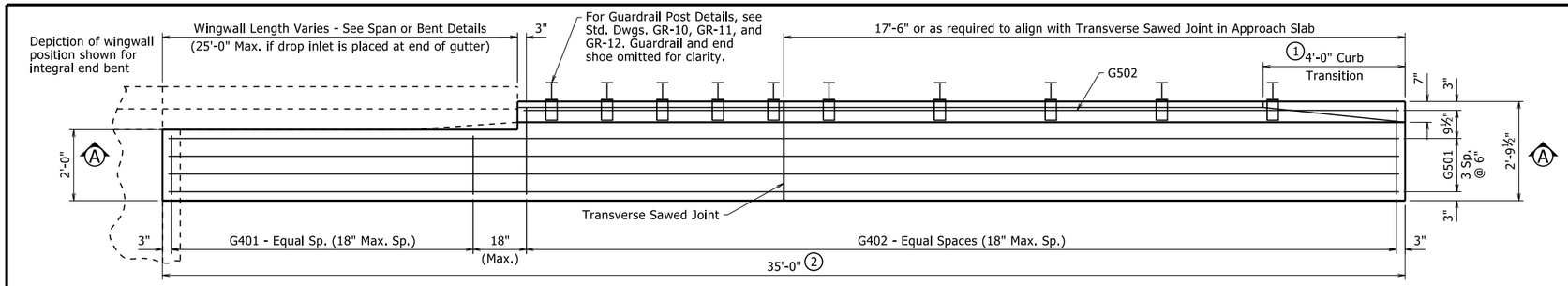
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030e.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: ½" = 1'-0" or As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55030E

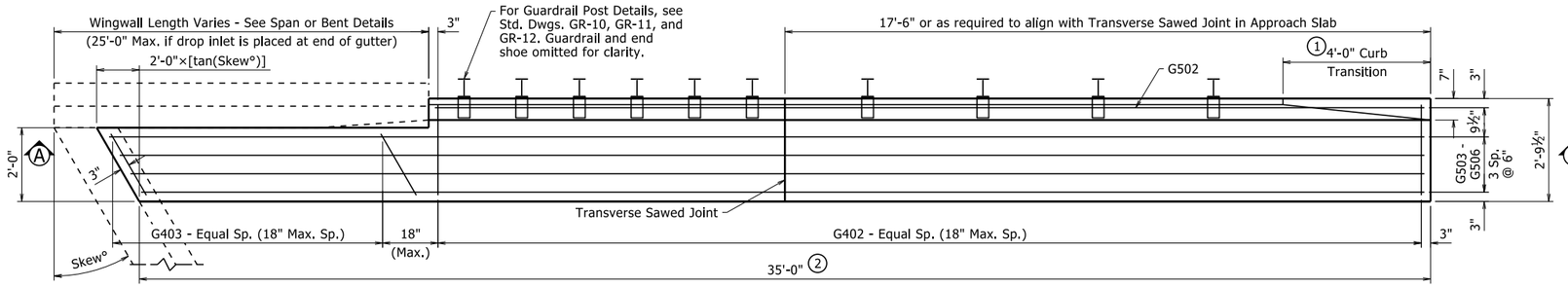
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

① Type F Approach Gutters - 55030F

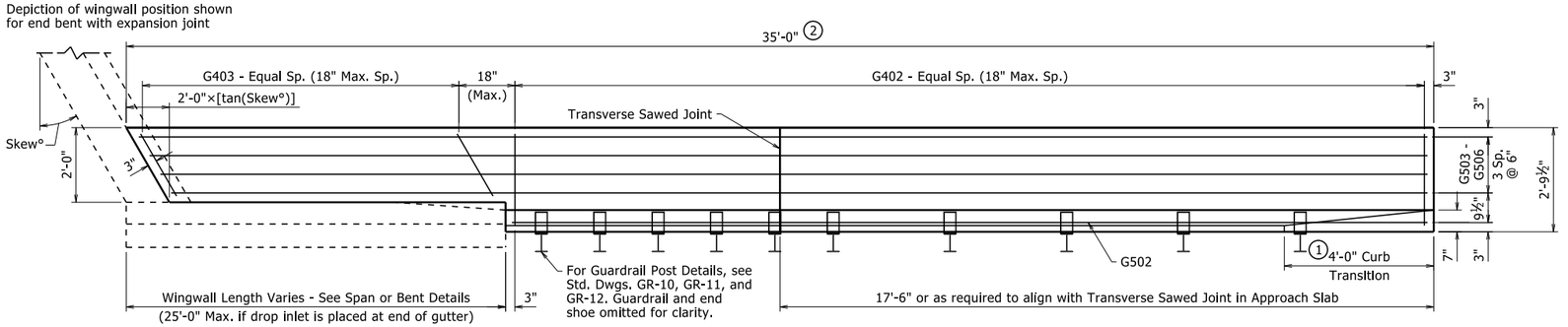


HALF PLAN OF APPROACH GUTTERS FOR SQUARE END BENT

½" = 1'-0"

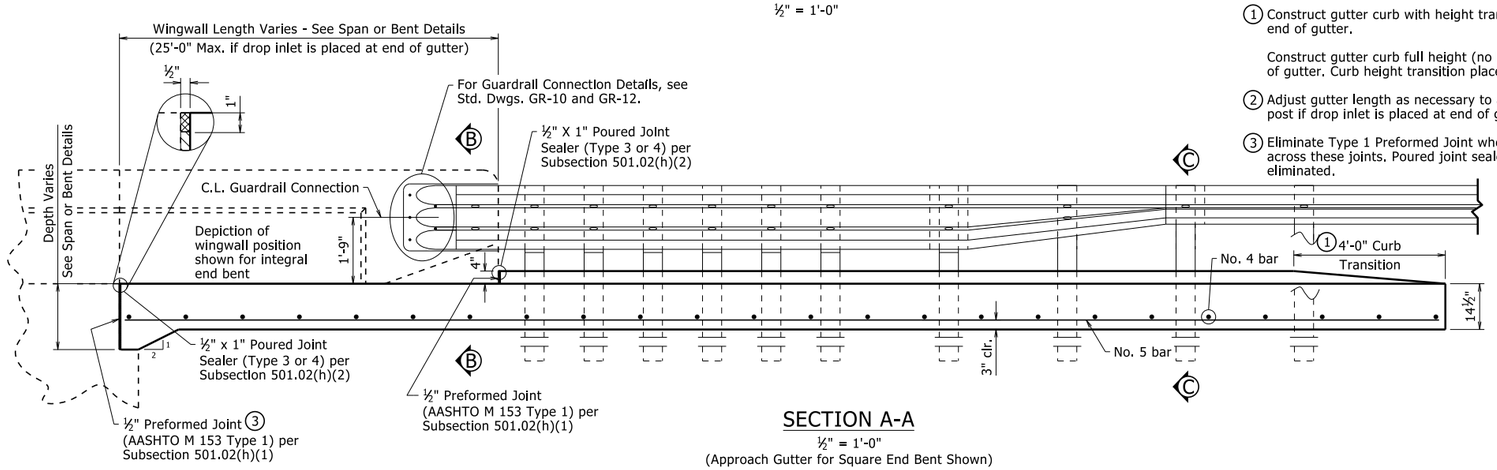


Depiction of wingwall position shown for end bent with expansion joint



PLAN OF SKEWED APPROACH GUTTERS FOR SKEWED END BENT

½" = 1'-0"



SECTION A-A

½" = 1'-0"

(Approach Gutter for Square End Bent Shown)

QUANTITIES FOR ONE APPROACH GUTTER

(For Information Only)

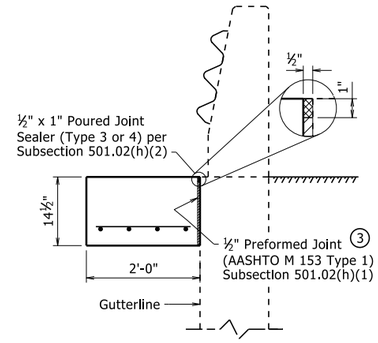
Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
210	4.20

Quantities are based on one gutter for a square, integral end bent and a wingwall length of 10'-0"

BAR LIST FOR ONE APPROACH GUTTER

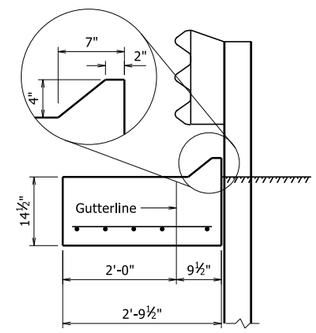
	Mark	No. Req'd.	Length
Square End Bent	G401	④	1'-8"
	G402	④	2'-5½"
	G501	4	34'-8"
	G502	1	④
Skewed End Bent	G402	④	2'-5½"
	G403	④	④
	G502	1	④
	G503 - G506	1 ea.	④

④ Varies with Skew and/or Wingwall Length



SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"

① Construct gutter curb with height transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet.

② Adjust gutter length as necessary to avoid outlet pipe interference with guardrail post if drop inlet is placed at end of gutter.

③ Eliminate Type 1 Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

GENERAL NOTES

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

STANDARD DETAILS FOR TYPE F APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 4-8-2021 FILENAME: b55030f.dgn

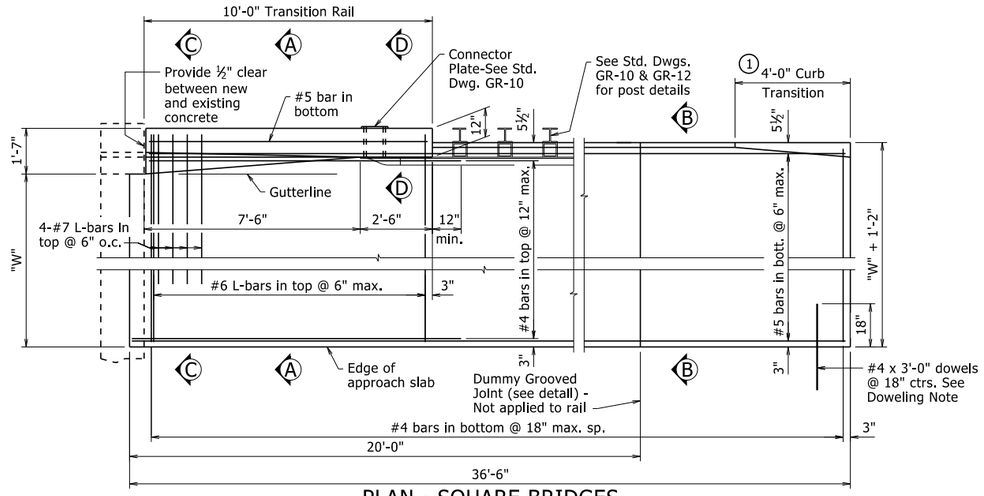
CHECKED BY: LJB DATE: 4-8-2021 SCALE: AS NOTED

DESIGNED BY: STD DATE: -

DRAWING NO. 55030F

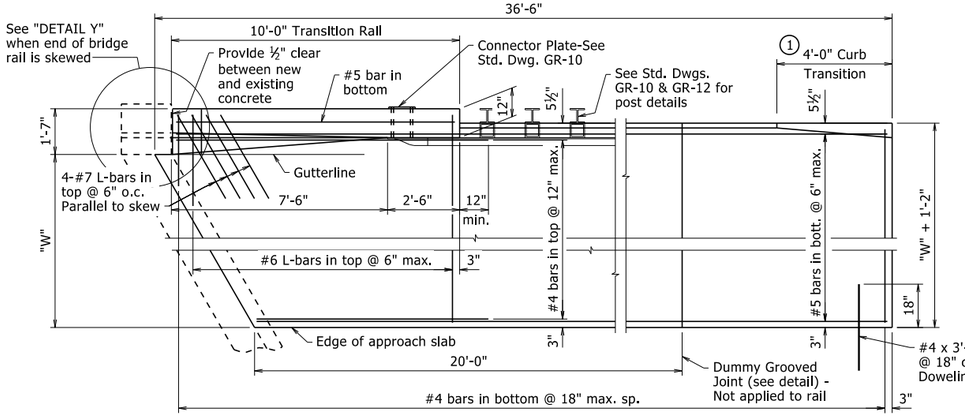
PRINT DATE: 9/8/2023

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11/7/19				6	ARK.			
				JOB NO.				
				① - TYPE PT GUTTERS - 55035				



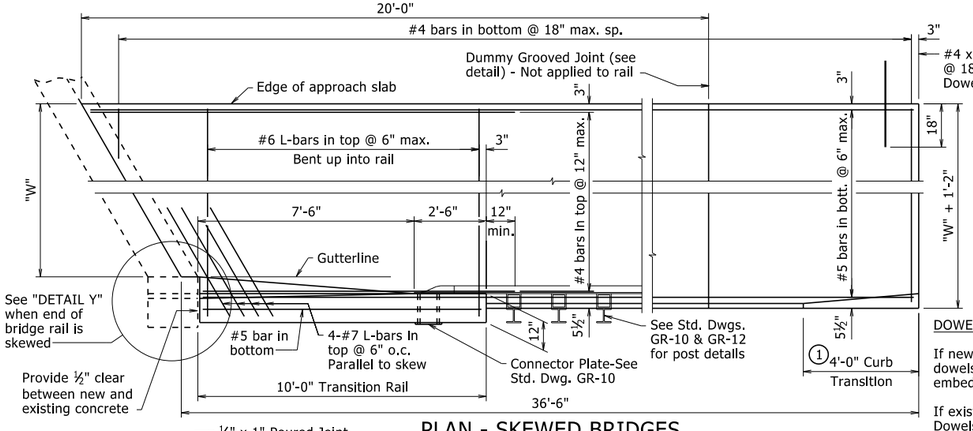
PLAN - SQUARE BRIDGES

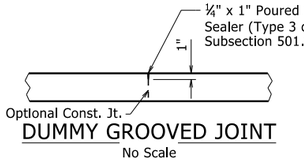
⅜" = 1'-0"



PLAN - SKEWED BRIDGES

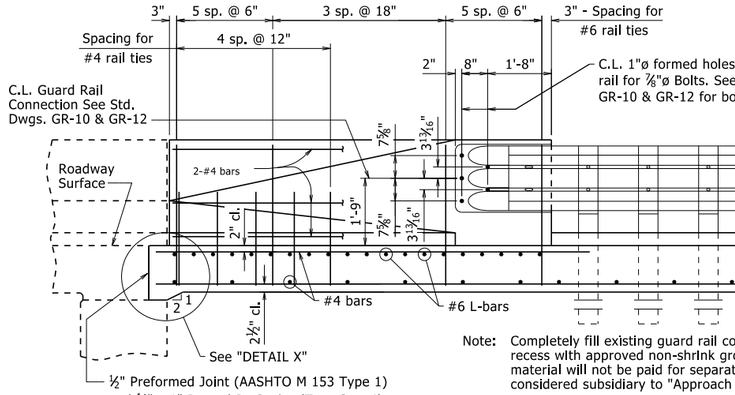
⅜" = 1'-0"





DUMMY GROOVED JOINT

No Scale



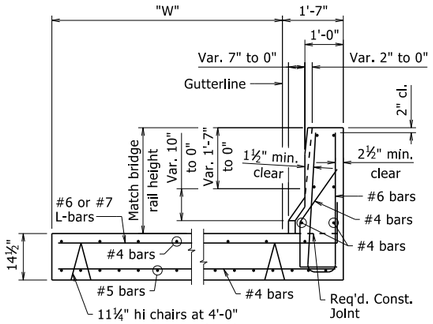
Note: Completely fill existing guard rail connection recess with approved non-shrink grout. Work and material will not be paid for separately but will be considered subsidiary to "Approach Gutters".

LONGITUDINAL SECTION THRU GUTTER

½" = 1'-0"

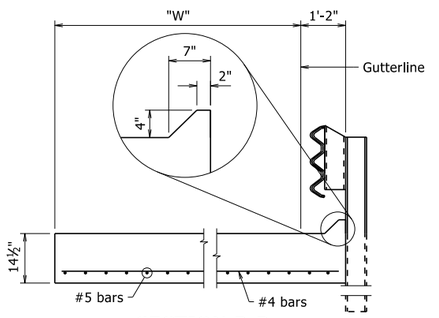
① Construct curb with height-transition as shown if drop inlet is not used at end of gutter.

Construct curb full height (no height-transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



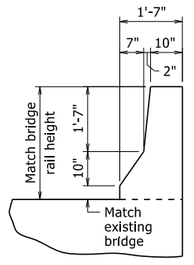
SECTION A-A

½" = 1'-0"



SECTION B-B

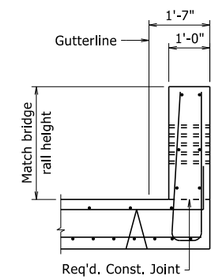
½" = 1'-0"



SECTION C-C

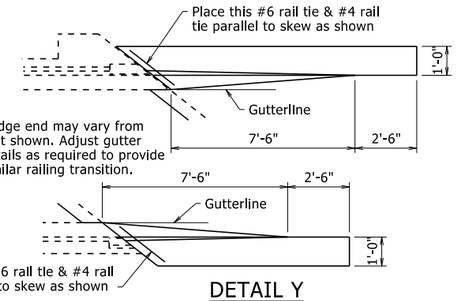
At End of Transition Rail

½" = 1'-0"



SECTION D-D

½" = 1'-0"



DETAIL Y

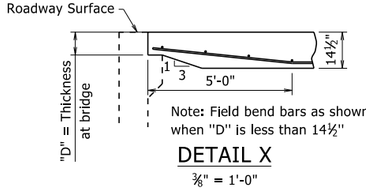
No Scale

DOWELING NOTES

If new approach slab is used: Place dowels into approach slab using 18" embedment.

If existing approach slab is retained: Dowels shall be drilled and grouted 18" into existing slab. At the Contractor's option, existing dowels may be retained, cleaned and incorporated into new gutters. Work for drilling and grouting, or retaining and cleaning will not be paid for separately but will be considered subsidiary to "Approach Gutters".

Dowel bars, if required, will not be paid for separately, but will be considered subsidiary to other pay items.

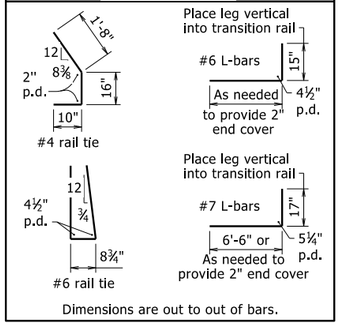


Note: Field bend bars as shown when "D" is less than 14½"

DETAIL X

⅜" = 1'-0"

BENDING DIAGRAMS



Dimensions are out to out of bars.

1 Revised and Redrawn. By: TMG
Checked By: CRE 11/7/2019

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

GENERAL NOTES

Concrete shall be Class S or S(AE) or mixture used for Portland Cement Concrete Pavement.

Reinforcing steel shall be Grade 60 (fy = 60,000 psi.) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504.

Preformed Joint and Poured Joint Sealer included in the item "Approach Gutters".

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

When this Standard Drawing is used as a retrofit for an existing bridge and an existing drop inlet is located within the Plan of the approach gutter, adjust the reinforcing as needed to facilitate construction of the approach gutter, unless otherwise noted.

APPROX. QUANTITIES FOR ONE SQUARE 36'-6" APPROACH GUTTER

(For Information Only)

Concrete (cu. yd.)	("W" x 1.63) + 3.24
Reinforcing Steel (lb.)	("W" x 129) + 461

Variables: Units of "W" and "L" are in feet.

"W" = Distance from gutterline to edge of shoulder or edge of approach slab. "W" shall not be less than 3'-0" unless approach gutter is doweled into an approach slab or concrete pavement.

STANDARD DETAILS FOR TYPE 'PT' APPROACH GUTTERS (BRIDGES WITH CONCRETE PARAPET RAILING)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

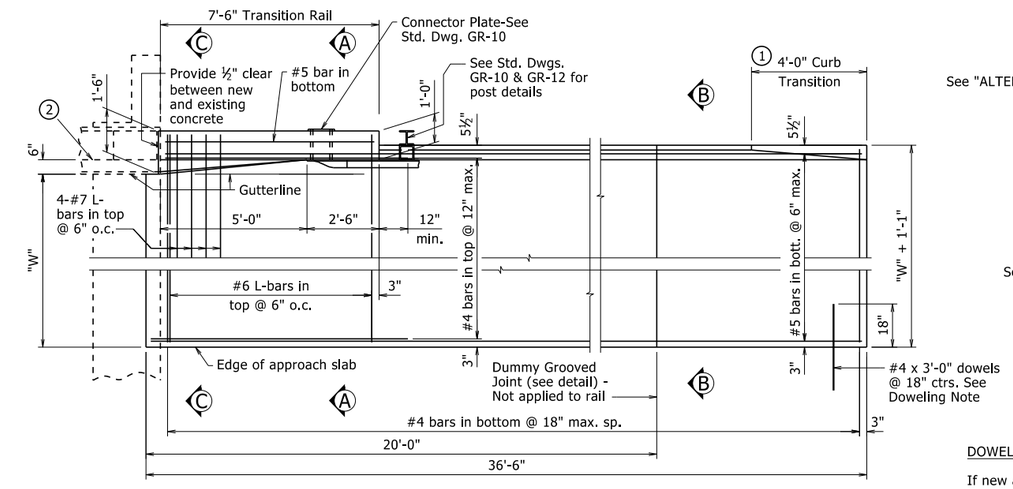
LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	2/27/2014	FILENAME:	b55035.dgn
CHECKED BY:	KWY	DATE:	2/27/2014	SCALE:	AS NOTED
DESIGNED BY:	STD	DATE:	-		

DRAWING NO. 55035

PRINT DATE: 11/20/2019

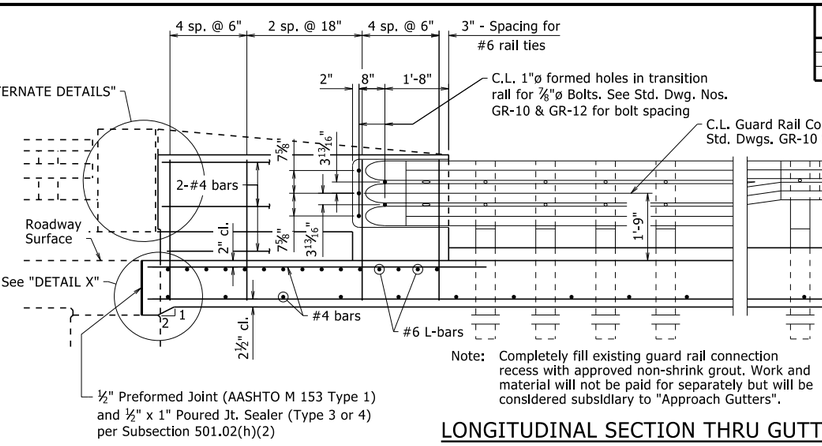
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11/7/19				6	ARK.			
				JOB NO.				
				1	- TYPE AT GUTTERS - 55036			



PLAN - SQUARE BRIDGES

⅜" = 1'-0"

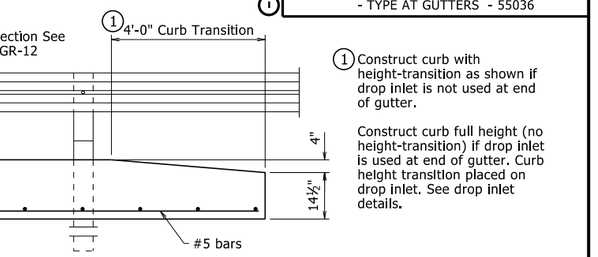
(2) Front face of concrete wall (Type A Rail) or front face of metal pipe or tubing (Types B, C, D or E Rail).



LONGITUDINAL SECTION THRU GUTTER

½" = 1'-0"

Note: Completely fill existing guard rail connection recess with approved non-shrink grout. Work and material will not be paid for separately but will be considered subsidiary to "Approach Gutters".



(1) Construct curb with height-transition as shown if drop inlet is not used at end of gutter.

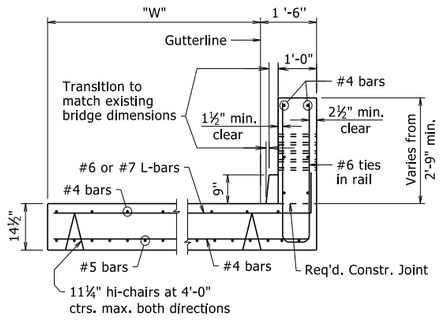
Construct curb full height (no height-transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

DOWELING NOTES

If new approach slab is used: Place dowels into approach slab using 18" embedment.

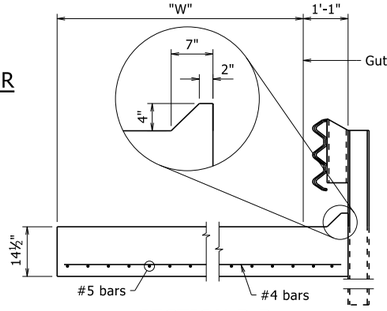
If existing approach slab is retained: Dowels shall be drilled and grouted 18" into existing slab. At the Contractor's option, existing dowels may be retained, cleaned and incorporated into new gutters. Work for drilling and grouting, or retaining and cleaning will not be paid for separately but will be considered subsidiary to "Approach Gutters".

Dowel bars, if required, will not be paid for separately, but will be considered subsidiary to other pay items.



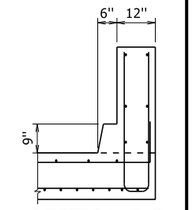
SECTION A-A

½" = 1'-0"



SECTION B-B

½" = 1'-0"



SECTION C-C

At End of Transition Rail

½" = 1'-0"

GENERAL NOTES

Concrete shall be Class S or S(AE) or mixture used for Portland Cement Concrete Pavement.

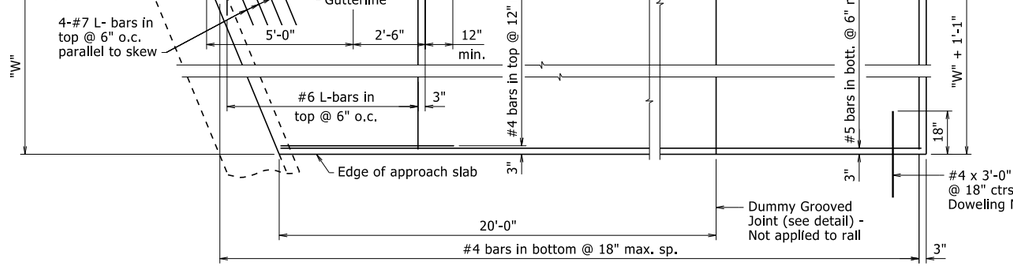
Reinforcing steel shall be Grade 60 (fy = 60,000 psi.) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504.

Preformed Joint and Poured Joint Sealer included in the item "Approach Gutters".

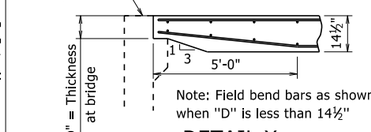
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

When this Standard Drawing is used as a retrofit for an existing bridge and an existing drop inlet is located within the Plan of the approach gutter, adjust the reinforcing as needed to facilitate construction of the approach gutter, unless otherwise noted.



PLAN - SKEWED BRIDGES

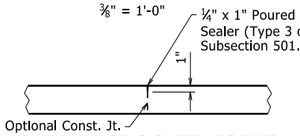
⅜" = 1'-0"



Note: Field bend bars as shown when "D" is less than 14½"

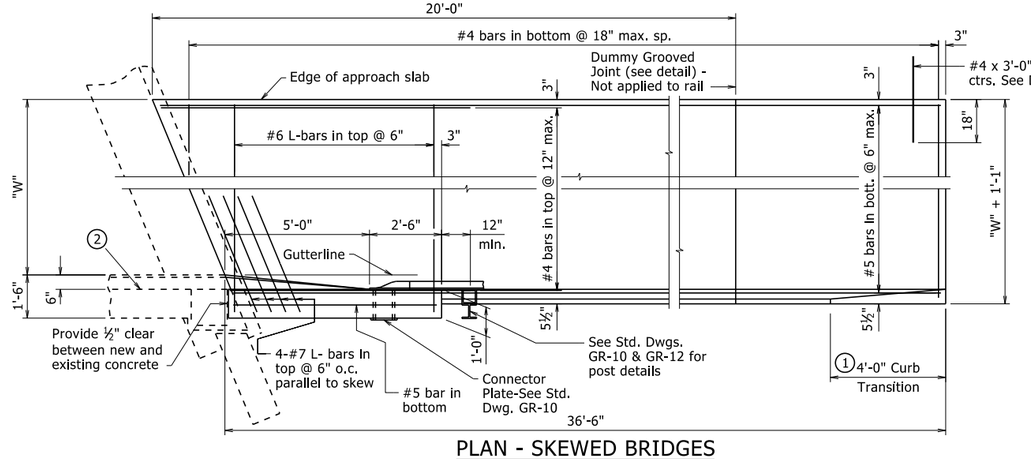
DETAIL X

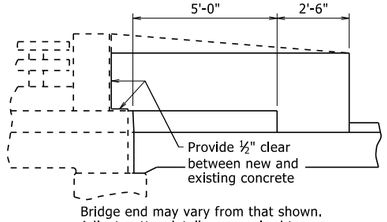
⅜" = 1'-0"



DUMMY GROOVED JOINT

No Scale



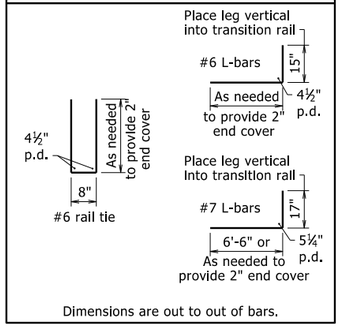


Bridge end may vary from that shown. Adjust gutter details as required to provide similar railing transition.

ALTERNATE DETAILS

NO SCALE

BENDING DIAGRAMS



Dimensions are out to out of bars.

1 Revised and Redrawn. By: TMG
Checked By: CRE 11/7/2019

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 7, 2019. This copy is not a signed and sealed document.

APPROX. QUANTITIES FOR ONE SQUARE 36'-6" APPROACH GUTTER

(For Information Only)

Concrete (cu. yd.)	("W" x 1.65) + 2.80
Reinforcing Steel (lb.)	("W" x 128.1) + 318.5

Variables: Units of "W" are in feet.

"W" = Distance from gutterline to edge of shoulder or edge of approach slab. "W" shall not be less than 3'-0" unless approach gutter is doweled into an approach slab or concrete pavement.

STANDARD DETAILS FOR TYPE 'AT' APPROACH GUTTERS (BRIDGES WITH 6" CURBS & TYPE A, B, C, D OR E RAILING)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

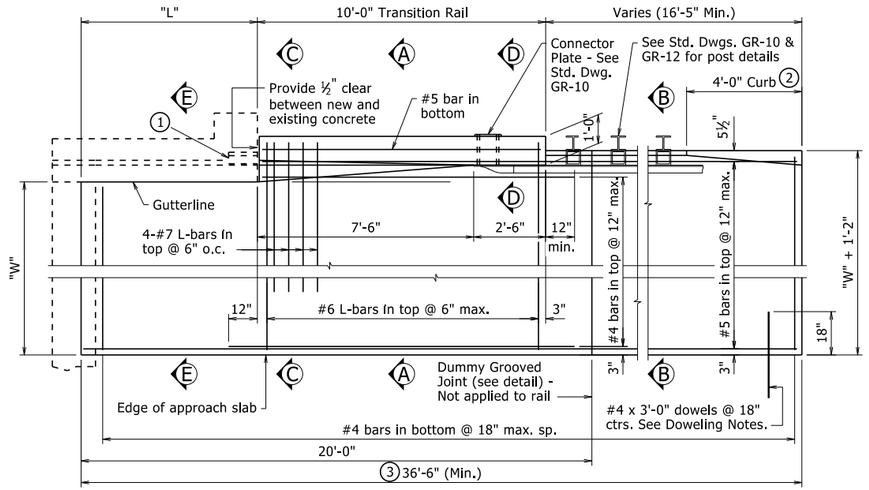
DRAWN BY:	KDH	DATE:	2/27/2014	FILENAME:	b55036.dgn
CHECKED BY:	KWY	DATE:	2/27/2014	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:	-		

DRAWING NO. 55036

PRINT DATE: 11/20/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

1 - TYPE PT2 GUTTER - 55037

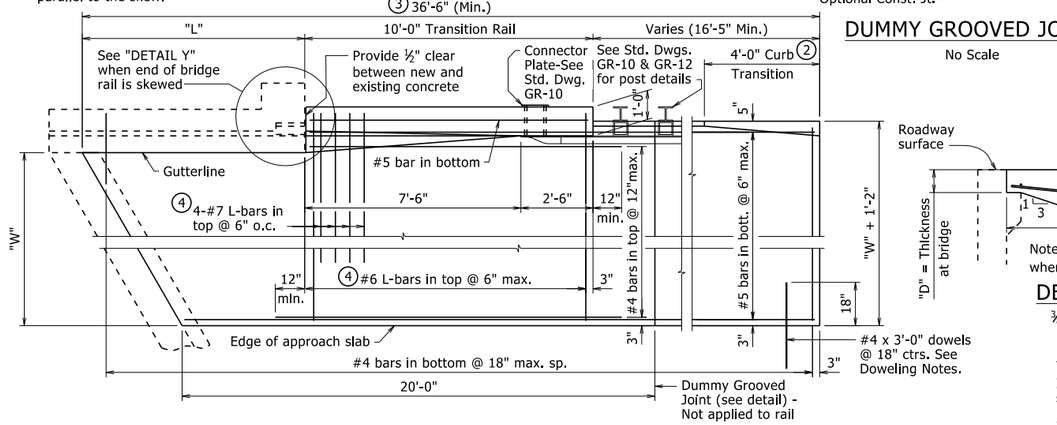


PLAN - SQUARE BRIDGES

½" = 1'-0"

(3) Unless otherwise directed by the Engineer

(4) When "L" is short and the bridge is skewed, some of these bars may interfere with the bridge end. These bars shall be placed parallel to the skew.



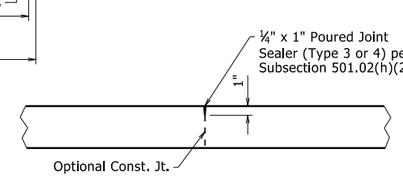
PLAN - SKEWED BRIDGES

⅜" = 1'-0"

Note: Field bend bars as shown when "D" is less than 14½"

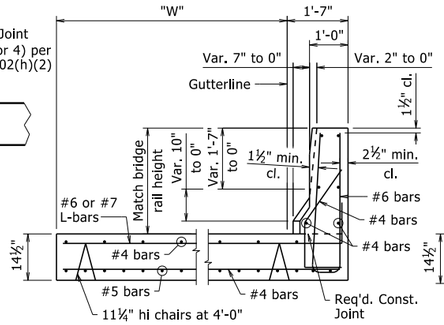
DETAIL X

⅜" = 1'-0"



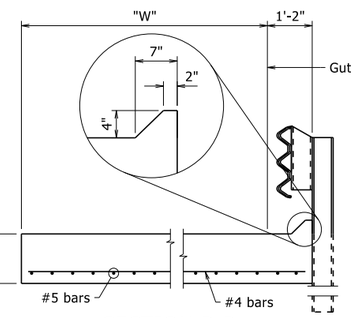
DUMMY GROOVED JOINT

No Scale



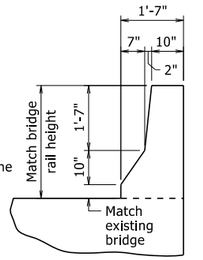
SECTION A-A

½" = 1'-0"



SECTION B-B

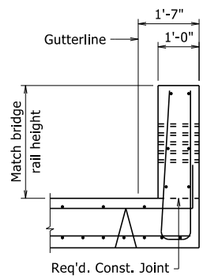
½" = 1'-0"



SECTION C-C

At End of Transition Rail

½" = 1'-0"



SECTION D-D

½" = 1'-0"

½" Preformed Joint (AASHTO M 153 Type 1) and ½" x 1" Poured Jt. Sealer (Type 3 or 4) per subsection 501.02(h)(2)

SECTION E-E

½" = 1'-0"

Note: Field bend bars as shown when "D" is less than 14½"

DETAIL X

⅜" = 1'-0"

DUMMY GROOVED JOINT

No Scale

SECTION A-A

½" = 1'-0"

SECTION B-B

½" = 1'-0"

SECTION C-C

At End of Transition Rail

½" = 1'-0"

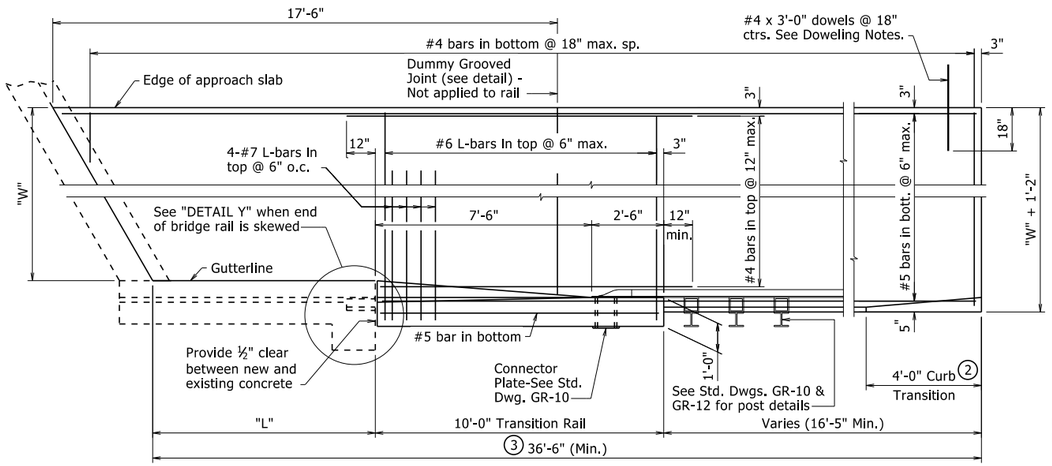
SECTION D-D

½" = 1'-0"

½" Preformed Joint (AASHTO M 153 Type 1) and ½" x 1" Poured Jt. Sealer (Type 3 or 4) per subsection 501.02(h)(2)

SECTION E-E

½" = 1'-0"



PLAN - SKEWED BRIDGES

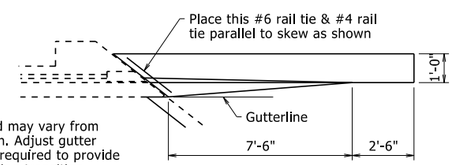
⅜" = 1'-0"

DOWELING NOTES

If new approach slab is used: Place dowels into approach slab using 18" embedment.

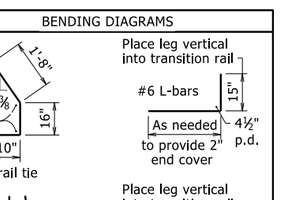
If existing approach slab is retained: Dowels shall be drilled and grouted 18" into existing slab. At the Contractor's option, existing dowels may be retained, cleaned and incorporated into new gutters. Work for drilling and grouting, or retaining and cleaning will not be paid for separately but will be considered subsidiary to "Approach Gutters".

Dowel bars, if required, will not be paid for separately, but will be considered subsidiary to other pay items.

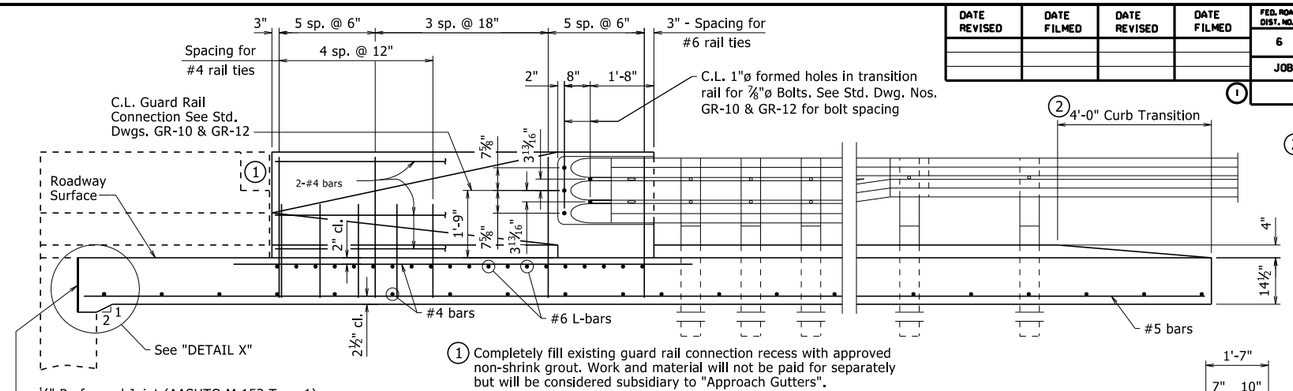


DETAIL Y

No Scale



(1) Completely fill existing guard rail connection recess with approved non-shrink grout. Work and material will not be paid for separately but will be considered subsidiary to "Approach Gutters".



LONGITUDINAL SECTION THRU GUTTER

½" = 1'-0"

(2) Construct curb with height-transition as shown if drop inlet is not used at end of gutter.

Construct curb full height (no height-transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

GENERAL NOTES

Concrete shall be Class S or S(AE) or mixture used for Portland Cement Concrete Pavement.

Reinforcing steel shall be Grade 60 (fy = 60,000 psi.) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504.

Preformed Joint and Poured Joint Sealer included in the item "Approach Gutters."

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

When this Standard Drawing is used as a retrofit for an existing bridge and an existing drop inlet is located within the Plan of the approach gutter, adjust the reinforcing as needed to facilitate construction of the approach gutter, unless otherwise noted.

APPROX. QUANTITIES FOR ONE SQUARE 36'-6" APPROACH GUTTER

(For Information Only)

Concrete (cu. yd.)	("W" x 1.63) - ("L" x 0.06) + 3.27
Reinforcing Steel (lb.)	("W" x 130.2) - ("L" x 2.6) + 454.3

Variables: Units of "W" and "L" are in feet.

"W" = Distance from gutterline to edge of shoulder or edge of approach slab. "W" shall not be less than 3'-0" unless approach gutter is doweled into an approach slab or concrete pavement.

STATE OF ARKANSAS
* * *
LICENSED PROFESSIONAL ENGINEER
* * *
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 7, 2019. This copy is not a signed and sealed document.

STANDARD DETAILS FOR TYPE 'PT2' APPROACH GUTTERS (BRIDGES WITH CONCRETE PARAPET RAILING)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TMG DATE: 11/7/2019 FILENAME: b55037.dgn

CHECKED BY: CRE DATE: 11/7/2019 SCALE: AS NOTED

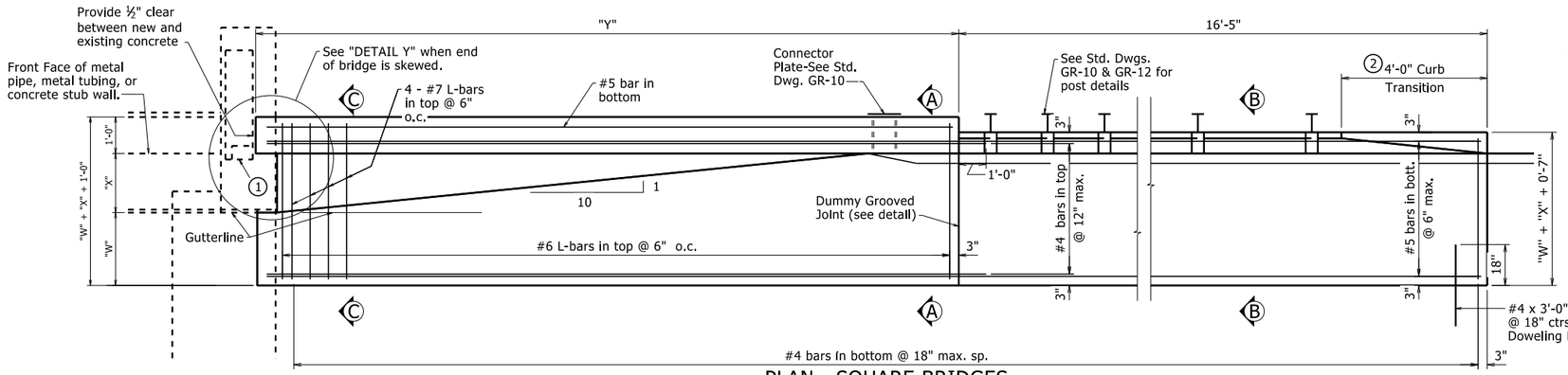
DESIGNED BY: STD. DATE: -

DRAWING NO. 55037

PRINT DATE: 11/20/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

(1) - TYPE AT2 GUTTERS - 55038



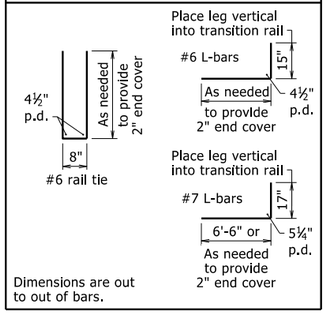
PLAN - SQUARE BRIDGES

½" = 1'-0"

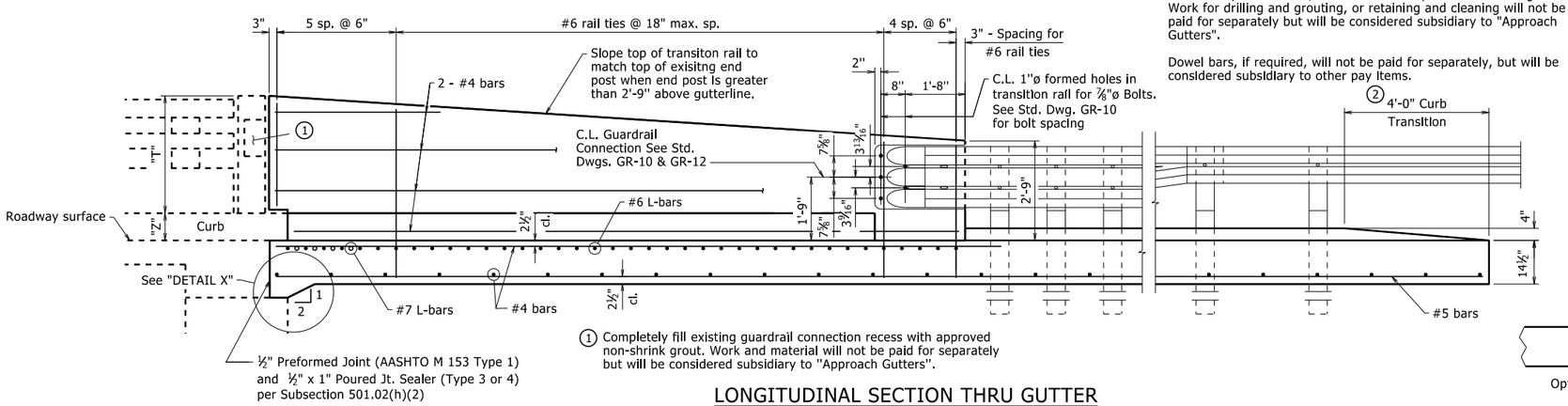
(2) Construct curb with height-transition as shown if drop inlet is not used at end of gutter.

Construct curb full height (no height-transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

BENDING DIAGRAMS



Dimensions are out to out of bars.



(1) Completely fill existing guardrail connection recess with approved non-shrink grout. Work and material will not be paid for separately but will be considered subsidiary to "Approach Gutters".

LONGITUDINAL SECTION THRU GUTTER

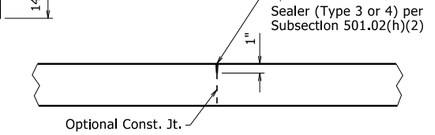
⅜" = 1'-0"

DOWELING NOTES

If new approach slab is used: Place dowels into approach slab using 18" embedment.

If existing approach slab is retained: Dowels shall be drilled and grouted 18" into existing slab. At the Contractor's option, existing dowels may be retained, cleaned and incorporated into new gutters. Work for drilling and grouting, or retaining and cleaning will not be paid for separately but will be considered subsidiary to "Approach Gutters".

Dowel bars, if required, will not be paid for separately, but will be considered subsidiary to other pay items.



DUMMY GROOVED JOINT

No Scale

APPROX. QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(For Information Only)

Concrete (cu. yd.)	("W" x 0.87) + ("X" x 1.83) + ("W" x "X" x 0.45) + ("Z" x "X" x 0.185) + ("T" x "X" x 0.185) + ("X"^2 x 0.45) + ("Z" x "X"^2 x 0.185) + ("T" x 0.06) + ("Z" x 0.06) + 0.79
Reinforcing Steel (lb.)	("W" x 68.63) + ("X" x 254.82) + ("T" x 14.54) + ("Z" x 14.54) + ("W" x "X" x 62) + ("T" x "X" x 10.06) + ("Z" x "X" x 10.06) + ("X"^2 x 62) + 135.72

VARIABLES: "T" = Height of the end post above the top of curb.
"W" = Distance from gutterline to edge of shoulder or edge of approach slab, if present.
"X" = Distance from gutterline to face of existing end post.
"Y" = "X" x 10 + 3.0
"Z" = Height of bridge curb.

Units for variables are in feet.

"W" + "X" shall not be less than 3'-0" unless approach gutter is doweled into an approach slab or concrete pavement.

GENERAL NOTES

This drawing shall only be used for thrie-beam retrofit of existing bridge rails.

Concrete shall be Class S or S(AE) or mixture used for Portland Cement Concrete Pavement.

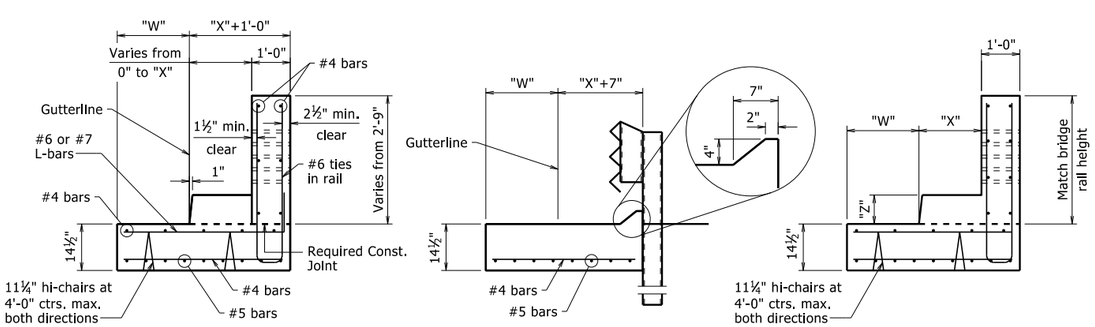
Reinforcing steel shall be Grade 60 (fy = 60,000 psi.) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504.

Preformed Joint and Poured Joint Sealer included in the item "Approach Gutters."

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

If an existing drop inlet is located within the Plan of the approach gutter, adjust the reinforcing as needed to facilitate construction of the approach gutter, unless otherwise noted.



SECTION A-A

½" = 1'-0"

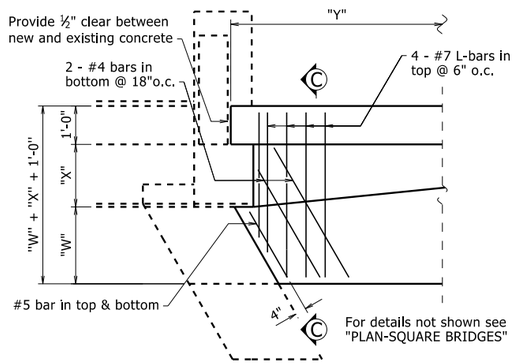
SECTION B-B

½" = 1'-0"

SECTION C-C

At end of Transition Rail
½" = 1'-0"

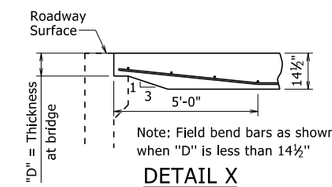
NOTE: Bridge end may vary from that shown. Adjust gutter details as required to provide similar rail transition.



NOTE: Reinforcing Steel is similar as shown for opposite side.

DETAIL Y

½" = 1'-0"



DETAIL X

⅜" = 1'-0"

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR TYPE 'AT2' APPROACH GUTTERS (BRIDGES WITH CURBS & TYPE A, B, C, D, OR E RAILING)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

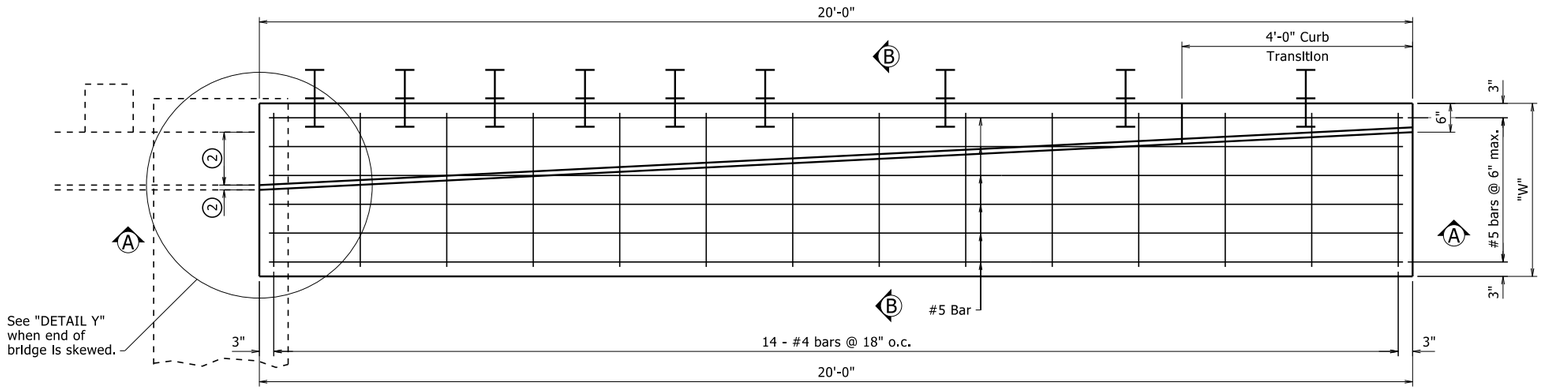
DRAWN BY:	TMG	DATE:	11/7/2019	FILENAME:	b55038.dgn
CHECKED BY:	CRE	DATE:	11/7/2019	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:	-		

DRAWING NO. 55038

PRINT DATE: 3/22/2021

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

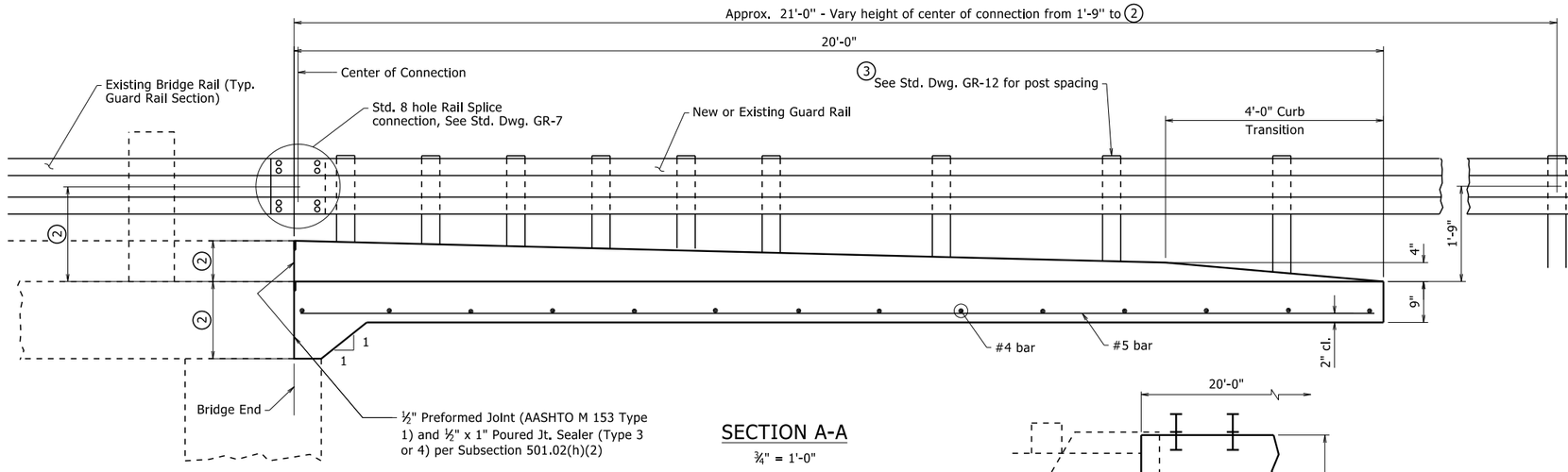
(1) - TYPE CT GUTTERS - 55039



PLAN OF APPROACH GUTTER (1)

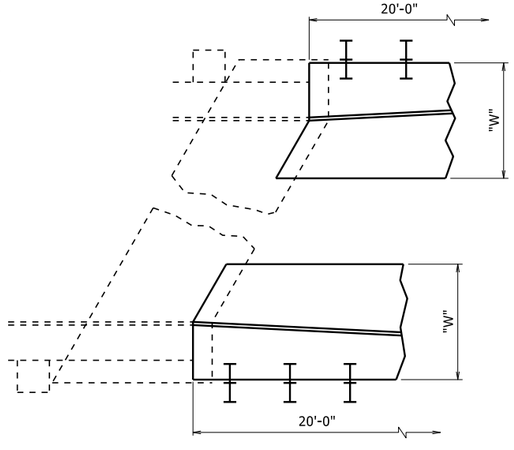
¾" = 1'-0"

Remove the existing terminal section as needed and attach a new guard rail to the existing guard rail on the bridge.



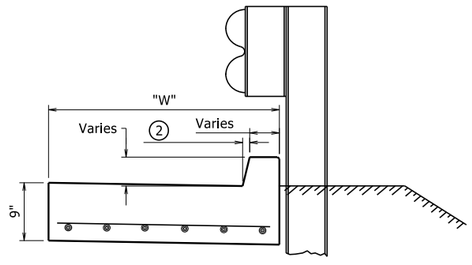
SECTION A-A

¾" = 1'-0"



DETAIL Y

No Scale



SECTION B-B

1" = 1'-0"

APPROXIMATE QUANTITIES FOR ONE SQUARE 20'-0" APPROACH GUTTER

Concrete (Cu. Yd.)	("W" x 0.56) + 0.41
Reinforcing Steel (lb.)	("W" x 50.38) - 3.11

Variables: Units of "W" are in feet.

(1) Square approach gutter is shown. Modify approach gutter as necessary to accommodate a bridge on a skew. See "DETAIL Y."

(2) Match existing conditions at bridge end.

(3) Vary post height, as necessary, to match height of existing w-beam bridge rail.

GENERAL NOTES

This drawing shall only be used as a retrofit of an existing bridge end where an existing curb creates a snag point.

Concrete shall be Class S or S(AE) or mixture used for Portland Cement Concrete Pavement.

Reinforcing steel shall be Grade 60 (fy = 60,000 psi.) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504.

Preformed Joint and Poured Joint Sealer included in the item "Approach Gutters".

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

If an existing drop inlet is located within the Plan of the approach gutter, adjust the reinforcing as needed to facilitate construction of the approach gutter, unless otherwise noted.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

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STANDARD DETAILS FOR TYPE 'CT' APPROACH GUTTERS (BRIDGES WITH CURB)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

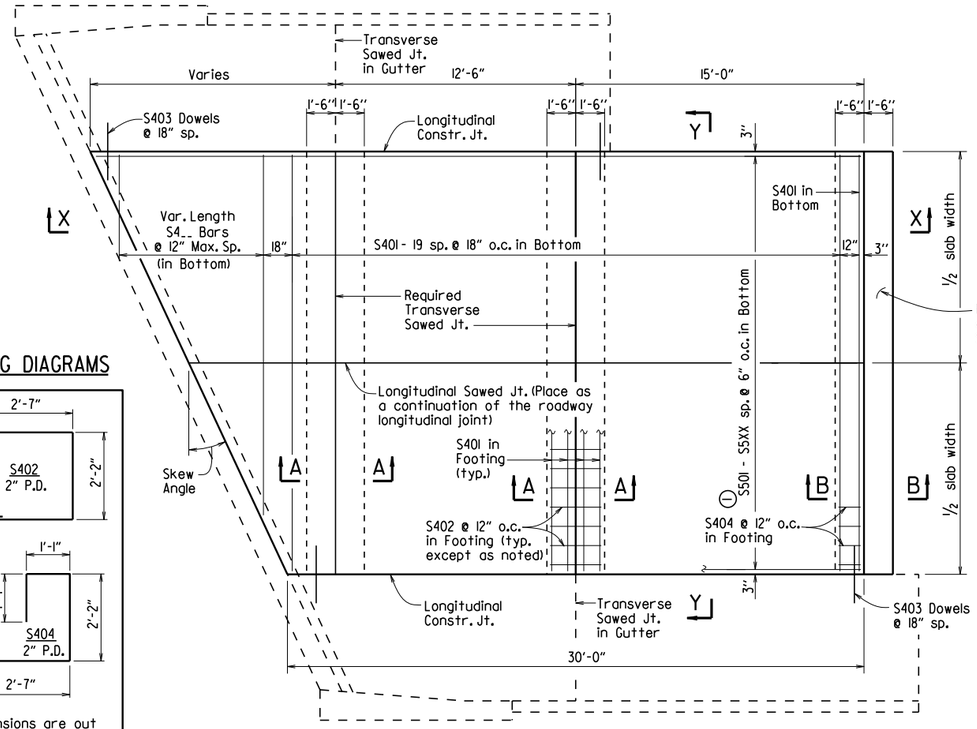
DRAWN BY: TMG DATE: 11/7/2019 FILENAME: b55039.dgn
CHECKED BY: CRE DATE: 11/7/2019 SCALE: AS NOTED
DESIGNED BY: STD. DATE: -

DRAWING NO. 55039

PRINT DATE: 11/25/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

TYPE A APPROACH SLAB 55040A



PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

1/4" = 1'-0"

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

① S5XX = S540 for 20'-0" Width
= S544 for 22'-0" Width
= S548 for 24'-0" Width
= S572 for 36'-0" Width

BENDING DIAGRAMS

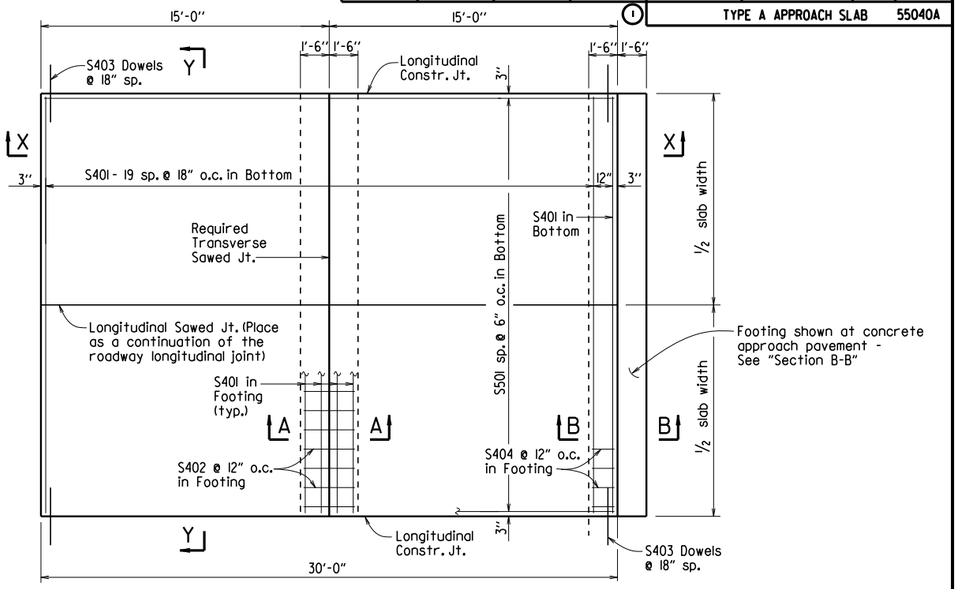
Dimensions are out to out of bar.

BAR LIST

(Square & Skewed Approach Slabs)

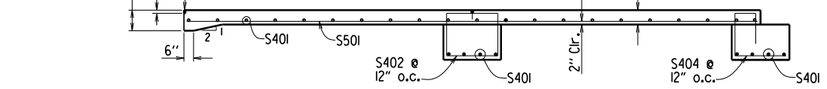
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
20'-0" Slab Width	S401	29	19'-8"	33	19'-8"
	S402	20	9'-10"	40	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	20	7'-2"	20	7'-2"
	S4__	—	—	1 Ea.	19.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	40	29'-8"	—	—
	S501 - S540	—	—	1 Ea.	29.6' + 0.25'(tan skew angle) to 29.6' + 19.75'(tan skew angle)
22'-0" Slab Width	S401	29	21'-8"	33	21'-8"
	S402	22	9'-10"	44	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	22	7'-2"	22	7'-2"
	S4__	—	—	1 Ea.	21.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	44	29'-8"	—	—
	S501 - S544	—	—	1 Ea.	29.6' + 0.25'(tan skew angle) to 29.6' + 21.75'(tan skew angle)
24'-0" Slab Width	S401	29	23'-8"	33	23'-8"
	S402	24	9'-10"	48	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	24	7'-2"	24	7'-2"
	S4__	—	—	1 Ea.	23.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	48	29'-8"	—	—
	S501 - S548	—	—	1 Ea.	29.6' + 0.25'(tan skew angle) to 29.6' + 23.75'(tan skew angle)
36'-0" Slab Width	S401	29	35'-8"	33	35'-8"
	S402	36	9'-10"	72	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	36	7'-2"	36	7'-2"
	S4__	—	—	1 Ea.	35.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	72	29'-8"	—	—
	S501 - S572	—	—	1 Ea.	29.6' + 0.25'(tan skew angle) to 29.6' + 35.75'(tan skew angle)

*Varies with skew angle



PLAN - SQUARE APPROACH SLAB

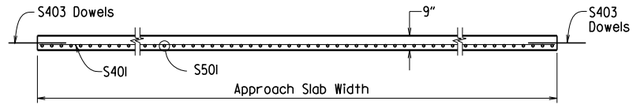
1/4" = 1'-0"



SECTION X-X

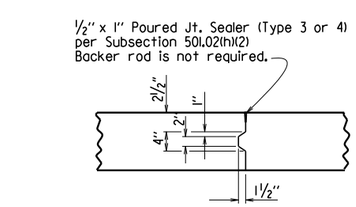
SQUARE APPROACH SLAB SHOWN

1/4" = 1'-0"



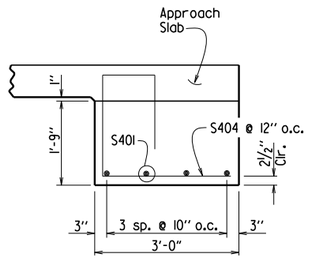
SECTION Y-Y

N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

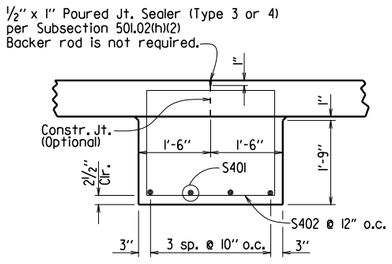
1" = 1'-0"



SECTION B-B

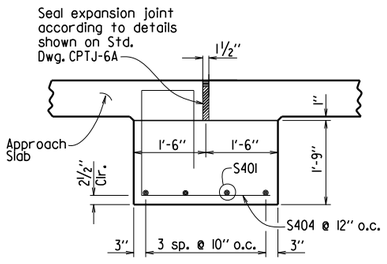
AT ASPHALT APPROACH PAVEMENT

N.T.S.



SECTION A-A

N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
20'-0"	1925	24.85
22'-0"	2110	27.30
24'-0"	2300	29.90
36'-0"	3410	44.85

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

20'-0" Slab Width: Maximum Skew Angle = 45°
22'-0" Slab Width: Maximum Skew Angle = 45°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE A APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

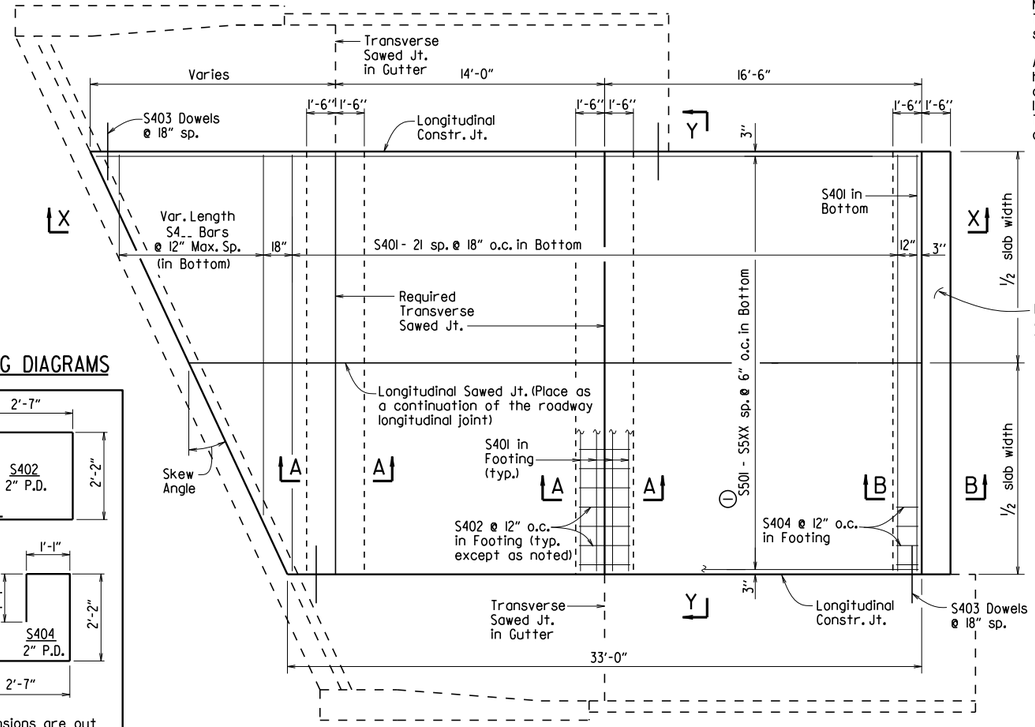
DRAWING NO. 55040A

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

TYPE B APPROACH SLAB 55040B

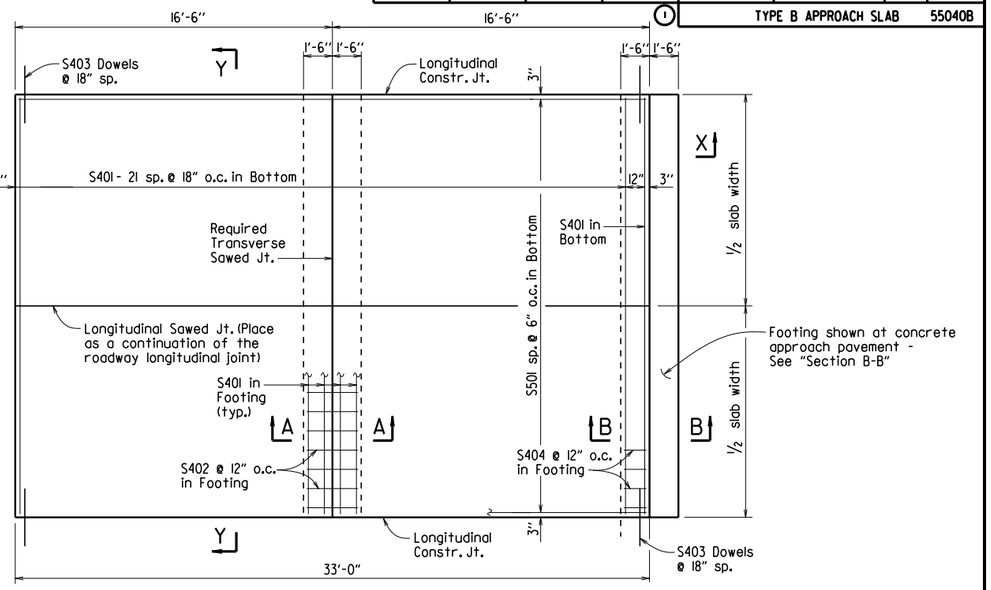
Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



① S5XX = S540 for 20'-0" Width
= S544 for 22'-0" Width
= S548 for 24'-0" Width
= S572 for 36'-0" Width

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS
1/4" = 1'-0"



PLAN - SQUARE APPROACH SLAB
1/4" = 1'-0"

BENDING DIAGRAMS

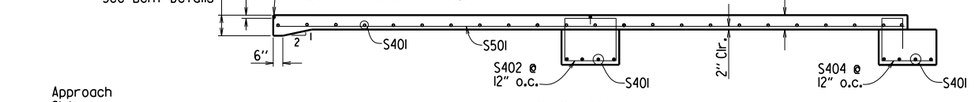
Dimensions are out to out of bar.

BAR LIST

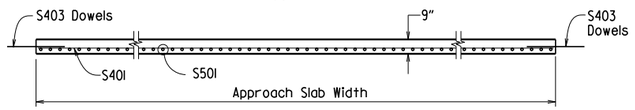
(Square & Skewed Approach Slabs)

		Square		Skewed	
	Mark	No. Req'd.	Length	No. Req'd.	Length
20'-0" Slab Width	S401	31	19'-8"	35	19'-8"
	S402	20	9'-10"	40	9'-10"
	S403	44	3'-0"	*	3'-0"
	S404	20	7'-2"	20	7'-2"
	S4..	—	—	1 Ea.	19.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	40	32'-8"	—	—
	S501 - S540	—	—	1 Ea.	32.6' + 0.25'(tan skew angle) to 32.6' + 19.75'(tan skew angle)
22'-0" Slab Width	S401	31	21'-8"	35	21'-8"
	S402	22	9'-10"	44	9'-10"
	S403	44	3'-0"	*	3'-0"
	S404	22	7'-2"	22	7'-2"
	S4..	—	—	1 Ea.	21.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	44	32'-8"	—	—
	S501 - S544	—	—	1 Ea.	32.6' + 0.25'(tan skew angle) to 32.6' + 21.75'(tan skew angle)
24'-0" Slab Width	S401	31	23'-8"	35	23'-8"
	S402	24	9'-10"	48	9'-10"
	S403	44	3'-0"	*	3'-0"
	S404	24	7'-2"	24	7'-2"
	S4..	—	—	1 Ea.	23.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	48	32'-8"	—	—
	S501 - S548	—	—	1 Ea.	32.6' + 0.25'(tan skew angle) to 32.6' + 23.75'(tan skew angle)
36'-0" Slab Width	S401	31	35'-8"	35	35'-8"
	S402	36	9'-10"	72	9'-10"
	S403	44	3'-0"	*	3'-0"
	S404	36	7'-2"	36	7'-2"
	S4..	—	—	1 Ea.	35.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	72	32'-8"	—	—
	S501 - S572	—	—	1 Ea.	32.6' + 0.25'(tan skew angle) to 32.6' + 35.75'(tan skew angle)

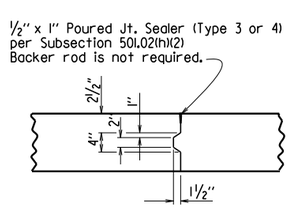
*Varies with skew angle



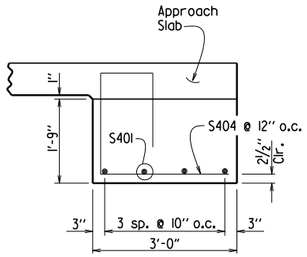
SECTION X-X
SQUARE APPROACH SLAB SHOWN
1/4" = 1'-0"



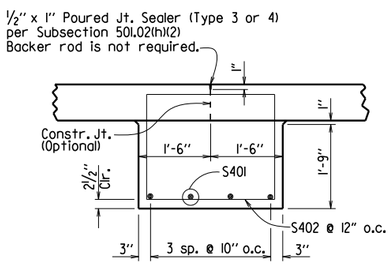
SECTION Y-Y
N.T.S.



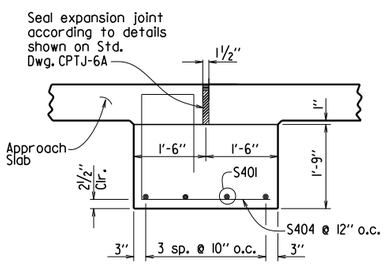
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
1" = 1'-0"



SECTION B-B
AT ASPHALT APPROACH PAVEMENT
N.T.S.



SECTION A-A
N.T.S.



SECTION B-B
AT CONCRETE APPROACH PAVEMENT
N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
20'-0"	2085	26.60
22'-0"	2285	29.25
24'-0"	2490	31.90
36'-0"	3690	47.85

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

20'-0" Slab Width: Maximum Skew Angle = 45°
22'-0" Slab Width: Maximum Skew Angle = 45°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE B APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

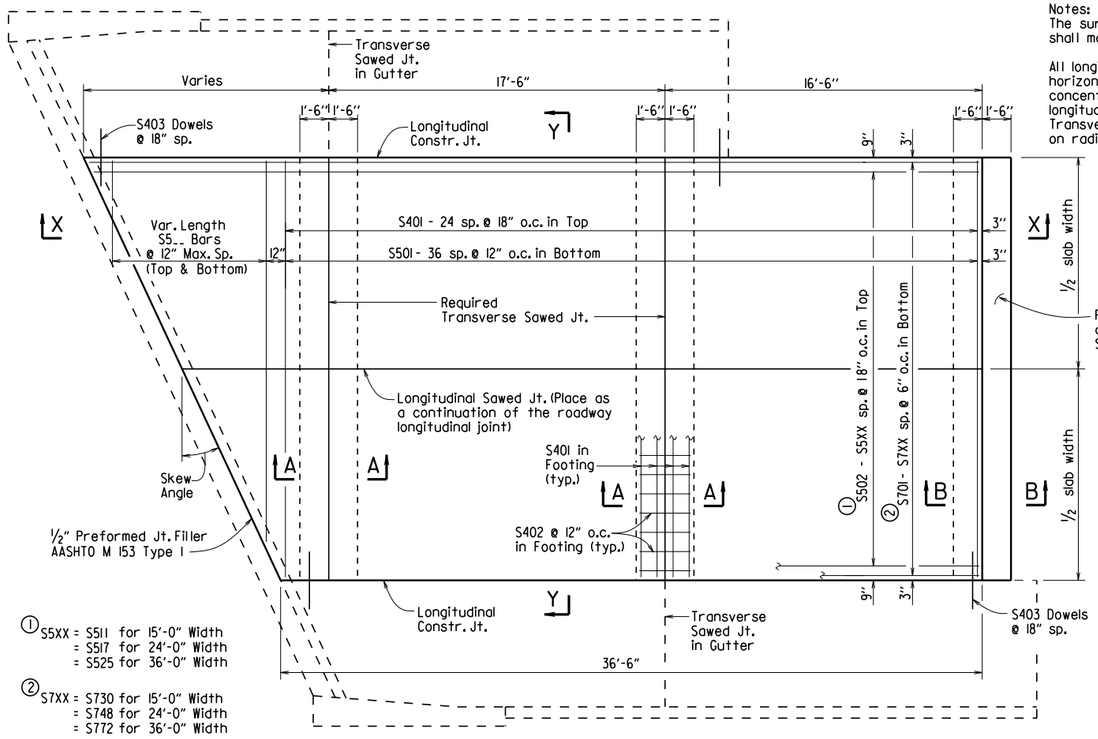
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040b.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040B

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.				

TYPE CI APPROACH SLAB 55040CI



① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

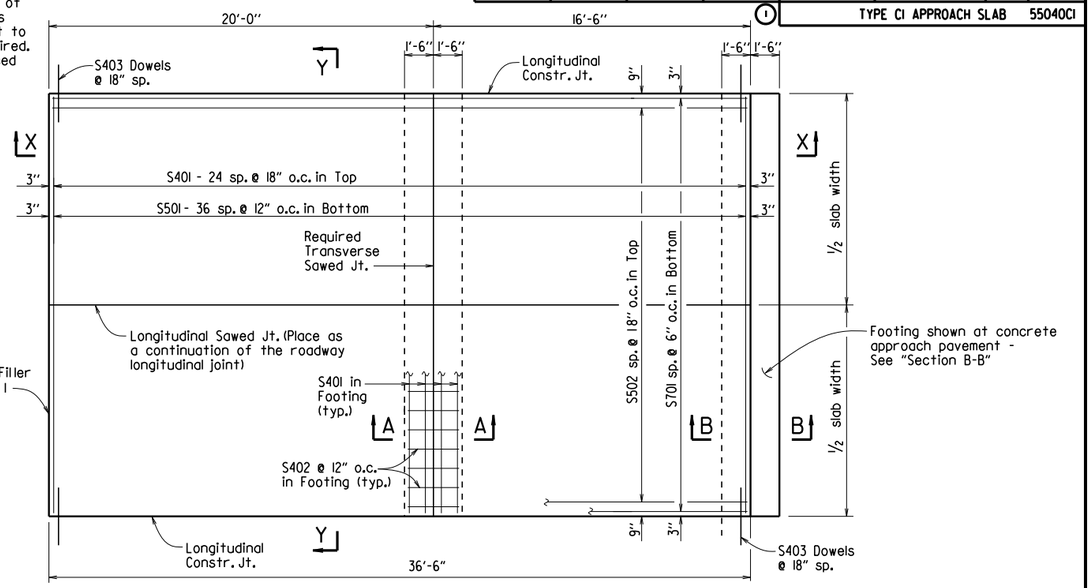
② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

1/4" = 1'-0"

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



PLAN - SQUARE APPROACH SLAB

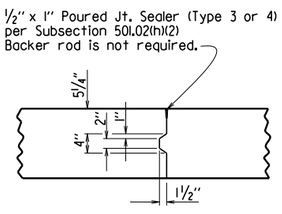
1/4" = 1'-0"

BAR LIST

(Square & Skewed Approach Slabs)

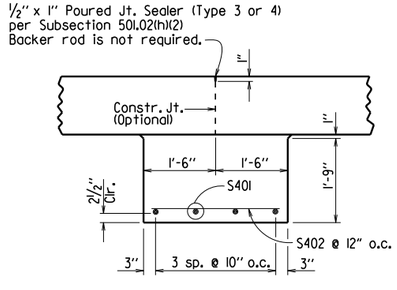
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	30	2'-8"	45	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 14.25' (tan skew angle)
	S5..	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	—
	S701 - S730	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 14.75' (tan skew angle)
24'-0" Slab Width	S401	33	23'-8"	37	23'-8"
	S402	48	2'-8"	72	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	23'-8"	37	23'-8"
	S502	16	36'-2"	—	—
	S502 - S517	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 23.25' (tan skew angle)
	S5..	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	—
	S701 - S748	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 23.75' (tan skew angle)
36'-0" Slab Width	S401	33	35'-8"	37	35'-8"
	S402	72	2'-8"	108	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	35'-8"	37	35'-8"
	S502	24	36'-2"	—	—
	S502 - S525	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 35.25' (tan skew angle)
	S5..	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	—
	S701 - S772	—	—	1 Ea.	36.1' + 0.25' (tan skew angle) to 36.1' + 35.75' (tan skew angle)

* Varies with skew angle



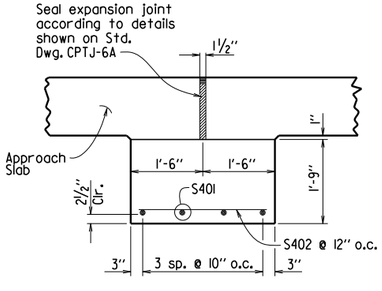
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"



SECTION A-A

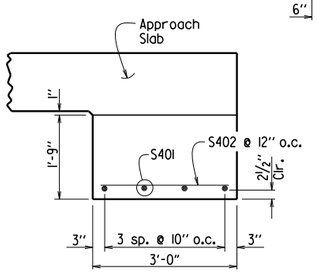
N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

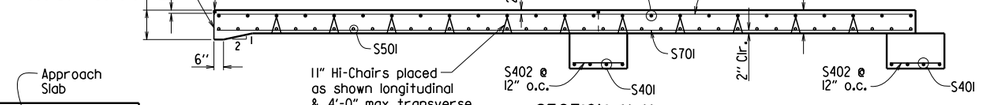
N.T.S.



SECTION B-B

AT ASPHALT APPROACH PAVEMENT

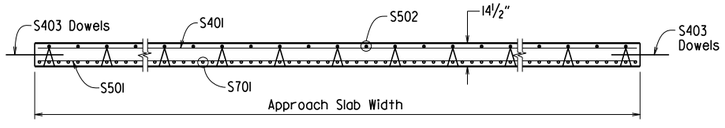
N.T.S.



SECTION X-X

SQUARE APPROACH SLAB SHOWN

1/4" = 1'-0"



SECTION Y-Y

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3640	30.75
24'-0"	5775	49.15
36'-0"	8620	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zone 1 and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE CI APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040ci.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

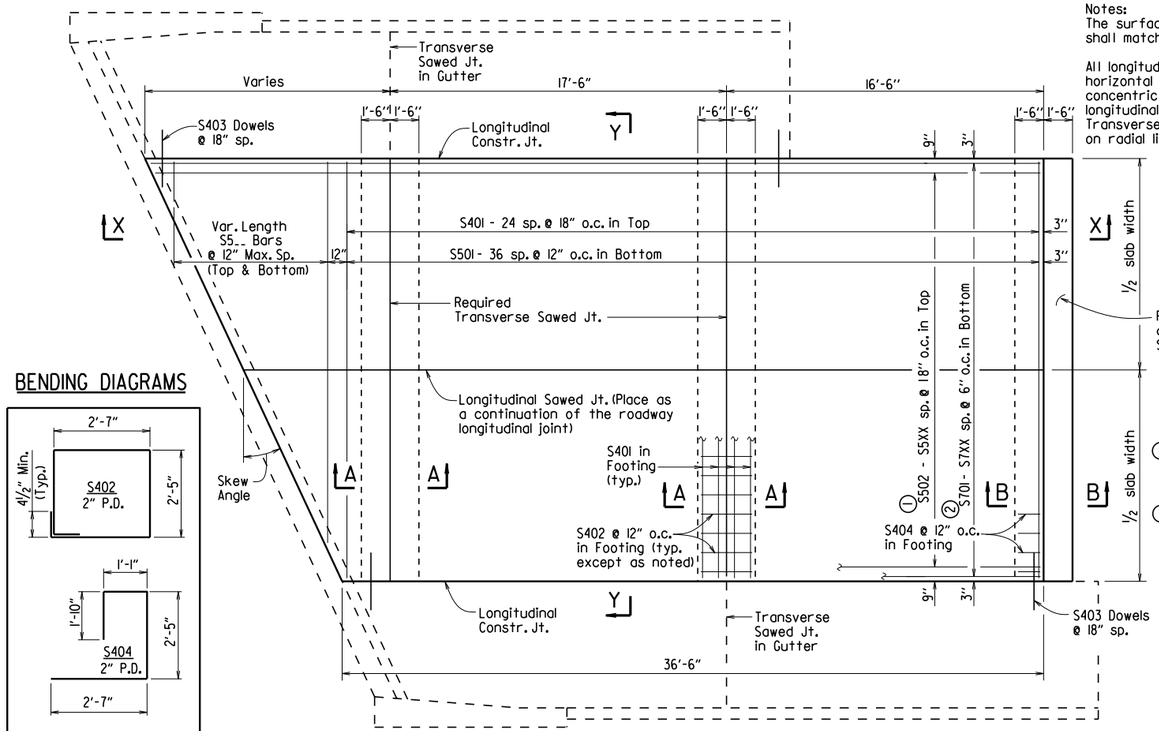
DRAWING NO. 55040CI

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

TYPE C2 APPROACH SLAB 55040C2

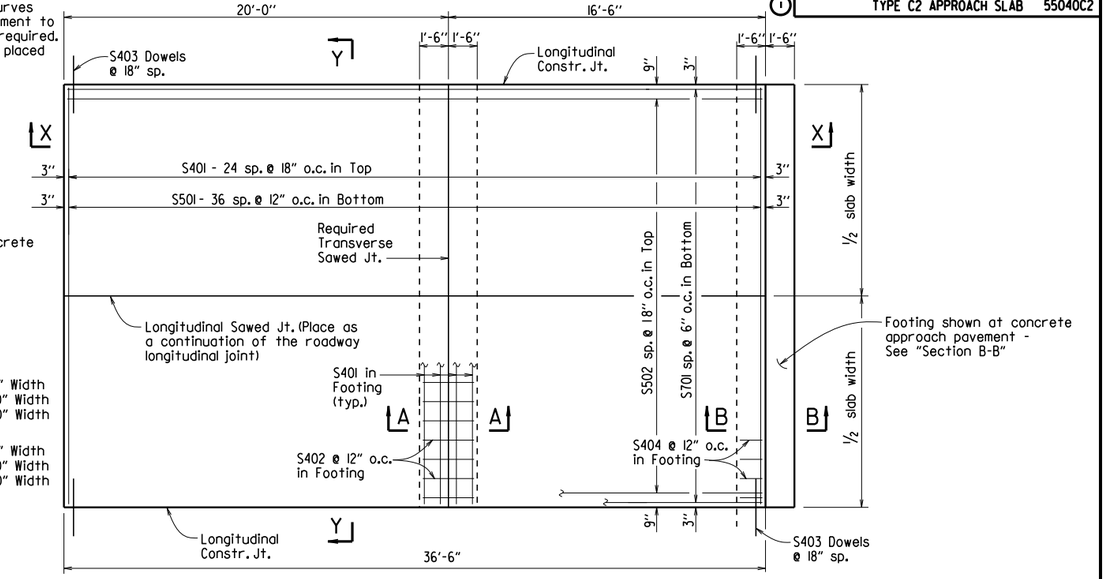
Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width



PLAN - SQUARE APPROACH SLAB

1/4" = 1'-0"

BENDING DIAGRAMS

Dimensions are out to out of bar.

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

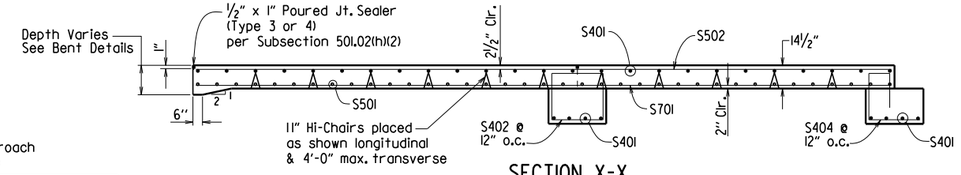
1/4" = 1'-0"

BAR LIST

(Square & Skewed Approach Slabs)

	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	15	10'-4"	30	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	15	7'-8"	15	7'-8"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 14.25'(tan skew angle)
	S5__	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	—
	S701 - S730	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 14.75'(tan skew angle)
24'-0" Slab Width	S401	33	23'-8"	37	23'-8"
	S402	24	10'-4"	48	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	24	7'-8"	24	7'-8"
	S501	37	23'-8"	37	23'-8"
	S502	16	36'-2"	—	—
	S502 - S517	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 23.25'(tan skew angle)
	S5__	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	—
	S701 - S748	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 23.75'(tan skew angle)
36'-0" Slab Width	S401	33	35'-8"	37	35'-8"
	S402	36	10'-4"	72	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	36	7'-8"	36	7'-8"
	S501	37	35'-8"	37	35'-8"
	S502	24	36'-2"	—	—
	S502 - S525	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 35.25'(tan skew angle)
	S5__	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	—
	S701 - S772	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 35.75'(tan skew angle)

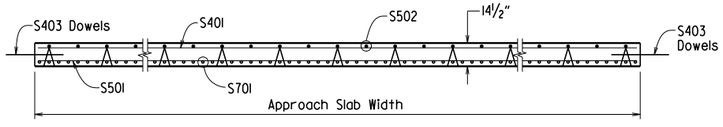
*Varies with skew angle



SECTION X-X

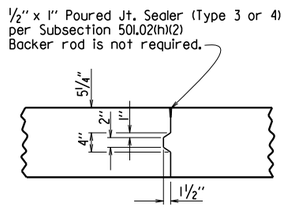
SQUARE APPROACH SLAB SHOWN

1/4" = 1'-0"



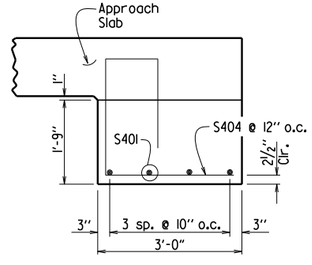
SECTION Y-Y

N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

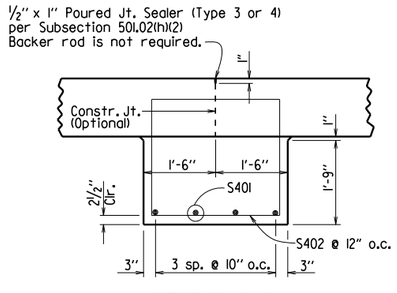
¾" = 1'-0"



SECTION B-B

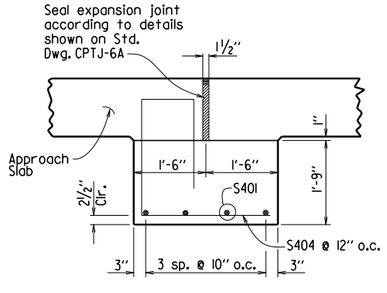
AT ASPHALT APPROACH PAVEMENT

N.T.S.



SECTION A-A

N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3765	30.75
24'-0"	5980	49.15
36'-0"	8925	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE C2 APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

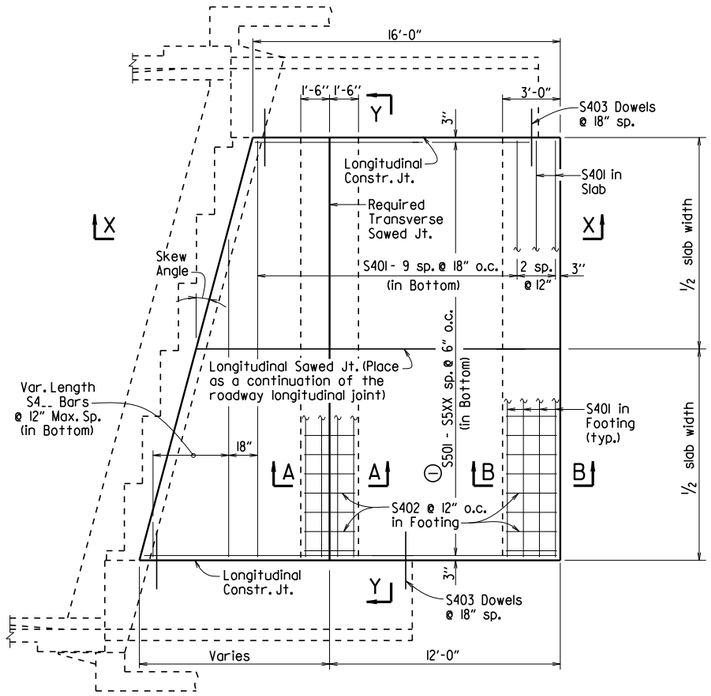
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040c2.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040C2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.				

① TYPE D APPROACH SLAB 55040D

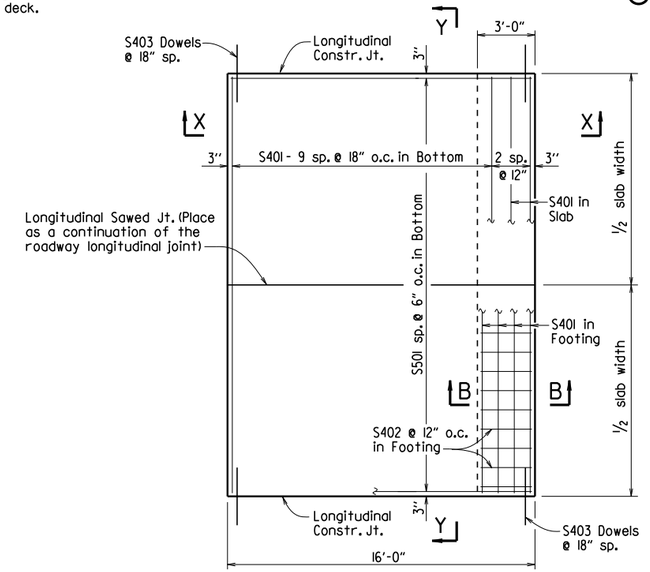


PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"

Note:
The surface finish for Approach Slabs shall match that used on the bridge deck.

