

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AD. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	061343	1 25

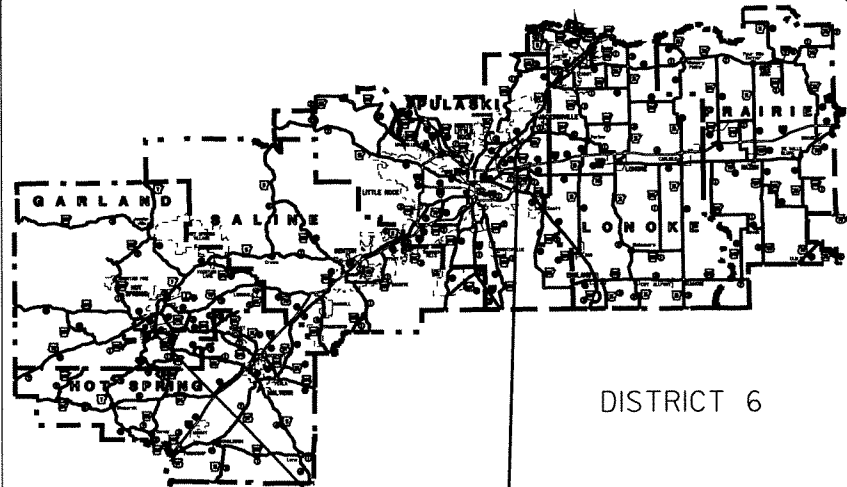
② I-40 & HWY. 270 OVERHEAD SIGN STRUCTURES REPLACEMENT (S)

"A FULLY CONTROLLED ACCESS FACILITY"
 ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
 CONSTRUCTION PLANS FOR STATE HIGHWAY

I-40 & HWY. 270 OVERHEAD SIGN STRUCTURES REPLACEMENT (S)

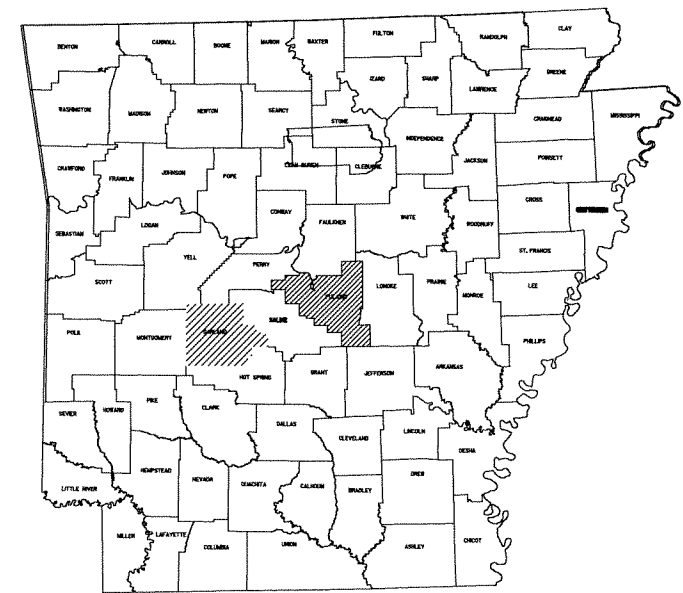
ROUTE 270, SECTION 23
 ROUTE 40, SECTION 33

JOB 061343
 PULASKI & GARLAND COUNTIES

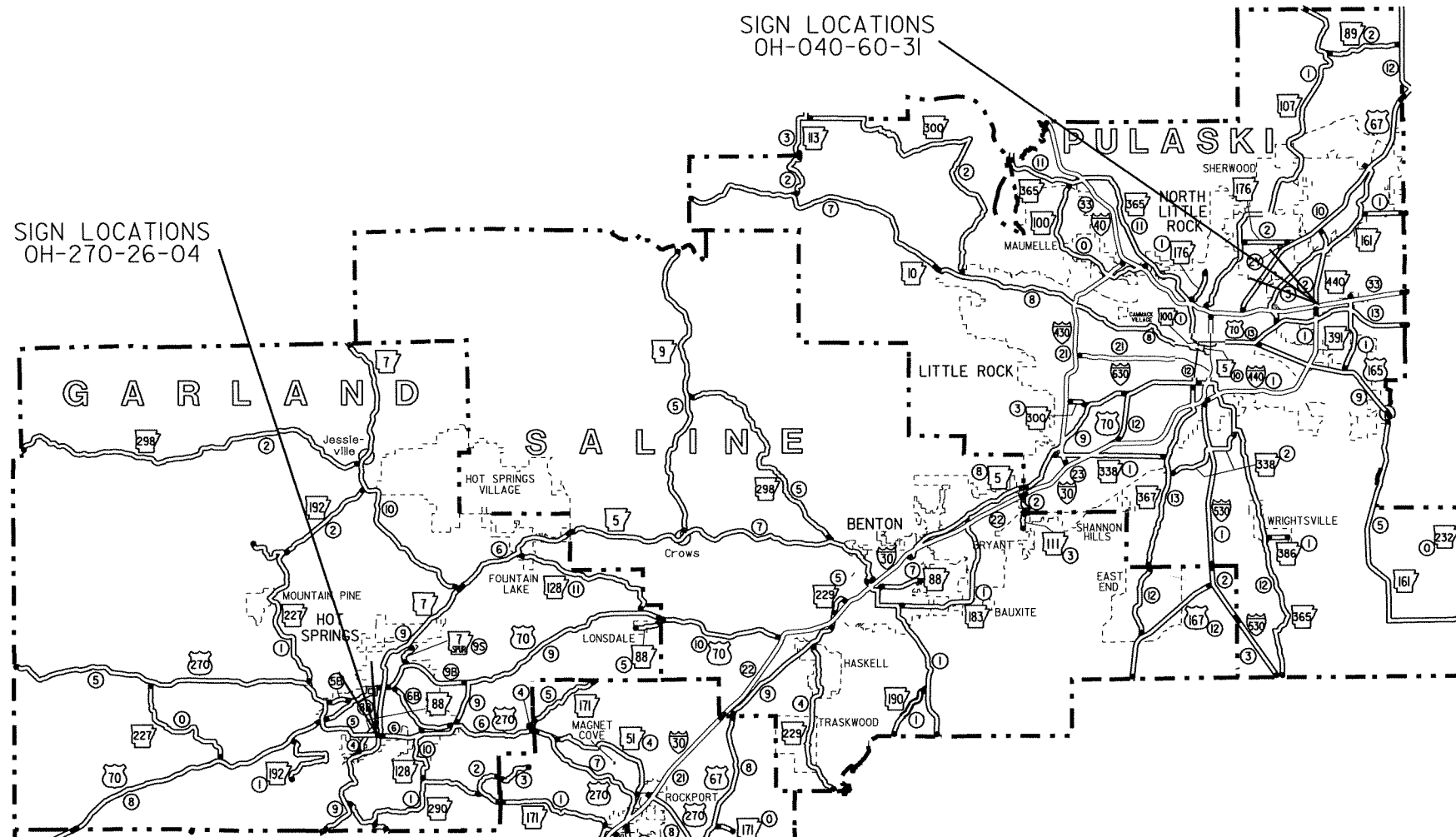


DISTRICT 6

LOCATION OF PROJECT

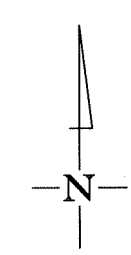


ARK. HWY. DIST. - 6



SIGN LOCATIONS
OH-270-26-04

SIGN LOCATIONS
OH-040-60-31



MID POINT OF PROJECT
 LATITUDE = N 34° 40' 76"
 LONGITUDE = W 92° 22' 46"

P.E. JOB 061343
 NON-PART.

APPROVED



4/20/12
 DEPUTY DIRECTOR
 AND CHIEF ENGINEER

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② INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GEN. NOTES

INDEX OF SHEETS

SHEET NO.	TITLE	DRAWING NO.	DATE
1.	TITLE SHEET		
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3.	SIGNING SUMMARY, QUANTITIES, AND REVISIONS		
4.-5.	SIGN STRUCTURE LOCATION SHEET		
6.-7.	SIGN LAYOUT SHEETS		
8.	MOUNTING DETAILS FOR DEMOUNTABLE LEGEND ON GUIDE SIGNS		
9.	EXIT PANEL DETAILS		
10.	DETAILS OF GUIDE SIGN PANELS		
11.	DETAILS OF 40' TO 54' STEEL OVERHEAD SIGN STRUCTURE OH-040-60-31 (SHEET 1 OF 5)	52499	
12.	DETAILS OF 40' TO 54' STEEL OVERHEAD SIGN STRUCTURE OH-040-60-31 (SHEET 2 OF 5)	52500	
13.	DETAILS OF 40' TO 54' STEEL OVERHEAD SIGN STRUCTURE OH-040-60-31 (SHEET 3 OF 5)	52501	
14.	DETAILS OF 40' TO 54' STEEL OVERHEAD SIGN STRUCTURE OH-040-60-31 (SHEET 4 OF 5)	52502	
15.	DETAILS OF 40' TO 54' STEEL OVERHEAD SIGN STRUCTURE OH-040-60-31 (SHEET 5 OF 5)	52503	
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17.	DETAILS OF 101' TO 115' STEEL OVERHEAD SIGN STRUCTURE OH-270-26-04 (SHEET 2 OF 5)	52505	
18.	DETAILS OF 101' TO 115' STEEL OVERHEAD SIGN STRUCTURE OH-270-26-04 (SHEET 3 OF 5)	52506	
19.	DETAILS OF 101' TO 115' STEEL OVERHEAD SIGN STRUCTURE OH-270-26-04 (SHEET 4 OF 5)	52507	
20.	DETAILS OF 101' TO 115' STEEL OVERHEAD SIGN STRUCTURE OH-270-26-04 (SHEET 5 OF 5)	52508	
21.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	12-15-11
22.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	03-11-10
23.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	10-15-09
24.	STANDARD TRAFFIC TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	TC-4	10-15-09
25.	STANDARD TRAFFIC TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	TC-5	10-15-09

GOVERNING SPECIFICATIONS

- ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003 AND THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.
- ERRATA ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
- JOB SP 061343 INTERNET BIDDING
 - JOB SP 061343 MAINTENANCE OF TRAFFIC
 - JOB SP 061343 SIGN PANEL MATERIALS AND FABRICATION
 - JOB SP 061343 SPECIAL SAFETY REQUIREMENTS FOR OVERHEAD SIGNS
 - JOB SP 061343 STEEL OVERHEAD SIGN STRUCTURES
 - 100-1 REQUIRED CONTRACT PROVISIONS FOR STATE CONSTRUCTION JOBS
 - 102-1 BIDDING REQUIREMENTS AND CONDITIONS
 - 105-1 CONSTRUCTION CONTROL MARKINGS
 - 105-2 EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
 - 105-3 CONTROL OF WORK
 - 107-1 WORKER VISIBILITY
 - 108-1 LIQUIDATED DAMAGES
 - 603-1 MAINTENANCE OF TRAFFIC
 - 604-1 RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
 - 604-2 INSPECTION OF TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
 - 723-1 GENERAL REQUIREMENTS FOR SIGNS

GENERAL NOTES

THE EXISTING SIGNS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE REMOVAL AND DISPOSAL OF OVERHEAD / GROUND MOUNTED SIGNS AND SIGN STRUCTURES, INCLUDING FOOTINGS, SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS IN THE CONTRACT.

THE CONTRACTOR WILL VERIFY SIGN PLACEMENT AND MAKE ANY ADJUSTMENTS NECESSARY TO ALIGN SIGNS OVER INTENDED LANES.

ALL SIGNS SHALL BE CONSTRUCTED WITH TYPE-III SHEETING BACKGROUND AND SHALL HAVE DEMOUNTABLE LEGEND CONSTRUCTED OF PRISMATIC SHEETING (TYPE-VIII OR IX), UNLESS OTHERWISE NOTED IN THE PLANS. THE LEGEND SHALL BE PLACED USING CLEARVIEW SPACING AND SERIES-5W AND 5WR CHARACTERS, UNLESS OTHERWISE NOTED IN THE PLANS.

THE CLEARVIEW FONT SHALL FOLLOW THE SPACE TABLES FOR CLEARVIEW AND NOT SHS E-MODIFIED. THIS INCLUDES THE USE OF CLEARVIEW 5-W-R. FOR GENERAL GUIDANCE ON LETTER AND WORD SPACING REFER TO THE FHWA CLEARVIEW TYPEFACE SUPPLEMENT. ([HTTP://MUTCD.FHWA.DOT.GOV](http://MUTCD.FHWA.DOT.GOV))

THE CONTRACTOR WILL BE REQUIRED TO INSTALL OVERHEAD SIGNS AND SIGN STRUCTURES OVER ROADWAYS OPEN TO TRAFFIC. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ANY LANE OR ROAD CLOSURES AS A PART OF TRAFFIC CONTROL. PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN ITEM 603 OF THE STANDARD SPECIFICATIONS.

PLACEMENT OR REMOVAL OF SIGNS AND SIGN STRUCTURES OVER THE TRAFFIC LANES OR AS SPECIFIED BY THE ENGINEER SHALL BE LIMITED TO THE HOURS BETWEEN 11:00 P.M. AND 5:00 A.M. ANY DAY OF THE WEEK. THE ALLOWABLE WORK PERIOD MAY BE INCREASED OR DECREASED BY THE ENGINEER BASED UPON IMPACT TO TRAFFIC.

THE CONTRACTOR WILL CEASE ALL WORK REQUIRING LANE CLOSURES BETWEEN THE HOURS OF 7AM-10AM AND 3PM-6PM UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.



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② SIGNING SUMMARY, QUANTITIES & REVISION SHEET

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	TOTAL OH-040-60-31	UNIT
601	MOBILIZATION	0.50	LUMP SUM
SP, SS & 603	MAINTENANCE OF TRAFFIC	0.50	LUMP SUM
SP	STEEL OVERHEAD SIGN STRUCTURE (OH-040-60-31)	1	EACH
SP, SS & 725	GUIDE SIGN - OVERHEAD MOUNTED (DEMOUNTABLE LEGEND)	465.75	SQ. FT.

ITEM NUMBER	ITEM	TOTAL OH-270-26-04	UNIT
601	MOBILIZATION	0.50	LUMP SUM
SP, SS & 603	MAINTENANCE OF TRAFFIC	0.50	LUMP SUM
SP	STEEL OVERHEAD SIGN STRUCTURE (OH-270-26-04)	1	EACH
SP, SS & 725	GUIDE SIGN - OVERHEAD MOUNTED (DEMOUNTABLE LEGEND)	586.00	SQ. FT.
SP, SS & 727	EXIT NUMBER PANEL (TYPE A)	17.50	SQ. FT.
SP, SS & 727	EXIT NUMBER PANEL (TYPE B)	40.00	SQ. FT.

MAIN LANES SIGNING QUANTITIES

SIGN NO./ LOCATION	STRUCTURE TYPE					SIGN			EXIT NUMBER PANEL		
	ST	CL	OH	BM	G-1	GUIDE SIGN		LEGEND	TYPE		
						Length	Height		A	B	C
						LIN. FT.	SQ. Ft.				
OH-040-60-31			1			INSTALL NEW STRUCTURE					
OH-040-60-31WB-A						14.50	11.50	166.75			
OH-040-60-31WB-B						23.00	13.00	299.00			
TOTALS:			1					465.75			
OH-270-26-04			1			INSTALL NEW STRUCTURE					
OH-270-26-04-A						15.00	10.00	150.00	5A		20.00
OH-270-26-04-B						15.00	10.00	150.00	5B		20.00
OH-270-26-04-C						11.00	6.50	71.50			
OH-270-26-04-D						16.50	13.00	214.50	4	17.50	
TOTALS:			1					586.00		17.50	40.00
JOB TOTALS:			2					1051.75		17.50	40.00

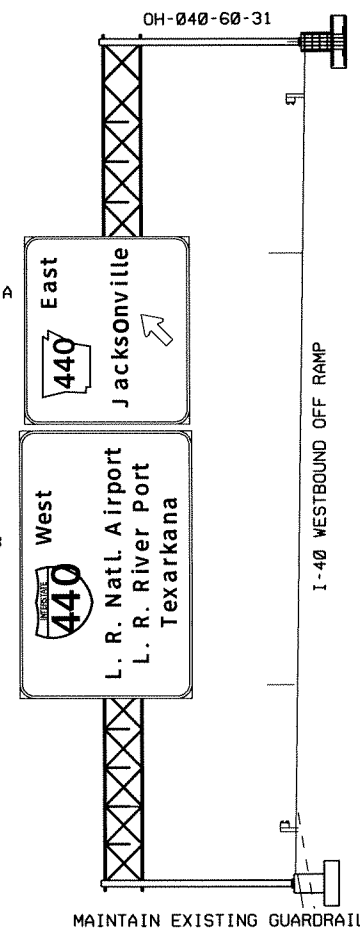
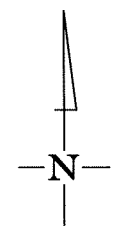
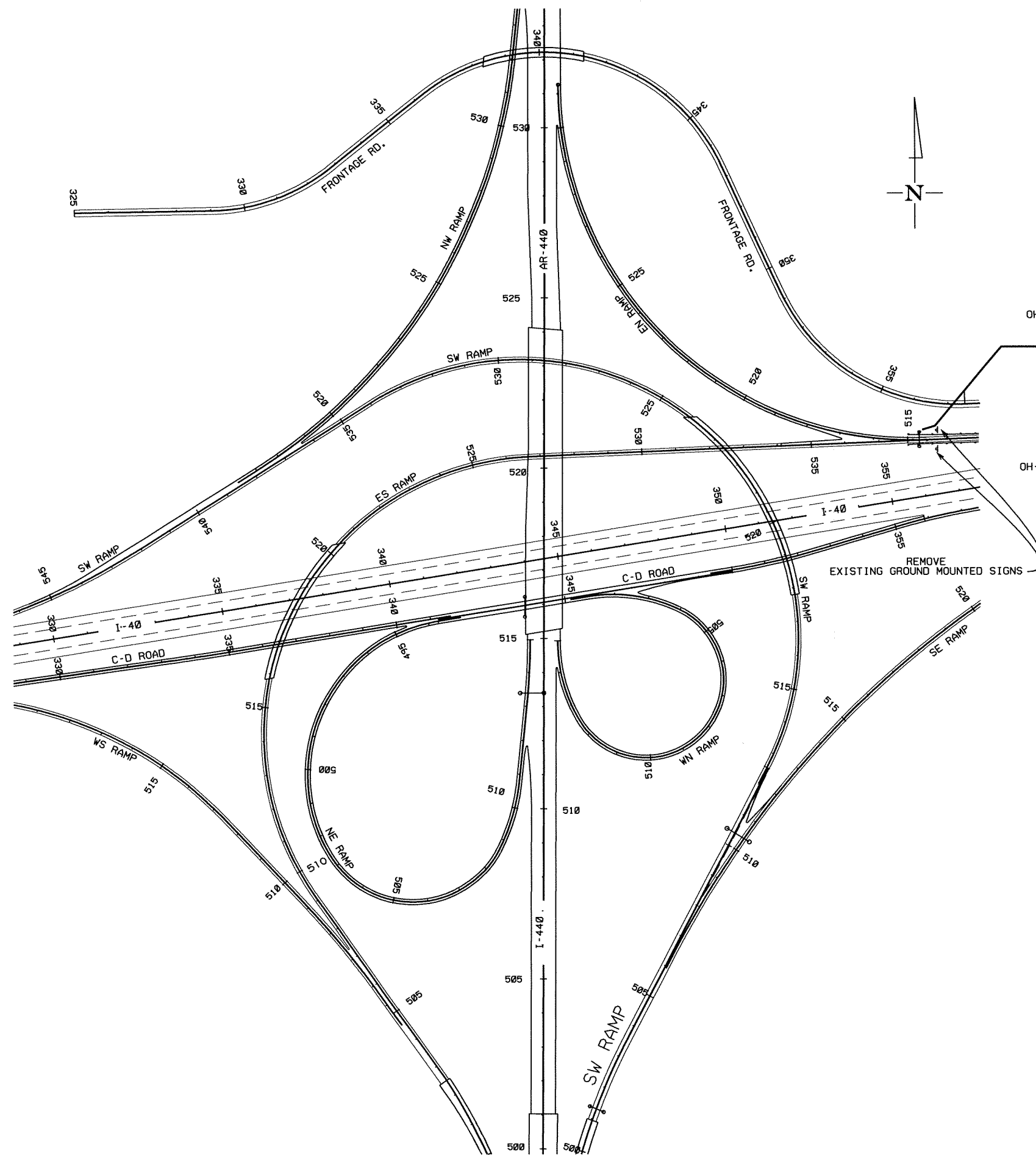
REVISIONS

DATE	REVISION	SHEET NUMBER



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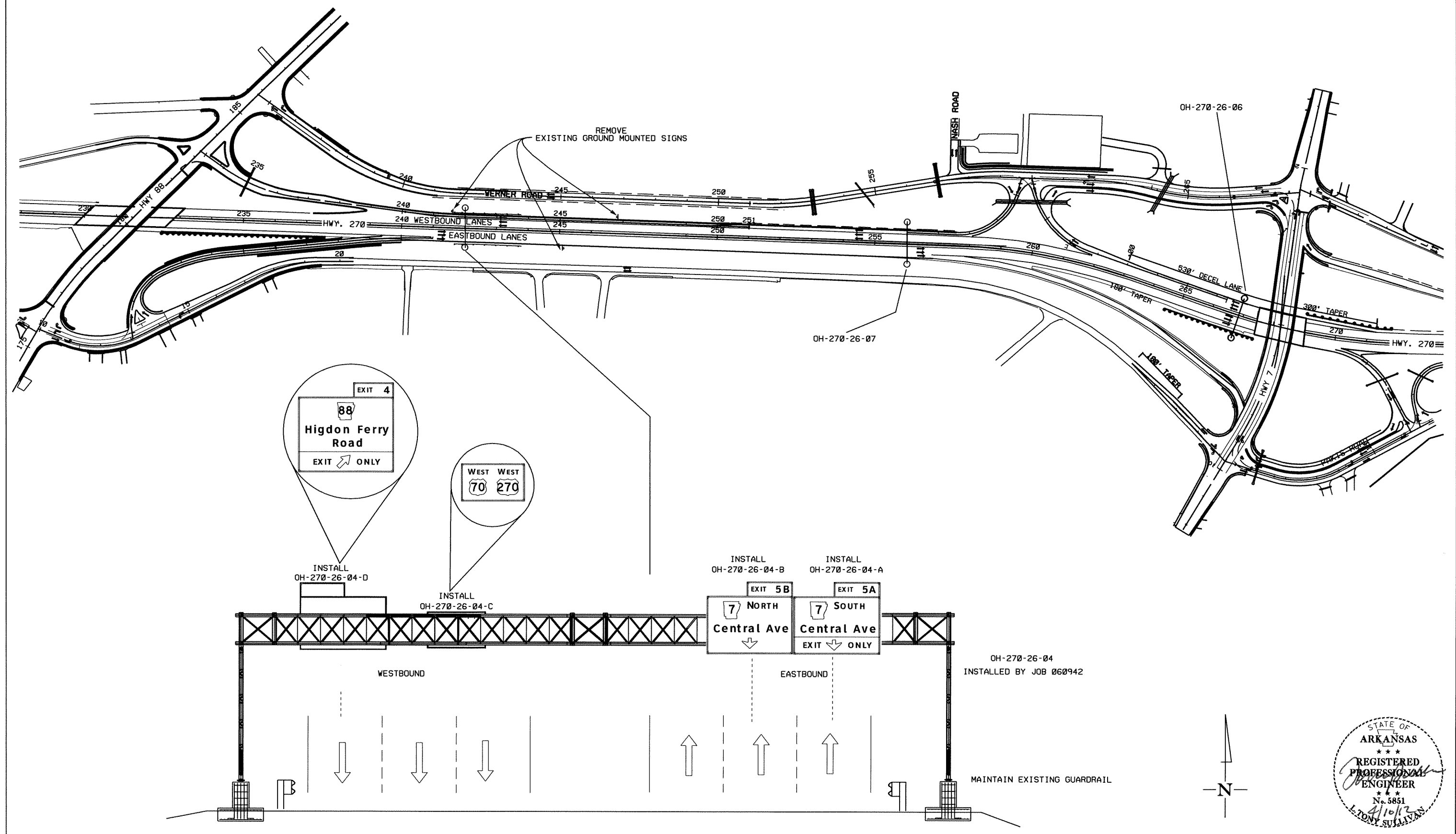
② SIGN STRUCTURE LOCATION SHEET
 I-40 / I-440 INTERCHANGE NORTH LITTLE ROCK
 OH-040-60-31 INSTALLED BY JOB 061043
 REPLACE OVERHEAD SIGN STRUCTURE



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② SIGN STRUCTURE LOCATION SHEET

US 270 / HWY 7 INTERCHANGE HOT SPRINGS
 OH-270-26-04 INSTALLED BY JOB 060942
 REPLACE OVERHEAD SIGN STRUCTURE



STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 5851
 L. TONY SULLIVAN

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2 SIGN LAYOUT SHEET

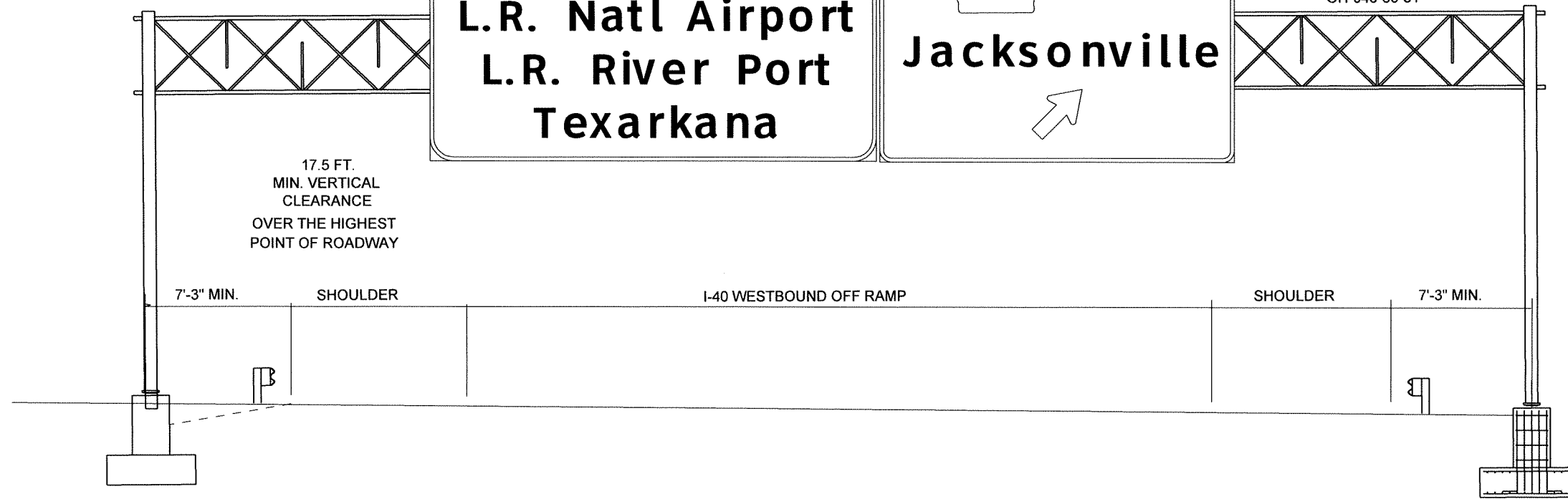
OH-040-60-31
 REPLACE OVERHEAD SIGN AND SIGN STRUCTURE
 INSTALLED BY JOB 061043
 I-40 WESTBOUND LOG MILE 159.21

SEE OVERHEAD SIGN STRUCTURE DETAILS SHEETS FOR DESIGN SPECIFICATIONS

OH-040-60-31WB-B

OH-040-60-31WB-A

REPLACE
OH-040-60-31



17.5 FT.
MIN. VERTICAL
CLEARANCE
OVER THE HIGHEST
POINT OF ROADWAY

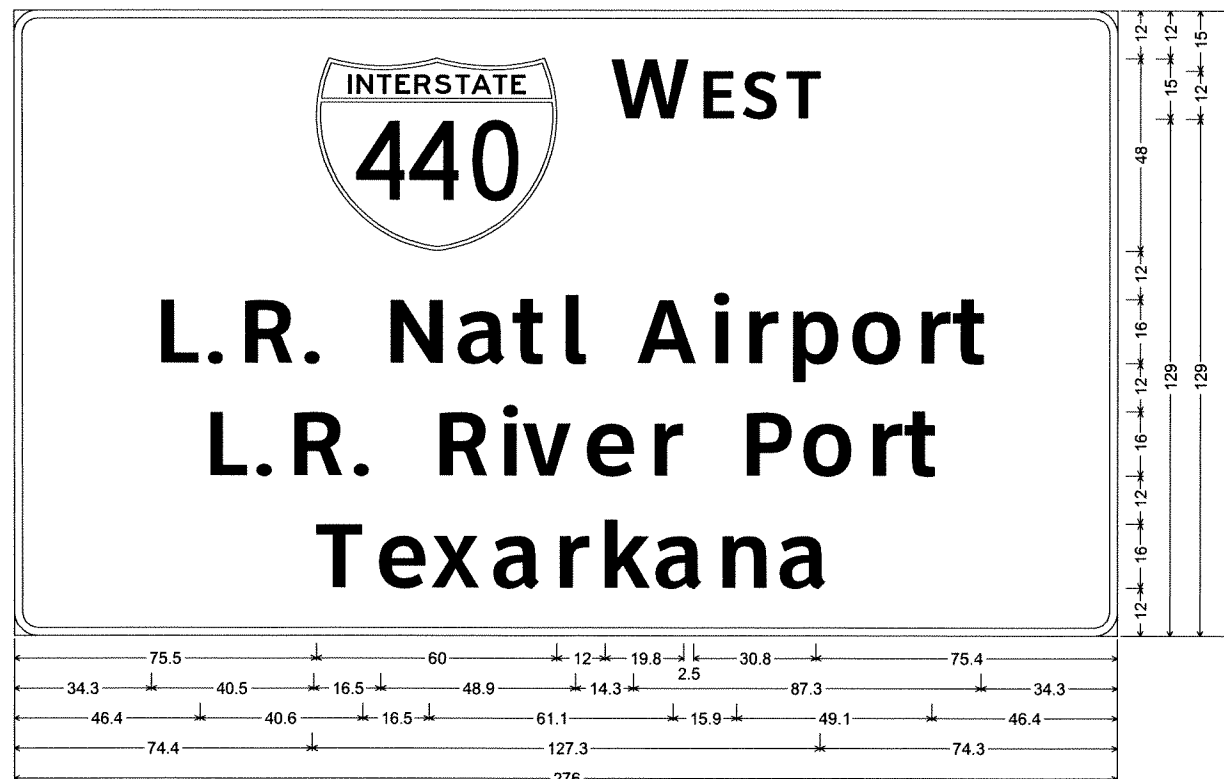
7'-3" MIN.

SHOULDER

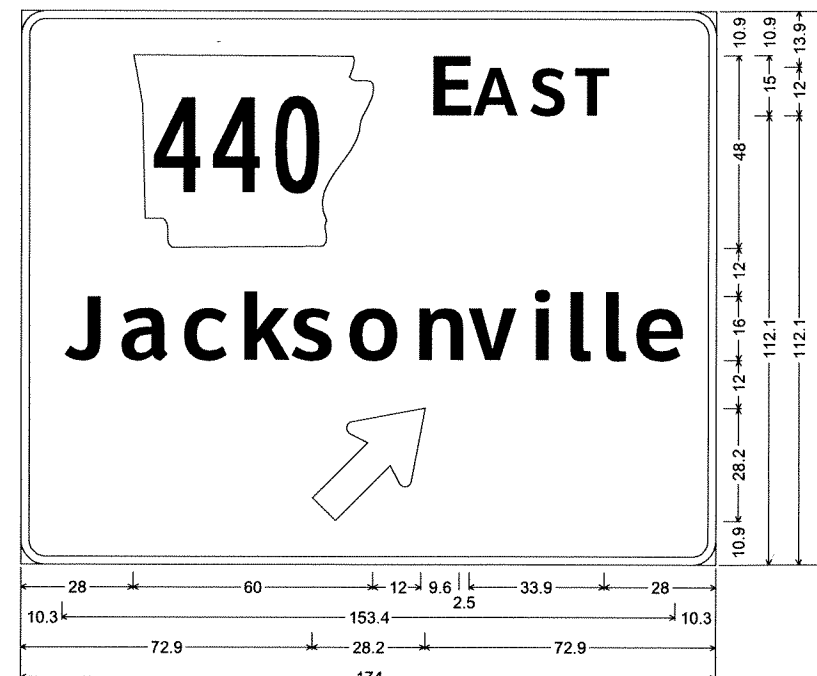
I-40 WESTBOUND OFF RAMP

SHOULDER

7'-3" MIN.