① S5XX = S540 for 20'-0" Width
= S544 for 22'-0" Width
= S548 for 24'-0" Width



PLAN - SQUARE APPROACH SLAB

¼" = 1'-0"

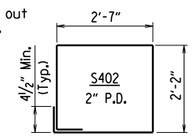
BAR LIST

(Square & Skewed Approach Slabs)

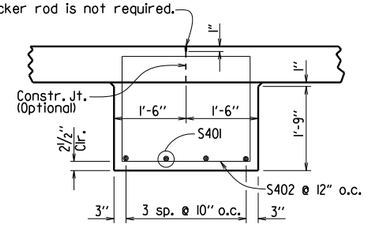
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
20'-0" Slab Width	S401	16	19'-8"	20	19'-8"
	S402	20	9'-10"	40	9'-10"
	S403	22	3'-0"	*	3'-0"
	S4__	—	—	1 Ea.	19.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	40	15'-8"	—	—
	S501 - S540	—	—	1 Ea.	15.6' + 0.25' (tan skew angle) to 15.6' + 19.75' (tan skew angle)
22'-0" Slab Width	S401	16	21'-8"	20	21'-8"
	S402	22	9'-10"	44	9'-10"
	S403	22	3'-0"	*	3'-0"
	S4__	—	—	1 Ea.	21.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	44	15'-8"	—	—
	S501 - S544	—	—	1 Ea.	15.6' + 0.25' (tan skew angle) to 15.6' + 21.75' (tan skew angle)
24'-0" Slab Width	S401	16	23'-8"	20	23'-8"
	S402	24	9'-10"	48	9'-10"
	S403	22	3'-0"	*	3'-0"
	S4__	—	—	1 Ea.	23.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	48	15'-8"	—	—
	S501 - S548	—	—	1 Ea.	15.6' + 0.25' (tan skew angle) to 15.6' + 23.75' (tan skew angle)

*Varies with skew angle

Bending Diagram

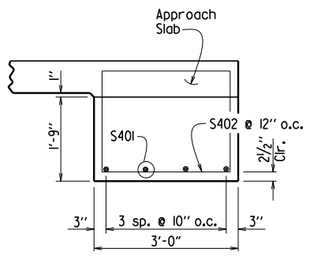


½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



SECTION A-A

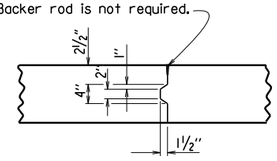
N.T.S.



SECTION B-B

N.T.S.

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

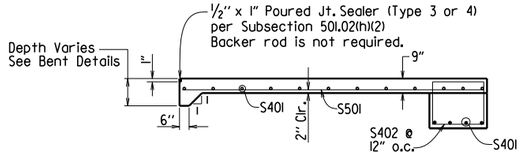
1" = 1'-0"

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
20'-0"	1040	13.35
22'-0"	1140	14.65
24'-0"	1240	16.00

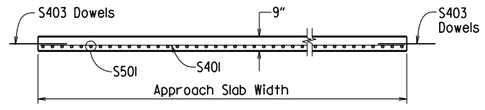
½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2) Backer rod is not required.



SECTION X-X

SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"



SECTION Y-Y

N.T.S.

GENERAL NOTES

This drawing is for use with Precast Concrete Spans in Seismic Performance Zones 2, 3 & 4.

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE D APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

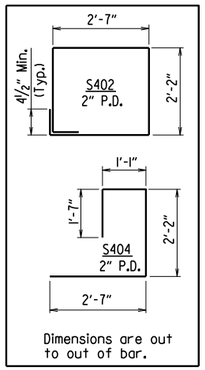
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040d.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

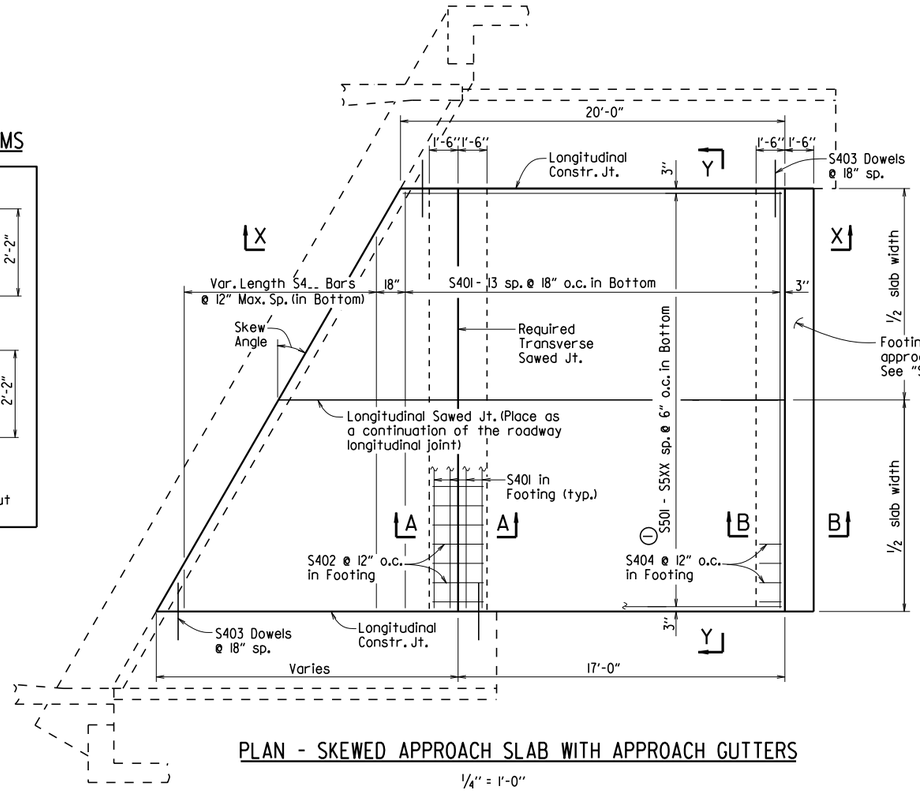
DRAWING NO. 55040D

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TYPE E APPROACH SLAB			55040E

BENDING DIAGRAMS



Dimensions are out to out of bar.



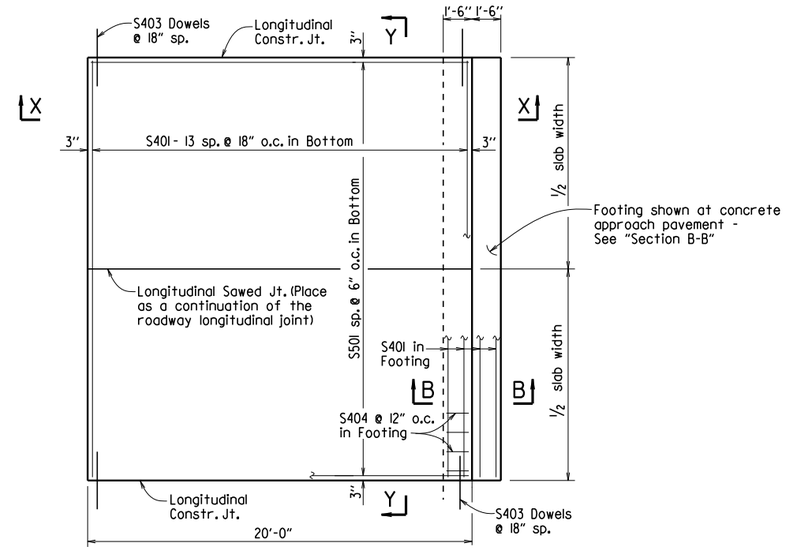
① S5XX = S540 for 20'-0" Width
= S544 for 22'-0" Width
= S548 for 24'-0" Width
= S572 for 36'-0" Width

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"

Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



PLAN - SQUARE APPROACH SLAB

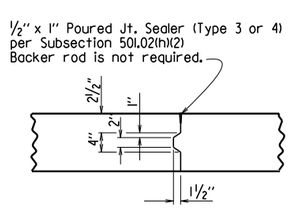
¼" = 1'-0"

BAR LIST

(Square & Skewed Approach Slabs)

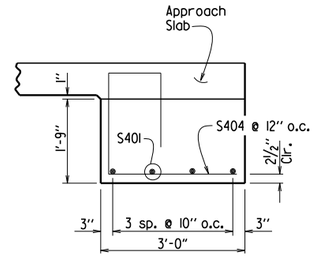
		Square		Skewed	
	Mark	No. Req'd.	Length	No. Req'd.	Length
20'-0" Slab Width	S401	18	19'-8"	22	19'-8"
	S402	—	—	20	9'-10"
	S403	28	3'-0"	*	3'-0"
	S404	20	7'-2"	20	7'-2"
	S4__	—	—	1 Ea.	19.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	40	19'-8"	—	—
	S501 - S540	—	—	1 Ea.	19.6' + 0.25'(tan skew angle) to 19.6' + 19.75'(tan skew angle)
22'-0" Slab Width	S401	18	21'-8"	22	21'-8"
	S402	—	—	22	9'-10"
	S403	28	3'-0"	*	3'-0"
	S404	22	7'-2"	22	7'-2"
	S4__	—	—	1 Ea.	21.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	44	19'-8"	—	—
	S501 - S544	—	—	1 Ea.	19.6' + 0.25'(tan skew angle) to 19.6' + 21.75'(tan skew angle)
24'-0" Slab Width	S401	18	23'-8"	22	23'-8"
	S402	—	—	24	9'-10"
	S403	28	3'-0"	*	3'-0"
	S404	24	7'-2"	24	7'-2"
	S4__	—	—	1 Ea.	23.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	48	19'-8"	—	—
	S501 - S548	—	—	1 Ea.	19.6' + 0.25'(tan skew angle) to 19.6' + 23.75'(tan skew angle)
36'-0" Slab Width	S401	18	35'-8"	22	35'-8"
	S402	—	—	36	9'-10"
	S403	28	3'-0"	*	3'-0"
	S404	36	7'-2"	36	7'-2"
	S4__	—	—	1 Ea.	35.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	72	19'-8"	—	—
	S501 - S572	—	—	1 Ea.	19.6' + 0.25'(tan skew angle) to 19.6' + 35.75'(tan skew angle)

*Varies with skew angle



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

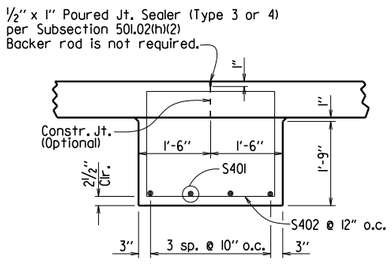
1" = 1'-0"



SECTION B-B

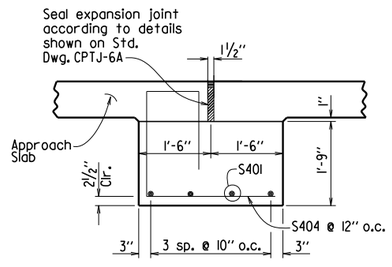
AT ASPHALT APPROACH PAVEMENT

N.T.S.



SECTION A-A

N.T.S.



SECTION B-B

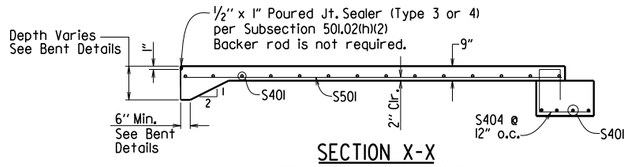
AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

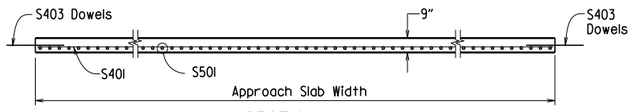
Slab Width	Reinforcing Steel	Concrete
	(Lbs.)	(Cu. Yds.)
20'-0"	1210	15.60
22'-0"	1325	17.20
24'-0"	1440	18.70
36'-0"	2135	28.10



SECTION X-X

SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"



SECTION Y-Y

N.T.S.

GENERAL NOTES

This drawing is for use with Reinforced Concrete Slab Spans in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

20'-0" Slab Width: Maximum Skew Angle = 45°
22'-0" Slab Width: Maximum Skew Angle = 45°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE E APPROACH SLAB

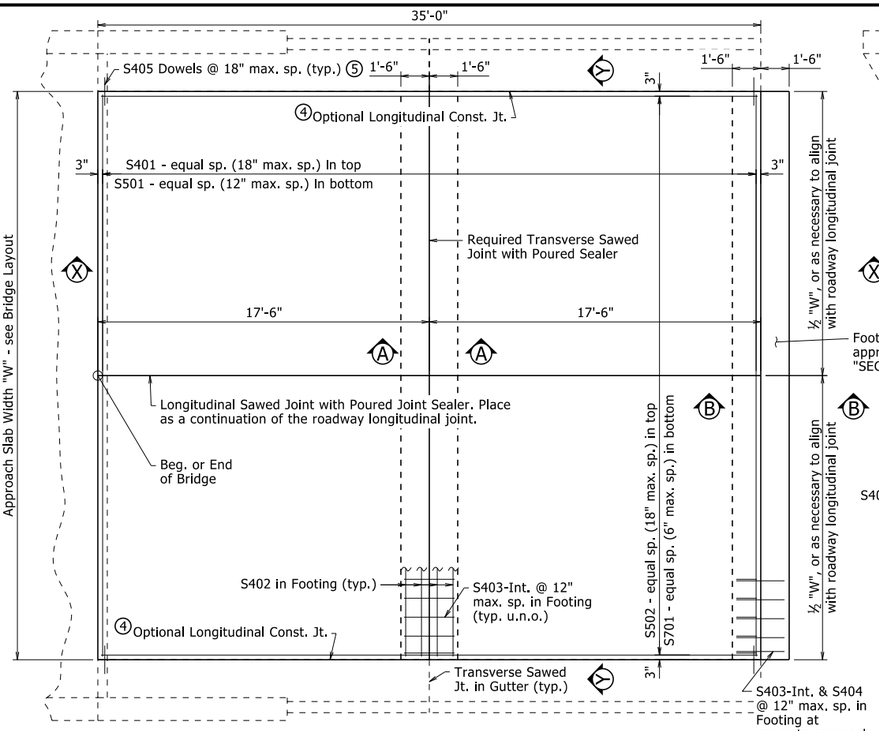
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

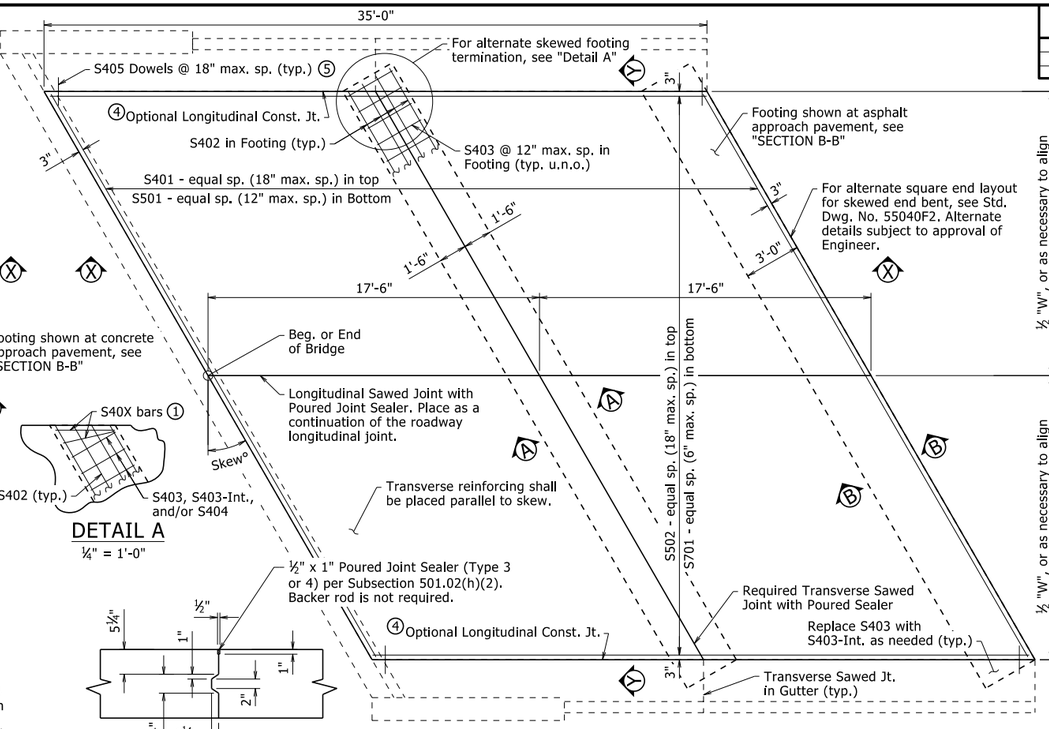
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040e.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040E

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		Type F Approach Slab - 55040F1				

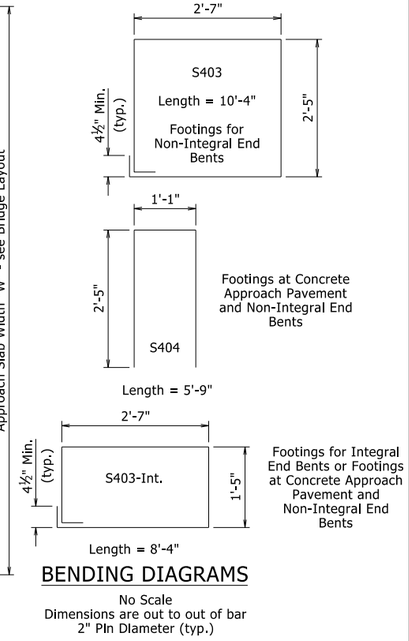


PLAN - APPROACH SLAB AT SQUARE END BENT



LONGITUDINAL CONSTRUCTION JOINT

½" = 1'-0"

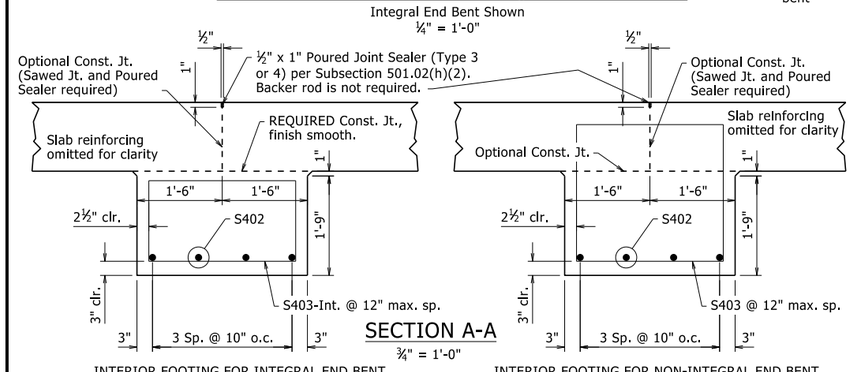


BENDING DIAGRAMS

No Scale
Dimensions are out to out of bar
2" PIn Diameter (typ.)

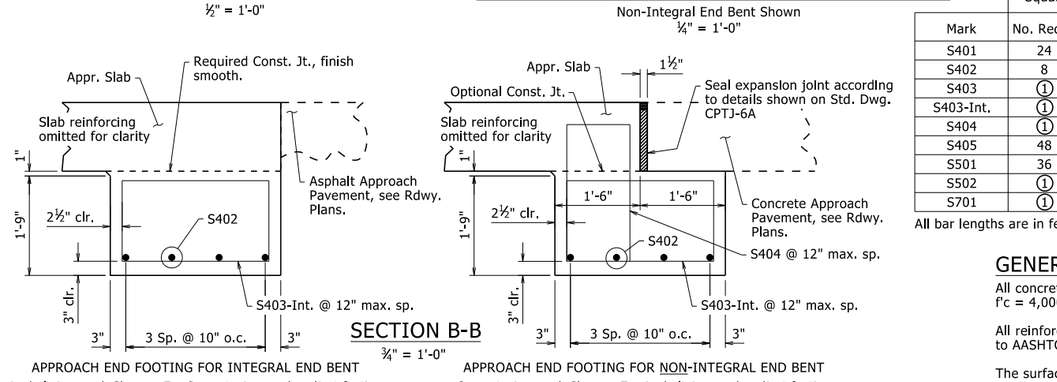
PLAN - APPROACH SLAB AT SKEWED END BENT

Non-Integral End Bent Shown
¼" = 1'-0"



INTERIOR FOOTING FOR INTEGRAL END BENT

INTERIOR FOOTING FOR NON-INTEGRAL END BENT



APPROACH END FOOTING FOR INTEGRAL END BENT

Asphalt Approach Shown. For Concrete Approach, adjust footing location by 1'-6" to add paving notch and include expansion joint.

APPROACH END FOOTING FOR NON-INTEGRAL END BENT

Concrete Approach Shown. For Asphalt Approach, adjust footing location by 1'-6", omit expansion joint, and replace bars S403-Int. & S404 with S403.

BAR LIST - PER APPROACH SLAB

	Square End Bent		Skewed End Bent	
Mark	No. Req'd.	Length	No. Req'd.	Length
S401	24	"W" - 0.33'	24	("W" - 0.33') / cos (Skew°)
S402	8	"W" - 0.33'	8	"W"/cos(Skew°) + 3.0'×tan(Skew°) - 0.33'
S403	①	②	①	②
S403-Int.	①	②	①	②
S404	①	②	①	②
S405	48	1'-6"	48	1'-6"
S501	36	"W" - 0.33'	36	("W" - 0.33') / cos (Skew°)
S502	①	34'-8"	①	34'-8"
S701	①	34'-8"	①	34'-8"

All bar lengths are in feet.

① Varies with Approach Slab Type, Width and/or Skew.
② See "BENDING DIAGRAMS"

GENERAL NOTES

All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

The surface finish for Approach Slabs shall match that used on the bridge deck.

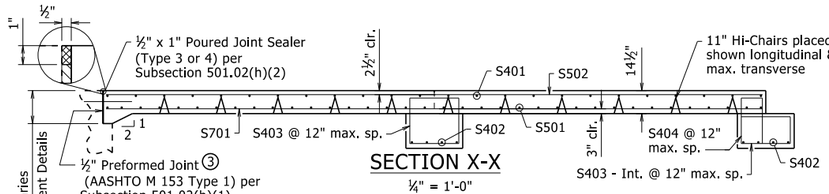
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

See Plans for actual Approach Slab Width, "W", end bent or span details, and approach pavement. Units of "W" are in Feet.

Approach Slabs will be measured and paid for in accordance with Section 504.

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

For Table of Quantities, see "SCHEDULE OF BRIDGE QUANTITIES".



Approach Slab for Square Non-Integral End Bent at Concrete Approach Shown

MINIMUM BAR LAP LENGTH

#4	1'-8"
#5	2'-0"
#7	2'-10"

③ Eliminate Type 1 Preformed Joint when bridge details show reinforcing dowels across these joints. Poured joint sealer is required, however, backer rod shall be eliminated.

④ When construction joint is eliminated, place 1" Sawed Joint with ½" x 1" Poured Joint Sealer (Type 3 or 4) per Subsection 501.02(h)(2). Backer rod is not required.

⑤ Eliminate dowels when approach slab is adjacent to curb and gutter, or as directed by the Engineer.

The document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on September 7, 2023. This copy is not a signed and sealed document.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR TYPE F APPROACH SLAB

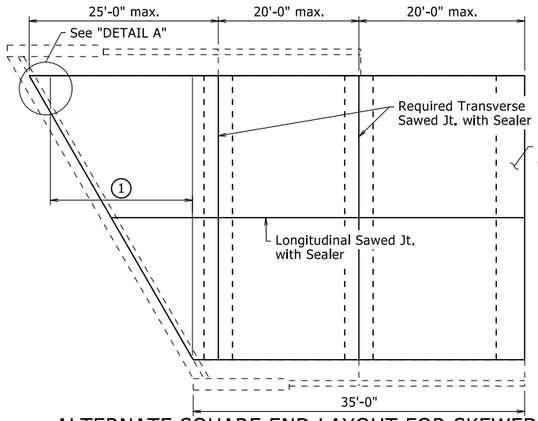
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	CGP	DATE:	05/12/2023	FILENAME:	b55040f.dgn
CHECKED BY:	JYP	DATE:	05/15/2023	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:	-		

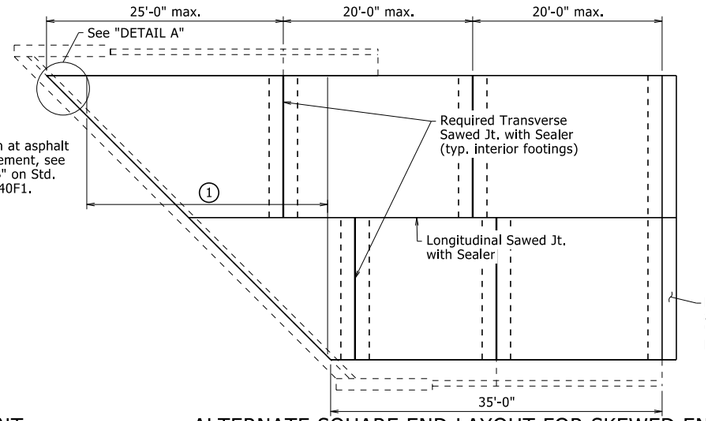
DRAWING NO. 55040F1

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		Type F Approach Slab - 55040F2				



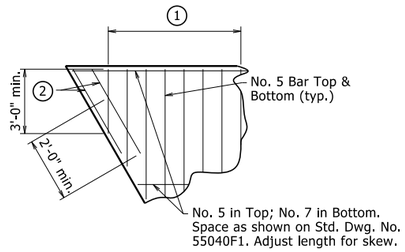
ALTERNATE SQUARE END LAYOUT FOR SKEWED END BENT - CONTINUOUS FOOTINGS

⅛" = 1'-0"



ALTERNATE SQUARE END LAYOUT FOR SKEWED END BENT - STAGGERED FOOTINGS

⅛" = 1'-0"



DETAIL A

¼"= 1'-0"

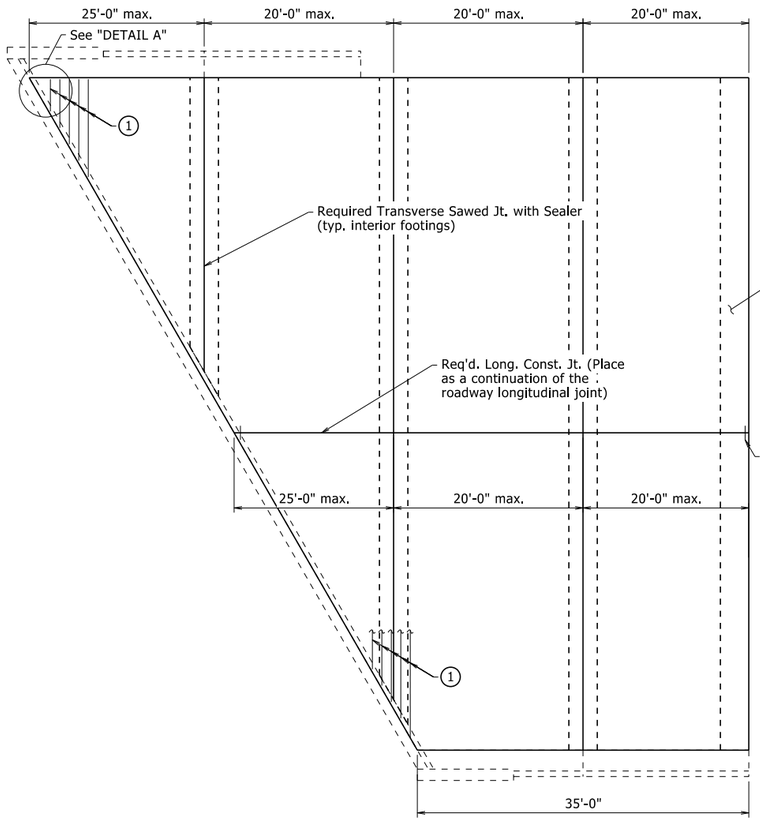
NOTES

See Std. Dwg. No. 55040F1 for additional details of Type F Approach Slabs. Unless noted otherwise, minimum dimensions and reinforcing shall be as shown on Std. Dwg. No. 55040F1. Use of Alternate Square End Details shall be approved by the Engineer. Payment for alternate square end approach slabs shall be based on plan quantities.

Reinforcing shall be lapped as needed. All reinforcing shall be lapped between stages except for the reinforcing in the staggered footings or where the reinforcing cannot obtain the minimum lap length as shown in "MINIMUM BAR LAP LENGTH" on Std. Dwg. No. 55040F1.

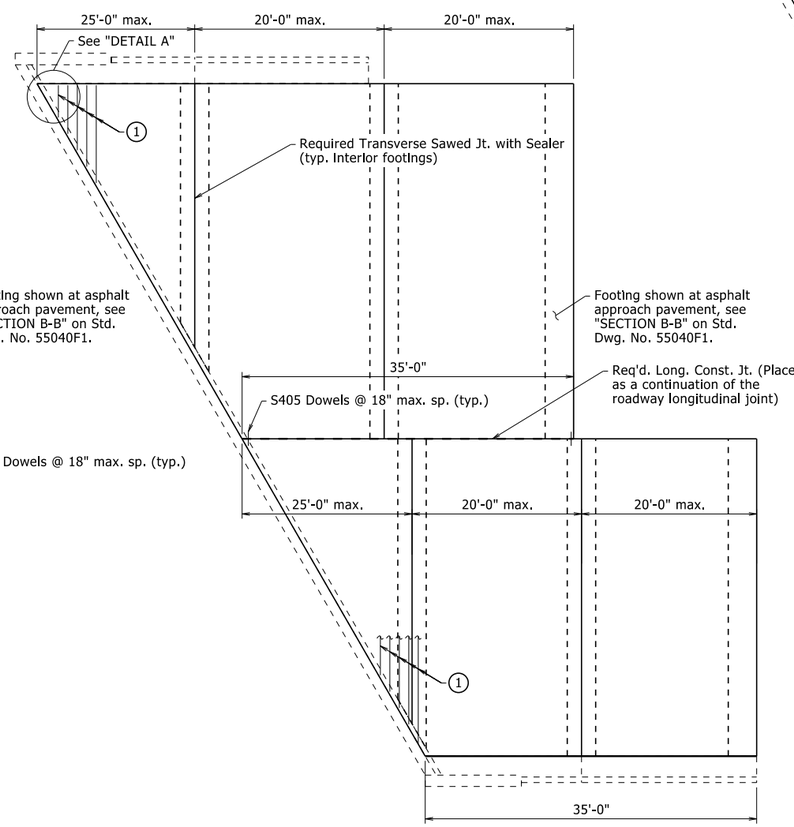
(1) Variable Length No. 5 Bars Top and Bottom spaced at 12" max. where slab is less than full width.

(2) Place additional No. 5 Bars Top and Bottom parallel to skew and spaced at 12" max. in acute corners for all stages as shown. Terminate once a 2'-0" lap with variable length No. 5 bars is achieved.



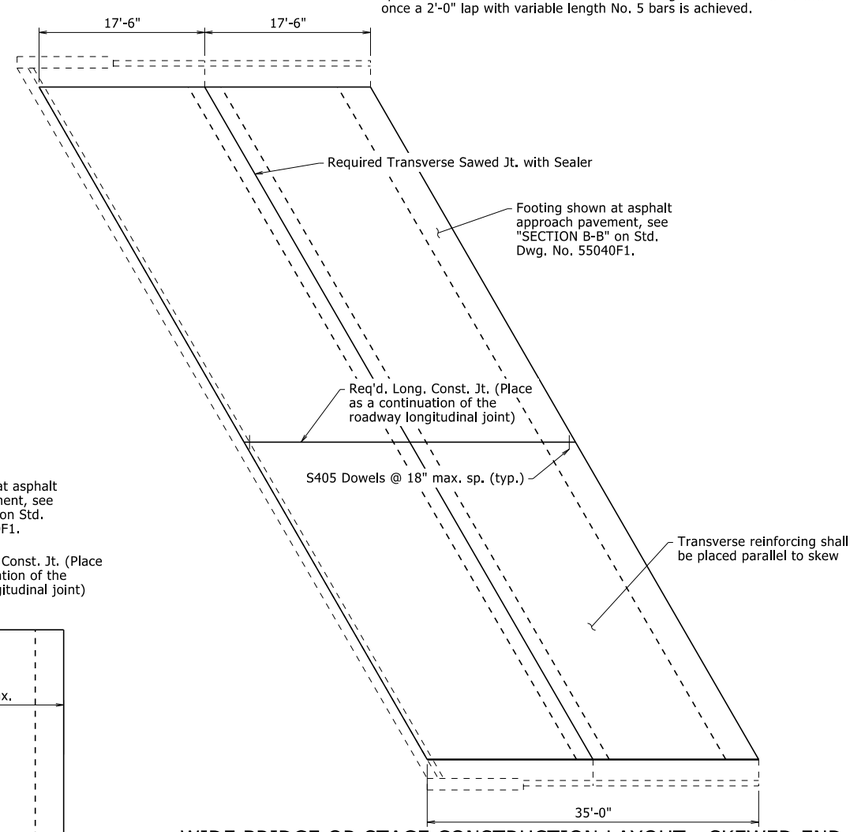
WIDE BRIDGE OR STAGE CONSTRUCTION LAYOUT - SQUARE END, CONTINUOUS FOOTINGS

⅛" = 1'-0"



WIDE BRIDGE OR STAGE CONSTRUCTION LAYOUT - SQUARE END, STAGGERED FOOTINGS

⅛" = 1'-0"



WIDE BRIDGE OR STAGE CONSTRUCTION LAYOUT - SKEWED END

Square End Bent Similar

⅛"= 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

The document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on September 7, 2023. This copy is not a signed and sealed document.

ALTERNATE DETAILS FOR SKEWED TYPE F APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CGP DATE: 05/12/2023 FILENAME: b55040f.dgn

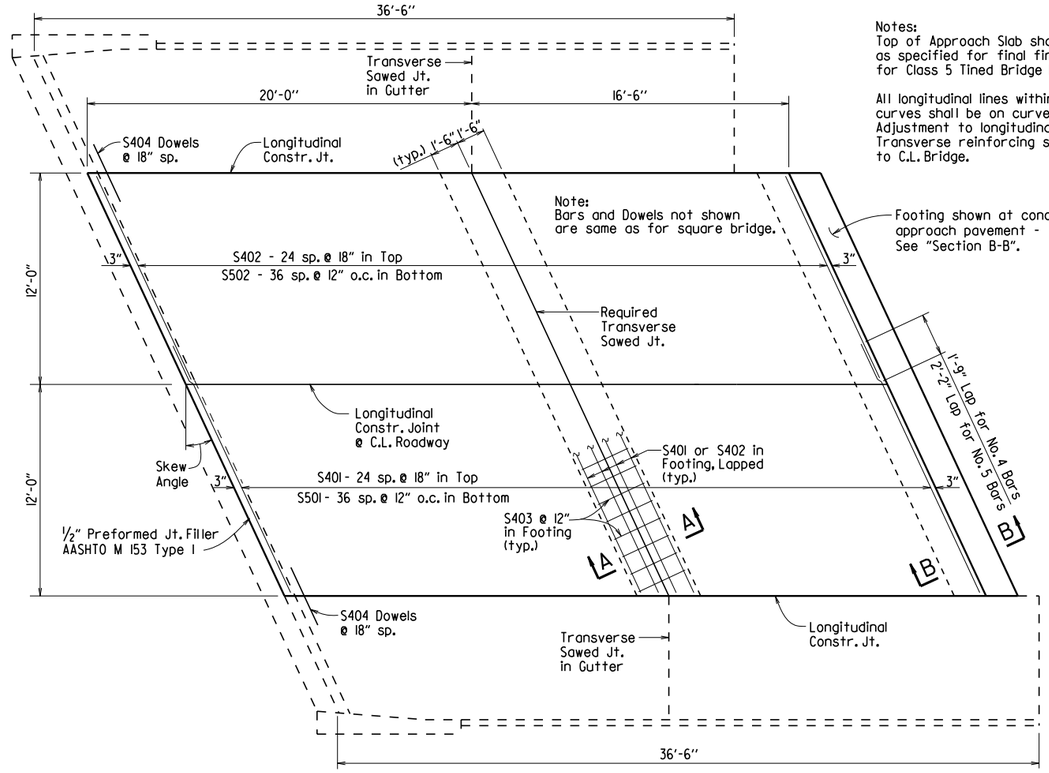
CHECKED BY: JYP DATE: 05/15/2023 SCALE: AS NOTED

DESIGNED BY: STD. DATE: -

DRAWING NO. 55040F2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

(1) APPROACH SLAB 55045

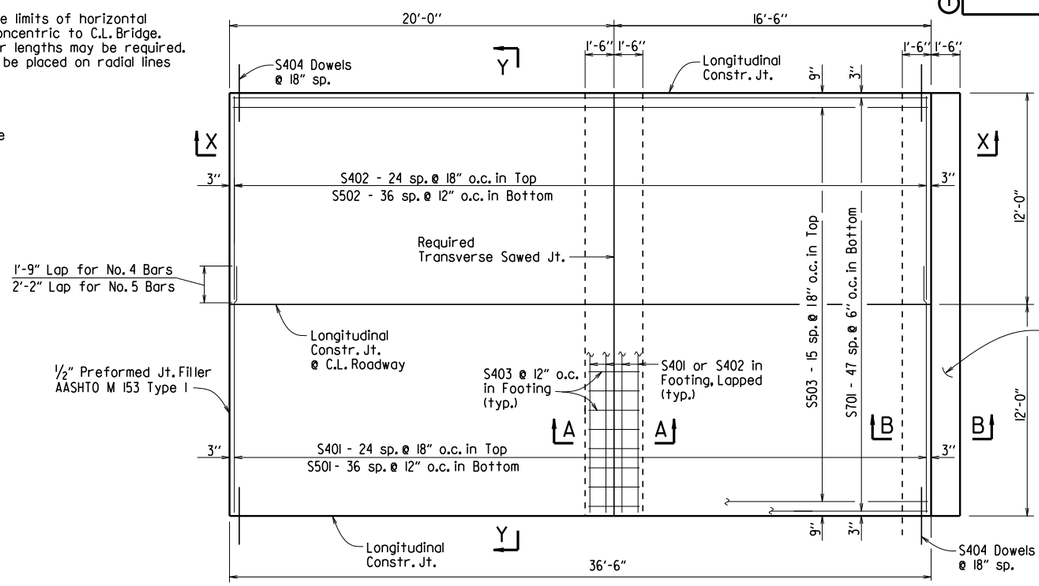


PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

1/4" = 1'-0"

Notes:
Top of Approach Slab shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



PLAN - SQUARE APPROACH SLAB

1/4" = 1'-0"

DETAIL X

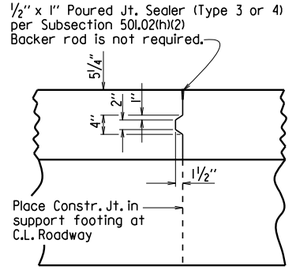
3/8" = 1'-0"

BAR LIST

(Square & Skewed Approach Slabs)

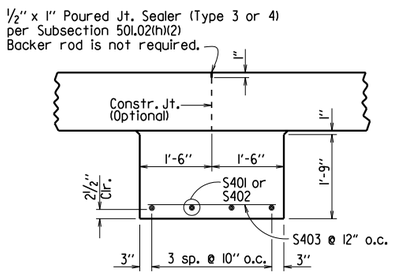
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
24'-0" Slab Width	S401	25	13'-8"	25	11.8'/(cos skew angle) + 1.7'
	S402	25	11'-10"	25	11.8'/(cos skew angle)
	S403	48	2'-8"	*	2'-8"
	S404	50	3'-0"	50	3'-0"
	S501	37	14'-3"	37	11.8'/(cos skew angle) + 2.3'
	S502	37	11'-10"	37	11.8'/(cos skew angle)
	S503	16	36'-2"	16	36'-2"
	S701	48	36'-2"	48	36'-2"

* Varies with skew angle



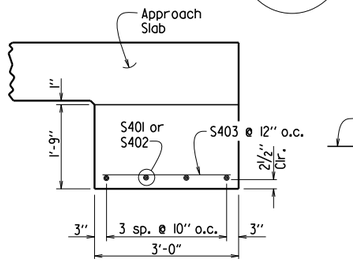
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

3/4" = 1'-0"



SECTION A-A

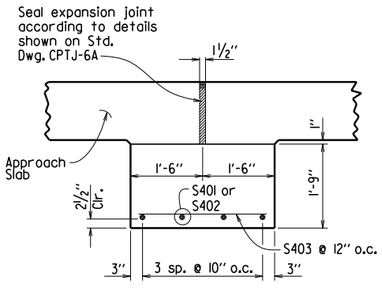
N.T.S.



SECTION B-B

AT ASPHALT APPROACH PAVEMENT

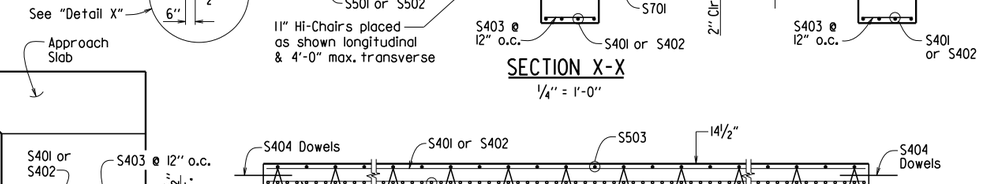
N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.



SECTION X-X

1/4" = 1'-0"

SECTION Y-Y

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
24'-0"	5770	49.15

GENERAL NOTES

This drawing to be used with Standard Dwg. Nos. 55035 or 55036.

All concrete shall be Class S (AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR APPROACH SLAB (EXISTING BRIDGE MODIFICATION)

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55045.dgn

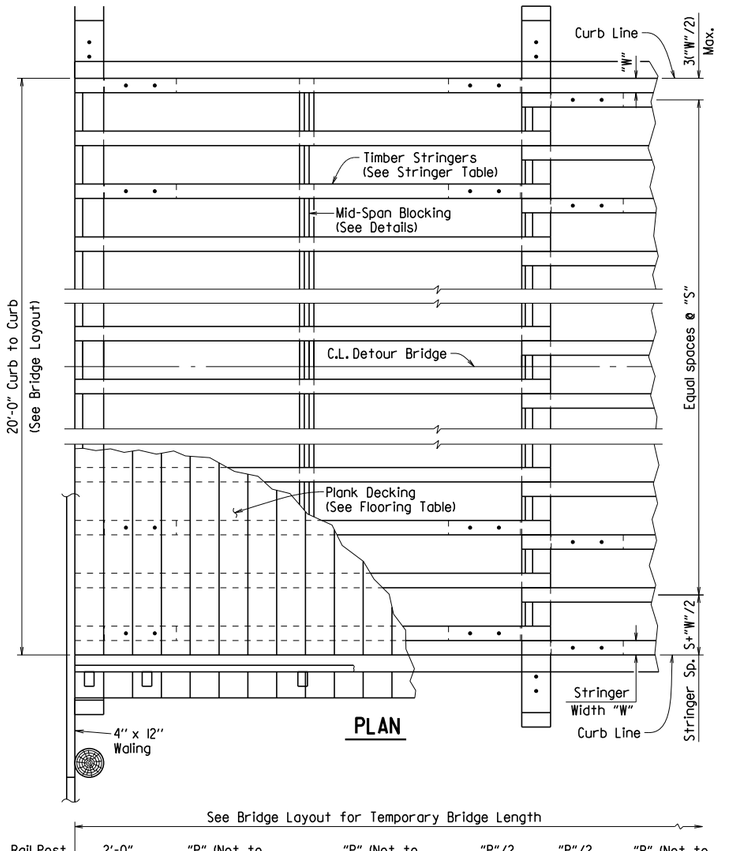
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DESIGNED BY: STD. DATE:

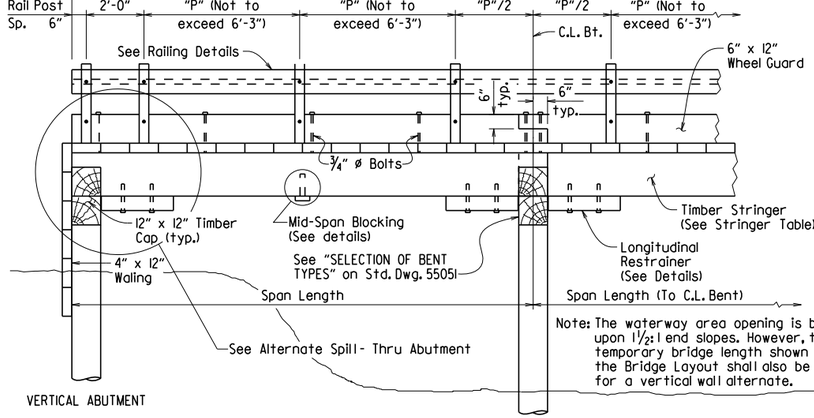
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PRINT DATE: 11/7/2019

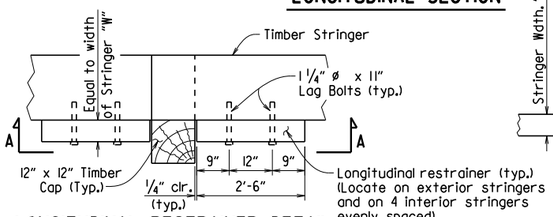
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		TEMP. BRIDGE	55050	



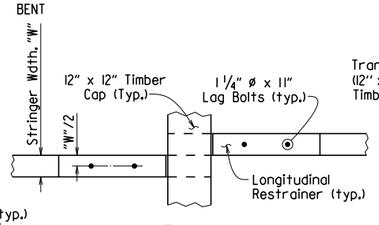
PLAN



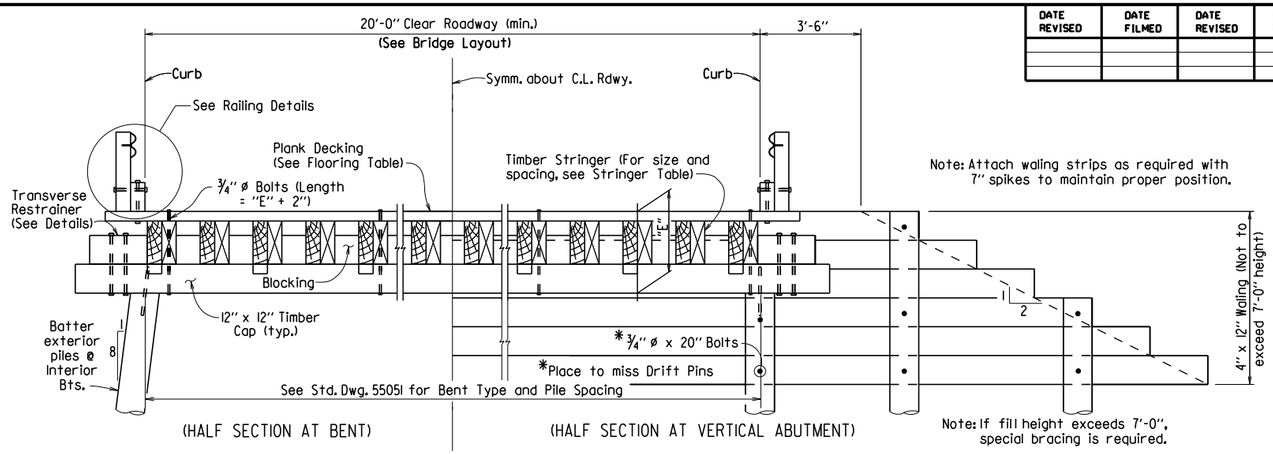
LONGITUDINAL SECTION



LONGITUDINAL RESTRAINER DETAIL

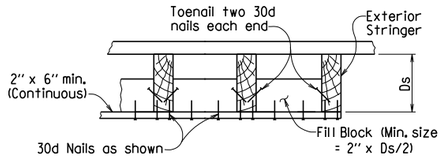


VIEW A-A

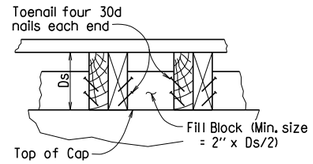


TYPICAL ROADWAY SECTION

Max. Stringer Spacing "S"	Plank Size (Nominal)
14.5"	3" X 6"
16.5"	3" X 8"
18.0"	3" X 10"
19.5"	3" X 12"
21.5"	4" X 8"
24.0"	4" X 10"
26.5"	4" X 12"



BLOCKING DETAILS AT MID-SPAN

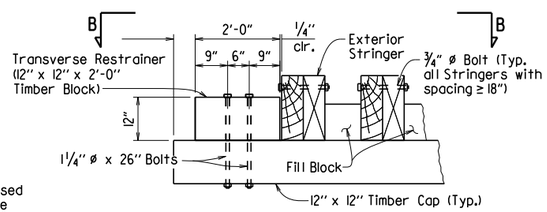


BLOCKING DETAIL AT BENTS

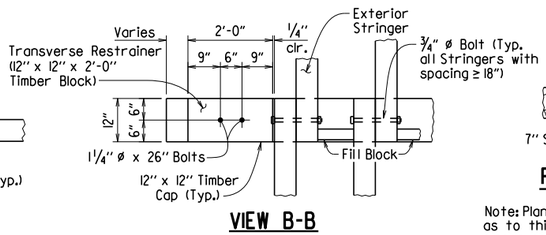
Note: Blocking details shown are for Bents. Details of blocking at Abutments are similar, except that depth of fill block shall be equal to Ds if Alternate Spill-Thru Abutment is used.

STRINGER SIZE (NOMINAL)	c. to c. Bearing (feet)										
4" X 12"	16										
4" X 14"	21	17	15								
6" X 12"			16								
4" X 16"	26	22	19	16							
6" X 14"			21	18	17	16	15				
6" X 16"			26	23	22	20	19	18	16		
6" X 18"			31	28	27	25	23	22	20	18	16
6" X 24"								31	31	30	27
	8.0	10.0	12.0	14.5	15.0	16.5	18.0	19.5	21.5	24.0	26.5
	MAX. STRINGER SPACING (inches)										

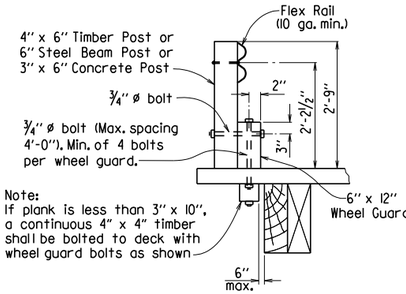
STRINGER & FLOORING TABLES



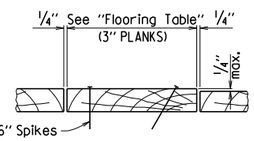
TRANSVERSE RESTRAINER DETAIL

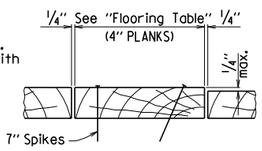


VIEW B-B



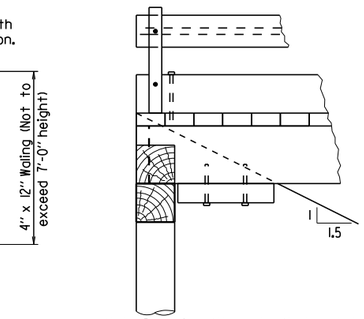
RAILING DETAILS





FLOOR NAILING DETAILS

Note: Planks used in plank floors shall be graded as to thickness and so laid that no two adjacent planks shall vary in thickness by more than ¼".



Note: Piles for Alternate Abutment to be driven after embankment is in place.

ALTERNATE SPILL-THRU ABUTMENT

GENERAL NOTES

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 2002 Edition, with current interim specifications.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable Special Provisions and Supplemental Specifications.

SEISMIC PERFORMANCE ZONE: 1

DESIGN LIVE LOADS: H 15-44 (No Overload). Impact was not included in the design of superstructure for timber bridges.

DESIGN DEAD LOADS: 50 lbs. per cu. ft. for lumber
150 lbs. per cu. ft. for concrete

Allowable Stress Design is used for the standard timber bridges. The allowable unit stresses used assume normal duration of loading for stress grades of sawn lumber and are as follows: fb= 1200 psi
fv= 85 psi

Concrete shall be Class S with a minimum 28 day compressive strength f'c= 3500 psi unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural Steel shall be AASHTO M 270, Grade 36 unless otherwise noted.

Timber piling shall comply with Section 818 of the Standard Specifications and shall be driven to a minimum bearing capacity of 20 tons per pile. Steel piling shall be HP12X53 and shall be driven to a minimum bearing capacity of 44 tons per pile.

Malleable or cast iron washers to be used under all bolt heads and nuts bearing on timber. Standard washers shall be provided under all bolt heads and nuts in connnection with concrete.

Bolts shall conform to the requirements of ASTM A 307. ASTM A 307 Threaded Rods may be used in lieu of bolts. Minimum dimensions are shown for bolts, dowels, and drift pins.

Bent caps to be handled from points approximately 5' from the ends.

Timber material, regardless of species, must be of equal or better strength than no. 2 southern pine or douglas fir, graded by the standard grading rules. All timber widths and thicknesses are shown as nominal.

For additional notes concerning "Bridge End Protection System", see Std. Dwg. 55054.

Unless otherwise noted, the Temporary Bridge Structure shall comply with and be paid for in accordance with Section 603.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on April 17, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE TIMBER SPANS 20' ROADWAY WIDTH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

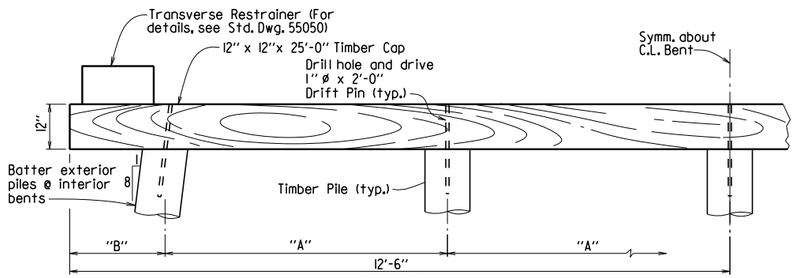
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CHECKED BY:	AMS	DATE:	4-17-14	SCALE:	No Scale
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55050

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		TEMP. BRIDGE	55051	

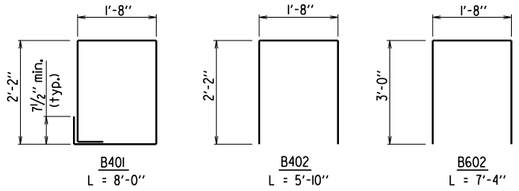
"S1" + "S2"	No. of Piles	Pile Spacing "A"	Overhang "B"
0 to 31'	4	3 @ 6'-0"	3'-6"
31' to 40'	5	4 @ 5'-0"	2'-6"
40' to 52'	6	5 @ 4'-0"	2'-6"
52' to 63'	7	6 @ 3'-7"	1'-9"

"S" = Span Length

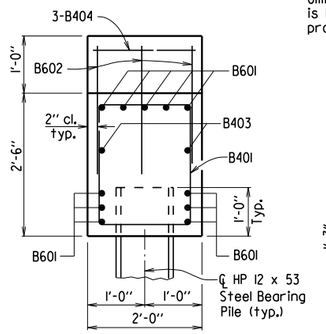


ELEVATION

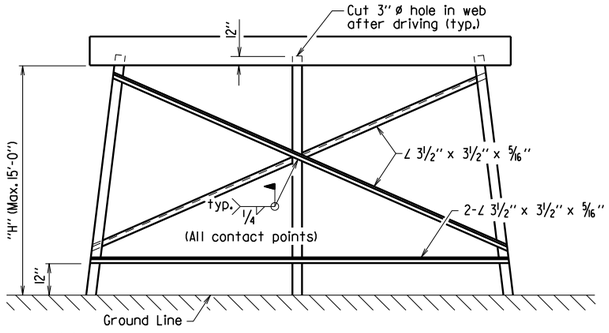
TIMBER CAP & PILES



BENDING DIAGRAMS FOR POURED CAP



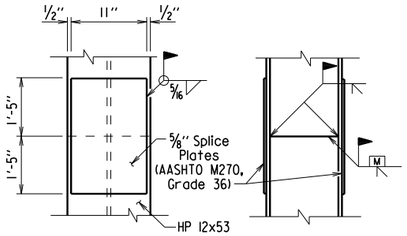
VIEW B-B



Note:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment for any bracing required shall be considered incidental to Item 603 "Temporary Bridge Structure".

Omit bottom bracing when "H" is less than 10'. Omit all bracing when "H" is less than 5'. When "H" exceeds 15', additional X-bracing is required to provide a maximum unbraced pile length of 14'.

DETAILS OF BRACING FOR STEEL PILES



Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft. A proprietary steel pile splicer sufficient to develop the full strength of the section may be substituted for the details shown. Pile splicers shall be installed in accordance with manufacturer's recommendations.

PILE SPLICE DETAIL

SELECTION OF BENT TYPES

These temporary bridge drawings provide the following bent types:
- Driven timber piles with timber cap.
- Driven steel HP 12x53 piles with cast in place concrete cap.
- Tower bent with driven timber piles and timber cap.
- Mud sill with timber pile columns and timber cap
- Tower bent with mud sill and timber pile columns and timber cap.

Guidelines to be used in determining the appropriate bent type are:

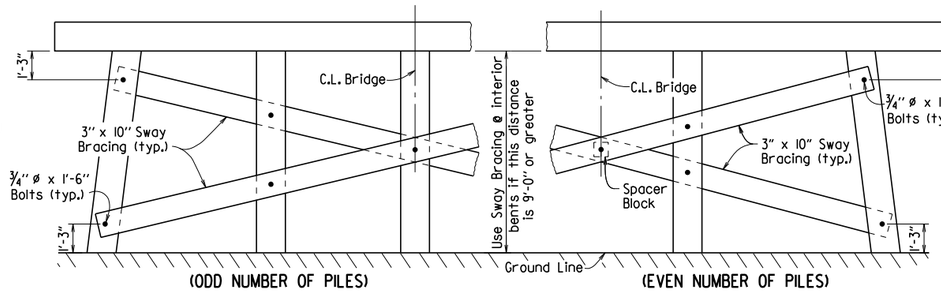
1) Driven piles may be used at intermediate bents if a pile penetration of at least 15' below the ground line can be obtained. At end bents, a pile penetration of at least 5' below the bottom of cap is required. Pile penetration measurements at end bents can include embankment, but fill material may not be placed around intermediate bent piles in order to meet the 15' requirement.

2) If driven timber piles are used at intermediate bents and the distance from the bottom of cap to ground line exceeds 15' at any intermediate bent, tower bents must be used at the minimum rate of one tower bent for every 160' of total bridge length. Tower bent(s), when required, shall be placed at the bent location(s) having the greatest distance from bottom of cap to ground line.

3) If piles cannot be practically driven at a bent, mud sills shall be used. All soft and yielding material shall be removed from the bearing area before placing the sill concrete.

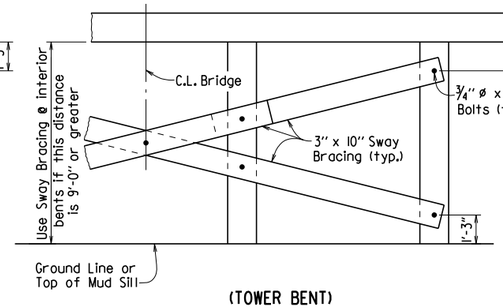
4) Timber piles shall be used as columns in mud sills. The column spacing shall be the same as that used for driven timber pile bents for the appropriate span lengths involved.

5) If a mud sill is to be used and the distance from the bottom of cap to ground line is more than 10', a tower bent with mud sill must be used at that location.



(ODD NUMBER OF PILES) (EVEN NUMBER OF PILES)

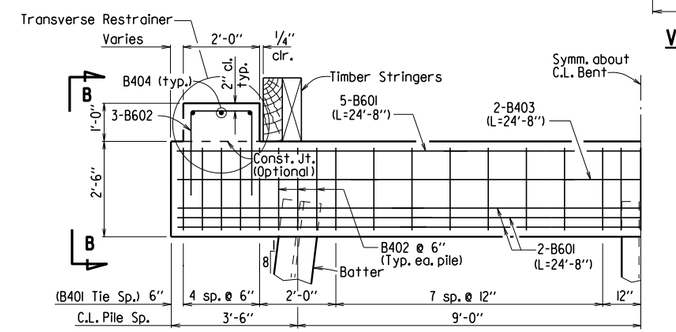
(SINGLE ROW BENT)



(TOWER BENT)

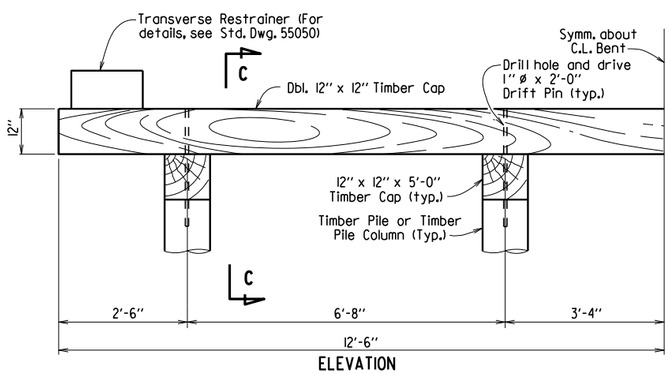
DETAILS OF SWAY BRACING FOR TIMBER PILES

Note: Sway Bracing, if required, shall be used on both lines of piles for Tower Bents.



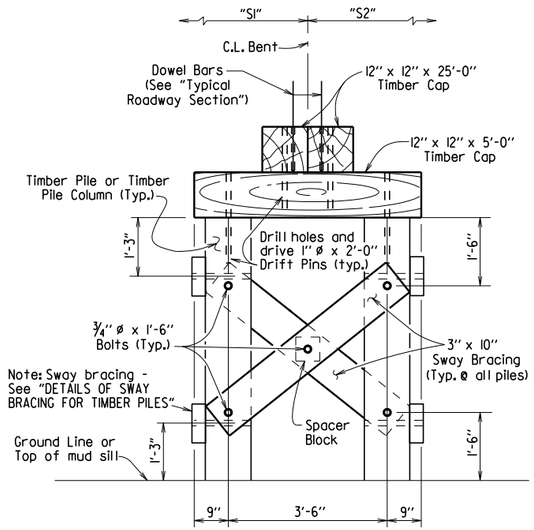
ELEVATION

CAST IN PLACE CAP & HP 12 X 53 PILES

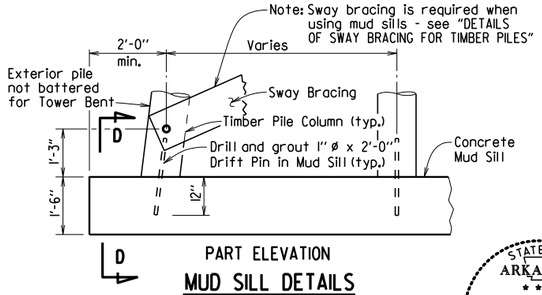


ELEVATION

TOWER BENT - TIMBER CAP & PILES

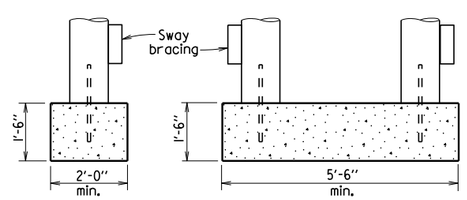


SECTION C-C



PART ELEVATION

MUD SILL DETAILS



SECTION D-D

(When bottom of cap to top of mud sill is 10'-0" or less)

SECTION D-D

(When bottom of cap to top of mud sill is greater than 10'-0")

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE TIMBER SPANS 20' ROADWAY WIDTH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

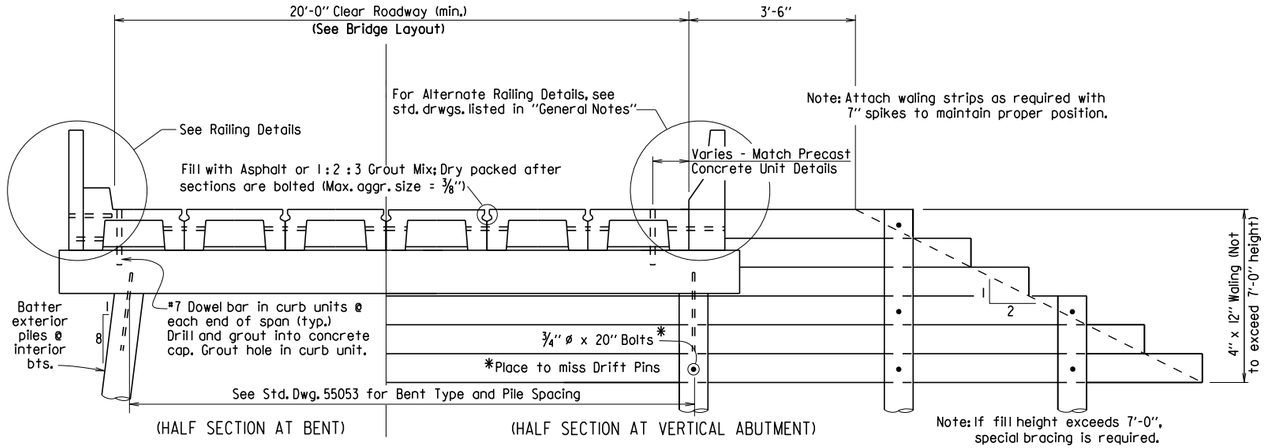
LITTLE ROCK, ARK.

DRAWN BY:	JYP	DATE:	4-17-14	FILENAME:	b55051.dgn
CHECKED BY:	AMS	DATE:	4-17-14	SCALE:	No Scale
DESIGNED BY:	STD.	DATE:	—		

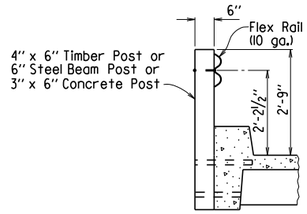
DRAWING NO. 55051

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

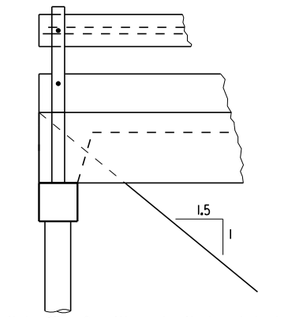
(1) TEMP. BRIDGE 55052



TYPICAL ROADWAY SECTION

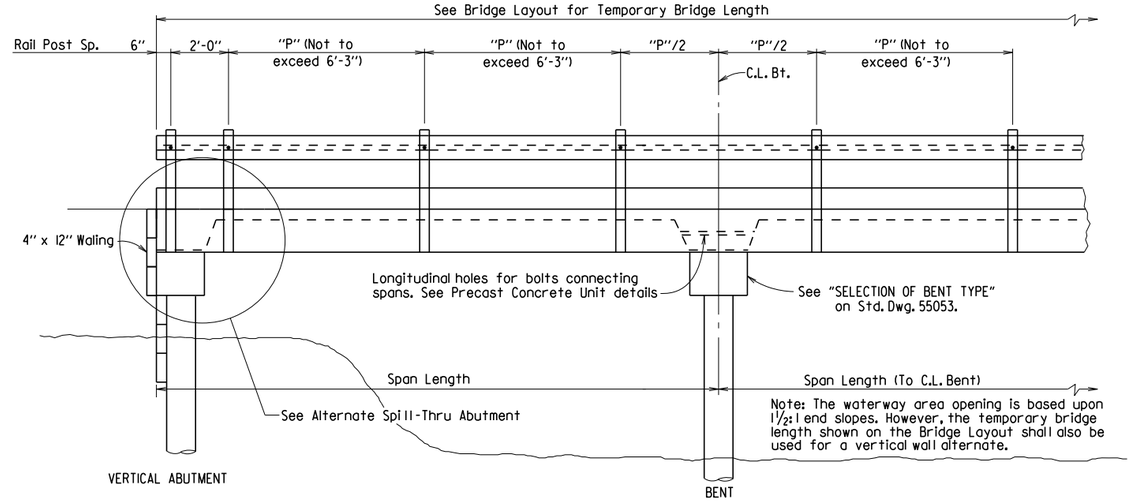


RAILING DETAILS

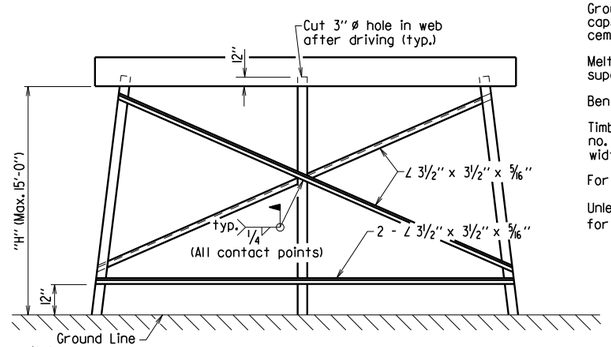


Note: Piles for Alternate Abutment to be driven after embankment is in place.

ALTERNATE SPILL-THRU ABUTMENT



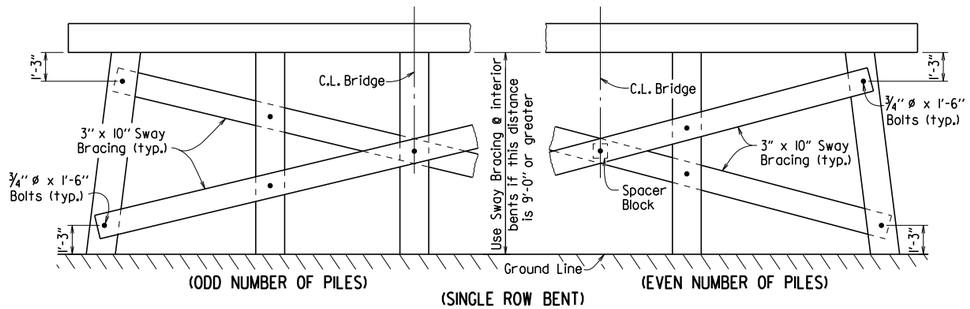
LONGITUDINAL SECTION



Note:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment for any bracing required shall be considered incidental to Item 603 "Temporary Bridge Structure".

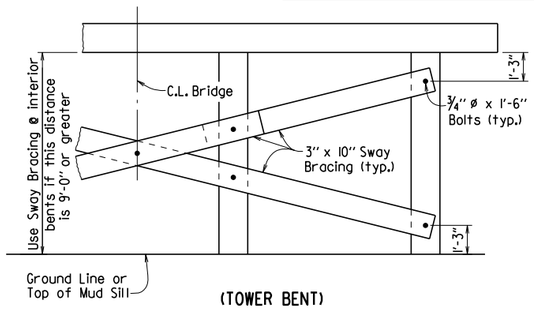
Omit bottom bracing when "H" is less than 10'. Omit all bracing when "H" is less than 5'. When "H" exceeds 15', additional X-bracing is required to provide a maximum unbraced pile length of 14'.

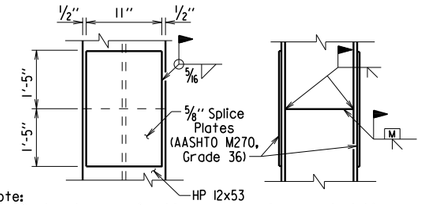
DETAILS OF BRACING FOR STEEL PILES



DETAILS OF SWAY BRACING FOR TIMBER PILES

Note: Sway Bracing, if required, shall be used on both lines of piles for Tower Bents.





Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft. A proprietary steel pile splicer sufficient to develop the full strength of the section may be substituted for the details shown. Pile splicers shall be installed in accordance with manufacturer's recommendations.

PILE SPLICE DETAIL

GENERAL NOTES

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 2002 Edition

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable special provisions and supplemental specifications.

SEISMIC PERFORMANCE ZONE: 1

DESIGN LIVE LOADS: H 15-44 (No Overload).

DESIGN DEAD LOADS: 50 lbs. per cu. ft. for lumber
150 lbs. per cu. ft. for concrete

Precast Concrete Units shall comply with the requirements of AHTD standard drawings and special provisions. Drawings for old style units are within the drawing series 5291 thru 5307 and 14800 thru 14899. New style units (Current Design) are within the drawing series 15190 thru 15400.

Load Factor Design is used for the new style precast concrete units. Allowable Stress Design is used for the old style precast concrete units and timber components. The allowable unit stresses used assume normal duration of loading for stress grades of sawn lumber and are as follows:

fb=1200 psi
fv=85 psi

Concrete shall be Class S with a minimum 28 day compressive strength f'c = 3500 psi unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural Steel shall be AASHTO M 270, Grade 36 unless otherwise noted.

Timber piling shall comply with Section 818 of the Standard Specifications and shall be driven to a minimum bearing capacity of 20 tons per pile. Steel piling shall be HP12x53 and shall be driven to a minimum bearing capacity of 44 tons per pile.

Malleable or cast iron washers shall be used under all bolt heads and nuts bearing on timber. Standard washers shall be provided under all bolt heads and nuts in connection with concrete.

Bolts shall conform to the requirements of ASTM A 307. ASTM A 307 Threaded Rods may be used in lieu of bolts. Minimum dimensions are shown for bolts, dowels, and drift pins.

Grout placed around Drift Pins in piles shall be allowed to cure for 72 hours before caps are used to support the superstructure. Grout to consist of one part portland cement to two parts sand.

Melted sulfur may be used in lieu of grout placed around drift pins. The superstructure may be placed as soon as the sulfur has hardened.

Bent caps to be handled from points approximately 5' from the ends.

Timber material, regardless of species, must be of equal or better strength than no. 2 southern pine or douglas fir, graded by the standard grading rules. All timber widths and thicknesses are shown as nominal.

For additional notes concerning "Bridge End Protection System", see Std. Dwg. 55054.

Unless otherwise noted, the Temporary Bridge Structure shall comply with and be paid for in accordance with Section 603.

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE PRECAST CONCRETE SPANS 20' ROADWAY WIDTH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

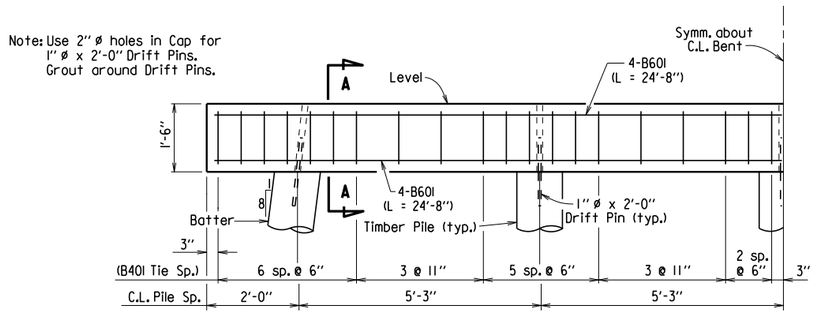
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4-17-14 FILENAME: b55052.dgn
CHECKED BY: AMS DATE: 4-17-14 SCALE: No Scale
DESIGNED BY: STD. DATE: —

DRAWING NO. 55052

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		TEMP. BRIDGE	55053	

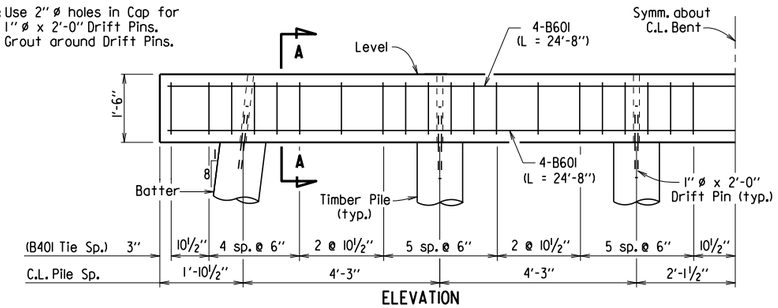
Note: Reinforcing steel in cap shall be placed to not interfere with dowel bars.



ELEVATION

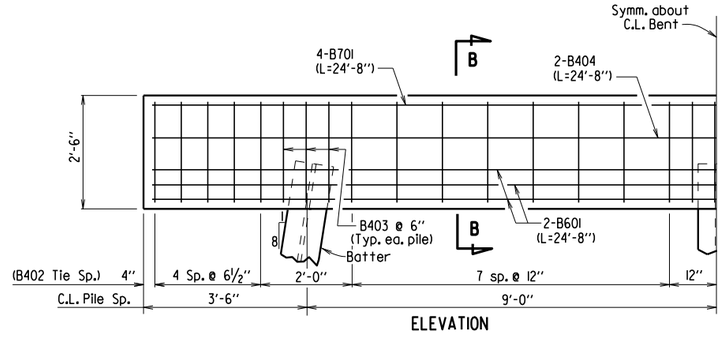
PRECAST CAP & TIMBER PILES
("SI" + "S2" ≤ 44')

"S" = Span Length



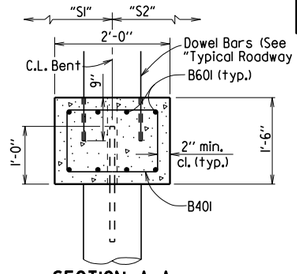
ELEVATION

PRECAST CAP & TIMBER PILES
(44' < "SI" + "S2" ≤ 62')

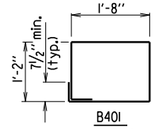


ELEVATION

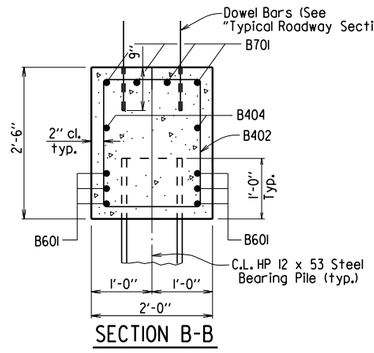
CAST IN PLACE CAP & HP 12X53 PILES



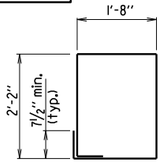
SECTION A-A

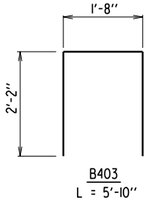


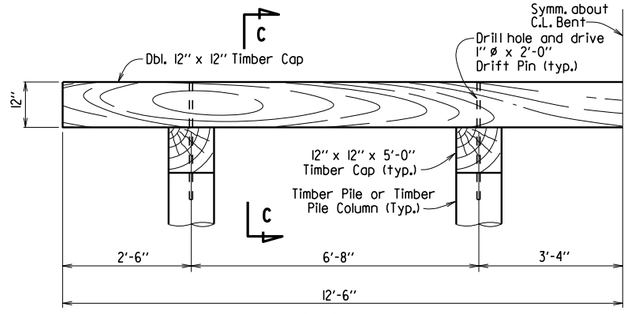
NOTE: THE ENDS OF ALL PRECAST SPANS SHALL BE FIXED TO THE CAP USING I DOWEL BAR IN EACH OF THE CURB UNITS.



SECTION B-B

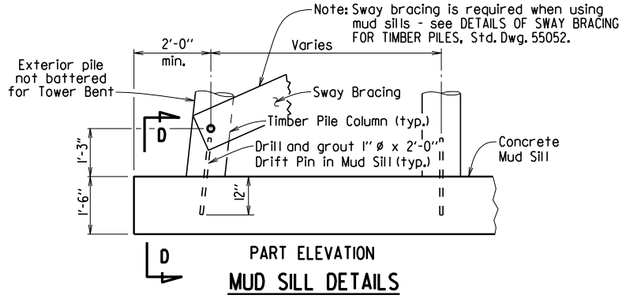






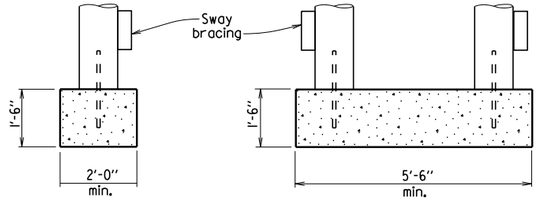
ELEVATION

TOWER BENT - TIMBER CAP & PILES



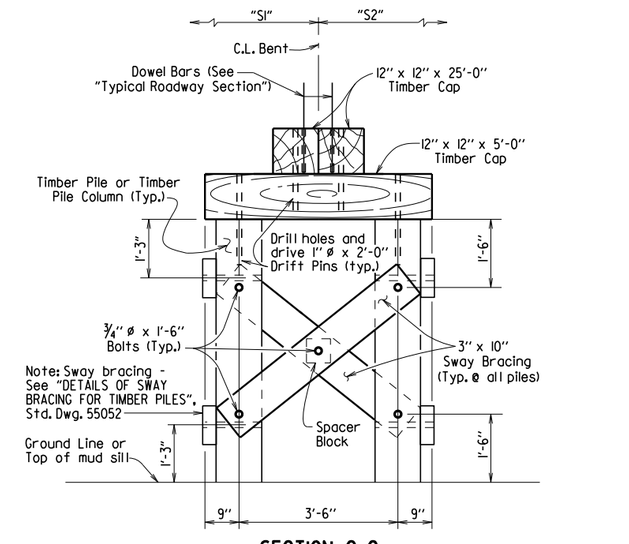
PART ELEVATION

MUD SILL DETAILS



SECTION D-D
(When bottom of cap to top of mud sill is 10' or less)

SECTION D-D
(When bottom of cap to top of mud sill is greater than 10')



SECTION C-C

SELECTION OF BENT TYPES

These temporary bridge drawings provide the following bent types:
- Driven timber piles with precast concrete cap.
- Driven steel HP 12x53 piles with cast in place concrete cap.
- Tower bent with driven timber piles and timber cap.
- Mud sill with timber pile columns and precast concrete cap.
- Tower bent with mud sill and timber pile columns and timber cap.

Guidelines to be used in determining the appropriate bent type are:

1) Driven piles may be used at intermediate bents if a pile penetration of at least 15' below the ground line can be obtained. At end bents, a pile penetration of at least 5' below the bottom of cap is required. Pile penetration measurements at end bents can include embankment, but fill material may not be placed around intermediate bent piles in order to meet the 15' requirement.

2) If driven timber piles are used at intermediate bents and the distance from the bottom of cap to ground line exceeds 15' at any intermediate bent, tower bents must be used at the minimum rate of one tower bent for every 160' of total bridge length. Tower bent(s), when required, shall be placed at the bent location(s) having the greatest distance from bottom of cap to ground line.

3) If piles cannot be practically driven at a bent, mud sills shall be used. All soft and yielding material shall be removed from the bearing area before placing the sill concrete.

4) Timber piles shall be used as columns in mud sills. The column spacing shall be the same as that used for driven timber pile bents for the appropriate span lengths involved.

5) If a mud sill is to be used and the distance from the bottom of cap to ground line is more than 10', a tower bent with mud sill must be used at that location.

6) A timber cap may be used only if tower bents are used.

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE PRECAST CONCRETE SPANS 20' ROADWAY WIDTH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

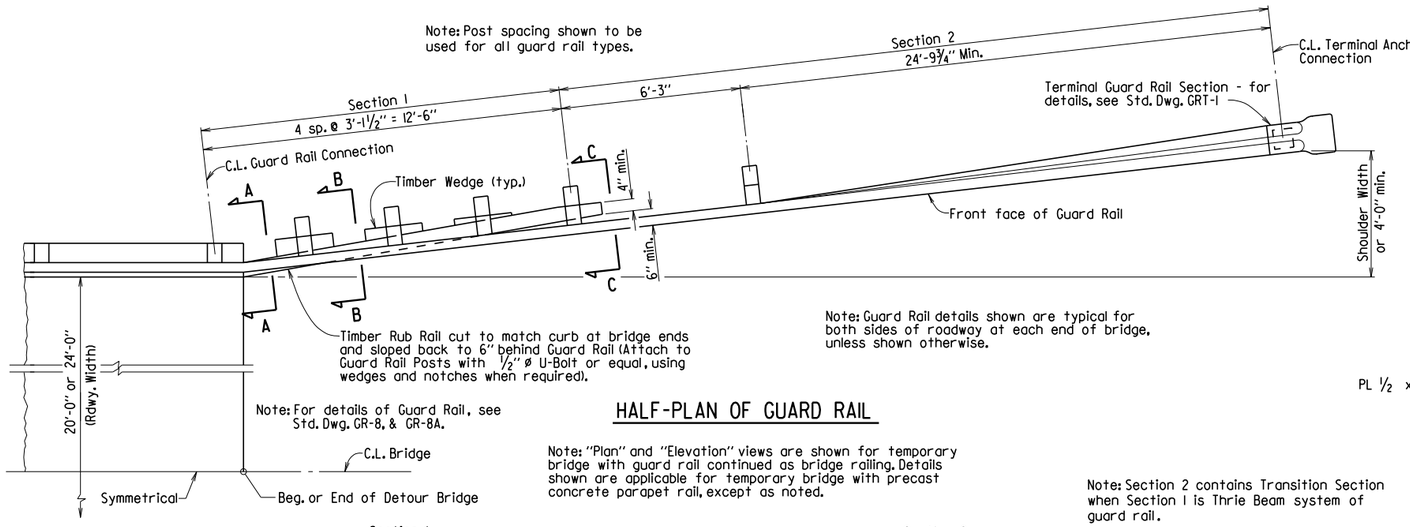
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CHECKED BY: AMS DATE: 4-17-14 SCALE: No Scale
DESIGNED BY: STD. DATE: —

DRAWING NO. 55053

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
						TEMP. BRIDGE		55054

(1)

Note: Post spacing shown to be used for all guard rail types.



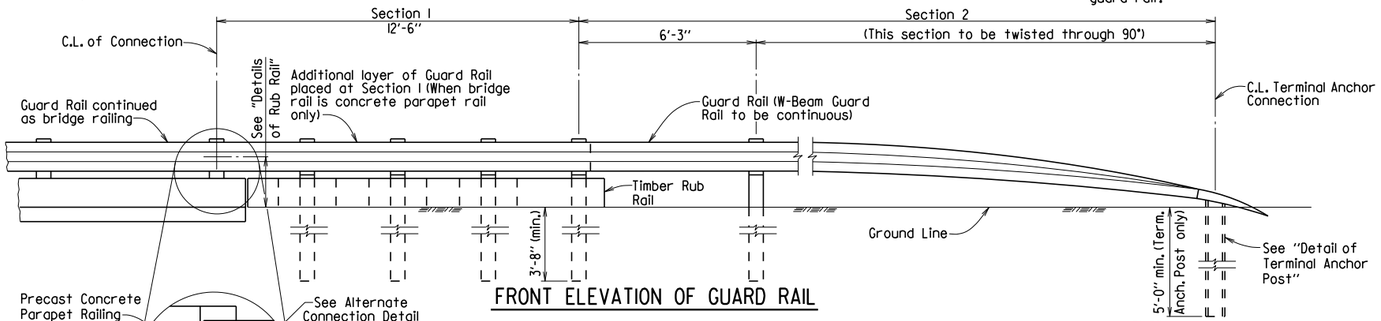
Note: For details of Guard Rail, see Std. Dwg. GR-8, & GR-8A.

HALF-PLAN OF GUARD RAIL

Note: Guard Rail details shown are typical for both sides of roadway at each end of bridge, unless shown otherwise.

Note: "Plan" and "Elevation" views are shown for temporary bridge with guard rail continued as bridge railing. Details shown are applicable for temporary bridge with precast concrete parapet rail, except as noted.

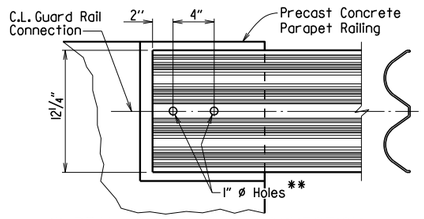
Note: Section 2 contains Transition Section when Section 1 is Thrie Beam system of guard rail.



FRONT ELEVATION OF GUARD RAIL

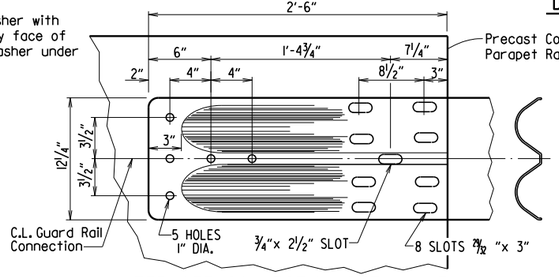
Note: For details of Thrie Beam system of guard rail, see Std. Dwg. GR-10 & GR-10A. Thrie Beam rail and five bolt connection as shown on GR-10 are required when precast rail has five cast holes for guard rail connection.

** Two ¾" ø H.S. Bolts are required. Use 7" x 2½" x 3/16" washer with two ⅞" ø holes against back of parapet and on roadway face of guard rail (Bend to fit guard rail) with 1½" o.d. steel washer under heads and nuts (Clipped to 1⅝" x 1½" at nuts).



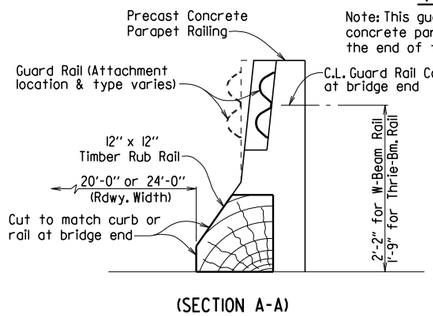
W-BEAM GUARD RAIL CONNECTION AT CONCRETE PARAPET RAIL

Note: This guard rail connection will only be allowed on precast concrete parapet rail units with a 12½" x 14" x 3⅜" notch at the end of the unit for connection of guard rails.

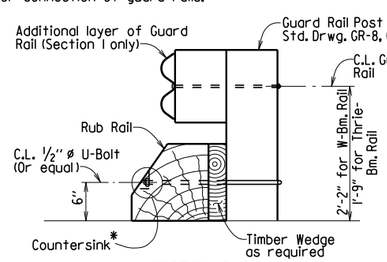


ALTERNATE CONNECTION DETAIL WITH SPECIAL END SHOE FOR W-BEAM GUARD RAIL CONNECTION AT CONCRETE PARAPET RAIL

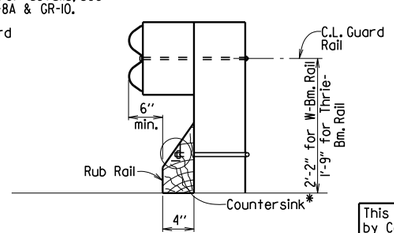
Note: Special End Shoe and four ⅞" ø x 2½" H.S. Bolts are required when concrete insert anchor assembly is present in precast rail unit.



(SECTION A-A)

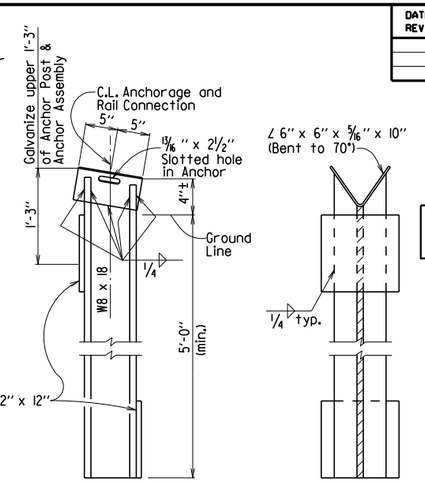


(SECTION B-B)



(SECTION C-C)

DETAILS OF RUB RAIL (CONC. PARAPET BRIDGE RAIL)

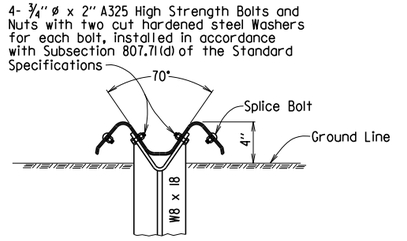


(ELEVATION)

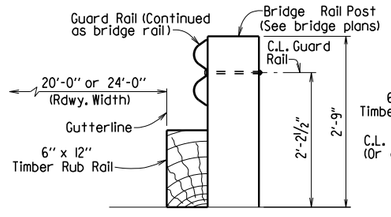
(SECTION)

Note: Post shall be driven or set in dug hole and compacted.

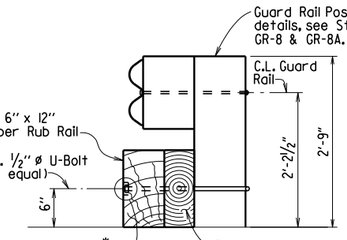
DETAILS OF TERMINAL ANCHOR POST



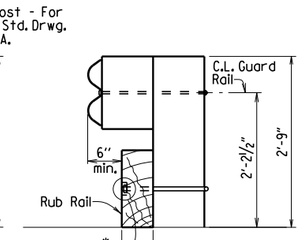
DETAILS OF TERMINAL ANCHOR CONNECTION



(SECTION A-A)



(SECTION B-B)



(SECTION C-C)

DETAILS OF RUB RAIL (CONTINUOUS W-BEAM RAIL)

* U-Bolt Assembly, or equal, shall not project beyond rdwy. face of Rub Rail at any location.

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

GENERAL NOTES

Bridge End Protection is required on both sides of roadway at both ends of temporary bridge. The end protection system shall consist of a minimum of two end sections (Section 1 and Section 2). If additional guard rail is used, it shall be placed in Section 2 and shall have a maximum post spacing of 6'-3".

If W-Beam Guard Rail is also used as Bridge Rail, it shall be continuous from terminal anchor post to terminal anchor post with splices as shown on Std. Drwg. GR-8.

A doubled guard rail beam section (One W-Beam Rail section or one Thrie Beam Rail section nested inside the other) shall be required for Section 1 if the guard rail is not continued as bridge rail, but connects directly to a precast concrete parapet bridge rail end.

Rub rails shown in Section 1 are representative of members required to transition the curb or wheel guard section to a minimum distance behind the face of guard rail.

Timber rub rail, regardless of species, must be of equal or better strength than no. 2 southern pine or douglas fir, graded by the standard grading rules. All timber widths and thicknesses are shown as nominal.

Except as noted, bolts shall conform to the requirements of ASTM A 307 and minimum dimensions as shown. Malleable or cast iron washers to be used under all bolt heads and nuts bearing on timber. High strength bolts shall conform to Section 807.

Guard rail as described in Subsection 617.01 of the Standard Specifications and these plans shall be constructed in accordance with Subsection 617.03. Subsection 617.02 is modified to allow the use of materials consistent with the requirements of Section 603.

Payment: The bridge end protection system completed and accepted will not be paid for directly, but shall be included in the contract unit price bid per linear foot for temporary bridge structure, which price shall be full compensation for furnishing materials and erecting guard rail, line posts, blockouts, rub rails, terminal anchor posts, etc.; and for all labor, tools, equipment and incidentals necessary to complete the work.

GUARD RAIL CONNECTION COMBINATIONS

BRIDGE RAIL TYPE	GUARD RAIL AND CONNECTION TYPE
Guard Rail continued as bridge railing	W-Beam Guard Rail. See Std. Drwg. GR-8 for splice details.
Concrete Parapet with 12½" x 14" x 3⅜" notch and two cast in holes	W-Beam Guard Rail fastened with two high-strength bolts as shown; blunt end on guard rail. Guard Rail doubled at Section 1.
Concrete Parapet with Concrete Insert Anchor assembly (4-Bolt embedded Anchor) flush with rail face	W-Beam Guard Rail fastened with four high-strength bolts; Special End Shoe. Guard Rail doubled at Section 1.
Concrete Parapet with 5 cast in holes	Thrie Beam Guard Rail; five high-strength through bolts with back-up plate; special end shoe as shown on Std. Dwg. GR-10. Guard Rail doubled at Section 1. Section 2 contains transitional rail and W-Beam Guard Rail.

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE BRIDGE END PROTECTION SYSTEM

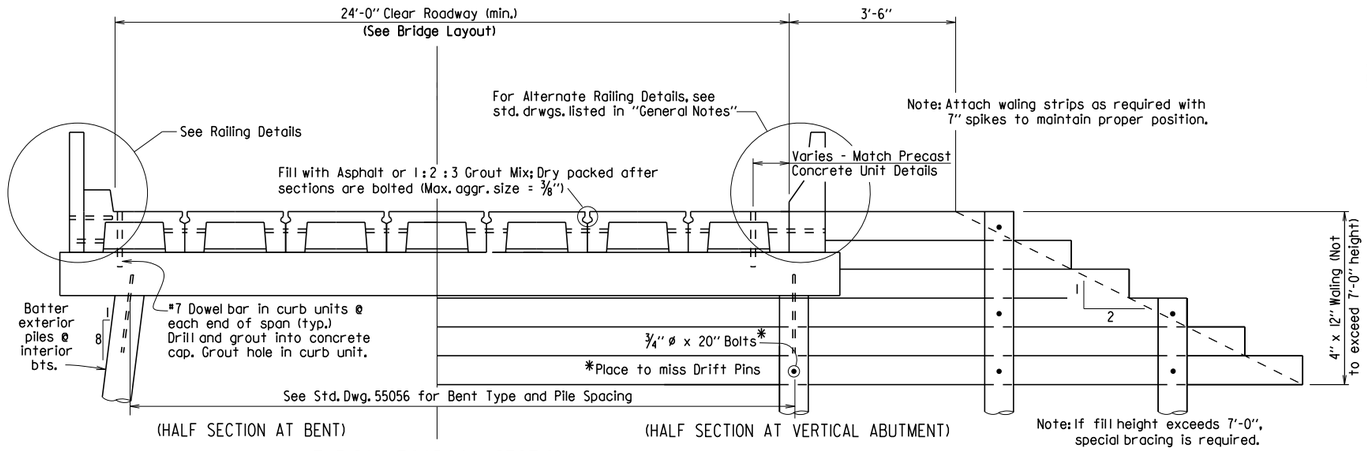
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

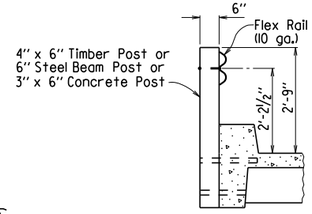
LITTLE ROCK, ARK.

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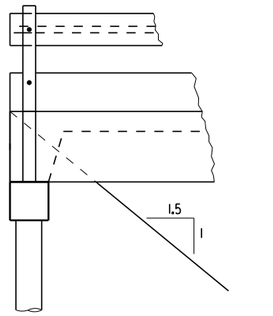
DRAWING NO. 55054



TYPICAL ROADWAY SECTION

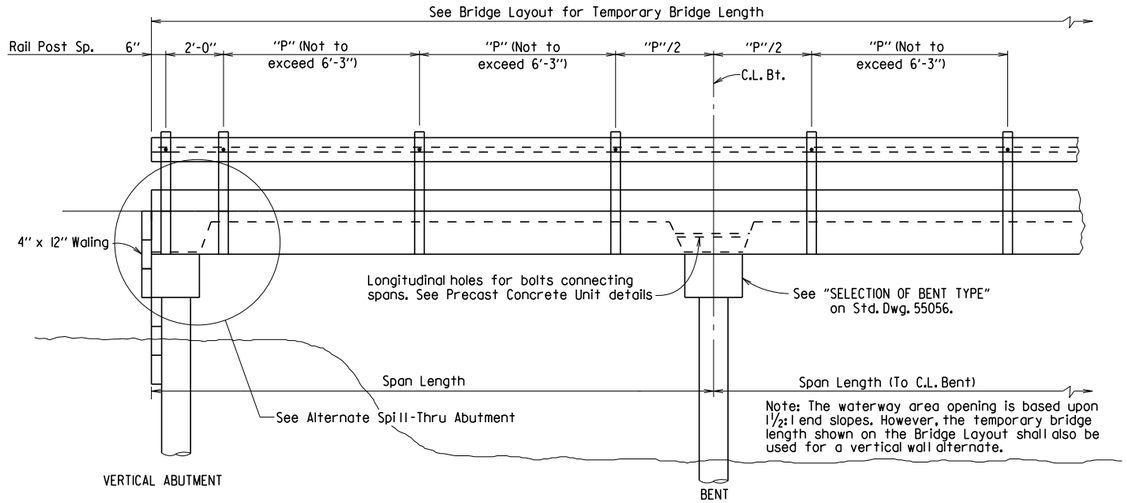


RAILING DETAILS

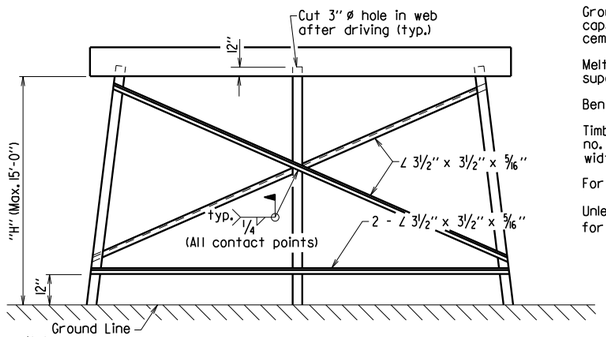


Note: Piles for Alternate Abutment to be driven after embankment is in place.

ALTERNATE SPILL-THRU ABUTMENT



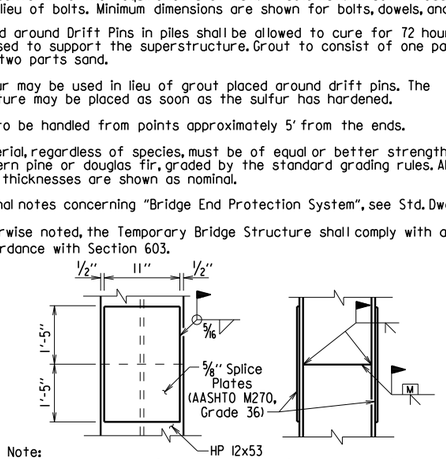
LONGITUDINAL SECTION



Note:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment for any bracing required shall be considered incidental to Item 603 "Temporary Bridge Structure".

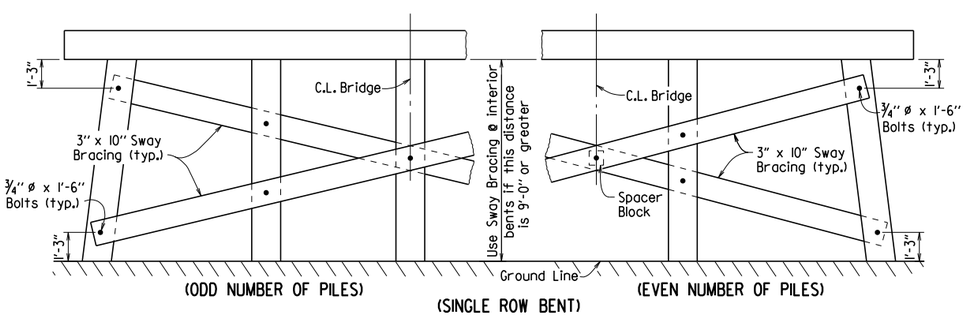
Omit bottom bracing when "H" is less than 10'. Omit all bracing when "H" is less than 5'. When "H" exceeds 15', additional X-bracing is required to provide a maximum unbraced pile length of 14'.

DETAILS OF BRACING FOR STEEL PILES



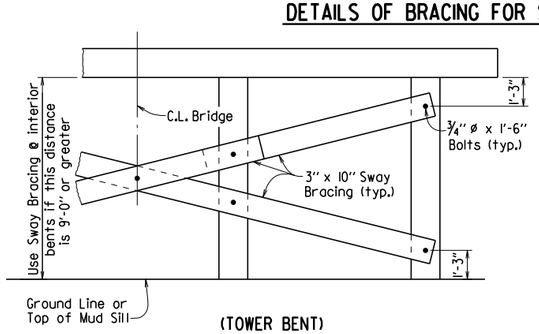
Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft. A proprietary steel pile splicer sufficient to develop the full strength of the section may be substituted for the details shown. Pile splicers shall be installed in accordance with manufacturer's recommendations.

PILE SPLICE DETAIL



DETAILS OF SWAY BRACING FOR TIMBER PILES

Note: Sway Bracing, if required, shall be used on both lines of piles for Tower Bents.



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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
						TEMP. BRIDGE		55055

GENERAL NOTES

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 2002 Edition, with current interim specifications.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable special provisions and supplemental specifications.

SEISMIC PERFORMANCE ZONE: 1

DESIGN LIVE LOADS: H 15-44 (No Overload).

DESIGN DEAD LOADS: 50 lbs. per cu. ft. for lumber
150 lbs. per cu. ft. for concrete

Precast Concrete Units shall comply with the requirements of AHTD standard drawings and special provisions. Drawings for old style units are within the drawing series 5291 thru 5307 and 14800 thru 14899. New style units (Current Design) are within the drawing series 15190 thru 15400.

Load Factor Design is used for the new style precast concrete units. Allowable Stress Design is used for the old style precast concrete units and timber components. The allowable unit stresses used assume normal duration of loading for stress grades of sawn lumber and are as follows:

fb=1200 psi
fv=85 psi

Concrete shall be Class S with a minimum 28 day compressive strength f'c = 3500 psi unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural Steel shall be AASHTO M 270, Grade 36 unless otherwise noted.

Timber piling shall comply with Section 818 of the Standard Specifications and shall be driven to a minimum bearing capacity of 20 tons per pile. Steel piling shall be HP12x53 and shall be driven to a minimum bearing capacity of 44 tons per pile.

Malleable or cast iron washers shall be used under all bolt heads and nuts bearing on timber. Standard washers shall be provided under all bolt heads and nuts in connection with concrete.

Bolts shall conform to the requirements of ASTM A 307. ASTM A 307 Threaded Rods may be used in lieu of bolts. Minimum dimensions are shown for bolts, dowels, and drift pins.

Grout placed around Drift Pins in piles shall be allowed to cure for 72 hours before caps are used to support the superstructure. Grout to consist of one part portland cement to two parts sand.

Melted sulfur may be used in lieu of grout placed around drift pins. The superstructure may be placed as soon as the sulfur has hardened.

Bent caps to be handled from points approximately 5' from the ends.

Timber material, regardless of species, must be of equal or better strength than no. 2 southern pine or douglas fir, graded by the standard grading rules. All timber widths and thicknesses are shown as nominal.

For additional notes concerning "Bridge End Protection System", see Std. Dwg. 55054.

Unless otherwise noted, the Temporary Bridge Structure shall comply with and be paid for in accordance with Section 603.

SHEET 1 OF 2

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE PRECAST CONCRETE SPANS 24' ROADWAY WIDTH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

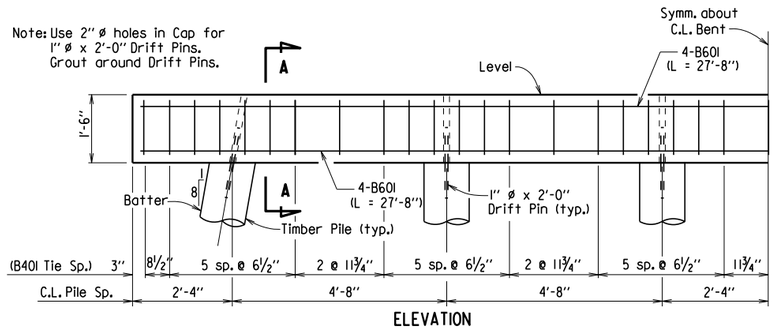
LITTLE ROCK, ARK.

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DESIGNED BY: STD. DATE: —

DRAWING NO. 55055

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		TEMP. BRIDGE	55056	

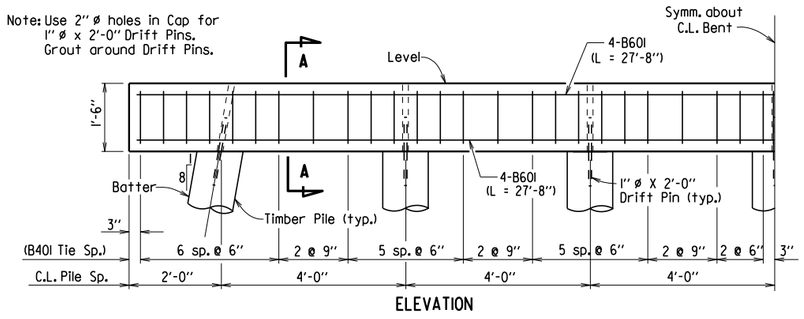
Note: Reinforcing steel in cap shall be placed to not interfere with dowel bars.



ELEVATION

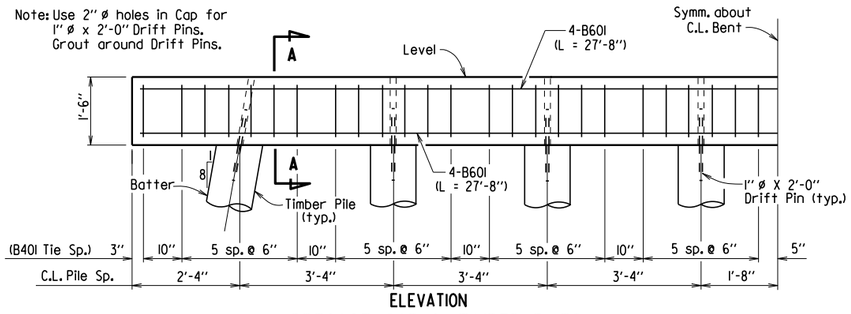
PRECAST CAP & TIMBER PILES
("SI" + "S2" ≤ 38')

"S" = Span Length



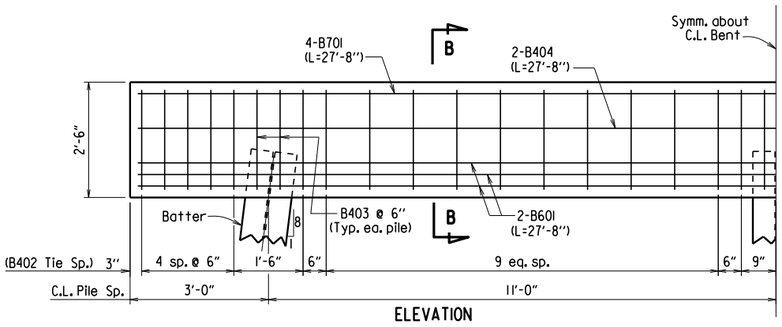
ELEVATION

PRECAST CAP & TIMBER PILES
(38' < "SI" + "S2" ≤ 50')



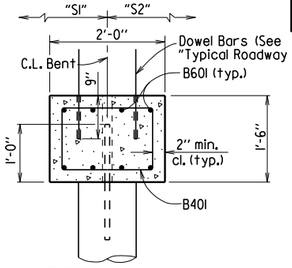
ELEVATION

PRECAST CAP & TIMBER PILES
(50' < "SI" + "S2" ≤ 62')



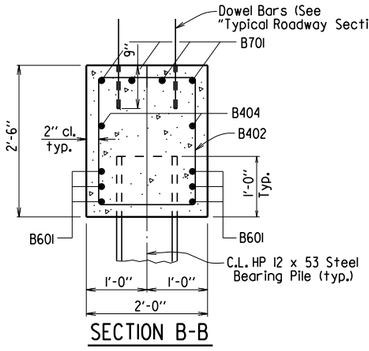
ELEVATION

CAST IN PLACE CAP & HP 12X53 PILES

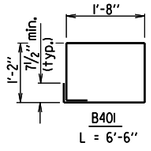


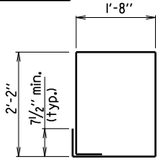
SECTION A-A

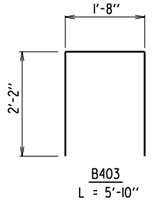
NOTE: THE ENDS OF ALL PRECAST SPANS SHALL BE FIXED TO THE CAP USING I DOWEL BAR IN EACH OF THE CURB UNITS.

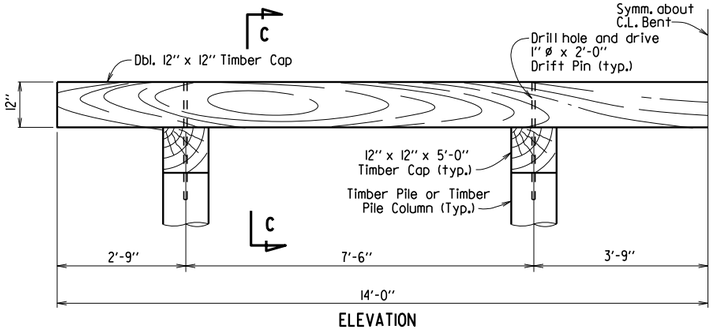


SECTION B-B



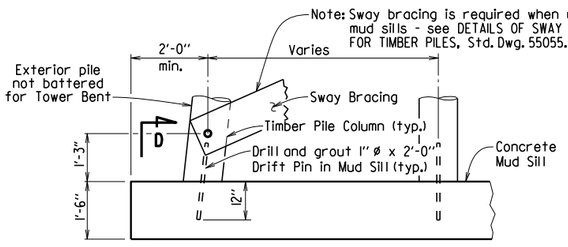






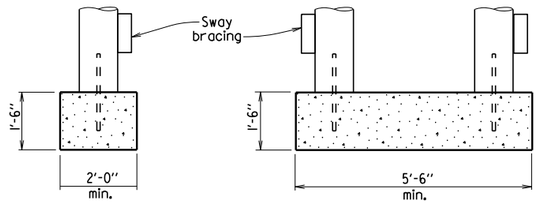
ELEVATION

TOWER BENT - TIMBER CAP & PILES



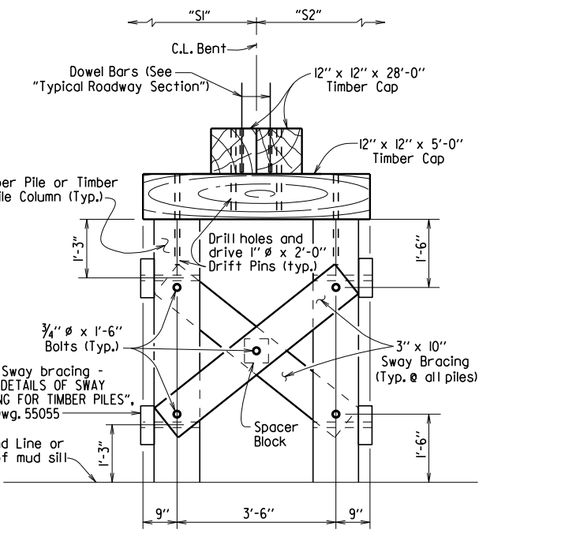
PART ELEVATION

MUD SILL DETAILS



SECTION D-D
(When bottom of cap to top of mud sill is 10' or less)

SECTION D-D
(When bottom of cap to top of mud sill is greater than 10')



SECTION C-C

SELECTION OF BENT TYPES

These temporary bridge drawings provide the following bent types:
- Driven timber piles with precast concrete cap.
- Driven steel HP 12x53 piles with cast in place concrete cap.
- Tower bent with driven timber piles and timber cap.
- Mud sill with timber pile columns and precast concrete cap.
- Tower bent with mud sill and timber pile columns and timber cap.

Guidelines to be used in determining the appropriate bent type are:

1) Driven piles may be used at intermediate bents if a pile penetration of at least 15' below the ground line can be obtained. At end bents, a pile penetration of at least 5' below the bottom of cap is required. Pile penetration measurements at end bents can include embankment, but fill material may not be placed around intermediate bent piles in order to meet the 15' requirement.

2) If driven timber piles are used at intermediate bents and the distance from the bottom of cap to ground line exceeds 15' at any intermediate bent, tower bents must be used at the minimum rate of one tower bent for every 160' of total bridge length. Tower bent(s), when required, shall be placed at the bent location(s) having the greatest distance from bottom of cap to ground line.

3) If piles cannot be practically driven at a bent, mud sills shall be used. All soft and yielding material shall be removed from the bearing area before placing the sill concrete.

4) Timber piles shall be used as columns in mud sills. The column spacing shall be the same as that used for driven timber pile bents for the appropriate span lengths involved.

5) If a mud sill is to be used and the distance from the bottom of cap to ground line is more than 10', a tower bent with mud sill must be used at that location.

6) A timber cap may be used only if tower bents are used.

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE PRECAST CONCRETE SPANS 24' ROADWAY WIDTH

ROUTE SEC.

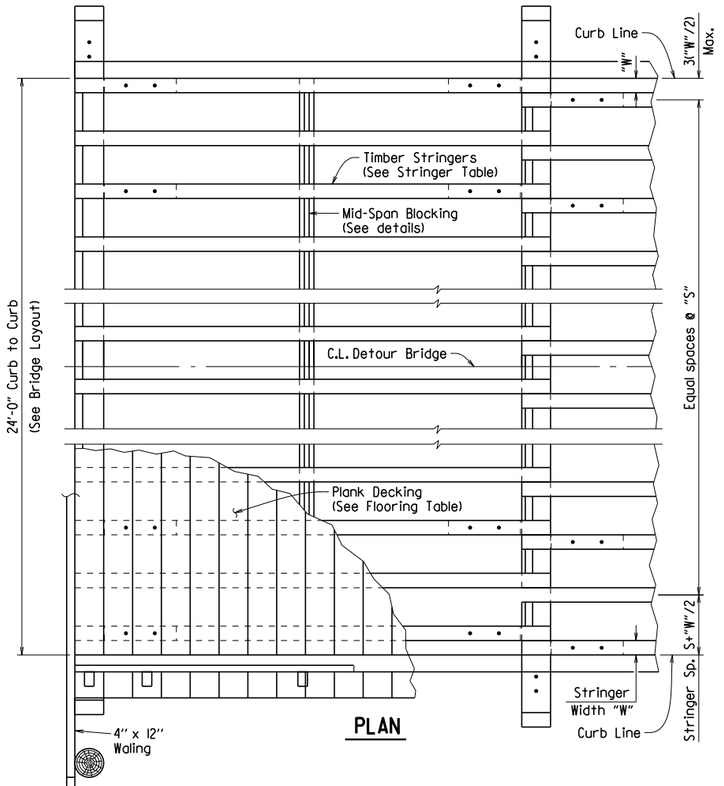
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

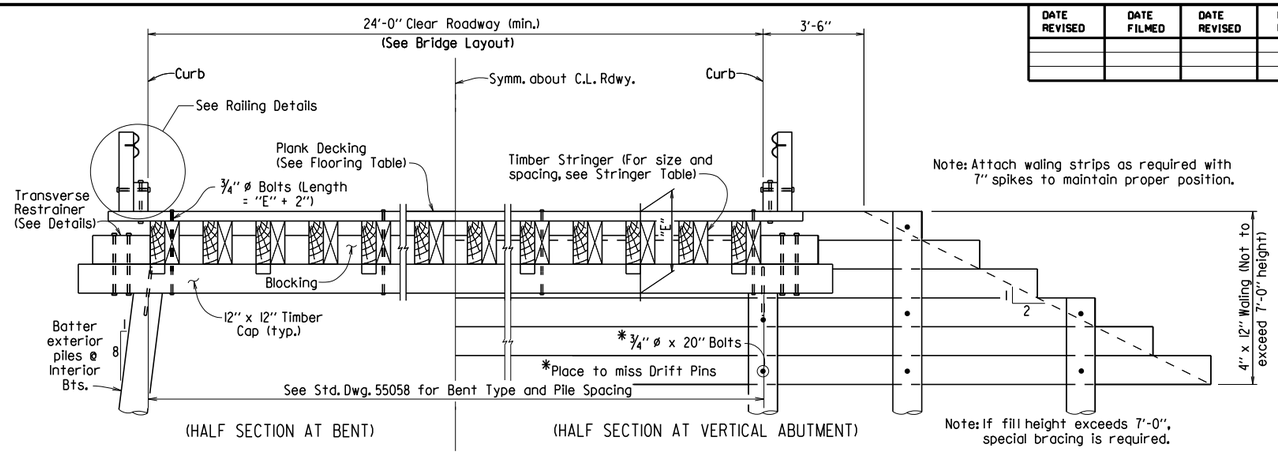
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CHECKED BY: AMS DATE: 4-17-14 SCALE: No Scale
DESIGNED BY: STD. DATE: —

DRAWING NO. 55056

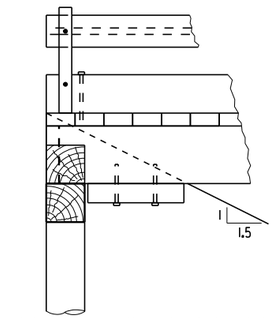
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		TEMP. BRIDGE	55057	



PLAN



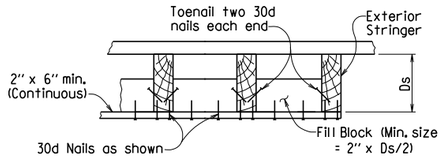
TYPICAL ROADWAY SECTION



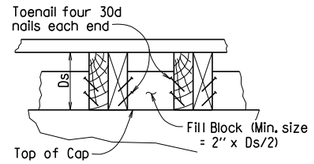
Note: Piles for Alternate Abutment to be driven after embankment is in place.

ALTERNATE SPILL-THRU ABUTMENT

Max. Stringer Spacing "S"	Plank Size (Nominal)
14.5"	3" X 6"
16.5"	3" X 8"
18.0"	3" X 10"
19.5"	3" X 12"
21.5"	4" X 8"
24.0"	4" X 10"
26.5"	4" X 12"



BLOCKING DETAILS AT MID-SPAN



BLOCKING DETAIL AT BENTS

Note: Blocking details shown are for Bents. Details of blocking at Abutments are similar, except that depth of fill block shall be equal to Ds if Alternate Spill-Thru Abutment is used.

GENERAL NOTES

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 2002 Edition.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable Special Provisions and Supplemental Specifications.

SEISMIC PERFORMANCE ZONE: 1

DESIGN LIVE LOADS: H 15-44 (No Overload). Impact was not included in the design of superstructure for timber bridges.

DESIGN DEAD LOADS: 50 lbs. per cu. ft. for lumber
150 lbs. per cu. ft. for concrete

Allowable Stress Design is used for the standard timber bridges. The allowable unit stresses used assume normal duration of loading for stress grades of sawn lumber and are as follows: fb= 1200 psi
fv= 85 psi

Concrete shall be Class S with a minimum 28 day compressive strength f'c= 3500 psi unless otherwise noted.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Structural Steel shall be AASHTO M 270, Grade 36 unless otherwise noted.

Timber piling shall comply with Section 818 of the Standard Specifications and shall be driven to a minimum bearing capacity of 20 tons per pile. Steel piling shall be HP12X53 and shall be driven to a minimum bearing capacity of 44 tons per pile.

Malleable or cast iron washers to be used under all bolt heads and nuts bearing on timber. Standard washers shall be provided under all bolt heads and nuts in connnection with concrete.

Bolts shall conform to the requirements of ASTM A 307. ASTM A 307 Threaded Rods may be used in lieu of bolts. Minimum dimensions are shown for bolts, dowels, and drift pins.

Bent caps to be handled from points approximately 5' from the ends.

Timber material, regardless of species, must be of equal or better strength than no. 2 southern pine or douglas fir, graded by the standard grading rules. All timber widths and thicknesses are shown as nominal.

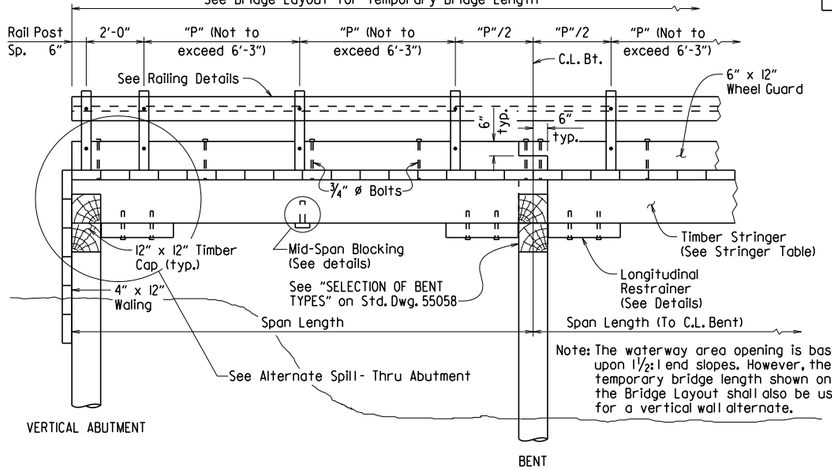
For additional notes concerning "Bridge End Protection System", see Std. Dwg. 55054.

Unless otherwise noted, the Temporary Bridge Structure shall comply with and be paid for in accordance with Section 603.

STRINGER SIZE (NOMINAL)	8.0	10.0	14.5	15.0	16.5	18.0	19.5	21.5	24.0	26.5
4" X 12"	16									
4" X 14"	21	17	15							
6" X 12"			16							
4" X 16"	26	22	19	16						
6" X 14"			21	18	17	16	15			
			26	23	22	20	19	18	16	
6" X 16"			31	28	27	25	23	22	20	18
6" X 18"								31	31	30
6" X 24"										27

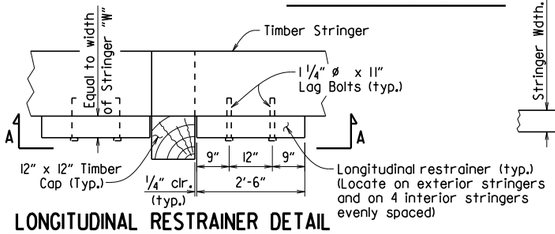
MAX. STRINGER SPACING (Inches)

STRINGER & FLOORING TABLES

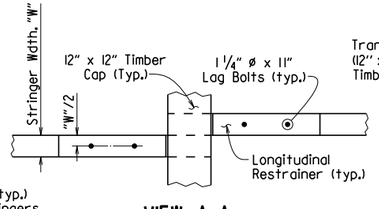


Note: The waterway area opening is based upon 1½:1 end slopes. However, the temporary bridge length shown on the Bridge Layout shall also be used for a vertical wall alternate.

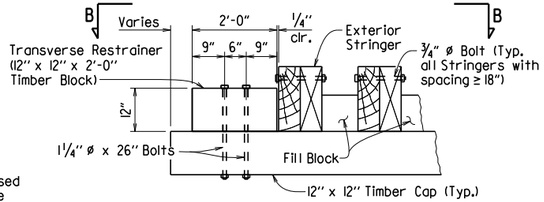
LONGITUDINAL SECTION



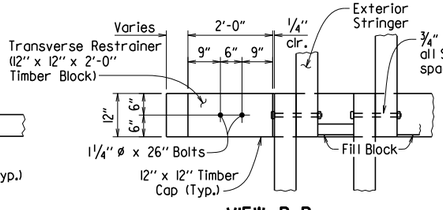
LONGITUDINAL RESTRAINER DETAIL



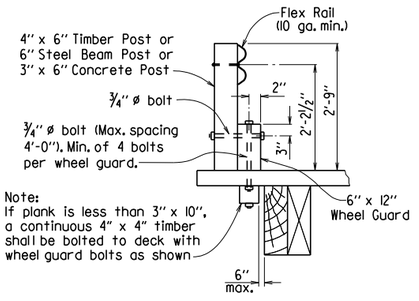
VIEW A-A



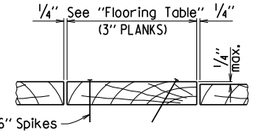
TRANSVERSE RESTRAINER DETAIL

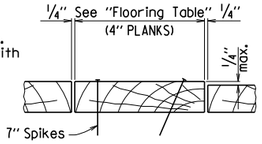


VIEW B-B



RAILING DETAILS





FLOOR NAILING DETAILS

Note: Planks used in plank floors shall be graded as to thickness and so laid that no two adjacent planks shall vary in thickness by more than ¼".

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 1 OF 2

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE TIMBER SPANS 24' ROADWAY WIDTH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

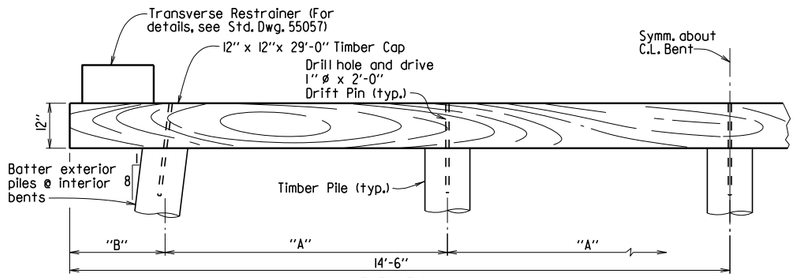
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DRAWING NO. 55057

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				JOB NO.				
				①		TEMP. BRIDGE	55058	

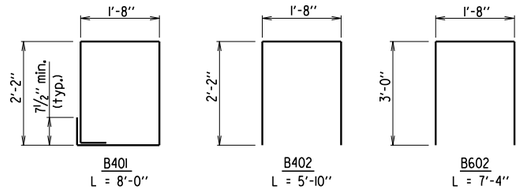
"S1" + "S2"	No. of Piles	Pile Spacing "A"	Overhang "B"
0 to 38'	5	4 @ 6'-0"	2'-6"
39' to 50'	6	5 @ 5'-0"	2'-0"
51' to 62'	7	6 @ 4'-3"	1'-9"

"S" = Span Length

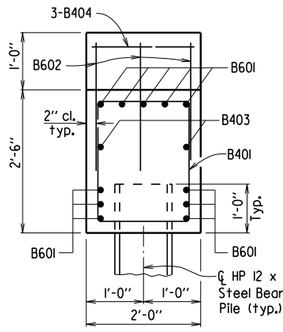


ELEVATION

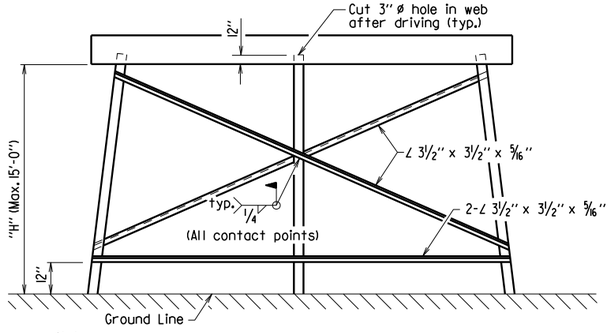
TIMBER CAP & PILES



BENDING DIAGRAMS FOR POURED CAP



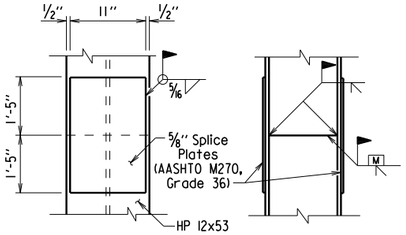
VIEW B-B



Note:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment for any bracing required shall be considered incidental to Item 603 "Temporary Bridge Structure".

Omit bottom bracing when "H" is less than 10'. Omit all bracing when "H" is less than 5'. When "H" exceeds 15', additional X-bracing is required to provide a maximum unbraced pile length of 14'.

DETAILS OF BRACING FOR STEEL PILES



Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft. A proprietary steel pile splicer sufficient to develop the full strength of the section may be substituted for the details shown. Pile splicers shall be installed in accordance with manufacturer's recommendations.

PILE SPLICE DETAIL

SELECTION OF BENT TYPES

These temporary bridge drawings provide the following bent types:
- Driven timber piles with timber cap.
- Driven steel HP 12x53 piles with cast in place concrete cap.
- Tower bent with driven timber piles and timber cap.
- Mud sill with timber pile columns and timber cap
- Tower bent with mud sill and timber pile columns and timber cap.

Guidelines to be used in determining the appropriate bent type are:

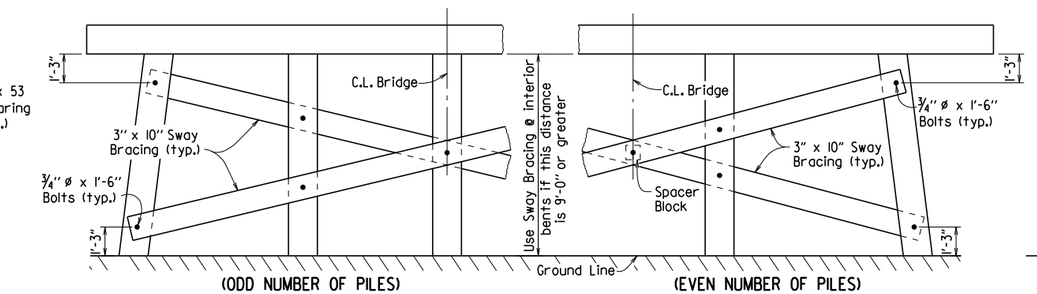
1) Driven piles may be used at intermediate bents if a pile penetration of at least 15' below the ground line can be obtained. At end bents, a pile penetration of at least 5' below the bottom of cap is required. Pile penetration measurements at end bents can include embankment, but fill material may not be placed around intermediate bent piles in order to meet the 15' requirement.

2) If driven timber piles are used at intermediate bents and the distance from the bottom of cap to ground line exceeds 15' at any intermediate bent, tower bents must be used at the minimum rate of one tower bent for every 160' of total bridge length. Tower bent(s), when required, shall be placed at the bent location(s) having the greatest distance from bottom of cap to ground line.

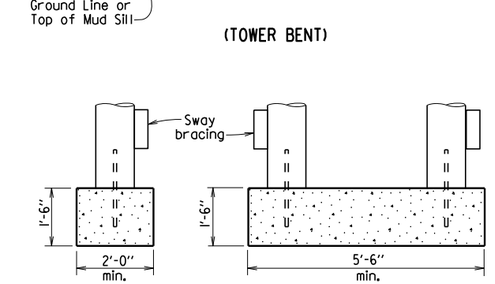
3) If piles cannot be practically driven at a bent, mud sills shall be used. All soft and yielding material shall be removed from the bearing area before placing the sill concrete.

4) Timber piles shall be used as columns in mud sills. The column spacing shall be the same as that used for driven timber pile bents for the appropriate span lengths involved.

5) If a mud sill is to be used and the distance from the bottom of cap to ground line is more than 10', a tower bent with mud sill must be used at that location.

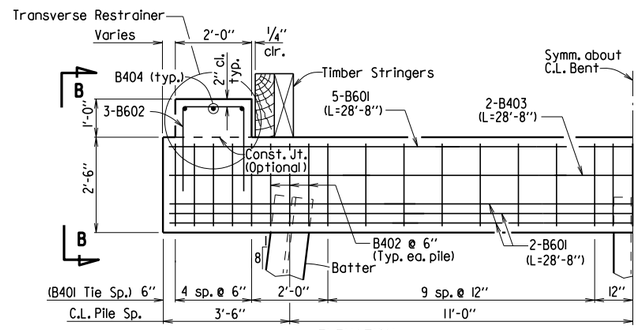


DETAILS OF SWAY BRACING FOR TIMBER PILES



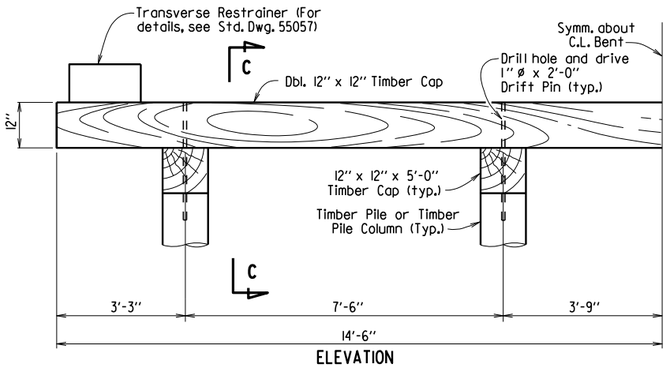
SECTION D-D
(When bottom of cap to top of mud sill is 10'-0" or less)

SECTION D-D
(When bottom of cap to top of mud sill is greater than 10'-0")



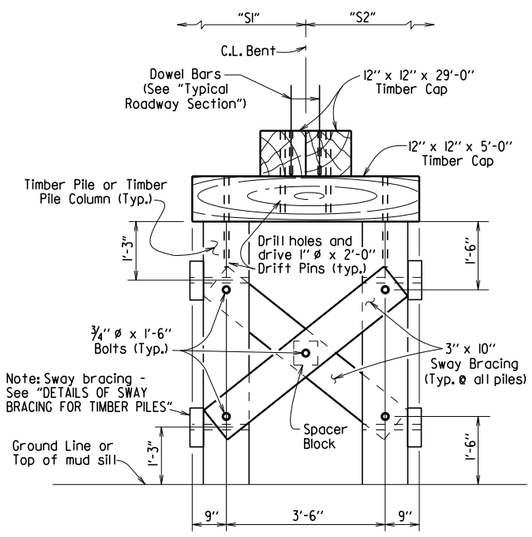
ELEVATION

CAST IN PLACE CAP & HP 12 X 53 PILES

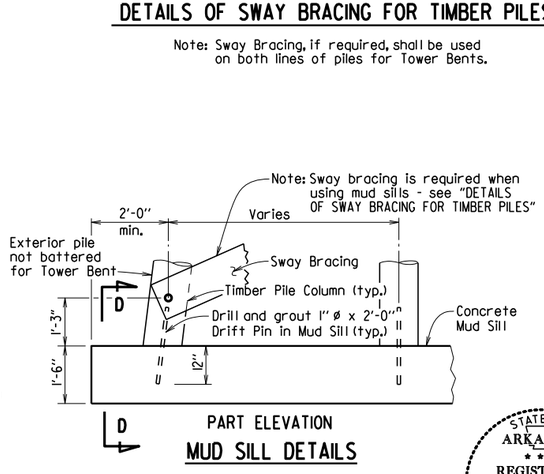


ELEVATION

TOWER BENT - TIMBER CAP & PILES



SECTION C-C



PART ELEVATION

MUD SILL DETAILS

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE TIMBER SPANS 24' ROADWAY WIDTH

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4-17-14 FILENAME: b55058.dgn
CHECKED BY: AMS DATE: 4-17-14 SCALE: No Scale
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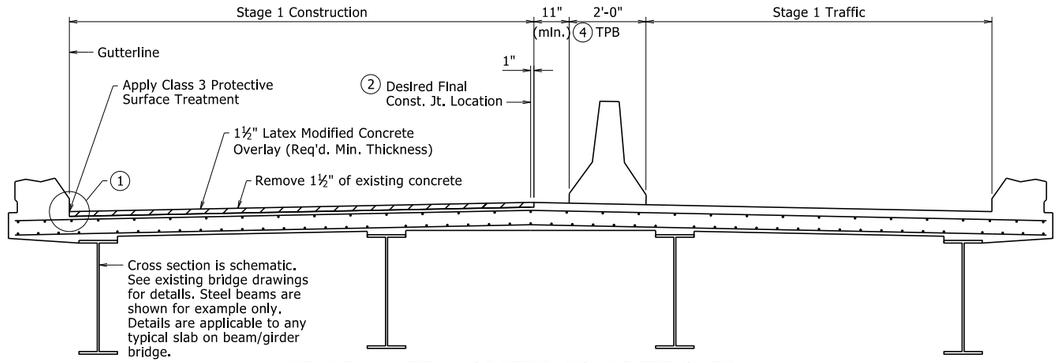
DRAWING NO. 55058

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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6/25/2020				JOB NO.				
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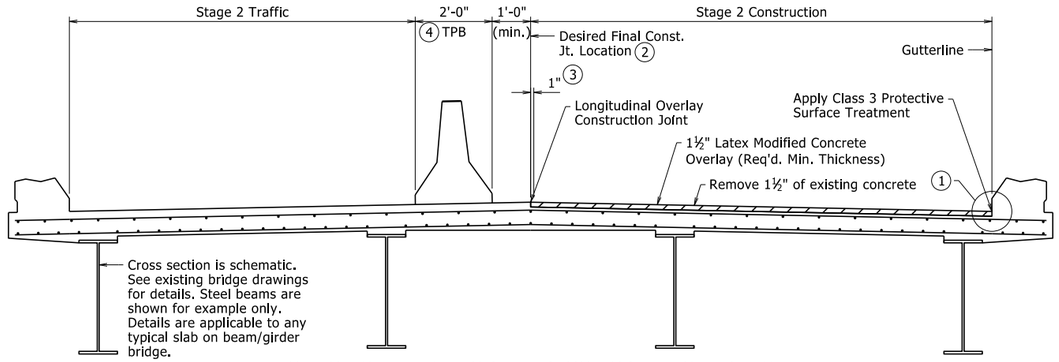
Stages of construction and traffic refer to Bridge Rehabilitation Work Zones as shown in Maintenance of Traffic Details. Numbering is shown for general purposes. See Roadway Plans for specific sequencing.

The minimum overlay placement length shall be a span length on simple span bridges and to an existing slab joint on continuous span bridges, unless otherwise approved by the Engineer. Refer to existing bridge drawings.

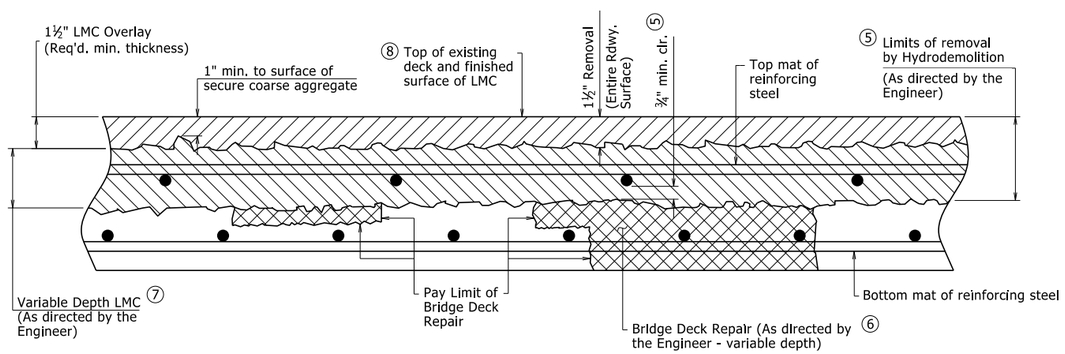
NOTE: Details shown are typical for staged construction. When full width rehabilitation of a bridge deck is possible, adjust hydrodemolition and latex modified concrete overlay operations and details accordingly.



STAGE 1 LATEX MODIFIED CONCRETE OVERLAY



STAGE 2 LATEX MODIFIED CONCRETE OVERLAY



DETAILS OF HYDRODEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY

⚠1 ⑤ Removal of unsound concrete beyond 1½" below the original surface shall be at the direction of the Engineer. If the bond between existing concrete and the top mat of reinforcing steel is destroyed, then the concrete shall be removed to a minimum of ¾" clearance below the bar. This removal shall be subsidiary to the item Job SP "Hydrodemolition - Class _".

⑥ Areas requiring additional repair, as determined by the Engineer, shall be repaired in accordance with the Job SP "Bridge Deck Repair for Latex Modified Concrete Overlays".

⑦ Depth varies to achieve minimum clearance below top mat of reinforcing steel, where required.

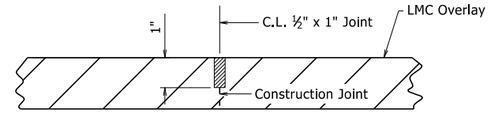
⑧ Finished surface of LMC Overlay shall match existing concrete deck surfaces unless increase is required to maintain minimum required LMC Overlay thickness and a minimum of 1½" cover to reinforcing steel and shear connectors.

① Hand tools shall be used as required to remove concrete adjacent to curbs, rails, and armored expansion joints.

② For staged construction, the final construction joint location shall be established by the Engineer to satisfy MOT and construction requirements. The desired location is at the C.L. Bridge, C.L. Lane, or Edge of Lane, but in no case shall be positioned in the line of a wheel path.

③ For staged construction, saw cut and remove 1" of initial Latex Modified Concrete Overlay when preparing surface for adjacent overlay.

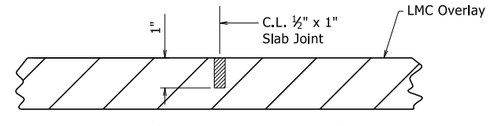
④ For staged construction, Temporary Precast Barrier (TPB) shall not be connected to the surface of the bridge deck. See Std. Dwg. TC-4 for additional details. Plastic drums shall be used in lieu of concrete barriers where shown in the Roadway Plans, see Std. Dwg. TC-3 for additional details.



Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod will not be required. Joint Sealer shall be measured and paid for as LMC Overlay. Longitudinal construction joints shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the overlay. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL OVERLAY CONSTRUCTION JOINT DETAIL

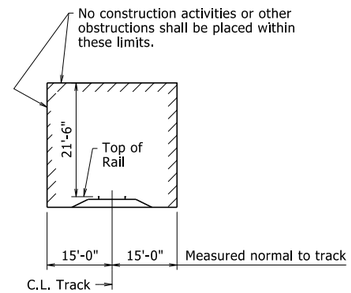
For Staged Construction



Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod will not be required. Joint Sealer shall be measured and paid for as LMC Overlay. Slab joints shall extend from gutterline to gutterline. Slab joints shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the overlay. Slab joints shall be placed at all pouring sequence construction joints and are required at existing slab joint locations. Pouring sequence construction joints shall align between stages of construction. The joint sealer shall extend across the deck from gutterline to gutterline. Seal color shall be gray or other color similar to concrete.

TRANSVERSE OVERLAY JOINT DETAIL

For Continuous Span Bridges



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

See Job SP "Insurance, Construction, and Flagging Requirements on Railroad Property" for additional railroad construction requirements.

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications unless otherwise noted in the Plans.

Details shown are schematic. The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and fit the new work to the existing structure(s).

The operation or placement of vehicles, equipment, and/or materials on the subject bridge(s) necessary for the completion of this work shall be evaluated in accordance with Subsection 105.14. Certifications of the adequacy of all components for the anticipated loads shall address the capacity of the existing structure at all phases of this work.

Where applicable, construction activities for the existing bridge(s) over roadways and railroads shall be in accordance with the Job SP "Special Safety Requirements for Bridges" and as shown in "Minimum Construction Clearance Envelope".

⚠1 HYDRODEMOLITION: The entire roadway surface of the existing bridge deck and approach slabs and gutters, as applicable, shall receive hydrodemolition in accordance with the Job SP "Hydrodemolition - Class _" to a planned depth of 1½" below the existing bridge deck surface. Deteriorated concrete in the bridge deck below this depth shall be removed at the direction of the Engineer and up to the limits detailed. These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item Job SP "Hydrodemolition - Class _". Prior to hydrodemolition, cold milling of the concrete deck to a maximum depth of 1" will be allowed unless there will be a conflict with the existing reinforcing steel.

BRIDGE DECK REPAIR: After hydrodemolition, the deck surface shall be sounded and any areas of unsound, delaminated, or otherwise deteriorated concrete shall be removed at the direction of the Engineer and in accordance with Job SP "Bridge Deck Repair for Latex Modified Concrete Overlays".

LATEX MODIFIED CONCRETE OVERLAY: The entire area of the hydrodemolition shall receive a Latex Modified Concrete (LMC) Overlay to a planned depth of 1½" below the existing bridge deck surface in accordance with Job SP "Latex Modified Concrete Overlay". These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item Job SP "Latex Modified Concrete Overlay (1½" Thick)". Areas of the existing bridge deck removed at the direction of the Engineer to a depth greater than 1½" below the existing bridge deck surface shall be filled with LMC concurrent to the placement of the 1½" LMC Overlay. This area shall be measured and paid for in accordance with Job SP "Latex Modified Concrete Overlay".

GROOVED FINISH: The LMC Overlay surface of the bridge deck and approach slabs and gutters, as applicable, shall be given a grooved finish as specified for final finishing in Subsection 802.19 for Class 7 Grooved Bridge Roadway Surface Finish and in accordance with Job SP "Latex Modified Concrete Overlay".

PROTECTIVE SURFACE TREATMENT: The longitudinal joint between the LMC Overlay and the adjacent existing concrete curb or rail shall be given a Class 3 Protective Surface Treatment as specified in Section 803 and in accordance with Job SP "Latex Modified Concrete Overlay". The roadway surface of the completed LMC Overlay shall be given a Class 1 Protective Surface Treatment as specified in Section 803.

⚠2 JOINT REHABILITATION: After the placement of the LMC Overlay and if shown in the plans, the existing armored joints shall be given a poured silicone joint sealant as specified in Section 809 and as shown in "Poured Silicone Joint Seal Details" on Standard Drawing No. 55064, and the existing unarmored joints shall be given a Type A Joint Rehabilitation as specified in Section 509 and Job SP "Joint Rehabilitation for Bridge Decks". Backwall repair, if shown in the plans or as directed by the Engineer, shall be completed prior to installation of the joint sealant.

If shown in the plans, the existing neoprene strip seal shall be removed and replaced. See "Strip Seal Joint Details" on Standard Drawing No. 55064.

NOTE: When "Very Early Strength Latex Modified Concrete Overlay (1½" Thick)" is shown in the plans for a particular bridge, all reference to "Latex Modified Concrete Overlay" and "LMC" on this sheet shall be considered synonymous with "Very Early Strength Latex Modified Concrete Overlay" and "VESLMC" for that bridge. See Job SP "Very Early Strength Latex Modified Concrete Overlay" for additional information.

⚠1 Modified Hydrodemolition SP reference to include "- Class _". By: KWY, Checked by: SWP; 1/9/2020.

⚠2 Modified Joint Rehabilitation to include unarmored joints. By: KWY, Checked by: SWP; 6/25/2020.

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 7, 2019. This copy is not a signed and sealed document.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR HYDRODEMOLITION AND LMC OVERLAY SLAB ON BEAM/GIRDER BRIDGES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 11/7/2019 FILENAME: b55060.dgn
CHECKED BY: SWP DATE: 11/7/2019 SCALE: None
DESIGNED BY: STD. DATE: -------

DRAWING NO. 55060

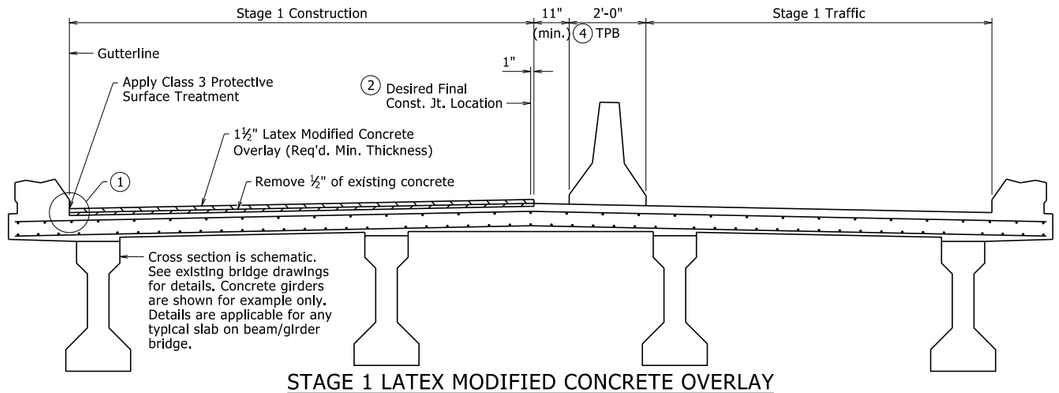
PRINT DATE: 3/22/2021

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1/9/2020				6	ARK.			
6/25/2020				JOB NO.				
				①	HYDRO/LMC OVERLAY - 55061			

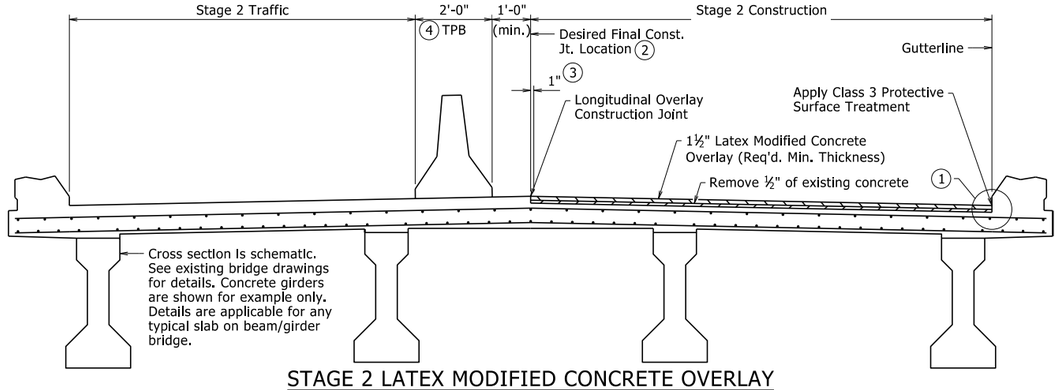
Stages of construction and traffic refer to Bridge Rehabilitation Work Zones as shown in Maintenance of Traffic Details. Numbering is shown for general purposes. See Roadway Plans for specific sequencing.

The minimum overlay placement length shall be a span length on simple span bridges and to an existing slab joint on continuous span bridges, unless otherwise approved by the Engineer. Refer to existing bridge drawings.

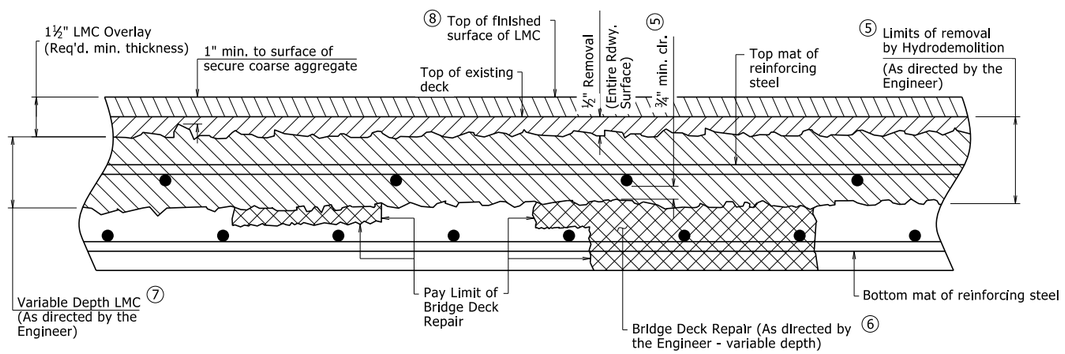
NOTE: Details shown are typical for staged construction. When full width rehabilitation of a bridge deck is possible, adjust hydrodemolition and latex modified concrete overlay operations and details accordingly.



STAGE 1 LATEX MODIFIED CONCRETE OVERLAY



STAGE 2 LATEX MODIFIED CONCRETE OVERLAY



DETAILS OF HYDRODEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY

⚠1 ⑤ Removal of unsound concrete beyond ½" below the original surface shall be at the direction of the Engineer. If the bond between existing concrete and the top mat of reinforcing steel is destroyed, then the concrete shall be removed to a minimum of ¾" clearance below the bar. This removal shall be subsidiary to the item Job SP "Hydrodemolition - Class _".

⑥ Areas requiring additional repair, as determined by the Engineer, shall be repaired in accordance with the Job SP "Bridge Deck Repair for Latex Modified Concrete Overlays".

⑦ Depth varies to achieve minimum clearance below top mat of reinforcing steel, where required.

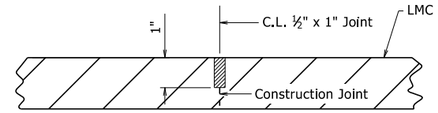
⑧ Finished surface of LMC Overlay shall be increased as required to maintain minimum required LMC Overlay thickness and a minimum of 1½" cover to reinforcing steel and shear connectors.

① Hand tools shall be used as required to remove concrete adjacent to curbs, rails, and armored expansion joints.

② For staged construction, the final construction joint location shall be established by the Engineer to satisfy MOT and construction requirements. The desired location is at the C.L. Bridge, C.L. Lane, or Edge of Lane, but in no case shall be positioned in the line of a wheel path.

③ For staged construction, saw cut and remove 1" of initial Latex Modified Concrete Overlay when preparing surface for adjacent overlay.

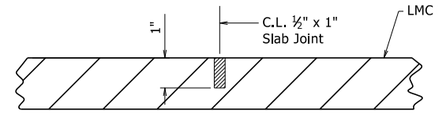
④ For staged construction, Temporary Precast Barrier (TPB) shall not be connected to the surface of the bridge deck. See Std. Dwg. TC-4 for additional details. Plastic drums shall be used in lieu of concrete barriers where shown in the Roadway Plans, see Std. Dwg. TC-3 for additional details.



Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod will not be required. Joint Sealer shall be measured and paid for as LMC Overlay. Longitudinal construction joints shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the overlay. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL OVERLAY CONSTRUCTION JOINT DETAIL

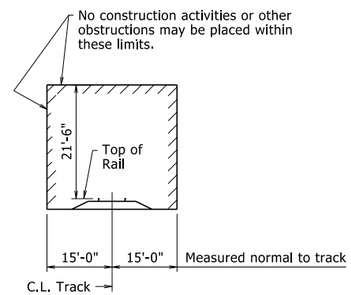
For Staged Construction



Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod will not be required. Joint Sealer shall be measured and paid for as LMC Overlay. Slab joints shall extend from gutterline to gutterline. Slab joints shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the overlay. Slab joints shall be placed at all pouring sequence construction joints and are required at existing slab joint locations. Pouring sequence construction joints shall align between stages of construction. The joint sealer shall extend across the deck from gutterline to gutterline. Seal color shall be gray or other color similar to concrete.

TRANSVERSE OVERLAY JOINT DETAIL

For Continuous Span Bridges



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

See Job SP "Insurance, Construction, and Flagging Requirements on Railroad Property" for additional railroad construction requirements.

⚠1 Modified Hydrodemolition SP reference to include "- Class _". By: KWY, Checked by: SWP; 1/9/2020.

⚠2 Modified Joint Rehabilitation to include unarmored joints. By: KWY, Checked by: SWP; 6/25/2020.

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 7, 2019. This copy is not a signed and sealed document.

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications unless otherwise noted in the Plans.

Details shown are schematic. The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and fit the new work to the existing structure(s).

The operation or placement of vehicles, equipment, and/or materials on the subject bridge(s) necessary for the completion of this work shall be evaluated in accordance with Subsection 105.14. Certifications of the adequacy of all components for the anticipated loads shall address the capacity of the existing structure at all phases of this work.

Where applicable, construction activities for the existing bridge(s) over roadways and railroads shall be in accordance with the Job SP "Special Safety Requirements for Bridges" and as shown in "Minimum Construction Clearance Envelope".

⚠1 HYDRODEMOLITION: The entire roadway surface of the existing bridge deck and approach slabs and gutters, as applicable, shall receive hydrodemolition in accordance with the Job SP "Hydrodemolition - Class _" to a planned depth of ½" below the existing bridge deck surface. Deteriorated concrete in the bridge deck below this depth shall be removed at the direction of the Engineer and up to the limits detailed. These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item Job SP "Hydrodemolition - Class _".

BRIDGE DECK REPAIR: After hydrodemolition, the deck surface shall be sounded and any areas of unsound, delaminated, or otherwise deteriorated concrete shall be removed at the direction of the Engineer and in accordance with Job SP "Bridge Deck Repair for Latex Modified Concrete Overlays".

LATEX MODIFIED CONCRETE OVERLAY: The entire area of the hydrodemolition shall receive a Latex Modified Concrete (LMC) Overlay with a minimum thickness of 1½" in accordance with Job SP "Latex Modified Concrete Overlay". These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item Job SP "Latex Modified Concrete Overlay (1½" Thick)". Areas of the existing bridge deck removed at the direction of the Engineer to a depth greater than ½" below the existing bridge deck surface shall be filled with LMC concurrent to the placement of the 1½" LMC Overlay. This area shall be measured and paid for in accordance with Job SP "Latex Modified Concrete Overlay".

GROOVED FINISH: The LMC Overlay surface of the bridge deck and approach slabs and gutters, as applicable, shall be given a grooved finish as specified for final finishing in Subsection 802.19 for Class 7 Grooved Bridge Roadway Surface Finish and in accordance with Job SP "Latex Modified Concrete Overlay".

PROTECTIVE SURFACE TREATMENT: The longitudinal joint between the LMC Overlay and the adjacent existing concrete curb or rail shall be given a Class 3 Protective Surface Treatment as specified in Section 803 and in accordance with Job SP "Latex Modified Concrete Overlay". The roadway surface of the completed LMC Overlay shall be given a Class 1 Protective Surface Treatment as specified in Section 803.

⚠2 JOINT REHABILITATION: After the placement of the LMC Overlay and if shown in the plans, the existing armored joints shall be given a poured silicone joint sealant as specified in Section 809 and as shown in "Poured Silicone Joint Seal Details" on Standard Drawing No. 55064, and the existing unarmored joints shall be given a Type A Joint Rehabilitation as specified in Section 509 and Job SP "Joint Rehabilitation for Bridge Decks". Backwall repair, if shown in the plans or as directed by the Engineer, shall be completed prior to installation of the joint sealant.

If shown in the plans, the existing neoprene strip seal shall be removed and replaced. See "Strip Seal Joint Details" on Standard Drawing No. 55064.

NOTE: When "Very Early Strength Latex Modified Concrete Overlay (1½" Thick)" is shown in the plans for a particular bridge, all reference to "Latex Modified Concrete Overlay" and "LMC" on this sheet shall be considered synonymous with "Very Early Strength Latex Modified Concrete Overlay" and "VESLMC" for that bridge. See Job SP "Very Early Strength Latex Modified Concrete Overlay" for additional information.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR HYDRODEMOLITION AND LMC OVERLAY SLAB ON BEAM/GIRDER BRIDGES WITH GRADE RAISE

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	KWY	DATE:	11/7/2019	FILENAME:	b55061.dgn
CHECKED BY:	SWP	DATE:	11/7/2019	SCALE:	None
DESIGNED BY:	STD.	DATE:	-------		

DRAWING NO. 55061

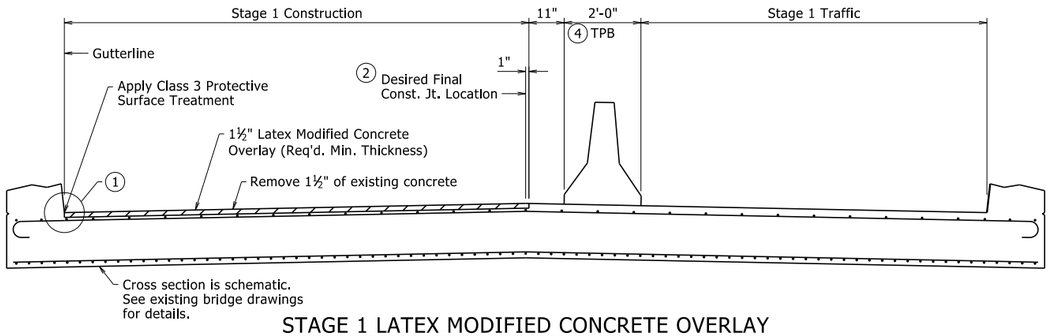
PRINT DATE: 11/4/2020

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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6/25/2020				JOB NO.				
				①	HYDRO/LMC OVERLAY - 55062			

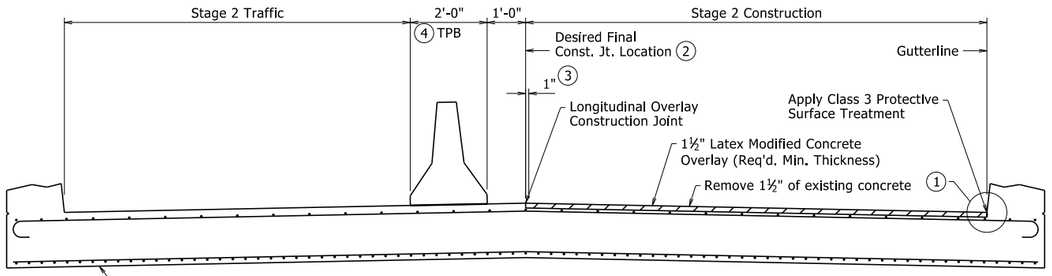
Stages of Construction refer to Bridge Rehabilitation Work Zones as shown in Maintenance of Traffic Details. Numbering is shown for general purposes. See Roadway Plans for specific sequencing.

The minimum overlay placement length shall be a span length on simple span bridges and to a slab joint on continuous span, unless otherwise approved by the Engineer. Refer to existing bridge drawings.

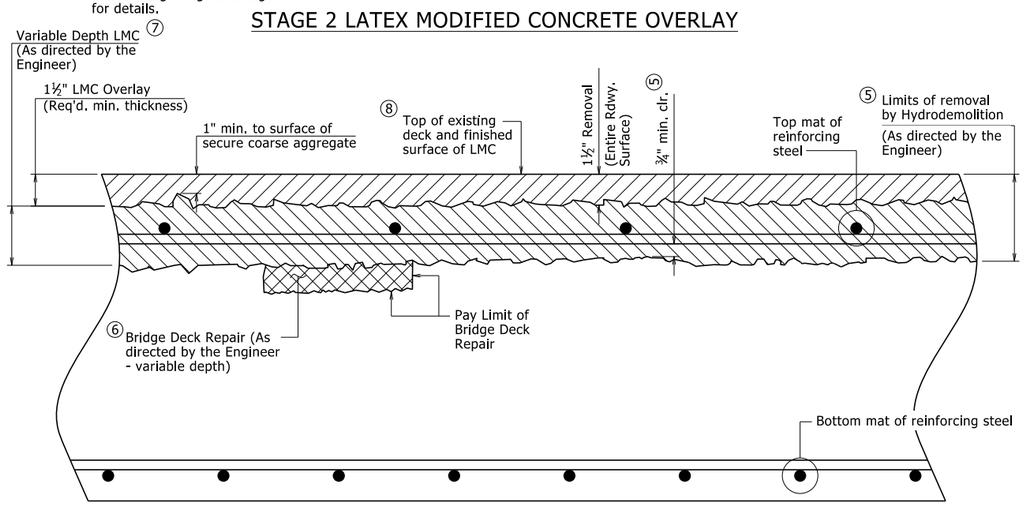
NOTE: Details shown are typical for staged construction. When full width rehabilitation of a bridge deck is possible, adjust hydrodemolition and latex modified concrete overlay operations and details accordingly.



STAGE 1 LATEX MODIFIED CONCRETE OVERLAY



STAGE 2 LATEX MODIFIED CONCRETE OVERLAY



DETAILS OF HYDRODEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY

⚠① ⑤ Removal of unsound concrete beyond 1½" below the original surface shall be at the direction of the Engineer. If the bond between existing concrete and the top mat of reinforcing steel is destroyed, then the concrete shall be removed to a minimum of ¾" clearance below the bar. This removal shall be subsidiary to the item Job SP "Hydrodemolition - Class _".

⑥ Areas requiring additional repair, as determined by the Engineer, shall be repaired in accordance with the Job SP "Bridge Deck Repair for Latex Modified Concrete Overlays".

⑦ Depth varies to achieve minimum clearance below top mat of reinforcing steel, where required.

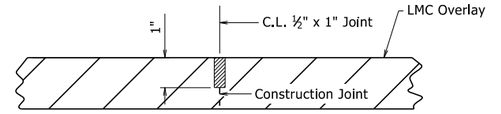
⑧ Finished surface of LMC Overlay shall match existing concrete deck surfaces unless increase is required to maintain minimum required LMC Overlay thickness and a minimum of 1½" cover to reinforcing steel.

① Hand tools shall be used as required to remove concrete adjacent to curbs, rails, and armored expansion joints.

② For staged construction, the final construction joint location shall be established by the Engineer to satisfy MOT and construction requirements. The desired location is at the C.L. Bridge, C.L. Lane, or Edge of Lane, but in no case shall be positioned in the line of a wheel path.

③ For staged construction, saw cut and remove 1" of initial Latex Modified Concrete Overlay when preparing surface for adjacent overlay.

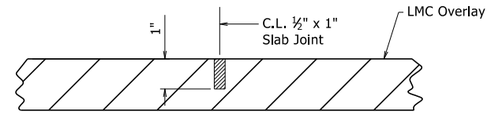
④ For staged construction, Temporary Precast Barrier (TPB) shall not be connected to the surface of the bridge deck. See Std. Dwg. TC-4 for additional details. Plastic drums shall be used in lieu of concrete barriers where shown in the Roadway Plans, see Std. Dwg. TC-3 for additional details.



Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod will not be required. Joint Sealer shall be measured and paid for as LMC Overlay. Longitudinal construction joints shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the overlay. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL OVERLAY CONSTRUCTION JOINT DETAIL

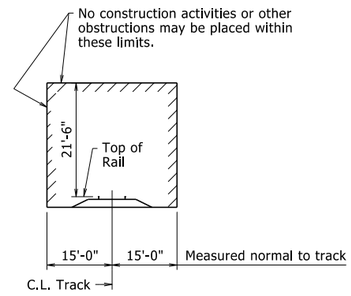
For Staged Construction



Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod will not be required. Joint Sealer shall be measured and paid for as LMC Overlay. Slab joints shall extend from gutterline to gutterline. Slab joints shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the overlay. Slab joints shall be placed at all pouring sequence construction joints and are required at existing slab joint locations. Pouring sequence construction joints shall align between stages of construction. The joint sealer shall extend across the deck from gutterline to gutterline. Seal color shall be gray or other color similar to concrete.

TRANSVERSE OVERLAY JOINT DETAIL

For Continuous Span Bridges



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

See Job SP "Insurance, Construction, and Flagging Requirements on Railroad Property" for additional railroad construction requirements.

⚠① Modified Hydrodemolition SP reference to include "- Class _". By: KWY, Checked by: SWP; 1/9/2020.

⚠② Modified Joint Rehabilitation for additional clarification of unarmored joint work. By: KWY, Checked by: SWP; 6/25/2020.

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 7, 2019. This copy is not a signed and sealed document.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications unless otherwise noted in the Plans.

Details shown are schematic. The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and fit the new work to the existing structure(s).

The operation or placement of vehicles, equipment, and/or materials on the subject bridge(s) necessary for the completion of this work shall be evaluated in accordance with Subsection 105.14. Certifications of the adequacy of all components for the anticipated loads shall address the capacity of the existing structure at all phases of this work.

Where applicable, construction activities for the existing bridge(s) over roadways and railroads shall be in accordance with the Job SP "Special Safety Requirements for Bridges" and as shown in "Minimum Construction Clearance Envelope".

⚠① HYDRODEMOLITION: The entire roadway surface of the existing bridge deck and approach slabs and gutters, as applicable, shall receive hydrodemolition in accordance with the Job SP "Hydrodemolition - Class _" to a planned depth of 1½" below the existing bridge deck surface. Deteriorated concrete in the bridge deck below this depth shall be removed at the direction of the Engineer and up to the limits detailed. These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item Job SP "Hydrodemolition - Class _". Prior to hydrodemolition, cold milling of the concrete deck to a maximum depth of 1" will be allowed unless there will be a conflict with the existing reinforcing steel.

BRIDGE DECK REPAIR: After hydrodemolition, the deck surface shall be sounded and any areas of unsound, delaminated, or otherwise deteriorated concrete shall be removed at the direction of the Engineer and in accordance with Job SP "Bridge Deck Repair for Latex Modified Concrete Overlays".

LATEX MODIFIED CONCRETE OVERLAY: The entire area of the hydrodemolition shall receive a Latex Modified Concrete (LMC) Overlay to a planned depth of 1½" below the existing bridge deck surface in accordance with Job SP "Latex Modified Concrete Overlay". These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item Job SP "Latex Modified Concrete Overlay (1½" Thick)". Areas of the existing bridge deck removed at the direction of the Engineer to a depth greater than 1½" below the existing bridge deck surface shall be filled with LMC concurrent to the placement of the 1½" LMC Overlay. This area shall be measured and paid for in accordance with Job SP "Latex Modified Concrete Overlay".

GROOVED FINISH: The LMC Overlay surface of the bridge deck and approach slabs and gutters, as applicable, shall be given a grooved finish as specified for final finishing in Subsection 802.19 for Class 7 Grooved Bridge Roadway Surface Finish and in accordance with Job SP "Latex Modified Concrete Overlay".

PROTECTIVE SURFACE TREATMENT: The longitudinal joint between the LMC Overlay and the adjacent existing concrete curb or rail shall be given a Class 3 Protective Surface Treatment as specified in Section 803 and in accordance with Job SP "Latex Modified Concrete Overlay". The roadway surface of the completed LMC Overlay shall be given a Class 1 Protective Surface Treatment as specified in Section 803.

⚠② JOINT REHABILITATION: After the placement of the LMC Overlay and if shown in the plans, the existing armored joints shall be given a poured silicone joint sealant as specified in Section 809 and as shown in "Poured Silicone Joint Seal Details" on Standard Drawing No. 55064, and the existing unarmored joints shall be given a Type A Joint Rehabilitation as specified in Section 509 and Job SP "Joint Rehabilitation for Bridge Decks". Backwall repair, if shown in the plans or as directed by the Engineer, shall be completed prior to installation of the joint sealant.

NOTE: When "Very Early Strength Latex Modified Concrete Overlay (1½" Thick)" is shown in the plans for a particular bridge, all reference to "Latex Modified Concrete Overlay" and "LMC" on this sheet shall be considered synonymous with "Very Early Strength Latex Modified Concrete Overlay" and "VESLMC" for that bridge. See Job SP "Very Early Strength Latex Modified Concrete Overlay" for additional information.

STANDARD DETAILS FOR HYDRODEMOLITION AND LMC OVERLAY REINFORCED CONCRETE SLAB STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	KWY	DATE:	11/7/2019	FILENAME:	b55062.dgn
CHECKED BY:	SWP	DATE:	11/7/2019	SCALE:	None
DESIGNED BY:	STD.	DATE:	-------		

DRAWING NO. 55062

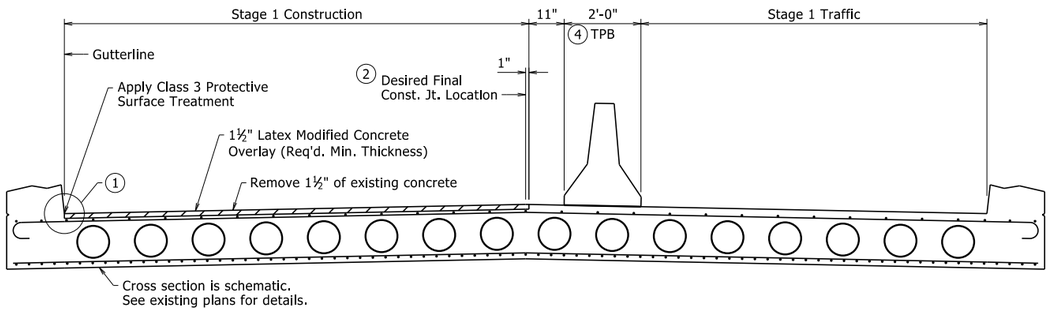
PRINT DATE: 11/4/2020

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1/9/2020				6	ARK.			
6/25/2020				JOB NO.				
				①	HYDRO/LMC OVERLAY - 55063			

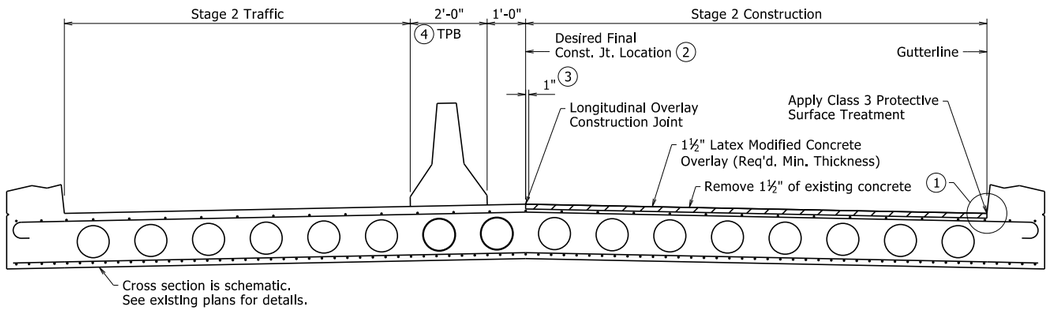
Stages of Construction refer to Bridge Rehabilitation Work Zones as shown in Maintenance of Traffic Details. Numbering is shown for general purposes. See Roadway Plans for specific sequencing.

The minimum overlay placement length shall be a span length. Refer to existing bridge drawings.

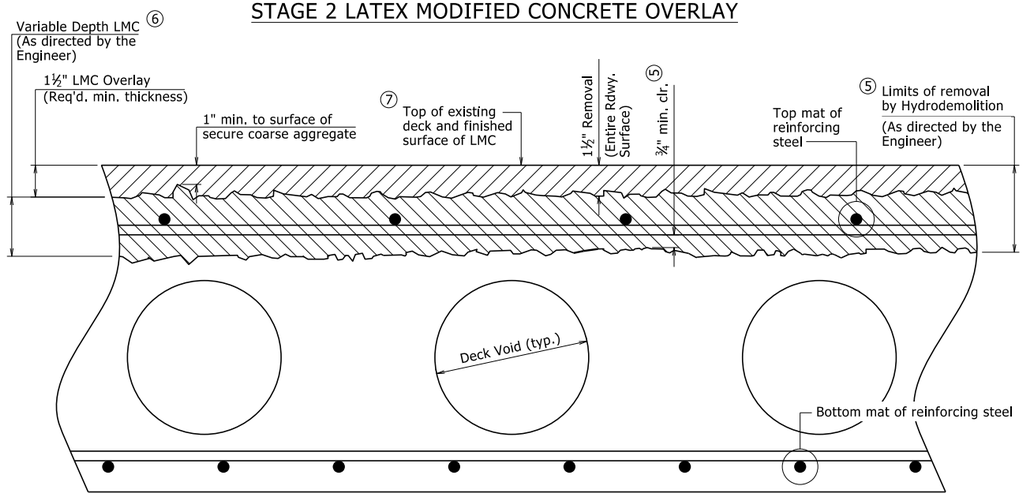
NOTE: Details shown are typical for staged construction. When full width rehabilitation of a bridge deck is possible, adjust hydrodemolition and latex modified concrete overlay operations and details accordingly.



STAGE 1 LATEX MODIFIED CONCRETE OVERLAY



STAGE 2 LATEX MODIFIED CONCRETE OVERLAY



DETAILS OF HYDRODEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY

⚠1 ⑤ Removal of unsound concrete beyond 1½" below the original surface shall be at the direction of the Engineer. If the bond between existing concrete and the top mat of reinforcing steel is destroyed, then the concrete shall be removed to a minimum of ¾" clearance below the bar. This removal shall be subsidiary to the item Job SP "Hydrodemolition - Class _".

⑥ Depth varies to achieve minimum clearance below top mat of reinforcing steel, where required.

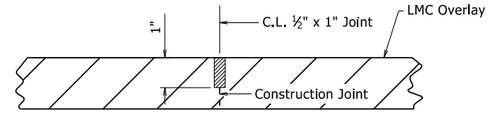
⑦ Finished surface of LMC Overlay shall match existing concrete deck surfaces unless increase is required to maintain minimum required LMC Overlay thickness and a minimum of 1½" cover to reinforcing steel.

① Hand tools shall be used as required to remove concrete adjacent to curbs and rails.

② For staged construction, the final construction joint location shall be established by the Engineer to satisfy MOT and construction requirements. The desired location is at the C.L. Bridge, C.L. Lane, or Edge of Lane, but in no case shall be positioned in the line of a wheel path.

③ For staged construction, saw cut and remove 1" of initial Latex Modified Concrete Overlay when preparing surface for adjacent overlay.

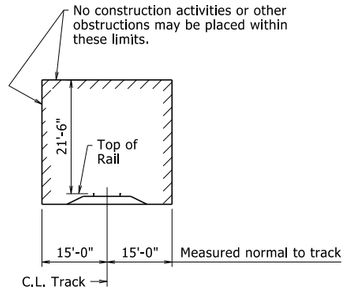
④ For staged construction, Temporary Precast Barrier (TPB) shall not be connected to the surface of the bridge deck. See Std. Dwg. TC-4 for additional details. Plastic drums shall be used in lieu of concrete barriers where shown in the Roadway Plans, see Std. Dwg. TC-3 for additional details.



Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod will not be required. Joint Sealer shall be measured and paid for as LMC Overlay. Longitudinal construction joints shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the overlay. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL OVERLAY CONSTRUCTION JOINT DETAIL

For Staged Construction



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

See Job SP "Insurance, Construction, and Flagging Requirements on Railroad Property" for additional railroad construction requirements.

If the hydrodemolition equipment blows through the deck and into a deck void, that area shall be the responsibility of the Contractor and shall be repaired at the Contractor's expense. The Contractor shall provide a method of handling unexpected blow through.

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 7, 2019. This copy is not a signed and sealed document.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications unless otherwise noted in the Plans.

Details shown are schematic. The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and fit the new work to the existing structure(s).

The operation or placement of vehicles, equipment, and/or materials on the subject bridge(s) necessary for the completion of this work shall be evaluated in accordance with Subsection 105.14. Certifications of the adequacy of all components for the anticipated loads shall address the capacity of the existing structure at all phases of this work.

Where applicable, construction activities for the existing bridge(s) over roadways and railroads shall be in accordance with the Job SP "Special Safety Requirements for Bridges" and as shown in "Minimum Construction Clearance Envelope".

⚠1 HYDRODEMOLITION: The entire roadway surface of the existing bridge deck and approach slabs and gutters, as applicable, shall receive hydrodemolition in accordance with the Job SP "Hydrodemolition - Class _" to a planned depth of 1½" below the existing bridge deck surface. Deteriorated concrete in the bridge deck below this depth shall be removed at the direction of the Engineer and up to the limits detailed. These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item Job SP "Hydrodemolition - Class _". Prior to hydrodemolition, cold milling of the concrete deck to a maximum depth of 1" will be allowed unless there will be a conflict with the existing reinforcing steel.

LATEX MODIFIED CONCRETE OVERLAY: The entire area of the hydrodemolition shall receive a Latex Modified Concrete (LMC) Overlay to a planned depth of 1½" below the existing bridge deck surface in accordance with Job SP "Latex Modified Concrete Overlay". These areas shall be measured by the square yard and shall be paid for at the unit price bid for the item Job SP "Latex Modified Concrete Overlay (1½" Thick"). Areas of the existing bridge deck removed at the direction of the Engineer to a depth greater than 1½" below the existing bridge deck surface shall be filled with LMC concurrent to the placement of the 1½" LMC Overlay. This area shall be measured and paid for in accordance with Job SP "Latex Modified Concrete Overlay".

GROOVED FINISH: The LMC Overlay surface of the bridge deck and approach slabs and gutters, as applicable, shall be given a grooved finish as specified for final finishing in Subsection 802.19 for Class 7 Grooved Bridge Roadway Surface Finish and in accordance with Job SP "Latex Modified Concrete Overlay".

PROTECTIVE SURFACE TREATMENT: The longitudinal joint between the LMC Overlay and the adjacent existing concrete curb or rail shall be given a Class 3 Protective Surface Treatment as specified in Section 803 and in accordance with Job SP "Latex Modified Concrete Overlay". The roadway surface of the completed LMC Overlay shall be given a Class 1 Protective Surface Treatment as specified in Section 803.

⚠2 JOINT REHABILITATION: After the placement of the LMC Overlay and if shown in the plans, the existing armored joints shall be given a poured silicone joint sealant as specified in Section 809 and as shown in "Poured Silicone Joint Seal Details" on Standard Drawing No. 55064, and the existing unarmored joints shall be given a Type A Joint Rehabilitation as specified in Section 509 and Job SP "Joint Rehabilitation for Bridge Decks". Backwall repair, if shown in the plans or as directed by the Engineer, shall be completed prior to installation of the joint sealant.

⚠1 Modified Hydrodemolition SP reference to include "- Class _".
By: KWY, Checked by: SWP; 1/9/2020.

⚠2 Modified Joint Rehabilitation to include armored joints.
By: KWY, Checked by: SWP; 6/25/2020.

NOTE: When "Very Early Strength Latex Modified Concrete Overlay (1½" Thick)" is shown in the plans for a particular bridge, all reference to "Latex Modified Concrete Overlay" and "LMC" on this sheet shall be considered synonymous with "Very Early Strength Latex Modified Concrete Overlay" and "VESLMC" for that bridge. See Job SP "Very Early Strength Latex Modified Concrete Overlay" for additional information.

STANDARD DETAILS FOR HYDRODEMOLITION AND LMC OVERLAY VOIDED CONCRETE SLAB STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

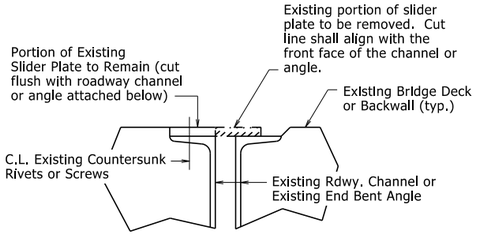
LITTLE ROCK, ARK.

DRAWN BY:	KWY	DATE:	11/7/2019	FILENAME:	b55063.dgn
CHECKED BY:	SWP	DATE:	11/7/2019	SCALE:	None
DESIGNED BY:	STD.	DATE:	-------		

DRAWING NO. 55063

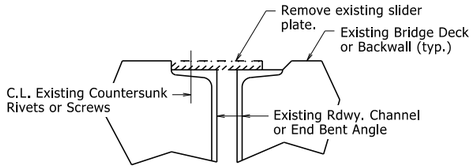
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				(1)	JOINT REPAIR - 55064			



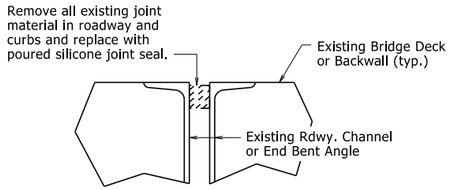
REMOVAL DETAILS AT EXISTING SLIDER PLATE JOINTS

At the direction of the Engineer, the portion of existing slider plate shown shall be removed and replaced with a new plate as shown in "SLIDER PLATE JOINT MODIFICATION". The portion of existing slider plate shall be removed and disposed of in accordance with Section 821. The cut face shall be ground square and flush with the face of the existing angle or channel. Removal and disposal of existing slider plate material will not be paid for directly, but shall be considered subsidiary to the item "Silicone Joint Sealant". Properly functioning slider plates need not be modified.



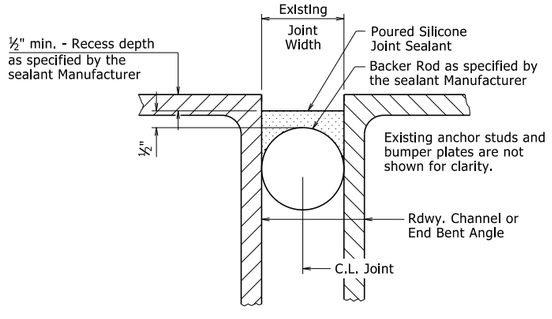
REMOVAL DETAILS AT EXISTING SLIDER PLATE JOINTS WITH GRADE RAISE

The existing slider plate shown shall be removed and replaced with new plates as shown in "JOINT MODIFICATION WITH GRADE RAISE". The existing slider plate shall be removed and disposed of in accordance with Section 821. Removal and disposal of existing slider plate material will not be paid for directly, but shall be considered subsidiary to the item "Silicone Joint Sealant".



REMOVAL DETAILS AT EXISTING FILLED JOINTS

The existing joint material shall be removed and disposed of in accordance with Section 821. Removal and disposal of existing joint material will not be paid for directly, but shall be considered subsidiary to the Item "Silicone Joint Sealant".



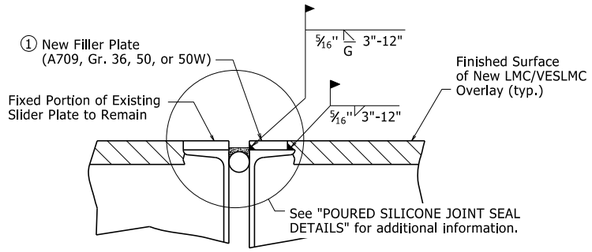
POURED SILICONE JOINT SEAL DETAILS

Existing Joint Seal shall be completely removed, backer rods placed, and Silicone Joint Sealant installed across the entire width of the bridge deck in accordance with these details, Section 809, and the Manufacturer's recommendations. Removal of existing Joint Seal will not be paid for directly, but shall be considered incidental to the item "Silicone Joint Sealant".

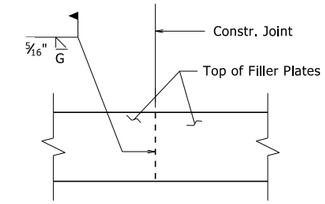
Backer rods shall be extended beyond the length of the poured joint in the initial joint repair area so that the two pieces can be properly spliced together prior to installing sealant for the adjacent joint repair. Manufacturer's recommendations shall be followed to prevent sealant leakage during repair work.

Backer rods shall be appropriately sized and set to the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Except as noted, do not install more backer rod than can be sealed in the same day. The Contractor shall verify separation of the backer rod from the joint material after joint material has set.

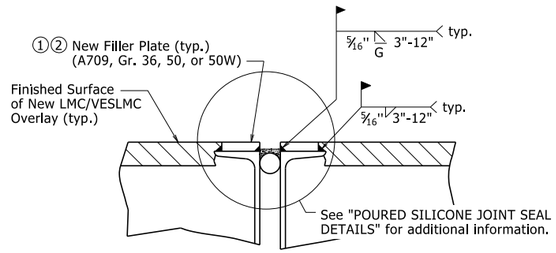
Backer rod shall be notched or otherwise fit around any existing seal supports or bumper plates to maintain its proper depth as defined above.



SLIDER PLATE JOINT MODIFICATION



PLAN VIEW OF FILLER PLATE

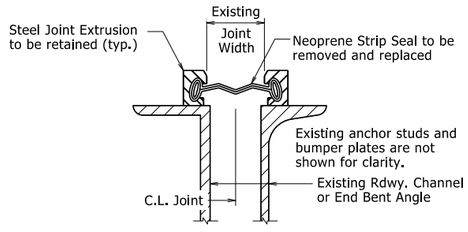


JOINT MODIFICATION WITH GRADE RAISE

① New field attached plates atop existing roadway channels or angles are required. The plate thickness shall be adjusted as necessary to match surface of finished surface of LMC/VESLMC Overlay and the width shall be ⅜" less than the existing channel flange or angle width to allow for fillet weld as shown.

All new Structural Steel shall be ASTM A709 (Gr. 36, 50, or 50W). The surfaces not in contact with concrete shall be cleaned and painted in accordance with Section 638. Only one coat of paint is required and shall be applied in the fabricator's shop. Grade 50W steel shall not be painted, but shall be cleaned in accordance with Subsection 807.84(e). Structural Steel and Painting will not be paid for directly, but shall be subsidiary to the item "Silicone Joint Sealant".

② Details shown are for an expansion joint where two bridge units meet. Eliminate filler plate on backwall and proceed with backwall repair in accordance with "BACKWALL REPAIR REMOVAL DETAIL" and "BACKWALL REPAIR INSTALLATION DETAIL" at end bents for bridge decks with grade raise, see Standard Drawing Number 55065.



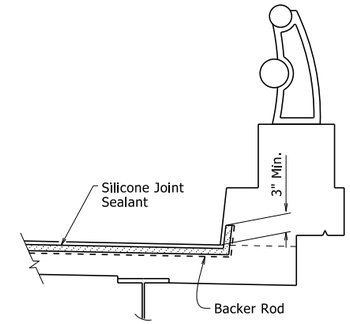
STRIP SEAL JOINT DETAILS

Existing neoprene strip seal joint material shall be completely removed and new neoprene strip seal joint material shall be installed across the entire width of the steel extrusions in accordance with these details, Section 809, and the Manufacturer's recommendations. Prior to installing the new joint material, the Contractor shall clean the steel extrusion at the Engineer's direction and in accordance with the new strip seal joint material Manufacturer's recommendations.

Removal and replacement of the existing neoprene strip seal joint material will require the removal of the parapet slider plates, where present. Parapet slider plates removed for this work shall be reinstalled after installation of the new neoprene strip seal joint material.

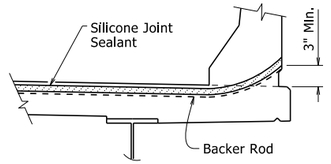
The new neoprene strip seal joint material shall provide a movement rating of four inches. The repaired expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

All work and material associated with removing the existing joint material, cleaning the extrusions, removal and reinstallation of parapet slider plates, and installation of new joint material shall be paid for under the item "Modification of Existing Bridge Structure (Bridge No. _)".