OH-040-60-31WB-B; 6.0" Radius, 2.0" Border, White on Green;
 [W] ClearviewHwy-5-W; [EST] ClearviewHwy-5-W; [L.R. Natl Airport] ClearviewHwy-5-W-R; [L.R. River Port] ClearviewHwy-5-W-R;
 [Texarkana] ClearviewHwy-5-W-R;



OH-040-60-31WB-A; 6.0" Radius, 2.0" Border, White on Green;
 M1-6; [E] ClearviewHwy-5-W; [AST] ClearviewHwy-5-W;
 [Jacksonville] ClearviewHwy-5-W-R; Standard Arrow Custom 35.8" X 21.6" 45°;

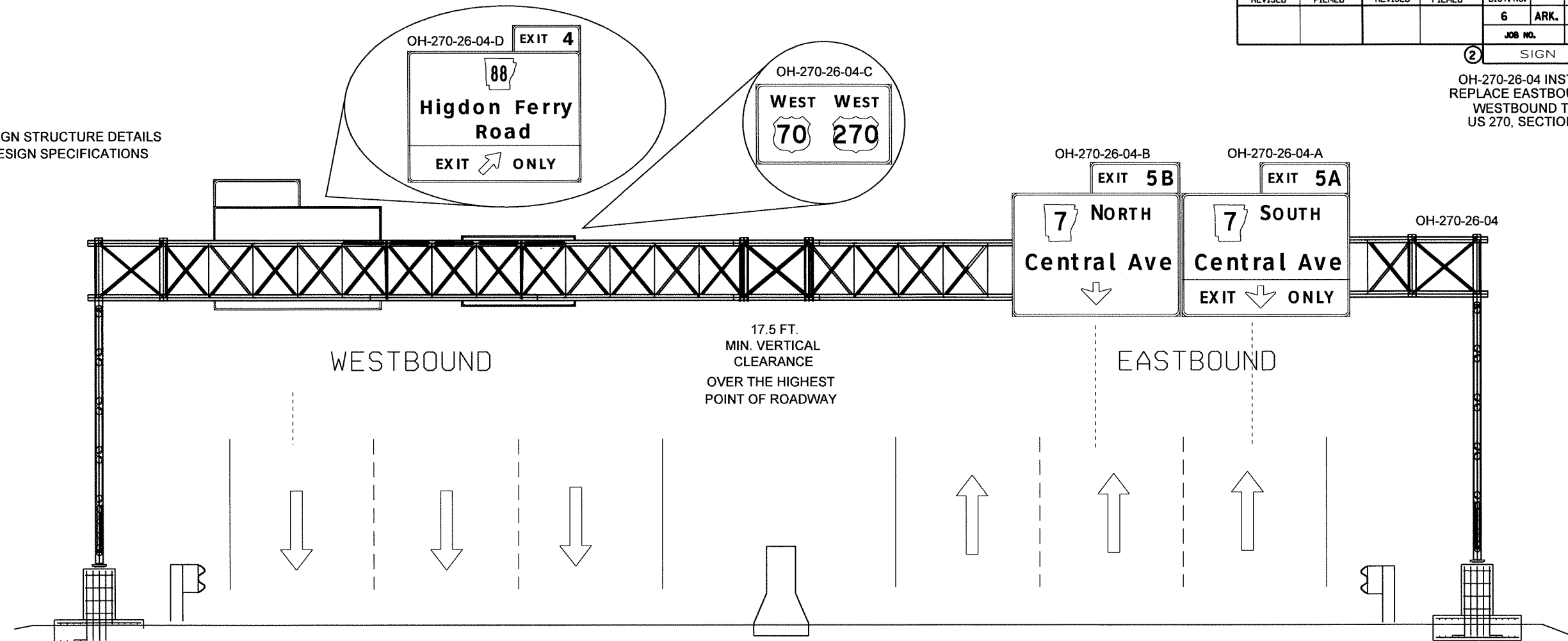


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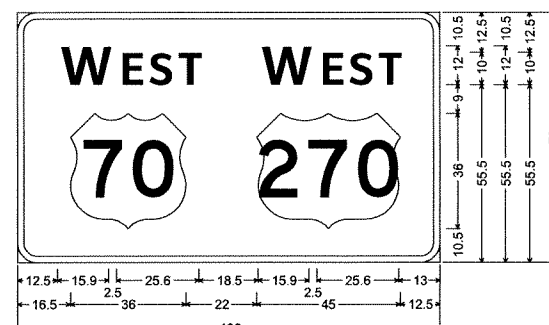
② SIGN LAYOUT SHEET

OH-270-26-04 INSTALLED BY JOB 060942
REPLACE EASTBOUND TOWER REINSTALL
WESTBOUND TOWER AND TRUSS
US 270, SECTION 5, LOG MILE 22.38

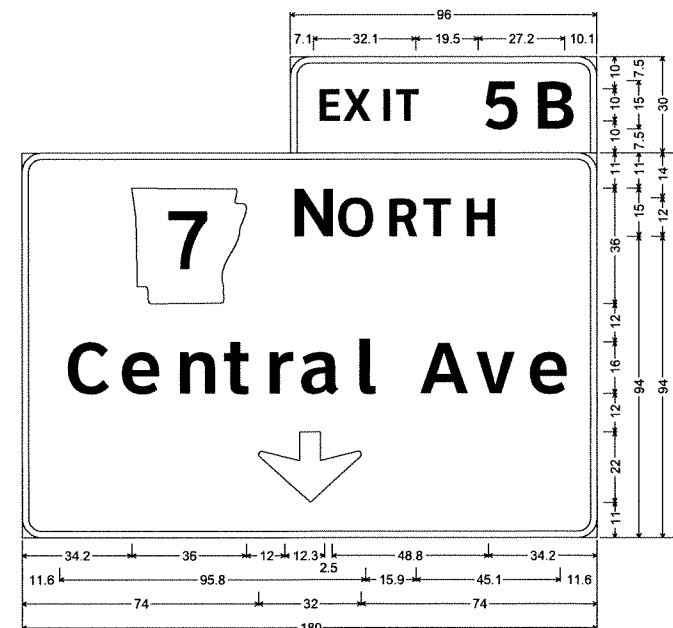
SEE OVERHEAD SIGN STRUCTURE DETAILS
SHEETS FOR DESIGN SPECIFICATIONS



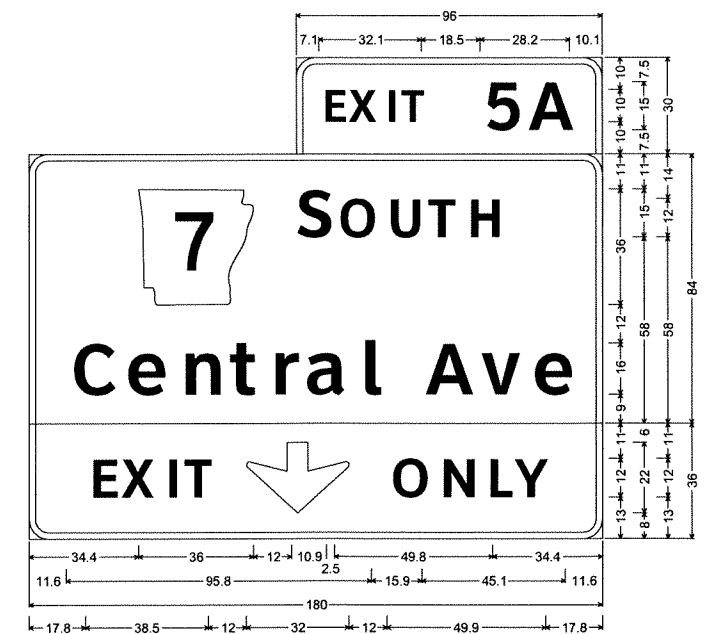
OH-270-26-04-D;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [4] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
M1-6; [Higdon Ferry] ClearviewHwy-5-W; [Road] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, Black on Yellow;
[EXIT] ClearviewHwy-5-W; Standard Arrow Custom 35.8" X 21.6" 45°;
[ONLY] ClearviewHwy-5-W;



OH-270-26-04-C; 6.0" Radius, 2.0" Border, White on Green;
[W] ClearviewHwy-5-W; [EST] ClearviewHwy-5-W;
[W] ClearviewHwy-5-W; [EST] ClearviewHwy-5-W;



OH-270-26-04-B;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [5B] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
M1-6; [N] ClearviewHwy-5-W; [ORTH] ClearviewHwy-5-W;
[Central Ave] ClearviewHwy-5-W; Down Arrow 22.0" 270°;



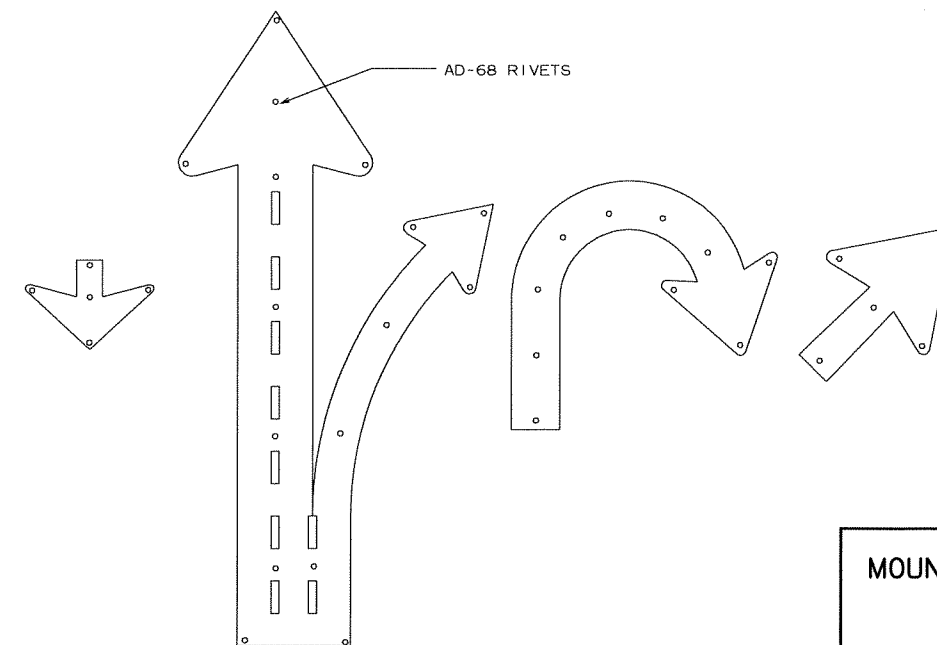
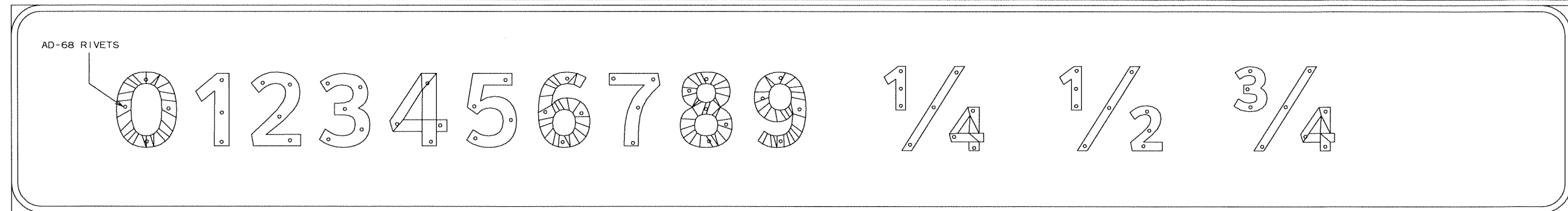
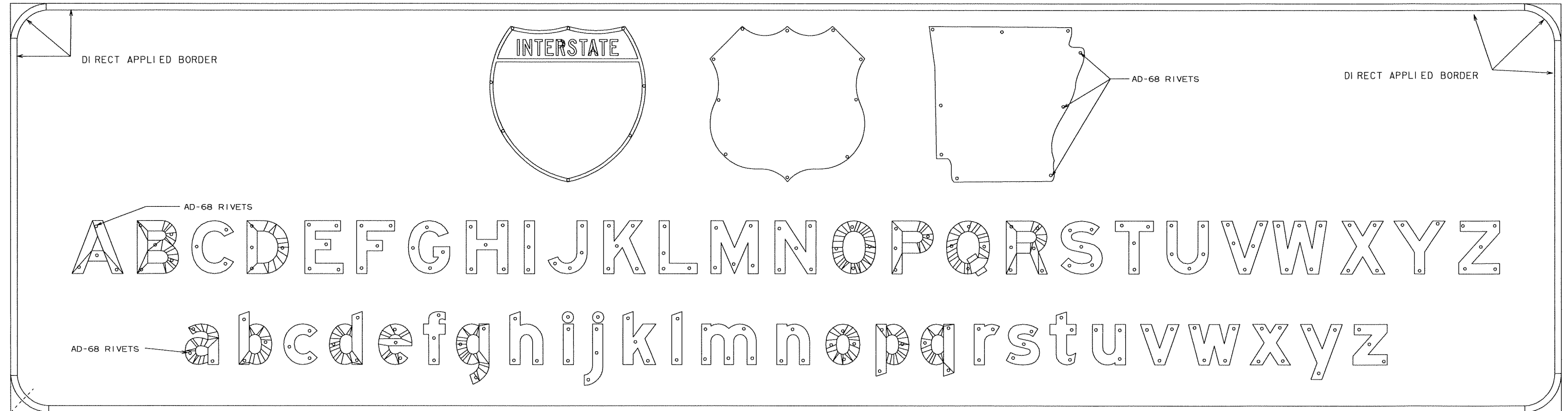
OH-270-26-04-A;
6.0" Radius, 2.0" Border, White on Green;
[EXIT] ClearviewHwy-5-W; [5A] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, White on Green;
M1-6; [S] ClearviewHwy-5-W; [OUTH] ClearviewHwy-5-W;
[Central Ave] ClearviewHwy-5-W;
6.0" Radius, 2.0" Border, Black on Yellow;
[EXIT] ClearviewHwy-5-W; Down Arrow 22.0" 270°; [ONLY] ClearviewHwy-5-W;



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② MOUNTING DETAILS FOR DEMOUNTABLE LEGEND ON GUIDE SIGNS

THE CONTRACTOR SHALL DRILL AND POP-RIVET LEGEND, SHIELDS, ARROWS, OR OTHER COPY AS SHOWN.



NOTE:

LEGEND ON GUIDE SIGNS ON THE MAIN LANES SHALL BE DEMOUNTABLE LEGEND.
LEGEND ON GUIDE SIGNS ON CROSS ROADS AND RAMP SHALL BE DIRECT APPLIED.
THE DEMOUNTABLE AND DIRECT APPLIED LEGENDS SHALL BE TYPE IX SHEETING.

THE BACKGROUND ON ALL GUIDE SIGNS AND STANDARD SIGNS SHALL BE CONSTRUCTED USING TYPE III SHEETING.
TYPE IX SHEETING FOR BORDER, LEGEND, SHIELDS, ARROWS, OR OTHER COPY SHALL BE ORIENTED VERTICALLY AS PER MANUFACTURERS' DATUM MARKS, ORIENTATION MARKS, OR OTHER RECOMMENDATIONS.

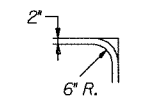
SIGN LEGEND, SHIELDS, ARROWS OR OTHER COPY SHALL BE APPLIED WITH RIVETS ONLY.
NO OTHER METHOD OF APPLYING CHARACTERS IS ALLOWED.



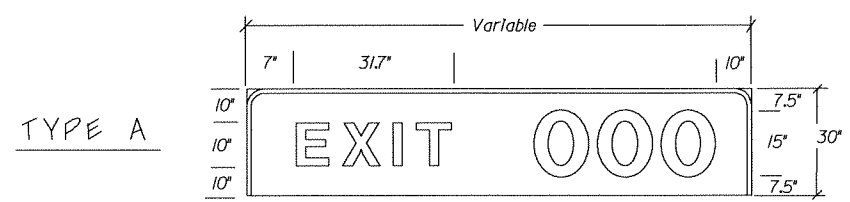
MOUNTING DETAILS FOR DEMOUNTABLE LEGEND ON GUIDE SIGNS

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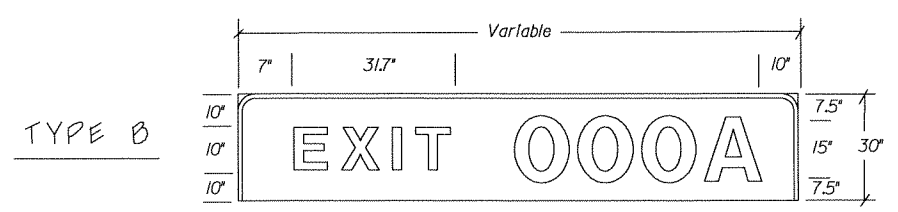
② EXIT PANEL DETAILS



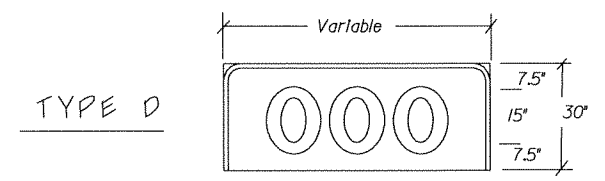
TYPICAL DETAIL



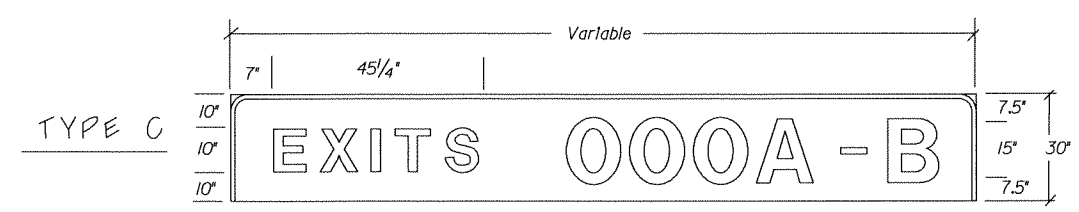
EXIT WITH 1 DIGIT 8'X30'=17.50 SF
 EXIT WITH 2 DIGITS 9'6\"/>