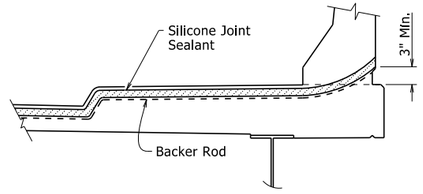


SILICONE JOINT SEAL PLACEMENT AT CURB

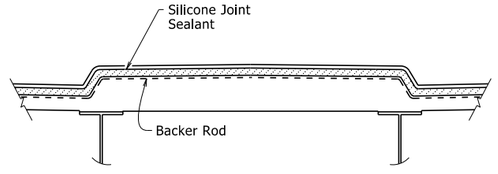
Vertical joints may require forming. The clearance from deck surface to joint material shall be maintained.



SILICONE JOINT SEAL PLACEMENT AT RAIL



SILICONE JOINT SEAL PLACEMENT AT SIDEWALK



SILICONE JOINT SEAL PLACEMENT AT MEDIAN

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR JOINT REPAIRS & MODIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

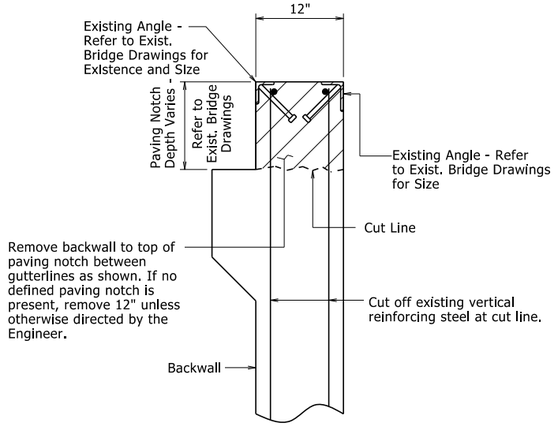
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DESIGNED BY: STD. DATE: -------

DRAWING NO. 55064

PRINT DATE: 11/4/2020

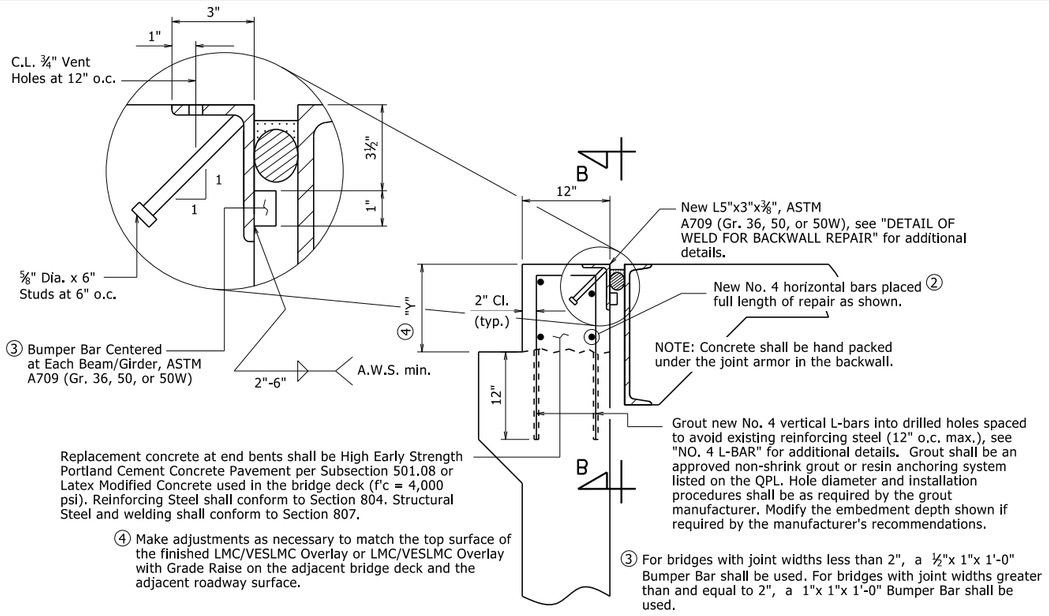
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

1 BACKWALL REPAIR - 55065



BACKWALL REPAIR REMOVAL DETAIL

The portion of the backwall above the paving bracket as shown shall be removed and disposed of in accordance with Section 821. Payment for all materials, labor, tools, and equipment required for this work will be inclusive to the item "Modification of Existing Bridge Structure (Bridge No. _)".



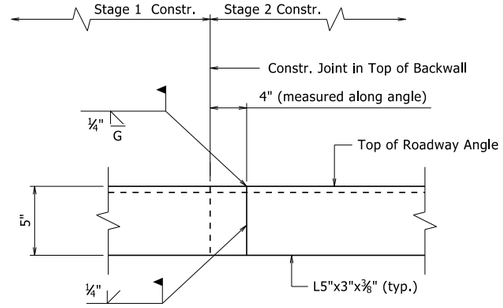
Replacement concrete at end bents shall be High Early Strength Portland Cement Concrete Pavement per Subsection 501.08 or Latex Modified Concrete used in the bridge deck (f'c = 4,000 psi). Reinforcing Steel shall conform to Section 804. Structural Steel and welding shall conform to Section 807.

④ Make adjustments as necessary to match the top surface of the finished LMC/VESLMC Overlay or LMC/VESLMC Overlay with Grade Raise on the adjacent bridge deck and the adjacent roadway surface.

③ For bridges with joint widths less than 2", a ½"x 1"x 1'-0" Bumper Bar shall be used. For bridges with joint widths greater than and equal to 2", a 1"x 1"x 1'-0" Bumper Bar shall be used.

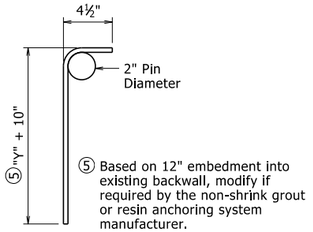
BACKWALL REPAIR INSTALLATION DETAIL

The portion of the backwall above the paving bracket shall be reconstructed as shown. Payment for all materials, labor, tools, and equipment required for this work will be inclusive to the item "Modification of Existing Bridge Structure (Bridge No. _)". Details shown for LMC/VESLMC Overlay without grade raise; details similar for LMC/VESLMC Overlay with grade raise.

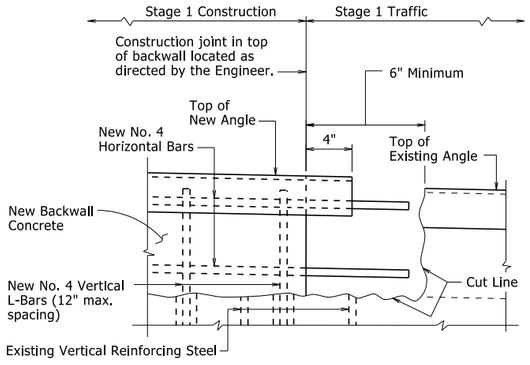


NOTE: All welding shall be done after the Stage 1 concrete pour and prior to the Stage 2 concrete pour.

① DETAIL OF WELD FOR BACKWALL REPAIR

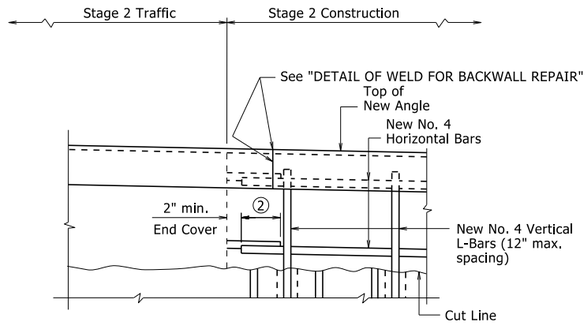


NO. 4 L-BAR



① VIEW B-B, STAGE 1

Details shown for LMC/VESLMC Overlay with grade raise; details similar for LMC /VESLMC Overlay without grade raise.



① VIEW B-B, STAGE 2

① Details shown are typical for staged construction. When full width rehabilitation of a bridge deck is possible, eliminate construction joint shown and perform the backwall repair in one operation for full repair width.

② The 32 bar diameter minimum lap per Subsection 804.07 may be waived if this requirement cannot be met due to construction conditions. In this situation, the lap length shall be maximized as much as practical.

PRINT DATE: 11/4/2020

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 7, 2019. This copy is not a signed and sealed document.

STANDARD DETAILS FOR BACKWALL REPAIRS

ARKANSAS STATE HIGHWAY COMMISSION

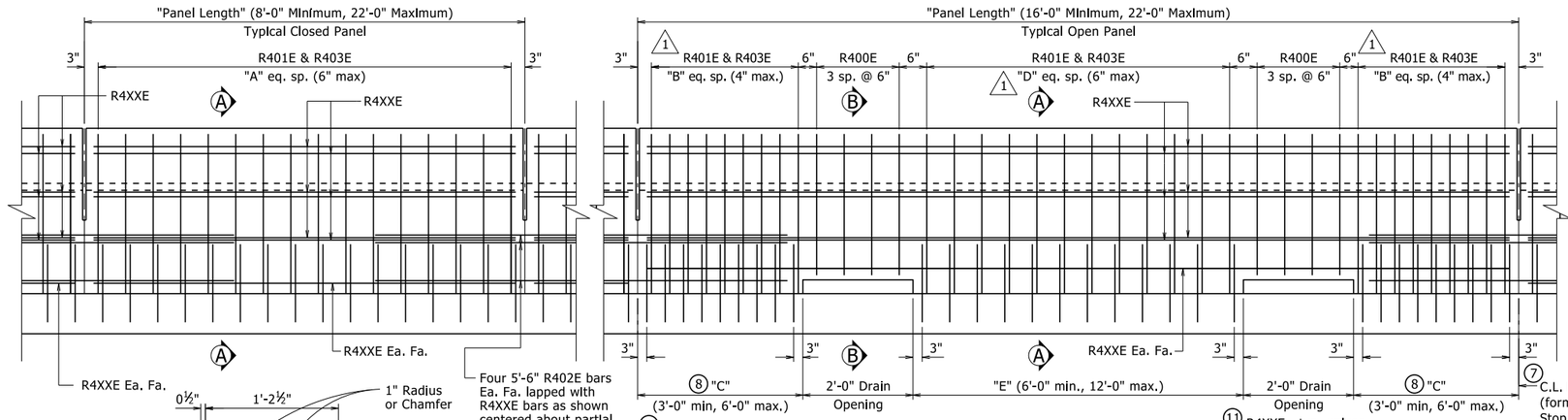
LITTLE ROCK, ARK.

DRAWN BY:	KWY	DATE:	11/7/2019	FILENAME:	b55065.dgn
CHECKED BY:	SWP	DATE:	11/7/2019	SCALE:	None
DESIGNED BY:	STD.	DATE:	-------		

DRAWING NO. 55065

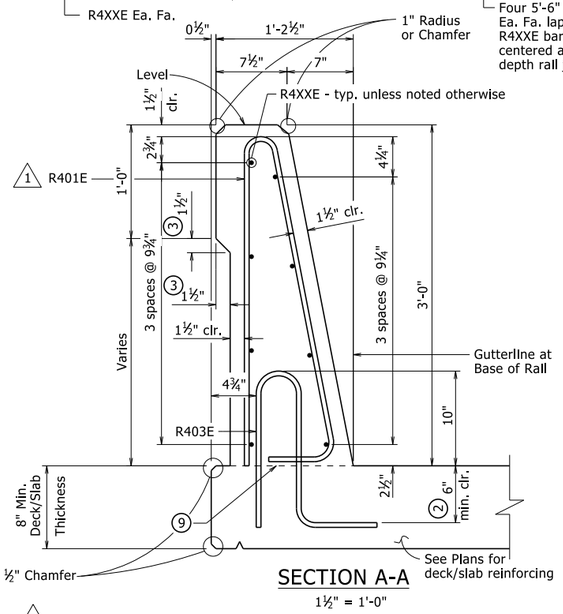
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
09/27/2022				6	ARK.			
				JOB NO.				

TYPE SSTR36 - 55070



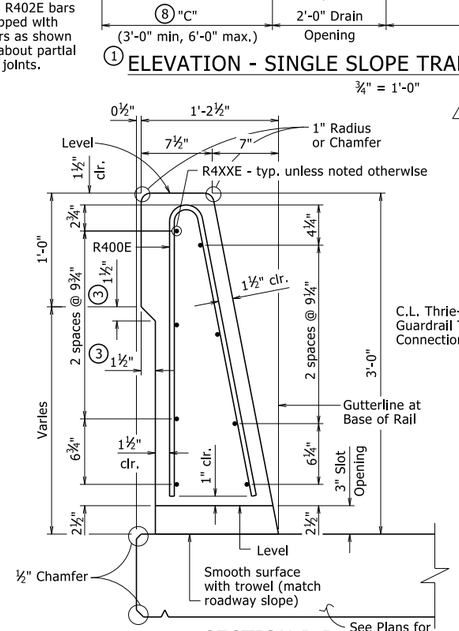
① ELEVATION - SINGLE SLOPE TRAFFIC RAIL

¾" = 1'-0"



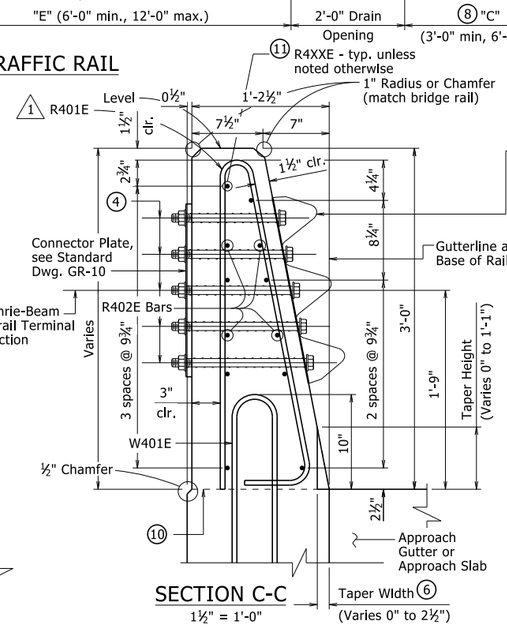
SECTION A-A

1½" = 1'-0"



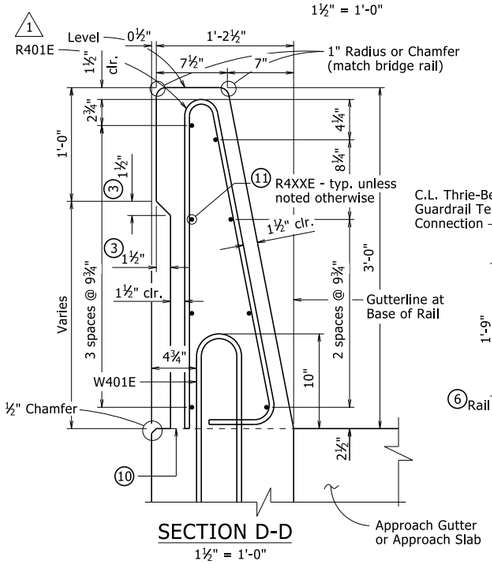
SECTION B-B

1½" = 1'-0"



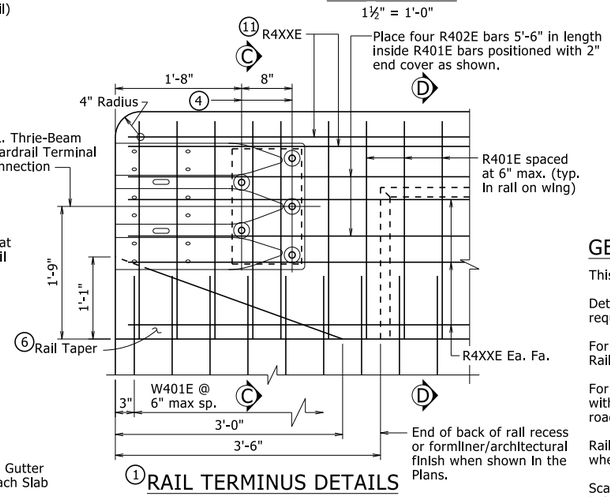
SECTION C-C

1½" = 1'-0"



SECTION D-D

1½" = 1'-0"



① RAIL TERMINUS DETAILS

1" = 1'-0"

⑦ C.L. Full-Depth Rail Joint (formed width ¼" to 1" max). Stop 6" from top of deck/slab or sidewalk. Place at all intermediate bents locations where rail is continuous.

⑦ C.L. Partial-Depth Rail Joint (formed width ¼" to 1" max). Stop 16" from top of deck/slab or sidewalk. Place at all remaining locations other than at intermediate bents.

① All measurements shown are along gutterline at base of rail.

② Minimum embedment into deck/slab.

③ Eliminate recess when formliner with architectural finish is used. See Plans for additional information.

④ C.L. 1" ø formed holes for ⅞" ø bolts. See Standard Drawings GR-10 and GR-12 for additional information.

⑤ Only applicable for bridges with rail cast directly on bridge deck/slab surface. Increase height as necessary for sidewalks, see Plans for additional information.

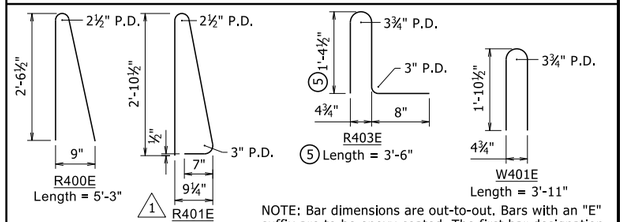
⑥ Field bend front leg of R401E bar as required to maintain minimum 1½" front face clearance within limits of taper.

⑦ When optional slip forming is used: to control cracking, all rail joints must be V-grooved around the perimeter of the rail prior to concrete set and sawing. Depth of V-groove shall be ½". Sawing of the joints shall be done as soon as practical to a width of ¼", and must be controlled so it will follow the V-Groove.

⑧ End posts shall be the same length within a panel.

Bolt Special End Shoe to face of rail as shown. Tapered washers are not required between the head of the bolts and the sloped face of the rail. Tighten the five terminal connection bolts in a well distributed pattern to prevent damage or distortion of the thrie-beam connection. Cut bolts off after installation so as to extend no more than ¾" beyond nut. Paint ends of cut-off bolts with zinc-rich paint. This work and material will not be paid for directly but shall be considered subsidiary to associated contract items.

BENDING DIAGRAM



NOTE: Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated. The first bar designation number indicates the reinforcing bar size.

⑨ Required Construction Joint. Level where water flows away from rail, match roadway slope where water flows toward rail.

⑩ Top of Abutment Wing & Required Construction Joint (match bridge deck/slab construction joint slope). See Plans for Wing reinforcing.

⑪ These bars will not be included in the "Table of Variables". See Plans for details.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE

See Plans for table with values.

GENERAL NOTES

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria.

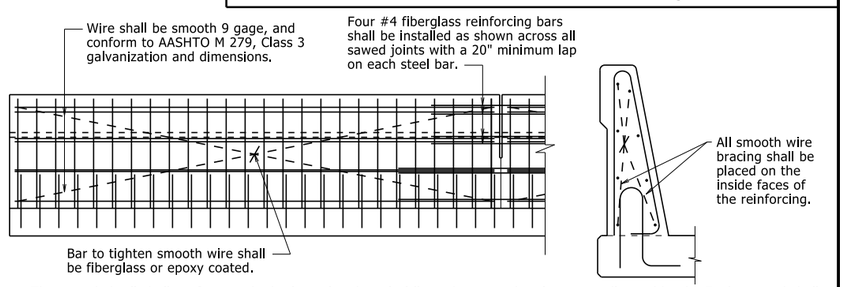
Details shown are general for bridges without sidewalks. See Plans for additional details and requirements specific to bridges with sidewalks.

For Table of Variables, Rail Bar List, locations of Full and Partial Depth Rail Joints, and Wing & Rail Bar Lists, see Plans.

For location of drain openings, see Plans. Drain openings shown are not applicable for bridges with sidewalks. Drain openings will not be allowed over Railroad Right of Way, travelled roadways, and protected waterways.

Rail Terminus details, including Rail Taper, are not applicable for bridges with sidewalks or when bridge railing is continuous with roadway railing.

Scales shown are for 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.



The extruded rail shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish in place of Class 2, Rubbed Finish.

All panels shall be braced as required to prevent racking.

Slip forming will not be allowed on bridges where formliner with architectural treatment is used unless approval from the Engineer is obtained.

DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

No Scale

△1 Modified bending diagram and spacing for R401E bar.

By: CGP, Checked by: CMW 09/27/2022

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on November 5, 2020. This copy is not a signed and sealed document.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36

ARKANSAS STATE HIGHWAY COMMISSION

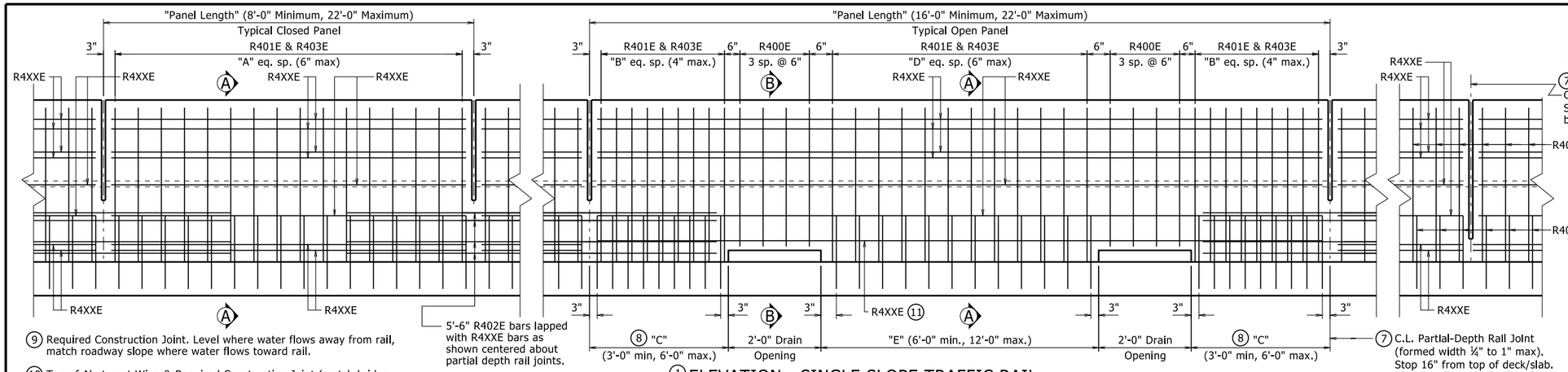
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 11/5/2020
CHECKED BY: LJB DATE: 11/5/2020
DESIGNED BY: STD. DATE: -----
FILENAME: b55070.dgn
SCALE: As Noted

DRAWING NO. 55070

PRINT DATE: 10/6/2022

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		TYPE SSTR42 - 55071				



1 ELEVATION - SINGLE SLOPE TRAFFIC RAIL

9 Required Construction Joint. Level where water flows away from rail, match roadway slope where water flows toward rail.

10 Top of Abutment Wing & Required Construction Joint (match bridge deck/slab construction joint slope). See Plans for Wing reinforcing.

11 These bars shall be raised up over drain opening as shown in "SECTION B-B".

1 All measurements shown are along gutterline at base of rail.

2 Minimum embedment into deck/slab.

3 Eliminate recess when formliner with architectural finish is used. See Plans for additional information.

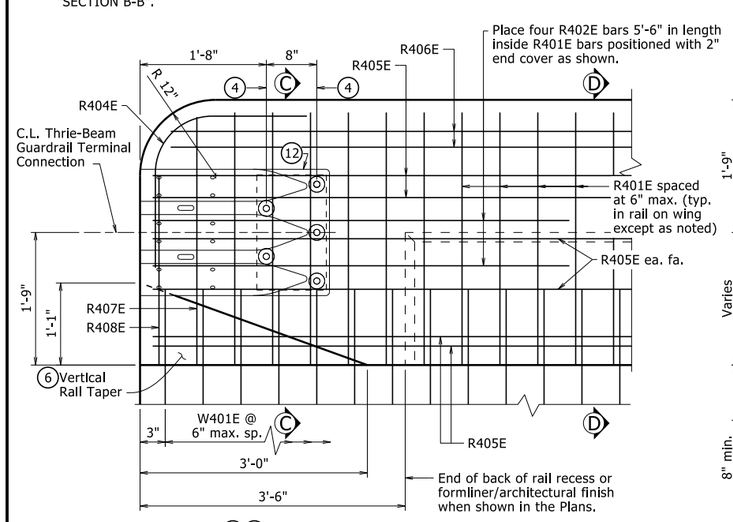
4 C.L. 1" ø formed holes for ⅞" ø bolts. See Standard Drawings GR-10 and GR-12 for additional information.

5 These bars will not be included in the "TABLE OF VARIABLES", see plans for additional information.

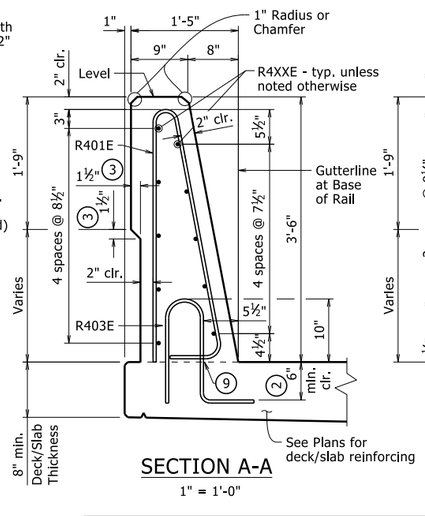
6 Field bend front leg of R401E bar as required to maintain minimum 1½" front face clearance within limits of taper.

7 When optional slip forming is used: to control cracking, all rail joints must be V-grooved around the perimeter of the rail prior to concrete set and sawing. Depth of V-groove shall be ½". Sawing of the joints shall be done as soon as practical to a width of ¼", and must be controlled so it will follow the V-Groove.

8 End posts shall be the same length within a panel.

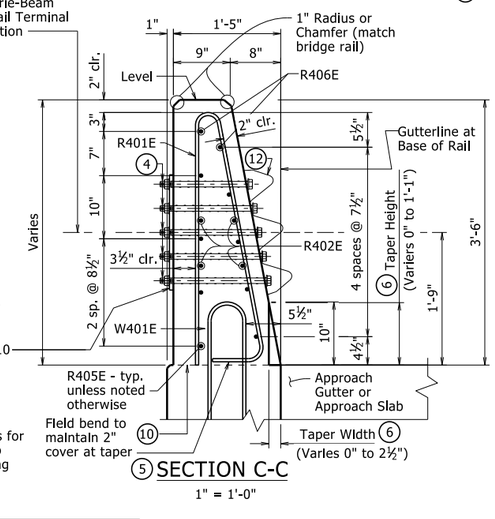


1 5 RAIL TERMINUS DETAIL
1" = 1'-0"

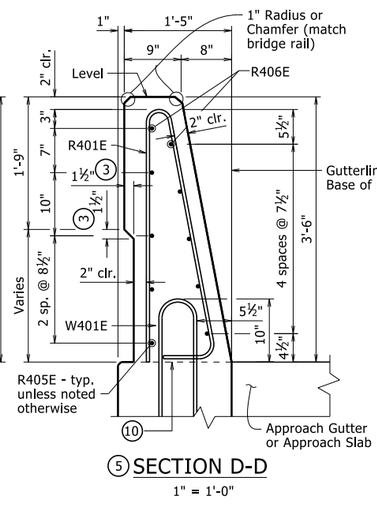


SECTION A-A
1" = 1'-0"

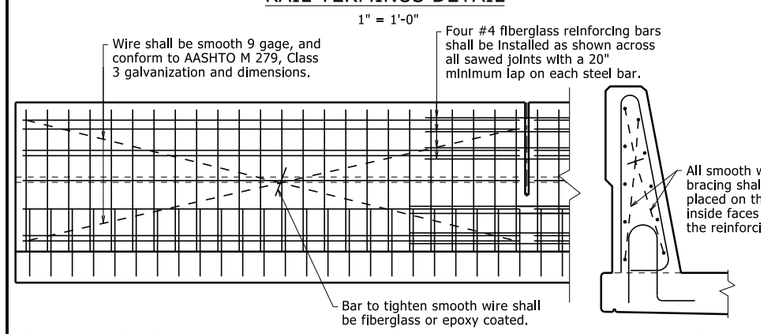
SECTION B-B
1" = 1'-0"



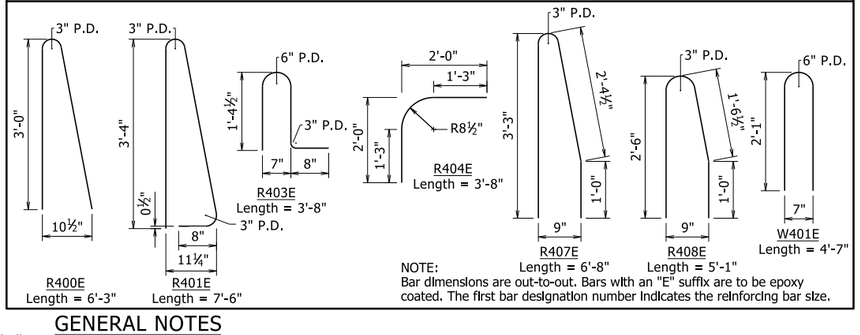
5 SECTION C-C
1" = 1'-0"



5 SECTION D-D
1" = 1'-0"



BENDING DIAGRAM



12 Bolt Special End Shoe to face of rail as shown. Tapered washers are not required between the head of the bolts and the sloped face of the rail. Tighten the five terminal connection bolts in a well distributed pattern to prevent damage or distortion of the thrie-beam connection. Cut bolts off after installation so as to extend no more than ⅜" beyond nut. Paint ends of cut-off bolts with zinc-rich paint. This work and material will not be paid for directly but shall be considered subsidiary to associated contract items.

TABLE OF VARIABLES

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE

See Plans for table with values.

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on July 06, 2022. This copy is not a signed and sealed document.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

GENERAL NOTES

The extruded rail shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish in place of Class 2, Rubbed Finish.

All panels shall be braced as required to prevent racking.

Slip forming will not be allowed on bridges where formliner with architectural treatment is used unless approval from the Engineer is obtained.

DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

No Scale

This rail has been evaluated and accepted to be of equal strength to railings with similar geometry, which have been evaluated by full-scale crash test to meet MASH TL-4 criteria.

For Table of Variables, Rail Bar List, locations of Full and Partial Depth Rail Joints, and Wing & Rail Bar Lists, see Plans.

For location of drain openings, see Plans. Drain openings will not be allowed over Railroad Right of Way, travelled roadways, and protected waterways.

Rail Terminus details, including Rail Taper, are not applicable when bridge railing is continuous with roadway railing.

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR42

ARKANSAS STATE HIGHWAY COMMISSION

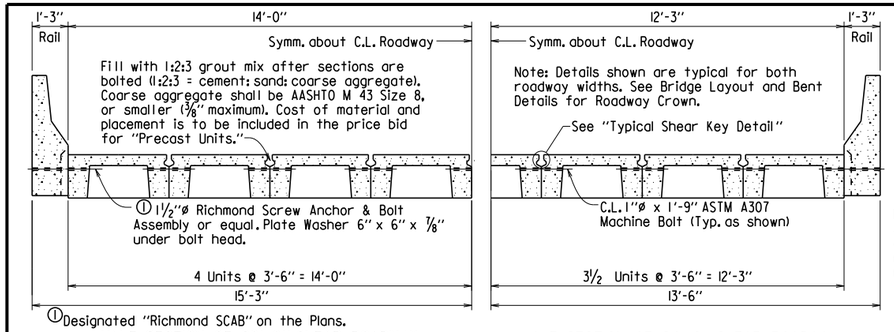
LITTLE ROCK, ARK.

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CHECKED BY: CMW DATE: 07/01/2022 SCALE: AS NOTED
DESIGNED BY: STD. DATE: -

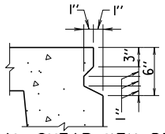
DRAWING NO. 55071

PRINT DATE: 10/7/2022

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
5-24-17				6	ARK.			
				JOB NO.				
				①	19' PRECAST SPAN - 55080			



①Designated "Richmond SCAB" on the Plans.



TYPICAL SHEAR KEY DETAIL

No Scale

Note: All corners exposed after erection shall have a ½" minimum chamfer. All other corners shall have sufficient chamfer or rounding to prevent breakage during form removal, handling and erection.

BAR LIST FOR PRECAST BRIDGE COMPONENTS

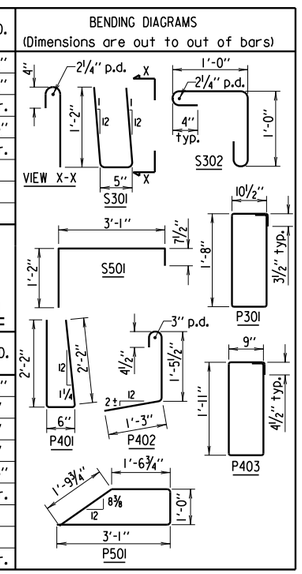
PER PRECAST UNIT

MARK	NUMBER REQUIRED		LENGTH	P.D.	BENDING DIAGRAMS (Dimensions are out to out of bars)
	CURB UNIT	INT. UNIT			
S301	82	82	3'-5½"	1½"	
S302	4	4	2'-9"	1½"	
S401	8	8	3'-2"	Str.	
S501	18 ③	-	4'-8"	2½"	
S801	6	6	18'-8"	Str.	

③ Plus 6 additional for each Drain Slot eliminated

PER PRECAST PARAPET RAIL

MARK	NUMBER REQUIRED		LENGTH	P.D.
	END SPAN	INT. SPAN		
P301	See Std. Dwg. No. 55083	6	5'-4"	1½"
P401		34	4'-8"	2"
P402		20	3'-1½"	2"
P403		20	5'-8"	2"
P501		14	7'-2"	2½"
P502		9	18'-8"	Str.
P801		2	18'-8"	Str.

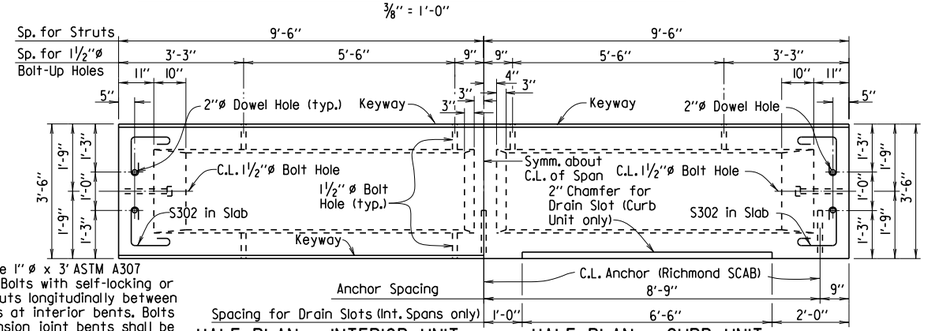


TYPICAL SECTION OF PRECAST RDWY. (SHOWING ASSEMBLY)

⅜" = 1'-0"

HALF-SECTION OF 28'-0" CLEAR ROADWAY

HALF-SECTION OF 24'-6" CLEAR ROADWAY



Note: Use 1" ø x 3' ASTM A307 Machine Bolts with self-locking or double nuts longitudinally between all spans at interior bents. Bolts at expansion joint bents shall be loosely installed to allow approx. ½" of thermal movement. All other bolts shall be installed to snug tight.

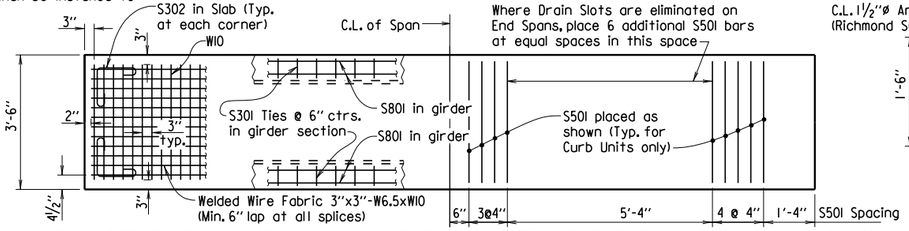
HALF PLAN - INTERIOR UNIT

½" = 1'-0"

HALF PLAN - CURB UNIT

½" = 1'-0"

Where Drain Slots are eliminated on End Spans, place 6 additional S501 bars at equal spaces in this space

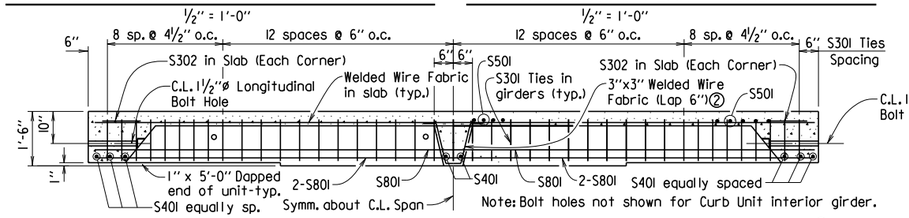


HALF REINFORCING PLAN - CURB & INT. UNITS

½" = 1'-0"

HALF REINFORCING PLAN - CURB UNIT ONLY

½" = 1'-0"



Note: Bolt holes not shown for Curb Unit interior girder.

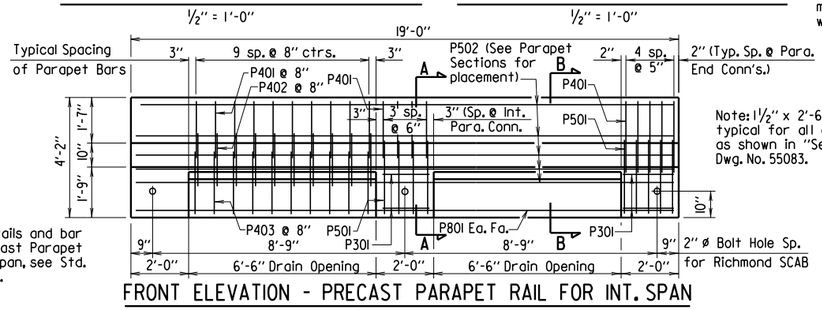
HALF LONGIT. SECTION - INTERIOR UNIT

½" = 1'-0"

HALF LONGIT. SECTION - CURB UNIT

½" = 1'-0"

②5 - No. 3 Stirrups @ 6" ctrs. may be used in place of wire fabric in strut.

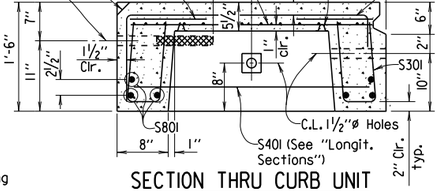


Note: For details and bar list for Precast Parapet Rail at End Span, see Std. Dwg. No. 55083.

Note: 1½" x 2'-6" Richmond SCAB typical for all connections except as shown in "Section A-A", Std. Dwg. No. 55083.

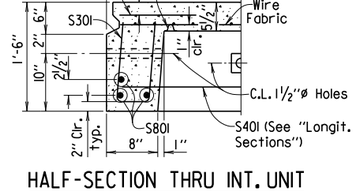
FRONT ELEVATION - PRECAST PARAPET RAIL FOR INT. SPAN

⅜" = 1'-0"



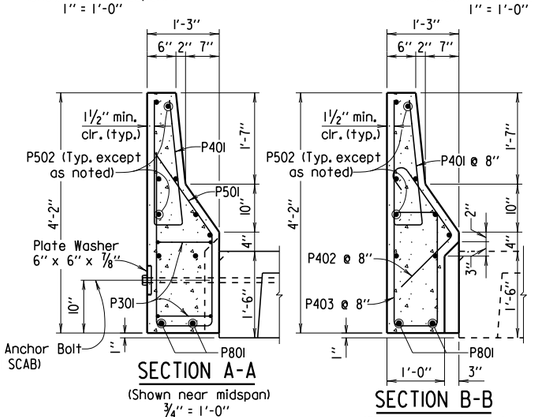
SECTION THRU CURB UNIT

(Shown near midspan)
1" = 1'-0"



HALF-SECTION THRU INT. UNIT

(Shown near midspan)
1" = 1'-0"

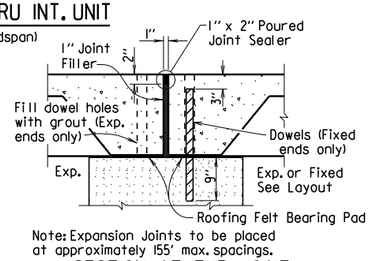


SECTION A-A

(Shown near midspan)
¾" = 1'-0"

SECTION B-B

(Shown near midspan)
¾" = 1'-0"

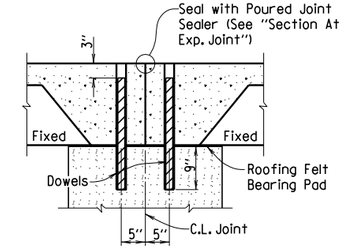


Note: Expansion Joints to be placed at approximately 155' max. spacings.

SECTION AT EXP. JOINT

¾" = 1'-0"

Note: 1" Expansion Joint shall consist of 1" Joint Filler topped with 1" x 2" Poured Joint Sealer. Joint Filler shall be AASHTO M 153, Type I. Poured Joint Sealer shall meet Subsection 501.02(h) (2), Type 3 or 4.



Note: After each unit is in its final position, dowels shall be grouted in place using a QPL approved non-shrink grout that completely fills the holes. See bent drawings for more information.

SECTION AT FIXED BENT

¾" = 1'-0"

GENERAL NOTES

Design Specifications: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014).

Unless otherwise noted, Section and Subsection refer to the Standard Construction Specifications.

Live Loading: HL-93

Materials: 28 Day compressive strength of Concrete = 4,000 psi
Yield strength of Grade 60 Steel = 60,000 psi
Yield strength of Wire Fabric = 65,000 psi

All Reinforcing steel shall be Grade 60, AASHTO M 31 or M 322, Type A with mill test reports. Wire fabric shall be AASHTO M 55 or M 221. Reinforcing steel and wire fabric shall be accurately located in the forms and securely held in place by steel wire supports.

Concrete for precast units shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M 43, Size 67 (¾" Max.).

The deck shall be given a tine finish as specified for Class 5 Roadway Surface Finish in Subsection 802.19.

Standard washers shall be provided under head and nut of all bolts in connection with concrete. Bolts shall be A307. All bolts, washers and nuts shall be galvanized to meet AASHTO M 232, Class C or ASTM B695, Class 50.

Screw Anchor and Bolt Assembly (SCAB) shall be 1½"ø Richmond Screw Anchor or equal, and have a minimum ultimate strength of 65,000 psi in tension. Assembly shall be galvanized to meet AASHTO M 232, Class C or ASTM B695, Class 50. Plate Washers for SCAB shall be AASHTO M 270, Grade 36 and shall be galvanized to meet AASHTO M 111.

Camber required for dead load deflection is ¼". Deviation of more than ¼" in dimension of grade or line will be cause for rejection.

Ends of adjacent units shall be coated (1/16" +/-) with asphaltic paint. The coating shall adhere and set firm and its softening point shall not be less than 140°F.

Concrete, reinforcing, wire mesh, bar supports, bolts, nuts, washers, threaded anchors, grout, roofing felt bearing pad, asphaltic paint and expansion joint fillers are considered subsidiary to the pay items for Precast Concrete Units.

⚠ Roofing felt shall meet or exceed the requirements of ASTM D6380 Class S Type IV. The roofing felt shall be in one piece for the full length of the cap and three layers shall be used.

Pay Items shall be as follows:
"19' Precast Concrete Curb Units"
"19' Precast Concrete Interior Units"
"19' Precast Parapet Rail Units"

⚠ Revised Roofing Felt specification and note 5-24-17 PGT Checked By: KWY

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on February 25, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR 19'-0" PRECAST CONCRETE SPANS 28'-0" AND 24'-6" CLEAR ROADWAYS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

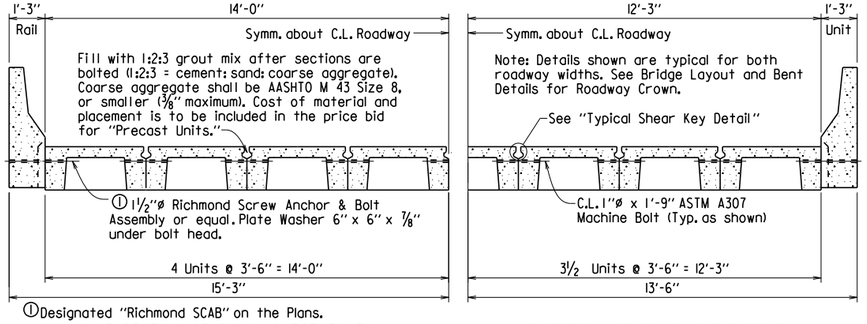
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CHECKED BY:	KWY	DATE:	2-4-16	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:			

DRAWING NO. 55080

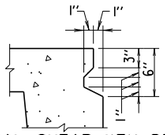
PRINT DATE: 11/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
5-24-17				6	ARK.			
				JOB NO.				

① 25' PRECAST SPAN - 55081



①Designated "Richmond SCAB" on the Plans.



TYPICAL SHEAR KEY DETAIL

No Scale

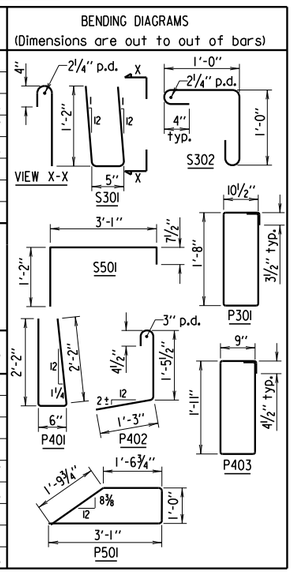
Note: All corners exposed after erection shall have a ½" minimum chamfer. All other corners shall have sufficient chamfer or rounding to prevent breakage during form removal, handling and erection.

BAR LIST FOR PRECAST BRIDGE COMPONENTS

PER PRECAST UNIT

MARK	NUMBER REQUIRED		LENGTH	P.D.
	CURB UNIT	INT. UNIT		
S301	106	106	3'-5½"	1½"
S302	4	4	2'-9"	1½"
S401	10	8	3'-2"	Str.
S501	26 ③	-	4'-8"	2½"
S1001	6	6	24'-8"	Str.

BENDING DIAGRAMS (Dimensions are out to out of bars)



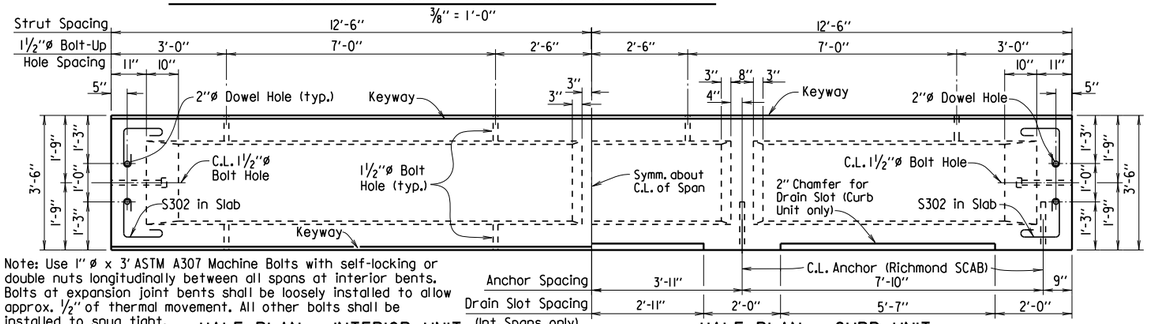
③ Plus 7 additional for each Drain Slot eliminated

PER PRECAST PARAPET RAIL

MARK	NUMBER REQUIRED		LENGTH	P.D.
	END SPAN	INT. SPAN		
P301	See Std. Dwg. No. 55083	8	5'-4"	1½"
P401		45	4'-8"	2"
P402		27	3'-1½"	2"
P403		27	5'-8"	2"
P501		18	7'-2"	2½"
P502		9	24'-8"	Str.
P901		2	24'-8"	Str.

TYPICAL SECTION OF PRECAST RDWY. (SHOWING ASSEMBLY)

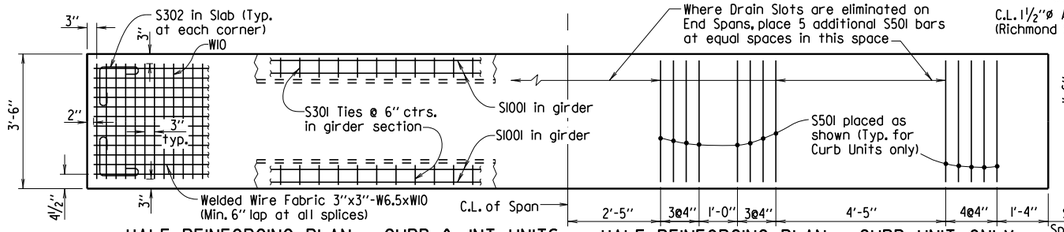
HALF-SECTION OF 28'-0" CLEAR ROADWAY — HALF-SECTION OF 24'-6" CLEAR ROADWAY



Note: Use 1" ø x 3' ASTM A307 Machine Bolts with self-locking or double nuts longitudinally between all spans at interior bents. Bolts at expansion joint bents shall be loosely installed to allow approx. ½" of thermal movement. All other bolts shall be installed to snug tight.

HALF PLAN - INTERIOR UNIT

½" = 1'-0"

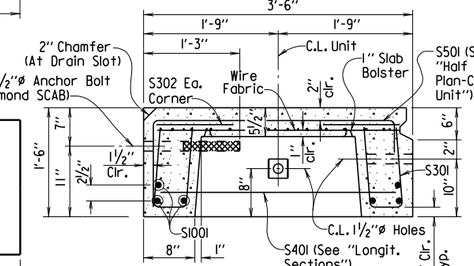


HALF REINFORCING PLAN - CURB & INT. UNITS

½" = 1'-0"

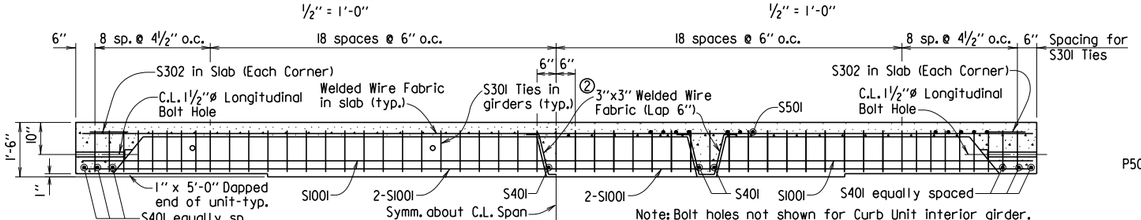
HALF PLAN - CURB UNIT

½" = 1'-0"



HALF REINFORCING PLAN - CURB UNIT ONLY

½" = 1'-0"



Note: Bolt holes not shown for Curb Unit interior girder.

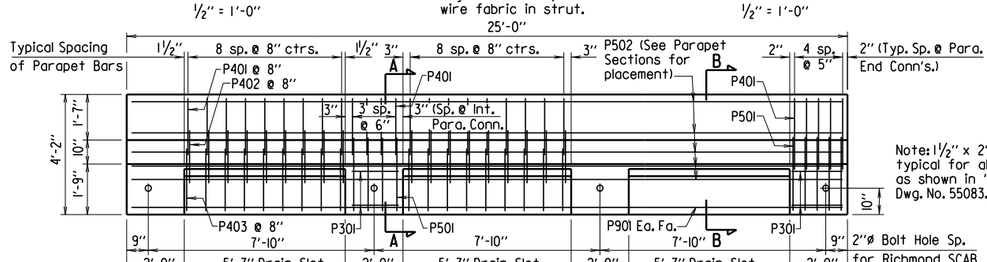
② 5 - No. 3 Stirrups @ 6" ctrs. may be used in place of wire fabric in strut.

HALF LONGIT. SECTION - INTERIOR UNIT

½" = 1'-0"

HALF LONGIT. SECTION - CURB UNIT

½" = 1'-0"



Note: For details and bar list for Precast Parapet Rail at End Span, see Std. Dwg. No. 55083.

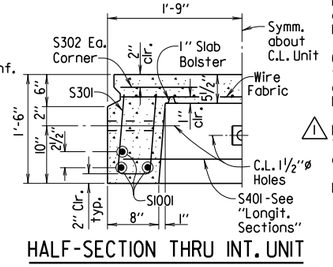
FRONT ELEVATION - PRECAST PARAPET RAIL FOR INT. SPAN

⅜" = 1'-0"

Note: 1½" x 2'-6" Richmond SCAB typical for all connections except as shown in "Section A-A", Std. Dwg. No. 55083.

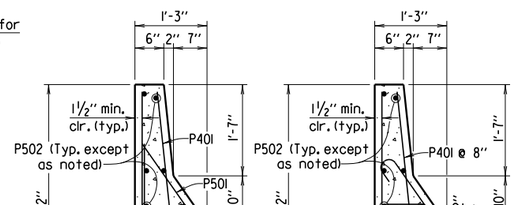
SECTION THRU CURB UNIT

(Shown near midspan)
1" = 1'-0"



HALF-SECTION THRU INT. UNIT

(Shown near midspan)
1" = 1'-0"

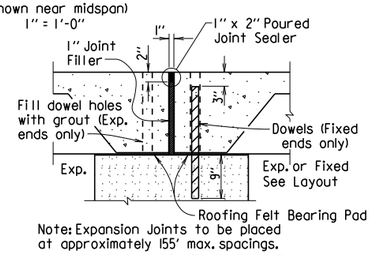


SECTION A-A

(Shown near midspan)
¾" = 1'-0"

SECTION B-B

(Shown near midspan)
¾" = 1'-0"

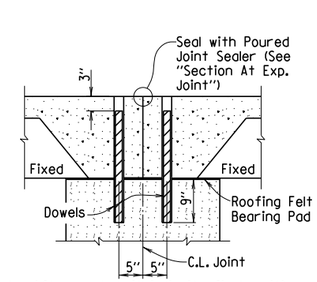


Note: Expansion Joints to be placed at approximately 155' max. spacings.

SECTION AT EXP. JOINT

¾" = 1'-0"

Note: 1" Expansion Joint shall consist of 1" Joint Filler topped with 1" x 2" Poured Joint Sealer. Joint Filler shall be AASHTO M 153, Type I. Poured Joint Sealer shall meet Subsection 501.02(h) (2), Type 3 or 4.



Note: After each unit is in its final position, dowels shall be grouted in place using a QPL approved non-shrink grout that completely fills the holes. See bent drawings for more information.

SECTION AT FIXED BENT

¾" = 1'-0"

GENERAL NOTES

Design Specifications: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014).

Unless otherwise noted, Section and Subsection refer to the Standard Construction Specifications.

Live Loading: HL-93

Materials: 28 Day compressive strength of Concrete = 4,000 psi
Yield strength of Grade 60 Steel = 60,000 psi
Yield strength of Wire Fabric = 65,000 psi

All Reinforcing steel shall be Grade 60, AASHTO M 31 or M 322, Type A with mill test reports. Wire fabric shall be AASHTO M 55 or M 221. Reinforcing steel and wire fabric shall be accurately located in the forms and securely held in place by steel wire supports.

Concrete for precast units shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M 43, Size 67 (¾" Max.).

The deck shall be given a tine finish as specified for Class 5 Roadway Surface Finish in Subsection 802.19.

Standard washers shall be provided under head and nut of all bolts in connection with concrete. Bolts shall be A307. All bolts, washers and nuts shall be galvanized to meet AASHTO M 232, Class C or ASTM B695, Class 50.

Screw Anchor and Bolt Assembly (SCAB) shall be 1½"ø Richmond Screw Anchor or equal, and have a minimum ultimate strength of 65,000 psi in tension. Assembly shall be galvanized to meet AASHTO M 232, Class C or ASTM B695, Class 50. Plate Washers for SCAB shall be AASHTO M 270, Grade 36 and shall be galvanized to meet AASHTO M 111.

Camber required for dead load deflection is ¼". Deviation of more than ¼" in dimension of grade or line will be cause for rejection.

Ends of adjacent units shall be coated (1/16" +/-) with asphaltic paint. The coating shall adhere and set firm and its softening point shall not be less than 140°F.

Concrete, reinforcing, wire mesh, bar supports, bolts, nuts, washers, threaded anchors, grout, roofing felt bearing pad, asphaltic paint and expansion joint fillers are considered subsidiary to the pay items for Precast Concrete Units.

⚠1 Roofing felt shall meet or exceed the requirements of ASTM D6380 Class S Type IV. The roofing felt shall be in one piece for the full length of the cap and three layers shall be used.

Pay Items shall be as follows:
"25' Precast Concrete Curb Units"
"25' Precast Concrete Interior Units"
"25' Precast Parapet Rail Units"

⚠1 Revised Roofing Felt specification and note 5-24-17 PGT Checked By: KWY

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on February 25, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
BRIDGE ENGINEER

STANDARD DETAILS FOR 25'-0" PRECAST CONCRETE SPANS 28'-0" AND 24'-6" CLEAR ROADWAYS

ARKANSAS STATE HIGHWAY COMMISSION

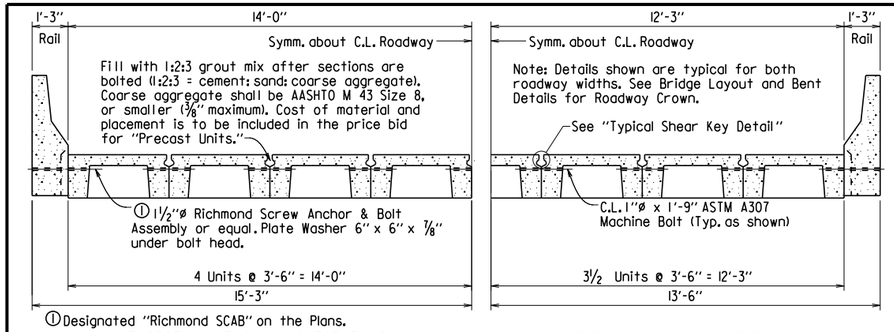
LITTLE ROCK, ARK.

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CHECKED BY: KWY DATE: 2-4-16
DESIGNED BY: STD. DATE:
FILENAME: b5508Ldgn
SCALE: AS NOTED

DRAWING NO. 55081

PRINT DATE: 11/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
5-24-17				6	ARK.			
				JOB NO.				
				①	31' PRECAST SPAN - 55082			



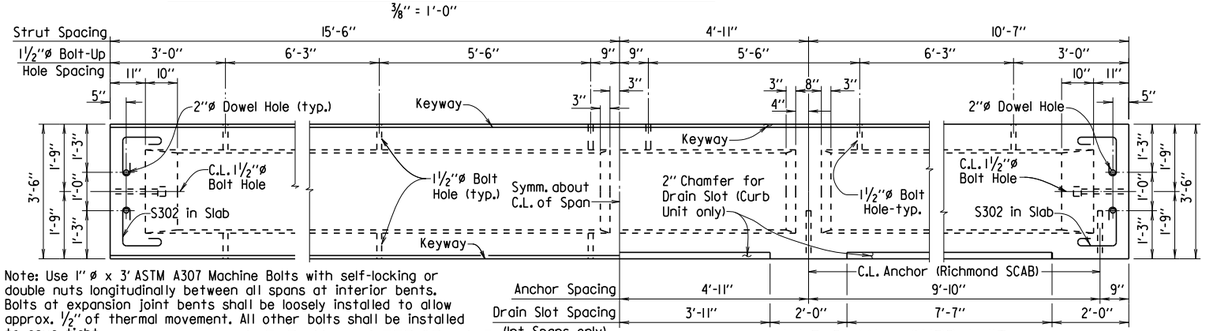
① Designated "Richmond SCAB" on the Plans.

HALF-SECTION OF 28'-0" CLEAR ROADWAY

HALF-SECTION OF 24'-6" CLEAR ROADWAY

TYPICAL SECTION OF PRECAST RDWY. (SHOWING ASSEMBLY)

⅜" = 1'-0"



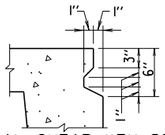
Note: Use 1" ø x 3' ASTM A307 Machine Bolts with self-locking or double nuts longitudinally between all spans at interior bents. Bolts at expansion joint bents shall be loosely installed to allow approx. ½" of thermal movement. All other bolts shall be installed to snug tight.

HALF PLAN - INTERIOR UNIT

½" = 1'-0"

HALF PLAN - CURB UNIT

½" = 1'-0"



TYPICAL SHEAR KEY DETAIL

No Scale

Note: All corners exposed after erection shall have a ½" minimum chamfer. All other corners shall have sufficient chamfer or rounding to prevent breakage during form removal, handling and erection.

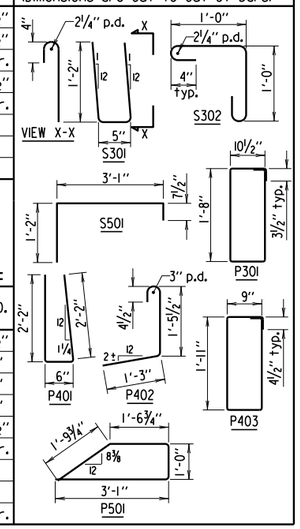
BAR LIST FOR PRECAST BRIDGE COMPONENTS

PER PRECAST UNIT

MARK	NUMBER REQUIRED CURB UNIT	NUMBER REQUIRED INT. UNIT	LENGTH	P.D.
S301	130	130	3'-5½"	1½"
S302	4	4	2'-9"	1½"
S401	10	8	3'-2"	Str.
S501	26 ③	-	4'-8"	2½"
S1001	8	8	30'-8"	Str.

③ Plus 7 additional for each Drain Slot eliminated

BENDING DIAGRAMS (Dimensions are out to out of bars)



PER PRECAST PARAPET RAIL

MARK	NUMBER REQUIRED END SPAN	NUMBER REQUIRED INT. SPAN	LENGTH	P.D.
P301	See Std. Dwg. No. 55083	8	5'-4"	1½"
P401		54	4'-8"	2"
P402		36	3'-1½"	2"
P403		36	5'-8"	2"
P501		18	7'-2"	2½"
P502		9	30'-8"	Str.
P1001		2	30'-8"	Str.

GENERAL NOTES

Design Specifications: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014).

Unless otherwise noted, Section and Subsection refer to the Standard Construction Specifications.

Live Loading: HL-93

Materials: 28 Day compressive strength of Concrete = 4,000 psi
Yield strength of Grade 60 Steel = 60,000 psi
Yield strength of Wire Fabric = 65,000 psi

All Reinforcing steel shall be Grade 60, AASHTO M 31 or M 322, Type A with mill test reports. Wire fabric shall be AASHTO M 55 or M 221. Reinforcing steel and wire fabric shall be accurately located in the forms and securely held in place by steel wire supports.

Concrete for precast units shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M 43, Size 67 (¾" Max.).

The deck shall be given a tine finish as specified for Class 5 Roadway Surface Finish in Subsection 802.19.

Standard washers shall be provided under head and nut of all bolts in connection with concrete. Bolts shall be A307. All bolts, washers and nuts shall be galvanized to meet AASHTO M 232, Class C or ASTM B695, Class 50.

Screw Anchor and Bolt Assembly (SCAB) shall be 1½"ø Richmond Screw Anchor or equal, and have a minimum ultimate strength of 65,000 psi in tension. Assembly shall be galvanized to meet AASHTO M 232, Class C or ASTM B695, Class 50. Plate Washers for SCAB shall be AASHTO M 270, Grade 36 and shall be galvanized to meet AASHTO M 111.

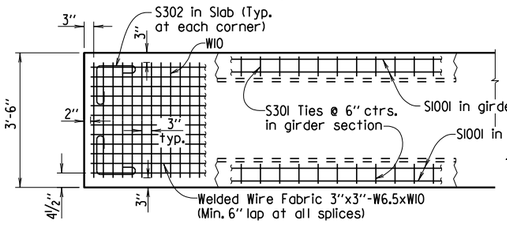
Camber required for dead load deflection is ⅜". Deviation of more than ¼" in dimension of grade or line will be cause for rejection.

Ends of adjacent units shall be coated (1/16" +/-) with asphaltic paint. The coating shall adhere and set firm and its softening point shall not be less than 140°F.

Concrete, reinforcing, wire mesh, bar supports, bolts, nuts, washers, threaded anchors, grout, roofing felt bearing pad, asphaltic paint and expansion joint fillers are considered subsidiary to the pay items for Precast Concrete Units.

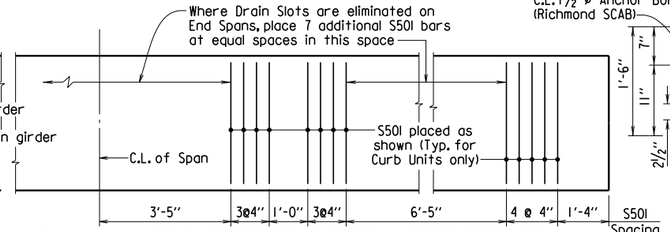
⚠ Roofing felt shall meet or exceed the requirements of ASTM D6380 Class S Type IV. The roofing felt shall be in one piece for the full length of the cap and three layers shall be used.

Pay Items shall be as follows:
"31' Precast Concrete Curb Units"
"31' Precast Concrete Interior Units"
"31' Precast Parapet Rail Units"



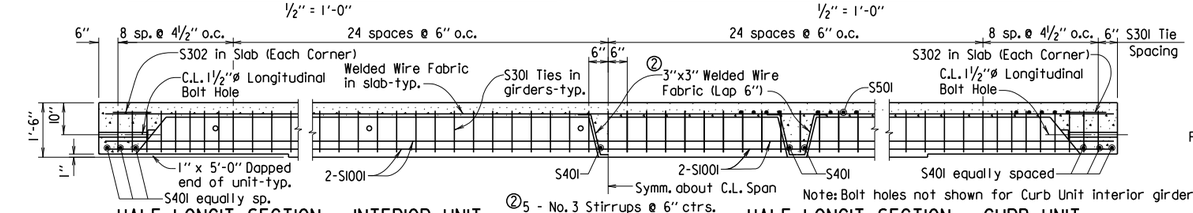
HALF REINFORCING PLAN - CURB & INT. UNITS

½" = 1'-0"



HALF REINFORCING PLAN - CURB UNIT ONLY

½" = 1'-0"



HALF LONGIT. SECTION - INTERIOR UNIT

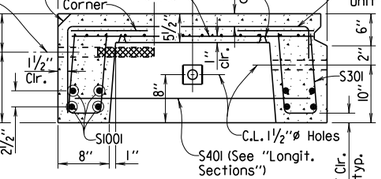
½" = 1'-0"

② 5 - No. 3 Stirrups @ 6" ctrs. may be used in place of wire fabric in strut.

HALF LONGIT. SECTION - CURB UNIT

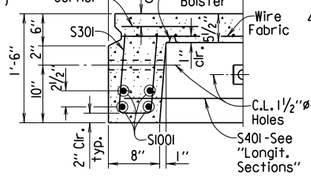
½" = 1'-0"

Note: Bolt holes not shown for Curb Unit interior girder.



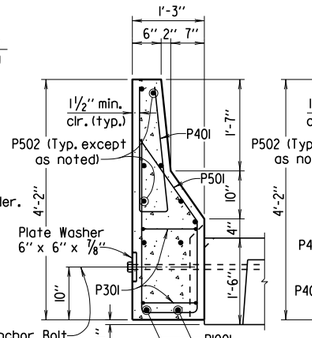
SECTION THRU CURB UNIT

(Shown near midspan)
1" = 1'-0"



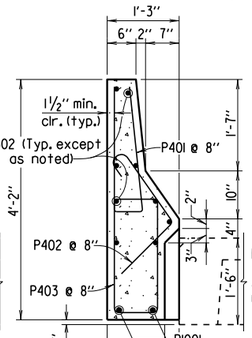
HALF-SECTION THRU INT. UNIT

(Shown near midspan)
1" = 1'-0"



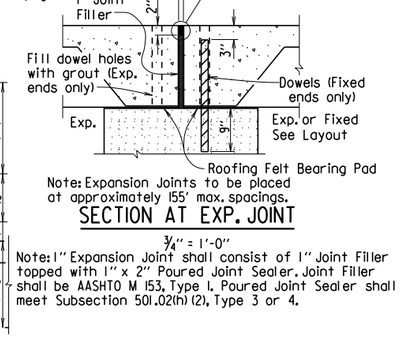
SECTION A-A

(Shown near midspan)
¾" = 1'-0"



SECTION B-B

(Shown near midspan)
¾" = 1'-0"

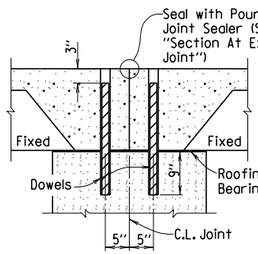


Note: Expansion Joints to be placed at approximately 155' max. spacings.

SECTION AT EXP. JOINT

¾" = 1'-0"

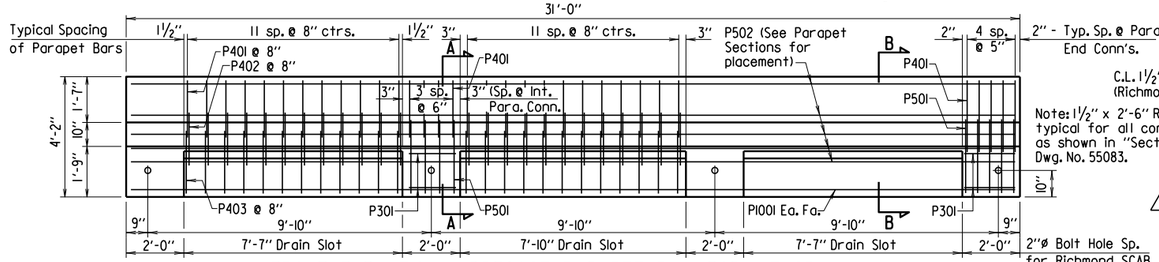
Note: 1" Expansion Joint shall consist of 1" Joint Filler topped with 1" x 2" Poured Joint Sealer. Joint Filler shall be AASHTO M 153, Type I. Poured Joint Sealer shall meet Subsection 501.02(h) (2), Type 3 or 4.



Note: After each unit is in its final position, dowels shall be grouted in place using a QPL approved non-shrink grout that completely fills the holes. See bent drawings for more information.

SECTION AT FIXED BENT

¾" = 1'-0"



Note: For details and bar list for Precast Parapet Rail at End Span, see Std. Dwg. No. 55083.

FRONT ELEVATION - PRECAST PARAPET RAIL FOR INT. SPAN

⅜" = 1'-0"

Note: 1½" x 2'-6" Richmond SCAB typical for all connections except as shown in "Section A-A", Std. Dwg. No. 55083.

⚠ Revised Roofing Felt specification and note 5-24-17 PGT Checked By: KWY

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on February 25, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR 31'-0" PRECAST CONCRETE SPANS 28'-0" AND 24'-6" CLEAR ROADWAYS

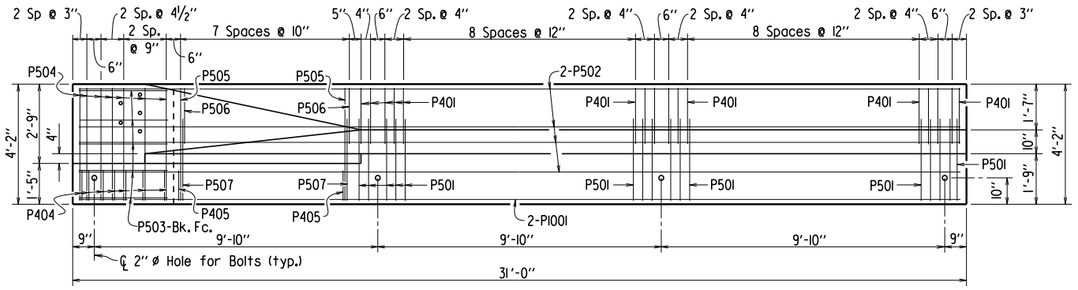
ARKANSAS STATE HIGHWAY COMMISSION

DRAWN BY:	KDH	DATE:	1-20-15	FILENAME:	b55082.dgn
CHECKED BY:	KWY	DATE:	2-4-16	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:			

DRAWING NO. 55082

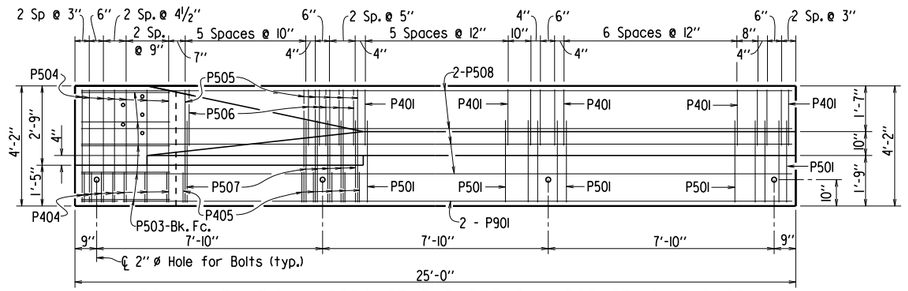
PRINT DATE: 3/21/2021

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	PRECAST RAIL DETAILS - 55083			



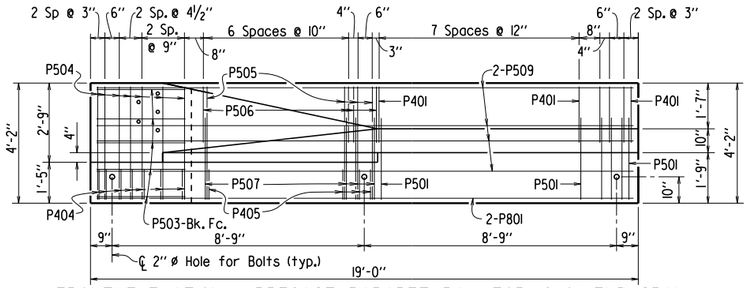
FRONT ELEVATION - PRECAST PARAPET RAIL FOR 31'-0" END SPAN

3/8" = 1'-0"



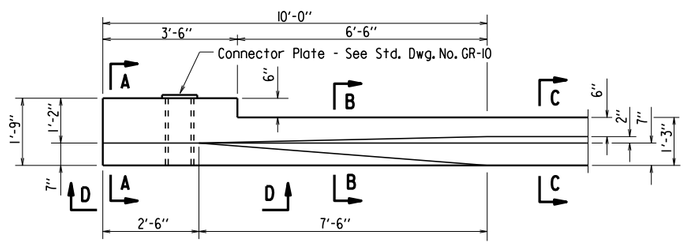
FRONT ELEVATION - PRECAST PARAPET RAIL FOR 25'-0" END SPAN

3/8" = 1'-0"



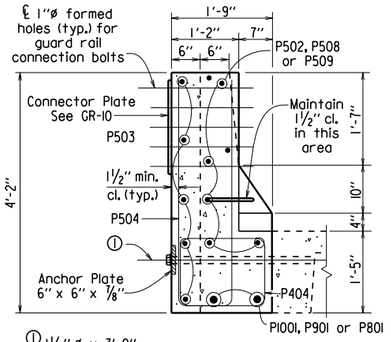
FRONT ELEVATION - PRECAST PARAPET RAIL FOR 19-0" END SPAN

3/8" = 1'-0"



TYPICAL PLAN OF PRECAST PARAPET RAIL FOR END SPAN

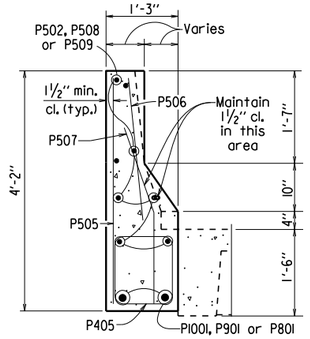
1/2" = 1'-0"



① 1½" ø x 3'-0" Richmond SCAB or equal required at End Post Connections only.

SECTION A-A

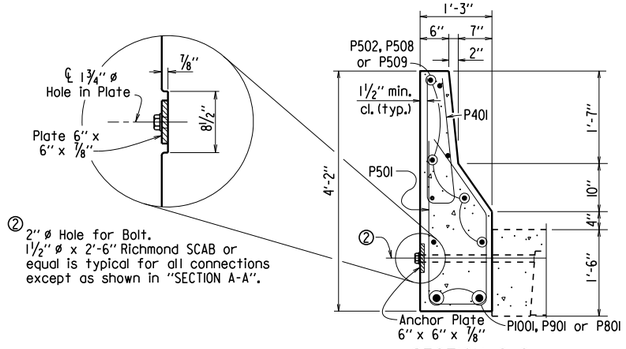
¾" = 1'-0"



SECTION B-B

(Shown near midspan)

¾" = 1'-0"

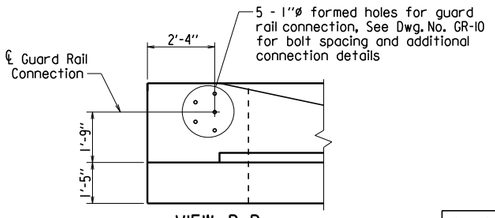


② 2" ø Hole for Bolt. 1½" ø x 2'-6" Richmond SCAB or equal is typical for all connections except as shown in "SECTION A-A".

SECTION C-C

(Shown near midspan)

¾" = 1'-0"



VIEW D-D

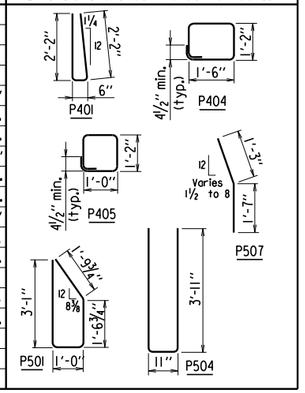
⅜" = 1'-0"

BAR LIST - PER END SPAN PARAPET RAIL

MARK	NUMBER REQUIRED 19'-0" RAIL	25'-0" RAIL	31'-0" RAIL	LENGTH	PIN DIA.
P401	12	20	30	4'-8"	2"
P404	7	7	7	5'-8"	2"
P405	9	10	8	4'-8"	2"
P501	12	20	30	7'-3"	2½"
P502			8	30'-8"	Str.
P503	5	5	5	3'-3"	Str.
P504	7	7	7	8'-6"	2½"
P505	9	10	8	3'-11"	Str.
P506	9	10	8	2'-2"	Str.
P507	9	10	8	2'-10"	2½"
P508		8		24'-8"	Str.
P509	8			18'-8"	Str.
P801	2			18'-8"	Str.
P901		2		24'-8"	Str.
P1001			2	30'-8"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



NOTE: This drawing is to be used with Dwg. No. 55080, 55081 and/or 55082 of which all three contain details and general notes pertaining to this drawing.

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on February 25, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR PRECAST PARAPET RAILS 19'-0", 25'-0" AND 31'-0" PRECAST END SPANS

ARKANSAS STATE HIGHWAY COMMISSION

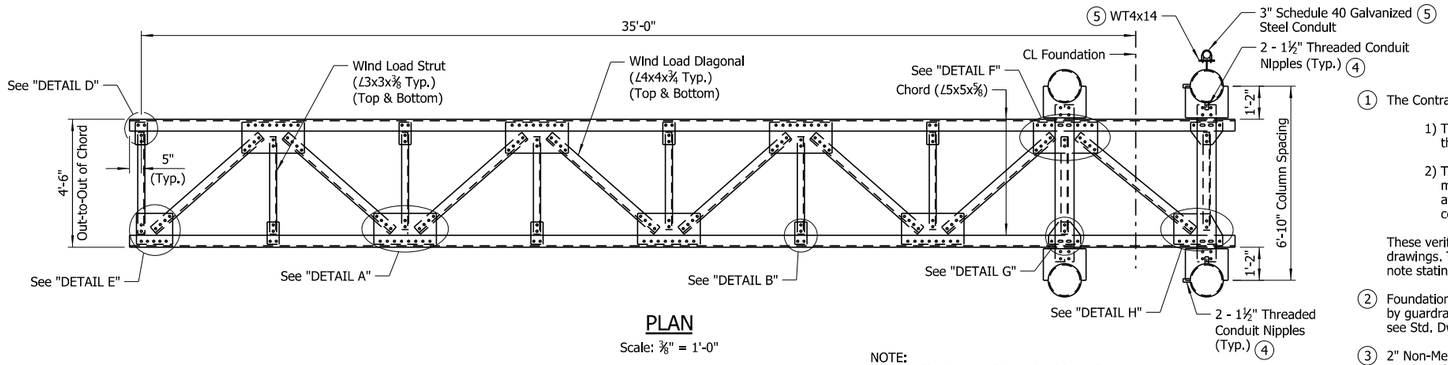
LITTLE ROCK, ARK.

DRAWN BY:	KDH	DATE:	1-26-15	FILENAME:	b55083.dgn
CHECKED BY:	KWY	DATE:	2-4-16	SCALE:	AS NOTED
DESIGNED BY:	STD.	DATE:			

DRAWING NO. 55083

PRINT DATE: 11/7/2019

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		CANTILEVER SIGN STR. (35') - 55090A				



PLAN

Scale: ⅜" = 1'-0"

NOTE:
Refer to Sign Layout Sheets for Dimension "X" and Foundation Type required for each structure.

NOTE:
WT4x14 member at top of column not shown in "ELEVATION - FOUNDATION A1" for clarity.

1. The Contractor shall make field measurements to determine the following:

   1) To verify that dimension "X" is sufficient to center the sign over the intended lane while maintaining minimum horizontal clearances.

   2) To determine the column height "H" required to maintain the minimum vertical clearance with the centerline of the sign located at the CL of the truss. If the structure height "H" exceeds 30'-0", contact the Engineer.

   These verifications and measurements are required prior to submittal of the shop drawings. The column height "H" shall be shown on the shop drawings with a note stating that the Contractor has made the required field measurements.

2. Foundation A1 allowed only when foundation is outside clear zone or is protected by guardrail or barrier. For alternate drilled shaft foundation (Foundation A2), see Std. Dwg. 55090F.

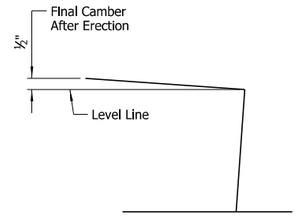
3. 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Outside Column). If cabling in the conduit is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.

4. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.

5. See "SECTION U-U" on Std. Dwg. 55090C. WT4x14 always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

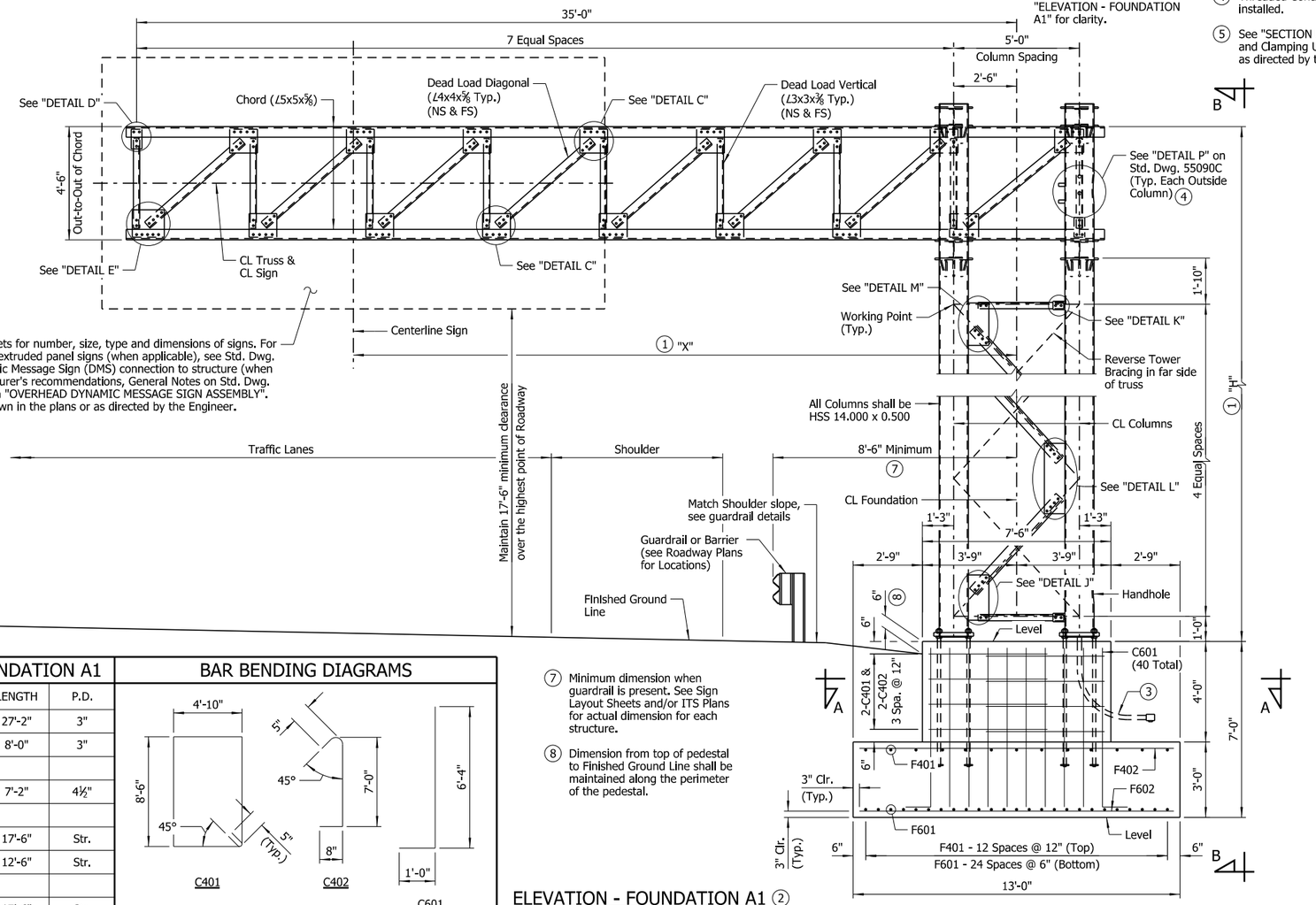
NOTES:
For "VIEW B-B" and "DETAIL J" thru "DETAIL M", see Std. Dwg. 55090B.

For "DETAIL A" thru "DETAIL H", see Std. Dwg. 55090C.



TRUSS CAMBER DIAGRAM

No Scale



See sign details and plan sheets for number, size, type and dimensions of signs. For details of hanger spacing for extruded panel signs (when applicable), see Std. Dwg. 55090E. For details of Dynamic Message Sign (DMS) connection to structure (when applicable), refer to Manufacturer's recommendations, General Notes on Std. Dwg. 55090E, and Special Provision "OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY". Signs are to be placed as shown in the plans or as directed by the Engineer.

7 Minimum dimension when guardrail is present. See Sign Layout Sheets and/or ITS Plans for actual dimension for each structure.

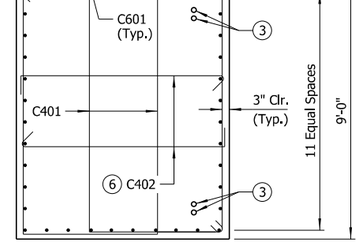
8 Dimension from top of pedestal to Finished Ground Line shall be maintained along the perimeter of the pedestal.

ELEVATION - FOUNDATION A1 2

No Scale

LEGEND

NS = Near Side
FS = Far Side



SECTION A-A

Scale: ⅜" = 1'-0"

6 Alternate C402 ties end for end at each layer of reinforcing.

APPROXIMATE QUANTITIES FOR FOUNDATION A1 (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
36.00	2,240	81

BAR LIST - FOUNDATION A1

MARK	NO. REQ'D	LENGTH	P.D.
C401	8	27'-2"	3"
C402	8	8'-0"	3"
C601	40	7'-2"	4½"
F401	13	17'-6"	Str.
F402	18	12'-6"	Str.
F601	25	17'-6"	Str.
F602	35	12'-6"	Str.

BAR BENDING DIAGRAMS

NOTE:
Dimensions of bars are out-to-out.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 1 OF 6
STANDARD DETAILS OF 35' STEEL CANTILEVER SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CSW DATE: DEC. 2022 FILENAME: b55090a.dgn
CHECKED BY: ABH DATE: FEB. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

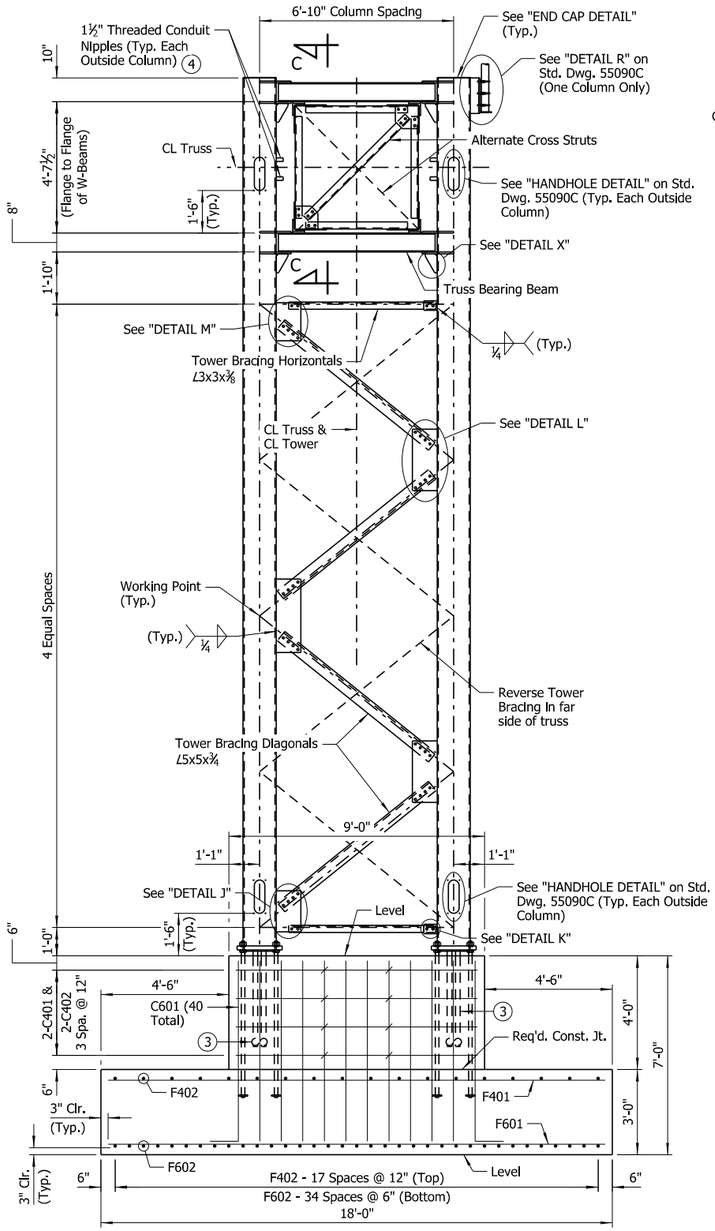
DRAWING NO. 55090A

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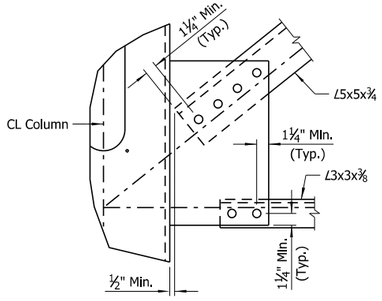
Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

6/17/2026

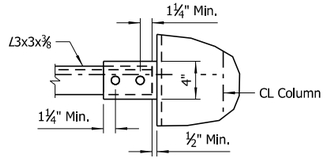
DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		CANTILEVER SIGN STR. (35') - 55090B				



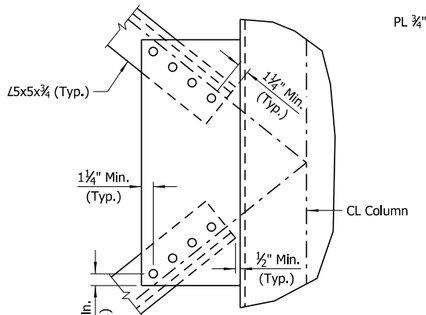
VIEW B-B
(Foundation A1)
No Scale



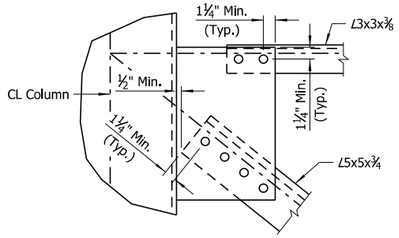
DETAIL J
No Scale



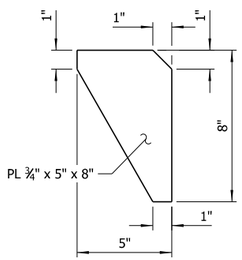
DETAIL K
No Scale



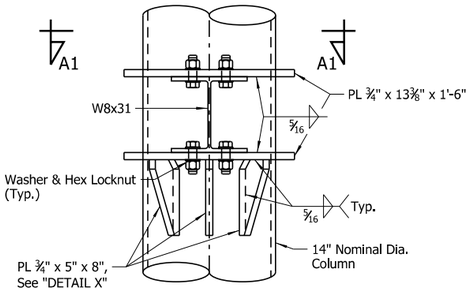
DETAIL L
No Scale



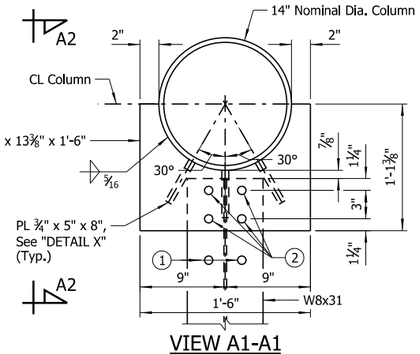
DETAIL M
No Scale



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

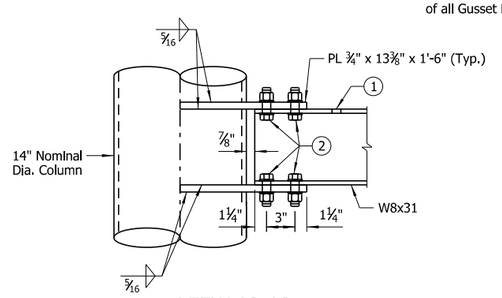


DETAIL - TRUSS BEARING SUPPORT
Scale: 1½" = 1'-0"

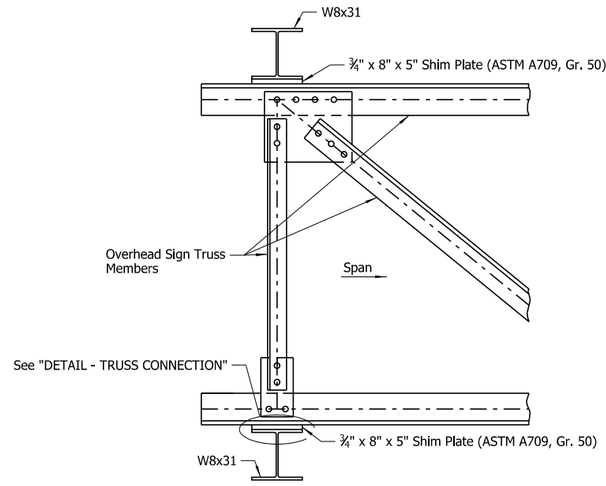


VIEW A1-A1
Scale: 1½" = 1'-0"

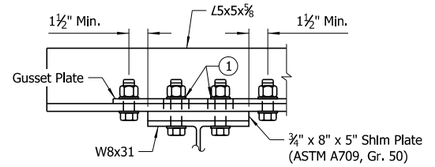
NOTE:
Unless noted otherwsie, thickness of all Gusset Plates shall be ⅜".



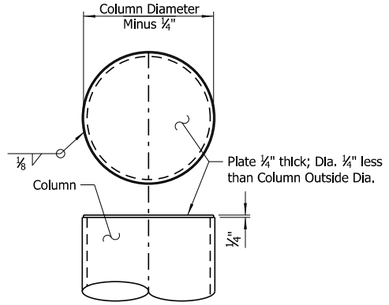
VIEW A2-A2
Scale: 1½" = 1'-0"
(¾" x 5" x 8" Plate not shown for clarity)



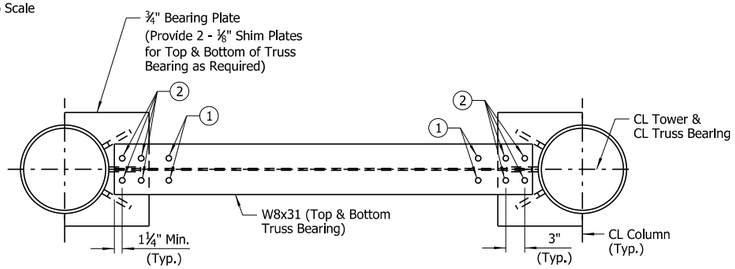
VIEW C-C
No Scale



DETAIL - TRUSS CONNECTION
No Scale



END CAP DETAIL
Scale: 1½" = 1'-0"



PLAN AT TRUSS BEARING
Scale: 1" = 1'-0"

1. Bolts shall be ⅞"ø. Provide 15/16" x 2" slotted hole in gusset plate and chord angle. Use plate washer on gusset plate side. Provide 15/16"ø holes in ¾" shim plate and top or bottom beam flanges as required.
2. Bolts shall be ⅞"ø. Provide 15/16"ø holes at top and bottom beam flanges and connection plates.
3. 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Outside Column). An insulated bushing shall be installed at the top end of each conduit.
4. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 2 OF 6
STANDARD DETAILS OF 35' STEEL CANTILEVER SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CSW DATE: DEC. 2022 FILENAME: b55090b.dgn
CHECKED BY: ABH DATE: FEB. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

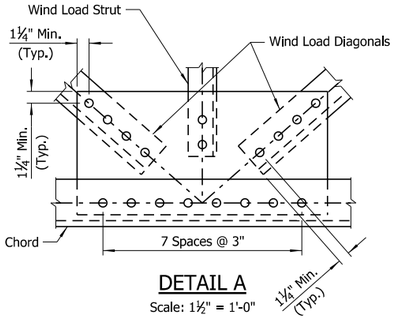
DRAWING NO. 55090B

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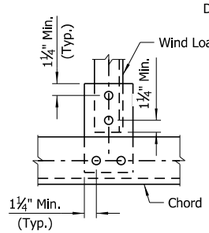
Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

6/17/2026

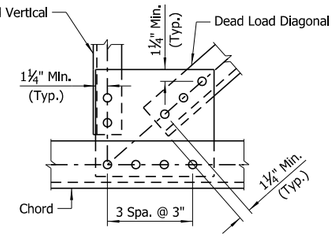
DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		CANTILEVER SIGN STR. (35') - 55090C				



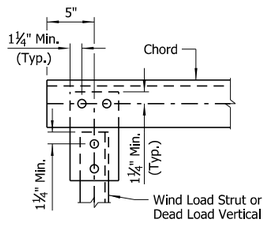
DETAIL A
Scale: 1½" = 1'-0"



DETAIL B
Scale: 1½" = 1'-0"

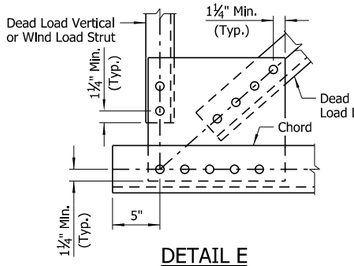


DETAIL C
Scale: 1½" = 1'-0"

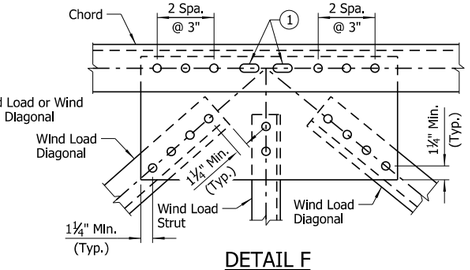


DETAIL D
Scale: 1½" = 1'-0"

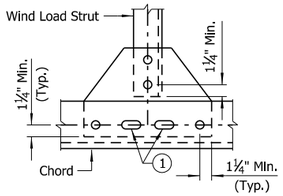
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



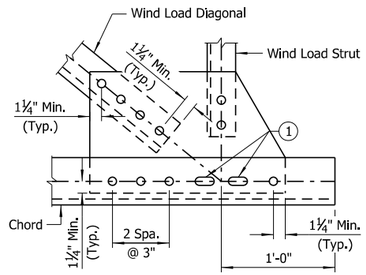
DETAIL E
Scale: 1½" = 1'-0"



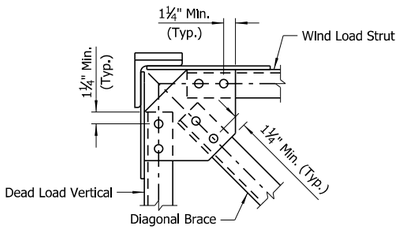
DETAIL F
Scale: 1½" = 1'-0"



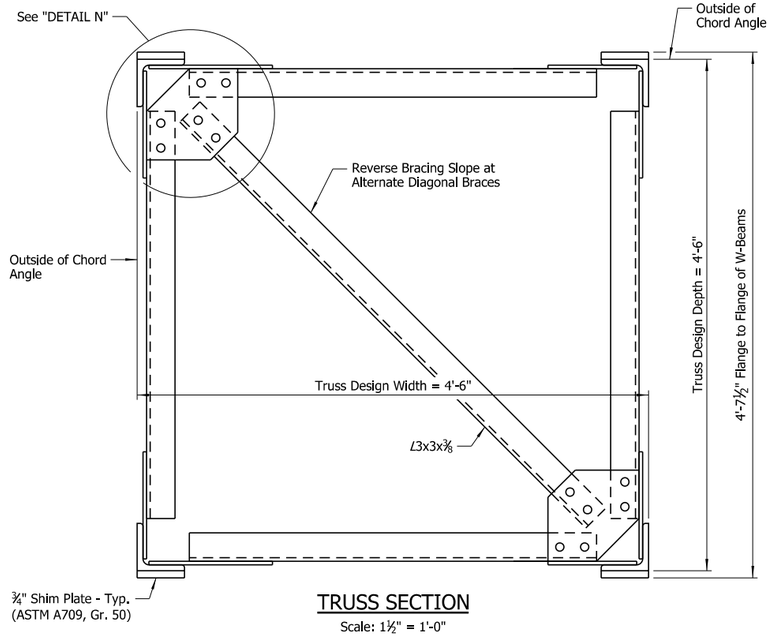
DETAIL G
Scale: 1½" = 1'-0"



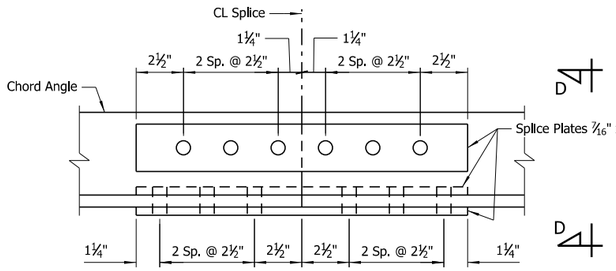
DETAIL H
Scale: 1½" = 1'-0"



DETAIL N
Scale: 1½" = 1'-0"

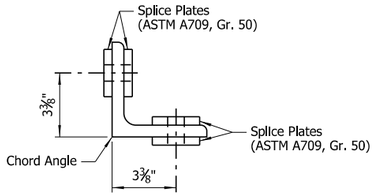


TRUSS SECTION
Scale: 1½" = 1'-0"

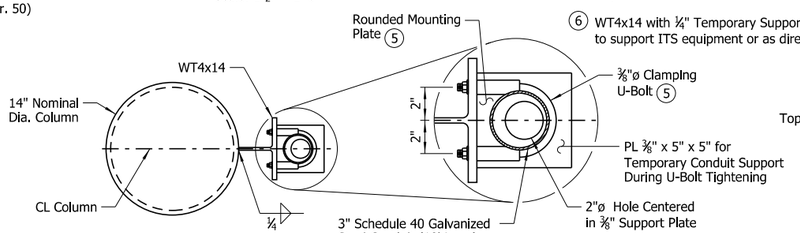


② CHORD SPLICE
Scale: 3 = 1'-0"

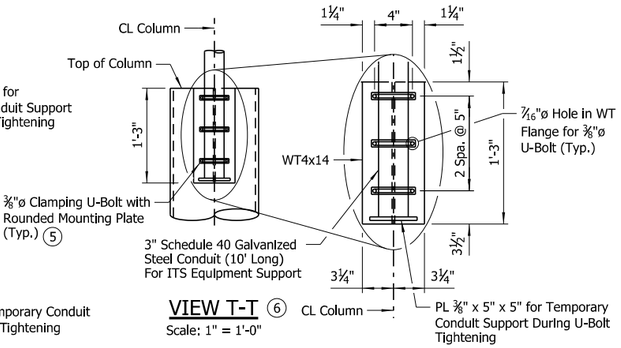
NOTE:
Chord angles may be spliced in convenient lengths for galvanizing and sign placement.



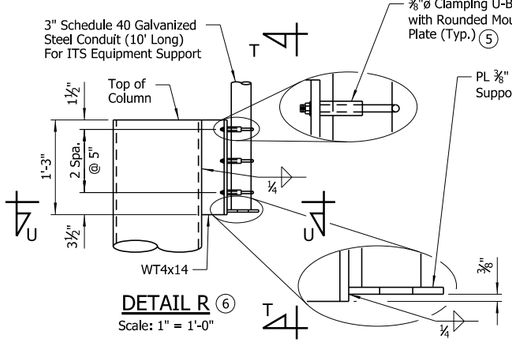
VIEW D-D
Scale: 3 = 1'-0"



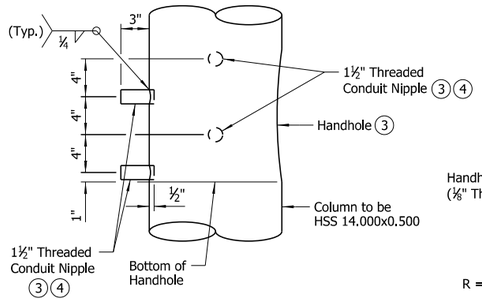
SECTION U-U (6)
Scale: 1½" = 1'-0"



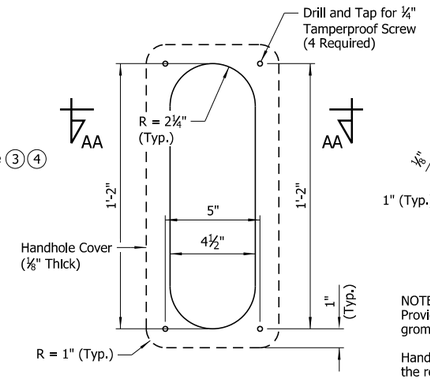
VIEW T-T (6)
Scale: 1" = 1'-0"



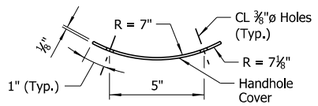
DETAIL R (6)
Scale: 1" = 1'-0"



DETAIL P
Scale: 1½" = 1'-0"



HANDHOLE DETAIL (3)
Scale: 3" = 1'-0"



SECTION AA-AA
Scale: 3" = 1'-0"

NOTE:
Provide handhole covers with chain, waterproof grommet, and tamperproof screws.

Handhole covers shall be galvanized and meet the requirements of ASTM A36 at a minimum.

Tamperproof screws shall be galvanized and meet the requirements of ANSI/ASME B18.6.3.

(1) Bolts shall be ⅞"ø. Provide 15/16" x 2" slotted holes in gusset plate and chord angle. Clearance between end of slot and adjacent bolt hole shall be no less than 1½". Use plate washer on gusset plate side.

(2) Bolts shall be ¾"ø and open holes shall be 13/16"ø.

(3) See details on Std. Dwgs. 55090A & 55090B for location and orientation of handholes and threaded conduit nipples.

(4) Threaded conduit nipples shall be fitted with standard plugs until conduit is installed.

(5) When required per plans to support ITS equipment, or as directed by the Engineer, Clamping U-Bolt with Rounded Mounting Plate Assembly product shall be included in shop drawings for approval. Assembly shall be galvanized and shall meet the requirements of ASTM A36 at a minimum. Install per Manufacturer's instructions.

(6) WT4x14 with ¼" Temporary Support Plate always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 3 OF 6
STANDARD DETAILS OF 35' STEEL CANTILEVER SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	CSW	DATE:	DEC. 2022	FILENAME:	b55090c.dgn
CHECKED BY:	ABH	DATE:	FEB. 2023	SCALE:	As Shown
DESIGNED BY:	STD.	DATE:	-		

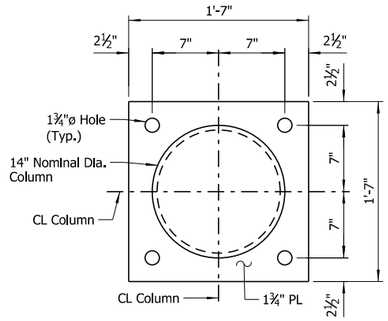
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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55090C

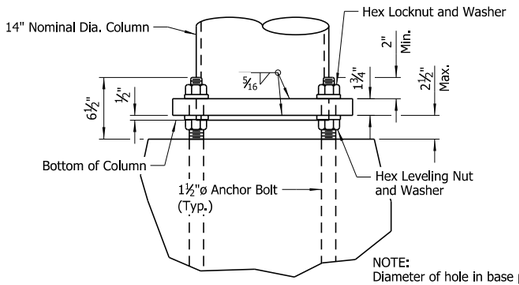
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		CANTILEVER SIGN STR. (35') - 55090D				



PLAN - COLUMN BASE

Scale: 1½" = 1'-0"



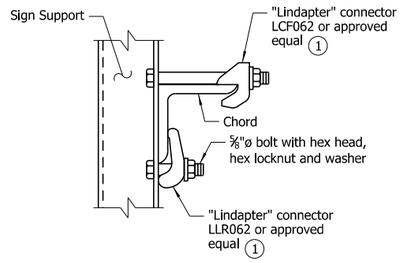
NOTE:
Diameter of hole in base plate to be ⅛" larger than column diameter.

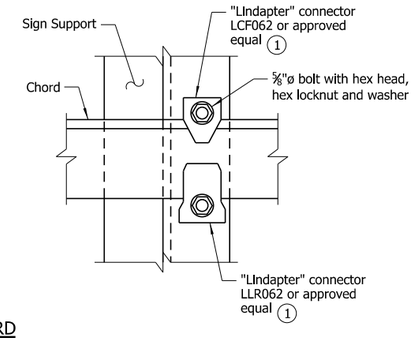
ELEVATION - COLUMN BASE

Scale: 1½" = 1'-0"

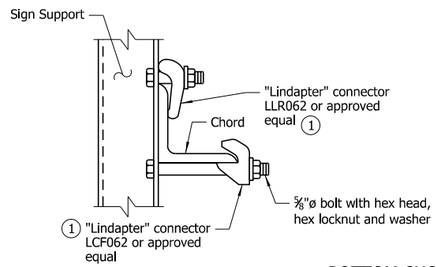
(1) All "Lindapter" connectors or approved equal shall be installed according to Manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.

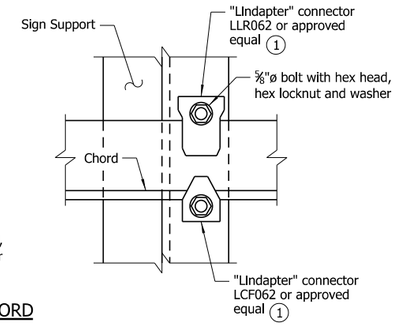
NOTE:
Install all support connectors clear of the gusset plates and splice locations.





TOP CHORD

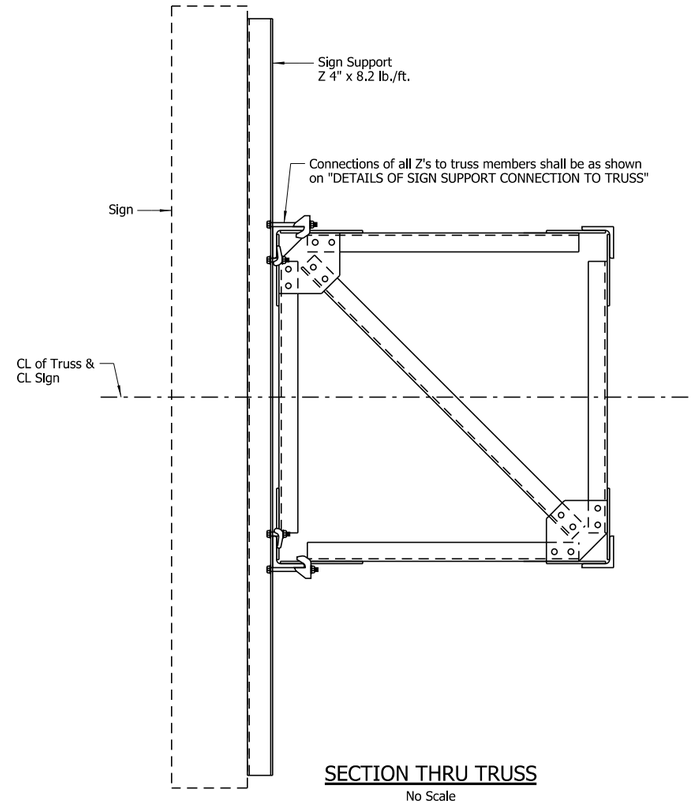




BOTTOM CHORD

DETAILS OF SIGN SUPPORT CONNECTION TO TRUSS

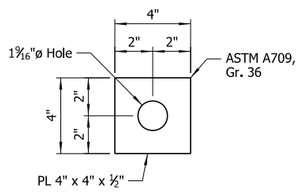
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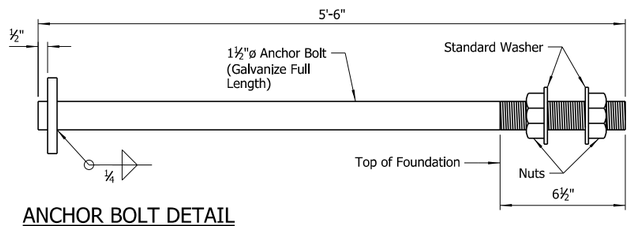


SECTION THRU TRUSS

No Scale

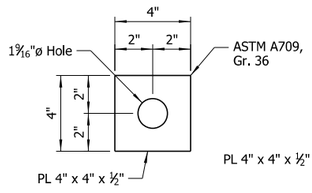
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".

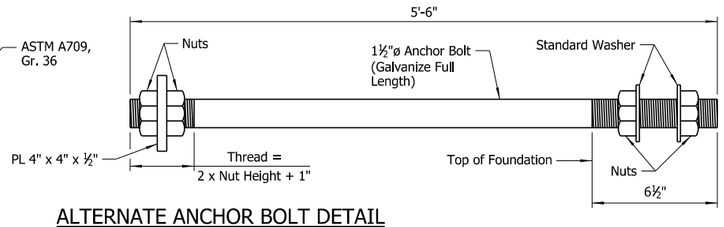




ANCHOR BOLT DETAIL

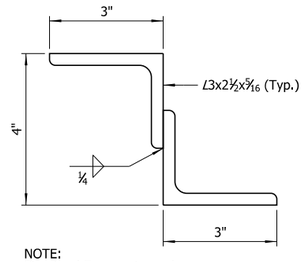
No Scale





ALTERNATE ANCHOR BOLT DETAIL

No Scale



NOTE:
Structural Z support may be fabricated from angles as shown.

DETAILS OF ALTERNATE Z SUPPORT

No Scale

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 4 OF 6
STANDARD DETAILS OF 35' STEEL CANTILEVER SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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DRAWN BY:	CSW	DATE:	DEC. 2022	FILENAME:	b55090d.dgn
CHECKED BY:	ABH	DATE:	FEB. 2023	SCALE:	As Shown
DESIGNED BY:	STD.	DATE:	-		

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55090D

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		CANTILEVER SIGN STR. (35') - 55090E				

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, First Edition, 2015 with current interim revisions.

Basic Wind Speed = 120 mph
Fatigue Category: I

This structure is approved for 300 square feet of sign area and a maximum sign weight (total of all signs and hangers) of 3600 lbs. Use of additional sign area or a heavier sign must be approved by the Engineer. If the structure height ("H") exceeds 30'-0", contact the Engineer.

FOUNDATION MATERIALS AND STRENGTHS:

Class S Concrete	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

Spread footings for the structure have been designed assuming a factored bearing resistance of 2.0 ksf. Contractor shall be responsible for evaluating and verifying that the foundation soils are adequate to achieve the assumed factored bearing capacity, utilizing SPT (Standard Penetration Test), CPT (Cone Penetration Test), DCP (Dynamic Cone Penetration) test, or other suitable means, prior to or after footing excavation, whichever is appropriate. If the foundation soils are verified to be adequate, then the footing shall be constructed in accordance with the planned dimensions. Otherwise, the Design Engineer shall be contacted. Costs for foundation soil evaluation and verification shall be included in the item "STEEL CANTILEVER SIGN STRUCTURE (_)".

Structural steel sign support members shall comply with the following specifications:

Angles:	ASTM A709, Grade 36 (Fy = 36,000 psi)
Plate, W-Section:	ASTM A709, Grade 50 (Fy = 50,000 psi)
(1) Pipe:	ASTM A139, Gr. C, straight-seam welded (Fy = 42,000 psi) ASTM A500, Gr. B (Fy = 42,000 psi) ASTM A501, Gr. B (Fy = 50,000 psi)
Z-Shapes:	ASTM A709, Grade 36 (Fy = 36,000 psi)
Shim Plates:	ASTM A1011, SS, Grade 36, Type 2, or Grade 40
Bolts:	ASTM F3125, Grade A325, Type 1
Locknuts - Approved Type:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H
Washers:	ASTM F436
Nuts:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H

The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and to fit the new structure to the existing and/or proposed conditions.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All steel shall be galvanized according to Subsection 807.19. Steel completely encased in concrete may not be galvanized. Galvanized coating damaged during transport, handling or erection shall be field repaired in accordance with Subsection 807.88.

All main load carrying tension members greater than ½" in thickness shall conform to the requirements of the Longitudinal Charpy V-Notch test specified for Zone 1 minimum service temperature. This work and materials shall be paid for in accordance with Special Provision "STEEL SIGN STRUCTURES".

Field splices shall be located in order to avoid sign panel connections. There shall be a maximum of two field splices, and they shall be spaced a minimum of 15 feet apart.

Truss field sections shall be shop assembled. Entire truss shall be fully assembled and lifted into place as one unit on to tower supports. All truss member connections shall be bolted connections.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26 except welding of tubular sections shall conform to AWS D1.1 Structural Welding Code.

No circumferential butt welds will be allowed in any pipe sections.

All fillet welds of critical members shall be tested according to AWS D1.1 Structural Welding Code - Steel using the magnetic particle method. Critical welds shall include: column to base plate and truss bottom support to column.

Connections shall be bolted with high-strength bolts. Unless otherwise noted, bolts shall be ⅞"ø and open holes shall be $^{15}/_{16}$"ø. Bolt spacing shall be 2⅝" for ⅞"ø bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All truss frame bolts shall comply with ASTM F3125, Grade A325, Type 1, galvanized according to Subsection 807.06. Nuts and washers for ASTM F3125, Grade A325, Type 1 bolts shall be furnished and galvanized in accordance with Subsection 807.06.

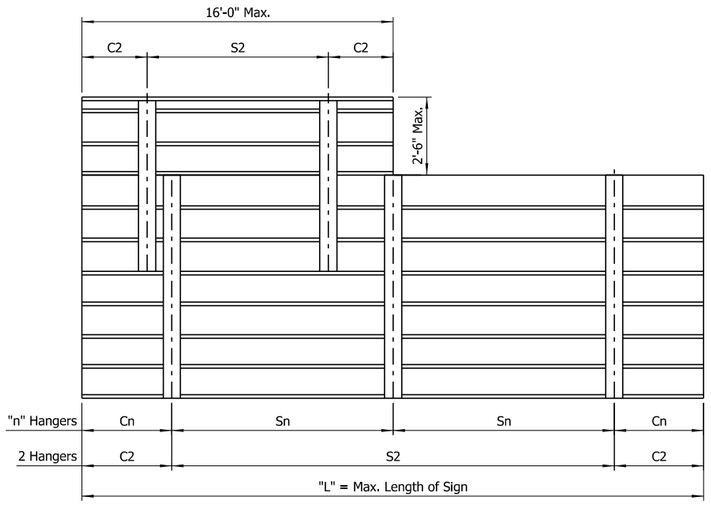
Locknuts shall be equipped with nylon locking inserts or other approved type locking system. Locknuts shall be installed according to Manufacturer's recommendations.

Anchor bolts shall comply with AASHTO M 314, Grade 55, including Supplementary Requirement S1, and shall be galvanized according to Subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with Subsection 807.07. Anchor bolts shall be pretensioned in accordance with Special Provision "STEEL SIGN STRUCTURES".

Shoring may be required to protect existing shoulders or other elements during excavation. Any shoring required shall not be paid for directly, but shall be considered incidental to the item "STEEL CANTILEVER SIGN STRUCTURE (_)". The excavations for the footing shall be backfilled before the structure is attached to the foundation.

DYNAMIC MESSAGE SIGN (WHEN APPLICABLE): The Dynamic Message Sign (DMS) supplier shall be responsible for the attachment method and materials used to attach the DMS and its accessories to the structure. The method of attachment shall not facilitate any corrosion of the structure. For additional information regarding the DMS, see Special Provision "OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY".

For location of each 35' cantilever sign structure to be used, refer to ITS and/or Sign Plans.



NOTE:
See sign details and plan sheets for number, size and dimensions of signs.

HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

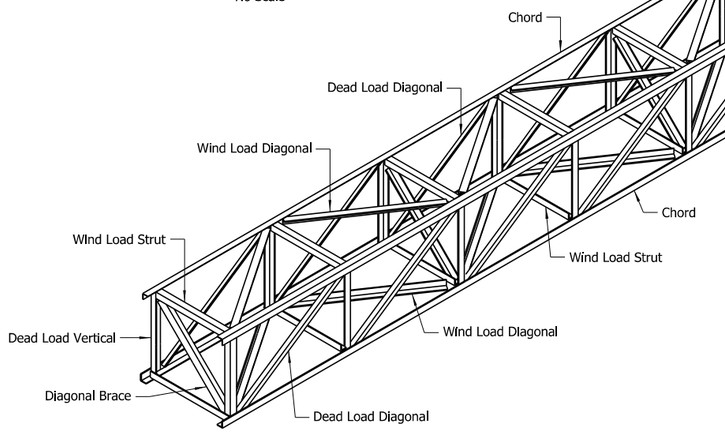
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HANGER VARIABLES

(For Extruded Panel Signs)

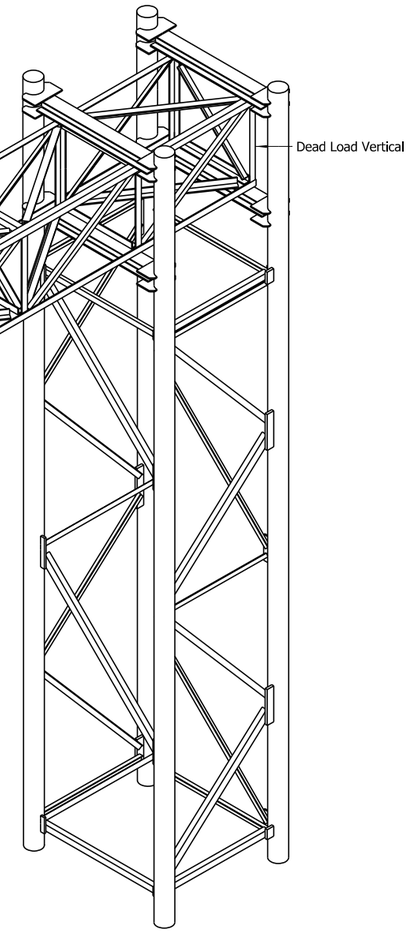
Max. Length of Sign = "L"	"n" Hangers	Cantilever Length "Cn"	Hanger Spacing "Sn"
15'-0"	2 Hangers	0.21 x "L"	0.58 x "L"
30'-0"	3 Hangers	0.145 x "L"	0.355 x "L"

NOTE:
Hanger spacing and cantilever length shall be rounded to the nearest inch.



ISOMETRIC VIEW

No Scale



(1) In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4 using the following equation:

CE = %C + %Mn/6 + %Cu/40 + %Ni/20 + %Cr/10 - %Mo/50 - %V/10

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SHEET 5 OF 6
STANDARD DETAILS OF 35' STEEL CANTILEVER SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CSW DATE: DEC. 2022 FILENAME: b55090e.dgn
CHECKED BY: ABH DATE: FEB. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

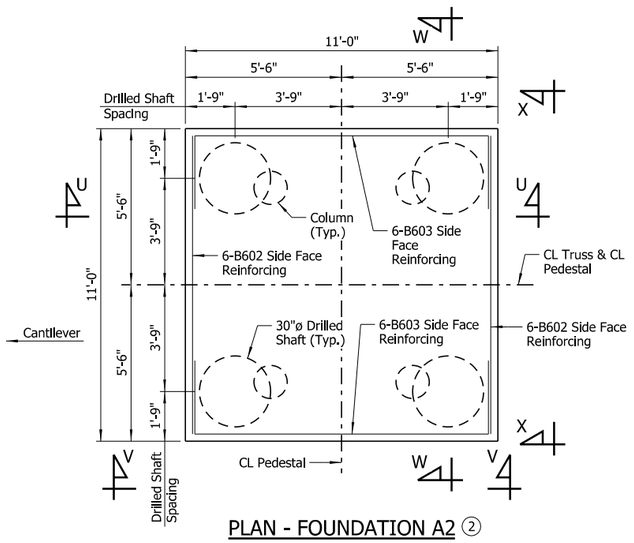
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DRAWING NO. 55090E

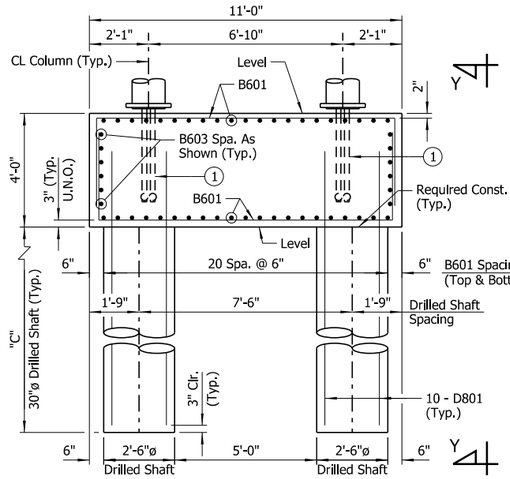
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		CANTILEVER SIGN STR. (35') - 55090F				



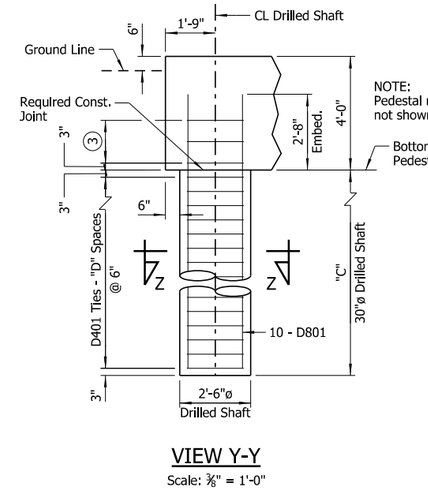
PLAN - FOUNDATION A2 (2)

Scale: ⅜" = 1'-0"



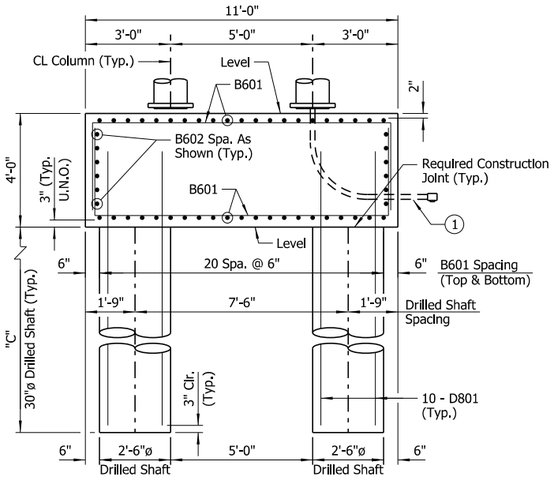
SECTION W-W

Scale: ⅜" = 1'-0"



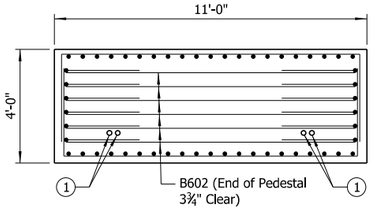
VIEW Y-Y

Scale: ⅜" = 1'-0"



SECTION U-U

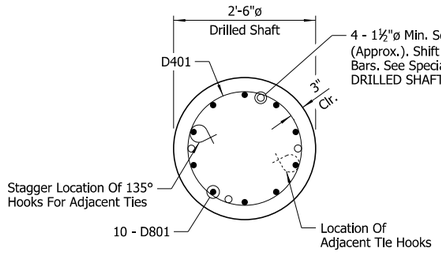
Scale: ⅜" = 1'-0"



VIEW X-X

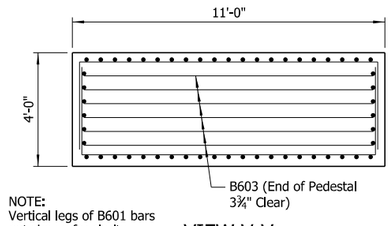
Scale: ⅜" = 1'-0"

NOTE:
Vertical legs of B601 bars not shown for clarity.



SECTION Z-Z

Scale: ¾" = 1'-0"



NOTE:
Vertical legs of B601 bars not shown for clarity.

VIEW V-V

Scale: ⅜" = 1'-0"

DRILLED SHAFT NOTES (FOUNDATION A2)

Drilled shafts shall conform to Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES". Drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL CANTILEVER SIGN STRUCTURE (_)". Temporary casing may be required. Unless approved by the Engineer, permanent steel casing shall not be used.

Crosshole Sonic Logging (CSL) shall be performed on one drilled shaft at each foundation and as directed by the Engineer. Testing shall be performed in accordance with Special Provision "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS FOR STEEL SIGN STRUCTURES".

Concrete and reinforcing steel placed in drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL CANTILEVER SIGN STRUCTURE (_)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling or erecting.

Concrete in drilled shafts shall be Class "S" as modified by Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES".

Drilled shaft lengths shall be determined based on the results of exploratory borings, which shall be performed by the Contractor prior to shaft excavation.

If competent rock is not encountered in the exploratory boring, the Standard Penetration Test (SPT) blow count corrected by the hammer efficiency, N60, shall be used to determine shaft lengths. See "TABLE OF VARIABLES".

If competent rock is encountered in the exploratory boring within 25'-0" of planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock and have a minimum length of 25'-0".

If competent rock is encountered in the exploratory boring below 25'-0" from planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock or to the depth based on the SPT N60 value and associated shaft length in the "TABLE OF VARIABLES", whichever is shallower.

Testing results shall be submitted to the Engineer for review. Final drilled shaft lengths shall be approved by the Engineer prior to construction.

The cost of performing exploratory borings and in-situ strength testing shall be included in the item "STEEL CANTILEVER SIGN STRUCTURE (_)".

(1) 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Outside Column). An Insulated bushing shall be installed at the top end of each conduit. If cabling in the conduit is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.

(2) Foundation A2 allowed only when foundation is outside clear zone or is protected by guardrail or barrier.

(3) C401 Ties - 2 Spaces @ 9"

TABLE OF VARIABLES (7)

SPT N60 (6) (blows/ft.)	Min. Depth of Exploratory Boring	Drilled Shaft Length, "C"	"D"	"E"	"F" (8)	"G"
<5	-	Contact Engineer	-	-	-	-
5 To 7	75'-0"	70'-0"	139	560	72'-5"	280'-0"
7 To 9	63'-0"	58'-0"	115	464	60'-5"	232'-0"
9 To 11	47'-0"	42'-0"	83	336	44'-5"	168'-0"
11 To 13	37'-0"	32'-0"	63	256	34'-5"	128'-0"
>13	31'-0"	26'-0"	51	208	28'-5"	104'-0"

(6) Tabulated SPT N60 values are raw SPT N values corrected by SPT hammer efficiency and represent average values along the plan shaft penetration. If the SPT N60 values in the foundation soils within 2 shaft diameters below the plan tip elevation are less than the average SPT N60 values along the plan shaft penetration, the Engineer shall be contacted.

(7) If final drilled shaft length is not shown in "TABLE OF VARIABLES" due to the presence of rock or other factors, variables "D" through "G" shall be determined as follows:

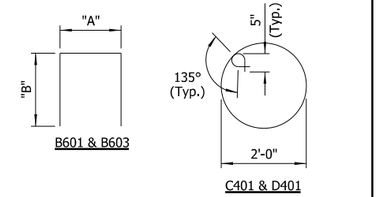
"D" = (Shaft Length in Ft. - 0.5) / 0.5
"E" = Shaft Length in Ft. x 8
"F" = Shaft Length + 2'-5"
"G" = Shaft Length x 4

(8) If "F" exceeds 60'-0", a lap splice is required for each D801 bar at the midpoint of the drilled shaft. Min. lap splice length for D801 bar = 3'-6". Length shown in table does not include the additional length required for a lap splice.

BAR LIST - FOUNDATION A2

MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
B601	84	16'-4"	10'-6"	3'-1"	4½"
B602	12	10'-4"			Str.
B603	12	15'-2"	10'-4"	2'-7"	4½"
C401	12	7'-4"			3"
D401	"E"	7'-4"			3"
D801	40	"F"			Str.

BAR BENDING DIAGRAMS



NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one Foundation A2.

APPROX. QUANTITIES FOR FOUNDATION A2 (FOR INFORMATION ONLY)

CLASS S CONCRETE (4) (CU. YDS.)	REINFORCING STEEL (LBS.) (5)	EXCAVATION (CU. YDS.)	DRILLED SHAFT (30" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (30" DIA.) (EACH)
18.00	2,580	26	"G"	1

(4) Does not include Class S Concrete for Drilled Shafts

(5) Does not include D401 and D801 Bars in Drilled Shafts

LEGEND

U.N.O. = Unless Noted Otherwise

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 6 OF 6
STANDARD DETAILS OF 35' STEEL CANTILEVER SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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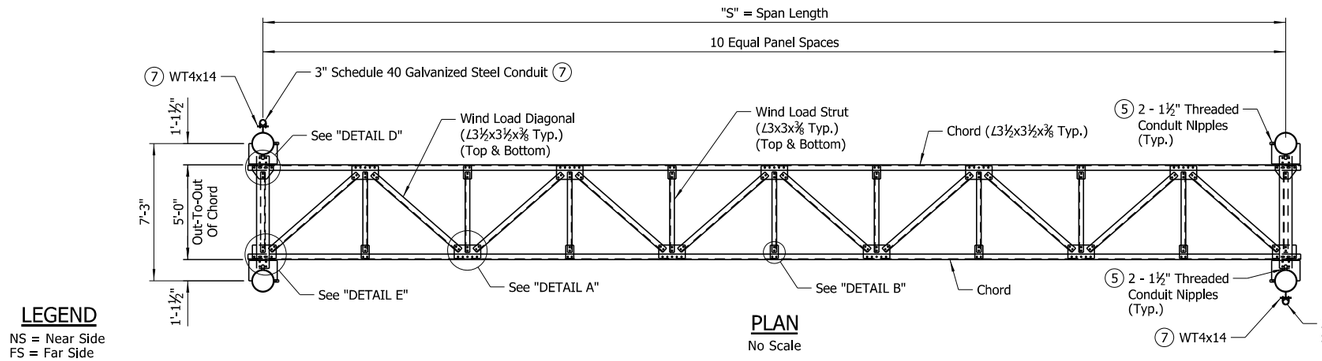
DRAWN BY: CWT DATE: JAN. 2023 FILENAME: b55090f.dgn
CHECKED BY: CSW DATE: FEB. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55090F

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (40' TO 54') - 55092A				



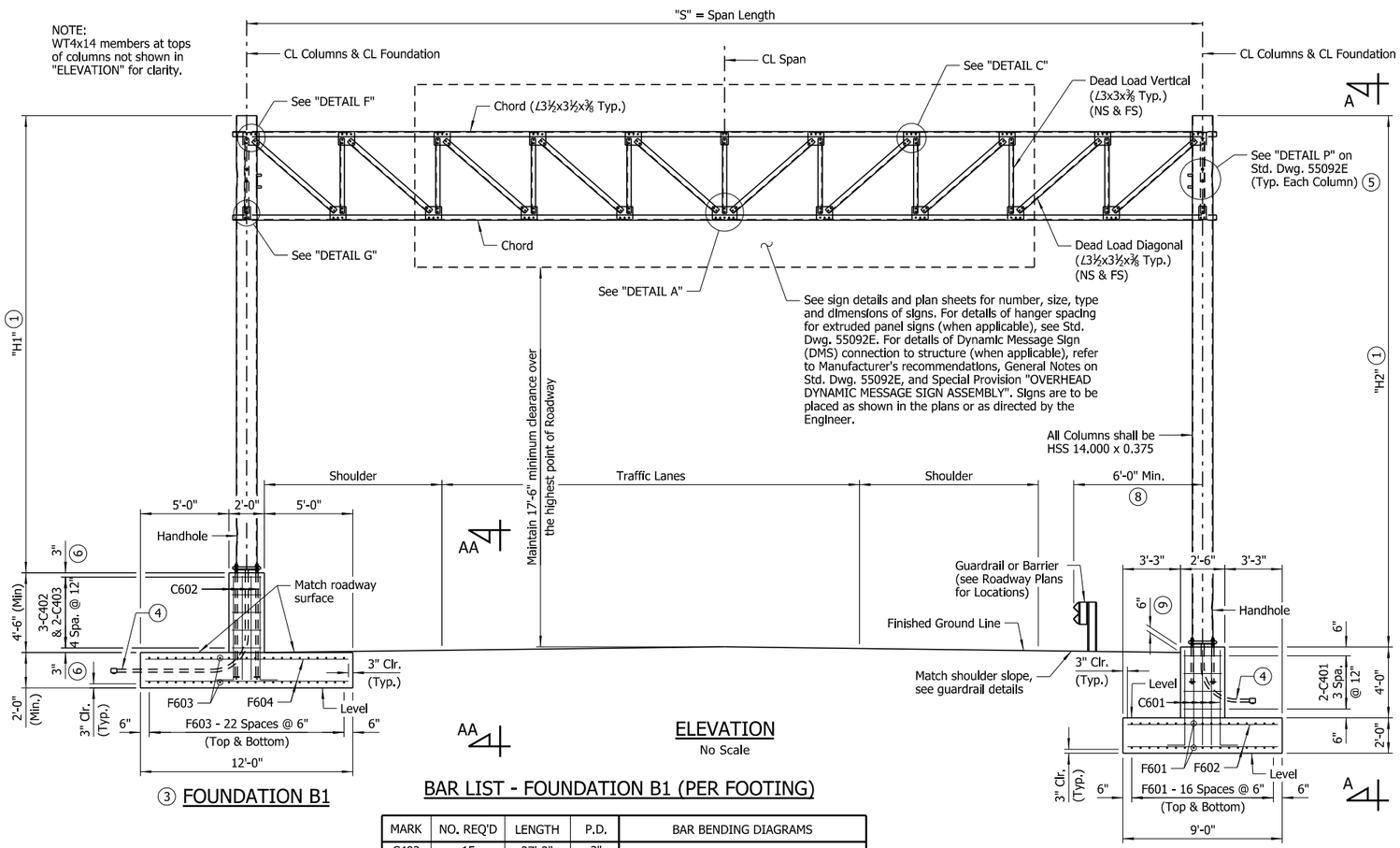
LEGEND

NS = Near Side
FS = Far Side

PLAN

No Scale

NOTE:
Refer to Sign Layout Sheets for Span Length "S" and Foundation Types required for each structure.



③ FOUNDATION B1

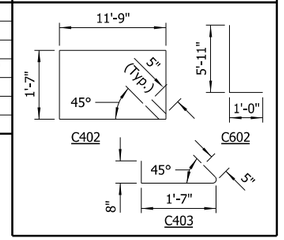
ELEVATION

No Scale

② FOUNDATION A1

BAR LIST - FOUNDATION B1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.	BAR BENDING DIAGRAMS
C402	15	27'-2"	3"	
C403	10	2'-7"	3"	
C602	116	6'-9"	4½"	
F603	46	27'-6"	Str.	
F604	110	11'-6"	Str.	



NOTE:
Dimensions of bars are out-to-out.

APPROXIMATE QUANTITIES FOR FOUNDATION B1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
34.30	5,270	35

(1) The Contractor shall make field measurements to determine the column heights "H1" and "H2" that are required to maintain the minimum vertical clearance with the centerline of the sign located at the centerline of the truss. These column heights shall be shown on the shop drawings with a note stating that the Contractor has made the required field measurements. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer. The Contractor shall also verify that the variable span length (40'-0" to 54'-0") is sufficient to meet the minimum clearances and to fit the new structure to the existing and/or proposed conditions.

(2) Foundation A1 allowed only when foundation is outside clear zone or is protected by guardrail or barrier. For alternate drilled shaft foundation (Foundation A2), see Std. Dwg. 55092F.

(3) Foundation B1 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B1 requires adjacent Roadway Median Barrier to transition to match the ends of the pedestal. For alternate drilled shaft foundation (Foundation B2), see Std. Dwg. 55092F.

(4) 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). At Foundation B1, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A1, conduit shall always be provided. If cabling in the conduit at Foundation A1 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.

(5) Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.

(6) Minor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.

(7) See "SECTION U-U" on Std. Dwg. 55092C. WT4x14 always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

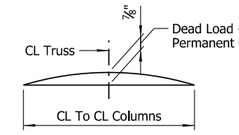
(8) Minimum dimension when guardrail is present. See Sign Layout Sheets and/or ITS Plans for actual dimension for each structure.

(9) Dimension from top of pedestal to Finished Ground Line shall be maintained along the perimeter of the pedestal.

NOTES:
For "VIEW A-A", see Std. Dwg. 55092B.

For "DETAIL A" thru "DETAIL G", see Std. Dwg. 55092C.

For "VIEW AA-AA", see Std. Dwg. 55092D.

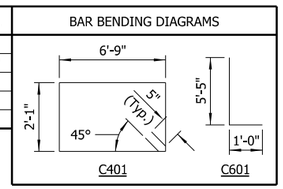


TRUSS CAMBER DIAGRAM

No Scale

BAR LIST - FOUNDATION A1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.	BAR BENDING DIAGRAMS
C401	8	18'-2"	3"	
C601	46	6'-3"	4½"	
F601	34	20'-6"	Str.	
F602	82	8'-6"	Str.	



NOTE:
Dimensions of bars are out-to-out.

APPROXIMATE QUANTITIES FOR FOUNDATION A1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
17.70	2,630	59

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 1 OF 6
STANDARD DETAILS OF 40' TO 54'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55092a.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

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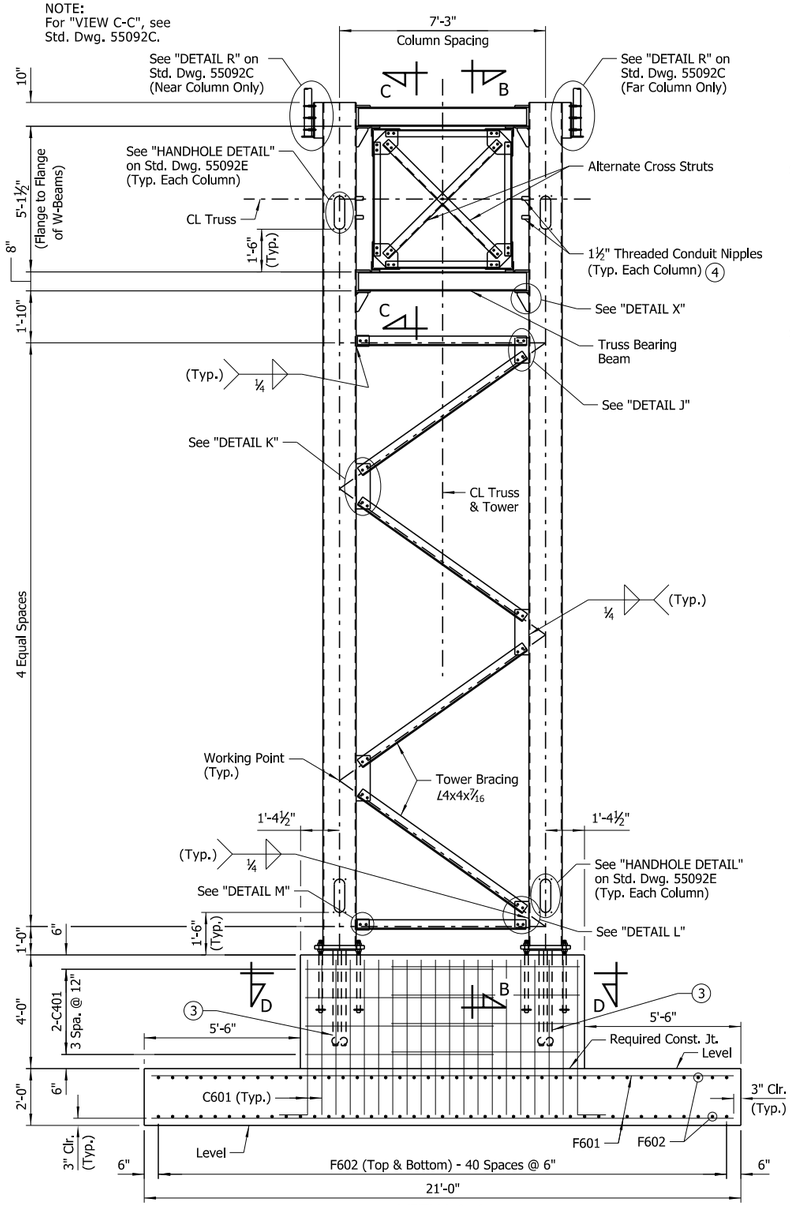
Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55092A

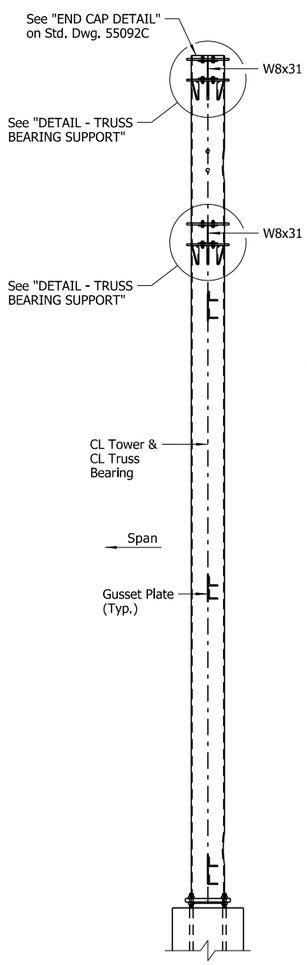
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (40' TO 54') - 55092B				

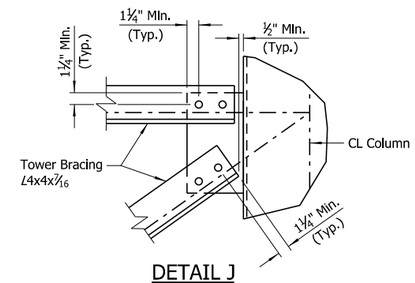
NOTE:
For "VIEW C-C", see Std. Dwg. 55092C.



VIEW A-A
(Foundation A1)
No Scale

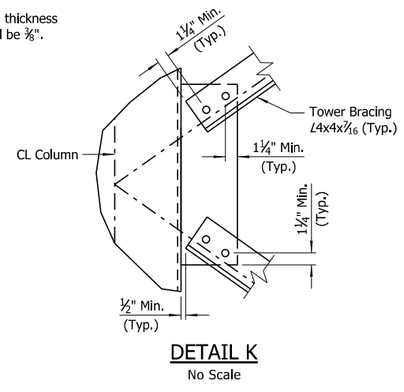


VIEW B-B
No Scale

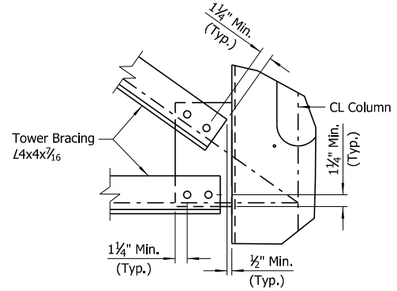


DETAIL J
No Scale

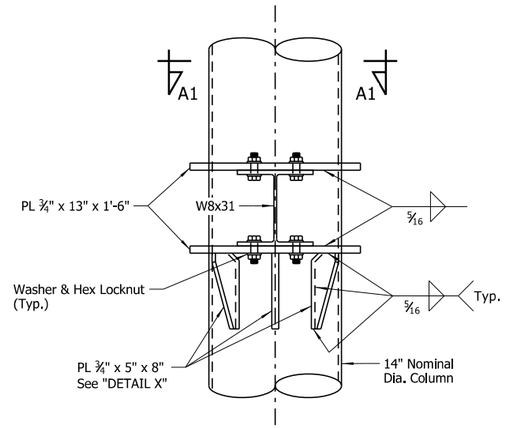
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



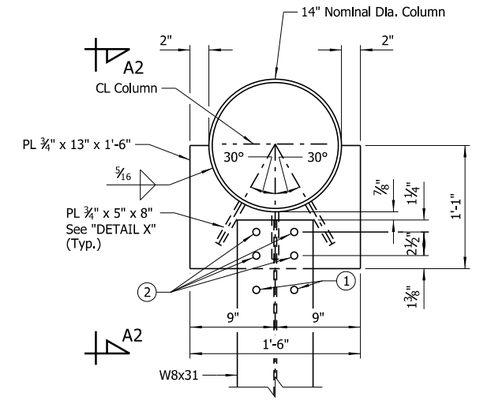
DETAIL K
No Scale



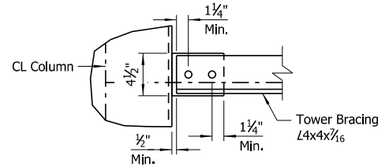
DETAIL L
No Scale



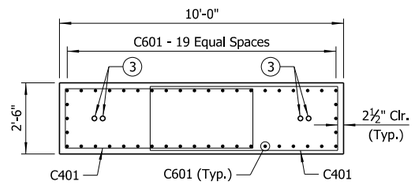
DETAIL - TRUSS BEARING SUPPORT
Scale: 1½" = 1'-0"



VIEW A1-A1
Scale: 1½" = 1'-0"

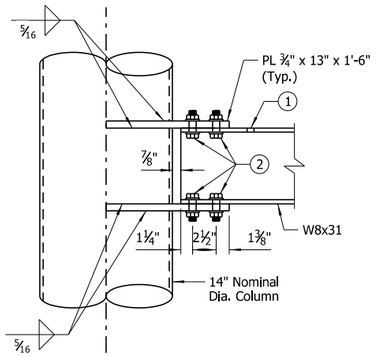


DETAIL M
No Scale

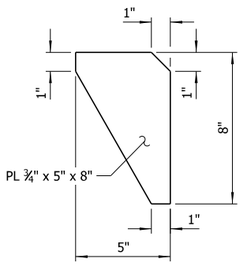


SECTION D-D
Scale: ⅜" = 1'-0"

1. Bolts shall be ¾"ø. Provide 13/16" x 2" slotted hole in gusset plate and chord angle. Use plate washer on gusset plate side. Provide 13/16"ø holes in ¾" shim plate and top or bottom beam flanges as required.
2. Bolts shall be ¾"ø. Provide 13/16"ø holes at top and bottom beam flanges and connection plates.
3. 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit.
4. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.



VIEW A2-A2
Scale: 1½" = 1'-0"
(¾" x 5" x 8" Plate not shown for clarity)



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

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 2 OF 6
STANDARD DETAILS OF 40' TO 54'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55092b.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55092B

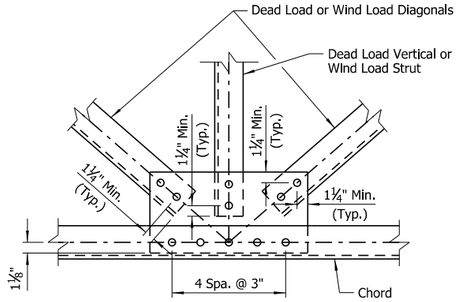
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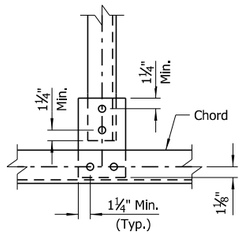
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (40' TO 54') - 55092C				

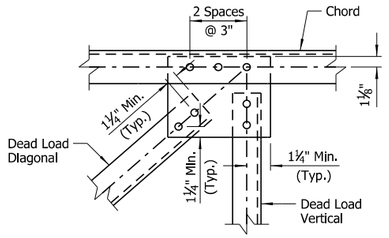
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



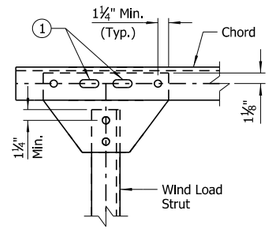
DETAIL A
No Scale



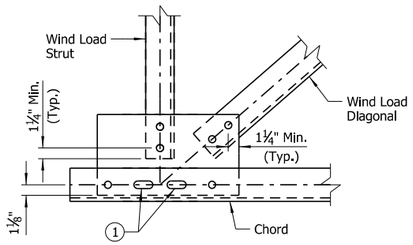
DETAIL B
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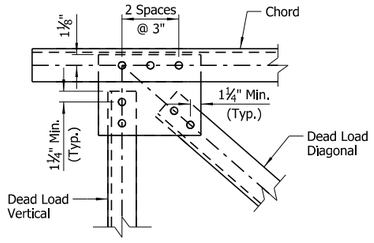
DETAIL C
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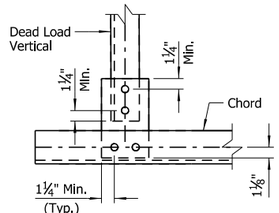
DETAIL D
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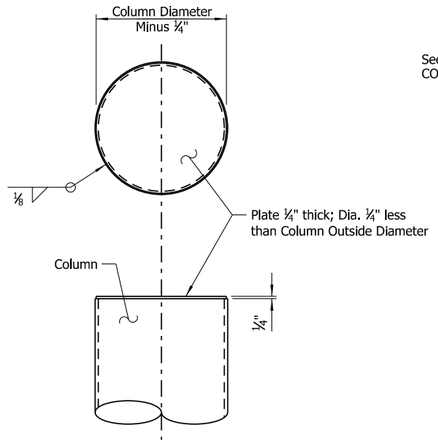
DETAIL E
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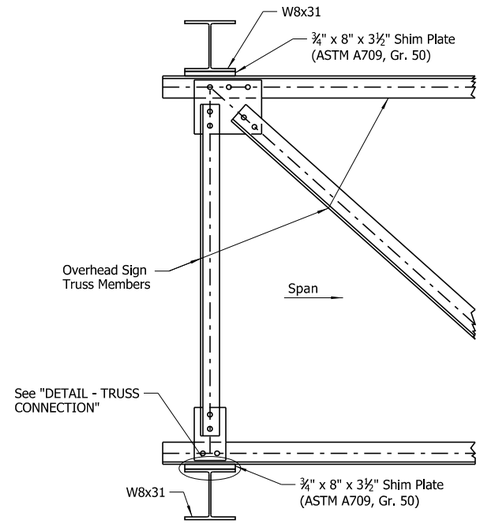
DETAIL F
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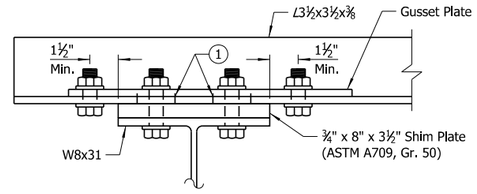
DETAIL G
No Scale



END CAP DETAIL
Scale: 1½" = 1'-0"



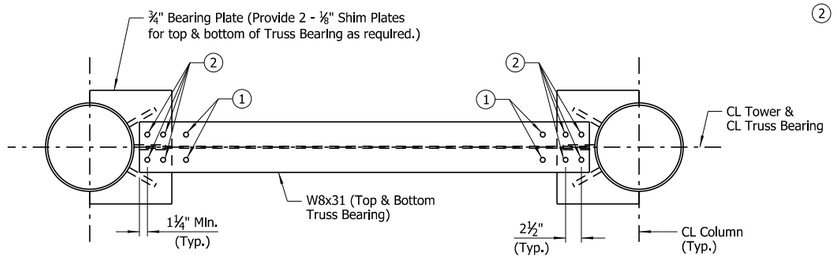
VIEW C-C
No Scale



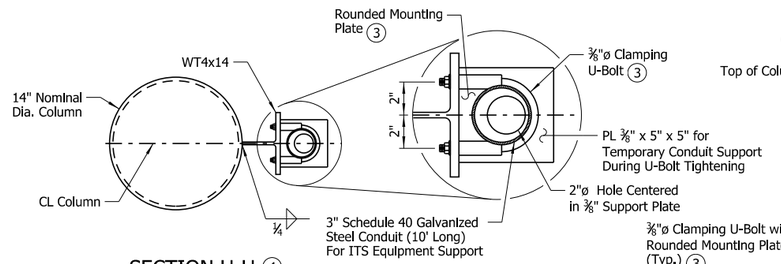
DETAIL - TRUSS CONNECTION
No Scale

① Bolts shall be ¾"ø. Provide $^{13}/_{16}$" x 2" slotted holes in gusset plate and chord angle. Clearance between end of slot and adjacent bolt hole shall be no less than 1½". Provide $^{13}/_{16}$"ø holes in ¾" shim plate and top or bottom beam flanges as required. Use plate washer on gusset plate side.

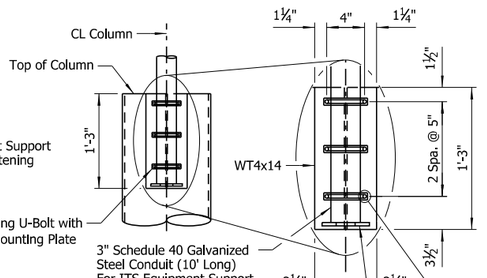
② Bolts shall be ¾"ø. Provide $^{13}/_{16}$"ø holes at top and bottom beam flanges and connection plates.



PLAN AT TRUSS BEARING
Scale: 1" = 1'-0"



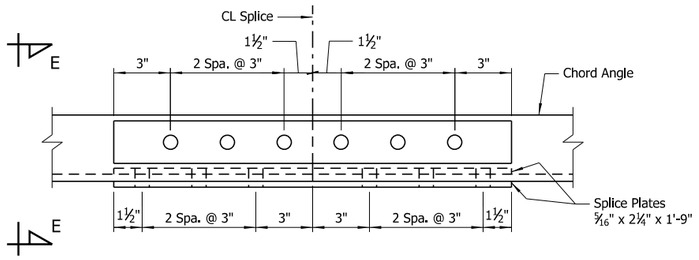
SECTION U-U ④
Scale: 1½" = 1'-0"



VIEW T-T ④
Scale: 1" = 1'-0"

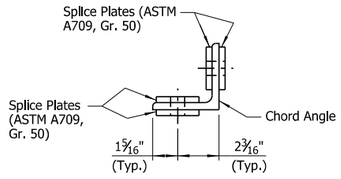
③ When required per plans to support ITS equipment, or as directed by the Engineer, Clamping U-Bolt with Rounded Mounting Plate Assembly product shall be included in shop drawings for approval. Assembly shall be galvanized and shall meet the requirements of ASTM A36 at a minimum. Install per Manufacturer's instructions.

④ WT4x14 with ⅜" Temporary Support Plate always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

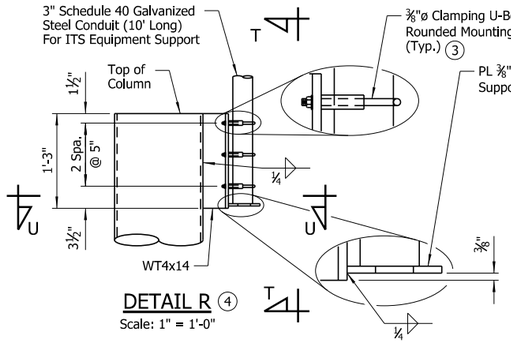


CHORD SPLICE
Scale: 3" = 1'-0"

NOTE:
Chord angles may be spliced in convenient lengths for galvanizing and sign placement.



VIEW E-E
Scale: 3" = 1'-0"



DETAIL R ④
Scale: 1" = 1'-0"

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 3 OF 6
STANDARD DETAILS OF 40' TO 54'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

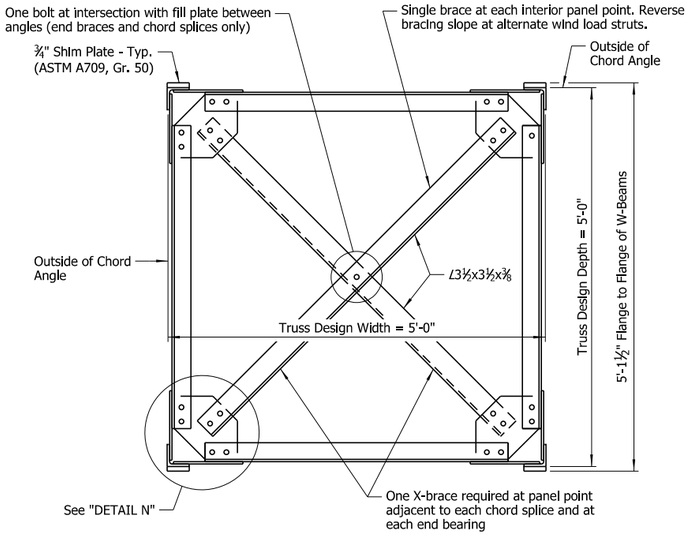
DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55092c.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half. DRAWING NO. 55092C

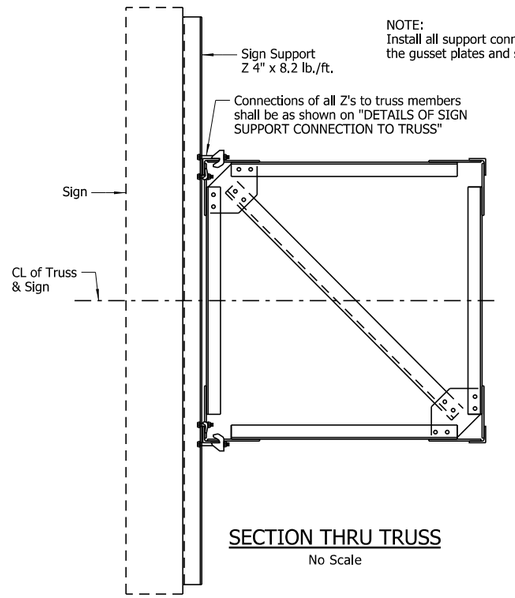
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (40' TO 54') - 55092D				



TRUSS SECTION

Scale: 1" = 1'-0"

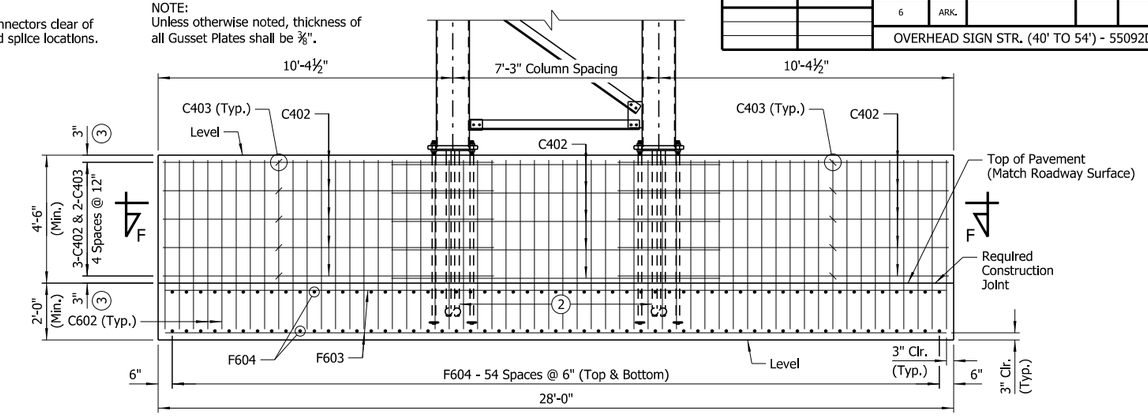


SECTION THRU TRUSS

No Scale

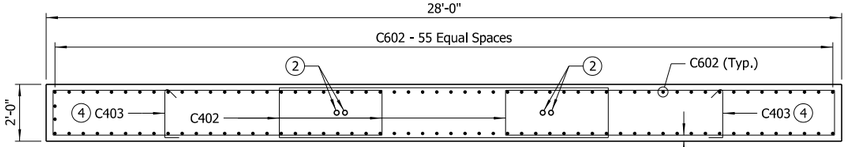
NOTE:
Install all support connectors clear of the gusset plates and splice locations.

NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



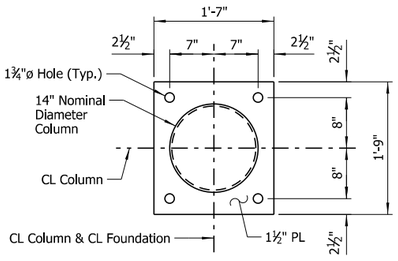
VIEW AA-AA

(Foundation B1)
Scale: ⅜" = 1'-0"



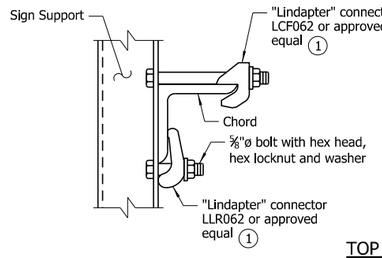
SECTION F-F

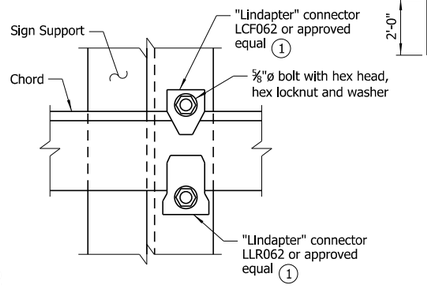
Scale: ⅜" = 1'-0"



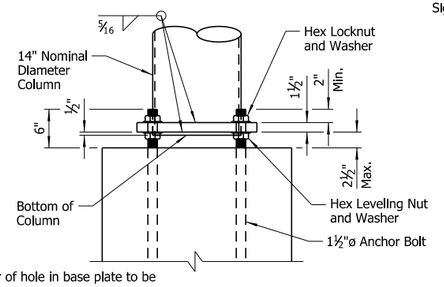
PLAN - COLUMN BASE

Scale: 1" = 1'-0"





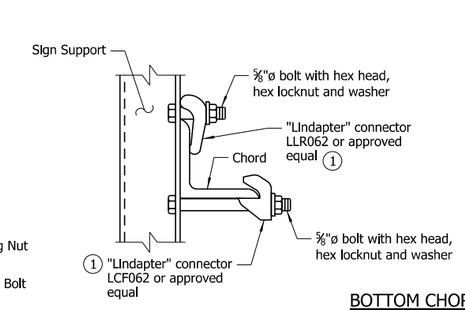
TOP CHORD

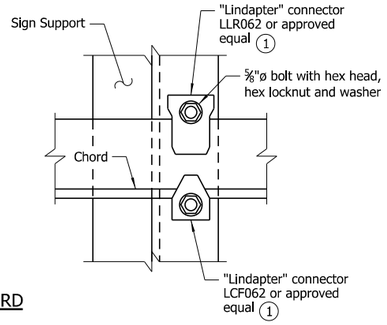


NOTE:
Diameter of hole in base plate to be ⅛" larger than column diameter.

ELEVATION - COLUMN BASE

Scale: 1" = 1'-0"

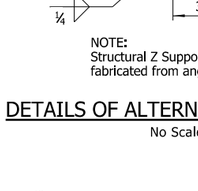




BOTTOM CHORD

DETAILS OF SIGN SUPPORT CONNECTION TO TRUSS

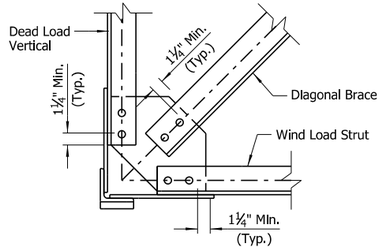
No Scale



NOTE:
Structural Z Support may be fabricated from angles as shown.

DETAILS OF ALTERNATE Z SUPPORT

No Scale



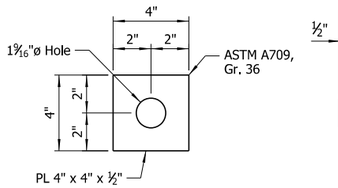
DETAIL N

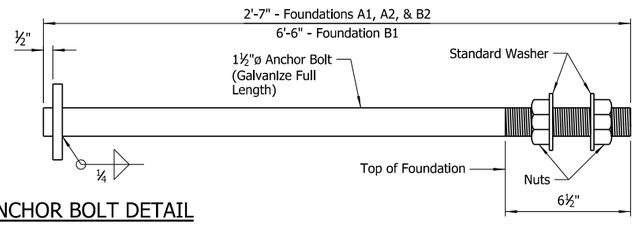
Scale: 1½" = 1'-0"

(2) 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. Conduit shall not be provided if cabling at Foundation B1 is not required per Electrical and/or ITS plans.

(3) Minor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.

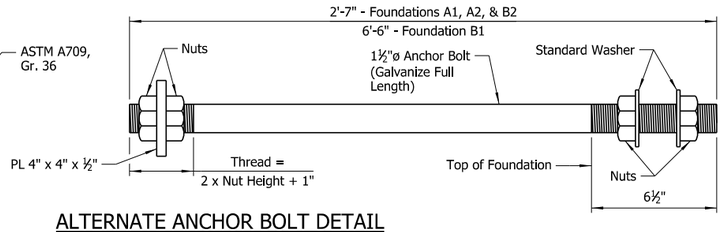
(4) Alternate C403 ties end for end at each layer of reinforcing.





ANCHOR BOLT DETAIL

No Scale



ALTERNATE ANCHOR BOLT DETAIL

No Scale

(1) All "Lindapter" connectors or approved equal shall be installed according to Manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.

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SHEET 4 OF 6
STANDARD DETAILS OF 40' TO 54'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55092d.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55092D

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (40' TO 54') - 55092E				

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, First Edition, 2015 with current interim revisions.

Basic Wind Speed = 120 mph
Fatigue Category: I

This structure is approved for a maximum sign area equal to 75% of the span length times a sign height of 15 feet. This structure is approved for a maximum sign weight (total of all signs and hangers) of 4,560 lbs. Use of additional sign area or a heavier sign must be approved by the Engineer. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer.

FOUNDATION MATERIALS AND STRENGTHS:

Class S Concrete	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

Spread footings for the structure have been designed assuming a factored bearing resistance of 2.0 ksf. Contractor shall be responsible for evaluating and verifying that the foundation soils are adequate to achieve the assumed factored bearing capacity, utilizing SPT (Standard Penetration Test), CPT (Cone Penetration Test), DCP (Dynamic Cone Penetration) test, or other suitable means, prior to or after footing excavation, whichever is appropriate. If the foundation soils are verified to be adequate, then the footing shall be constructed in accordance with the planned dimensions. Otherwise, the Design Engineer shall be contacted. Costs for foundation soil evaluation and verification shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

Structural steel sign support members shall comply with the following specifications:

Angles:	ASTM A709, Gr. 36 (Fy = 36,000 psi)
Plate, W-Section:	ASTM A709, Gr. 50 (Fy = 50,000 psi)
(1) Pipe:	ASTM A139, Gr. C, straight-seam welded (Fy = 42,000 psi), ASTM A500, Gr. B (Fy = 42,000 psi), ASTM A501, Gr. B (Fy = 50,000 psi)
Z-Shapes:	ASTM A709, Grade 36 (Fy = 36,000 psi)
Shim Plates:	ASTM A1011, SS, Grade 36, Type 2, or Grade 40
Bolts:	ASTM F3125, Grade A325, Type 1
Locknuts - Approved Type:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H
Washers:	ASTM F436
Nuts:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H

The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and to fit the new structure to the existing and/or proposed conditions.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All steel shall be galvanized according to Subsection 807.19. Steel completely encased in concrete may not be galvanized. Galvanized coating damaged during transport, handling or erection shall be field repaired in accordance with Subsection 807.88.

All main load carrying tension members greater than ½" in thickness shall conform to the requirements of the Longitudinal Charpy V-Notch test specified for Zone 1 minimum service temperature. This work and materials shall be paid for in accordance with Special Provision "STEEL SIGN STRUCTURES".

Field splices shall be located in order to avoid sign panel connections. There shall be a maximum of two field splices, and they shall be spaced a minimum of 15 feet apart.

Truss field sections shall be shop assembled. Entire truss shall be fully assembled and lifted into place as one unit on to tower supports. All truss member connections shall be bolted connections.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26 except welding of tubular sections shall conform to AWS D1.1 Structural Welding Code.

No circumferential butt welds will be allowed in any pipe sections.

All fillet welds of critical members shall be tested according to AWS D1.1 Structural Welding Code - Steel using the magnetic particle method. Critical welds shall include: column to base plate and truss bottom support to column.

Connections shall be bolted with high-strength bolts. Unless otherwise noted, bolts shall be ¾" diameter and open holes shall be $^{13}/_{16}$" diameter. Bolt spacing shall be 2½" for ¾" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All truss frame bolts shall comply with ASTM F3125, Grade A325, Type 1, galvanized according to Subsection 807.06. Nuts and washers for ASTM F3125, Grade A325, Type 1 bolts shall be furnished and galvanized in accordance with Subsection 807.06.

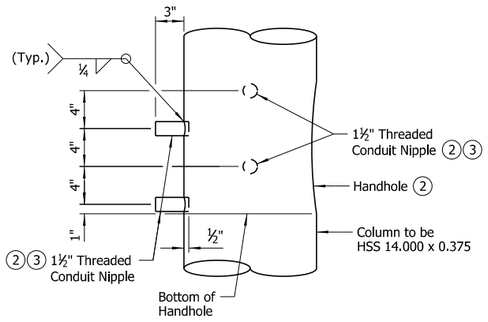
Locknuts shall be equipped with nylon locking inserts or other approved type locking system. Locknuts shall be installed according to Manufacturer's recommendations.

Anchor bolts shall comply with AASHTO M 314, Grade 55, including Supplementary Requirement S1, and shall be galvanized according to Subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with Subsection 807.07. Anchor bolts shall be pretensioned in accordance with Special Provision "STEEL SIGN STRUCTURES".

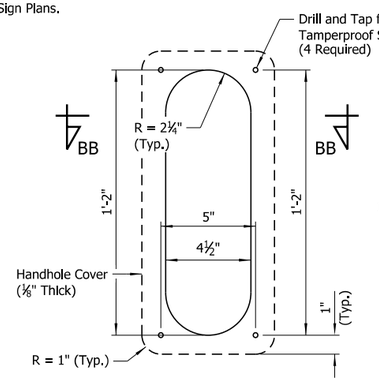
Shoring may be required to protect existing shoulders or other elements during excavation. Any shoring required shall not be paid for directly, but shall be considered incidental to the item "STEEL OVERHEAD SIGN STRUCTURE (_)". The excavations for the footings shall be backfilled before the structure is attached to the foundations.

DYNAMIC MESSAGE SIGN (WHEN APPLICABLE): The Dynamic Message Sign (DMS) supplier shall be responsible for the attachment method and materials used to attach the DMS and its accessories to the structure. The method of attachment shall not facilitate any corrosion of the structure. For additional information regarding the DMS, see Special Provision "OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY".

For location of each 40' to 54' overhead sign structure to be used, refer to ITS and/or Sign Plans.



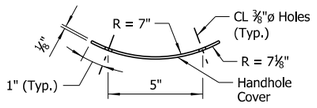
DETAIL P
Scale: 1½" = 1'-0"



HANDHOLE DETAIL (2)
Scale: 3" = 1'-0"

(2) See details on Std. Dwgs. 55092A & 55092B for location and orientation of handholes and threaded conduit nipples.

(3) Threaded conduit nipples shall be fitted with standard plugs until conduit is installed.

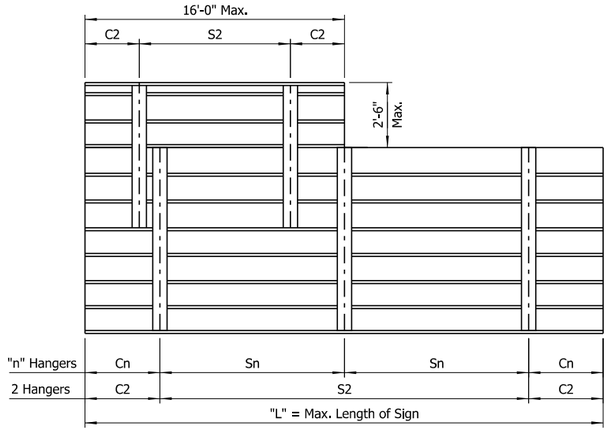


SECTION BB-BB
Scale: 3" = 1'-0"

NOTE:
Provide handhole covers with chain, waterproof grommet, and tamperproof screws.

Handhole covers shall be galvanized and meet the requirements of ASTM A36 at a minimum.

Tamperproof screws shall be galvanized and meet the requirements of ANSI/ASME B18.6.3.



NOTE:
See sign details and plan sheets for number, size and dimensions of signs.

HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

No Scale

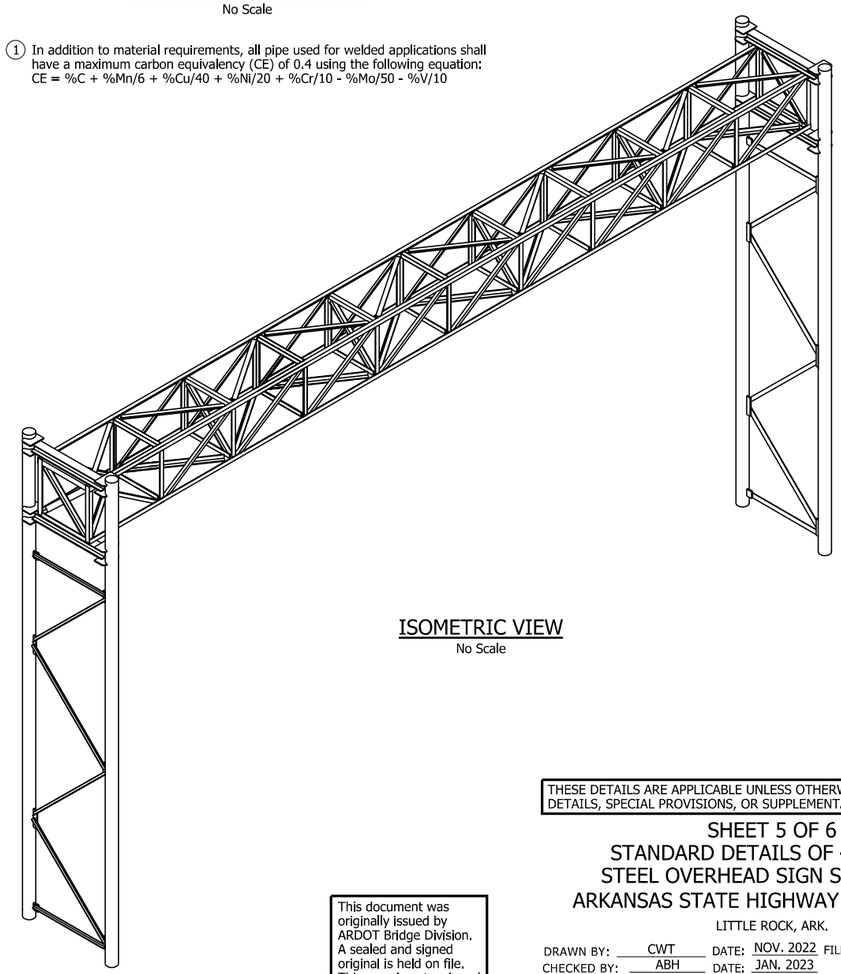
(1) In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4 using the following equation:
CE = %C + %Mn/6 + %Cu/40 + %Ni/20 + %Cr/10 - %Mo/50 - %V/10

HANGER VARIABLES

(For Extruded Panel Signs)

Max. Length of Sign = "L"	"n" Hangers	Cantilever Length "Cn"	Hanger Spacing "Sn"
15'-0"	2 Hangers	0.21 x "L"	0.58 x "L"
30'-0"	3 Hangers	0.145 x "L"	0.355 x "L"
45'-0"	4 Hangers	0.107 x "L"	0.262 x "L"

NOTE:
Hanger spacing and cantilever length shall be rounded to the nearest inch.



ISOMETRIC VIEW
No Scale

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SHEET 5 OF 6
STANDARD DETAILS OF 40' TO 54'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

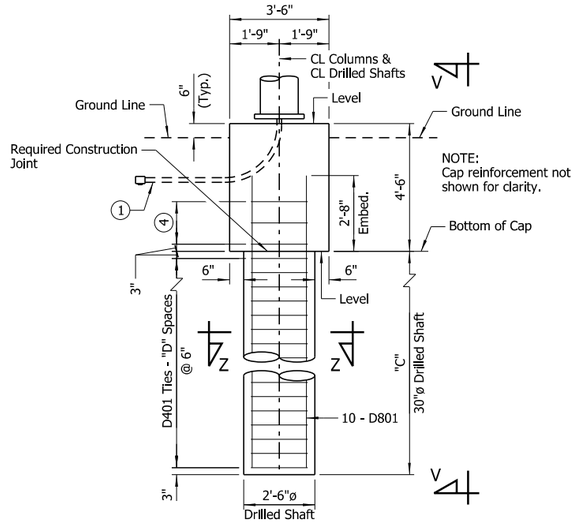
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CHECKED BY:	ABH	DATE:	JAN. 2023	SCALE:	As Shown
DESIGNED BY:	STD.	DATE:	-		

DRAWING NO. 55092E

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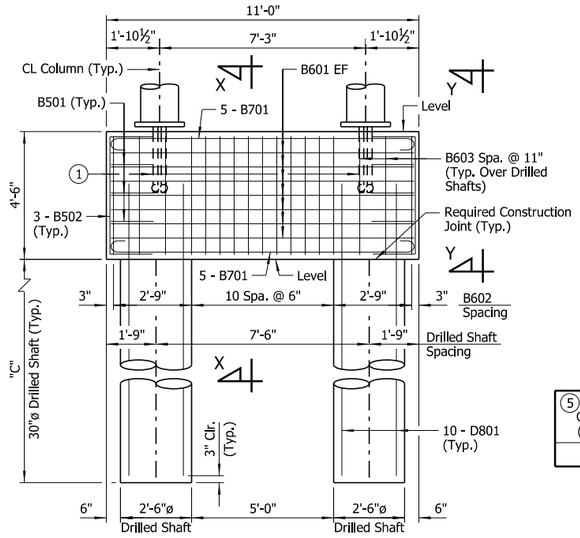
Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

6/17/2026



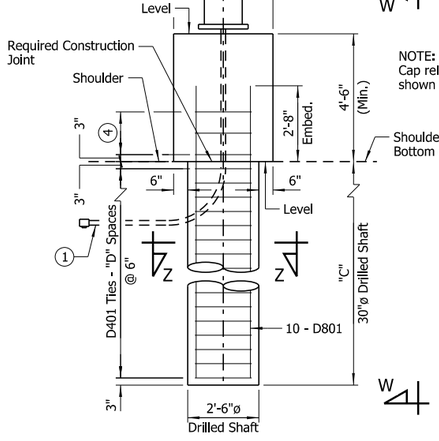
ELEVATION - FOUNDATION A2 (2)

Scale: ⅜" = 1'-0"



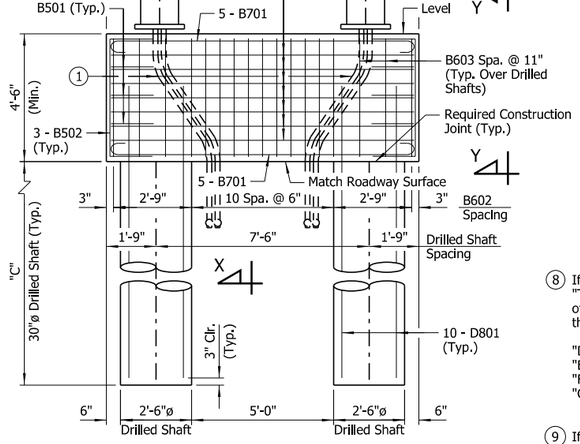
VIEW V-V

Scale: ⅜" = 1'-0"



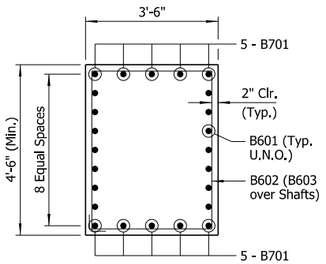
ELEVATION - FOUNDATION B2 (3)

Scale: ⅜" = 1'-0"



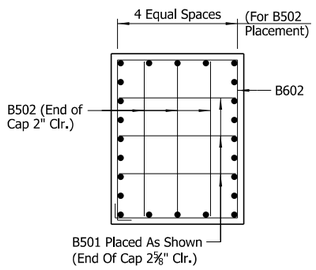
VIEW W-W

Scale: ⅜" = 1'-0"



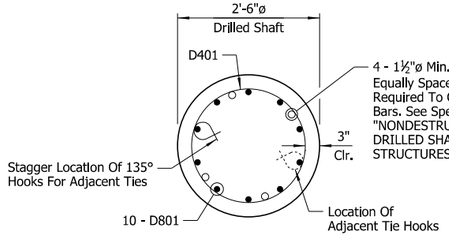
SECTION X-X

Scale: ½" = 1'-0"



VIEW Y-Y

Scale: ½" = 1'-0"



SECTION Z-Z

Scale: ¾" = 1'-0"

(1) 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. At Foundation B2, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A2, conduit shall always be provided. If cabling in the conduit at Foundation A2 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.

(2) Foundation A2 allowed only when foundation is outside clear zone or is protected by guardrail or barrier.

(3) Foundation B2 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B2 requires adjacent Roadway Median Barrier to transition to match the ends of the cap. See Roadway Plans for additional information.

(4) C401 Ties - 2 Spaces @ 9"

APPROX. QUANTITIES FOR FOUNDATION A2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)	DRILLED SHAFT (30" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (30" DIA.) (EACH)
6.50	970	14	"G"	1

APPROX. QUANTITIES FOR FOUNDATION B2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	DRILLED SHAFT (30" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (30" DIA.) (EACH)
6.50	970	"G"	1

(5) Does not include Class S Concrete for Drilled Shafts

(6) Does not include D401 and D801 Bars in Drilled Shafts

(7) Tabulated SPT N60 values are raw SPT N values corrected by SPT hammer efficiency and represent average values along the plan shaft penetration. If the SPT N60 values in the foundation soils within 2 shaft diameters below the plan tip elevation are less than the average SPT N60 values along the plan shaft penetration, the Engineer shall be contacted.

(8) If final drilled shaft length is not shown in "TABLE OF VARIABLES" due to the presence of rock or other factors, variables "D" through "G" shall be determined as follows:

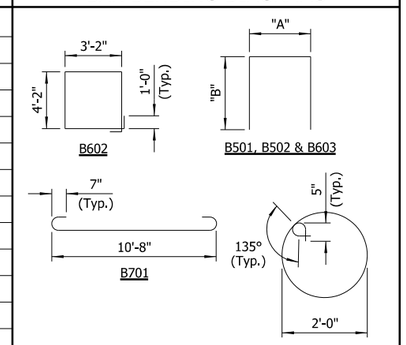
"D" = (Shaft Length in Ft. - 0.5) / 0.5
"E" = Shaft Length in Ft. x 4
"F" = Shaft Length + 2'-5"
"G" = Shaft Length x 2

(9) If "F" exceeds 60'-0", a lap splice is required for each D801 bar at the midpoint of the drilled shaft. Min. lap splice length for D801 bar = 3'-6". Length shown in table does not include the additional length required for a lap splice.

BAR LIST - FOUNDATION A2 OR B2

MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
B501	6	5'-10"	3'-0"	1'-6"	2½"
B502	6	6'-10"	4'-0"	1'-6"	2½"
B601	14	10'-8"			Str.
B602	13	15'-10"			4½"
B603	4	11'-2"	3'-2"	4'-2"	4½"
B701	10	12'-4"			5¼"
C401	6	7'-4"			3"
D401	"E"	7'-4"			3"
D801	20	"F"			Str.

BAR BENDING DIAGRAMS



NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one Foundation A2 or one Foundation B2.

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face

This document was originally issued by ARDOT Bridge Division. A sealed and signed original is held on file. This copy is not a signed and sealed document.

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (40' TO 54') - 55092F				

DRILLED SHAFT NOTES (FOUNDATIONS A2 & B2)

Drilled shafts shall conform to Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES". Drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". Temporary casing may be required. Unless approved by the Engineer, permanent steel casing shall not be used.

Crosshole Sonic Logging (CSL) shall be performed on one drilled shaft at each foundation and as directed by the Engineer. Testing shall be performed in accordance with Special Provision "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS FOR STEEL SIGN STRUCTURES".

Concrete and reinforcing steel placed in drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling or erecting.

Concrete in drilled shafts shall be Class "S" as modified by Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES".

Drilled shaft lengths shall be determined based on the results of exploratory borings, which shall be performed by the Contractor prior to shaft excavation.

If competent rock is not encountered in the exploratory boring, the Standard Penetration Test (SPT) blow count corrected by the hammer efficiency, N60, shall be used to determine shaft lengths. See "TABLE OF VARIABLES".

If competent rock is encountered in the exploratory boring within 25'-0" of planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock and have a minimum length of 25'-0".

If competent rock is encountered in the exploratory boring below 25'-0" from planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock or to the depth based on the SPT N60 value and associated shaft length in the "TABLE OF VARIABLES", whichever is shallower.

Testing results shall be submitted to the Engineer for review. Final drilled shaft lengths shall be approved by the Engineer prior to construction.

The cost of performing exploratory borings and in-situ strength testing shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

TABLE OF VARIABLES (8)

SPT N60 (7) (blows/ft.)	Min. Depth of Exploratory Boring	Drilled Shaft Length, "C"	"D"	"E"	"F" (9)	"G"
<5	-	Contact Engineer	-	-	-	-
5 To 7	75'-0"	70'-0"	139	280	72'-5"	140'-0"
7 To 9	63'-0"	58'-0"	115	232	60'-5"	116'-0"
9 To 11	47'-0"	42'-0"	83	168	44'-5"	84'-0"
11 To 13	37'-0"	32'-0"	63	128	34'-5"	64'-0"
>13	31'-0"	26'-0"	51	104	28'-5"	52'-0"

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 6 OF 6
STANDARD DETAILS OF 40' TO 54'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

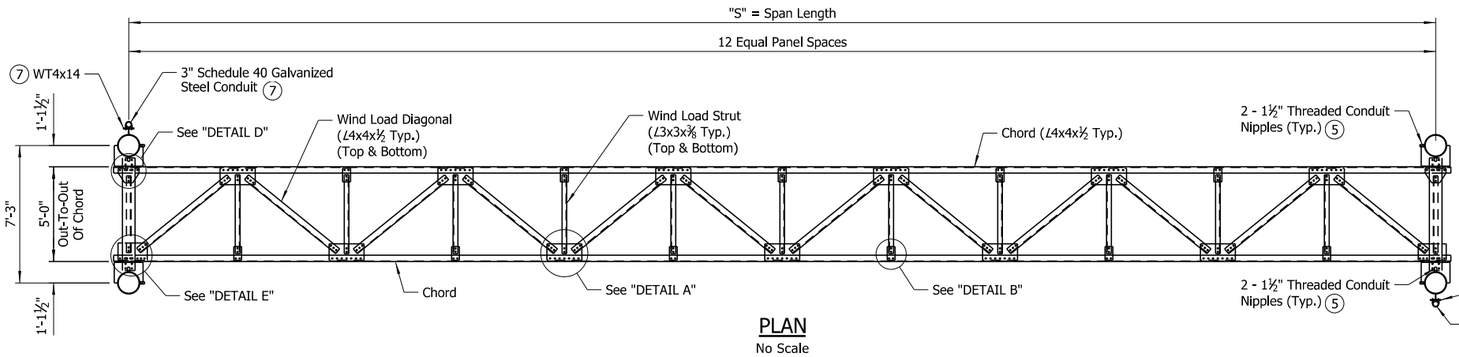
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CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55092F

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (55' TO 69') - 55093A				

NOTE:
Refer to Sign Layout Sheets for Span Length "S" and Foundation Types required for each structure.