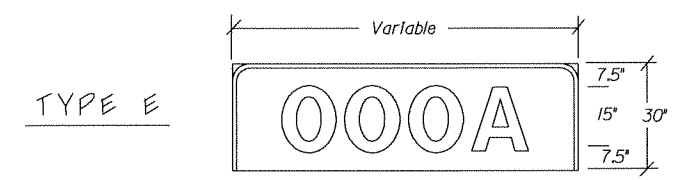
EXIT WITH 1 DIGIT PLUS 'A'OR'B' 9'6\"/>



1 DIGIT 2'4\"/>



EXITS WITH 1 DIGIT PLUS 'A'&'B' 13'2\"/>



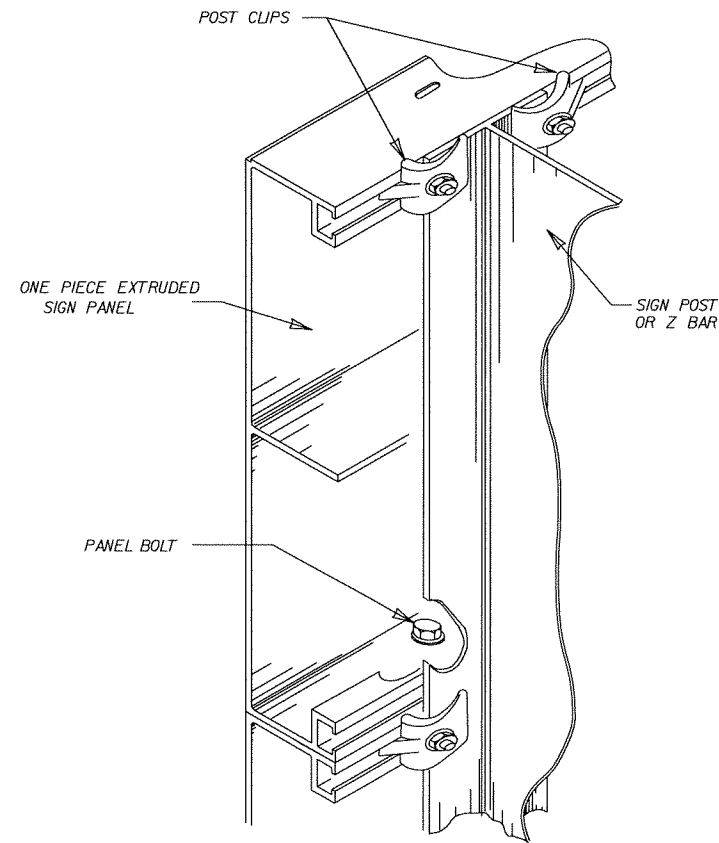
1 DIGIT PLUS 'A'OR'B' 4'2\"/>



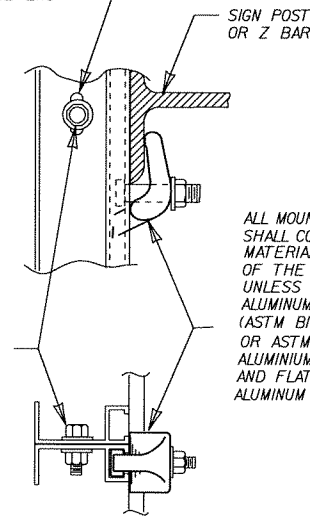
EXIT PANEL DETAILS

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② DETAILS OF GUIDE SIGN PANELS



SLOTTED HOLES (7/16" X 7/8")
DRILLED OR PUNCHED @ 12" O.C.
BEGINNING 6" FROM ONE END

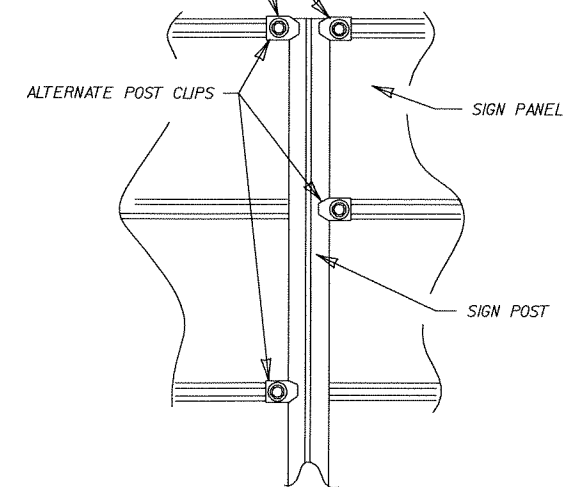


ALUMINUM PANEL BOLT
AND HEX NUT (3/8"-16X3/4")
AND (2) FLAT WASHERS
2" MAX SPACING

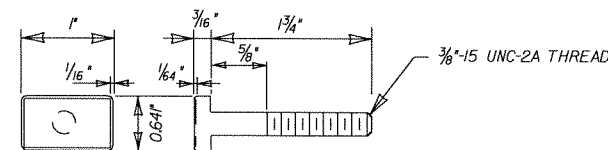
ALL MOUNTING HARDWARE
SHALL COMPLY WITH THE
MATERIALS SECTION OF 724
OF THE STANDARD SPECIFICATIONS
UNLESS OTHERWISE SPECIFIED.
ALUMINUM POST CLIP
(ASTM B108 ALLOY 356-T6)
OR ASTM B26 ALLOY 356-T6)
ALUMINUM POST CLIP BOLT
AND FLAT WASHER (3/8"-16X1 3/4")
ALUMINUM STOP NUT

MOUNTING HARDWARE

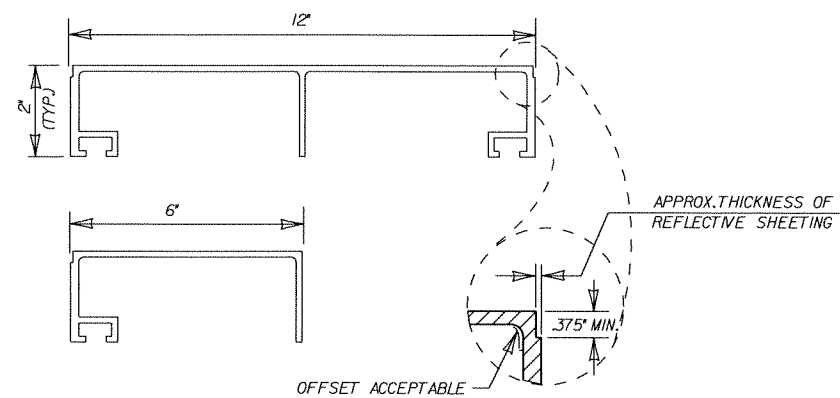
USE DOUBLE POST CLIPS
AT TOP AND BOTTOM OF SIGN



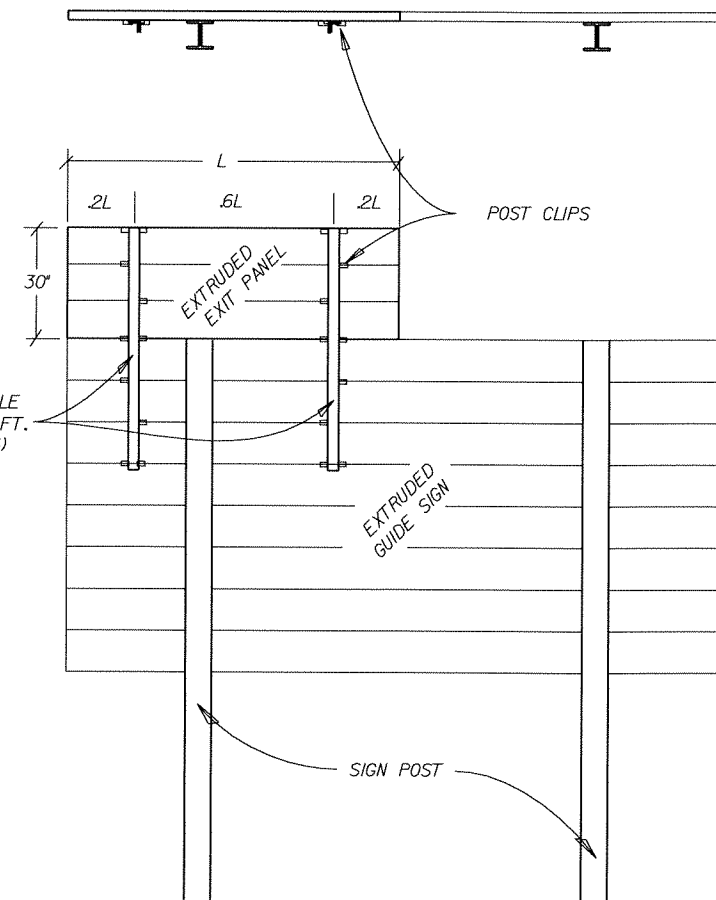
POST CLIP PLACEMENT



POST CLIP BOLT



ONE PIECE EXTRUDED
SIGN PANELS

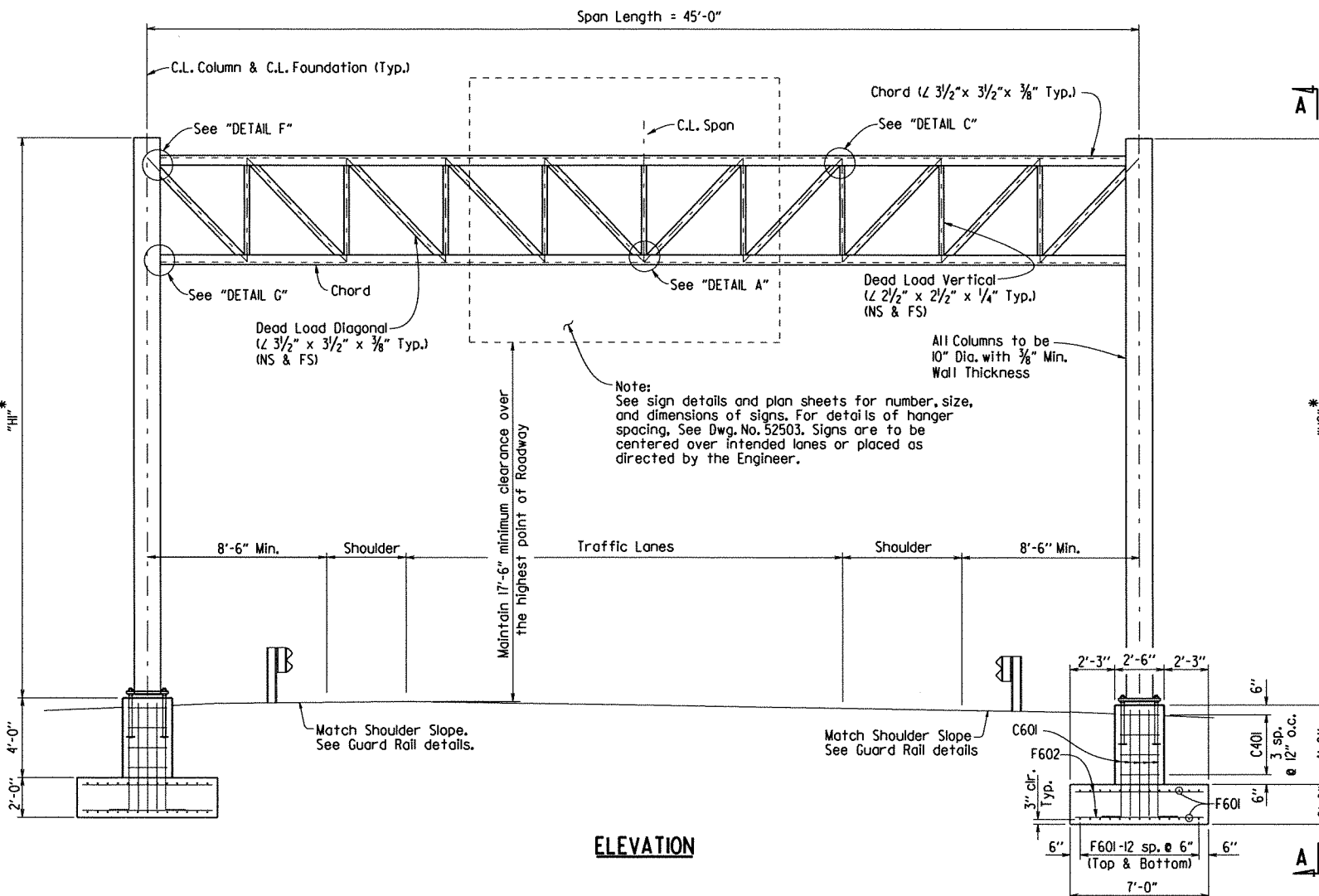
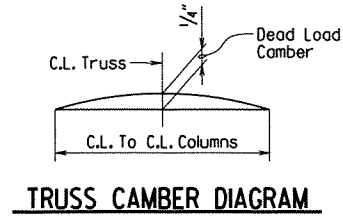
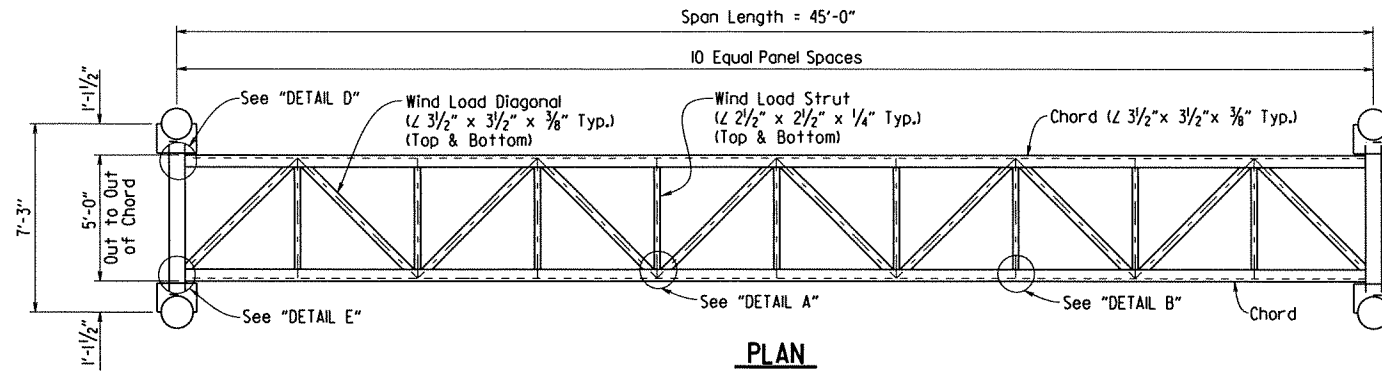


2 1/2" X 2 1/2" X 1/4" ANGLE
5'-8" LONG 1.4" PER FT.
(ALUM. ALLOY 6061-T6)

NOTE: EXIT NUMBER PANELS SHALL HAVE WHITE LEGENDS AND BORDERS. THE BACKGROUND COLOR WILL BE AS USE SPECIFIES. SHEETING TYPE WILL BE THE SAME AS THE GUIDE SIGN WHICH THE EXIT PANEL IS ATTACHED OR AS SPECIFIED IN THE PLANS. PAYMENT FOR ALL POST CLIPS, BOLTS, AND ANGLES SHALL BE SUBSIDIARY TO THE ITEM "EXIT NUMBER PANEL".



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. 061343	11 25
							OH-040-60-31 OVERHEAD SIGN STR.	52499



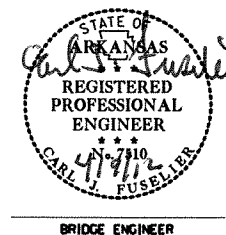
BAR LIST-FOUNDATION - PER FOOTING

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
				Dimensions are out to out of bars.
C401	8	17'-6"	3"	
C601	48	6'-3"	4 1/2"	
F601	26	16'-6"	Str.	
F602	66	6'-6"	Str.	

APPROXIMATE QUANTITIES FOR FOUNDATION PER FOOTING - (FOR INFORMATION ONLY)

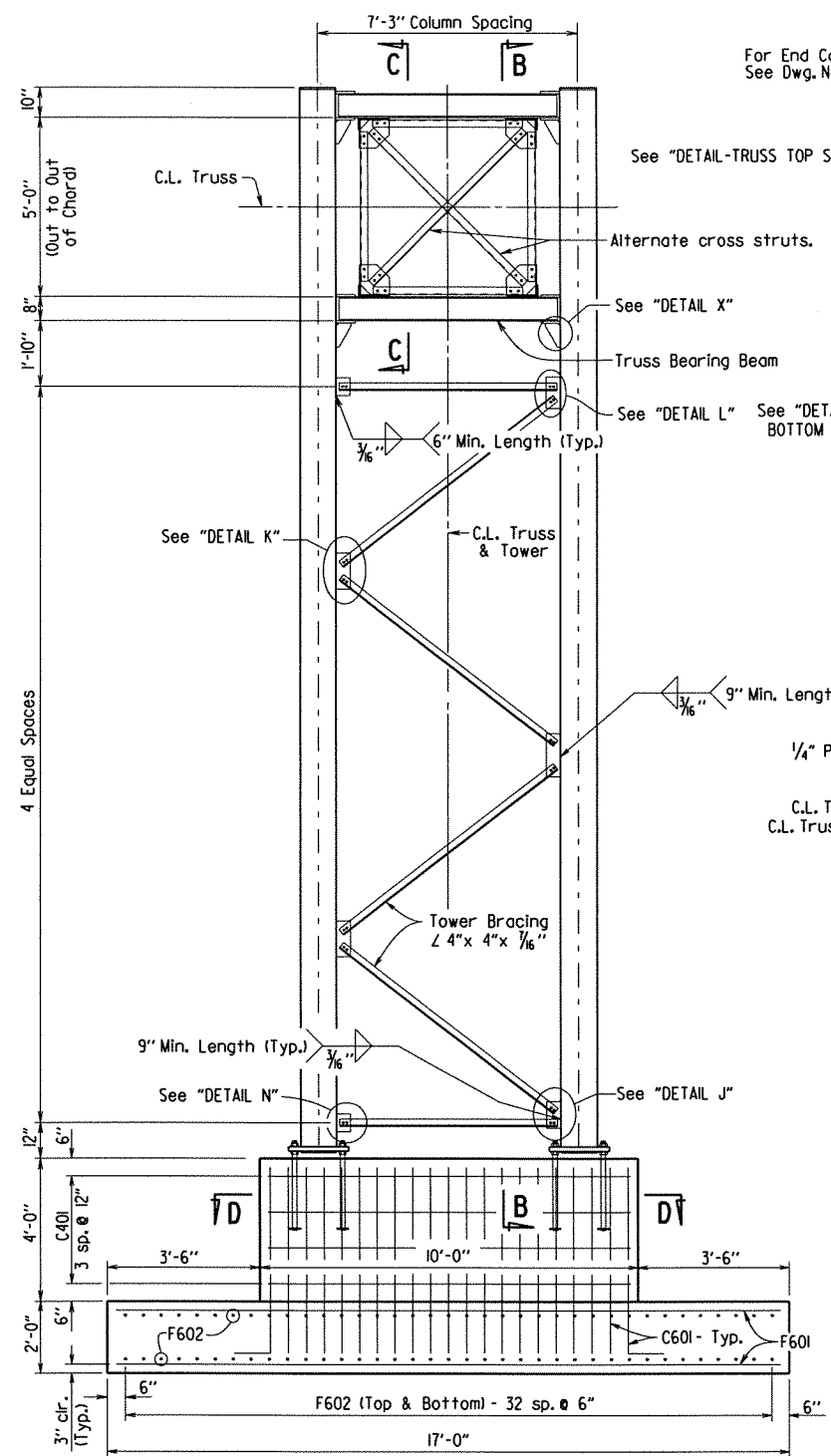
CLASS 5 CONCRETE (Cu. Yds.)	REINFORCING STEEL (Lbs.)	EXCAVATION (Cu. Yds.)
12.52	1,833	41

* Note: 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.

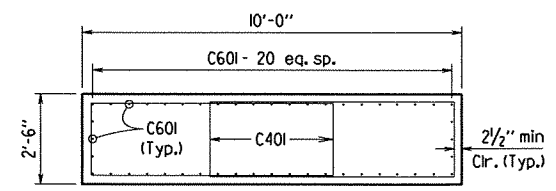


SHEET 1 OF 5
 DETAILS OF 40' TO 54'
 STEEL OVERHEAD SIGN STRUCTURE
 OH-040-60-31
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: A.M.S. DATE: 3/12/12 FILENAME: b061343_ohsign45.dgn
 CHECKED BY: JHP DATE: 4-9-12 SCALE: Not to Scale
 DESIGNED BY: ACP DATE: 2-12
 STR. NO. OH-040-60-31 DRAWING NO. 52499

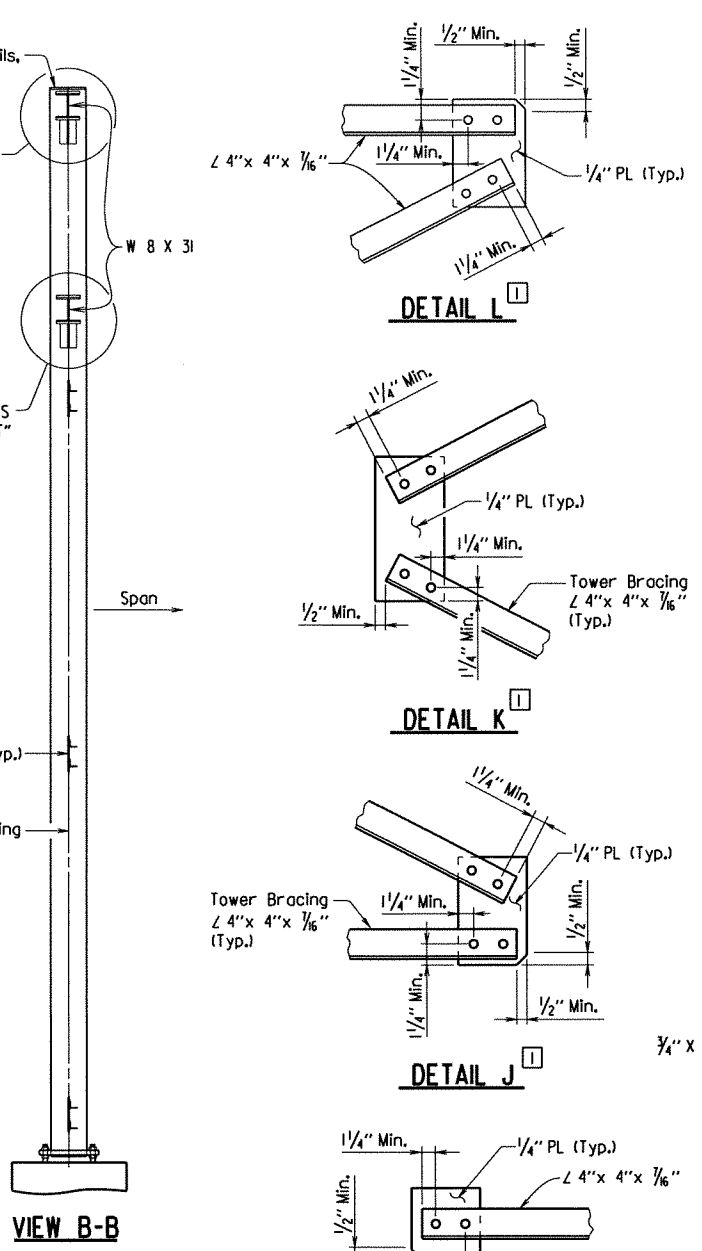
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				OH-040-60-31		OVERHEAD SIGN STR.	52500	



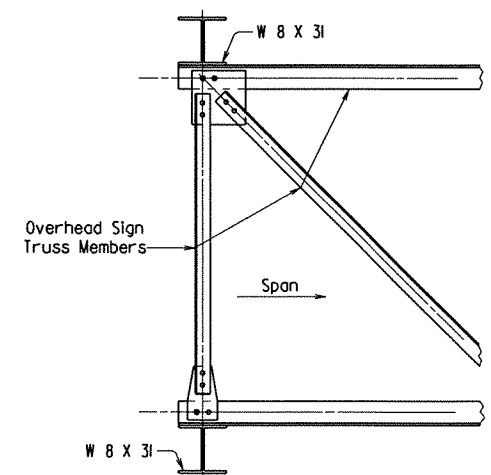
VIEW A-A



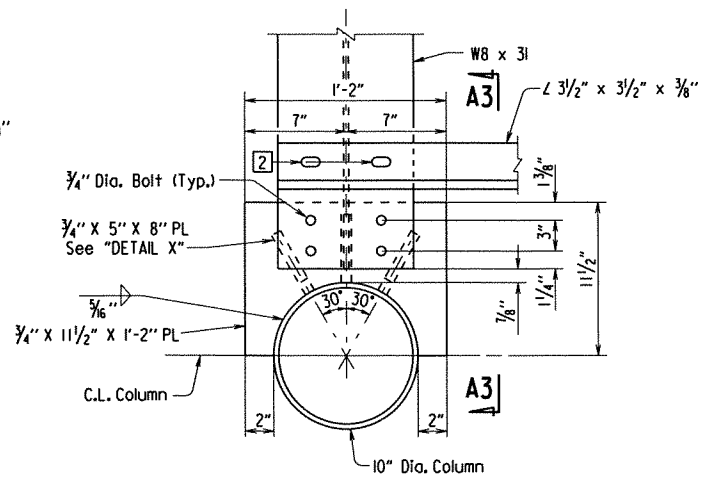
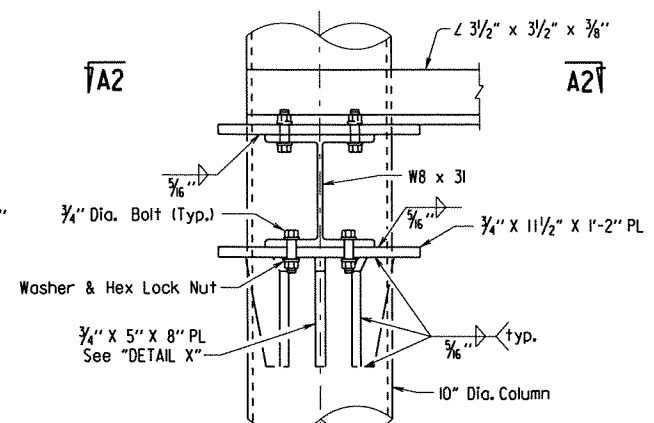
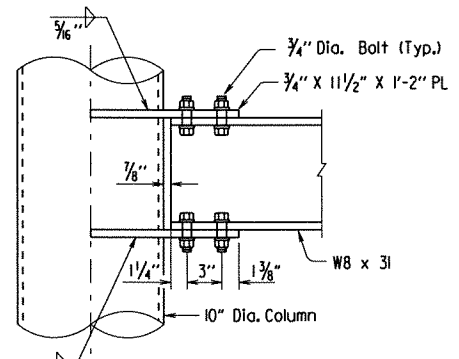
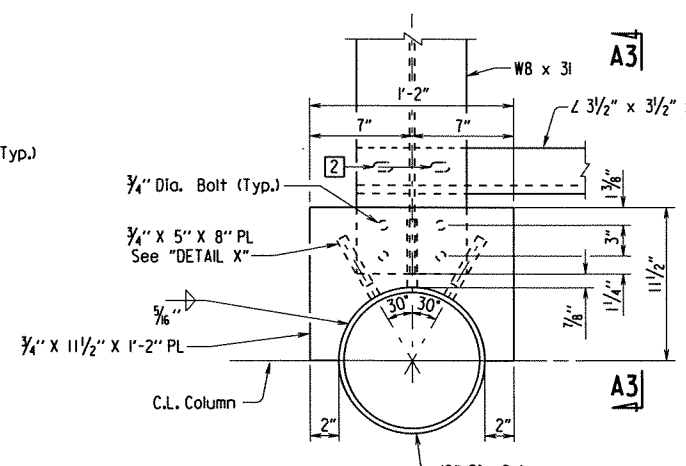
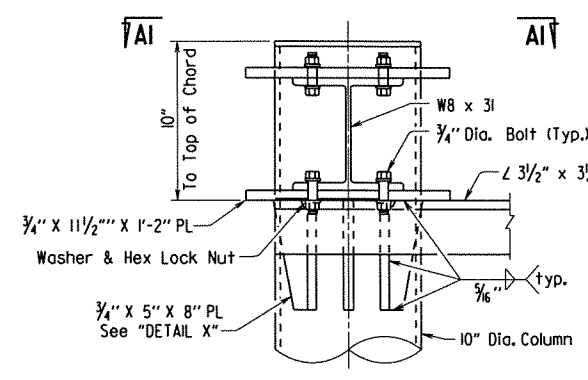
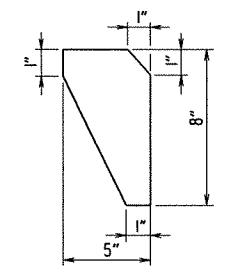
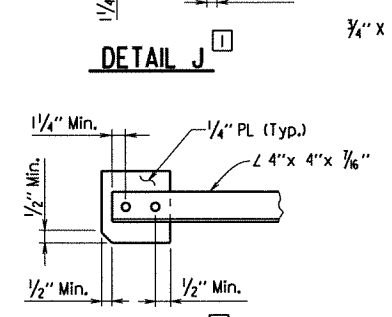
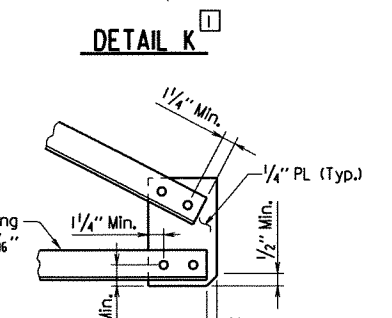
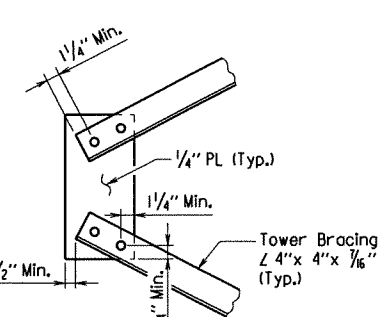
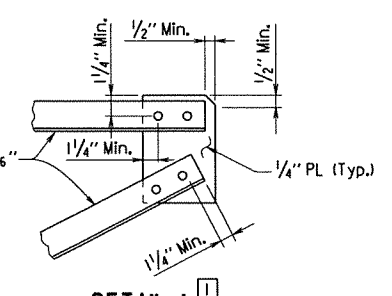
SECTION D-D



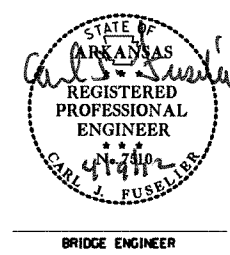
VIEW B-B



SECTION C-C



- 1 Bolts shall be 3/4" Dia. and open holes shall be 1/8". Minimum center to center bolt spacing shall be 2 1/2".
- 2 Slotted Hole in Chord Angle 1/8" x 2". Use plate washer on Chord Angle side.



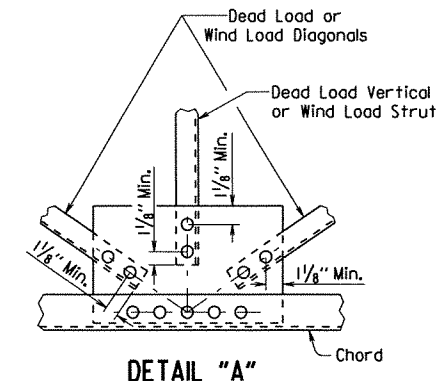
SHEET 2 OF 5
DETAILS OF 40' - 54'
STEEL OVERHEAD SIGN STRUCTURE
OH-040-60-31

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

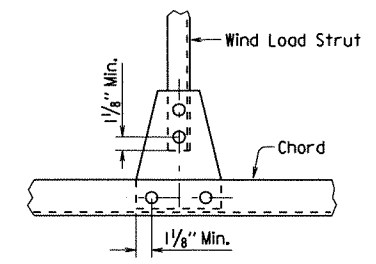
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 DESIGNED BY: ACP DATE: 2-12
 STR. NO. OH-040-60-31 DRAWING NO. 52500

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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				JOB NO.		061343	13	25
				① OH-040-60-31	OVERHEAD SIGN STR.			52501

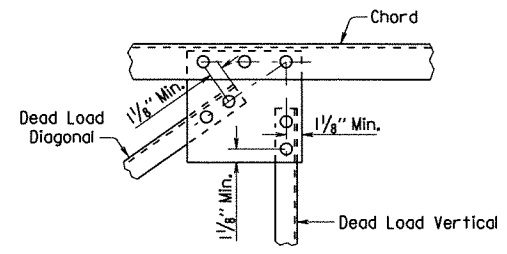
Note: Thickness of all Gusset Plates shall be 3/8".