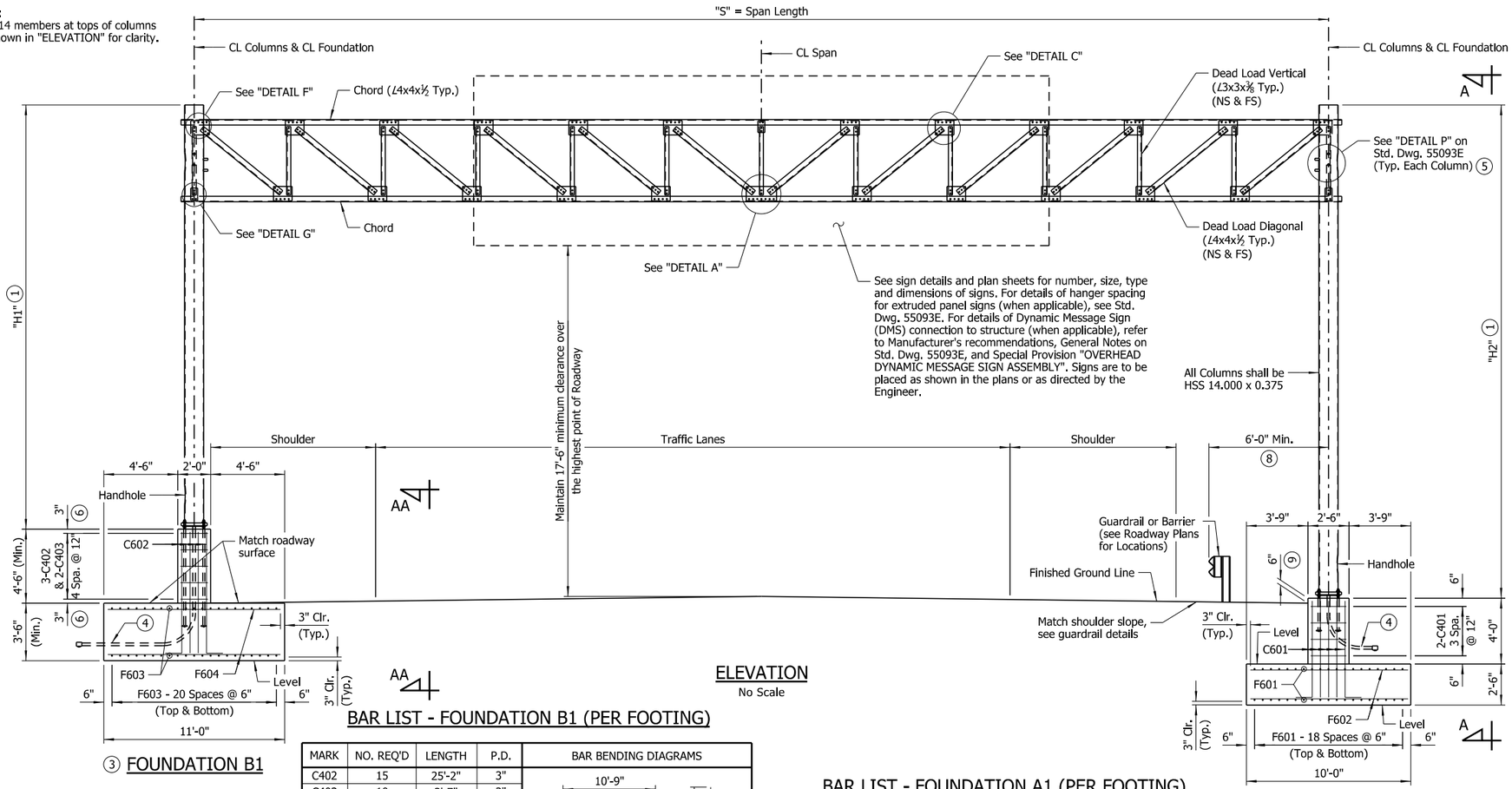
LEGEND

NS = Near Side
FS = Far Side

PLAN

No Scale

NOTE:
WT4x14 members at tops of columns not shown in "ELEVATION" for clarity.



ELEVATION

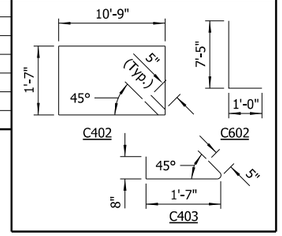
No Scale

③ FOUNDATION B1

BAR LIST - FOUNDATION B1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.
C402	15	25'-2"	3"
C403	10	2'-7"	3"
C602	104	8'-3"	4½"
F603	42	24'-6"	Str.
F604	98	10'-6"	Str.

BAR BENDING DIAGRAMS

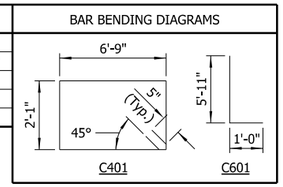


NOTE:
Dimensions of bars are out-to-out.

BAR LIST - FOUNDATION A1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.
C401	8	18'-2"	3"
C601	46	6'-9"	4½"
F601	38	20'-6"	Str.
F602	82	9'-6"	Str.

BAR BENDING DIAGRAMS



NOTE:
Dimensions of bars are out-to-out.

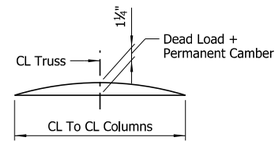
② FOUNDATION A1

1. The Contractor shall make field measurements to determine the column heights "H1" and "H2" that are required to maintain the minimum vertical clearance with the centerline of the sign located at the centerline of the truss. These column heights shall be shown on the shop drawings with a note stating that the Contractor has made the required field measurements. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer. The Contractor shall also verify that the variable span length (55'-0" to 69'-0") is sufficient to meet the minimum clearances and to fit the new structure to the existing and/or proposed conditions.
2. Foundation A1 allowed only when foundation is outside clear zone or is protected by guardrail or barrier. For alternate drilled shaft foundation (Foundation A2), see Std. Dwg. 55093F.
3. Foundation B1 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B1 requires adjacent Roadway Median Barrier to transition to match the ends of the pedestal. For alternate drilled shaft foundation (Foundation B2), see Std. Dwg. 55093F.
4. 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). At Foundation B1, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A1, conduit shall always be provided. If cabling in the conduit at Foundation A1 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.
5. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.
6. Minor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.
7. See "SECTION U-U" on Std. Dwg. 55093C. WT4x14 always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.
8. Minimum dimension when guardrail is present. See Sign Layout Sheets and/or ITS Plans for actual dimension for each structure.
9. Dimension from top of pedestal to Finished Ground Line shall be maintained along the perimeter of the pedestal.

NOTES:
For "VIEW A-A", see Std. Dwg. 55093B.

For "DETAIL A" thru "DETAIL G", see Std. Dwg. 55093C.

For "VIEW AA-AA", see Std. Dwg. 55093D.



TRUSS CAMBER DIAGRAM

No Scale

APPROXIMATE QUANTITIES FOR FOUNDATION A1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
23.20	2,910	70

APPROXIMATE QUANTITIES FOR FOUNDATION B1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
44.00	4,650	51

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 1 OF 6
STANDARD DETAILS OF 55' TO 69'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55093a.dgn
CHECKED BY: ABH DATE: FEB. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55093A

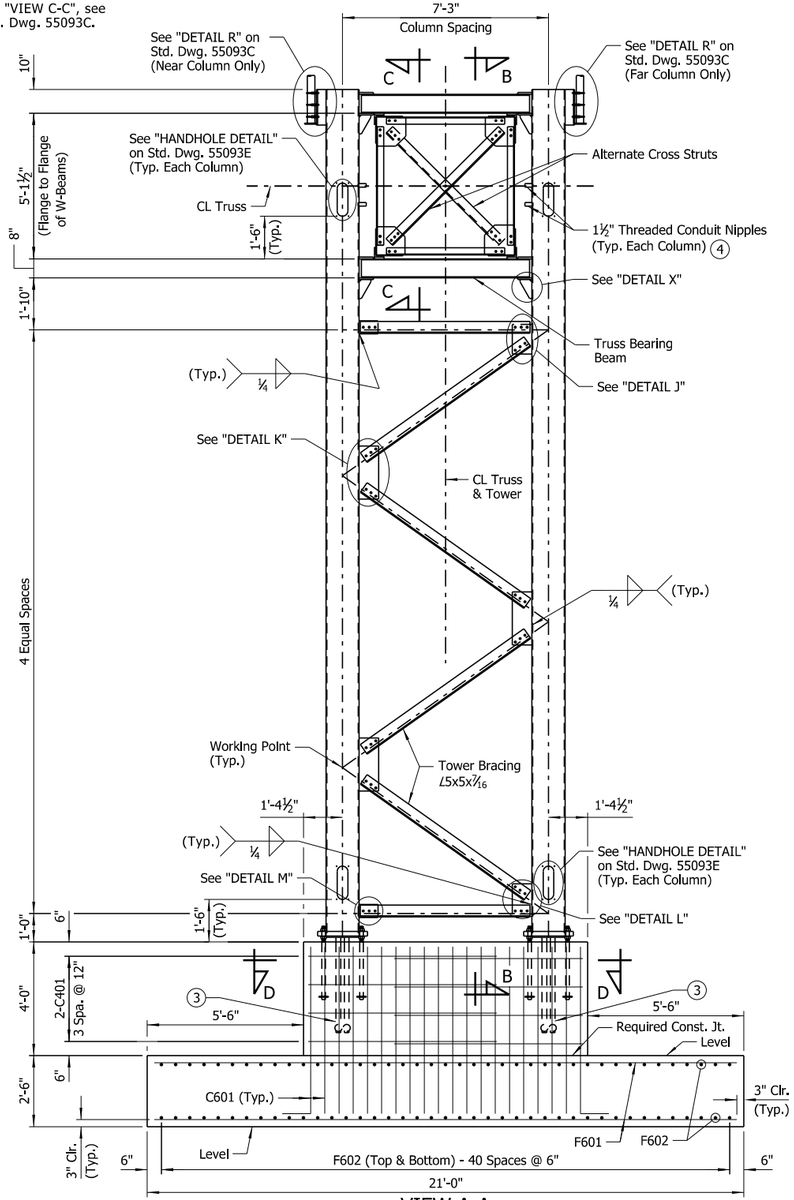
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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

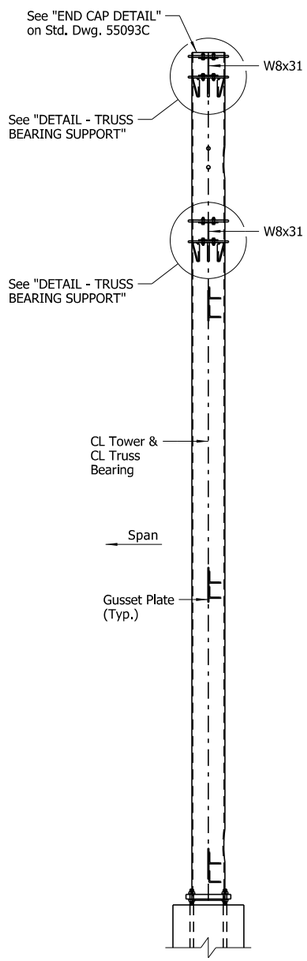
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (55' TO 69') - 55093B				

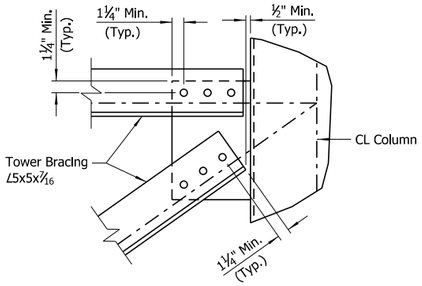
NOTE:
For "VIEW C-C", see Std. Dwg. 55093C.



VIEW A-A
(Foundation A1)
No Scale

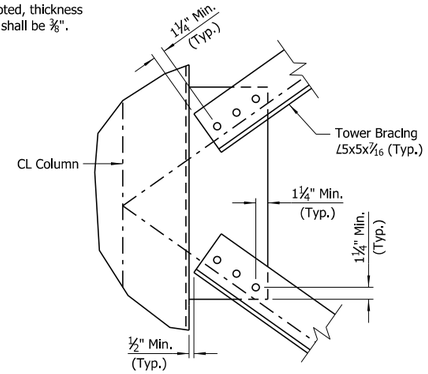


VIEW B-B
No Scale

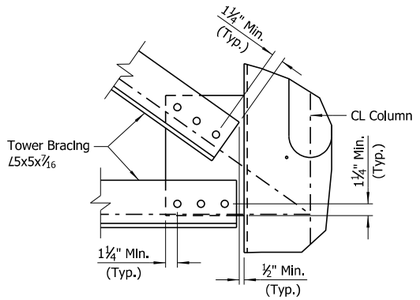


DETAIL J
No Scale

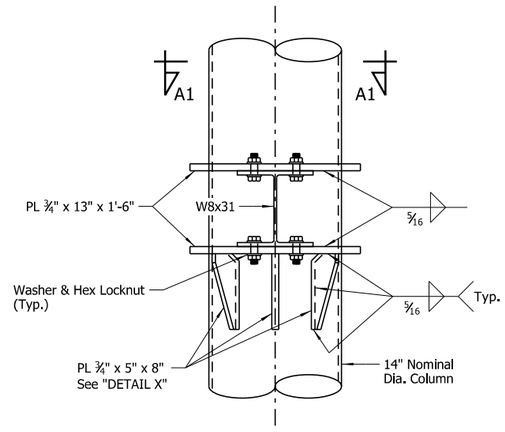
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



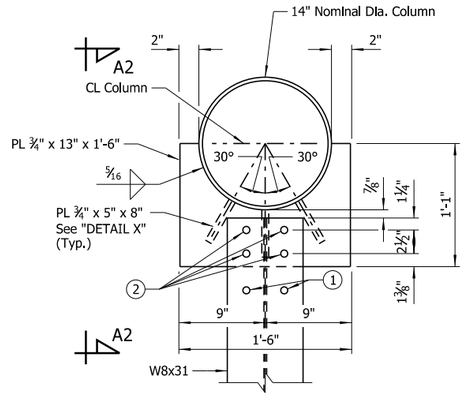
DETAIL K
No Scale



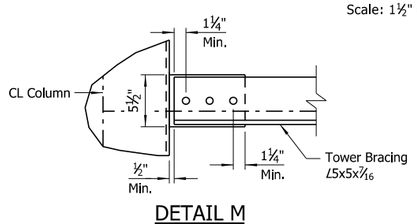
DETAIL L
No Scale



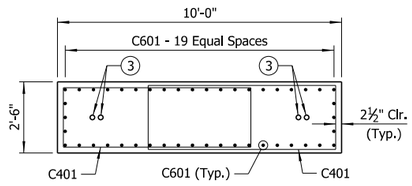
DETAIL - TRUSS BEARING SUPPORT
Scale: 1½" = 1'-0"



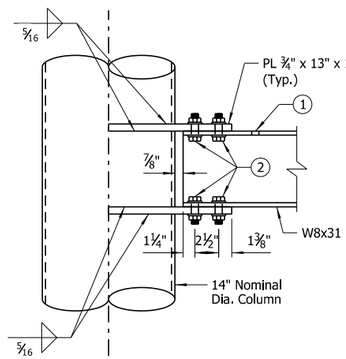
VIEW A1-A1
Scale: 1½" = 1'-0"



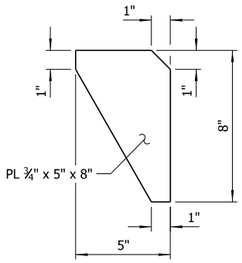
DETAIL M
No Scale



SECTION D-D
Scale: ⅜" = 1'-0"



VIEW A2-A2
Scale: 1½" = 1'-0"
(¾" x 5" x 8" Plate not shown for clarity)



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

1. Bolts shall be ¾"ø. Provide 13/16" x 2" slotted hole in gusset plate and chord angle. Use plate washer on gusset plate side. Provide 13/16"ø holes in ¾" shim plate and top or bottom beam flanges as required.
2. Bolts shall be ¾"ø. Provide 13/16"ø holes at top and bottom beam flanges and connection plates.
3. 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit.
4. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 2 OF 6
STANDARD DETAILS OF 55' TO 69'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55093b.dgn
CHECKED BY: ABH DATE: FEB. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55093B

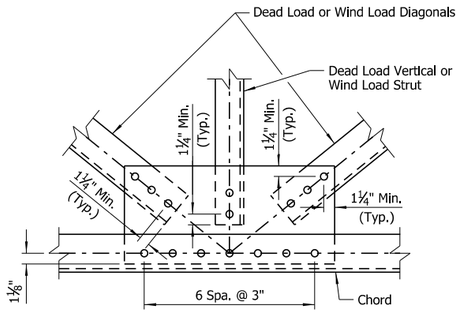
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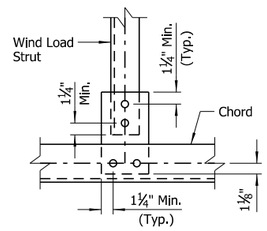
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (55' TO 69') - 55093C				

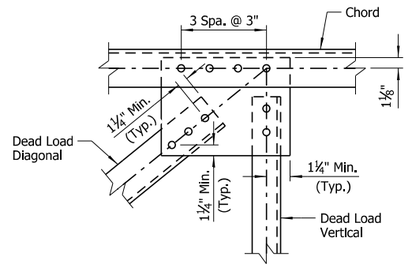
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



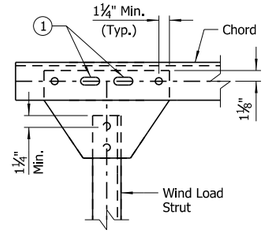
DETAIL A
No Scale



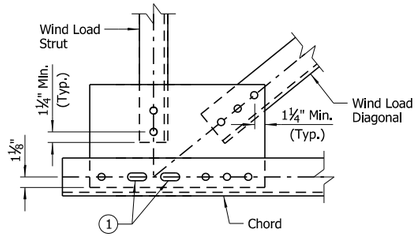
DETAIL B
No Scale



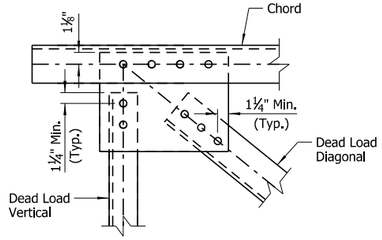
DETAIL C
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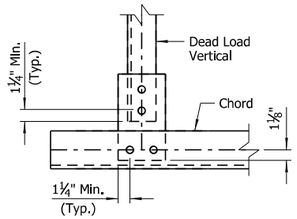
DETAIL D
No Scale



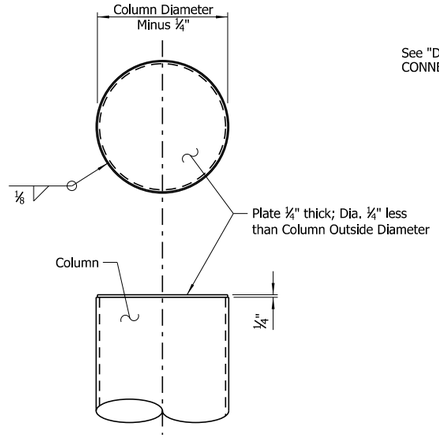
DETAIL E
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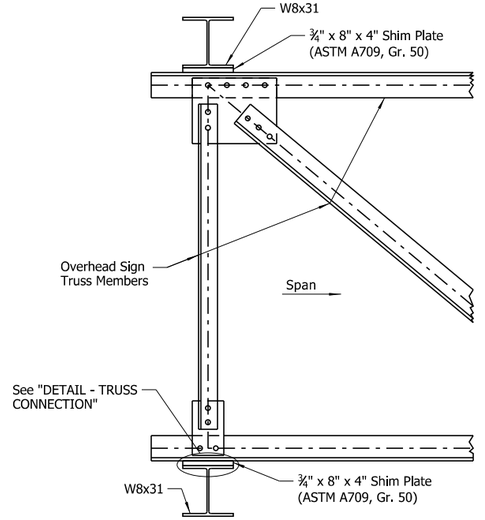
DETAIL F
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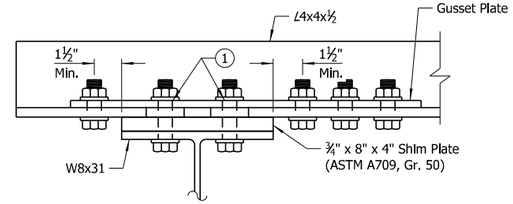
DETAIL G
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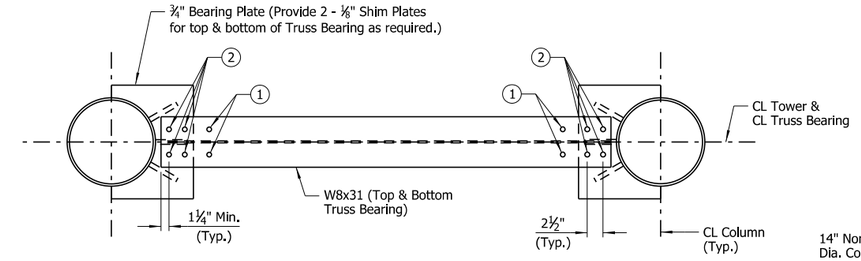
END CAP DETAIL
Scale: 1½" = 1'-0"



VIEW C-C
No Scale



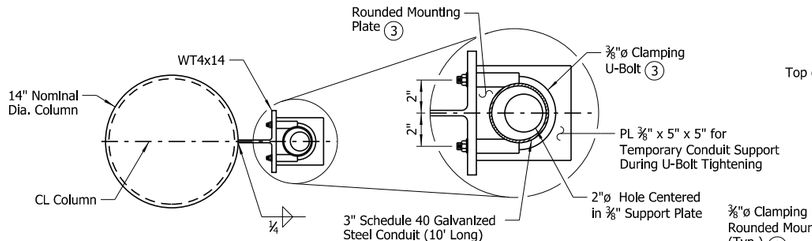
DETAIL - TRUSS CONNECTION
No Scale



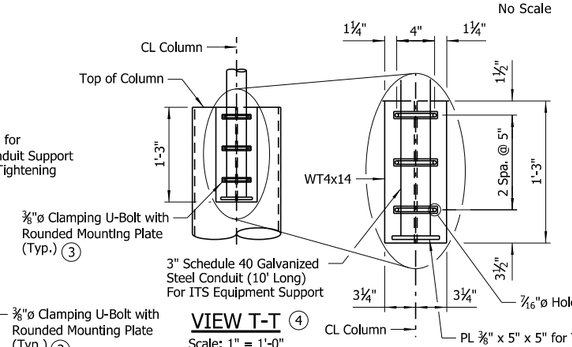
PLAN AT TRUSS BEARING
Scale: 1" = 1'-0"

1 Bolts shall be ¾"ø. Provide 13/16" x 2" slotted holes in gusset plate and chord angle. Clearance between end of slot and adjacent bolt hole shall be no less than 1½". Provide 13/16"ø holes in ¾" shim plate and top or bottom beam flanges as required. Use plate washer on gusset plate side.

2 Bolts shall be ¾"ø. Provide 13/16"ø holes at top and bottom beam flanges and connection plates.



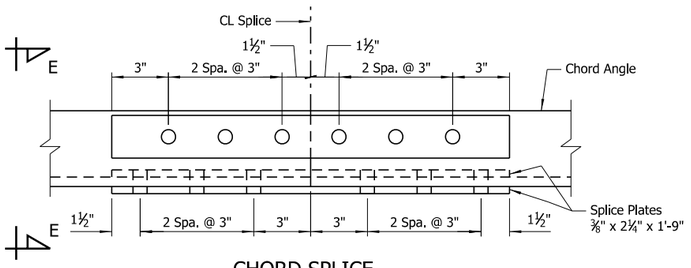
SECTION U-U 4
Scale: 1½" = 1'-0"



VIEW T-T 4
Scale: 1" = 1'-0"

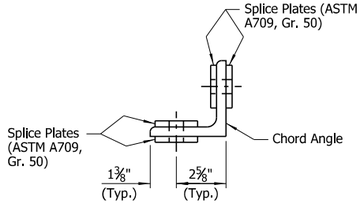
3 When required per plans to support ITS equipment, or as directed by the Engineer, Clamping U-Bolt with Rounded Mounting Plate Assembly product shall be included in shop drawings for approval. Assembly shall be galvanized and shall meet the requirements of ASTM A36 at a minimum. Install per Manufacturer's instructions.

4 WT4x14 with ¼" Temporary Support Plate always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

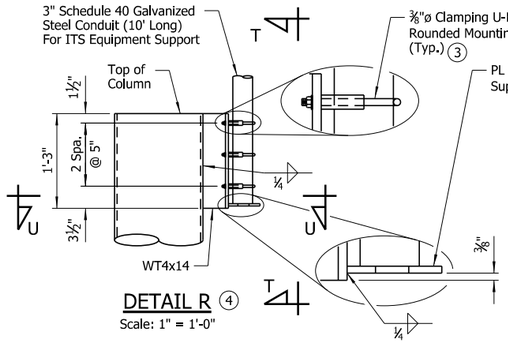


CHORD SPLICE
Scale: 3" = 1'-0"

NOTE:
Chord angles may be spliced in convenient lengths for galvanizing and sign placement.



VIEW E-E
Scale: 3" = 1'-0"



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

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 3 OF 6
STANDARD DETAILS OF 55' TO 69'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55093c.dgn
CHECKED BY: ABH DATE: FEB. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

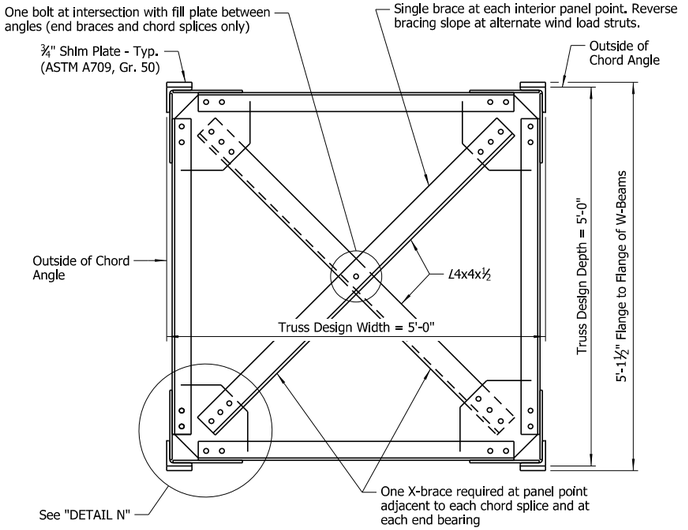
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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55093C

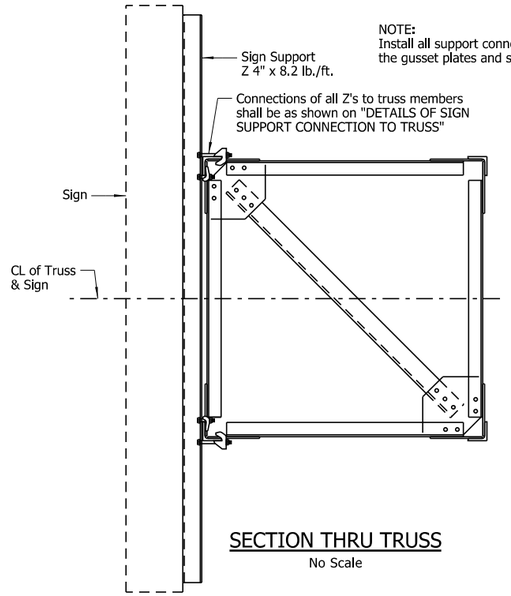
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (55' TO 69') - 55093D				



TRUSS SECTION

Scale: 1" = 1'-0"

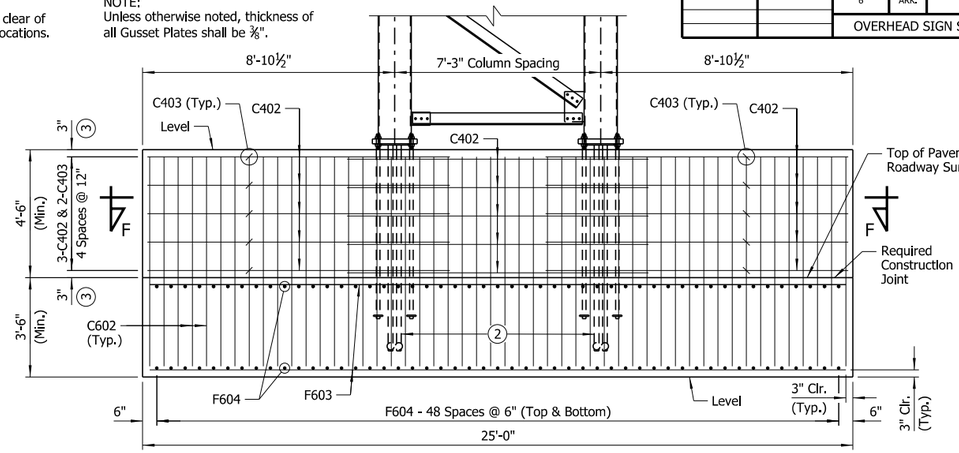


SECTION THRU TRUSS

No Scale

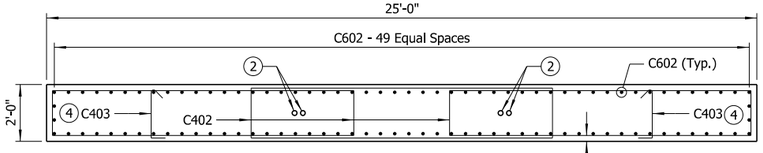
NOTE:
Install all support connectors clear of the gusset plates and splice locations.

NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



VIEW AA-AA

(Foundation B1)
Scale: ⅜" = 1'-0"



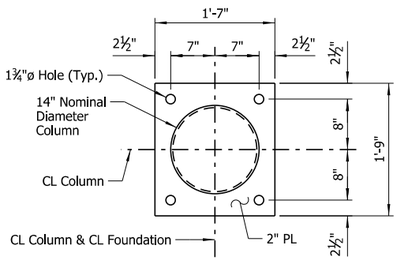
SECTION F-F

Scale: ⅜" = 1'-0"

② 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. Conduit shall not be provided if cabling at Foundation B1 is not required per Electrical and/or ITS plans.

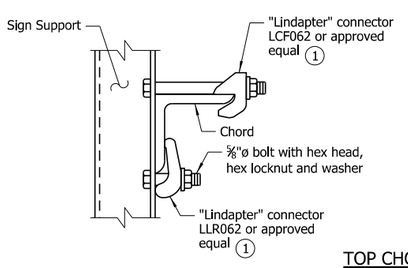
③ Minor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.

④ Alternate C403 ties end for end at each layer of reinforcing.

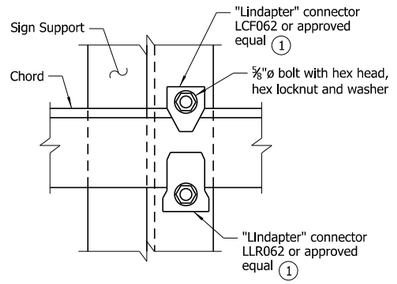


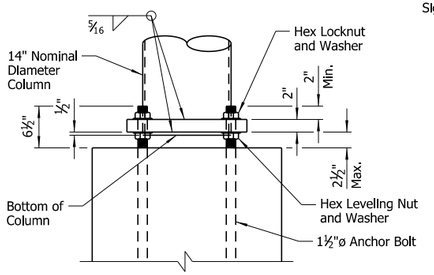
PLAN - COLUMN BASE

Scale: 1" = 1'-0"



TOP CHORD

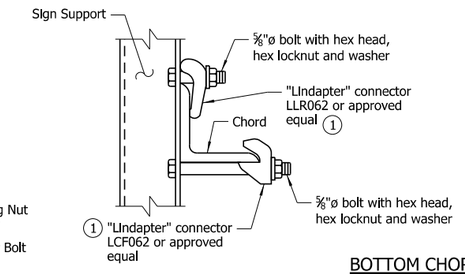




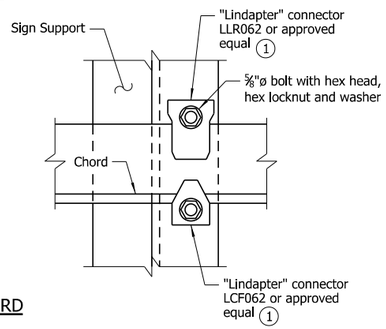
NOTE:
Diameter of hole in base plate to be ⅛" larger than column diameter.

ELEVATION - COLUMN BASE

Scale: 1" = 1'-0"



BOTTOM CHORD



DETAILS OF SIGN SUPPORT CONNECTION TO TRUSS

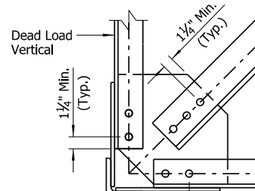
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NOTE:
Structural Z Support may be fabricated from angles as shown.

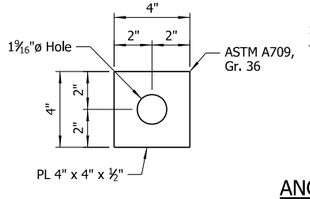
DETAILS OF ALTERNATE Z SUPPORT

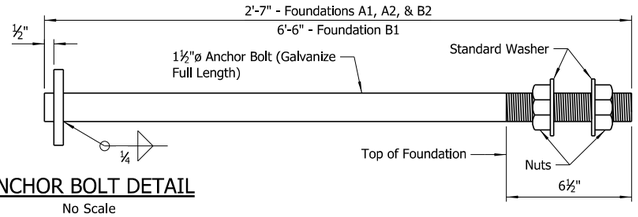
No Scale



DETAIL N

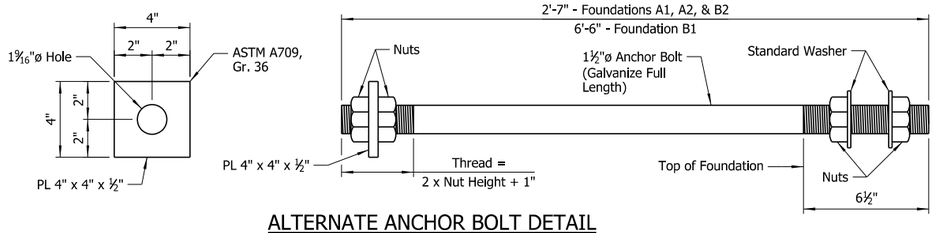
Scale: 1½" = 1'-0"





ANCHOR BOLT DETAIL

No Scale



ALTERNATE ANCHOR BOLT DETAIL

No Scale

① All "Lindapter" connectors or approved equal shall be installed according to Manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 4 OF 6
STANDARD DETAILS OF 55' TO 69'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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DRAWN BY:	CWT	DATE:	NOV. 2022	FILENAME:	b55093d.dgn
CHECKED BY:	ABH	DATE:	FEB. 2023	SCALE:	As Shown
DESIGNED BY:	STD.	DATE:	-		

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half. DRAWING NO. 55093D

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (55' TO 69') - 55093E				

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, First Edition, 2015 with current interim revisions.

Basic Wind Speed = 120 mph
Fatigue Category: I

This structure is approved for a maximum sign area equal to 75% of the span length times a sign height of 15 feet. This structure is approved for a maximum sign weight (total of all signs and hangers) of 5,025 lbs. Use of additional sign area or a heavier sign must be approved by the Engineer. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer.

FOUNDATION MATERIALS AND STRENGTHS:

Class S Concrete	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

Spread footings for the structure have been designed assuming a factored bearing resistance of 2.0 ksf. Contractor shall be responsible for evaluating and verifying that the foundation soils are adequate to achieve the assumed factored bearing capacity, utilizing SPT (Standard Penetration Test), CPT (Cone Penetration Test), DCP (Dynamic Cone Penetration) test, or other suitable means, prior to or after footing excavation, whichever is appropriate. If the foundation soils are verified to be adequate, then the footing shall be constructed in accordance with the planned dimensions. Otherwise, the Design Engineer shall be contacted. Costs for foundation soil evaluation and verification shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

Structural steel sign support members shall comply with the following specifications:

Angles:	ASTM A709, Gr. 36 (Fy = 36,000 psi)
Plate, W-Section:	ASTM A709, Gr. 50 (Fy = 50,000 psi)
(1) Pipe:	ASTM A139, Gr. C, straight-seam welded (Fy = 42,000 psi), ASTM A500, Gr. B (Fy = 42,000 psi), ASTM A501, Gr. B (Fy = 50,000 psi)
Z-Shapes:	ASTM A709, Grade 36 (Fy = 36,000 psi)
Shim Plates:	ASTM A1011, SS, Grade 36, Type 2, or Grade 40
Bolts:	ASTM F3125, Grade A325, Type 1
Locknuts - Approved Type:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H
Washers:	ASTM F436
Nuts:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H

The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and to fit the new structure to the existing and/or proposed conditions.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All steel shall be galvanized according to Subsection 807.19. Steel completely encased in concrete may not be galvanized. Galvanized coating damaged during transport, handling or erection shall be field repaired in accordance with Subsection 807.88.

All main load carrying tension members greater than ½" in thickness shall conform to the requirements of the Longitudinal Charpy V-Notch test specified for Zone 1 minimum service temperature. This work and materials shall be paid for in accordance with Special Provision "STEEL SIGN STRUCTURES".

Field splices shall be located in order to avoid sign panel connections. There shall be a maximum of two field splices, and they shall be spaced a minimum of 15 feet apart.

Truss field sections shall be shop assembled. Entire truss shall be fully assembled and lifted into place as one unit on to tower supports. All truss member connections shall be bolted connections.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26 except welding of tubular sections shall conform to AWS D1.1 Structural Welding Code.

No circumferential butt welds will be allowed in any pipe sections.

All fillet welds of critical members shall be tested according to AWS D1.1 Structural Welding Code - Steel using the magnetic particle method. Critical welds shall include: column to base plate and truss bottom support to column.

Connections shall be bolted with high-strength bolts. Unless otherwise noted, bolts shall be ¾" diameter and open holes shall be $^{13}/_{16}$" diameter. Bolt spacing shall be 2½" for ¾" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All truss frame bolts shall comply with ASTM F3125, Grade A325, Type 1, galvanized according to Subsection 807.06. Nuts and washers for ASTM F3125, Grade A325, Type 1 bolts shall be furnished and galvanized in accordance with Subsection 807.06.

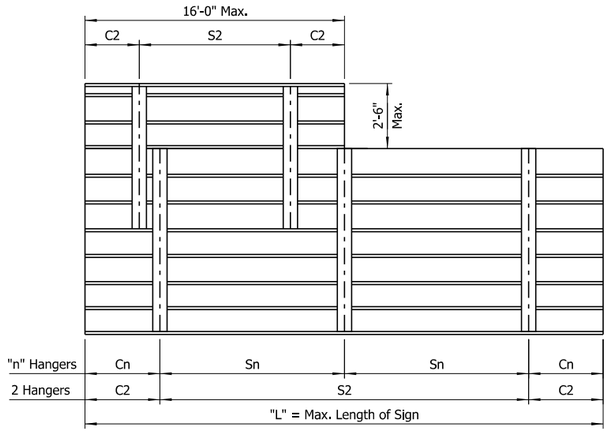
Locknuts shall be equipped with nylon locking inserts or other approved type locking system. Locknuts shall be installed according to Manufacturer's recommendations.

Anchor bolts shall comply with AASHTO M 314, Grade 55, including Supplementary Requirement S1, and shall be galvanized according to Subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with Subsection 807.07. Anchor bolts shall be pretensioned in accordance with Special Provision "STEEL SIGN STRUCTURES".

Shoring may be required to protect existing shoulders or other elements during excavation. Any shoring required shall not be paid for directly, but shall be considered incidental to the item "STEEL OVERHEAD SIGN STRUCTURE (_)". The excavations for the footings shall be backfilled before the structure is attached to the foundations.

DYNAMIC MESSAGE SIGN (WHEN APPLICABLE): The Dynamic Message Sign (DMS) supplier shall be responsible for the attachment method and materials used to attach the DMS and its accessories to the structure. The method of attachment shall not facilitate any corrosion of the structure. For additional information regarding the DMS, see Special Provision "OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY".

For location of each 55' to 69' overhead sign structure to be used, refer to ITS and/or Sign Plans.



NOTE:
See sign details and plan sheets for number, size and dimensions of signs.

HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

No Scale

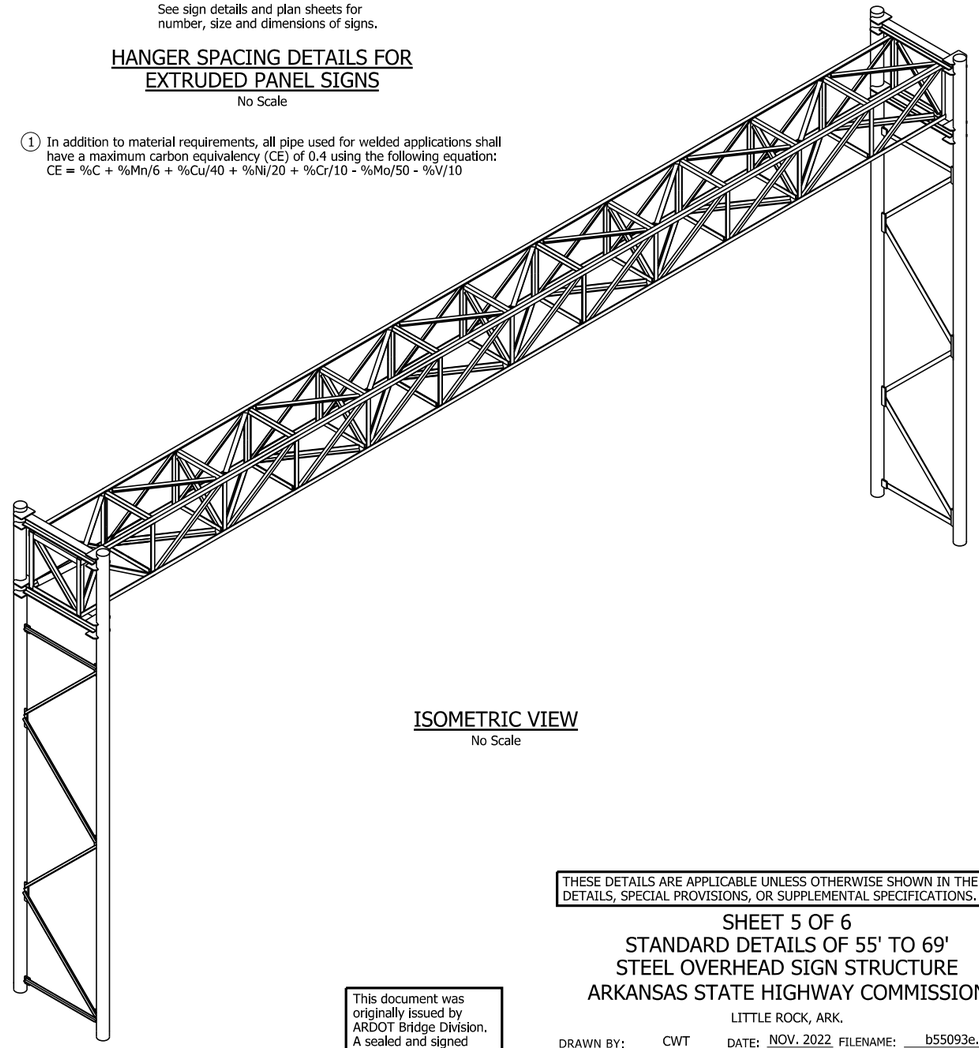
(1) In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4 using the following equation:
CE = %C + %Mn/6 + %Cu/40 + %Ni/20 + %Cr/10 - %Mo/50 - %V/10

HANGER VARIABLES

(For Extruded Panel Signs)

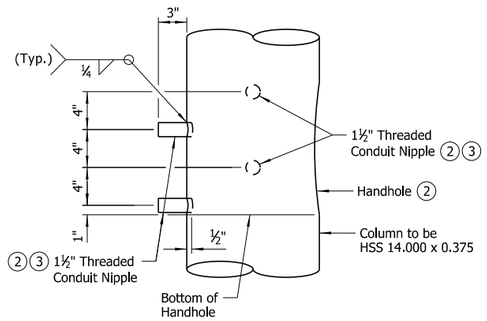
Max. Length of Sign = "L"	"n" Hangers	Cantilever Length "Cn"	Hanger Spacing "Sn"
15'-0"	2 Hangers	0.21 x "L"	0.58 x "L"
30'-0"	3 Hangers	0.145 x "L"	0.355 x "L"
45'-0"	4 Hangers	0.107 x "L"	0.262 x "L"

NOTE:
Hanger spacing and cantilever length shall be rounded to the nearest inch.



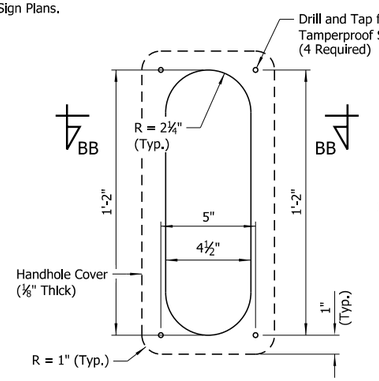
ISOMETRIC VIEW

No Scale



DETAIL P

Scale: 1½" = 1'-0"

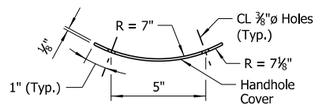


HANDHOLE DETAIL (2)

Scale: 3" = 1'-0"

(2) See details on Std. Dwgs. 55093A & 55093B for location and orientation of handholes and threaded conduit nipples.

(3) Threaded conduit nipples shall be fitted with standard plugs until conduit is installed.



SECTION BB-BB

Scale: 3" = 1'-0"

NOTE:
Provide handhole covers with chain, waterproof grommet, and tamperproof screws.

Handhole covers shall be galvanized and meet the requirements of ASTM A36 at a minimum.

Tamperproof screws shall be galvanized and meet the requirements of ANSI/ASME B18.6.3.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 5 OF 6
STANDARD DETAILS OF 55' TO 69' STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

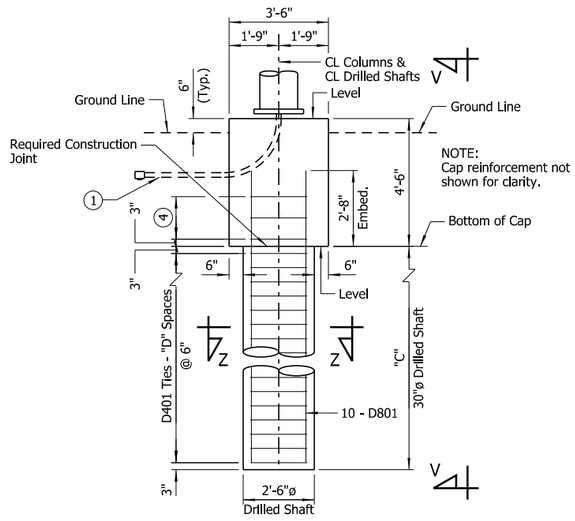
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CHECKED BY: ABH DATE: FEB. 2023 SCALE: As Shown
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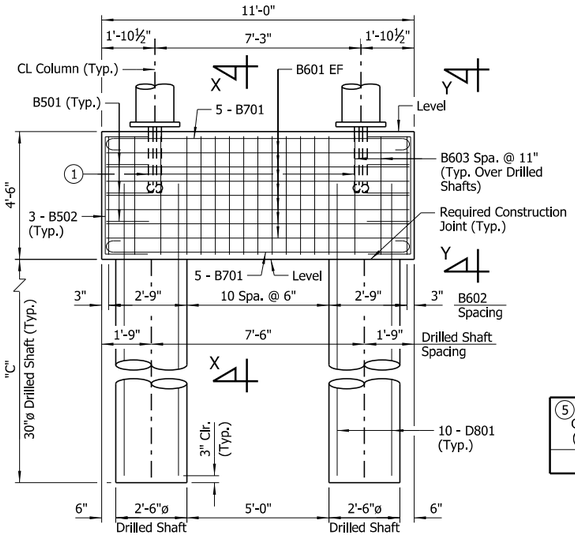
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (55' TO 69') - 55093F				



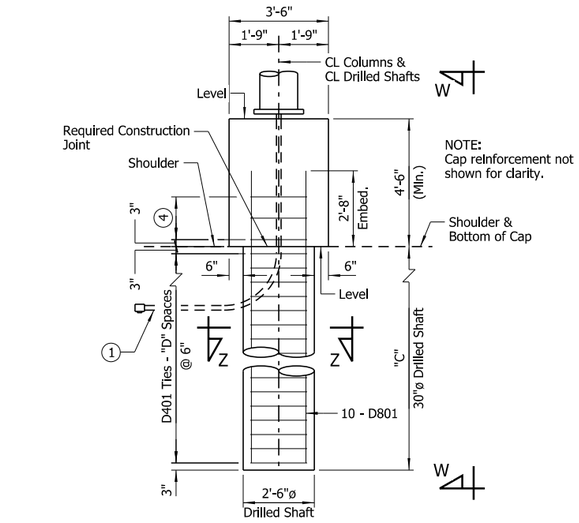
ELEVATION - FOUNDATION A2 (2)

Scale: ⅜" = 1'-0"



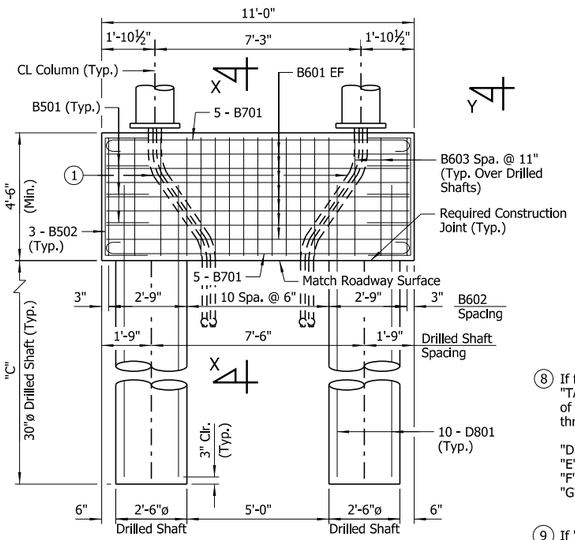
VIEW V-V

Scale: ⅜" = 1'-0"



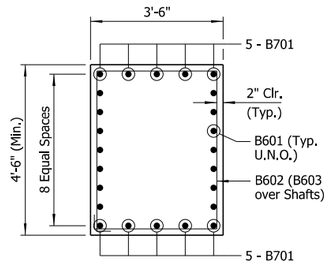
ELEVATION - FOUNDATION B2 (3)

Scale: ⅜" = 1'-0"



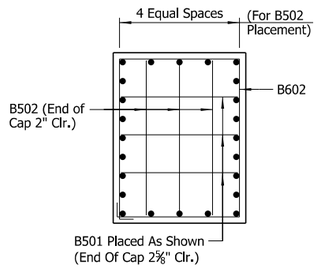
VIEW W-W

Scale: ⅜" = 1'-0"



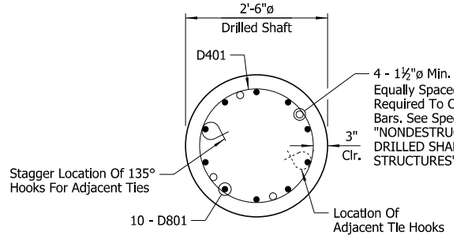
SECTION X-X

Scale: ½" = 1'-0"



VIEW Y-Y

Scale: ½" = 1'-0"



SECTION Z-Z

Scale: ¾" = 1'-0"

(1) 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. At Foundation B2, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A2, conduit shall always be provided. If cabling in the conduit at Foundation A2 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.

(2) Foundation A2 allowed only when foundation is outside clear zone or is protected by guardrail or barrier.

(3) Foundation B2 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B2 requires adjacent Roadway Median Barrier to transition to match the ends of the cap. See Roadway Plans for additional information.

(4) C401 Ties - 2 Spaces @ 9"

APPROX. QUANTITIES FOR FOUNDATION A2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)	DRILLED SHAFT (30" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (30" DIA.) (EACH)
6.50	970	14	"G"	1

APPROX. QUANTITIES FOR FOUNDATION B2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	DRILLED SHAFT (30" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (30" DIA.) (EACH)
6.50	970	"G"	1

(5) Does not include Class S Concrete for Drilled Shafts

(6) Does not include D401 and D801 Bars in Drilled Shafts

(7) Tabulated SPT N60 values are raw SPT N values corrected by SPT hammer efficiency and represent average values along the plan shaft penetration. If the SPT N60 values in the foundation soils within 2 shaft diameters below the plan tip elevation are less than the average SPT N60 values along the plan shaft penetration, the Engineer shall be contacted.

(8) If final drilled shaft length is not shown in "TABLE OF VARIABLES" due to the presence of rock or other factors, variables "D" through "G" shall be determined as follows:

"D" = (Shaft Length in Ft. - 0.5) / 0.5
"E" = Shaft Length in Ft. x 4
"F" = Shaft Length + 2'-5"
"G" = Shaft Length x 2

(9) If "F" exceeds 60'-0", a lap splice is required for each D801 bar at the midpoint of the drilled shaft. Min. lap splice length for D801 bar = 3'-6". Length shown in table does not include the additional length required for a lap splice.

DRILLED SHAFT NOTES (FOUNDATIONS A2 & B2)

Drilled shafts shall conform to Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES". Drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". Temporary casing may be required. Unless approved by the Engineer, permanent steel casing shall not be used.

Crosshole Sonic Logging (CSL) shall be performed on one drilled shaft at each foundation and as directed by the Engineer. Testing shall be performed in accordance with Special Provision "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS FOR STEEL SIGN STRUCTURES".

Concrete and reinforcing steel placed in drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling or erecting.

Concrete in drilled shafts shall be Class "S" as modified by Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES".

Drilled shaft lengths shall be determined based on the results of exploratory borings, which shall be performed by the Contractor prior to shaft excavation.

If competent rock is not encountered in the exploratory boring, the Standard Penetration Test (SPT) blow count corrected by the hammer efficiency, N60, shall be used to determine shaft lengths. See "TABLE OF VARIABLES".

If competent rock is encountered in the exploratory boring within 25'-0" of planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock and have a minimum length of 25'-0".

If competent rock is encountered in the exploratory boring below 25'-0" from planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock or to the depth based on the SPT N60 value and associated shaft length in the "TABLE OF VARIABLES", whichever is shallower.

Testing results shall be submitted to the Engineer for review. Final drilled shaft lengths shall be approved by the Engineer prior to construction.

The cost of performing exploratory borings and in-situ strength testing shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

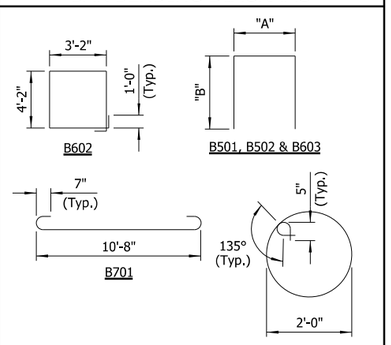
TABLE OF VARIABLES (8)

SPT N60 (blows/ft.) (7)	Min. Depth of Exploratory Boring	Drilled Shaft Length, "C"	"D"	"E"	"F" (9)	"G"
<5	-	Contact Engineer	-	-	-	-
5 To 7	92'-0"	87'-0"	173	348	89'-5"	174'-0"
7 To 9	77'-0"	72'-0"	143	288	74'-5"	144'-0"
9 To 11	58'-0"	53'-0"	105	212	55'-5"	106'-0"
11 To 13	46'-0"	41'-0"	81	164	43'-5"	82'-0"
>13	38'-0"	33'-0"	65	132	35'-5"	66'-0"

BAR LIST - FOUNDATION A2 OR B2

MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
B501	6	5'-10"	3'-0"	1'-6"	2½"
B502	6	6'-10"	4'-0"	1'-6"	2½"
B601	14	10'-8"			Str.
B602	13	15'-10"			4½"
B603	4	11'-2"	3'-2"	4'-2"	4½"
B701	10	12'-4"			5¼"
C401	6	7'-4"			3"
D401	"E"	7'-4"			3"
D801	20	"F"			Str.

BAR BENDING DIAGRAMS



NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one Foundation A2 or one Foundation B2.

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face

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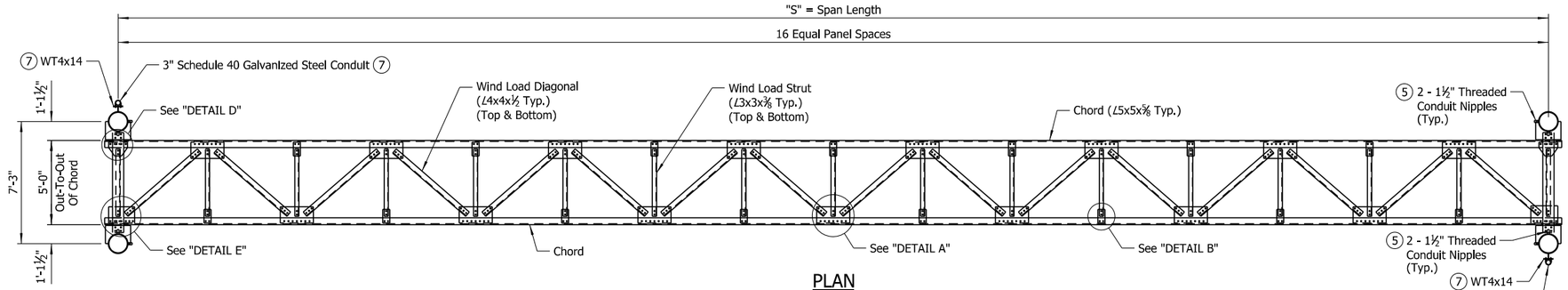
SHEET 6 OF 6
STANDARD DETAILS OF 55' TO 69'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: JAN. 2023 FILENAME: b55093f.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half. DRAWING NO. 55093F

6/17/2026

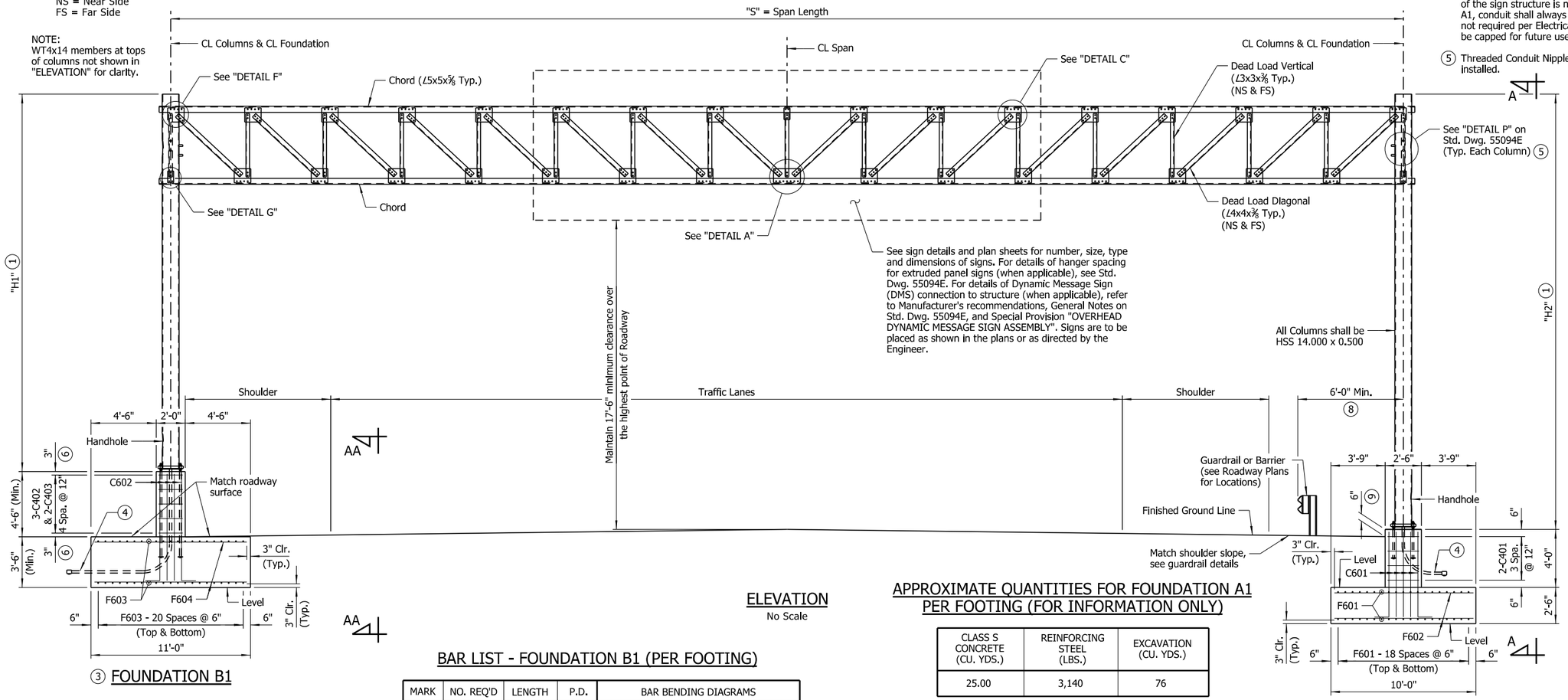
DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (70' TO 85') - 55094A				



PLAN
No Scale

LEGEND
NS = Near Side
FS = Far Side

NOTE:
WT4x14 members at tops of columns not shown in "ELEVATION" for clarity.



③ FOUNDATION B1

② FOUNDATION A1

ELEVATION
No Scale

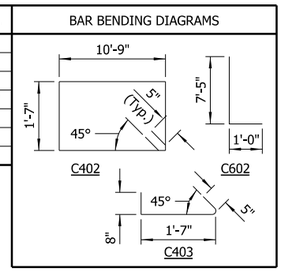
APPROXIMATE QUANTITIES FOR FOUNDATION B1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
44.00	4,650	51

BAR LIST - FOUNDATION B1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.
C402	15	25'-2"	3"
C403	10	2'-7"	3"
C602	104	8'-3"	4½"
F603	42	24'-6"	Str.
F604	98	10'-6"	Str.

BAR BENDING DIAGRAMS



NOTE:
Dimensions of bars are out-to-out.

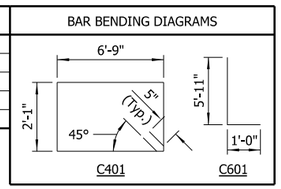
APPROXIMATE QUANTITIES FOR FOUNDATION A1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
25.00	3,140	76

BAR LIST - FOUNDATION A1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.
C401	8	18'-2"	3"
C601	46	6'-9"	4½"
F601	38	22'-6"	Str.
F602	90	9'-6"	Str.

BAR BENDING DIAGRAMS



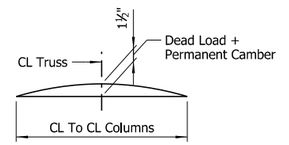
NOTE:
Dimensions of bars are out-to-out.

1. The Contractor shall make field measurements to determine the column heights "H1" and "H2" that are required to maintain the minimum vertical clearance with the centerline of the sign located at the centerline of the truss. These column heights shall be shown on the shop drawings with a note stating that the Contractor has made the required field measurements. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer. The Contractor shall also verify that the variable span length (70'-0" to 85'-0") is sufficient to meet the minimum clearances and to fit the new structure to the existing and/or proposed conditions.
2. Foundation A1 allowed only when foundation is outside clear zone or is protected by guardrail or barrier. For alternate drilled shaft foundation (Foundation A2), see Std. Dwg. 55094F.
3. Foundation B1 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B1 requires adjacent Roadway Median Barrier to transition to match the ends of the pedestal. For alternate drilled shaft foundation (Foundation B2), see Std. Dwg. 55094F.
4. 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). At Foundation B1, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A1, conduit shall always be provided. If cabling in the conduit at Foundation A1 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.
5. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.
6. Minor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.
7. See "SECTION U-U" on Std. Dwg. 55094C. WT4x14 always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.
8. Minimum dimension when guardrail is present. See Sign Layout Sheets and/or ITS Plans for actual dimension for each structure.
9. Dimension from top of pedestal to Finished Ground Line shall be maintained along the perimeter of the pedestal.

NOTES:
For "VIEW A-A", see Std. Dwg. 55094B.

For "DETAIL A" thru "DETAIL G", see Std. Dwg. 55094C.

For "VIEW AA-AA", see Std. Dwg. 55094D.



TRUSS CAMBER DIAGRAM
No Scale

NOTE:
Refer to Sign Layout Sheets for Span Length "S" and Foundation Types required for each structure.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 1 OF 6
STANDARD DETAILS OF 70' TO 85'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55094a.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55094A

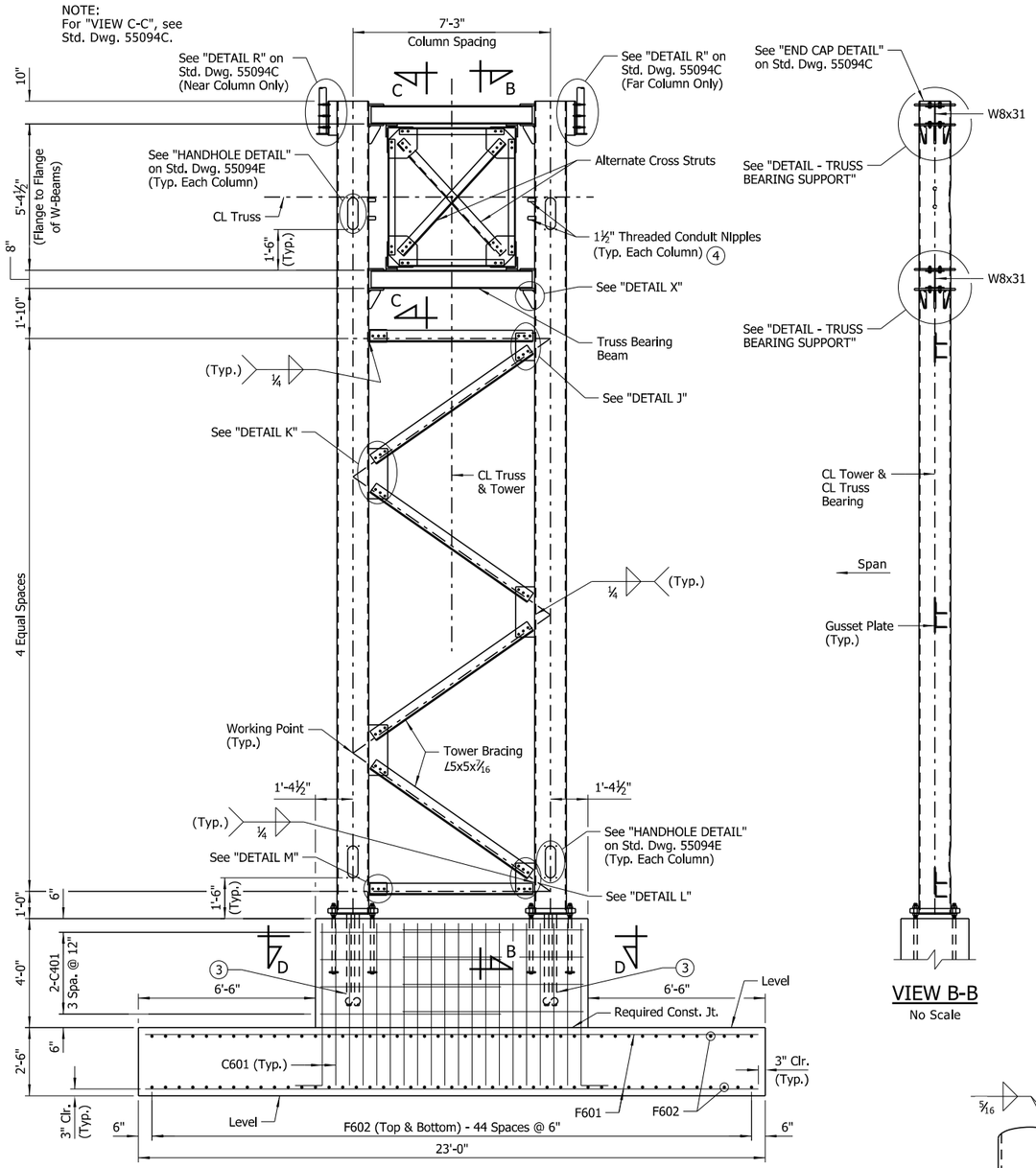
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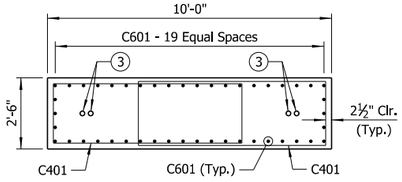
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (70' TO 85') - 55094B				

NOTE:
For "VIEW C-C", see Std. Dwg. 55094C.

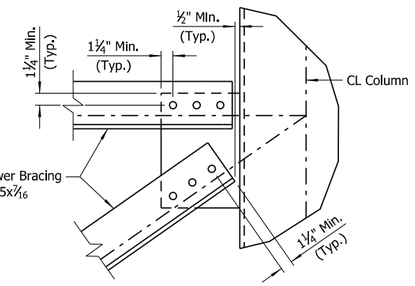


VIEW A-A
(Foundation A1)
No Scale



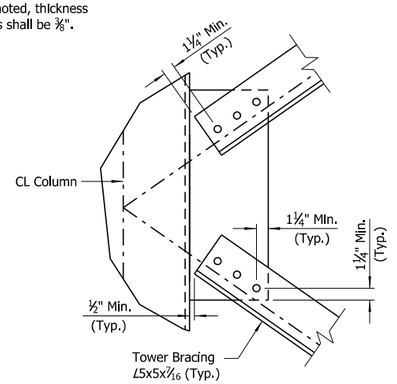
SECTION D-D
Scale: ⅜" = 1'-0"

VIEW B-B
No Scale

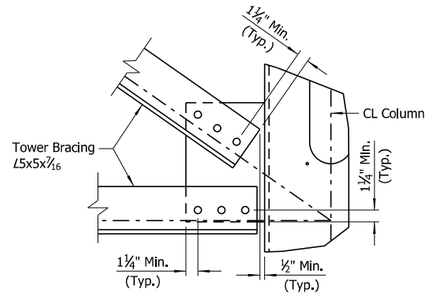


DETAIL J
No Scale

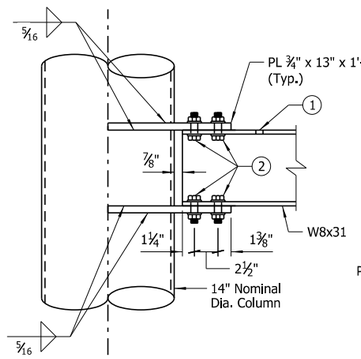
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



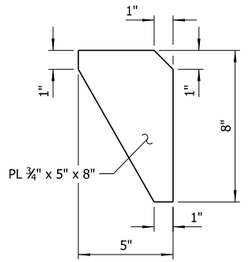
DETAIL K
No Scale



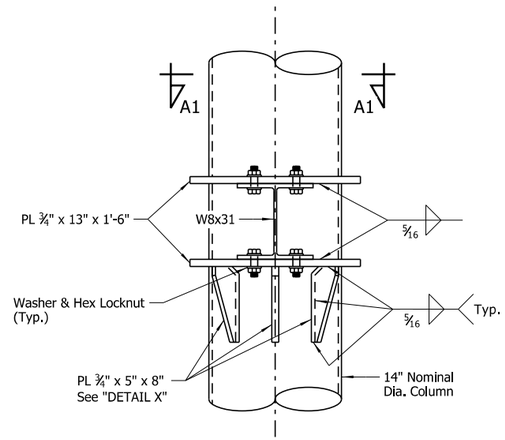
DETAIL L
No Scale



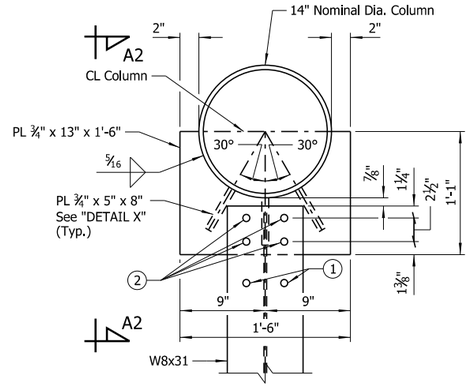
VIEW A2-A2
Scale: 1½" = 1'-0"
(¾" x 5" x 8" Plate not shown for clarity)



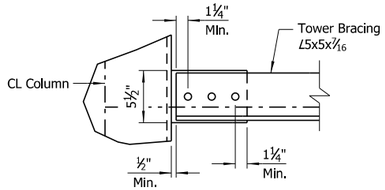
DETAIL X
Scale: 3" = 1'-0"



DETAIL - TRUSS BEARING SUPPORT
Scale: 1½" = 1'-0"



VIEW A1-A1
Scale: 1½" = 1'-0"



DETAIL M
No Scale

1. Bolts shall be ¾"ø. Provide 13/16" x 2" slotted hole in gusset plate and chord angle. Use plate washer on gusset plate side. Provide 13/16"ø holes in ¾" shim plate and top or bottom beam flanges as required.
2. Bolts shall be ¾"ø. Provide 13/16"ø holes at top and bottom beam flanges and connection plates.
3. 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit.
4. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 2 OF 6
STANDARD DETAILS OF 70' TO 85'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55094b.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55094B

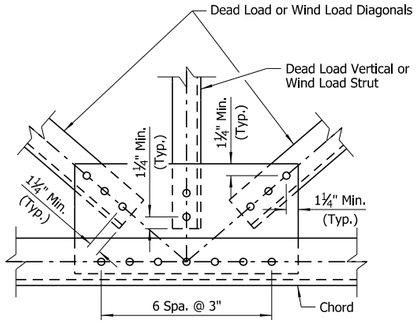
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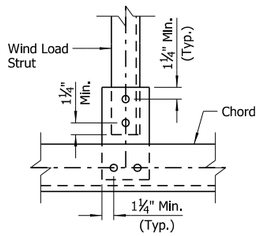
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (70' TO 85') - 55094C				

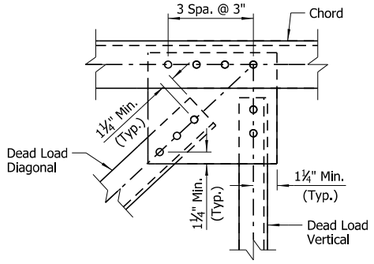
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



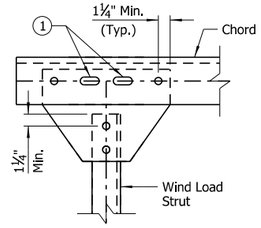
DETAIL A
No Scale



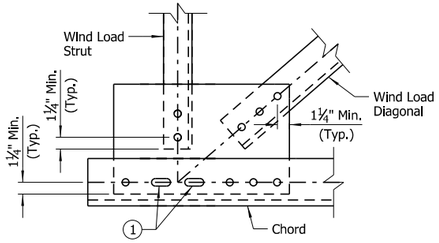
DETAIL B
No Scale



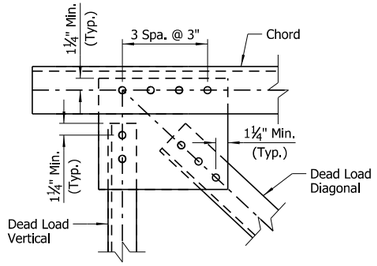
DETAIL C
No Scale



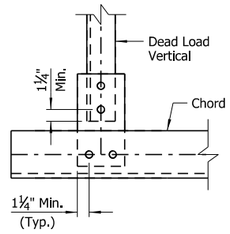
DETAIL D
No Scale



DETAIL E
No Scale

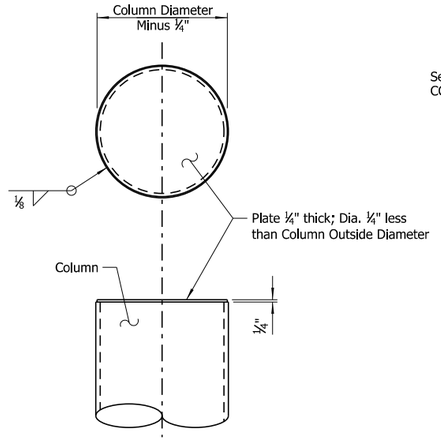


DETAIL F
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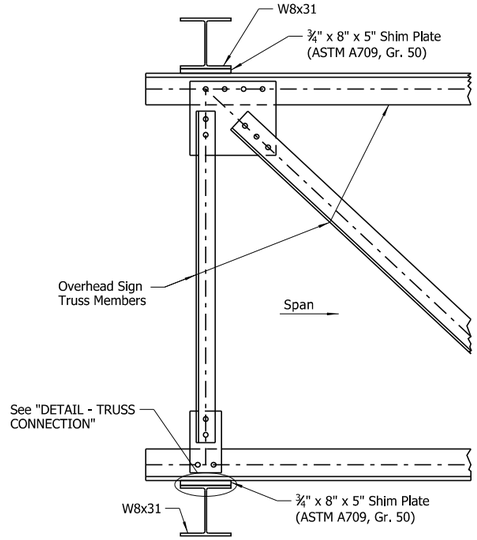


DETAIL G
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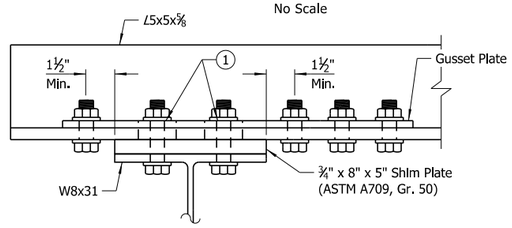
1. Bolts shall be ¾"ø. Provide $^{13}/_{16}$" x 2" slotted holes in gusset plate and chord angle. Clearance between end of slot and adjacent bolt hole shall be no less than 1½". Provide $^{13}/_{16}$"ø holes in ¾" shim plate and top or bottom beam flanges as required. Use plate washer on gusset plate side.
2. Bolts shall be ¾"ø. Provide $^{13}/_{16}$"ø holes at top and bottom beam flanges and connection plates.



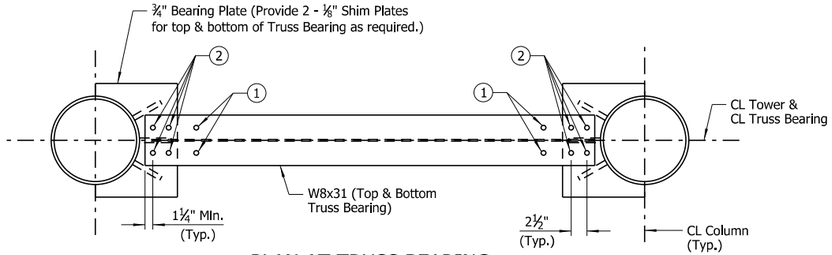
END CAP DETAIL
Scale: 1½" = 1'-0"



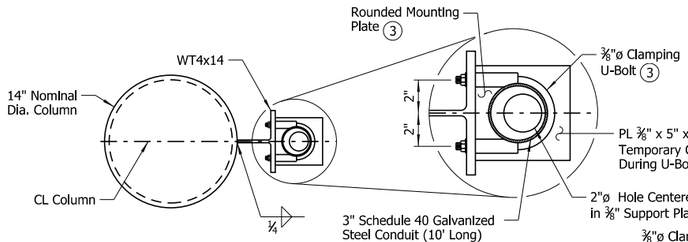
VIEW C-C
No Scale



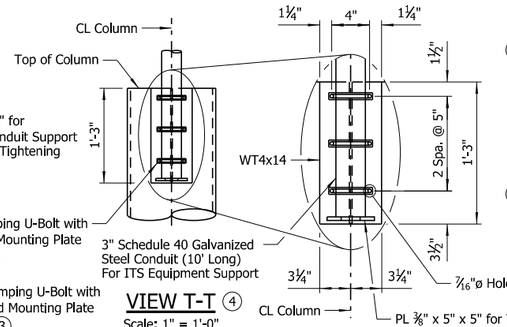
DETAIL - TRUSS CONNECTION
No Scale



PLAN AT TRUSS BEARING
Scale: 1" = 1'-0"

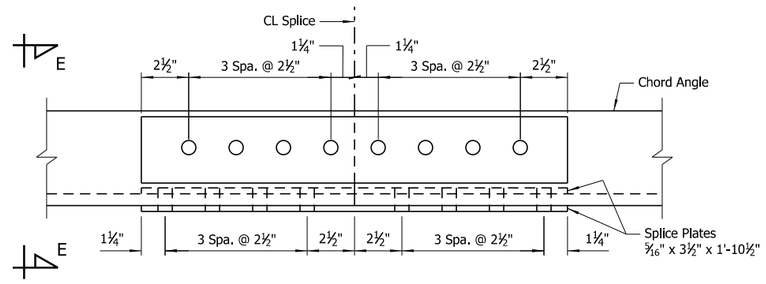


SECTION U-U 4
Scale: 1½" = 1'-0"



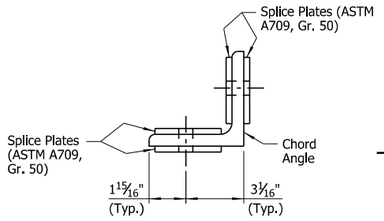
VIEW T-T 4
Scale: 1" = 1'-0"

3. When required per plans to support ITS equipment, or as directed by the Engineer, Clamping U-Bolt with Rounded Mounting Plate Assembly product shall be included in shop drawings for approval. Assembly shall be galvanized and shall meet the requirements of ASTM A36 at a minimum. Install per Manufacturer's Instructions.
4. WT4x14 with ⅜" Temporary Support Plate always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

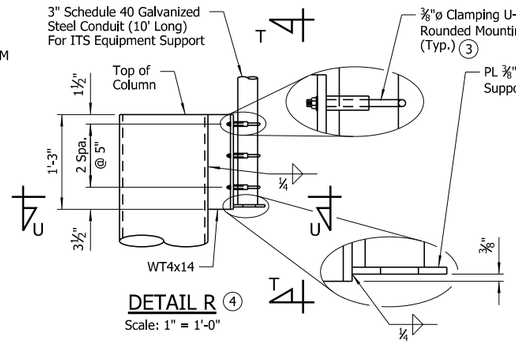


CHORD SPLICE
Scale: 3" = 1'-0"

NOTE:
Chord angles may be spliced in convenient lengths for galvanizing and sign placement.



VIEW E-E
Scale: 3" = 1'-0"



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

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 3 OF 6
STANDARD DETAILS OF 70' TO 85'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55094c.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

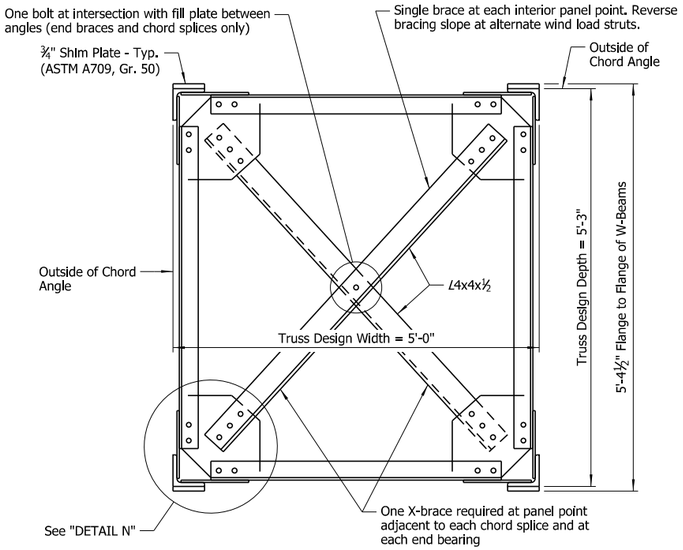
DRAWING NO. 55094C

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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

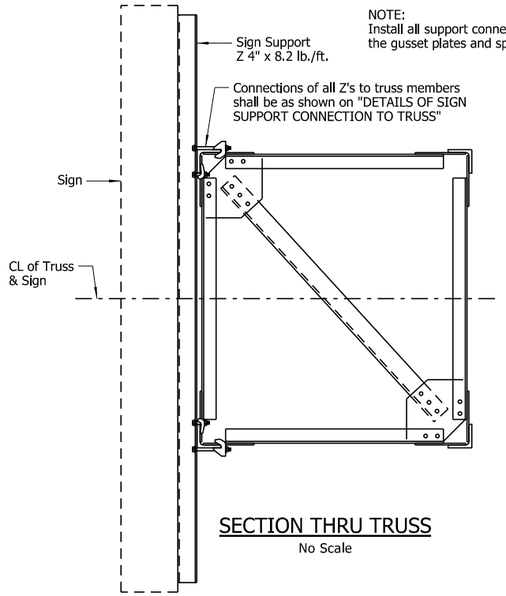
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (70' TO 85') - 55094D				



TRUSS SECTION

Scale: 1" = 1'-0"

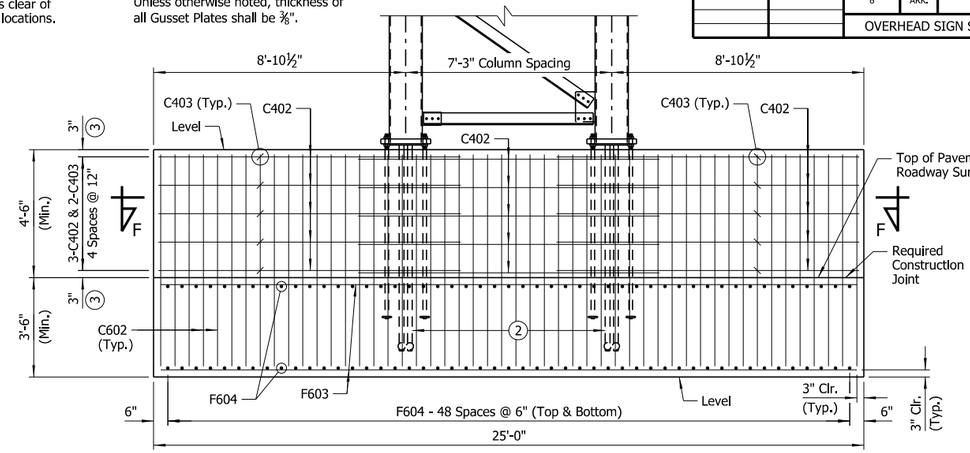


NOTE:
Install all support connectors clear of the gusset plates and splice locations.

SECTION THRU TRUSS

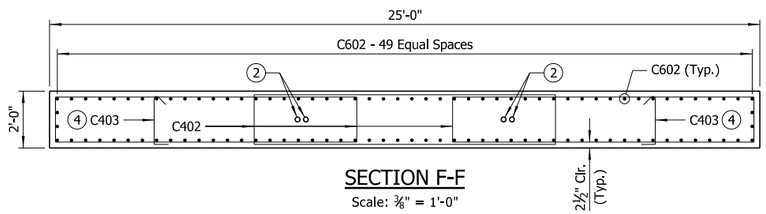
No Scale

NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



VIEW AA-AA

(Foundation B1)
Scale: ⅜" = 1'-0"



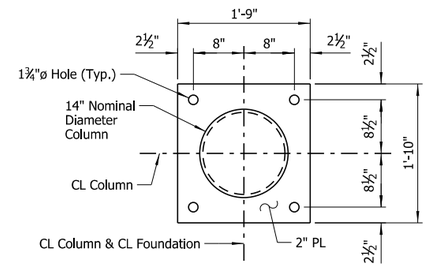
SECTION F-F

Scale: ⅜" = 1'-0"

2 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. Conduit shall not be provided if cabling at Foundation B1 is not required per Electrical and/or ITS plans.

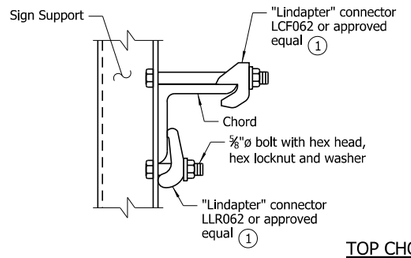
3 Minor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.

4 Alternate C403 ties end for end at each layer of reinforcing.

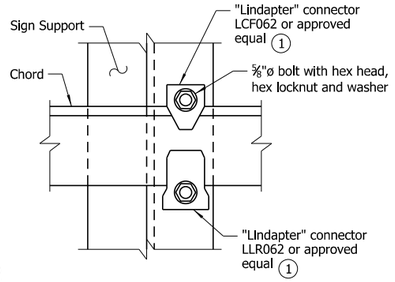


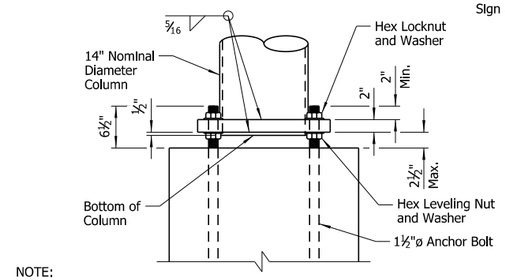
PLAN - COLUMN BASE

Scale: 1" = 1'-0"



TOP CHORD

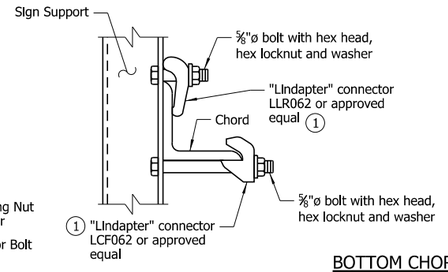




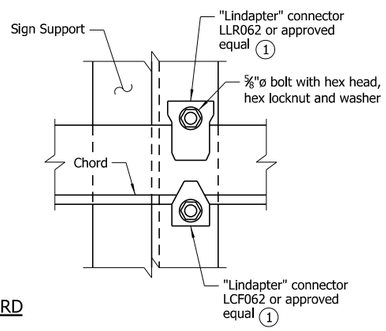
NOTE:
Diameter of hole in base plate to be ⅛" larger than column diameter.

ELEVATION - COLUMN BASE

Scale: 1" = 1'-0"

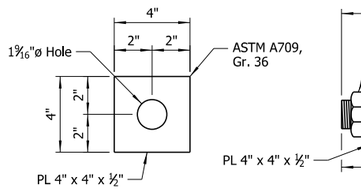


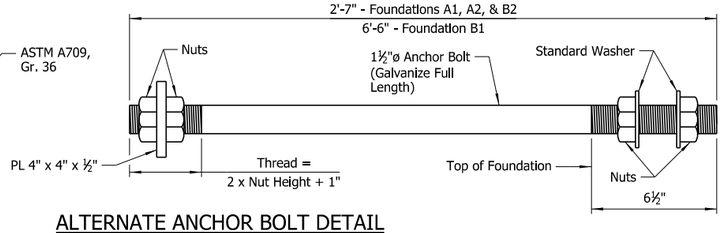
BOTTOM CHORD



DETAILS OF SIGN SUPPORT CONNECTION TO TRUSS

No Scale

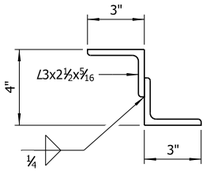




ALTERNATE ANCHOR BOLT DETAIL

No Scale

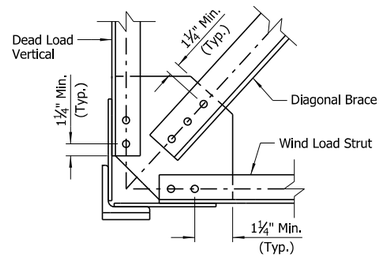
1 All "Lindapter" connectors or approved equal shall be installed according to Manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.



NOTE:
Structural Z Support may be fabricated from angles as shown.

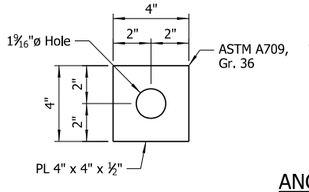
DETAILS OF ALTERNATE Z SUPPORT

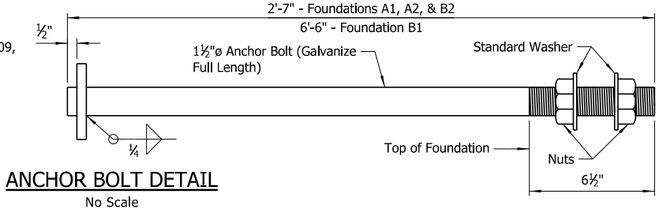
No Scale



DETAIL N

Scale: 1½" = 1'-0"





ANCHOR BOLT DETAIL

No Scale

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 4 OF 6
STANDARD DETAILS OF 70' TO 85' STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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DRAWN BY:	CWT	DATE:	NOV. 2022	FILENAME:	b55094d.dgn
CHECKED BY:	ABH	DATE:	JAN. 2023	SCALE:	As Shown
DESIGNED BY:	STD.	DATE:	-		

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55094D

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (70' TO 85') - 55094E				

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, First Edition, 2015 with current interim revisions.

Basic Wind Speed = 120 mph
Fatigue Category: I

This structure is approved for a maximum sign area equal to 75% of the span length times a sign height of 15 feet. This structure is approved for a maximum sign weight (total of all signs and hangers) of 5,520 lbs. Use of additional sign area or a heavier sign must be approved by the Engineer. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer.

FOUNDATION MATERIALS AND STRENGTHS:

Class S Concrete	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

Spread footings for the structure have been designed assuming a factored bearing resistance of 2.0 ksf. Contractor shall be responsible for evaluating and verifying that the foundation soils are adequate to achieve the assumed factored bearing capacity, utilizing SPT (Standard Penetration Test), CPT (Cone Penetration Test), DCP (Dynamic Cone Penetration) test, or other suitable means, prior to or after footing excavation, whichever is appropriate. If the foundation soils are verified to be adequate, then the footing shall be constructed in accordance with the planned dimensions. Otherwise, the Design Engineer shall be contacted. Costs for foundation soil evaluation and verification shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

Structural steel sign support members shall comply with the following specifications:

Angles:	ASTM A709, Gr. 36 (Fy = 36,000 psi)
Plate, W-Section:	ASTM A709, Gr. 50 (Fy = 50,000 psi)
(1) Pipe:	ASTM A139, Gr. C, straight-seam welded (Fy = 42,000 psi), ASTM A500, Gr. B (Fy = 42,000 psi), ASTM A501, Gr. B (Fy = 50,000 psi)
Z-Shapes:	ASTM A709, Grade 36 (Fy = 36,000 psi)
Shim Plates:	ASTM A1011, SS, Grade 36, Type 2, or Grade 40
Bolts:	ASTM F3125, Grade A325, Type 1
Locknuts - Approved Type:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H
Washers:	ASTM F436
Nuts:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H

The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and to fit the new structure to the existing and/or proposed conditions.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All steel shall be galvanized according to Subsection 807.19. Steel completely encased in concrete may not be galvanized. Galvanized coating damaged during transport, handling or erection shall be field repaired in accordance with Subsection 807.88.

All main load carrying tension members greater than ½" in thickness shall conform to the requirements of the Longitudinal Charpy V-Notch test specified for Zone 1 minimum service temperature. This work and materials shall be paid for in accordance with Special Provision "STEEL SIGN STRUCTURES".