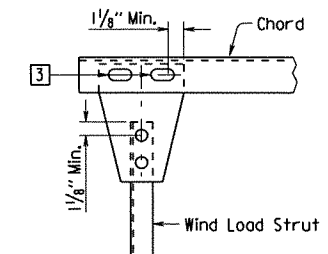
DETAIL "A"



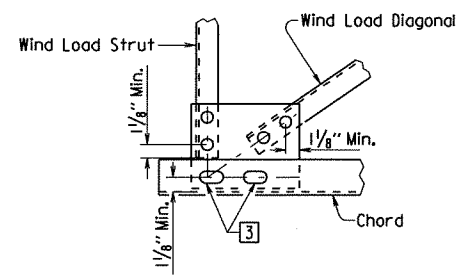
DETAIL "B"



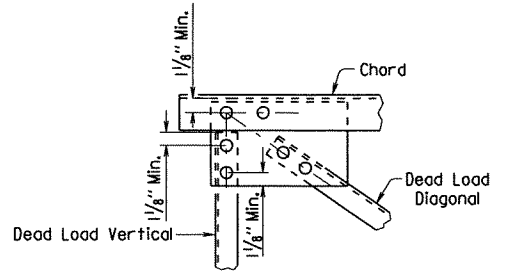
DETAIL "C"



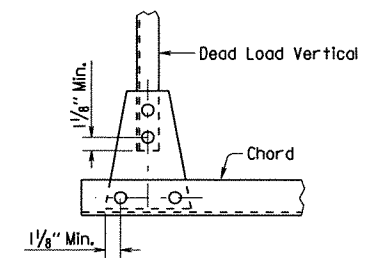
DETAIL "D"



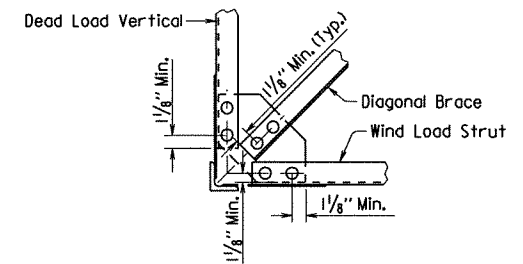
DETAIL "E"



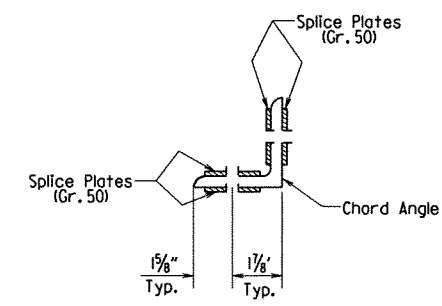
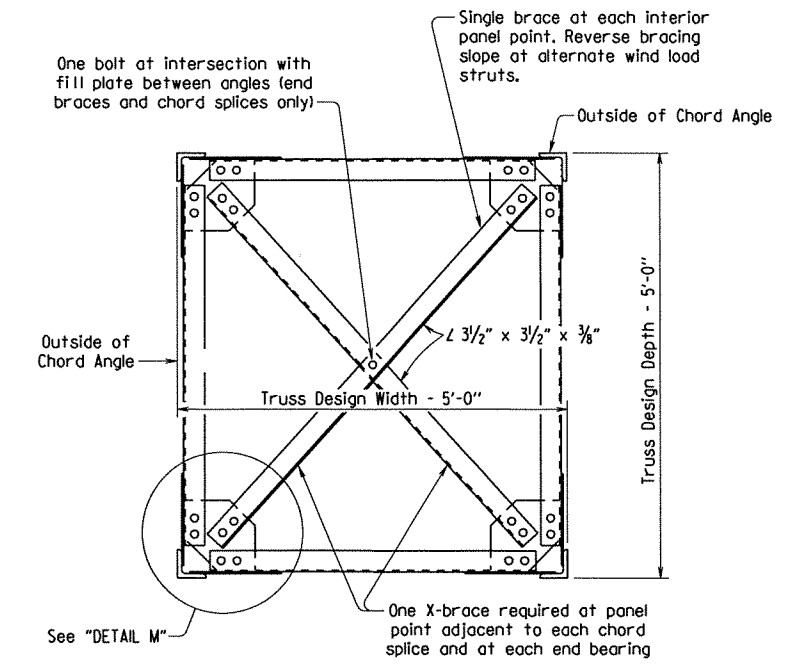
DETAIL "F"



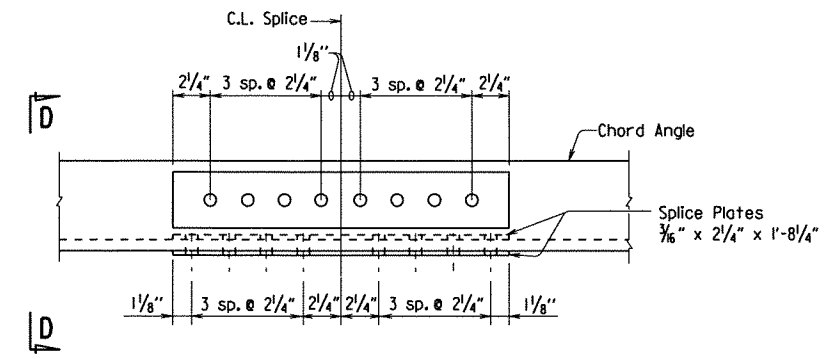
DETAIL "G"



DETAIL "M"

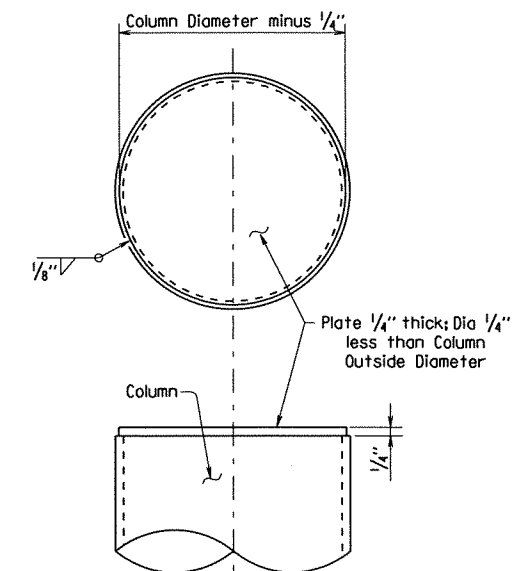


VIEW D-D

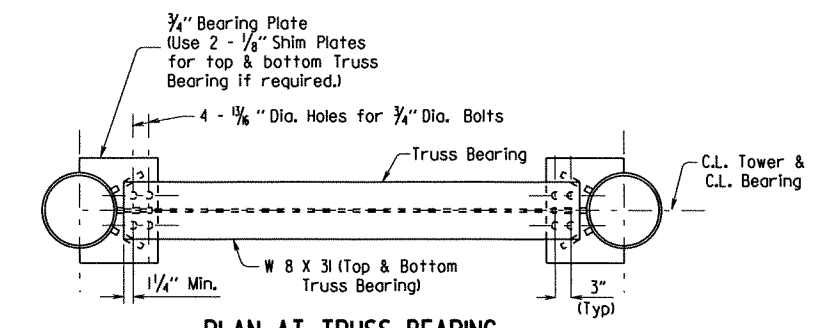


CHORD SPLICE

Note: Chord angles may be spliced in convenient lengths for galvanizing and sign placement.

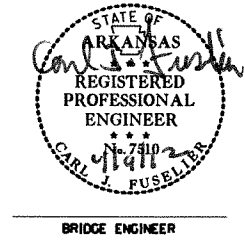


END CAP DETAILS



PLAN AT TRUSS BEARING

③ 1/8" x 2" Slotted Holes in Gusset Plate and Chord Angle. Use plate washer on Gusset Plate side.



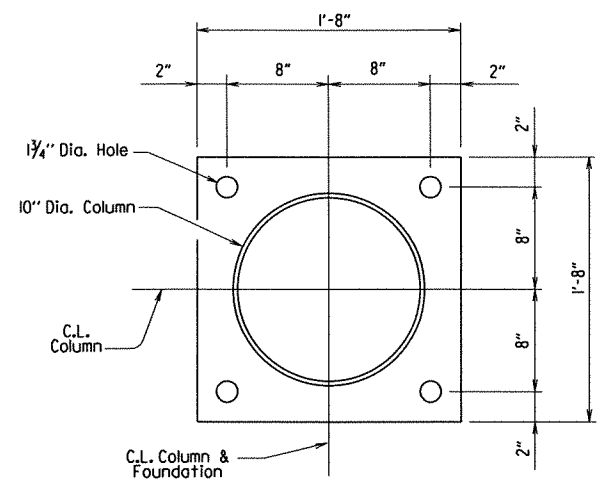
SHEET 3 OF 5
DETAILS OF 40' - 54'
STEEL OVERHEAD SIGN STRUCTURE
OH-040-60-31

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

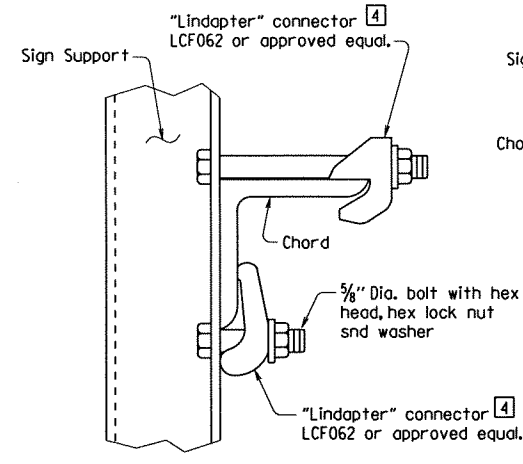
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 DESIGNED BY: ACP DATE: 2-12
 STR. NO. OH-040-60-31 DRAWING NO. 52501

BRIDGE ENGINEER

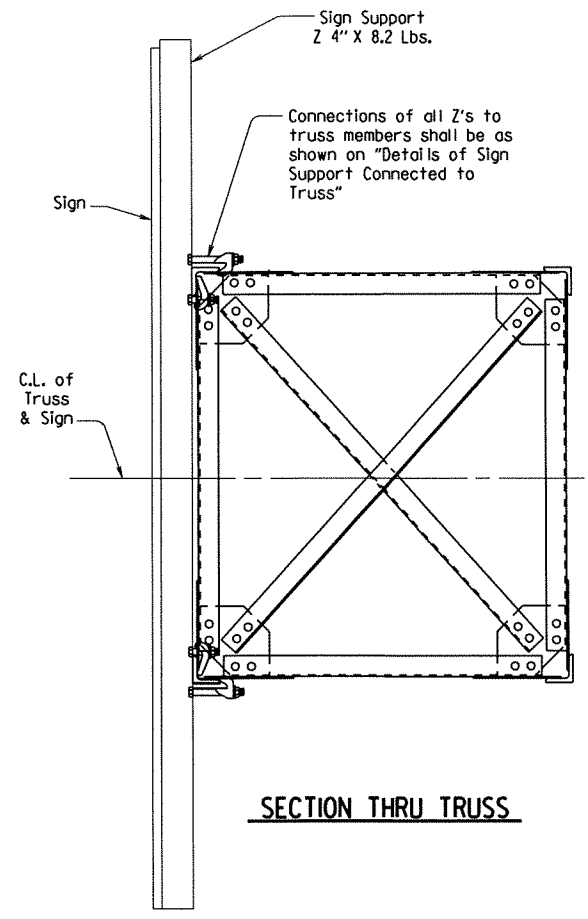
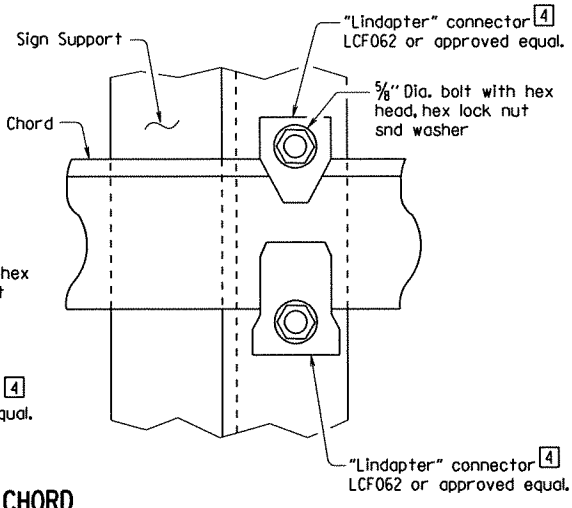
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						JOB NO.	061343	14 25
						OH-040-60-31	OVERHEAD SIGN STR.	52502



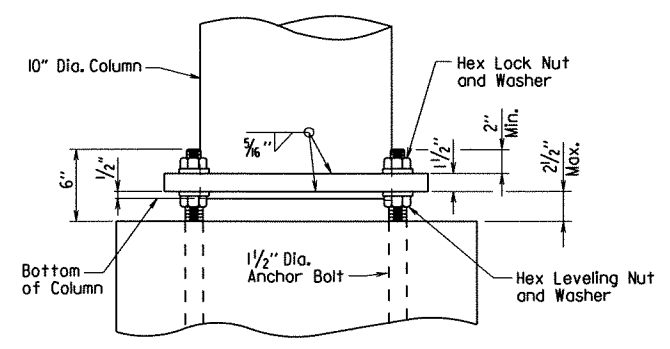
PLAN - COLUMN BASE



TOP CHORD

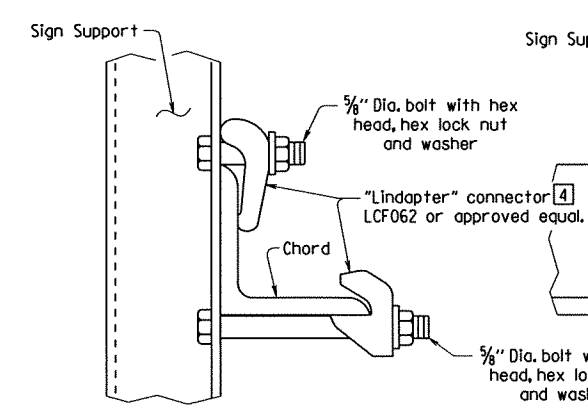


SECTION THRU TRUSS

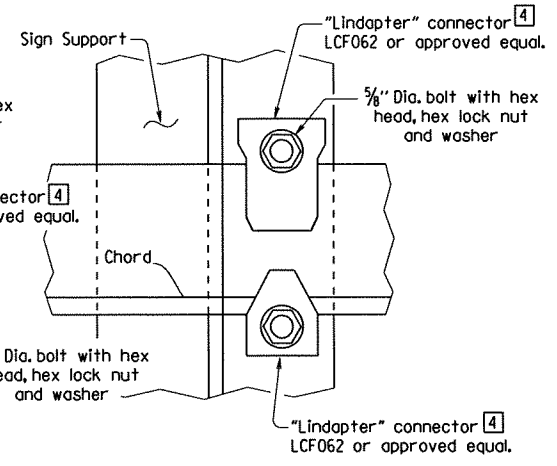


Note: Diameter of hole in base plate to be 1/8" larger than column diameter.

ELEVATION - COLUMN BASE



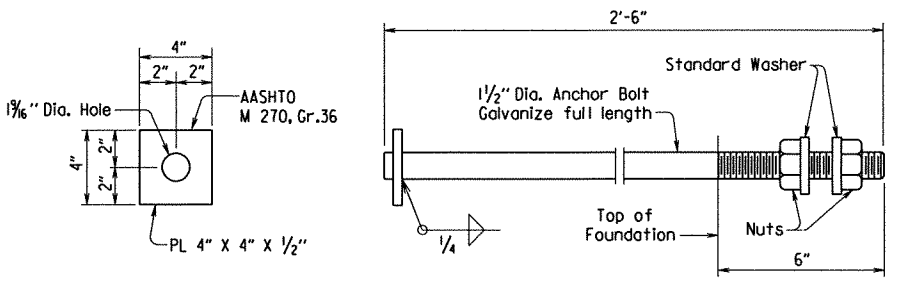
BOTTOM CHORD



4 All "Lindapter" connectors or approved equal shall be installed according to manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.

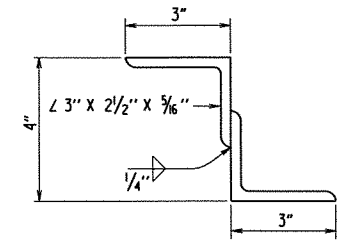
Note: Install all support connectors clear of the gusset plates and splice locations.

DETAILS OF SIGN SUPPORT CONNECTED TO TRUSS



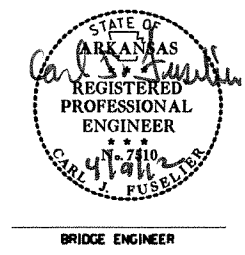
Anchor bolts shall comply with AASHTO M 314, Grade 55 with Supplementary Requirement SI, and galvanized according to subsection 807.07. Nuts for bolts shall be as specified in subsection 807.07.

ANCHOR BOLT DETAIL



NOTE: Structural Z support may be fabricated from angles as shown.

DETAILS OF ALTERNATE Z SUPPORT



BRIDGE ENGINEER

SHEET 4 OF 5
 DETAILS OF 40' - 54'
 STEEL OVERHEAD SIGN STRUCTURE
 OH-040-60-31

ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 3/12/12 FILENAME: b061343_ohsign45.dgn
 CHECKED BY: JHP DATE: 4-9-12 SCALE: Not to Scale
 DESIGNED BY: ACP DATE: 2-12
 STR. NO. OH-040-60-31 DRAWING NO. 52502

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.	061343	15	25	
				OH-040-60-31	OVERHEAD SIGN STR.	52503		

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 Edition, with applicable supplemental specifications and special provisions. Section and subsection refer to the Standard Construction Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, Fifth Edition, 2009.

Basic Wind Speed = 90 mph.

This structure is approved for a maximum sign area equal to 75% of the span length times a sign height of 15 feet. Use of additional sign area must be approved by the Engineer. If the structure height ("H1" or "H2") exceeds 30'-0" contact the Engineer.

FOUNDATION MATERIALS AND STRENGTHS:

Class 5 Concrete $f'_c = 3,500$ psi
Reinforcing Steel (AASHTO M 31 or M 53, Grade 60) $f_y = 60,000$ psi

Structural steel sign support members shall comply with the following specifications:

- Angles: AASHTO M 270, Grade 36 ($F_y = 36,000$ psi)
- Plate, W-Section: AASHTO M 270, Grade 50 ($F_y = 50,000$ psi)
- 5] Pipe: ASTM A 139, Gr. C, straight-seam welded ($F_y = 42,000$ psi),
ASTM A 500, Gr. B ($F_y = 42,000$ psi),
ASTM A 501, Gr. B ($F_y = 50,000$ psi),
ASTM A 714, Class 2, Grade II, Type E or S ($F_y = 50,000$ psi)
- Z-Shapes: AASHTO M 270, Grade 36 ($F_y = 36,000$ psi)
- Shim Plates: ASTM A 1101, SS, Grade 36, Type 2, or Grade 40
- Bolts: AASHTO M 164, Type I
- Locknuts - Approved Type: Meeting or exceeding AASHTO M 292
- Washers: AASHTO M 293
- Nuts: AASHTO M 291 or M 292, Grade 2H or Grade DH (Grade 10S)

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 1/2" in thickness shall conform to the requirements of the Longitudinal Charpy V-Notch test specified for Zone I minimum service temperature. This work and materials shall be paid for in accordance with Job Special Provision "Steel Overhead 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.

No circumferential butt welds will be allowed in any pipe sections.

All fillet welds of critical members shall be tested according to AWS D11 Structural Welding Code - Steel using the magnetic particle method. Critical welds shall include: column to base plate and truss bottom support to column.

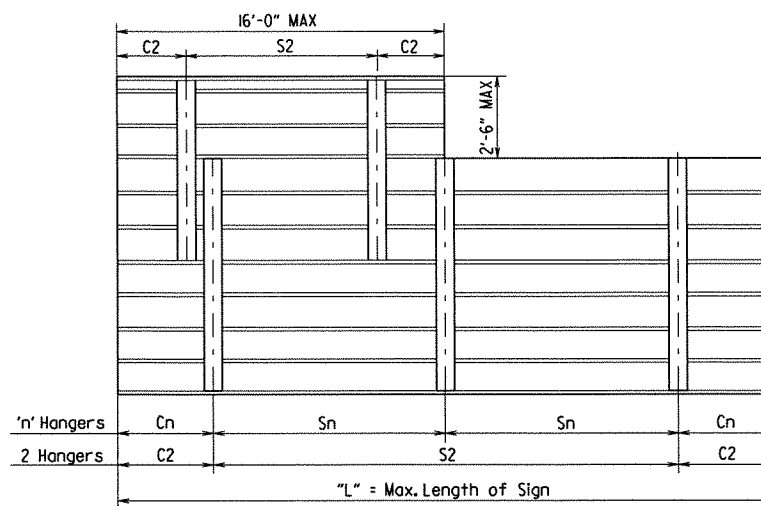
Connections shall be bolted with high-strength bolts. Unless otherwise noted, bolts shall be 3/8" diameter and open holes shall be 1/4". Bolt spacing shall be 2 1/4" for 3/8" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All truss frame bolts shall comply with AASHTO M 164 Type I, galvanized according to subsection 807.06. Nuts and washers for AASHTO M 164 Type I bolts shall be furnished and galvanized in accordance with subsection 807.06.

Lock nuts to be equipped with nylon locking inserts or other approved type locking system. Lock nuts to be installed according to manufacturer's recommendations.

Anchor bolts shall comply with AASHTO M 314, Grade 55 including Supplementary Requirement S1, and galvanized according to subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with subsection 807.07.

Shoring may be required to protect existing shoulders 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.



Note: See sign details and plan sheets for number, size and dimensions of signs.

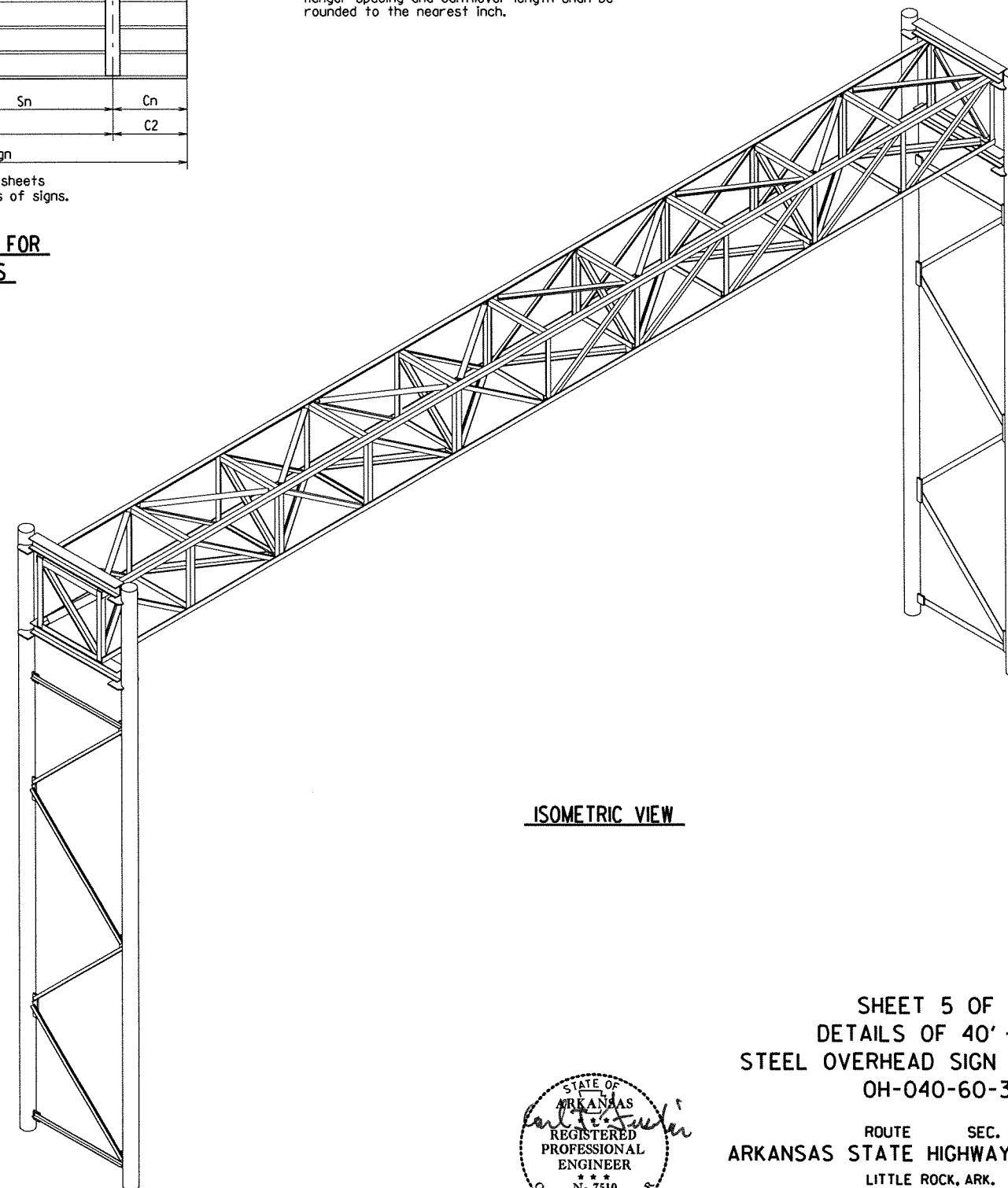
HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

HANGER VARIABLES

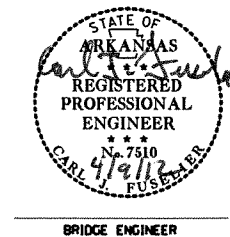
Max. Length of Sign = "L"	"n" Hangers	Cantilever Length "Cn"	Hanger Spacing "Sn"
15'-0"	2 Hangers	0.21 x 'L'	0.58 x 'L'
30'-0"	3 Hangers	0.145 x 'L'	0.355 x 'L'
45'-0"	4 Hangers	0.107 x 'L'	0.262 x 'L'

Hanger spacing and cantilever length shall be rounded to the nearest inch.

5] 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



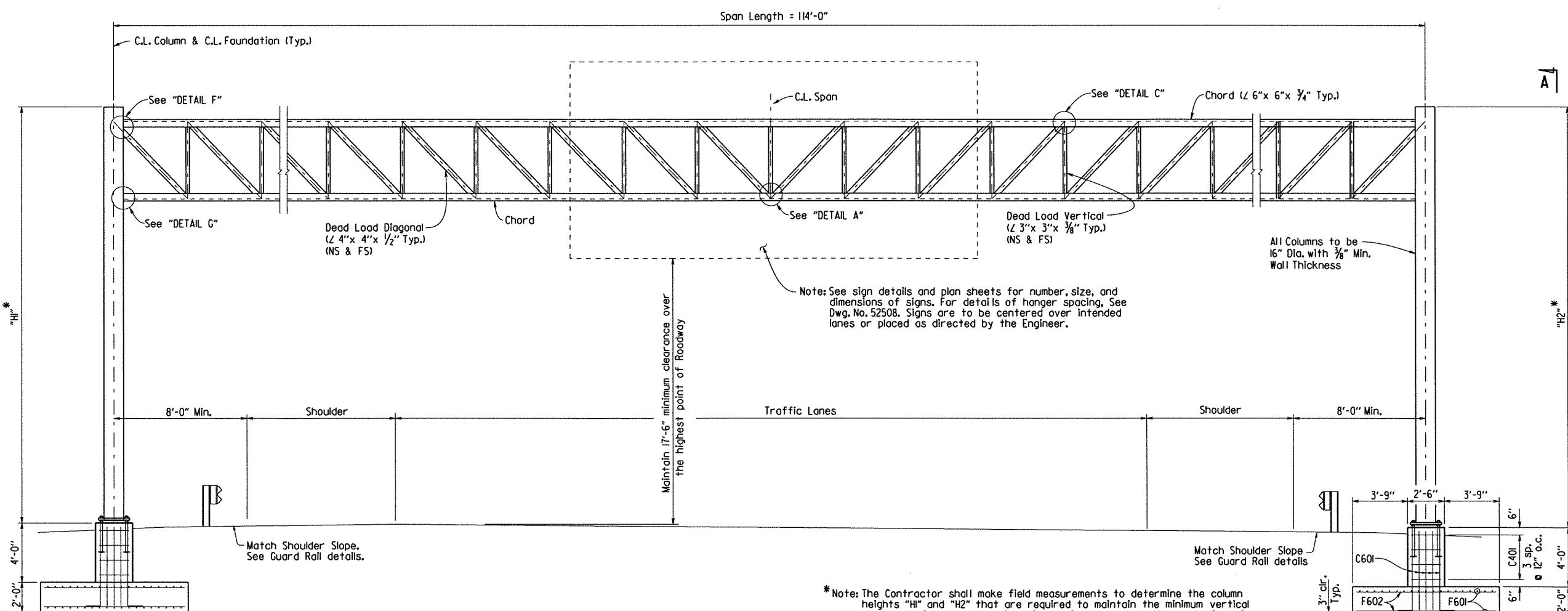
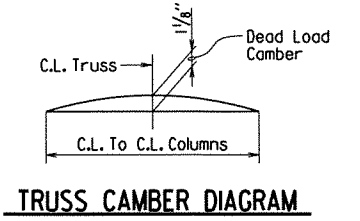
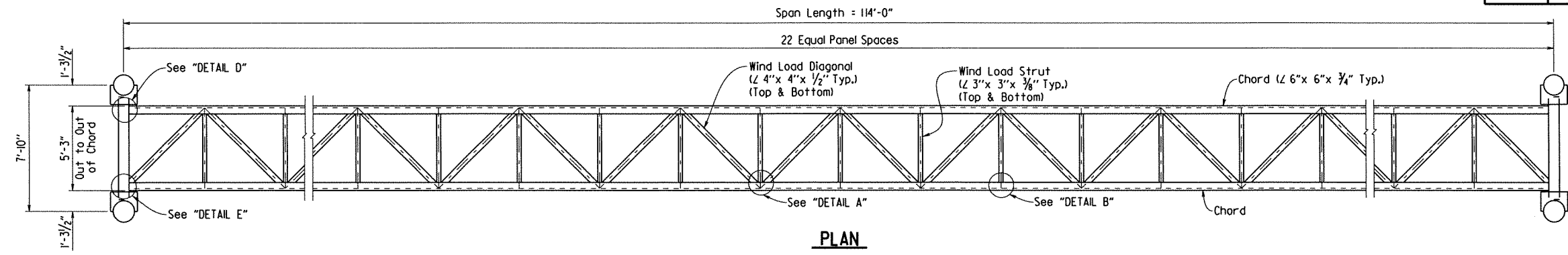
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 40' - 54'
STEEL OVERHEAD SIGN STRUCTURE
OH-040-60-31

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

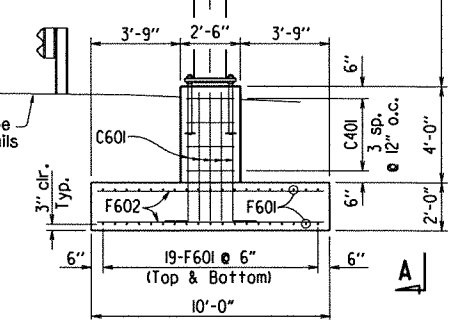
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DESIGNED BY: ACP DATE: 2-12
STR. NO. OH-040-60-31 DRAWING NO. 52503

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				6	ARK.			
				JOB NO.	061343	16	25	
				OH-270-26-04 OVERHEAD SIGN STR.		52504		



ELEVATION

*Note: 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.

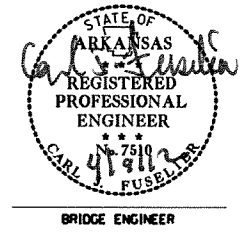


BAR LIST-FOUNDATION - PER FOOTING

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
C401	8	18'-2"	3"	Dimensions are out to out of bars.
C601	48	7'-3"	4 1/2"	
F601	38	17'-6"	Str.	
F602	70	9'-6"	Str.	