Field splices shall be located in order to avoid sign panel connections. There shall be a maximum of two field splices, and they shall be spaced a minimum of 15 feet apart.

Truss field sections shall be shop assembled. Entire truss shall be fully assembled and lifted into place as one unit on to tower supports. All truss member connections shall be bolted connections.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26 except welding of tubular sections shall conform to AWS D1.1 Structural Welding Code.

No circumferential butt welds will be allowed in any pipe sections.

All fillet welds of critical members shall be tested according to AWS D1.1 Structural Welding Code - Steel using the magnetic particle method. Critical welds shall include: column to base plate and truss bottom support to column.

Connections shall be bolted with high-strength bolts. Unless otherwise noted, bolts shall be ¾" diameter and open holes shall be $^{13}/_{16}$" diameter. Bolt spacing shall be 2½" for ¾" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All truss frame bolts shall comply with ASTM F3125, Grade A325, Type 1, galvanized according to Subsection 807.06. Nuts and washers for ASTM F3125, Grade A325, Type 1 bolts shall be furnished and galvanized in accordance with Subsection 807.06.

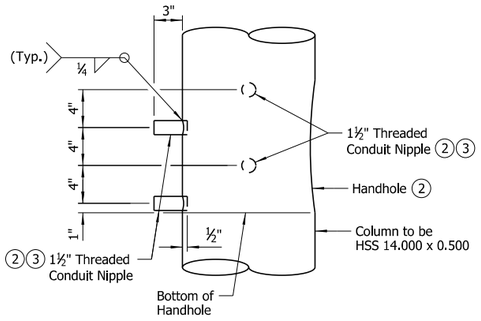
Locknuts shall be equipped with nylon locking inserts or other approved type locking system. Locknuts shall be installed according to Manufacturer's recommendations.

Anchor bolts shall comply with AASHTO M 314, Grade 55, including Supplementary Requirement S1, and shall be galvanized according to Subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with Subsection 807.07. Anchor bolts shall be pretensioned in accordance with Special Provision "STEEL SIGN STRUCTURES".

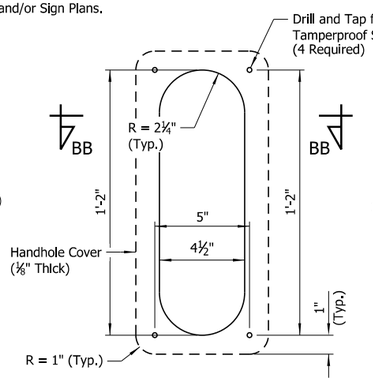
Shoring may be required to protect existing shoulders or other elements during excavation. Any shoring required shall not be paid for directly, but shall be considered incidental to the item "STEEL OVERHEAD SIGN STRUCTURE (_)". The excavations for the footings shall be backfilled before the structure is attached to the foundations.

DYNAMIC MESSAGE SIGN (WHEN APPLICABLE): The Dynamic Message Sign (DMS) supplier shall be responsible for the attachment method and materials used to attach the DMS and its accessories to the structure. The method of attachment shall not facilitate any corrosion of the structure. For additional information regarding the DMS, see Special Provision "OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY".

For location of each 70' to 85' overhead sign structure to be used, refer to ITS and/or Sign Plans.



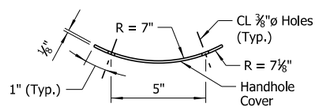
DETAIL P
Scale: 1½" = 1'-0"



HANDHOLE DETAIL (2)
Scale: 3" = 1'-0"

(2) See details on Std. Dwgs. 55094A & 55094B for location and orientation of handholes and threaded conduit nipples.

(3) Threaded conduit nipples shall be fitted with standard plugs until conduit is installed.

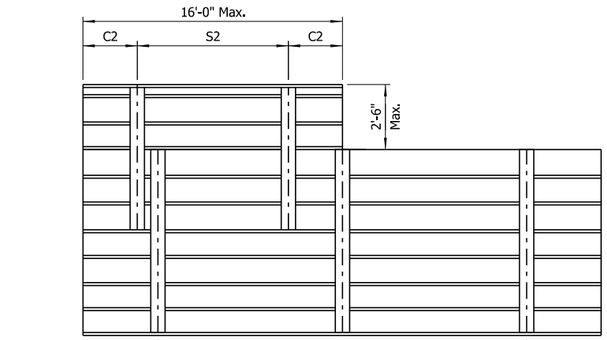


SECTION BB-BB
Scale: 3" = 1'-0"

NOTE:
Provide handhole covers with chain, waterproof grommet, and tamperproof screws.

Handhole covers shall be galvanized and meet the requirements of ASTM A36 at a minimum.

Tamperproof screws shall be galvanized and meet the requirements of ANSI/ASME B18.6.3.



NOTE:
See sign details and plan sheets for number, size and dimensions of signs.

HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

No Scale

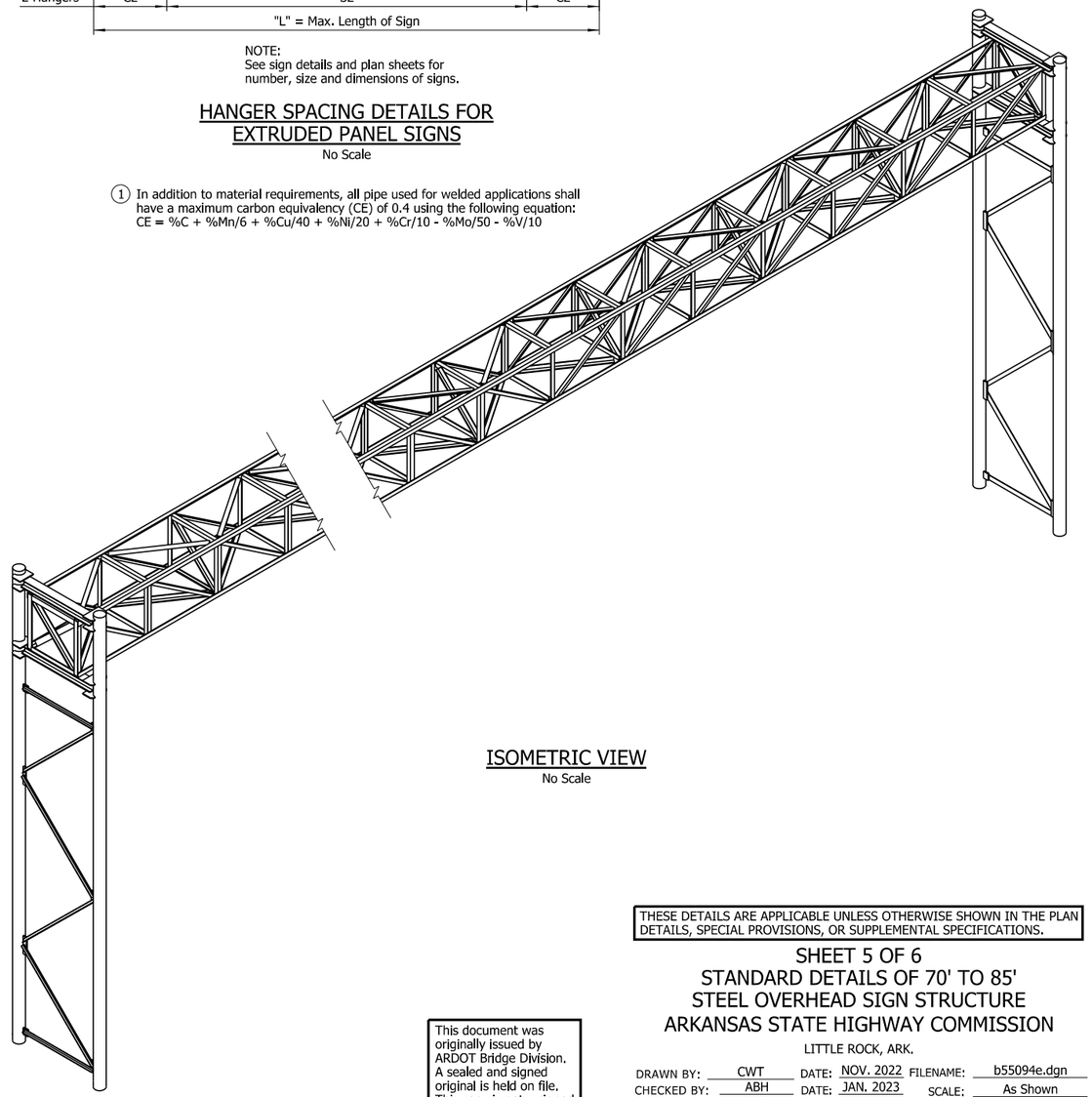
(1) In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4 using the following equation:
CE = %C + %Mn/6 + %Cu/40 + %Ni/20 + %Cr/10 - %Mo/50 - %V/10

HANGER VARIABLES

(For Extruded Panel Signs)

Max. Length of Sign = "L"	"n" Hangers	Cantilever Length "Cn"	Hanger Spacing "Sn"
15'-0"	2 Hangers	0.21 x "L"	0.58 x "L"
30'-0"	3 Hangers	0.145 x "L"	0.355 x "L"
45'-0"	4 Hangers	0.107 x "L"	0.262 x "L"

NOTE:
Hanger spacing and cantilever length shall be rounded to the nearest inch.



ISOMETRIC VIEW
No Scale

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 5 OF 6
STANDARD DETAILS OF 70' TO 85'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55094e.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

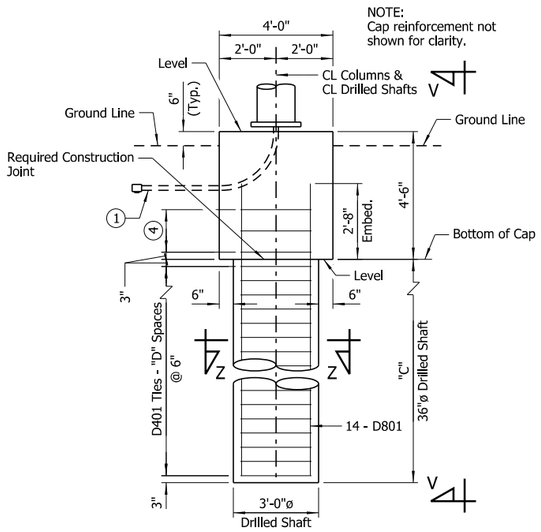
DRAWING NO. 55094E

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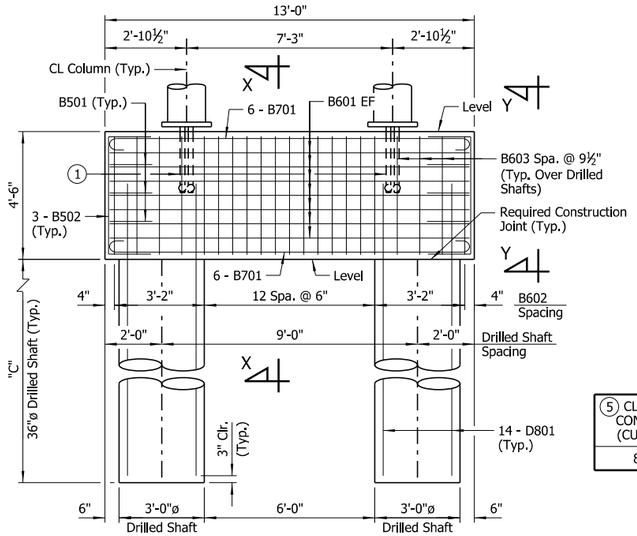
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (70' TO 85') - 55094F				



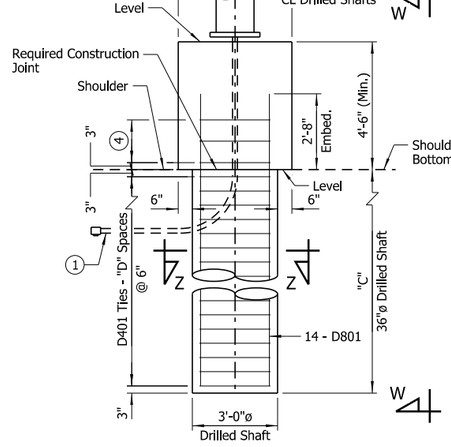
ELEVATION - FOUNDATION A2 (2)

Scale: ⅜" = 1'-0"



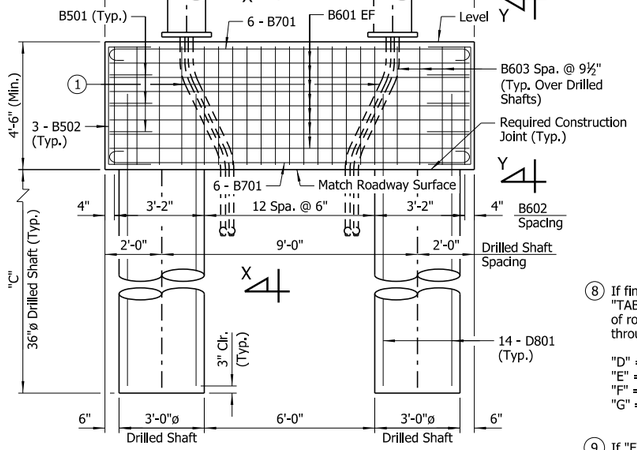
VIEW V-V

Scale: ⅜" = 1'-0"



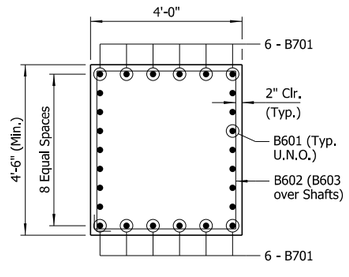
ELEVATION - FOUNDATION B2 (3)

Scale: ⅜" = 1'-0"



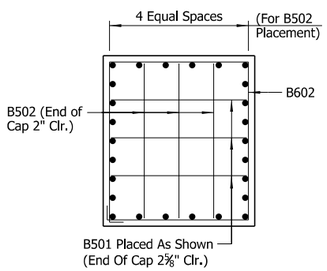
VIEW W-W

Scale: ⅜" = 1'-0"



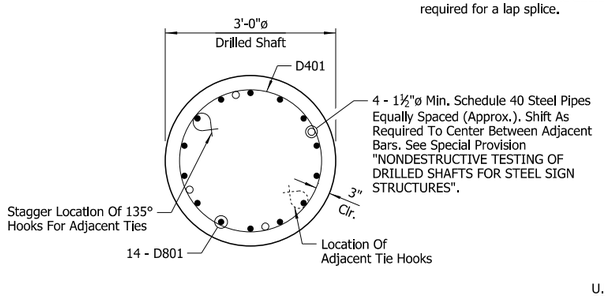
SECTION X-X

Scale: ½" = 1'-0"



VIEW Y-Y

Scale: ½" = 1'-0"



SECTION Z-Z

Scale: ¾" = 1'-0"

1. 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. At Foundation B2, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A2, conduit shall always be provided. If cabling in the conduit at Foundation A2 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.
2. Foundation A2 allowed only when foundation is outside clear zone or is protected by guardrail or barrier.
3. Foundation B2 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B2 requires adjacent Roadway Median Barrier to transition to match the ends of the cap. See Roadway Plans for additional information.
4. C401 Ties - 2 Spaces @ 9"

APPROX. QUANTITIES FOR FOUNDATION A2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)	DRILLED SHAFT (36" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (36" DIA.) (EACH)
8.70	1,230	17	"G"	1

APPROX. QUANTITIES FOR FOUNDATION B2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	DRILLED SHAFT (36" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (36" DIA.) (EACH)
8.70	1,230	"G"	1

5. Does not include Class S Concrete for Drilled Shafts
6. Does not include D401 and D801 Bars in Drilled Shafts
7. Tabulated SPT N60 values are raw SPT N values corrected by SPT hammer efficiency and represent average values along the plan shaft penetration. If the SPT N60 values in the foundation soils within 2 shaft diameters below the plan tip elevation are less than the average SPT N60 values along the plan shaft penetration, the Engineer shall be contacted.
8. If final drilled shaft length is not shown in "TABLE OF VARIABLES" due to the presence of rock or other factors, variables "D" through "G" shall be determined as follows:

   "D" = (Shaft Length in Ft. - 0.5) / 0.5
   "E" = Shaft Length in Ft. x 4
   "F" = Shaft Length + 2'-5"
   "G" = Shaft Length x 2
9. If "F" exceeds 60'-0", a lap splice is required for each D801 bar at the midpoint of the drilled shaft. Min. lap splice length for D801 bar = 3'-6". Length shown in table does not include the additional length required for a lap splice.

DRILLED SHAFT NOTES (FOUNDATIONS A2 & B2)

Drilled shafts shall conform to Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES". Drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". Temporary casing may be required. Unless approved by the Engineer, permanent steel casing shall not be used.

Crosshole Sonic Logging (CSL) shall be performed on one drilled shaft at each foundation and as directed by the Engineer. Testing shall be performed in accordance with Special Provision "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS FOR STEEL SIGN STRUCTURES".

Concrete and reinforcing steel placed in drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling or erecting.

Concrete in drilled shafts shall be Class "S" as modified by Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES".

Drilled shaft lengths shall be determined based on the results of exploratory borings, which shall be performed by the Contractor prior to shaft excavation.

If competent rock is not encountered in the exploratory boring, the Standard Penetration Test (SPT) blow count corrected by the hammer efficiency, N60, shall be used to determine shaft lengths. See "TABLE OF VARIABLES".

If competent rock is encountered in the exploratory boring within 25'-0" of planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock and have a minimum length of 25'-0".

If competent rock is encountered in the exploratory boring below 25'-0" from planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock or to the depth based on the SPT N60 value and associated shaft length in the "TABLE OF VARIABLES", whichever is shallower.

Testing results shall be submitted to the Engineer for review. Final drilled shaft lengths shall be approved by the Engineer prior to construction.

The cost of performing exploratory borings and in-situ strength testing shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

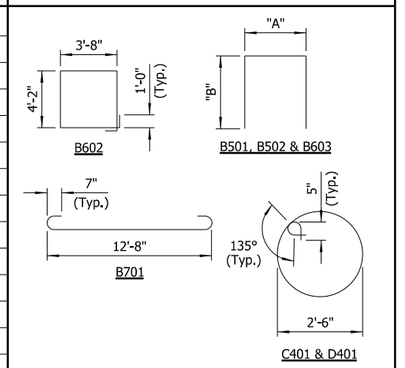
TABLE OF VARIABLES (8)

SPT N60 (7) (blows/ft.)	Min. Depth of Exploratory Boring	Drilled Shaft Length, "C"	"D"	"E"	"F" (9)	"G"
<5	-	Contact Engineer	-	-	-	-
5 To 7	83'-0"	77'-0"	153	308	79'-5"	154'-0"
7 To 9	70'-0"	64'-0"	127	256	66'-5"	128'-0"
9 To 11	52'-0"	46'-0"	91	184	48'-5"	92'-0"
11 To 13	41'-0"	35'-0"	69	140	37'-5"	70'-0"
>13	34'-0"	28'-0"	55	112	30'-5"	56'-0"

BAR LIST - FOUNDATION A2 OR B2

MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
B501	6	6'-4"	3'-6"	1'-6"	2½"
B502	6	6'-10"	4'-0"	1'-6"	2½"
B601	14	12'-8"			Str.
B602	15	16'-10"			4½"
B603	6	11'-8"	3'-8"	4'-2"	4½"
B701	12	14'-4"			5¼"
C401	6	8'-11"			3"
D401	"E"	8'-11"			3"
D801	28	"F"			Str.

BAR BENDING DIAGRAMS



NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one Foundation A2 or one Foundation B2.

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face

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THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 6 OF 6
STANDARD DETAILS OF 70' TO 85'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

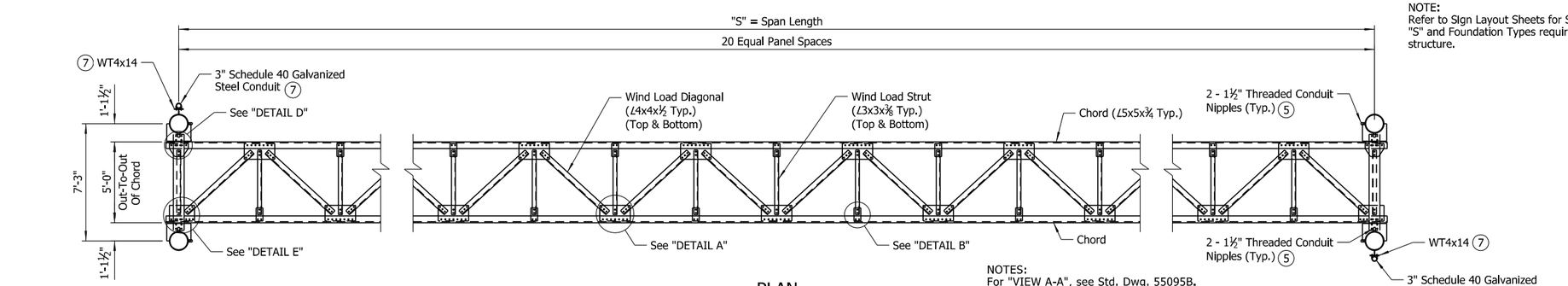
DRAWN BY: CWT DATE: JAN. 2023 FILENAME: b55094f.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half. DRAWING NO. 55094F

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (86' TO 100') - 55095A				

NOTE:
Refer to Sign Layout Sheets for Span Length "S" and Foundation Types required for each structure.



NOTE:
WT4x14 members at tops of columns not shown in "ELEVATION" for clarity.

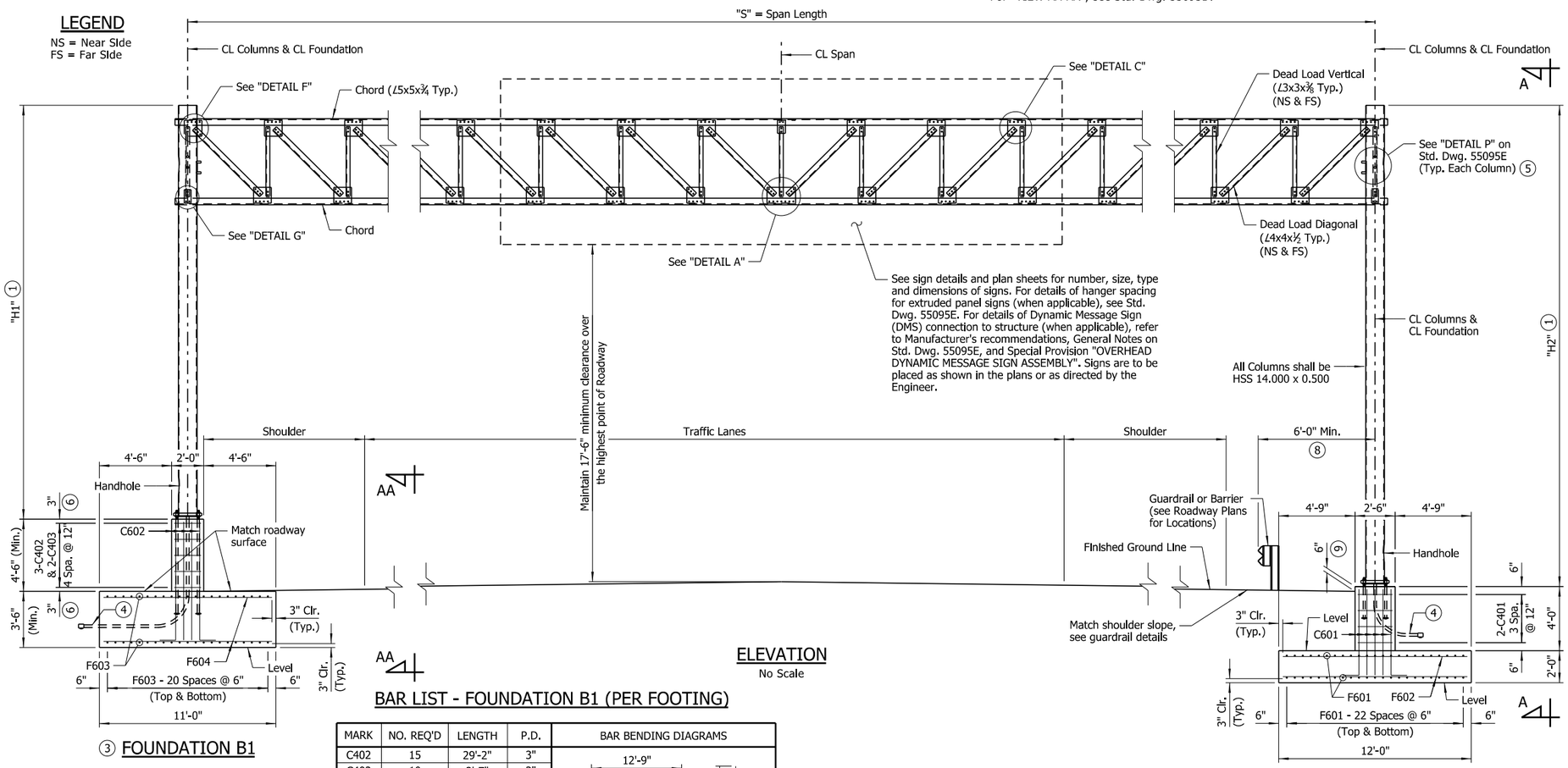
PLAN
No Scale

NOTES:
For "VIEW A-A", see Std. Dwg. 55095B.

For "DETAIL A" thru "DETAIL G", see Std. Dwg. 55095C.

For "VIEW AA-AA", see Std. Dwg. 55095D.

LEGEND
NS = Near Side
FS = Far Side



ELEVATION
No Scale

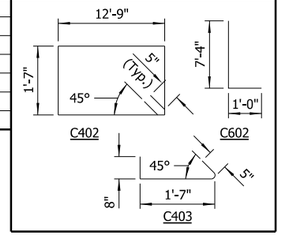
③ FOUNDATION B1

② FOUNDATION A1

BAR LIST - FOUNDATION B1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.
C402	15	29'-2"	3"
C403	10	2'-7"	3"
C602	124	8'-2"	4½"
F603	42	29'-6"	Str.
F604	118	10'-6"	Str.

BAR BENDING DIAGRAMS



NOTE:
Dimensions of bars are out-to-out.

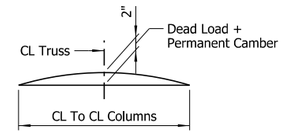
APPROXIMATE QUANTITIES FOR FOUNDATION B1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
52.80	5,560	60

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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

1. The Contractor shall make field measurements to determine the column heights "H1" and "H2" that are required to maintain the minimum vertical clearance with the centerline of the sign located at the centerline of the truss. These column heights shall be shown on the shop drawings with a note stating that the Contractor has made the required field measurements. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer. The Contractor shall also verify that the variable span length (86'-0" to 100'-0") is sufficient to meet the minimum clearances and to fit the new structure to the existing and/or proposed conditions.
2. Foundation A1 allowed only when foundation is outside clear zone or is protected by guardrail or barrier. For alternate drilled shaft foundation (Foundation A2), see Std. Dwg. 55095F.
3. Foundation B1 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B1 requires adjacent Roadway Median Barrier to transition to match the ends of the pedestal. For alternate drilled shaft foundation (Foundation B2), see Std. Dwg. 55095F.
4. 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). At Foundation B1, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A1, conduit shall always be provided. If cabling in the conduit at Foundation A1 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.
5. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.
6. Minor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.
7. See "SECTION U-U" on Std. Dwg. 55095C. WT4x14 always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.
8. Minimum dimension when guardrail is present. See Sign Layout Sheets and/or ITS Plans for actual dimension for each structure.
9. Dimension from top of pedestal to Finished Ground Line shall be maintained along the perimeter of the pedestal.

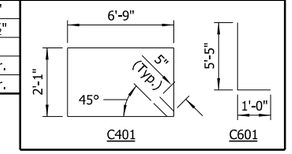


TRUSS CAMBER DIAGRAM
No Scale

BAR LIST - FOUNDATION A1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.
C401	8	18'-2"	3"
C601	46	6'-3"	4½"
F601	46	25'-6"	Str.
F602	102	11'-6"	Str.

BAR BENDING DIAGRAMS



NOTE:
Dimensions of bars are out-to-out.

APPROXIMATE QUANTITIES FOR FOUNDATION A1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
26.90	4,060	89

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 1 OF 6
STANDARD DETAILS OF 86' TO 100'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

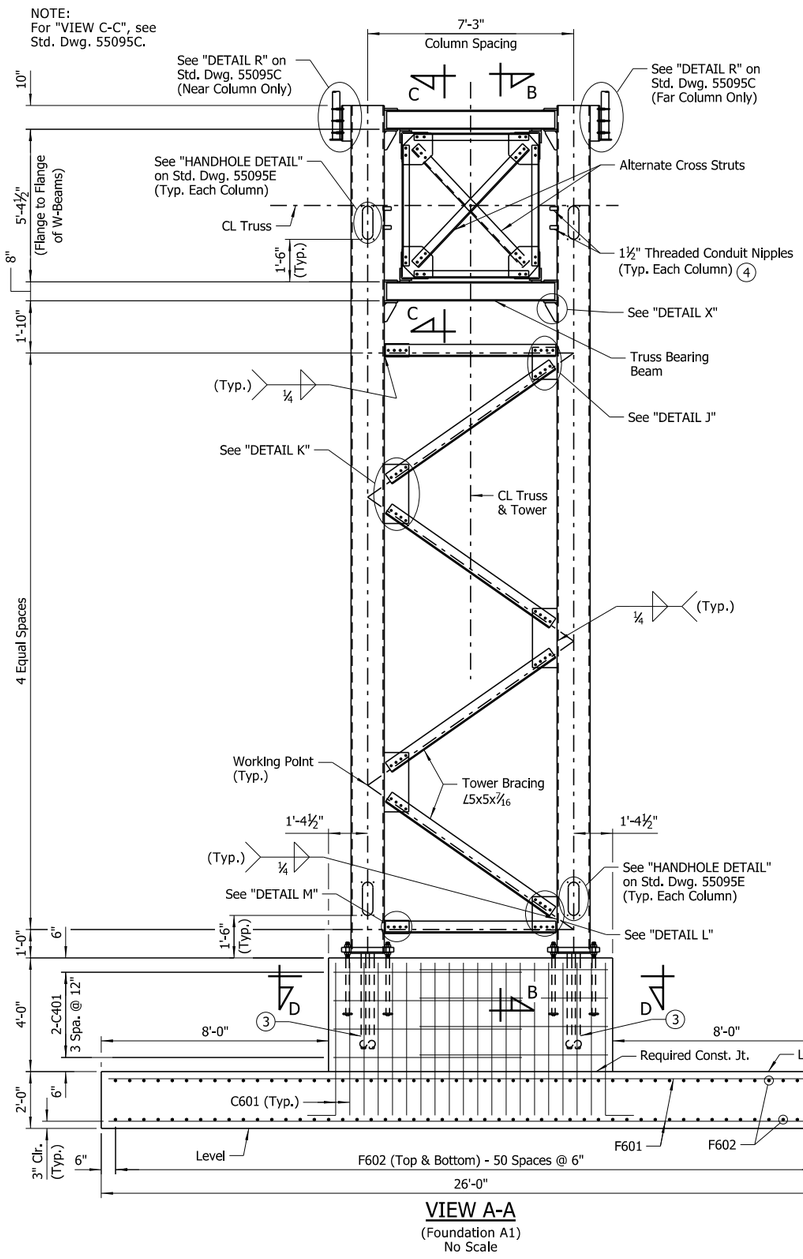
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DESIGNED BY: STD. DATE: -

DRAWING NO. 55095A

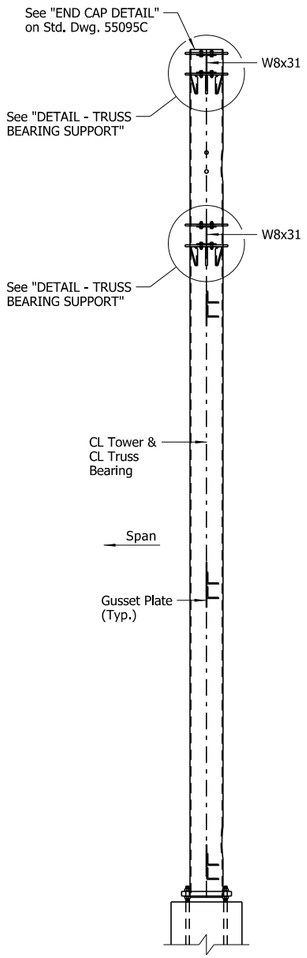
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (86' TO 100') - 55095B				

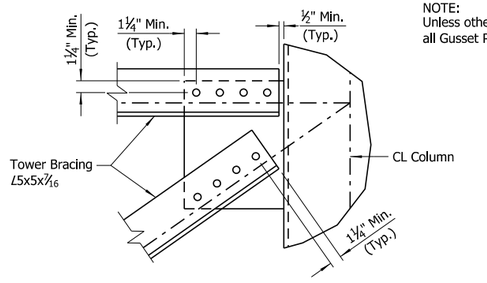
NOTE:
For "VIEW C-C", see Std. Dwg. 55095C.



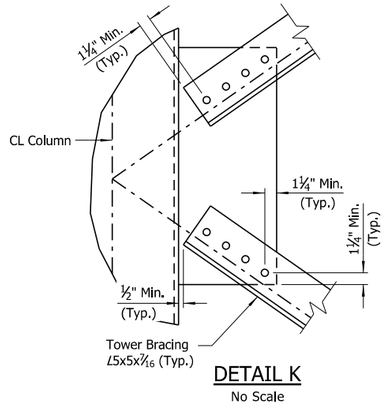
VIEW A-A
(Foundation A1)
No Scale



VIEW B-B
No Scale

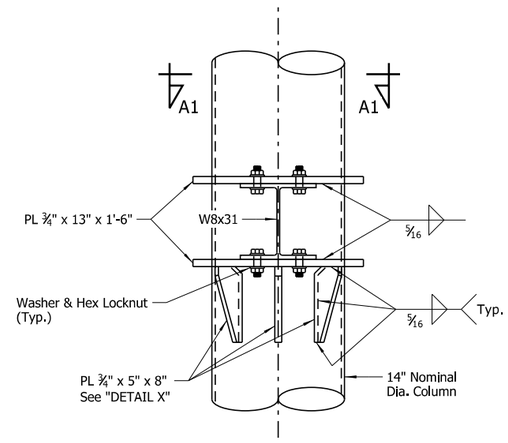


DETAIL J
No Scale

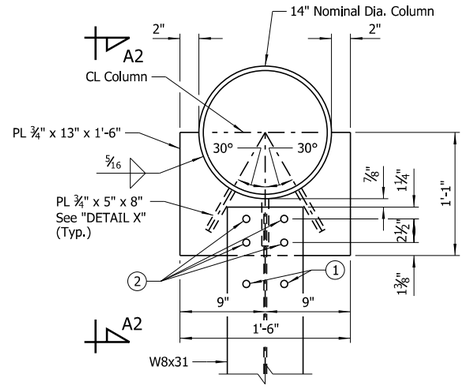


DETAIL K
No Scale

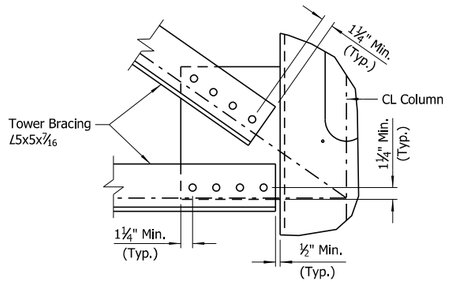
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



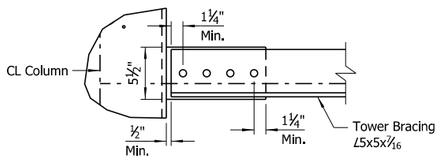
DETAIL - TRUSS BEARING SUPPORT
Scale: 1½" = 1'-0"



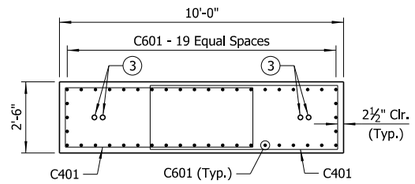
VIEW A1-A1
Scale: 1½" = 1'-0"



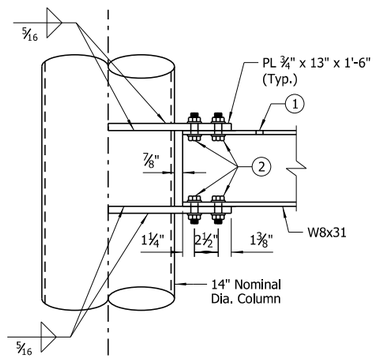
DETAIL L
No Scale



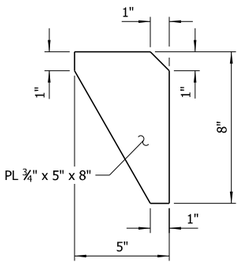
DETAIL M
No Scale



SECTION D-D
Scale: ⅜" = 1'-0"



VIEW A2-A2
Scale: 1½" = 1'-0"
(¾" x 5" x 8" Plate not shown for clarity)



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

1. Bolts shall be ¾"ø. Provide 13/16" x 2" slotted hole in gusset plate and chord angle. Use plate washer on gusset plate side. Provide 13/16"ø holes in ¾" shim plate and top or bottom beam flanges as required.
2. Bolts shall be ¾"ø. Provide 13/16"ø holes at top and bottom beam flanges and connection plates.
3. 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit.
4. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 2 OF 6
STANDARD DETAILS OF 86' TO 100'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: JAN. 2023 FILENAME: b55095b.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55095B

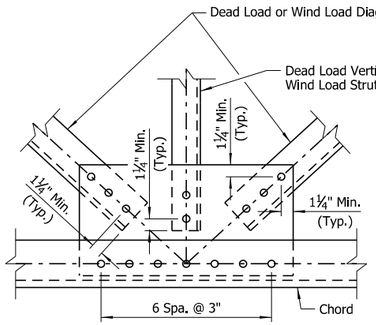
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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

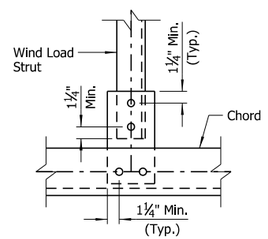
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (86' TO 100') - 55095C				

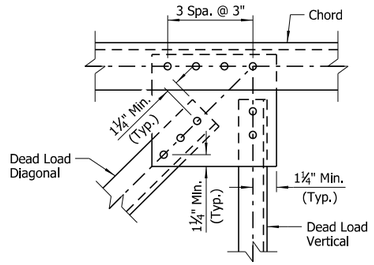
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



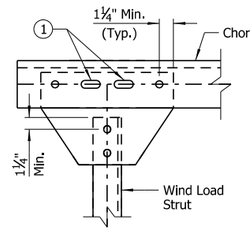
DETAIL A
No Scale



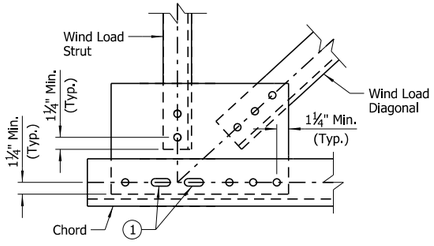
DETAIL B
No Scale



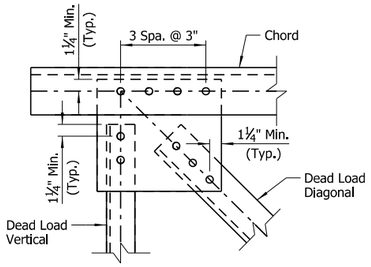
DETAIL C
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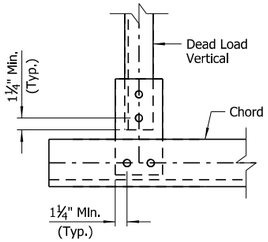
DETAIL D
No Scale



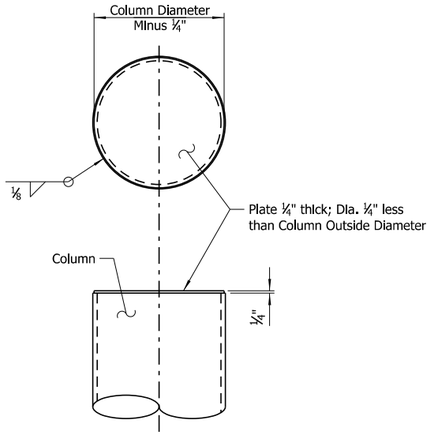
DETAIL E
No Scale



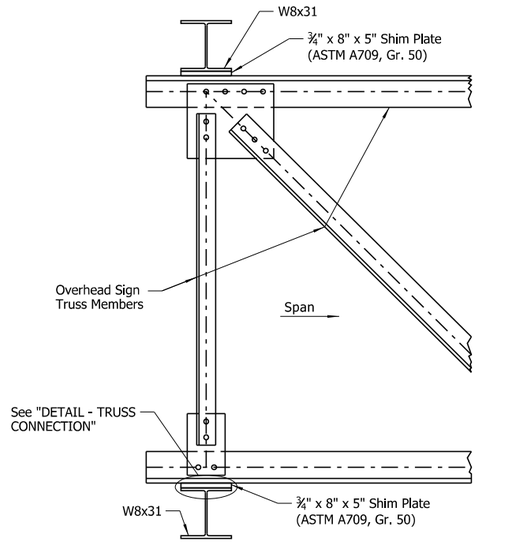
DETAIL F
No Scale



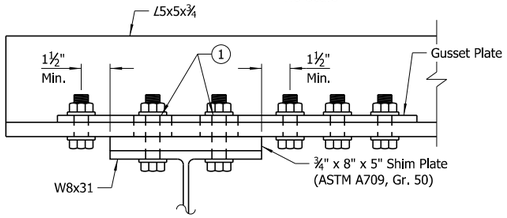
DETAIL G
No Scale



END CAP DETAIL
Scale: 1½" = 1'-0"



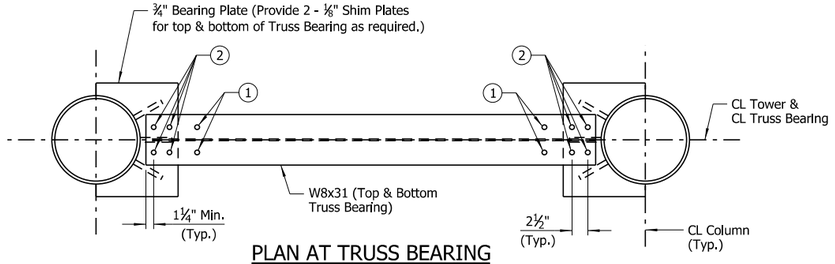
VIEW C-C
No Scale



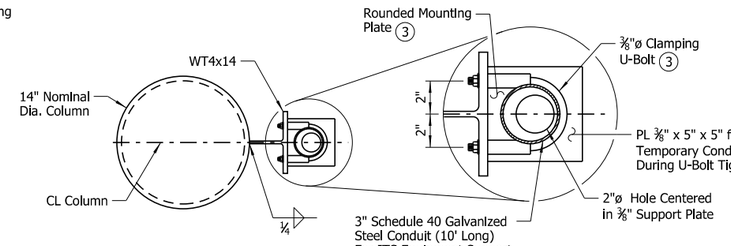
DETAIL - TRUSS CONNECTION
No Scale

① Bolts shall be ¾"ø. Provide 13/16" x 2" slotted holes in gusset plate and chord angle. Clearance between end of slot and adjacent bolt hole shall be no less than 1½". Provide 13/16"ø holes in ¾" shim plate and top or bottom beam flanges as required. Use plate washer on gusset plate side.

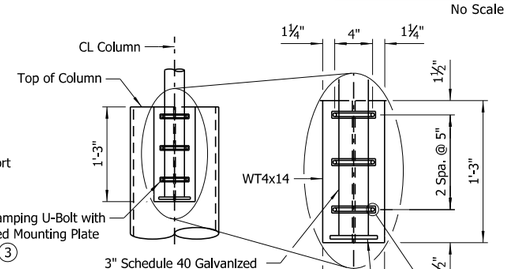
② Bolts shall be ¾"ø. Provide 13/16"ø holes at top and bottom beam flanges and connection plates.



PLAN AT TRUSS BEARING
Scale: 1" = 1'-0"



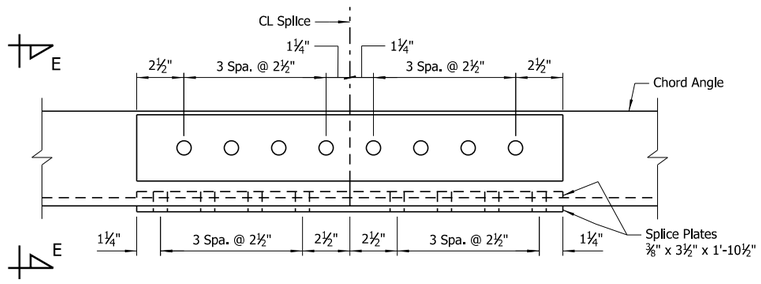
SECTION U-U ④
Scale: 1½" = 1'-0"



VIEW T-T ④
Scale: 1" = 1'-0"

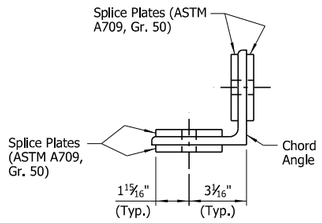
③ When required per plans to support ITS equipment, or as directed by the Engineer, Clamping U-Bolt with Rounded Mounting Plate Assembly product shall be included in shop drawings for approval. Assembly shall be galvanized and shall meet the requirements of ASTM A36 at a minimum. Install per Manufacturer's instructions.

④ WT4x14 with ¼" Temporary Support Plate always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

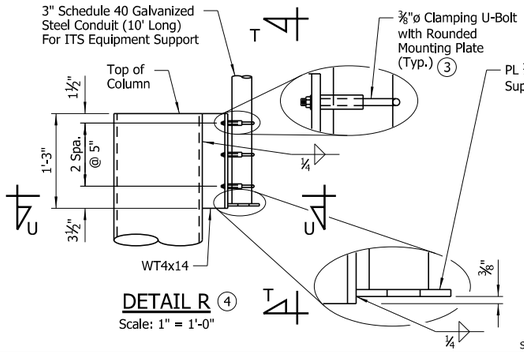


CHORD SPLICE
Scale: 3" = 1'-0"

NOTE:
Chord angles may be spliced in convenient lengths for galvanizing and sign placement.



VIEW E-E
Scale: 3" = 1'-0"



DETAIL R ④
Scale: 1" = 1'-0"

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THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 3 OF 6
STANDARD DETAILS OF 86' TO 100'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

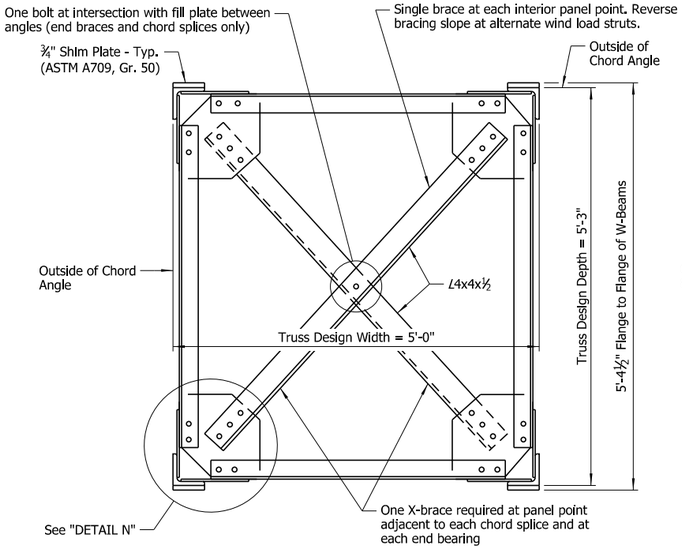
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CHECKED BY:	ABH	DATE:	JAN. 2023	SCALE:	As Shown
DESIGNED BY:	STD.	DATE:	-		

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55095C

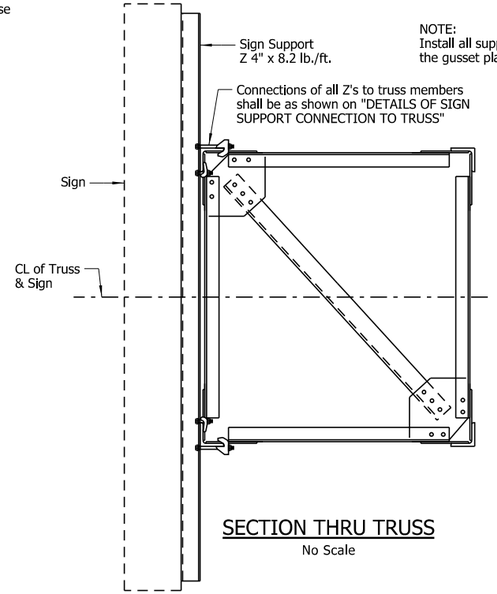
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (86' TO 100') - 55095D				



TRUSS SECTION

Scale: 1" = 1'-0"

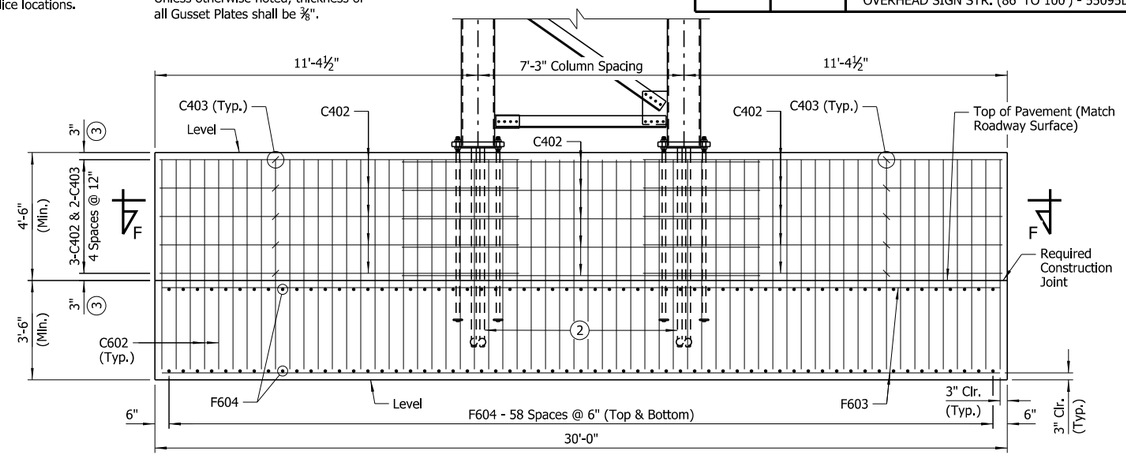


SECTION THRU TRUSS

No Scale

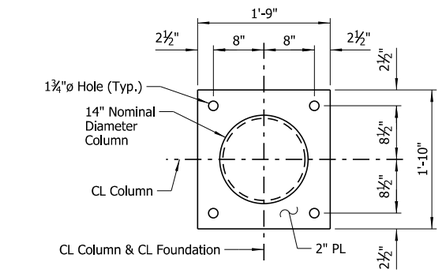
NOTE:
Install all support connectors clear of the gusset plates and splice locations.

NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



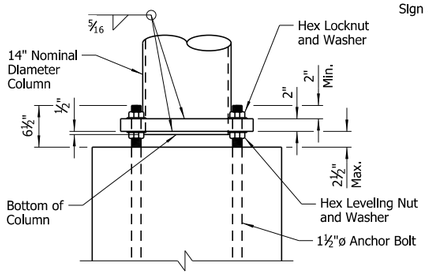
VIEW AA-AA

(Foundation B1)
Scale: ⅜" = 1'-0"



PLAN - COLUMN BASE

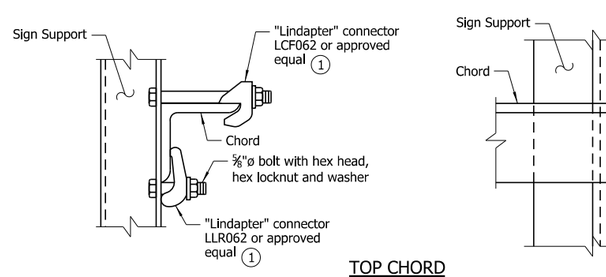
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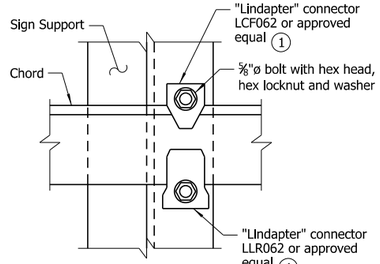
NOTE:
Diameter of hole in base plate to be ⅛" larger than column diameter.

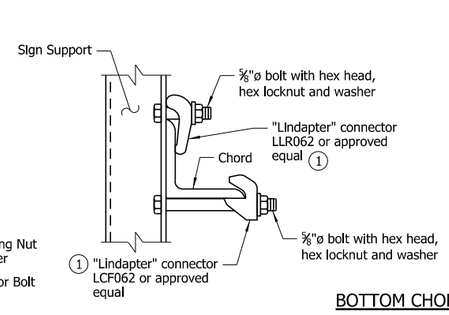
ELEVATION - COLUMN BASE

Scale: 1" = 1'-0"

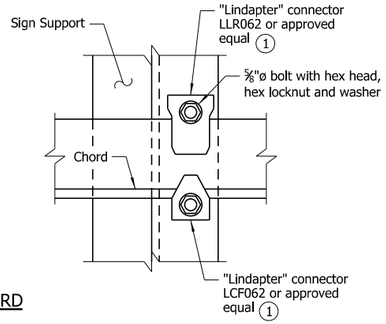


TOP CHORD



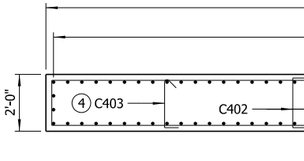


BOTTOM CHORD



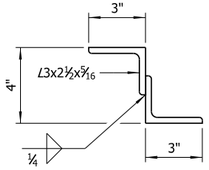
DETAILS OF SIGN SUPPORT CONNECTION TO TRUSS

No Scale



SECTION F-F

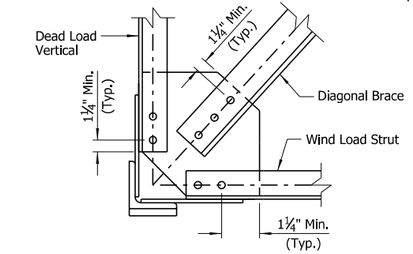
Scale: ⅜" = 1'-0"



NOTE:
Structural Z Support may be fabricated from angles as shown.

DETAILS OF ALTERNATE Z SUPPORT

No Scale



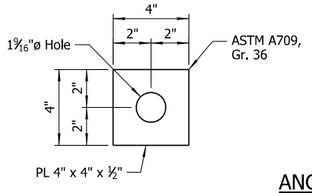
DETAIL N

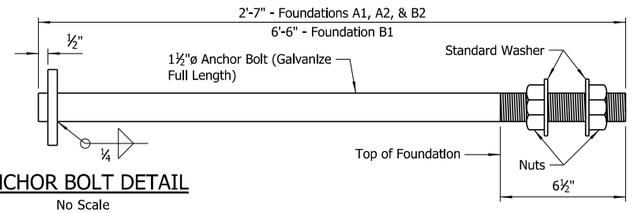
Scale: 1½" = 1'-0"

(2) 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be Installed at the top end of each conduit. Conduit shall not be provided If cabling at Foundation B1 is not required per Electrical and/or ITS plans.

(3) MInor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.

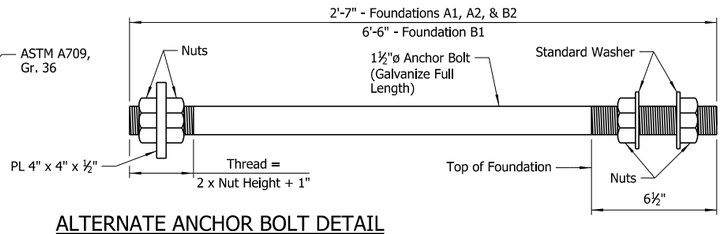
(4) Alternate C403 ties end for end at each layer of reinforcing.





ANCHOR BOLT DETAIL

No Scale



ALTERNATE ANCHOR BOLT DETAIL

No Scale

(1) All "Lindapter" connectors or approved equal shall be installed according to Manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 4 OF 6
STANDARD DETAILS OF 86' TO 100'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: JAN. 2023 FILENAME: b55095d.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

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DRAWING NO. 55095D

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (86' TO 100') - 55095E				

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, First Edition, 2015 with current interim revisions.

Basic Wind Speed = 120 mph
Fatigue Category: I

This structure is approved for a maximum sign area equal to 75% of the span length times a sign height of 15 feet. This structure is approved for a maximum sign weight (total of all signs and hangers) of 5,985 lbs. Use of additional sign area or a heavier sign must be approved by the Engineer. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer.

FOUNDATION MATERIALS AND STRENGTHS:

Class S Concrete	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

Spread footings for the structure have been designed assuming a factored bearing resistance of 2.0 ksf. Contractor shall be responsible for evaluating and verifying that the foundation soils are adequate to achieve the assumed factored bearing capacity, utilizing SPT (Standard Penetration Test), CPT (Cone Penetration Test), DCP (Dynamic Cone Penetration) test, or other suitable means, prior to or after footing excavation, whichever is appropriate. If the foundation soils are verified to be adequate, then the footing shall be constructed in accordance with the planned dimensions. Otherwise, the Design Engineer shall be contacted. Costs for foundation soil evaluation and verification shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

Structural steel sign support members shall comply with the following specifications:

Angles:	ASTM A709, Gr. 36 (Fy = 36,000 psi)
Plate, W-Section:	ASTM A709, Gr. 50 (Fy = 50,000 psi)
(1) Pipe:	ASTM A139, Gr. C, straight-seam welded (Fy = 42,000 psi), ASTM A500, Gr. B (Fy = 42,000 psi), ASTM A501, Gr. B (Fy = 50,000 psi)
Z-Shapes:	ASTM A709, Grade 36 (Fy = 36,000 psi)
Shim Plates:	ASTM A1011, SS, Grade 36, Type 2, or Grade 40
Bolts:	ASTM F3125, Grade A325, Type 1
Locknuts - Approved Type:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H
Washers:	ASTM F436
Nuts:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H

The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and to fit the new structure to the existing and/or proposed conditions.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All steel shall be galvanized according to Subsection 807.19. Steel completely encased in concrete may not be galvanized. Galvanized coating damaged during transport, handling or erection shall be field repaired in accordance with Subsection 807.88.

All main load carrying tension members greater than ½" in thickness shall conform to the requirements of the Longitudinal Charpy V-Notch test specified for Zone 1 minimum service temperature. This work and materials shall be paid for in accordance with Special Provision "STEEL SIGN STRUCTURES".

Field splices shall be located in order to avoid sign panel connections. There shall be a maximum of two field splices, and they shall be spaced a minimum of 15 feet apart.

Truss field sections shall be shop assembled. Entire truss shall be fully assembled and lifted into place as one unit on to tower supports. All truss member connections shall be bolted connections.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26 except welding of tubular sections shall conform to AWS D1.1 Structural Welding Code.

No circumferential butt welds will be allowed in any pipe sections.

All fillet welds of critical members shall be tested according to AWS D1.1 Structural Welding Code - Steel using the magnetic particle method. Critical welds shall include: column to base plate and truss bottom support to column.

Connections shall be bolted with high-strength bolts. Unless otherwise noted, bolts shall be ¾" diameter and open holes shall be $^{13}/_{16}$" diameter. Bolt spacing shall be 2½" for ¾" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All truss frame bolts shall comply with ASTM F3125, Grade A325, Type 1, galvanized according to Subsection 807.06. Nuts and washers for ASTM F3125, Grade A325, Type 1 bolts shall be furnished and galvanized in accordance with Subsection 807.06.

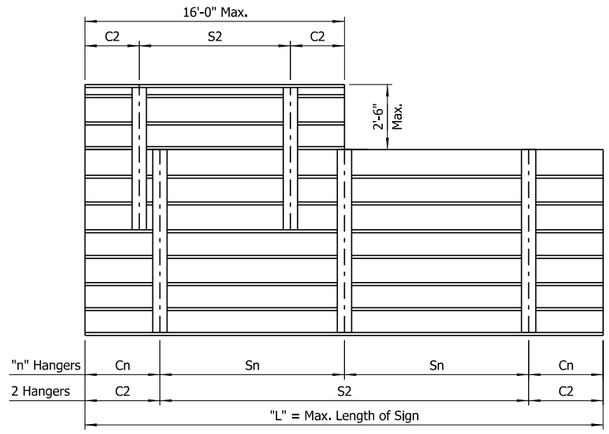
Locknuts shall be equipped with nylon locking inserts or other approved type locking system. Locknuts shall be installed according to Manufacturer's recommendations.

Anchor bolts shall comply with AASHTO M 314, Grade 55, including Supplementary Requirement S1, and shall be galvanized according to Subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with Subsection 807.07. Anchor bolts shall be pretensioned in accordance with Special Provision "STEEL SIGN STRUCTURES".

Shoring may be required to protect existing shoulders or other elements during excavation. Any shoring required shall not be paid for directly, but shall be considered incidental to the item "STEEL OVERHEAD SIGN STRUCTURE (_)". The excavations for the footings shall be backfilled before the structure is attached to the foundations.

DYNAMIC MESSAGE SIGN (WHEN APPLICABLE): The Dynamic Message Sign (DMS) supplier shall be responsible for the attachment method and materials used to attach the DMS and its accessories to the structure. The method of attachment shall not facilitate any corrosion of the structure. For additional information regarding the DMS, see Special Provision "OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY".

For location of each 86' to 100' overhead sign structure to be used, refer to ITS and/or Sign Plans.



NOTE:
See sign details and plan sheets for number, size and dimensions of signs.

HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

No Scale

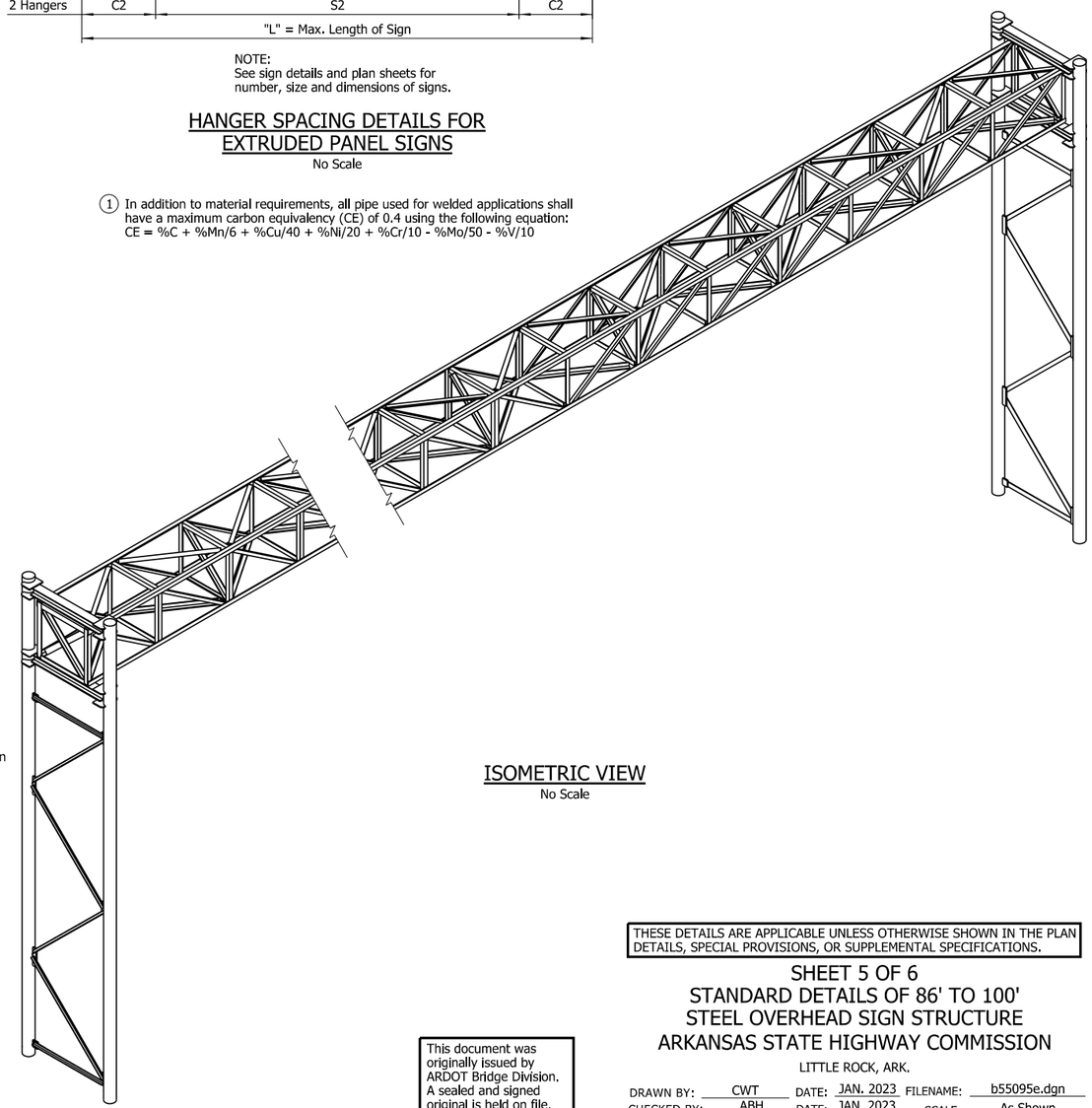
HANGER VARIABLES

(For Extruded Panel Signs)

Max. Length of Sign = "L"	"n" Hangers	Cantilever Length "Cn"	Hanger Spacing "Sn"
15'-0"	2 Hangers	0.21 x "L"	0.58 x "L"
30'-0"	3 Hangers	0.145 x "L"	0.355 x "L"
45'-0"	4 Hangers	0.107 x "L"	0.262 x "L"

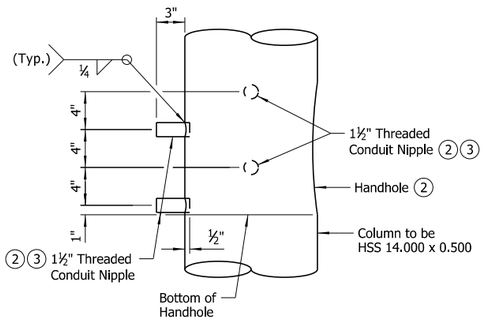
NOTE:
Hanger spacing and cantilever length shall be rounded to the nearest inch.

(1) In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4 using the following equation:
CE = %C + %Mn/6 + %Cu/40 + %Ni/20 + %Cr/10 - %Mo/50 - %V/10



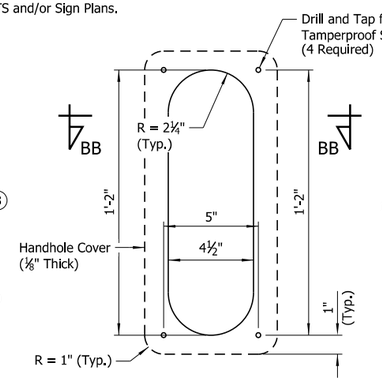
ISOMETRIC VIEW

No Scale



DETAIL P

Scale: 1½" = 1'-0"

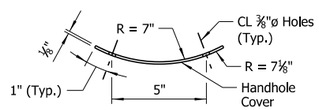


HANDHOLE DETAIL (2)

Scale: 3" = 1'-0"

(2) See details on Std. Dwgs. 55095A & 55095B for location and orientation of handholes and threaded conduit nipples.

(3) Threaded conduit nipples shall be fitted with standard plugs until conduit is installed.



SECTION BB-SECTION

Scale: 3" = 1'-0"

NOTE:
Provide handhole covers with chain, waterproof grommet, and tamperproof screws.

Handhole covers shall be galvanized and meet the requirements of ASTM A36 at a minimum.

Tamperproof screws shall be galvanized and meet the requirements of ANSI/ASME B18.6.3.

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SHEET 5 OF 6
STANDARD DETAILS OF 86' TO 100'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

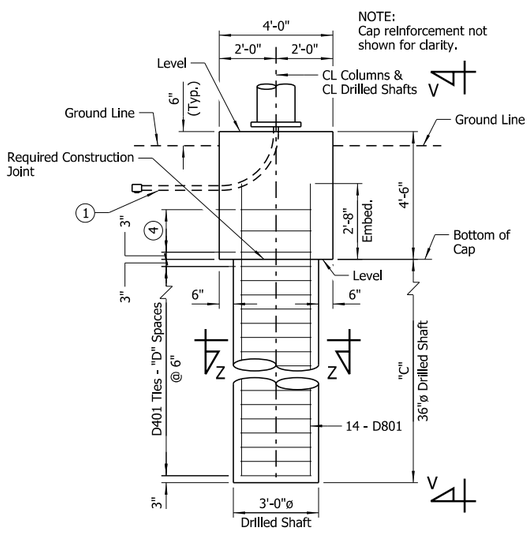
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CHECKED BY:	ABH	DATE:	JAN. 2023	SCALE:	As Shown
DESIGNED BY:	STD.	DATE:	-		

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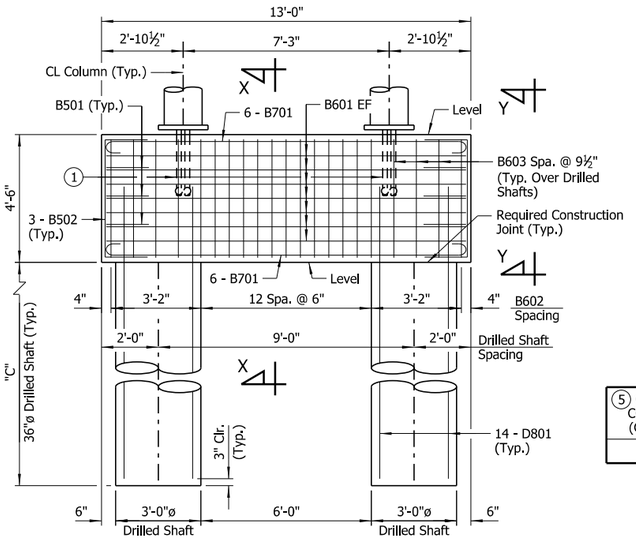
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (86' TO 100') - 55095F				



ELEVATION - FOUNDATION A2 (2)

Scale: ⅜" = 1'-0"



VIEW V-V

Scale: ⅜" = 1'-0"

1. 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. At Foundation B2, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A2, conduit shall always be provided. If cabling in the conduit at Foundation A2 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.
2. Foundation A2 allowed only when foundation is outside clear zone or is protected by guardrail or barrier.
3. Foundation B2 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B2 requires adjacent Roadway Median Barrier to transition to match the ends of the cap. See Roadway Plans for additional information.
4. C401 Ties - 2 Spaces @ 9"

APPROX. QUANTITIES FOR FOUNDATION A2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)	DRILLED SHAFT (36" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (36" DIA.) (EACH)
8.70	1,230	17	"G"	1

APPROX. QUANTITIES FOR FOUNDATION B2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	DRILLED SHAFT (36" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (36" DIA.) (EACH)
8.70	1,230	"G"	1

5. Does not include Class S Concrete for Drilled Shafts
6. Does not include D401 and D801 Bars in Drilled Shafts
7. Tabulated SPT N60 values are raw SPT N values corrected by SPT hammer efficiency and represent average values along the plan shaft penetration. If the SPT N60 values in the foundation soils within 2 shaft diameters below the plan tip elevation are less than the average SPT N60 values along the plan shaft penetration, the Engineer shall be contacted.

DRILLED SHAFT NOTES (FOUNDATIONS A2 & B2)

Drilled shafts shall conform to Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES". Drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". Temporary casing may be required. Unless approved by the Engineer, permanent steel casing shall not be used.

Crosshole Sonic Logging (CSL) shall be performed on one drilled shaft at each foundation and as directed by the Engineer. Testing shall be performed in accordance with Special Provision "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS FOR STEEL SIGN STRUCTURES".

Concrete and reinforcing steel placed in drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling or erecting.

Concrete in drilled shafts shall be Class "S" as modified by Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES".

Drilled shaft lengths shall be determined based on the results of exploratory borings, which shall be performed by the Contractor prior to shaft excavation.

If competent rock is not encountered in the exploratory boring, the Standard Penetration Test (SPT) blow count corrected by the hammer efficiency, N60, shall be used to determine shaft lengths. See "TABLE OF VARIABLES".

If competent rock is encountered in the exploratory boring within 25'-0" of planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock and have a minimum length of 25'-0".

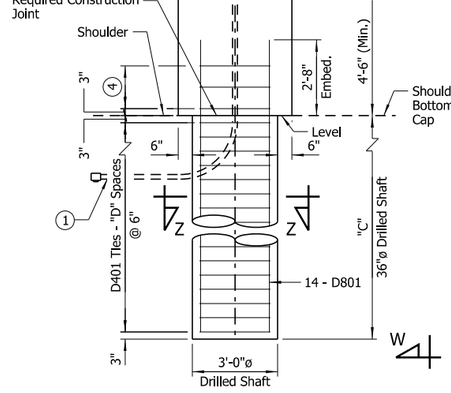
If competent rock is encountered in the exploratory boring below 25'-0" from planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock or to the depth based on the SPT N60 value and associated shaft length in the "TABLE OF VARIABLES", whichever is shallower.

Testing results shall be submitted to the Engineer for review. Final drilled shaft lengths shall be approved by the Engineer prior to construction.

The cost of performing exploratory borings and in-situ strength testing shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

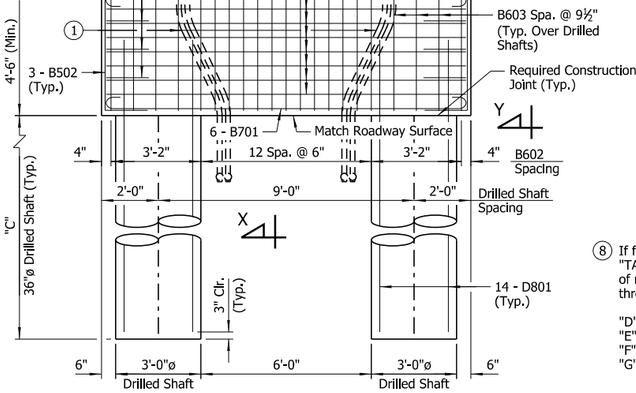
TABLE OF VARIABLES (8)

SPT N60 (blows/ft.) (7)	Min. Depth of Exploratory Boring	Drilled Shaft Length, "C"	"D"	"E"	"F" (9)	"G"
<5	-	Contact Engineer	-	-	-	-
5 To 7	107'-0"	101'-0"	201	404	103'-5"	202'-0"
7 To 9	90'-0"	84'-0"	167	336	86'-5"	168'-0"
9 To 11	67'-0"	61'-0"	121	244	63'-5"	122'-0"
11 To 13	53'-0"	47'-0"	93	188	49'-5"	94'-0"
>13	44'-0"	38'-0"	75	152	40'-5"	76'-0"



ELEVATION - FOUNDATION B2 (3)

Scale: ⅜" = 1'-0"



VIEW W-W

Scale: ⅜" = 1'-0"

8. If final drilled shaft length is not shown in "TABLE OF VARIABLES" due to the presence of rock or other factors, variables "D" through "G" shall be determined as follows:

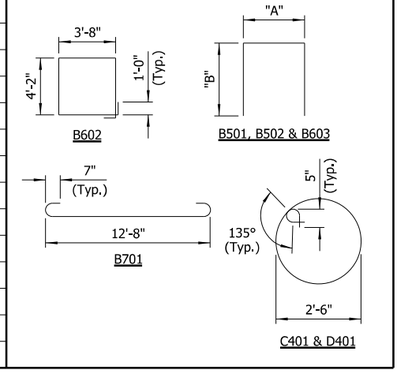
   "D" = (Shaft Length in Ft. - 0.5) / 0.5
   "E" = Shaft Length in Ft. x 4
   "F" = Shaft Length + 2'-5"
   "G" = Shaft Length x 2

9. If "F" exceeds 60'-0", a lap splice is required for each D801 bar at the midpoint of the drilled shaft. Min. lap splice length for D801 bar = 3'-6". Length shown in table does not include the additional length required for a lap splice.

BAR LIST - FOUNDATION A2 OR B2

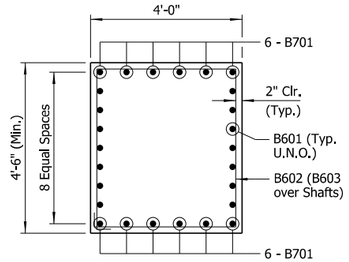
MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
B501	6	6'-4"	3'-6"	1'-6"	2½"
B502	6	6'-10"	4'-0"	1'-6"	2½"
B601	14	12'-8"			Str.
B602	15	16'-10"			4½"
B603	6	11'-8"	3'-8"	4'-2"	4½"
B701	12	14'-4"			5¼"
C401	6	8'-11"			3"
D401	"E"	8'-11"			3"
D801	28	"F"			Str.

BAR BENDING DIAGRAMS



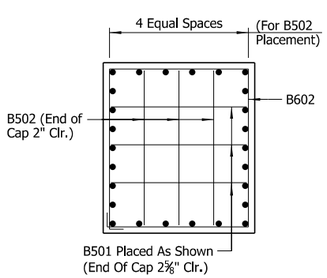
NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one Foundation A2 or one Foundation B2.



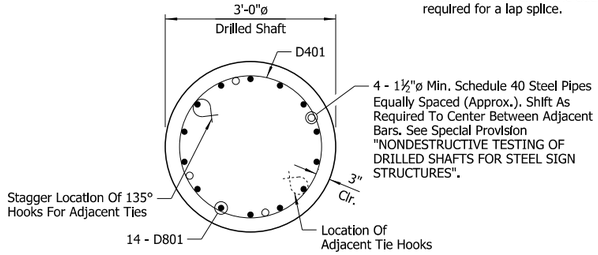
SECTION X-X

Scale: ½" = 1'-0"



VIEW Y-Y

Scale: ½" = 1'-0"



SECTION Z-Z

Scale: ¾" = 1'-0"

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face

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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

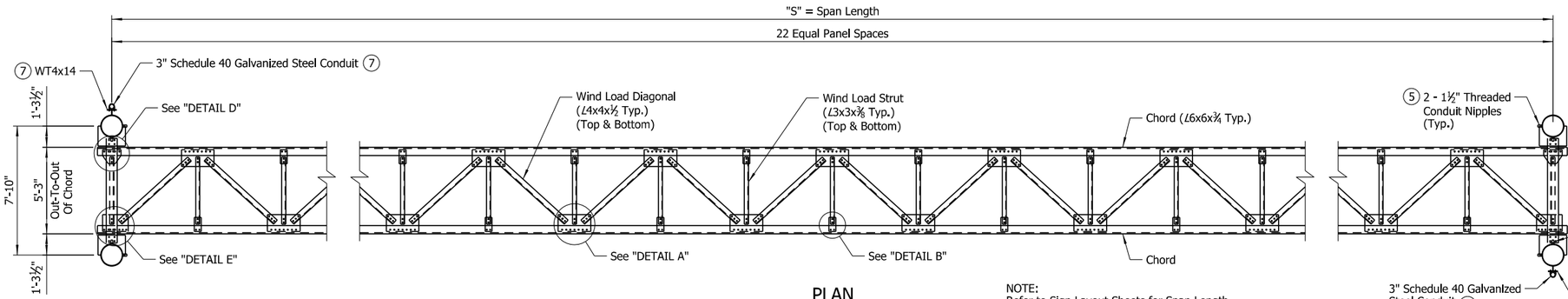
SHEET 6 OF 6
STANDARD DETAILS OF 86' TO 100'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: JAN. 2023 FILENAME: b55095f.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55095F

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (101' TO 115') - 55096A				



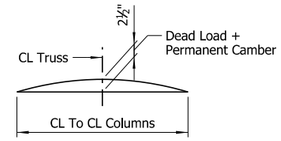
PLAN
No Scale

NOTE:
Refer to Sign Layout Sheets for Span Length "S" and Foundation Types required for each structure.

NOTES:
For "VIEW A-A", see Std. Dwg. 55096B.

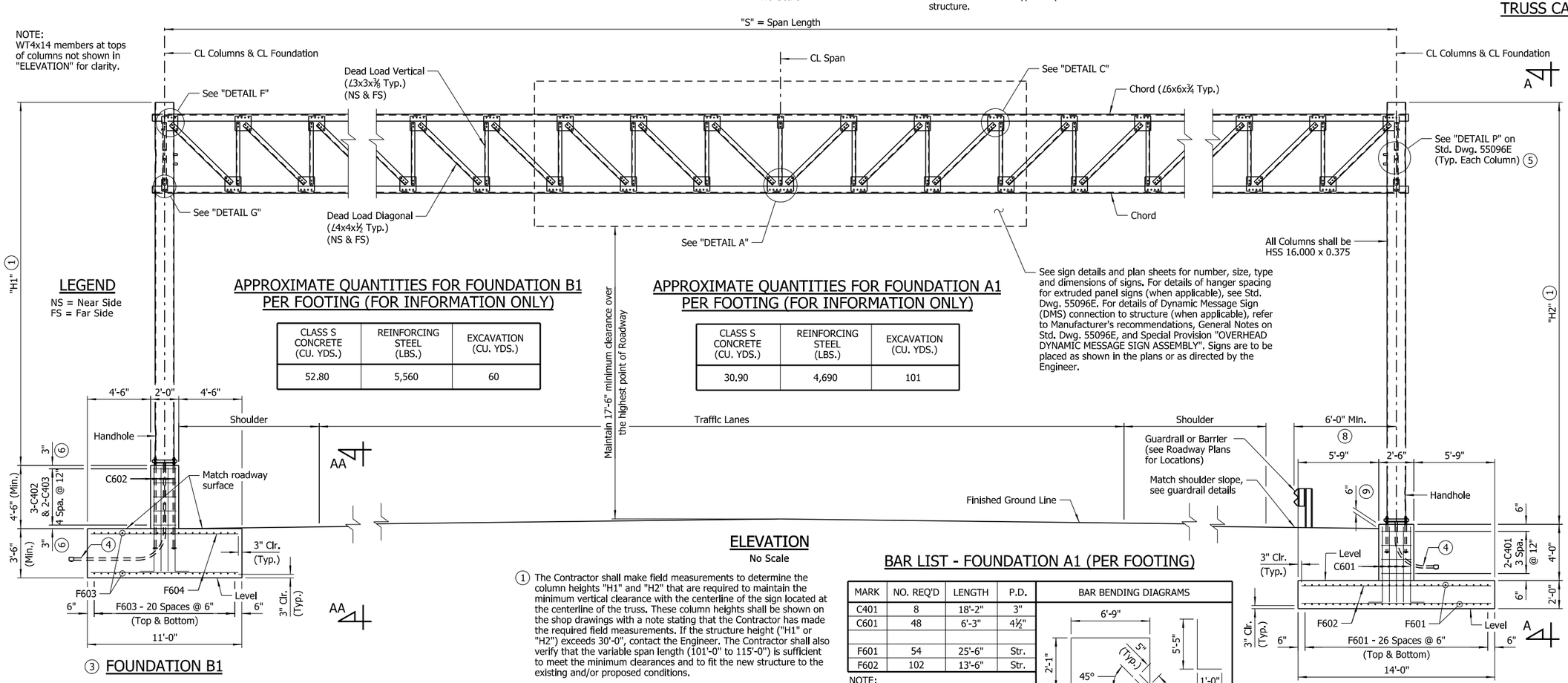
For "DETAIL A" thru "DETAIL G", see Std. Dwg. 55096C.

For "VIEW AA-AA", see Std. Dwg. 55096D.



TRUSS CAMBER DIAGRAM
No Scale

NOTE:
WT4x14 members at tops of columns not shown in "ELEVATION" for clarity.



LEGEND
NS = Near Side
FS = Far Side

APPROXIMATE QUANTITIES FOR FOUNDATION B1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
52.80	5,560	60

APPROXIMATE QUANTITIES FOR FOUNDATION A1 PER FOOTING (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
30.90	4,690	101

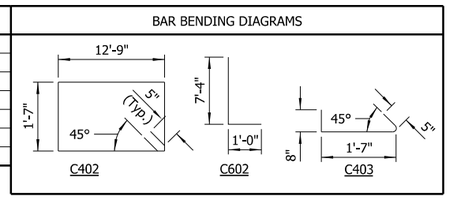
ELEVATION
No Scale

3 FOUNDATION B1

BAR LIST - FOUNDATION B1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.
C402	15	29'-2"	3"
C403	10	2'-7"	3"
C602	124	8'-2"	4½"
F603	42	29'-6"	Str.
F604	118	10'-6"	Str.

BAR BENDING DIAGRAMS



NOTE:
Dimensions of bars are out-to-out.

BAR LIST - FOUNDATION A1 (PER FOOTING)

MARK	NO. REQ'D	LENGTH	P.D.
C401	8	18'-2"	3"
C601	48	6'-3"	4½"
F601	54	25'-6"	Str.
F602	102	13'-6"	Str.

BAR BENDING DIAGRAMS

NOTE:
Dimensions of bars are out-to-out.

1. The Contractor shall make field measurements to determine the column heights "H1" and "H2" that are required to maintain the minimum vertical clearance with the centerline of the sign located at the centerline of the truss. These column heights shall be shown on the shop drawings with a note stating that the Contractor has made the required field measurements. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer. The Contractor shall also verify that the variable span length (101'-0" to 115'-0") is sufficient to meet the minimum clearances and to fit the new structure to the existing and/or proposed conditions.

2. Foundation A1 allowed only when foundation is outside clear zone or is protected by guardrail or barrier. For alternate drilled shaft foundation (Foundation A2), see Std. Dwg. 55096F.

3. Foundation B1 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B1 requires adjacent Roadway Median Barrier to transition to match the ends of the pedestal. For alternate drilled shaft foundation (Foundation B2), see Std. Dwg. 55096F.

4. 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). At Foundation B1, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A1, conduit shall always be provided. If cabling in the conduit at Foundation A1 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.

5. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.

6. Minor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.

7. See "SECTION U-U" on Std. Dwg. 55096C. WT4x14 always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

8. Minimum dimension when guardrail is present. See Sign Layout Sheets and/or ITS Plans for actual dimension for each structure.

9. Dimension from top of pedestal to Finished Ground Line shall be maintained along the perimeter of the pedestal.

2 FOUNDATION A1

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 1 OF 6
STANDARD DETAILS OF 101' TO 115' STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55096a.dgn
CHECKED BY: ABH DATE: NOV. 2022 SCALE: As Shown
DESIGNED BY: STD. DATE: -

DRAWING NO. 55096A

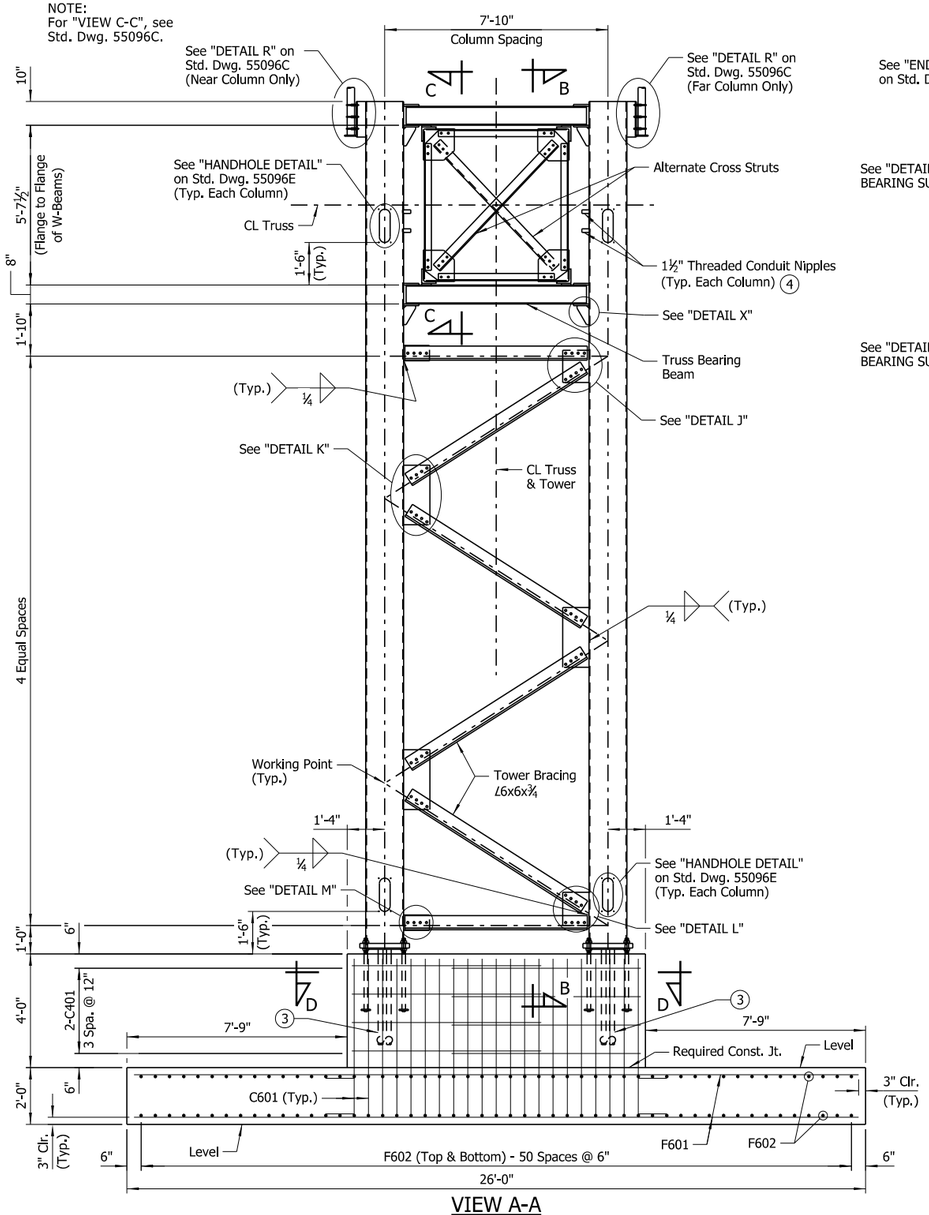
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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

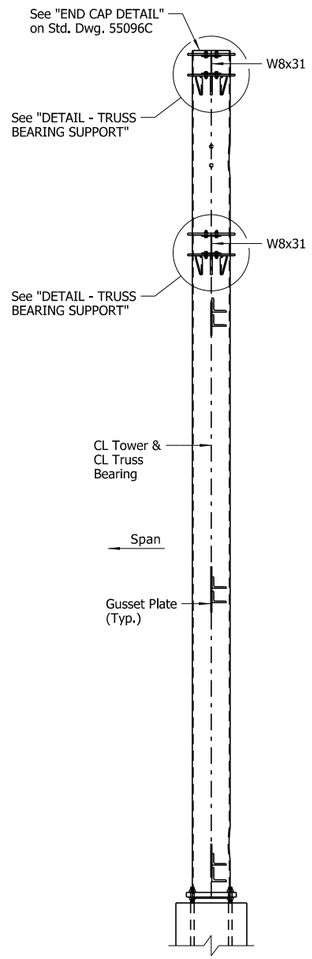
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (101' TO 115') - 55096B				

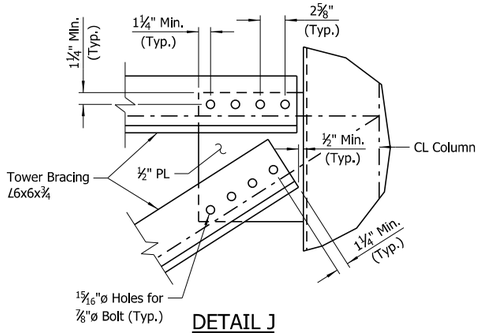
NOTE:
For "VIEW C-C", see Std. Dwg. 55096C.



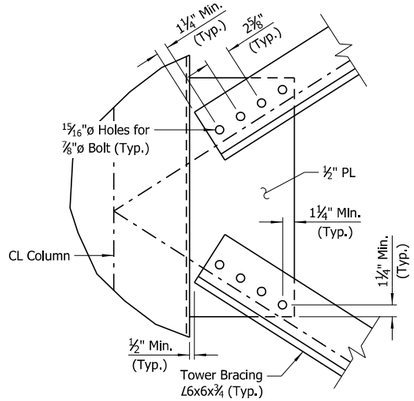
VIEW A-A
(Foundation A1)
No Scale



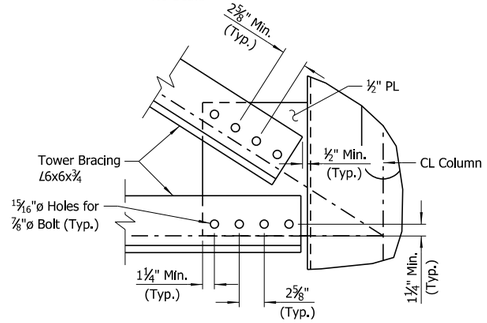
VIEW B-B
No Scale



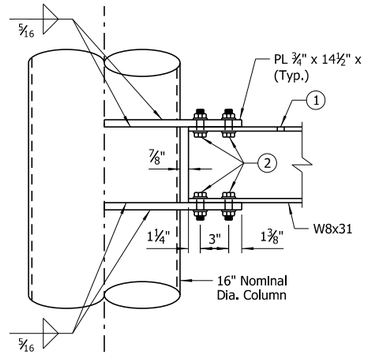
DETAIL J
No Scale



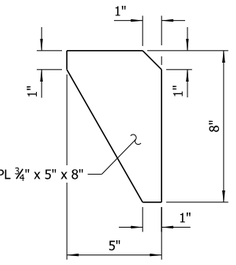
DETAIL K
No Scale



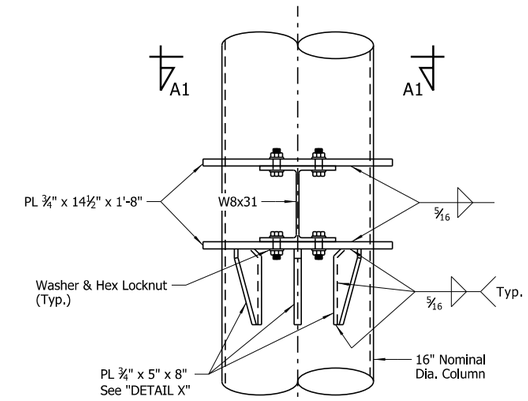
DETAIL L
No Scale



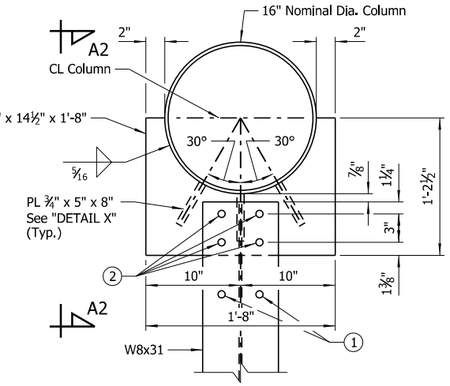
VIEW A2-A2
Scale: 1½" = 1'-0"
(¾" x 5" x 8" Plate not shown for clarity)



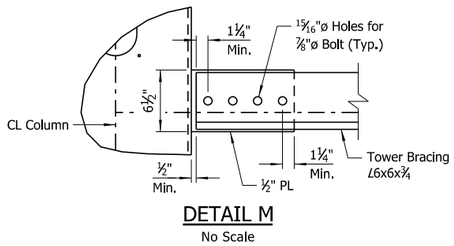
DETAIL X
Scale: 3" = 1'-0"



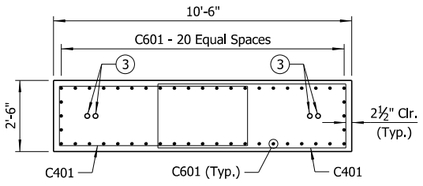
DETAIL - TRUSS BEARING SUPPORT
Scale: 1½" = 1'-0"



VIEW A1-A1
Scale: 1½" = 1'-0"



DETAIL M
No Scale



SECTION D-D
Scale: ⅜" = 1'-0"

1. Bolts shall be ¾"ø. Provide 13/16" x 2" slotted hole in gusset plate and chord angle. Use plate washer on gusset plate side. Provide 13/16"ø holes in ¾" shim plate and top or bottom beam flanges as required.
2. Bolts shall be ¾"ø. Provide 13/16"ø holes at top and bottom beam flanges and connection plates.
3. 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit.
4. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 2 OF 6
STANDARD DETAILS OF 101' TO 115'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55096b.dgn
CHECKED BY: ABH DATE: NOV. 2022 SCALE: As Shown
DESIGNED BY: STD. DATE: -

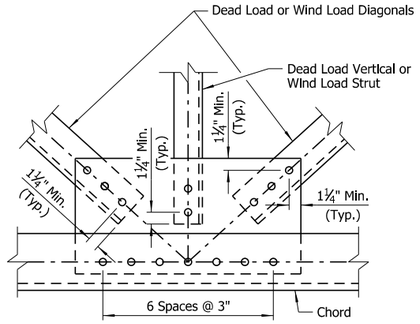
DRAWING NO. 55096B

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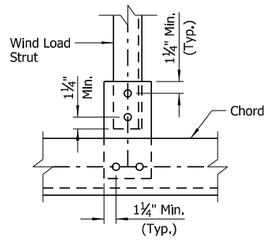
Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

6/17/2026

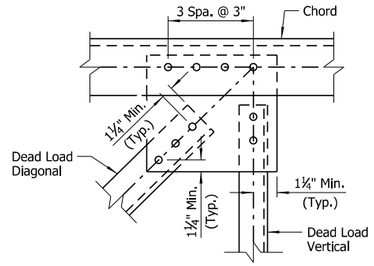
DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (101' TO 115') - 55096C				



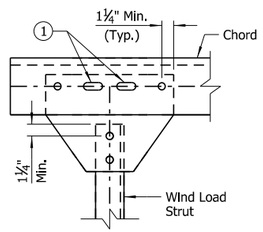
DETAIL A
No Scale



DETAIL B
No Scale

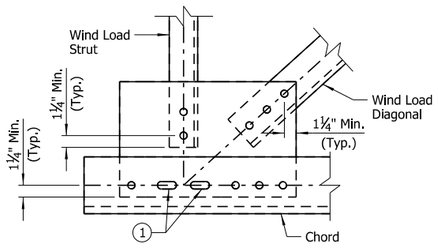


DETAIL C
No Scale

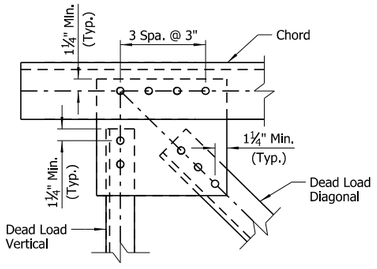


DETAIL D
No Scale

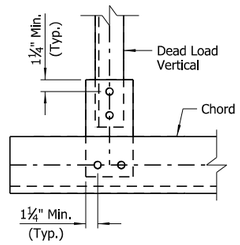
NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".



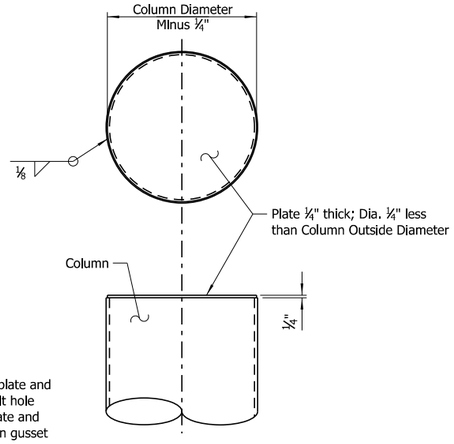
DETAIL E
No Scale



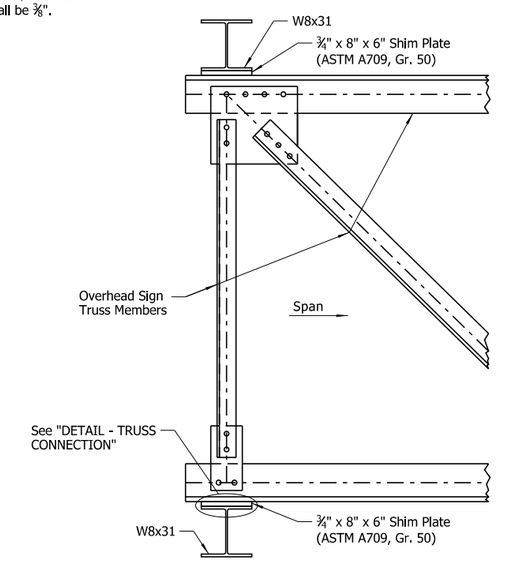
DETAIL F
No Scale



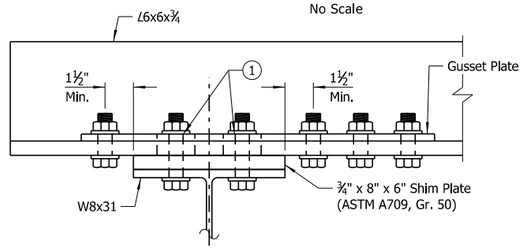
DETAIL G
No Scale



END CAP DETAIL
Scale: 1½" = 1'-0"



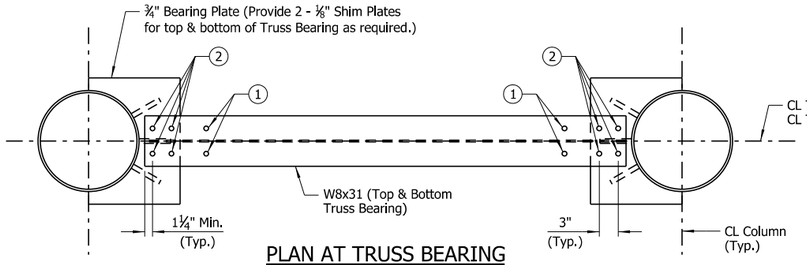
VIEW C-C
No Scale



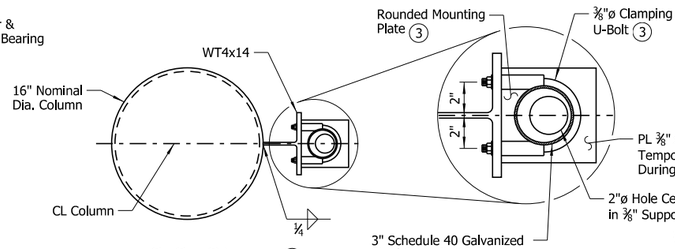
DETAIL - TRUSS CONNECTION
No Scale

① Bolts shall be ¾"ø. Provide $^{13}/_{16}$" x 2" slotted holes in gusset plate and chord angle. Clearance between end of slot and adjacent bolt hole shall be no less than 1½". Provide $^{13}/_{16}$"ø holes in ¾" shim plate and top or bottom beam flanges as required. Use plate washer on gusset plate side.

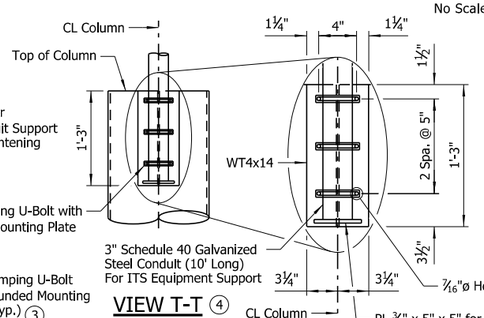
② Bolts shall be ¾"ø. Provide $^{13}/_{16}$"ø holes at top and bottom beam flanges and connection plates.



PLAN AT TRUSS BEARING
Scale: 1" = 1'-0"



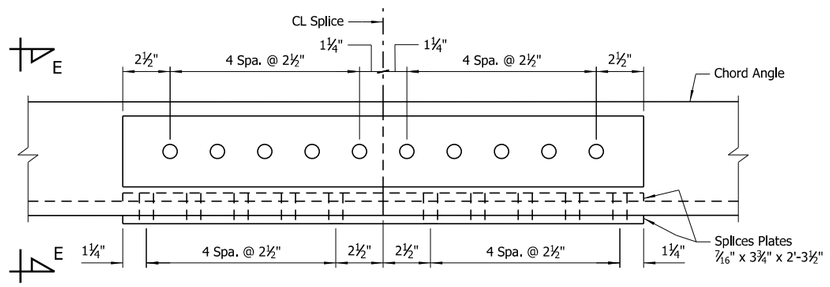
SECTION U-U ④
Scale: 1½" = 1'-0"



VIEW T-T ④
Scale: 1" = 1'-0"

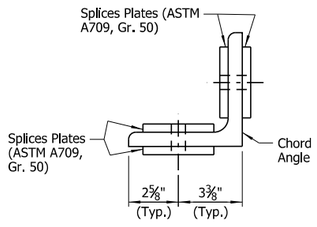
③ When required per plans to support ITS equipment, or as directed by the Engineer, Clamping U-Bolt with Rounded Mounting Plate Assembly product shall be included in shop drawings for approval. Assembly shall be galvanized and shall meet the requirements of ASTM A36 at a minimum. Install per Manufacturer's Instructions.

④ WT4x14 with ⅜" Temporary Support Plate always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

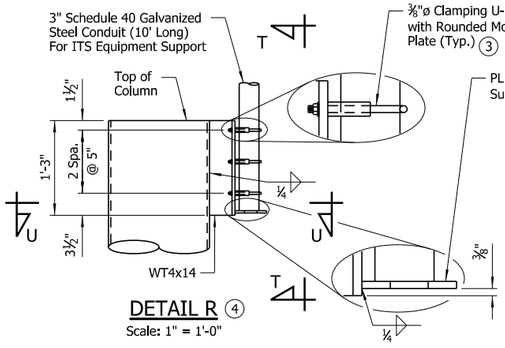


CHORD SPLICE
Scale: 3" = 1'-0"

NOTE:
Chord angles may be spliced in convenient lengths for galvanizing and sign placement.



VIEW E-E
Scale: 3" = 1'-0"



DETAIL R ④
Scale: 1" = 1'-0"

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SHEET 3 OF 6
STANDARD DETAILS OF 101' TO 115'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

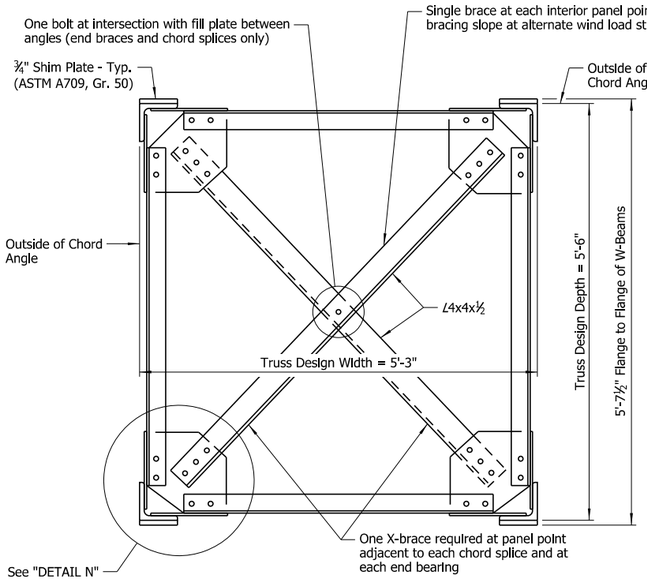
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CHECKED BY:	ABH	DATE:	NOV. 2022	SCALE:	As Shown
DESIGNED BY:	STD.	DATE:	-		

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55096C

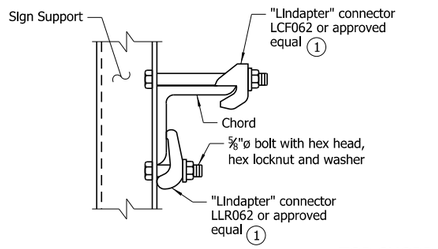
6/17/2026

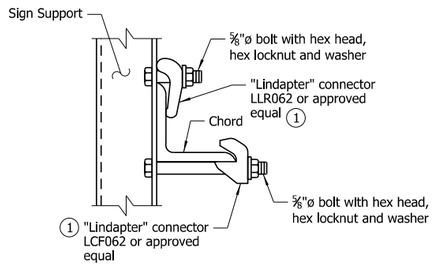
DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (101' TO 115') - 55096D				



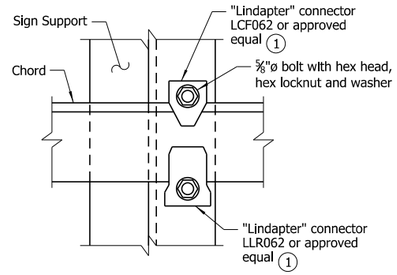
TRUSS SECTION

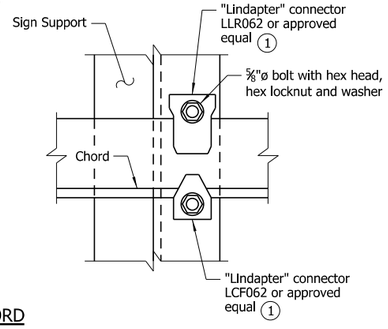
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TOP CHORD



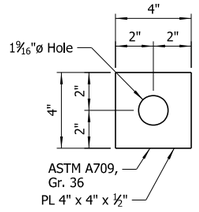


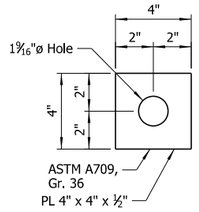
BOTTOM CHORD

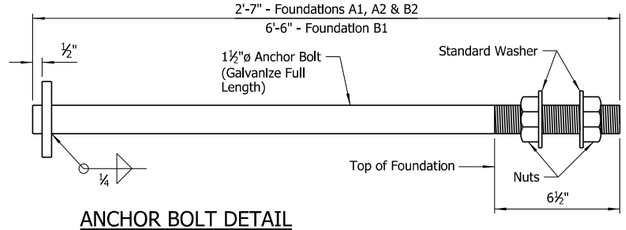
(1) All "Lindapter" connectors or approved equal shall be installed according to Manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.

DETAILS OF SIGN SUPPORT CONNECTION TO TRUSS

No Scale

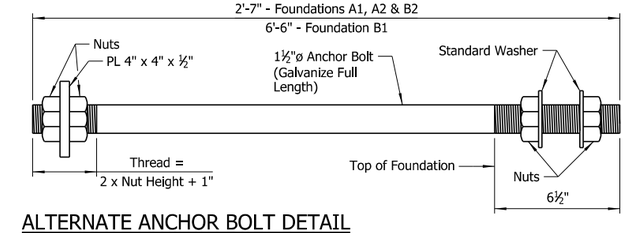






ANCHOR BOLT DETAIL

No Scale

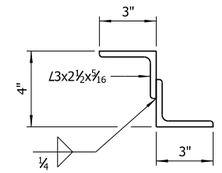


ALTERNATE ANCHOR BOLT DETAIL

No Scale

NOTE:
Unless otherwise noted, thickness of all Gusset Plates shall be ⅜".

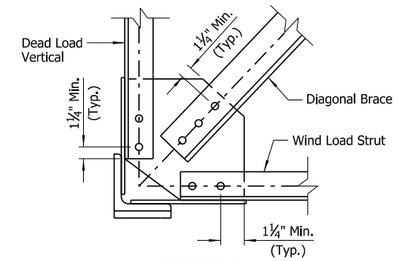
NOTE:
Install all support connectors clear of the gusset plates and splice locations.



NOTE:
Structural Z Support may be fabricated from angles as shown.

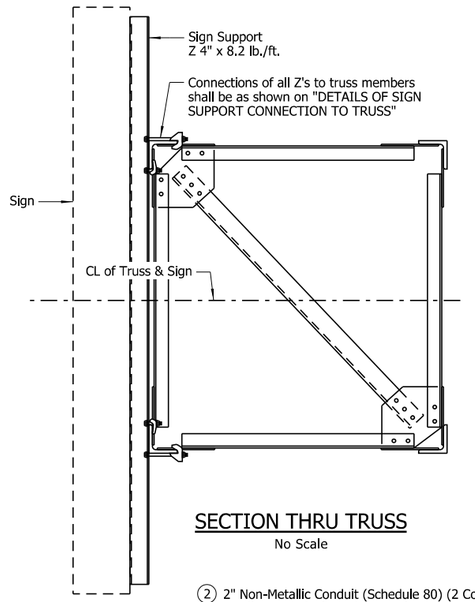
DETAILS OF ALTERNATE Z SUPPORT

No Scale



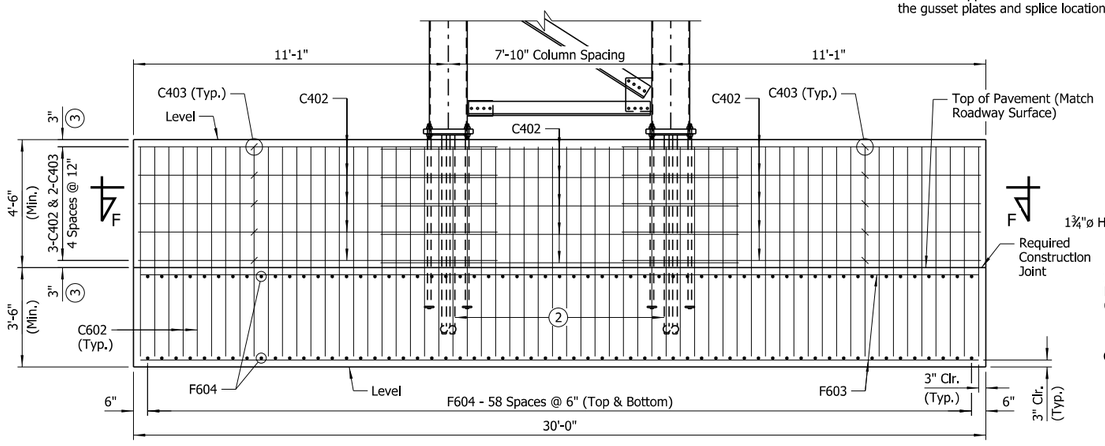
DETAIL N

Scale: 1½" = 1'-0"



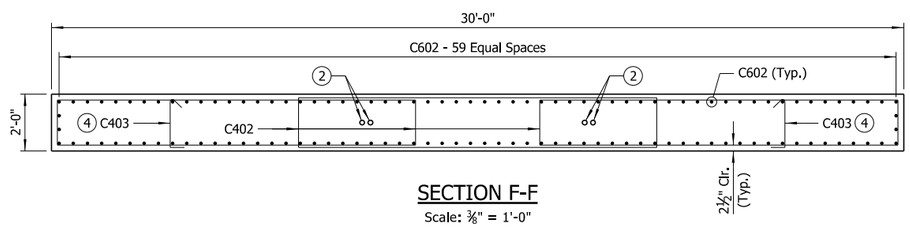
SECTION THRU TRUSS

No Scale



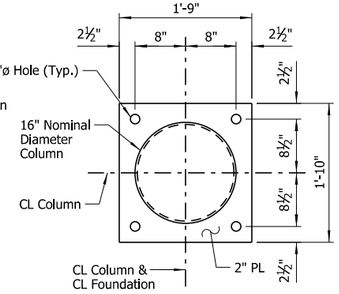
VIEW AA-AA

(Foundation B1)
Scale: ⅜" = 1'-0"



SECTION F-F

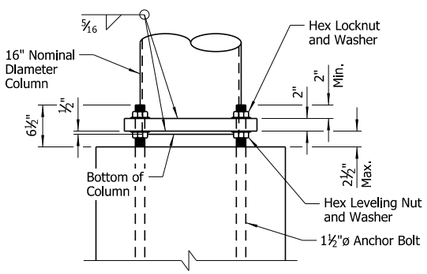
Scale: ⅜" = 1'-0"



PLAN - COLUMN BASE

Scale: 1" = 1'-0"

NOTE:
Diameter of hole in base plate to be ⅛" larger than column diameter.



ELEVATION - COLUMN BASE

Scale: 1" = 1'-0"

(2) 2" Non-Metallic Conduit (Schedule 80) (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. Conduit shall not be provided if cabling at Foundation B1 is not required per Electrical and/or ITS plans.

(3) Minor adjustments are allowed to maintain C402 and C403 12" spacing for foundations located in longitudinal grades.

(4) Alternate C403 ties end for end at each layer of reinforcing.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 4 OF 6
STANDARD DETAILS OF 101' TO 115'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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DRAWN BY: CWT DATE: NOV. 2022 FILENAME: b55096d.dgn
CHECKED BY: ABH DATE: NOV. 2022 SCALE: As Shown
DESIGNED BY: STD. DATE: -

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half. DRAWING NO. 55096D

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (101' TO 115') - 55096E				

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, First Edition, 2015 with current interim revisions.

Basic Wind Speed = 120 mph
Fatigue Category: I

This structure is approved for a maximum sign area equal to 75% of the span length times a sign height of 15 feet. This structure is approved for a maximum sign weight (total of all signs and hangers) of 10,780 lbs. Use of additional sign area or a heavier sign must be approved by the Engineer. If the structure height ("H1" or "H2") exceeds 30'-0", contact the Engineer.

FOUNDATION MATERIALS AND STRENGTHS:

Class S Concrete	f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi

Spread footings for the structure have been designed assuming a factored bearing resistance of 2.0 ksf. Contractor shall be responsible for evaluating and verifying that the foundation soils are adequate to achieve the assumed factored bearing capacity, utilizing SPT (Standard Penetration Test), CPT (Cone Penetration Test), DCP (Dynamic Cone Penetration) test, or other suitable means, prior to or after footing excavation, whichever is appropriate. If the foundation soils are verified to be adequate, then the footing shall be constructed in accordance with the planned dimensions. Otherwise, the Design Engineer shall be contacted. Costs for foundation soil evaluation and verification shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

Structural steel sign support members shall comply with the following specifications:

Angles:	ASTM A709, Gr. 36 (Fy = 36,000 psi)
Plate, W-Section:	ASTM A709, Gr. 50 (Fy = 50,000 psi)
(1) Pipe:	ASTM A139, Gr. C, straight-seam welded (Fy = 42,000 psi), ASTM A500, Gr. B (Fy = 42,000 psi), ASTM A501, Gr. B (Fy = 50,000 psi)
Z-Shapes:	ASTM A709, Grade 36 (Fy = 36,000 psi)
Shim Plates:	ASTM A1011, SS, Grade 36, Type 2, or Grade 40
Bolts:	ASTM F3125, Grade A325, Type 1
Locknuts - Approved Type:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H
Washers:	ASTM F436
Nuts:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H

The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and to fit the new structure to the existing and/or proposed conditions.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All steel shall be galvanized according to Subsection 807.19. Steel completely encased in concrete may not be galvanized. Galvanized coating damaged during transport, handling or erection shall be field repaired in accordance with Subsection 807.88.

All main load carrying tension members greater than ½" in thickness shall conform to the requirements of the Longitudinal Charpy V-Notch test specified for Zone 1 minimum service temperature. This work and materials shall be paid for in accordance with Special Provision "STEEL SIGN STRUCTURES".

Field splices shall be located in order to avoid sign panel connections. There shall be a maximum of two field splices, and they shall be spaced a minimum of 15 feet apart.

Truss field sections shall be shop assembled. Entire truss shall be fully assembled and lifted into place as one unit on to tower supports. All truss member connections shall be bolted connections.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26 except welding of tubular sections shall conform to AWS D1.1 Structural Welding Code.

No circumferential butt welds will be allowed in any pipe sections.

All fillet welds of critical members shall be tested according to AWS D1.1 Structural Welding Code - Steel using the magnetic particle method. Critical welds shall include: column to base plate and truss bottom support to column.

Connections shall be bolted with high-strength bolts. Unless otherwise noted, bolts shall be ¾" diameter and open holes shall be $^{13}/_{16}$" diameter. Bolt spacing shall be 2½" for ¾" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All truss frame bolts shall comply with ASTM F3125, Grade A325, Type 1, galvanized according to Subsection 807.06. Nuts and washers for ASTM F3125, Grade A325, Type 1 bolts shall be furnished and galvanized in accordance with Subsection 807.06.

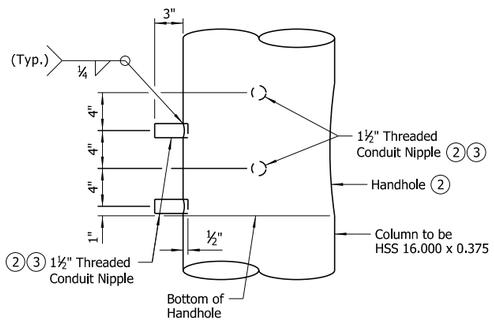
Locknuts shall be equipped with nylon locking inserts or other approved type locking system. Locknuts shall be installed according to Manufacturer's recommendations.

Anchor bolts shall comply with AASHTO M 314, Grade 55, including Supplementary Requirement S1, and shall be galvanized according to Subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with Subsection 807.07. Anchor bolts shall be pretensioned in accordance with Special Provision "STEEL SIGN STRUCTURES".

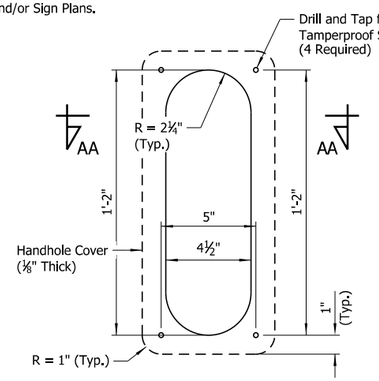
Shoring may be required to protect existing shoulders or other elements during excavation. Any shoring required shall not be paid for directly, but shall be considered incidental to the item "STEEL OVERHEAD SIGN STRUCTURE (_)". The excavations for the footings shall be backfilled before the structure is attached to the foundations.

DYNAMIC MESSAGE SIGN (WHEN APPLICABLE): The Dynamic Message Sign (DMS) supplier shall be responsible for the attachment method and materials used to attach the DMS and its accessories to the structure. The method of attachment shall not facilitate any corrosion of the structure. For additional information regarding the DMS, see Special Provision "OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY".

For location of each 101' to 115' overhead sign structure to be used, refer to ITS and/or Sign Plans.



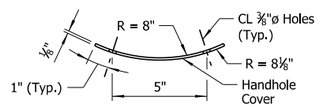
DETAIL P
Scale: 1½" = 1'-0"



HANDHOLE DETAIL (2)
Scale: 3" = 1'-0"

(2) See details on Std. Dwgs. 55096A & 55096B for location and orientation of handholes and threaded conduit nipples.

(3) Threaded conduit nipples shall be fitted with standard plugs until conduit is installed.

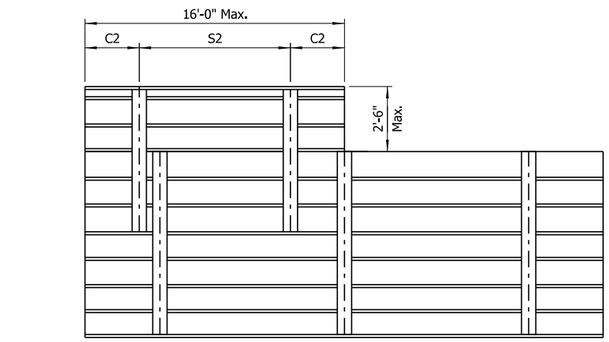


SECTION AA-AA
Scale: 3" = 1'-0"

NOTE:
Provide handhole covers with chain, waterproof grommet, and tamperproof screws.

Handhole covers shall be galvanized and meet the requirements of ASTM A36 at a minimum.

Tamperproof screws shall be galvanized and meet the requirements of ANSI/ASME B18.6.3.



NOTE:
See sign details and plan sheets for number, size and dimensions of signs.

HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

No Scale

(1) In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4 using the following equation:

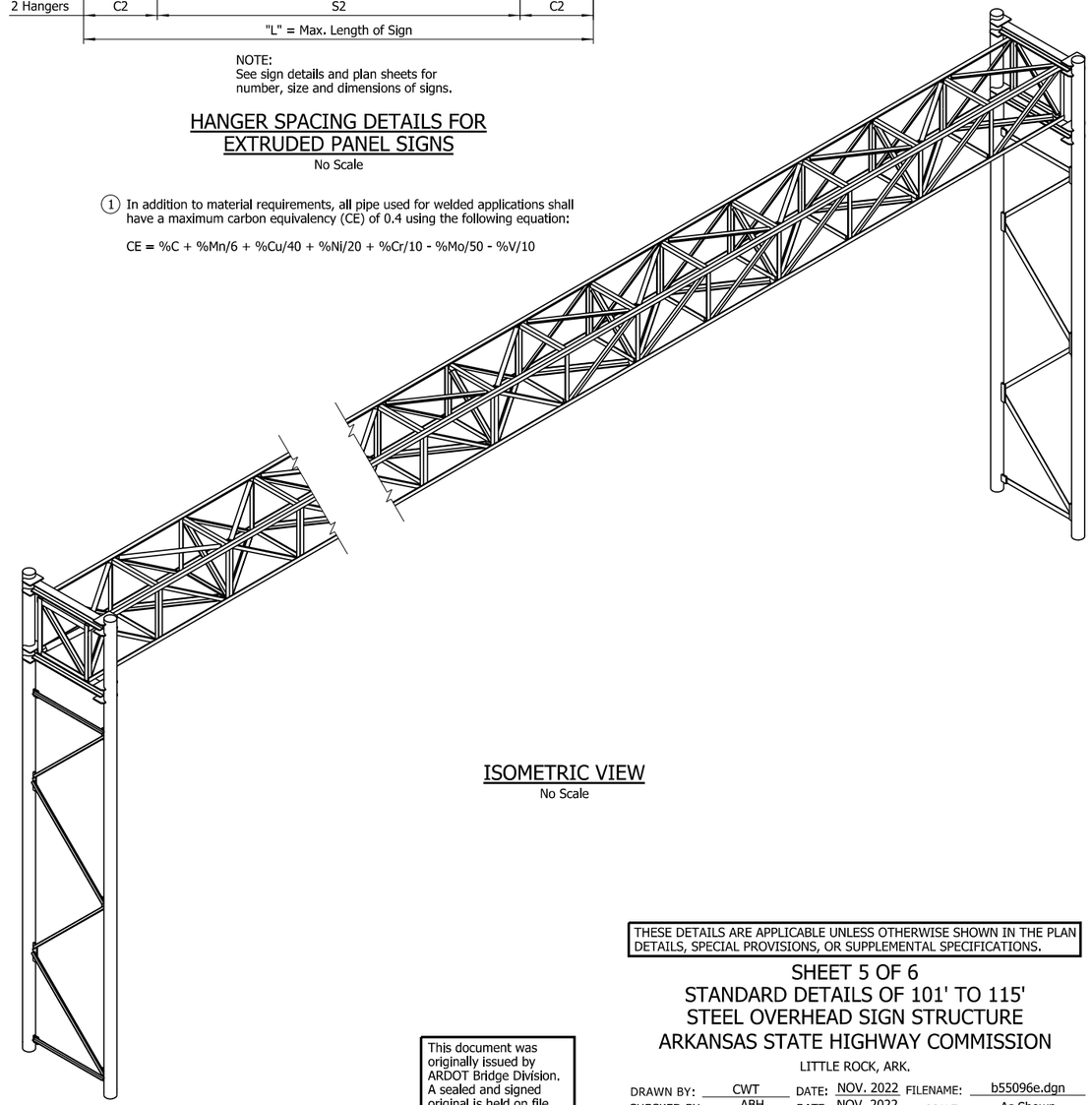
CE = %C + %Mn/6 + %Cu/40 + %Ni/20 + %Cr/10 - %Mo/50 - %V/10

HANGER VARIABLES

(For Extruded Panel Signs)

Max. Length of Sign = "L"	"n" Hangers	Cantilever Length "Cn"	Hanger Spacing "Sn"
15'-0"	2 Hangers	0.21 x "L"	0.58 x "L"
30'-0"	3 Hangers	0.145 x "L"	0.355 x "L"
45'-0"	4 Hangers	0.107 x "L"	0.262 x "L"

NOTE:
Hanger spacing and cantilever length shall be rounded to the nearest inch.



ISOMETRIC VIEW
No Scale

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 5 OF 6
STANDARD DETAILS OF 101' TO 115'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

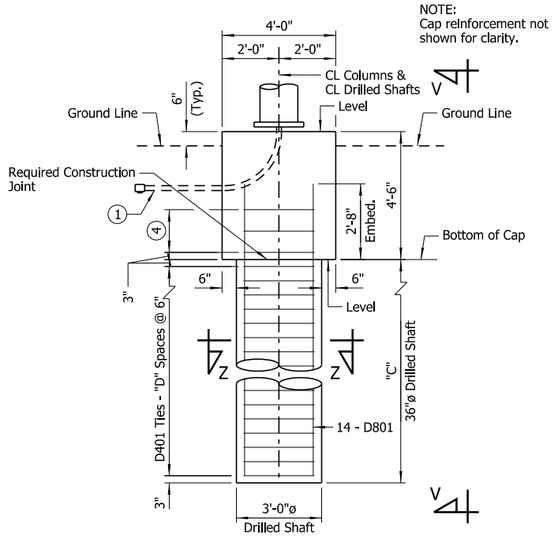
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CHECKED BY:	ABH	DATE:	NOV. 2022	SCALE:	As Shown
DESIGNED BY:	STD.	DATE:	-		

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half. DRAWING NO. 55096E

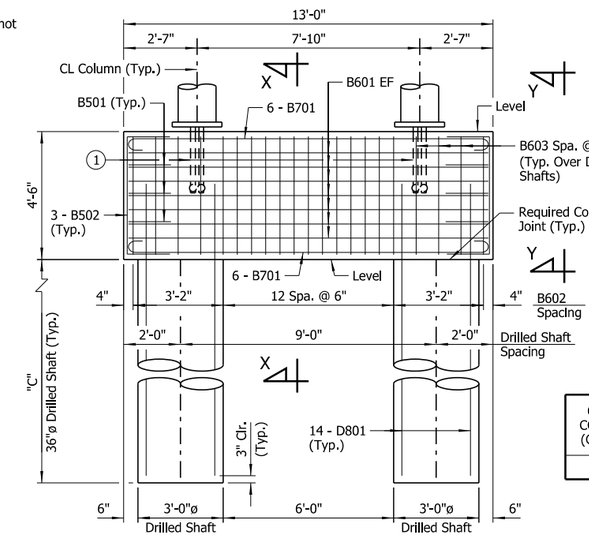
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		OVERHEAD SIGN STR. (101' TO 115') - 55096F				



ELEVATION - FOUNDATION A2 (2)

Scale: ⅜" = 1'-0"



VIEW V-V

Scale: ⅜" = 1'-0"

(1) 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. At Foundation B2, conduit shall not be provided if cabling on that side of the sign structure is not required per Electrical and/or ITS plans. At Foundation A2, conduit shall always be provided. If cabling in the conduit at Foundation A2 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.

(2) Foundation A2 allowed only when foundation is outside clear zone or is protected by guardrail or barrier.

(3) Foundation B2 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B2 requires adjacent Roadway Median Barrier to transition to match the ends of the cap. See Roadway Plans for additional information.

(4) C401 Ties - 2 Spaces @ 9"

APPROX. QUANTITIES FOR FOUNDATION A2 (FOR INFORMATION ONLY)

CLASS S CONCRETE (5) (CU. YDS.)	REINFORCING STEEL (LBS.) (6)	EXCAVATION (CU. YDS.)	DRILLED SHAFT (36" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (36" DIA.) (EACH)
8.70	1,230	17	"G"	1

APPROX. QUANTITIES FOR FOUNDATION B2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	DRILLED SHAFT (36" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (36" DIA.) (EACH)
8.70	1,230	"G"	1

(5) Does not include Class S Concrete for Drilled Shafts

(6) Does not include D401 and D801 Bars in Drilled Shafts

(7) Tabulated SPT N60 values are raw SPT N values corrected by SPT hammer efficiency and represent average values along the plan shaft penetration. If the SPT N60 values in the foundation soils within 2 shaft diameters below the plan tip elevation are less than the average SPT N60 values along the plan shaft penetration, the Engineer shall be contacted.

DRILLED SHAFT NOTES (FOUNDATIONS A2 & B2)

Drilled shafts shall conform to Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES". Drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". Temporary casing may be required. Unless approved by the Engineer, permanent steel casing shall not be used.

Crosshole Sonic Logging (CSL) shall be performed on one drilled shaft at each foundation and as directed by the Engineer. Testing shall be performed in accordance with Special Provision "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS FOR STEEL SIGN STRUCTURES".

Concrete and reinforcing steel placed in drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL OVERHEAD SIGN STRUCTURE (_)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling or erecting.

Concrete in drilled shafts shall be Class "S" as modified by Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES".

Drilled shaft lengths shall be determined based on the results of exploratory borings, which shall be performed by the Contractor prior to shaft excavation.

If competent rock is not encountered in the exploratory boring, the Standard Penetration Test (SPT) blow count corrected by the hammer efficiency, N60, shall be used to determine shaft lengths. See "TABLE OF VARIABLES".

If competent rock is encountered in the exploratory boring within 25'-0" of planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock and have a minimum length of 25'-0".

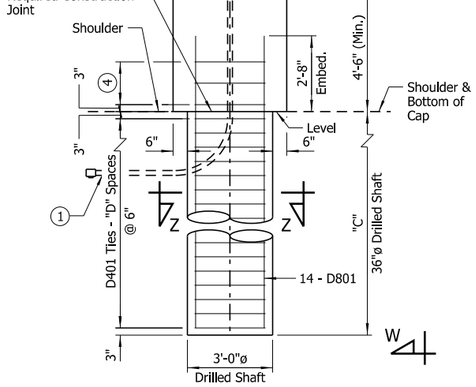
If competent rock is encountered in the exploratory boring below 25'-0" from planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock or to the depth based on the SPT N60 value and associated shaft length in the "TABLE OF VARIABLES", whichever is shallower.

Testing results shall be submitted to the Engineer for review. Final drilled shaft lengths shall be approved by the Engineer prior to construction.

The cost of performing exploratory borings and in-situ strength testing shall be included in the item "STEEL OVERHEAD SIGN STRUCTURE (_)".

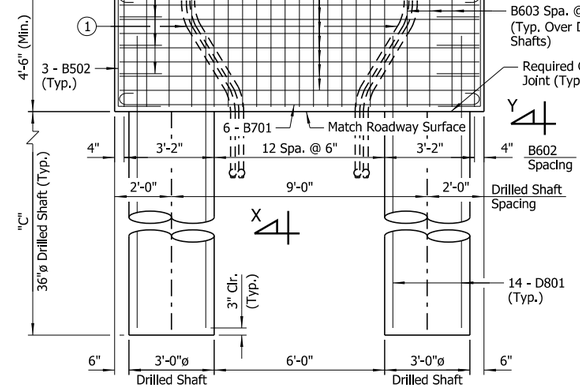
TABLE OF VARIABLES (8)

SPT N60 (7) (blows/ft.)	Min. Depth of Exploratory Boring	Drilled Shaft Length, "C"	"D"	"E"	"F" (9)	"G"
<5	-	Contact Engineer	-	-	-	-
5 To 7	107'-0"	101'-0"	201	404	103'-5"	202'-0"
7 To 9	90'-0"	84'-0"	167	336	86'-5"	168'-0"
9 To 11	67'-0"	61'-0"	121	244	63'-5"	122'-0"
11 To 13	53'-0"	47'-0"	93	188	49'-5"	94'-0"
>13	44'-0"	38'-0"	75	152	40'-5"	76'-0"



ELEVATION - FOUNDATION B2 (3)

Scale: ⅜" = 1'-0"



VIEW W-W

Scale: ⅜" = 1'-0"

(8) If final drilled shaft length is not shown in "TABLE OF VARIABLES" due to the presence of rock or other factors, variables "D" through "G" shall be determined as follows:

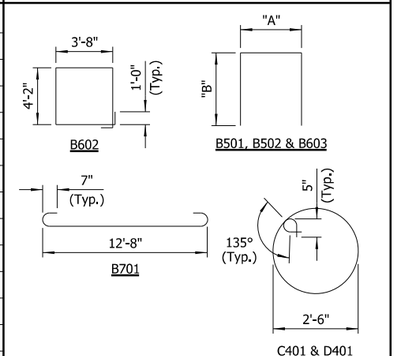
"D" = (Shaft Length in Ft. - 0.5) / 0.5
"E" = Shaft Length in Ft. x 4
"F" = Shaft Length + 2'-5"
"G" = Shaft Length x 2

(9) If "F" exceeds 60'-0", a lap splice is required for each D801 bar at the midpoint of the drilled shaft. Min. lap splice length for D801 bar = 3'-6". Length shown in table does not include the additional length required for a lap splice.

BAR LIST - FOUNDATION A2 OR B2

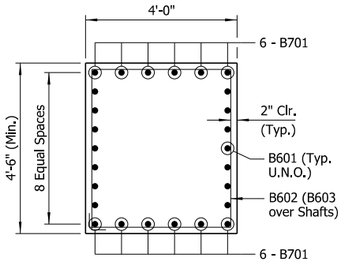
MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
B501	6	6'-4"	3'-6"	1'-6"	2½"
B502	6	6'-10"	4'-0"	1'-6"	2½"
B601	14	12'-8"			Str.
B602	15	16'-10"			4½"
B603	6	11'-8"	3'-8"	4'-2"	4½"
B701	12	14'-4"			5¼"
C401	6	8'-11"			3"
D401	"E"	8'-11"			3"
D801	28	"F"			Str.

BAR BENDING DIAGRAMS



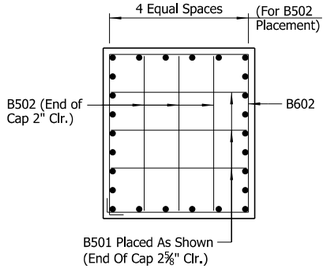
NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one Foundation A2 or one Foundation B2.



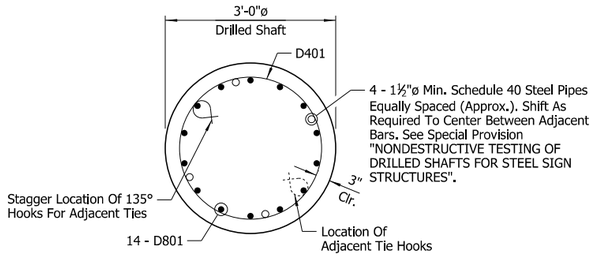
SECTION X-X

Scale: ½" = 1'-0"



VIEW Y-Y

Scale: ½" = 1'-0"



SECTION Z-Z

Scale: ¾" = 1'-0"

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face

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THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 6 OF 6
STANDARD DETAILS OF 101' TO 115'
STEEL OVERHEAD SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

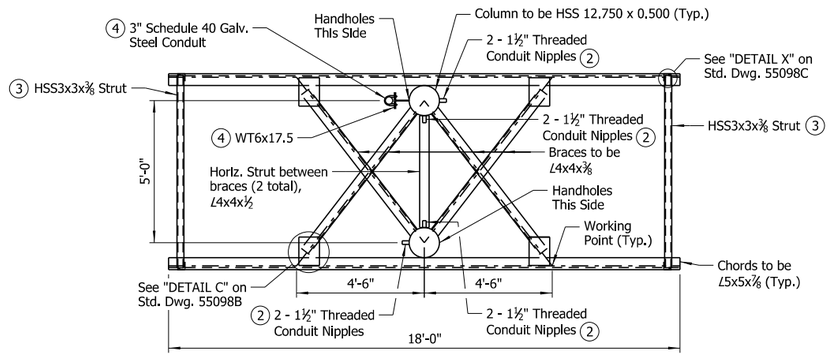
LITTLE ROCK, ARK.

DRAWN BY: CWT DATE: JAN. 2023 FILENAME: b55096f.dgn
CHECKED BY: ABH DATE: JAN. 2023 SCALE: As Shown
DESIGNED BY: STD. DATE: -

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half. DRAWING NO. 55096F

6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		TEE MOUNT SIGN STR. - 55098A				

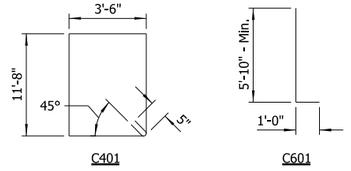


PLAN

Scale: ⅜" = 1'-0"

BAR LIST - FOUNDATION A1			
MARK	NO. REQ'D	LENGTH	P.D.
C401	10	30'-10"	2"
C601	84	6'-8"	4½"
F601	38	17'-6"	Str.
F602	70	9'-6"	Str.

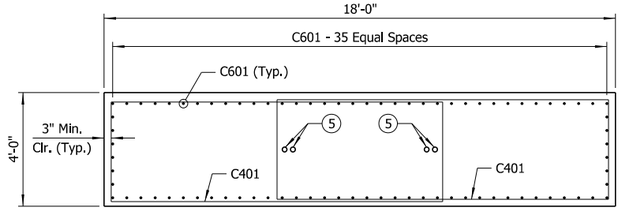
BAR BENDING DIAGRAMS



NOTES:
Dimensions of bars are out-to-out.

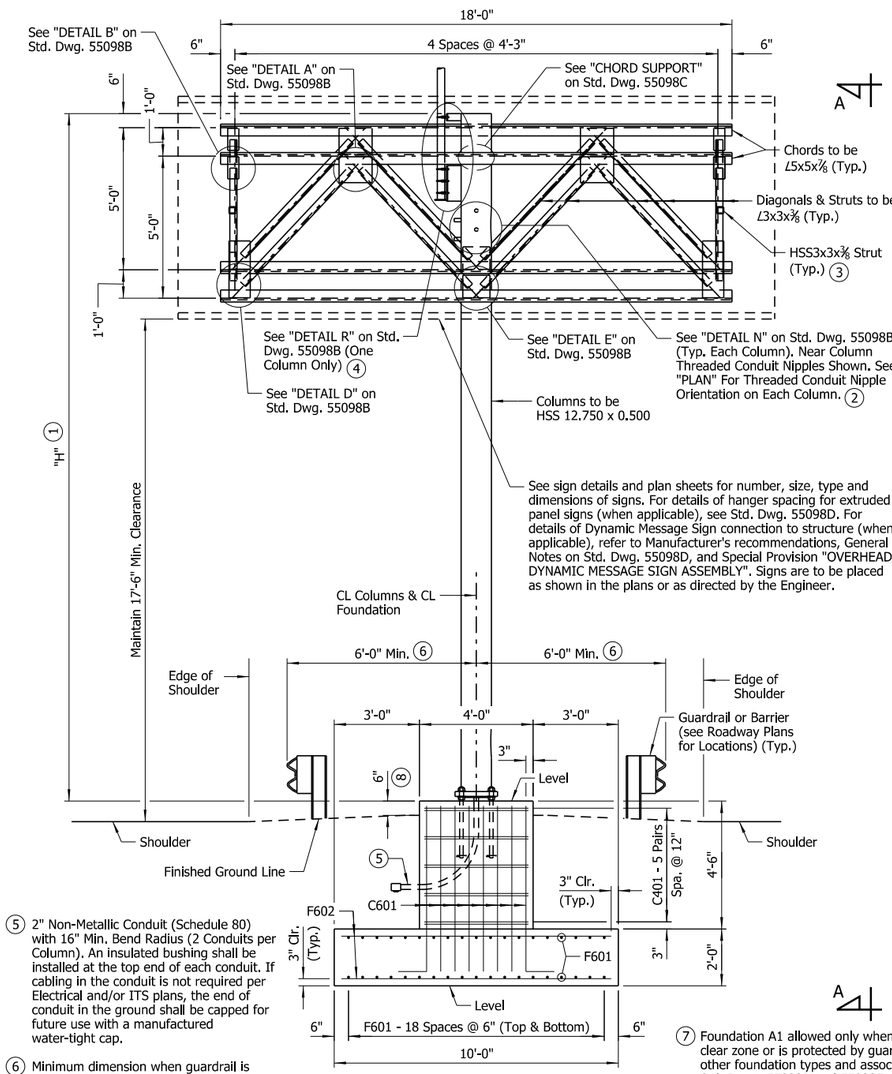
Number of bars shown is for one Foundation A1.

NOTE:
Refer to Sign Layout Sheets and/or ITS Plans for Foundation Type required for each structure.



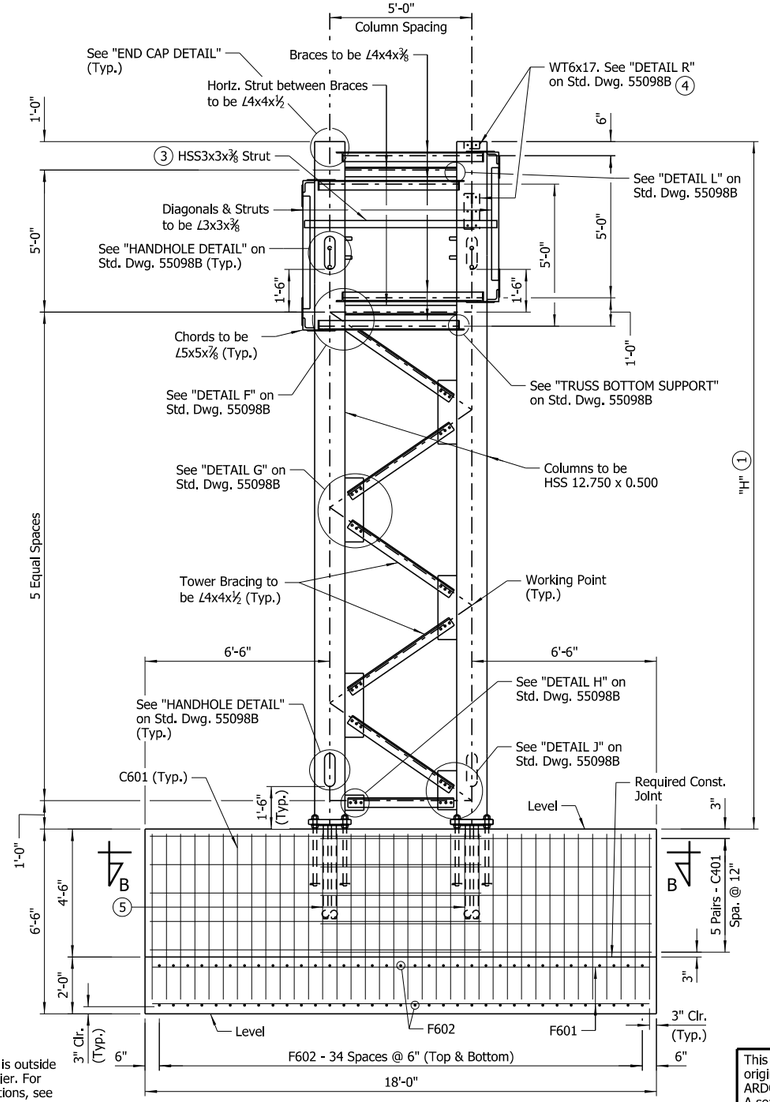
SECTION B-B

Scale: ⅜" = 1'-0"



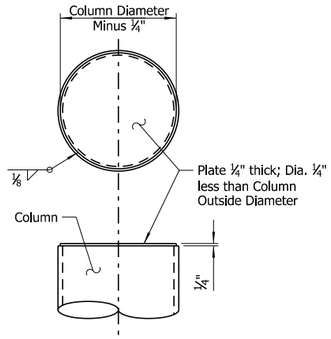
ELEVATION - FOUNDATION A1 7

No Scale



VIEW A-A

(Foundation A1)
No Scale



END CAP DETAIL

Scale: 1½" = 1'-0"

1. The Contractor shall make field measurements to determine the column height ("H") that is required to maintain the minimum vertical clearance. The column height shall be shown on the shop drawings with a note stating that the Contractor has made the required field measurements. If the structure height ("H") exceeds 30'-0", contact the Engineer.
2. Threaded Conduit Nipples shall be fitted with standard plugs until conduit is installed.
3. HSS3x3x3/8 Strut attached to vertical end struts. See "DETAIL X" on Std. Dwg. 55098C. HSS3x3x3/8 member shall always be provided. HSS3x3x3/8 member shall be used for possible Radar Detection Sensor attachment, as required per ITS Plans or for future ITS improvements.
4. See "SECTION U-U" on Std. Dwg. 55098B. WT6x17.5 always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.
5. 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. If cabling in the conduit is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.
6. Minimum dimension when guardrail is present. See Sign Layout Sheets and/or ITS Plans for actual dimension for each structure.
7. Foundation A1 allowed only when foundation is outside clear zone or is protected by guardrail or barrier. For other foundation types and associated restrictions, see Std. Dwgs. 55098D and 55098E.
8. Dimension from top of pedestal to Finished Ground Line shall be maintained along the perimeter of the pedestal.

APPROX. QUANTITIES FOR FOUNDATION A1 (FOR INFORMATION ONLY)

CLASS S CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)
25.40	3,050	61

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 1 OF 5
STANDARD DETAILS OF STEEL TEE MOUNT SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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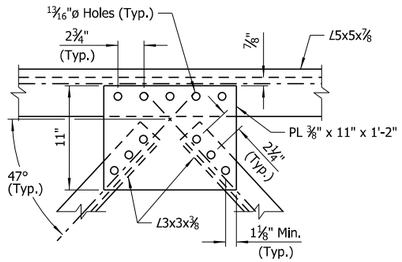
DRAWN BY: CSW DATE: SEP. 2022 FILENAME: b55098a.dgn
CHECKED BY: ABH DATE: SEP. 2022 SCALE: As Shown
DESIGNED BY: STD. DATE: -

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

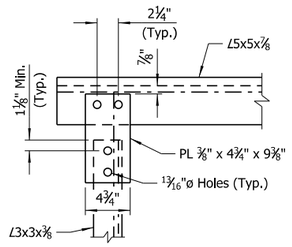
DRAWING NO. 55098A

6/17/2026

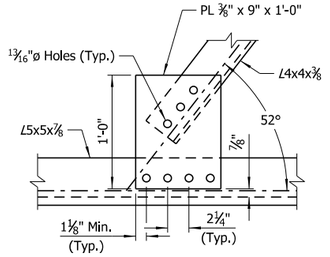
DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		TEE MOUNT SIGN STR. - 55098B				



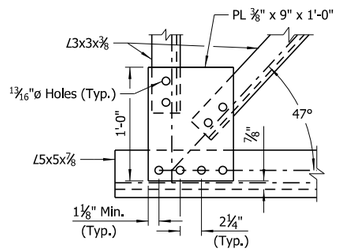
DETAIL A
Scale: 1½" = 1'-0"



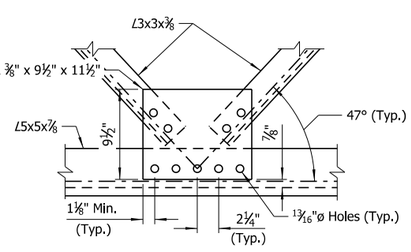
DETAIL B
Scale: 1½" = 1'-0"



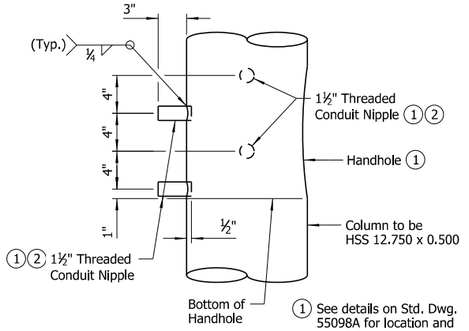
DETAIL C
Scale: 1½" = 1'-0"



DETAIL D
Scale: 1½" = 1'-0"



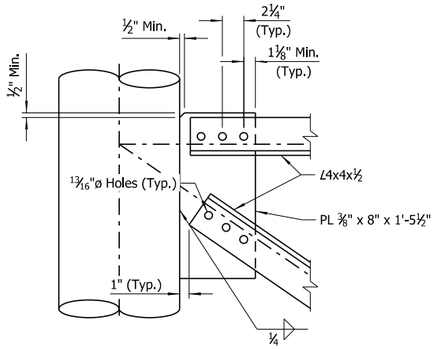
DETAIL E
Scale: 1½" = 1'-0"



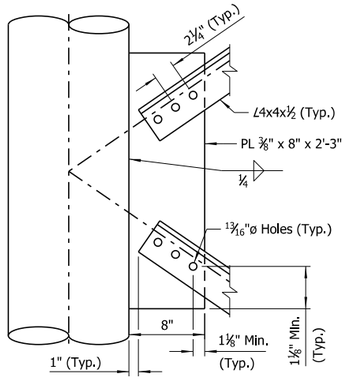
DETAIL N
Scale: 1½" = 1'-0"

(1) See details on Std. Dwg. 55098A for location and orientation of handholes and threaded conduit nipples.

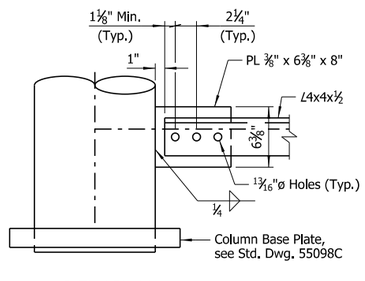
(2) Threaded conduit nipples shall be fitted with standard plugs until conduit is installed.



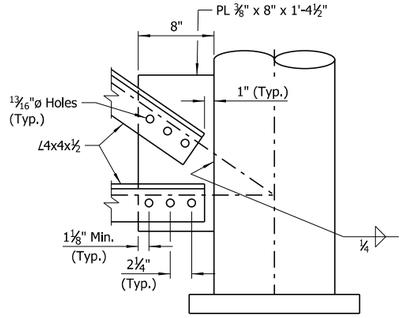
DETAIL F
Scale: 1½" = 1'-0"



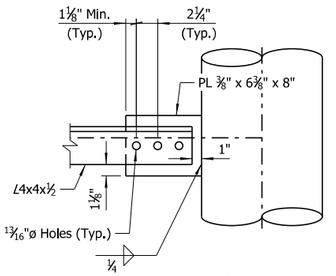
DETAIL G
Scale: 1½" = 1'-0"



DETAIL H
Scale: 1½" = 1'-0"



DETAIL J
Scale: 1½" = 1'-0"

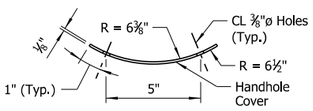


DETAIL L
Scale: 1½" = 1'-0"

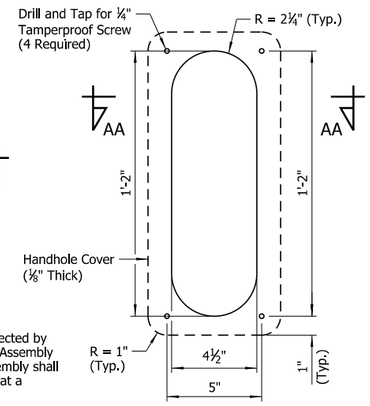
NOTE:
Provide handhole covers with chain, waterproof grommet, and tamperproof screws.

Handhole covers shall be galvanized and meet the requirements of ASTM A36 at a minimum.

Tamperproof screws shall be galvanized and meet the requirements of ANSI/ASME B18.6.3.

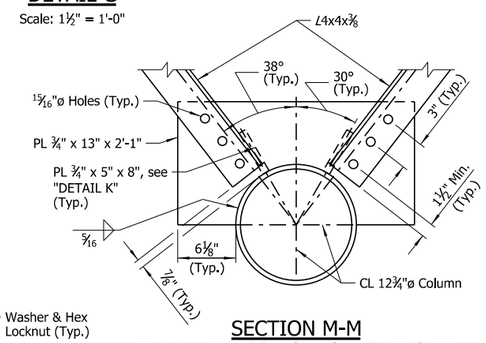


SECTION AA-AA
Scale: 3" = 1'-0"

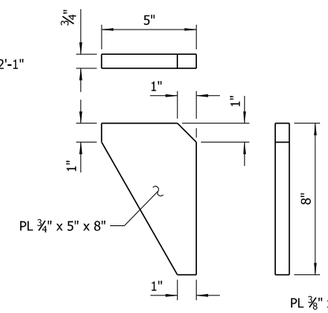


HANDHOLE DETAIL (1)
Scale: 3" = 1'-0"

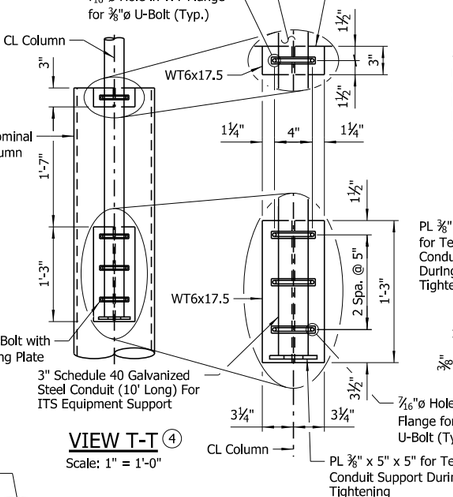
ELEVATION - TRUSS BOTTOM SUPPORT
(Bottom Connection shown, Top Connection similar)
Scale: 3" = 1'-0"



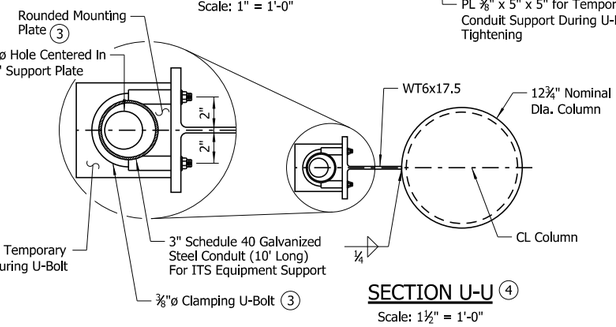
SECTION M-M
PLAN - TRUSS BOTTOM SUPPORT
Scale: 1½" = 1'-0"



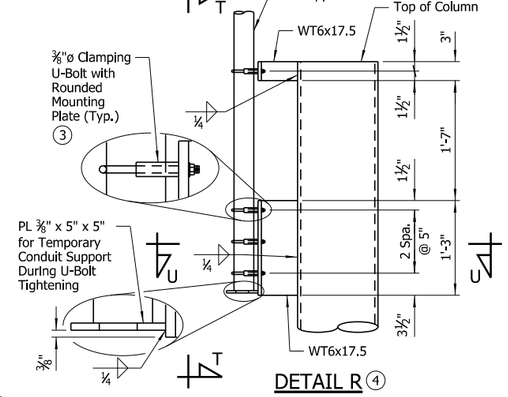
DETAIL K
Scale: 3" = 1'-0"



VIEW T-T (4)
Scale: 1" = 1'-0"



SECTION U-U (4)
Scale: 1½" = 1'-0"



DETAIL R (4)
Scale: 1" = 1'-0"

(3) When required per plans to support ITS equipment, or as directed by the Engineer, Clamping U-Bolt with Rounded Mounting Plate Assembly product shall be included in shop drawings for approval. Assembly shall be galvanized and shall meet the requirements of ASTM A36 at a minimum. Install per Manufacturer's instructions.

(4) WT6x17.5 with ⅜" Temporary Support Plate always required. 3" Conduit and Clamping U-Bolts only required when necessary to support ITS equipment or as directed by the Engineer. See ITS Plans.

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 2 OF 5
STANDARD DETAILS OF STEEL TEE MOUNT SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CSW DATE: SEP. 2022 FILENAME: b55098b.dgn
CHECKED BY: ABH DATE: SEP. 2022 SCALE: As Shown
DESIGNED BY: STD. DATE: -

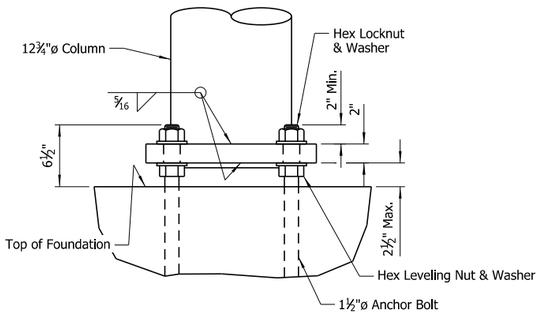
DRAWING NO. 55098B

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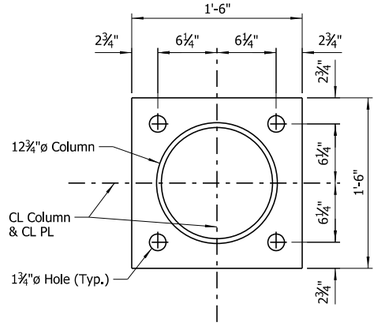
Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

6/17/2026

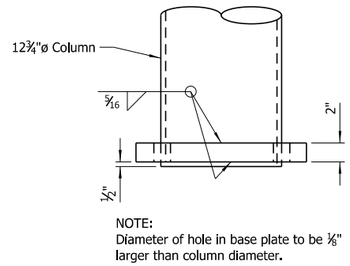
DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		TEE MOUNT SIGN STR. - 55098C				



ELEVATION - COLUMN BASE
Scale: 1½" = 1'-0"

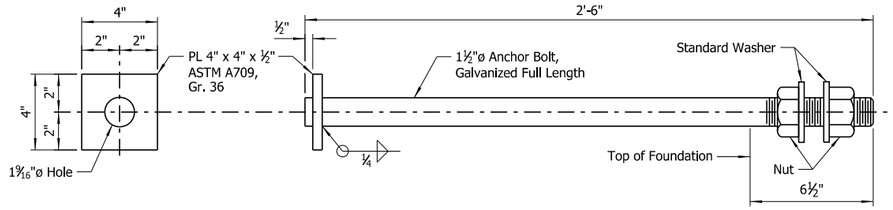


PLAN - COLUMN BASE
Scale: 1½" = 1'-0"

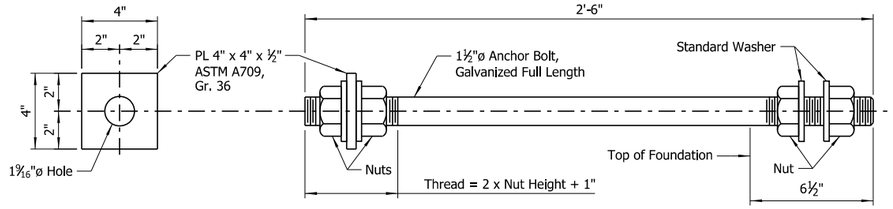


NOTE:
Diameter of hole in base plate to be ⅛" larger than column diameter.

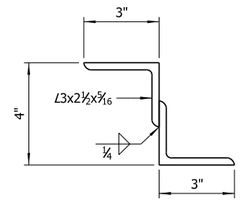
DETAIL OF COLUMN CONNECTION TO BASE PLATE
Scale: 1½" = 1'-0"



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

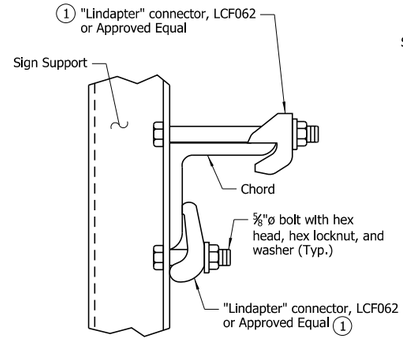


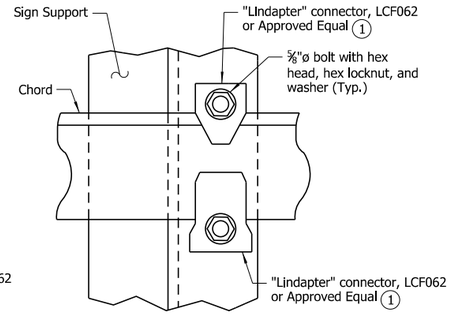
ALTERNATE ANCHOR BOLT DETAIL
Scale: 3" = 1'-0"



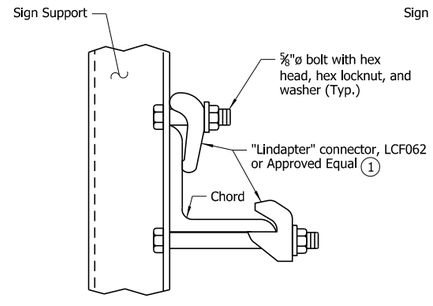
NOTE:
Structural Z support may be fabricated from angles as shown.

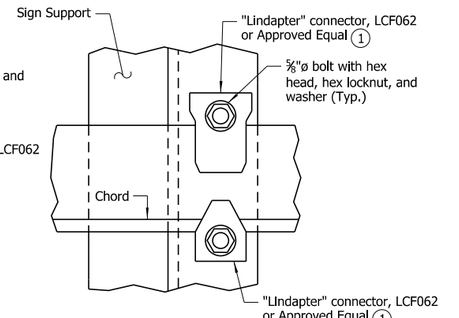
DETAILS OF ALTERNATE Z SUPPORT
No Scale





TOP CHORD



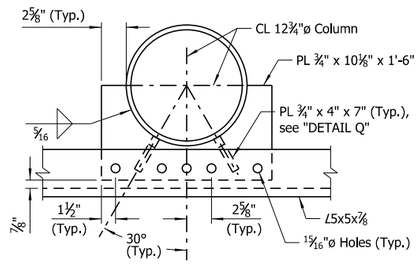


BOTTOM CHORD

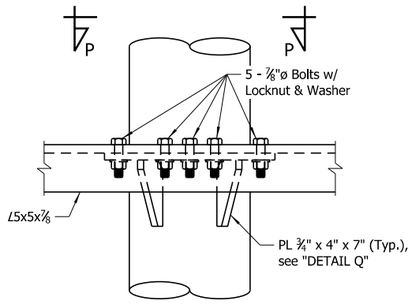
1 All "Lindapter" connectors or approved equal shall be installed according to Manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.

NOTE:
Install all support connectors clear of the gusset plates.

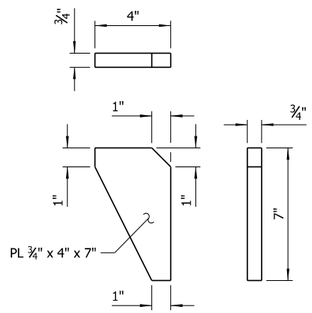
DETAILS OF SIGN SUPPORT CONNECTION TO TRUSS
No Scale



SECTION P-P
PLAN - CHORD SUPPORT
(Top Chord Shown, Bottom Chord Similar)
Scale: 1½" = 1'-0"

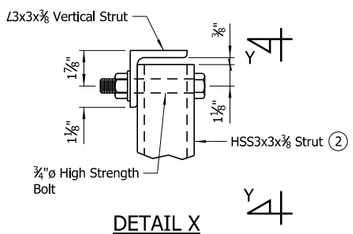


ELEVATION - CHORD SUPPORT
(Top Chord Shown, Bottom Chord Similar)
Scale: 1½" = 1'-0"

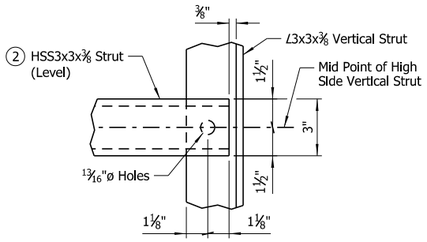


DETAIL Q
Scale: 3" = 1'-0"

2 HSS3x3x⅜ member shall always be provided. HSS3x3x⅜ member shall be used for possible Radar Detection Sensor attachment, as required per ITS Plans or for future ITS improvements.



DETAIL X
(Plan View)
Scale: 3" = 1'-0"



VIEW Y-Y
Scale: 3" = 1'-0"

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 3 OF 5
STANDARD DETAILS OF STEEL TEE MOUNT SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CSW DATE: SEP. 2022 FILENAME: b55098c.dgn
CHECKED BY: ABH DATE: SEP. 2022 SCALE: As Shown
DESIGNED BY: STD. DATE: -

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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

DRAWING NO. 55098C

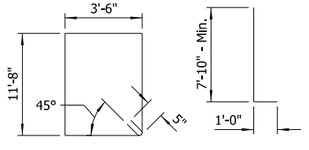
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		TEE MOUNT SIGN STR. - 55098D				

BAR LIST - FOUNDATION B1

MARK	NO. REQ'D	LENGTH	P.D.
C401	10	30'-10"	2"
C601	84	8'-8"	4½"
F601	38	17'-6"	Str.
F602	70	9'-6"	Str.

BAR BENDING DIAGRAMS



APPROX. QUANTITIES FOR FOUNDATION B1 (FOR INFORMATION ONLY)

Class S Concrete (Cu. Yds.)	Reinforcing Steel (Lbs.)	Excavation (Cu. Yds.)
38.70	3,300	41

NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one Foundation B1.

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, First Edition, 2015 with current interim revisions.

Basic Wind Speed = 120 mph
Fatigue Category: I

This structure is approved for 250 square feet of sign area and a maximum sign weight (total of all signs and hangers) of 6000 lbs. Use of additional sign area or a heavier sign must be approved by the Engineer. If the structure height ("H") exceeds 30'-0", contact the Engineer.

FOUNDATION MATERIALS AND STRENGTHS:
Class S Concrete — f'c = 3,500 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A) — fy = 60,000 psi

Spread footings for the structure have been designed assuming a factored bearing resistance of 2.0 ksf. Contractor shall be responsible for evaluating and verifying that the foundation soils are adequate to achieve the assumed factored bearing capacity, utilizing SPT (Standard Penetration Test), CPT (Cone Penetration Test), DCP (Dynamic Cone Penetration) test, or other suitable means, prior to or after footing excavation, whichever is appropriate. If the foundation soils are verified to be adequate, then the footing shall be constructed in accordance with the planned dimensions. Otherwise, the Design Engineer shall be contacted. Costs for foundation soil evaluation and verification shall be included in the item "STEEL TEE MOUNT SIGN STRUCTURE (_)".

Structural steel sign support members shall comply with the following specifications:

Angles:	ASTM A709, Gr. 36 (Fy = 36,000 psi)
Plate, W-Section:	ASTM A709, Gr. 50 (Fy = 50,000 psi)
(1) Pipe:	ASTM A139, Gr. C, straight-seam welded (Fy = 42,000 psi), ASTM A500, Gr. B (Fy = 42,000 psi), ASTM A501, Gr. B (Fy = 50,000 psi)
Z-Shapes:	ASTM A709, Grade 36 (Fy = 36,000 psi)
Shim Plates:	ASTM A1011, SS, Grade 36, Type 2, or Grade 40
Square HSS Tubing:	ASTM A500, Gr. B (Fy = 46,000 psi), ASTM A501, Gr. B (Fy = 50,000 psi), ASTM A709, Gr. 36 (Fy = 36,000 psi)
Bolts:	ASTM F3125, Grade A325, Type 1
Locknuts - Approved Type:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H
Washers:	ASTM F436
Nuts:	ASTM A563, Grade DH or AASHTO M 292, Grade 2H

(1) In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4 using the following equation:

CE = %C + %Mn/6 + %Cu/40 + %Ni/20 + %Cr/10 - %Mo/50 - %V/10

The Contractor shall make check measurements in the field and make any adjustments necessary to meet the required clearances and to fit the new structure to the existing conditions.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All steel shall be galvanized according to Subsection 807.19. Steel completely encased in concrete may not be galvanized. Galvanized coating damaged during transport, handling or erection shall be field repaired in accordance with Subsection 807.88.

All main load carrying tension members greater than ½" in thickness shall conform to the requirements of the Longitudinal Charpy V-Notch test specified for Zone 1 minimum service temperature. This work and materials shall be paid for in accordance with Special Provision "STEEL SIGN STRUCTURES."

Truss field sections shall be shop assembled. Entire truss shall be fully assembled and lifted into place as one unit on to tower supports. All truss member connections shall be bolted connections.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether temporary or permanent, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to Subsection 807.26 except welding of tubular sections shall conform to AWS D1.1 Structural Welding Code.

No circumferential butt welds will be allowed in any pipe sections.

All fillet welds of critical members shall be tested according to AWS D1.1 Structural Welding Code - Steel using the magnetic particle method. Critical welds shall include: column to base plate and truss bottom support to column.

Connections shall be bolted with high-strength bolts. Unless otherwise noted, bolts shall be ¾" diameter and open holes shall be $^{13}/_{16}$" diameter. Bolt spacing shall be 2¼" for ¾" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All truss frame bolts shall comply with ASTM F3125, Grade A325, Type 1, galvanized according to Subsection 807.06. Nuts and washers for ASTM F3125, Grade A325, Type 1 bolts shall be furnished and galvanized in accordance with Subsection 807.06.

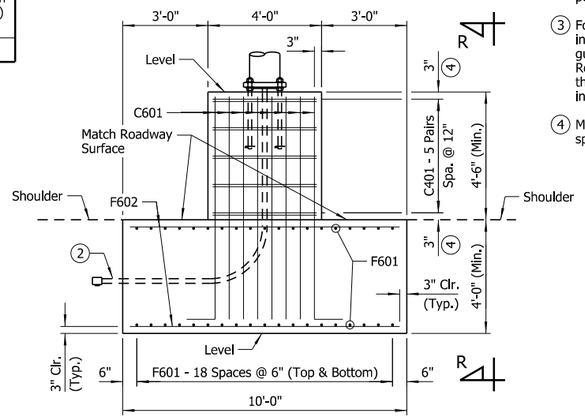
Locknuts shall be equipped with nylon locking inserts or other approved type locking system. Locknuts shall be installed according to Manufacturer's recommendations.

Anchor bolts shall comply with AASHTO M 314, Grade 55, including Supplementary Requirement S1, and shall be galvanized according to Subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with Subsection 807.07. Anchor bolts shall be pretensioned in accordance with Special Provision "STEEL SIGN STRUCTURES."

Shoring may be required to protect existing shoulders or other elements during excavation. Any shoring required shall not be paid for directly, but shall be considered incidental to the item "STEEL TEE MOUNT SIGN STRUCTURE (_)". The excavations for the footings shall be backfilled before the structure is attached to the foundations.

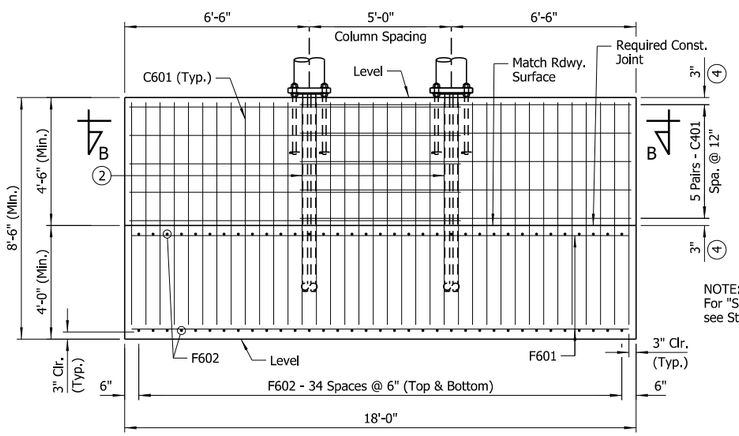
DYNAMIC MESSAGE SIGN (WHEN APPLICABLE): The Dynamic Message Sign (DMS) supplier shall be responsible for the attachment method and materials used to attach the DMS and its accessories to the structure. The method of attachment shall not facilitate any corrosion of the structure. For additional information regarding the DMS, see Special Provision "OVERHEAD DYNAMIC MESSAGE SIGN ASSEMBLY."

For location of each tee mount sign structure and associated foundation type to be used, refer to ITS and/or Sign Plans.



ELEVATION - FOUNDATION B1 (3)

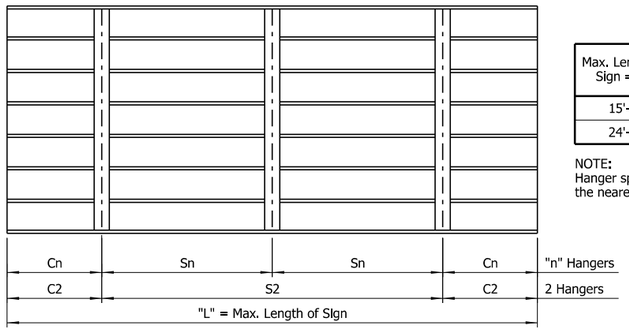
Scale: ⅜" = 1'-0"



NOTE:
For "SECTION B-B", see Std. Dwg. 55098A.

VIEW R-R

(Foundation B1)
Scale: ⅜" = 1'-0"



NOTE:
See sign details and plan sheets for number, size and dimensions of signs.

HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

No Scale

HANGER VARIABLES

(For Extruded Panel Signs)

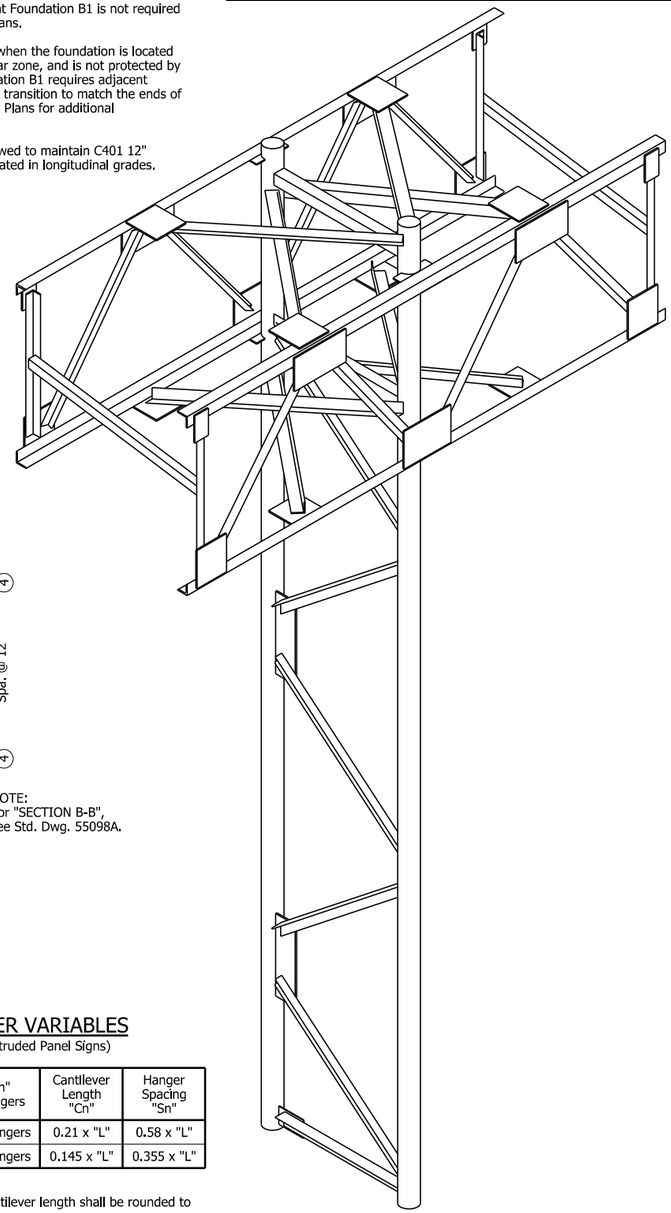
Max. Length of Sign = "L"	"n" Hangers	Cantilever Length "Cn"	Hanger Spacing "Sn"
15'-0"	2 Hangers	0.21 x "L"	0.58 x "L"
24'-0"	3 Hangers	0.145 x "L"	0.355 x "L"

NOTE:
Hanger spacing and cantilever length shall be rounded to the nearest inch.

(2) 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. Conduit shall not be provided if cabling at Foundation B1 is not required per Electrical and/or ITS plans.

(3) Foundation B1 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B1 requires adjacent Roadway Median Barrier to transition to match the ends of the pedestal. See Roadway Plans for additional information.

(4) Minor adjustments are allowed to maintain C401 12" spacing for foundations located in longitudinal grades.



ISOMETRIC VIEW

No Scale

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 4 OF 5
STANDARD DETAILS OF STEEL TEE MOUNT SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

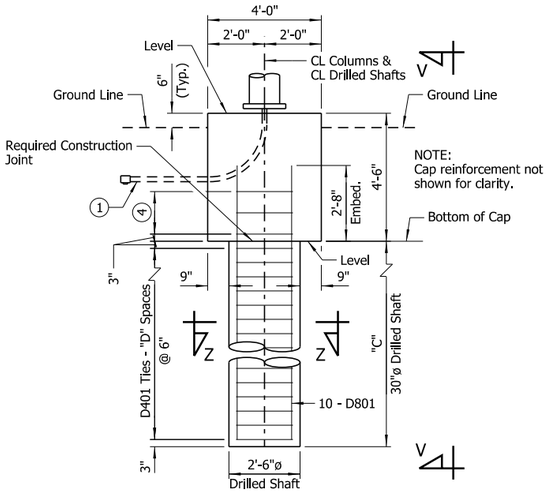
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DRAWN BY: CSW DATE: SEP. 2022 FILENAME: b55098d.dgn
CHECKED BY: ABH DATE: SEP. 2022 SCALE: As Shown
DESIGNED BY: STD. DATE: -

Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half. DRAWING NO. 55098D

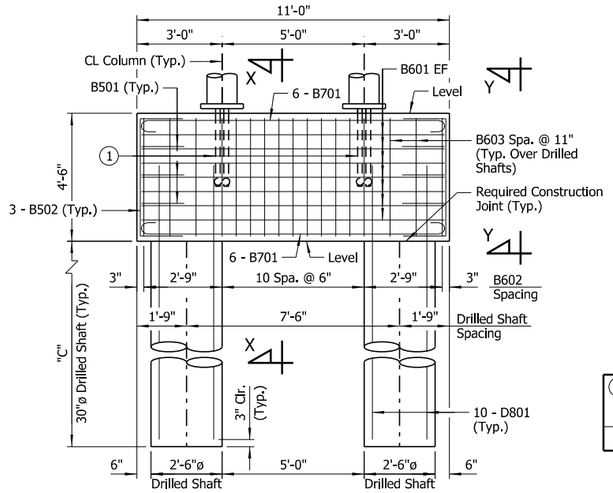
6/17/2026

DATE REVISED	DATE REVISED	FED. ROAD DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.			
		TEE MOUNT SIGN STR. - 55098E				



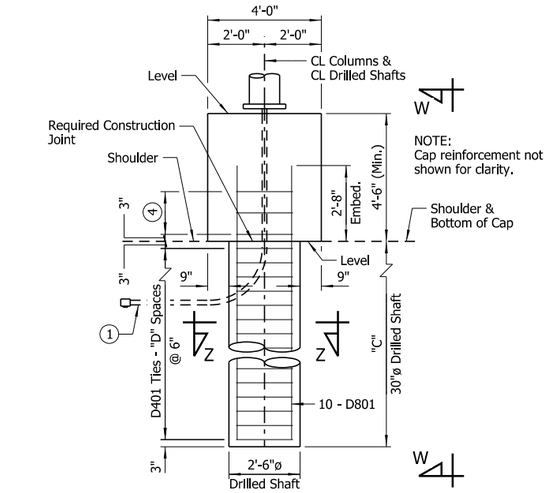
ELEVATION - FOUNDATION A2 (2)

Scale: ⅜" = 1'-0"



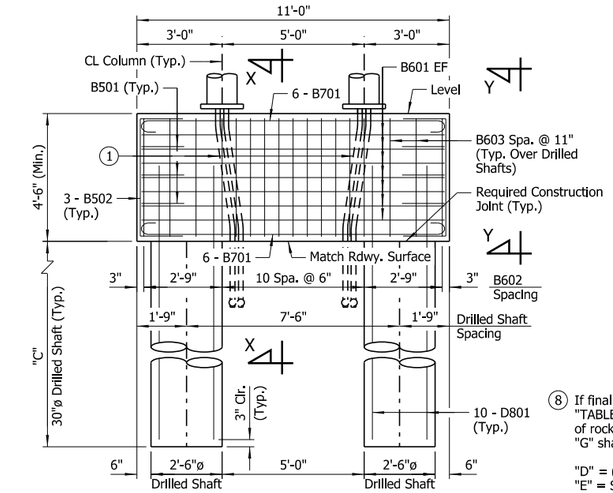
VIEW V-V

Scale: ⅜" = 1'-0"



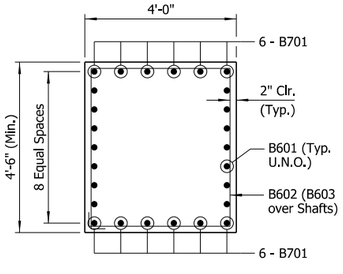
ELEVATION - FOUNDATION B2 (3)

Scale: ⅜" = 1'-0"



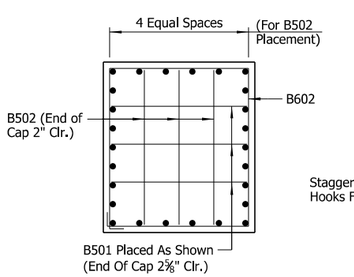
VIEW W-W

Scale: ⅜" = 1'-0"



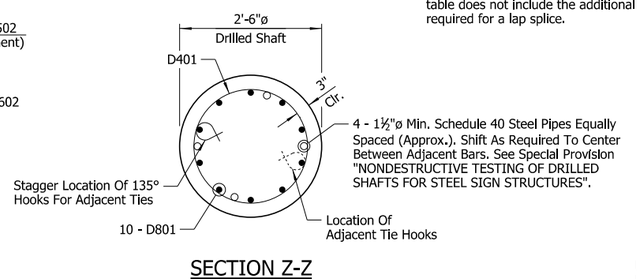
SECTION X-X

Scale: ½" = 1'-0"



VIEW Y-Y

Scale: ½" = 1'-0"



SECTION Z-Z

Scale: ¾" = 1'-0"

(1) 2" Non-Metallic Conduit (Schedule 80) with 16" Min. Bend Radius (2 Conduits per Column). An insulated bushing shall be installed at the top end of each conduit. At Foundation B2, conduit shall not be provided if cabling is not required per Electrical and/or ITS plans. At Foundation A2, conduit shall always be provided. If cabling in the conduit at Foundation A2 is not required per Electrical and/or ITS plans, the end of conduit in the ground shall be capped for future use with a manufactured water-tight cap.

(2) Foundation A2 allowed only when foundation is outside clear zone or is protected by guardrail or barrier.

(3) Foundation B2 is required when the foundation is located in a median, within the clear zone, and is not protected by guardrail or barrier. Foundation B2 requires adjacent Roadway Median Barrier to transition to match the ends of the cap. See Roadway Plans for additional information.

(4) C401 Ties - 2 Spaces @ 9"

APPROX. QUANTITIES FOR FOUNDATION A2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	EXCAVATION (CU. YDS.)	DRILLED SHAFT (30" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (30" DIA.) (EACH)
7.40	1,040	15	"G"	1

APPROX. QUANTITIES FOR FOUNDATION B2 (FOR INFORMATION ONLY)

(5) CLASS S CONCRETE (CU. YDS.)	(6) REINFORCING STEEL (LBS.)	DRILLED SHAFT (30" DIA.) (LIN. FT.)	CROSSHOLE SONIC LOGGING (30" DIA.) (EACH)
7.40	1,040	"G"	1

(5) Does not include Class S Concrete for Drilled Shafts

(6) Does not include D401 and D801 Bars in Drilled Shafts

(7) Tabulated SPT N60 values are raw SPT N values corrected by SPT hammer efficiency and represent average values along the plan shaft penetration. If the SPT N60 values in the foundation soils within 2 shaft diameters below the plan tip elevation are less than the average SPT N60 values along the plan shaft penetration, the Engineer shall be contacted.

(8) If final drilled shaft length is not shown in "TABLE OF VARIABLES" due to the presence of rock or other factors, variables "D" through "G" shall be determined as follows:

"D" = (Shaft Length in Ft. - 0.5) / 0.5
"E" = Shaft Length in Ft. x 4
"F" = Shaft Length + 2'-5"
"G" = Shaft Length x 2

(9) If "F" exceeds 60'-0", a lap splice is required for each D801 bar at the midpoint of the drilled shaft. Min. lap splice length for D801 bar = 3'-6". Length shown in table does not include the additional length required for a lap splice.

DRILLED SHAFT NOTES (FOUNDATIONS A2 & B2)

Drilled shafts shall conform to Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES". Drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL TEE MOUNT SIGN STRUCTURE (_)". Temporary casing may be required. Unless approved by the Engineer, permanent steel casing shall not be used.

Crosshole Sonic Logging (CSL) shall be performed on one drilled shaft at each foundation and as directed by the Engineer. Testing shall be performed in accordance with Special Provision "NONDESTRUCTIVE TESTING OF DRILLED SHAFTS FOR STEEL SIGN STRUCTURES".

Concrete and reinforcing steel placed in drilled shafts will not be paid for directly but shall be considered subsidiary to the unit price bid for "STEEL TEE MOUNT SIGN STRUCTURE (_)". No additional payment shall be made for spacers, additional splices or bracing needed for assembly, shipping, handling or erecting.

Concrete in drilled shafts shall be Class "S" as modified by Special Provision "DRILLED SHAFT FOUNDATIONS FOR STEEL SIGN STRUCTURES".

Drilled shaft lengths shall be determined based on the results of exploratory borings, which shall be performed by the Contractor prior to shaft excavation.

If competent rock is not encountered in the exploratory boring, the Standard Penetration Test (SPT) blow count corrected by the hammer efficiency, N60, shall be used to determine shaft lengths. See "TABLE OF VARIABLES".

If competent rock is encountered in the exploratory boring within 25'-0" of planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock and have a minimum length of 25'-0".

If competent rock is encountered in the exploratory boring below 25'-0" from planned top of drilled shaft, the shafts shall be founded a minimum of 3'-0" into rock or to the depth based on the SPT N60 value and associated shaft length in the "TABLE OF VARIABLES", whichever is shallower.

Testing results shall be submitted to the Engineer for review. Final drilled shaft lengths shall be approved by the Engineer prior to construction.

The cost of performing exploratory borings and in-situ strength testing shall be included in the item "STEEL TEE MOUNT SIGN STRUCTURE (_)".

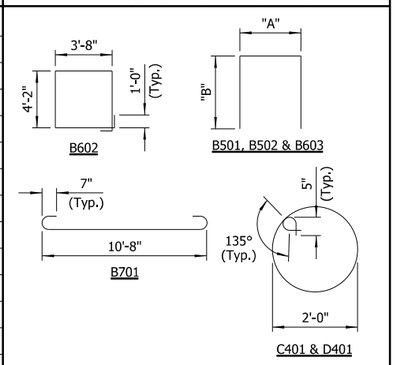
TABLE OF VARIABLES (8)

SPT N60 (7) (blows/ft.)	Min. Depth of Exploratory Boring	Drilled Shaft Length, "C"	"D"	"E"	"F" (9)	"G"
<5	-	Contact Engineer	-	-	-	-
5 To 7	72'-0"	67'-0"	133	268	69'-5"	134'-0"
7 To 9	60'-0"	55'-0"	109	220	57'-5"	110'-0"
9 To 11	45'-0"	40'-0"	79	160	42'-5"	80'-0"
11 To 13	36'-0"	31'-0"	61	124	33'-5"	62'-0"
>13	30'-0"	25'-0"	49	100	27'-5"	50'-0"

BAR LIST - FOUNDATION A2 OR B2

MARK	NO. REQ'D	LENGTH	"A"	"B"	P.D.
B501	6	6'-4"	3'-6"	1'-6"	2½"
B502	6	6'-10"	4'-0"	1'-6"	2½"
B601	14	10'-8"			Str.
B602	13	16'-10"			4½"
B603	4	11'-8"	3'-8"	4'-2"	4½"
B701	12	12'-4"			5¼"
C401	6	7'-4"			3"
D401	"E"	7'-4"			3"
D801	20	"F"			Str.

BAR BENDING DIAGRAMS



NOTES:
Dimensions of bars are out-to-out.

Number of bars shown is for one Foundation A2 or one Foundation B2.

LEGEND

U.N.O. = Unless Noted Otherwise
EF = Each Face

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

SHEET 5 OF 5
STANDARD DETAILS OF STEEL TEE MOUNT SIGN STRUCTURE
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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DRAWN BY:	CSW	DATE:	SEP. 2022	FILENAME:	b55098e.dgn
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Scales shown are for full size 22"x34" drawings. When using 11"x17" drawings, reduce scale by one half.

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