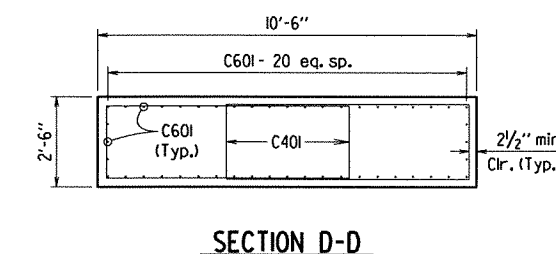
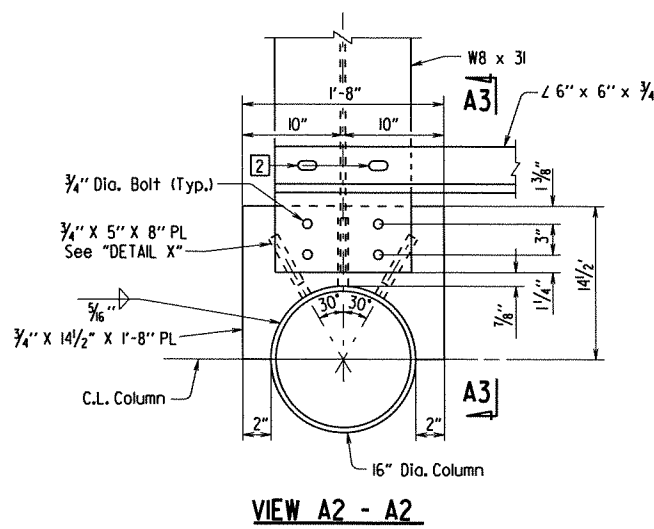
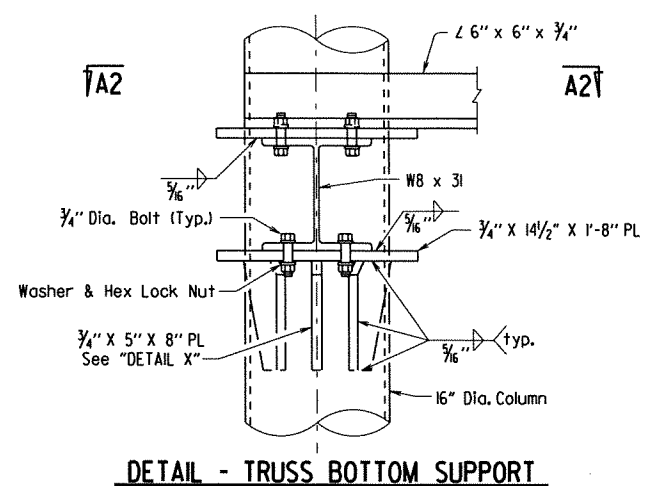
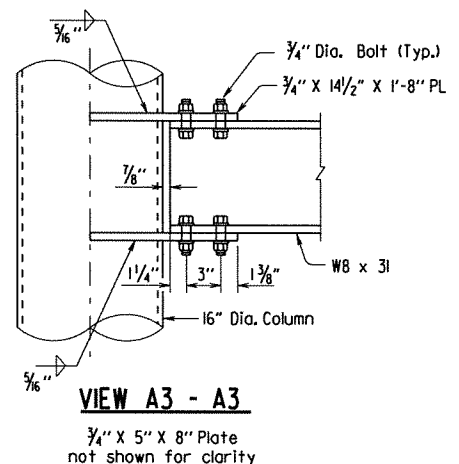
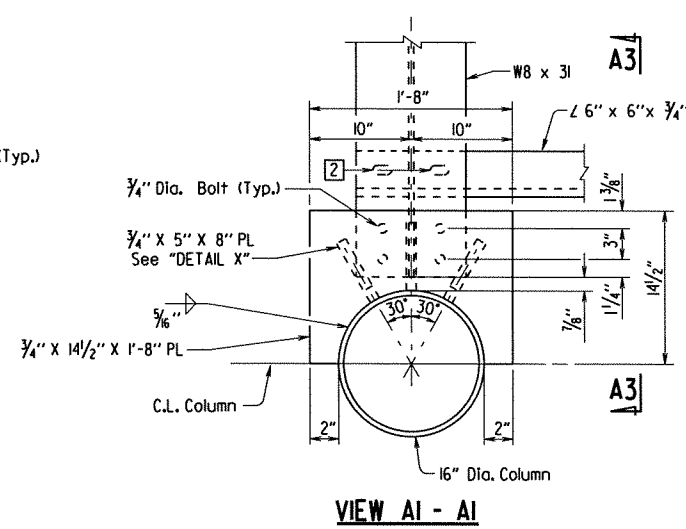
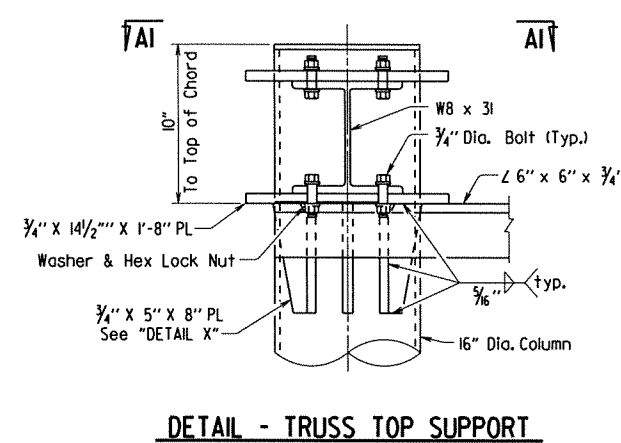
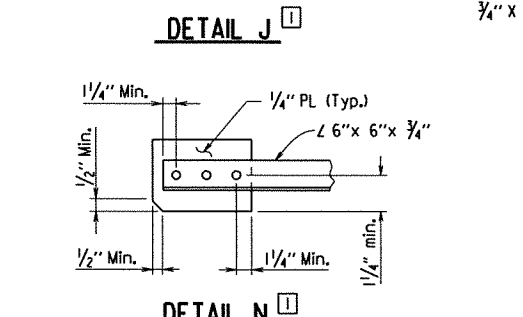
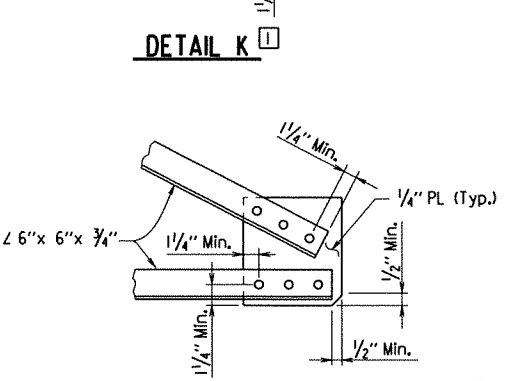
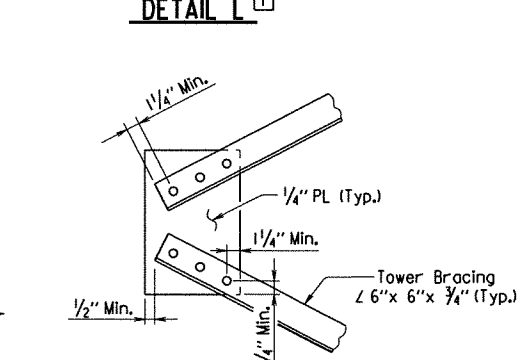
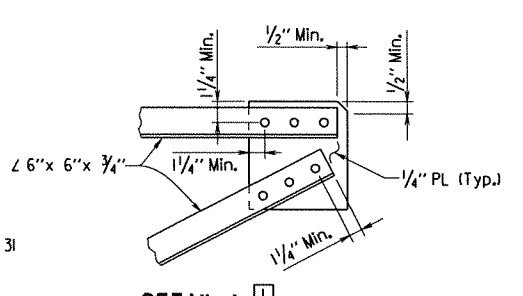
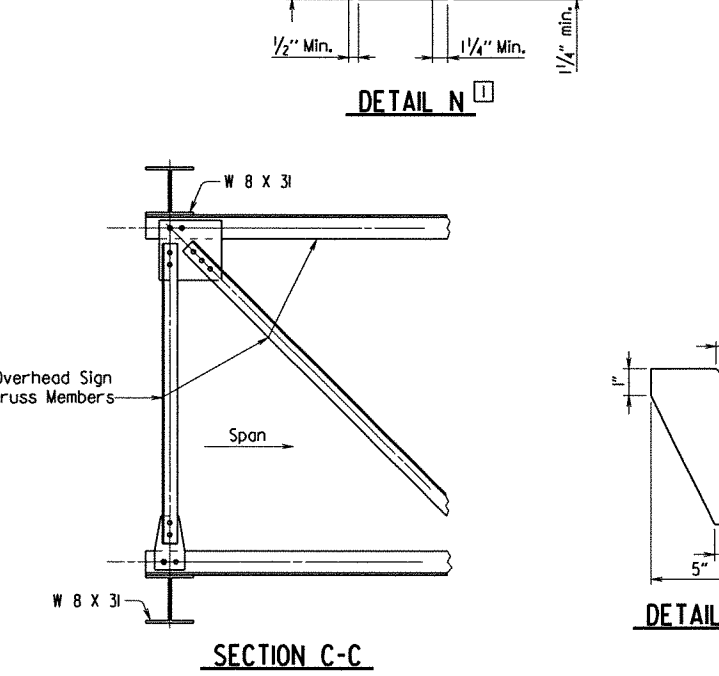
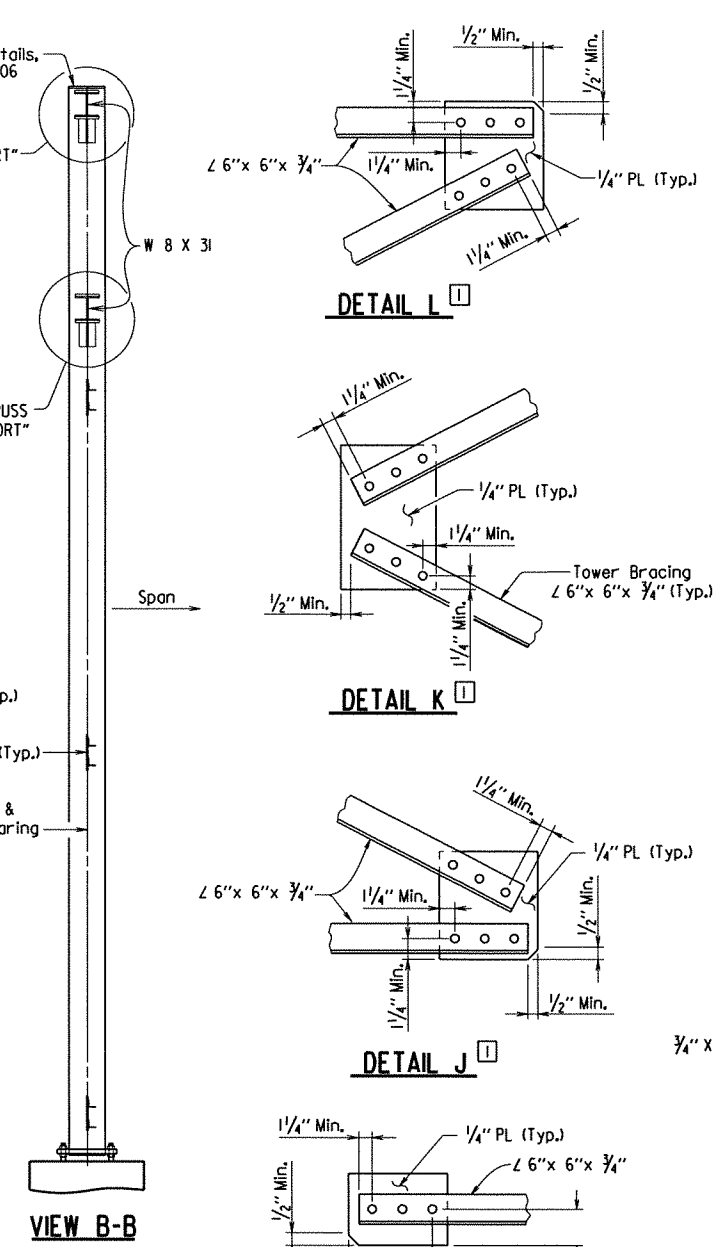
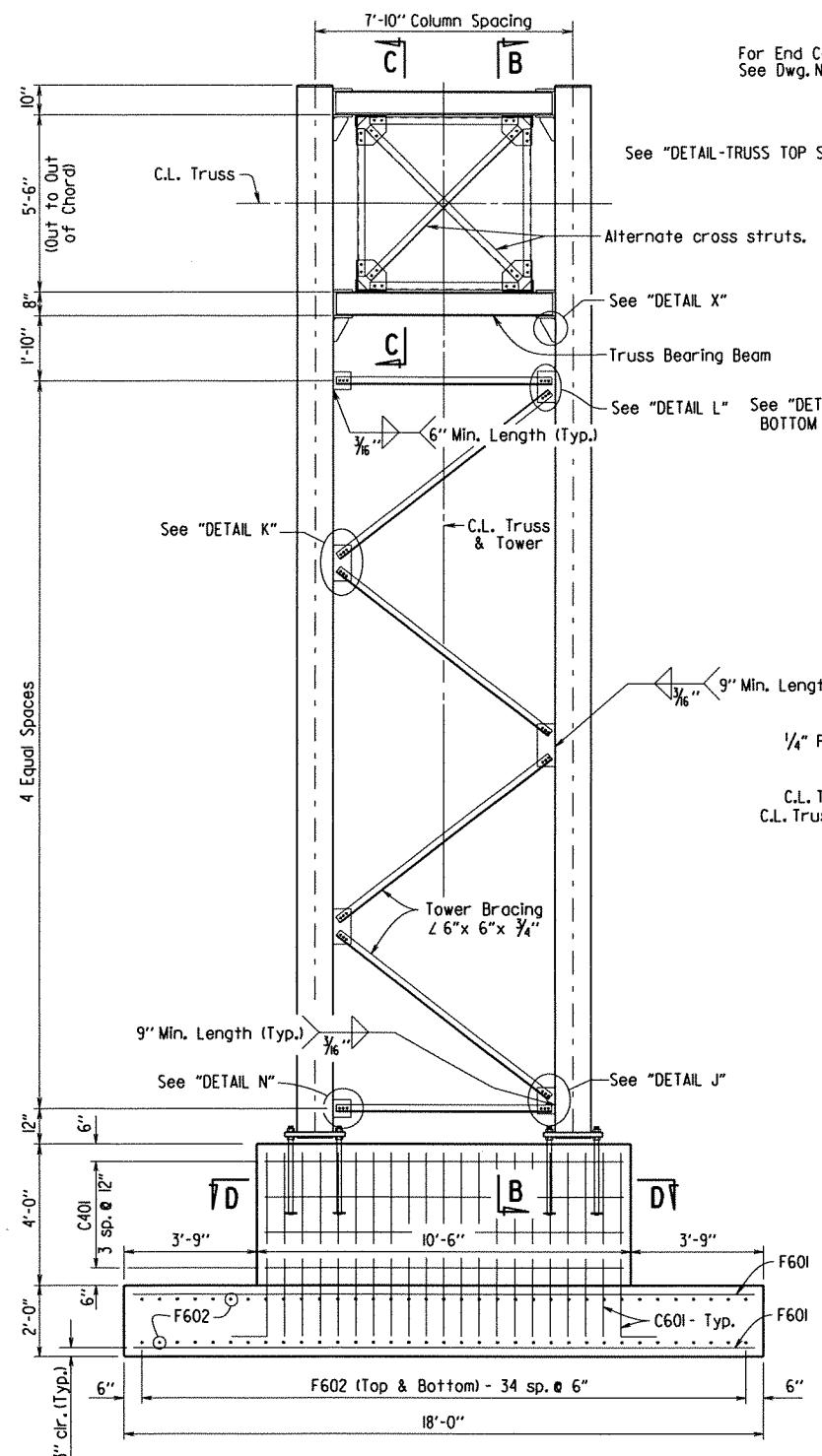
APPROXIMATE QUANTITIES FOR FOUNDATION PER FOOTING - (FOR INFORMATION ONLY)

CLASS S CONCRETE (Cu. Yds.)	REINFORCING STEEL (Lbs.)	EXCAVATION (Cu. Yds.)
17.22	2,617	56



SHEET 1 OF 5
 DETAILS OF 101' TO 115'
 STEEL OVERHEAD SIGN STRUCTURE
 OH-270-26-04
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
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 CHECKED BY: JHP DATE: 4-9-12 SCALE: Not to Scale
 DESIGNED BY: JHP DATE: 12-11
 STR. NO. OH-270-26-04 DRAWING NO. 52504

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				JOB NO.	061343			
				OH-270-26-04	OVERHEAD SIGN STR.		52505	

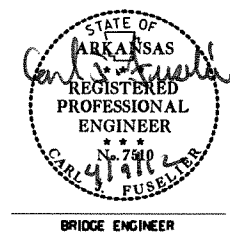


- 1 Bolts shall be 3/4" Dia. and open holes shall be 1/2". Minimum center to center bolt spacing shall be 2 1/2".
- 2 Slotted Hole in Chord Angle 1/8" x 2". Use plate washer on Chord Angle side.

SHEET 2 OF 5
DETAILS OF 101' TO 115'
STEEL OVERHEAD SIGN STRUCTURE
OH-270-26-04

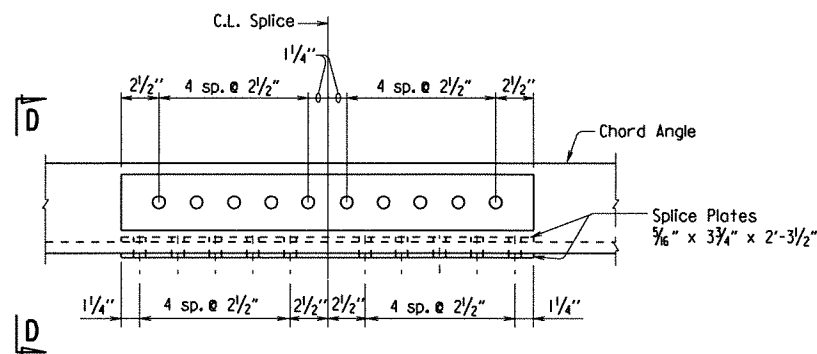
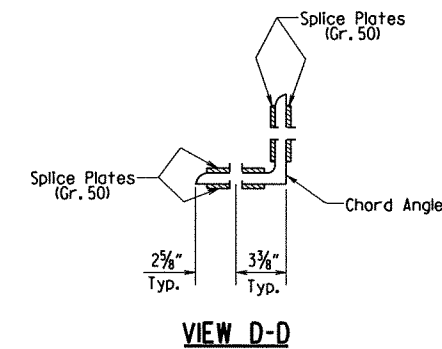
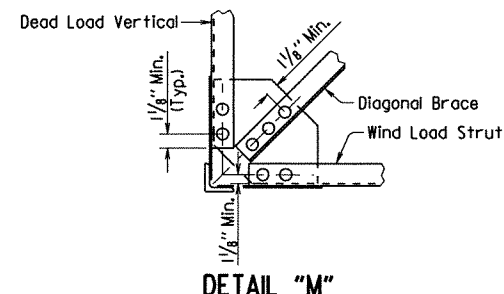
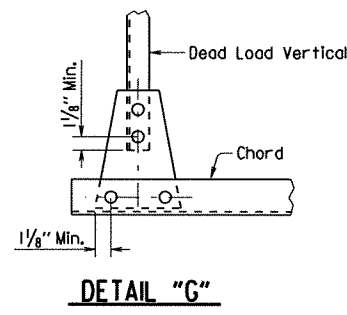
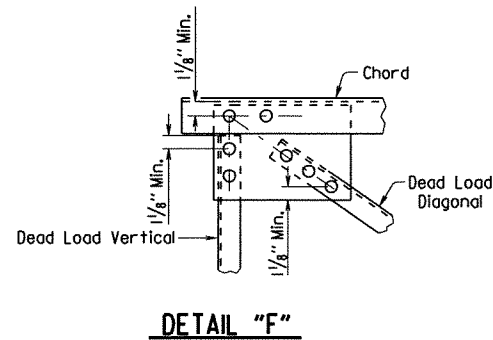
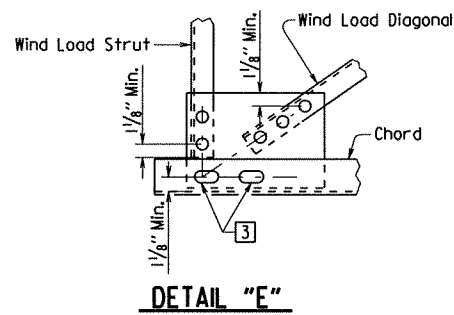
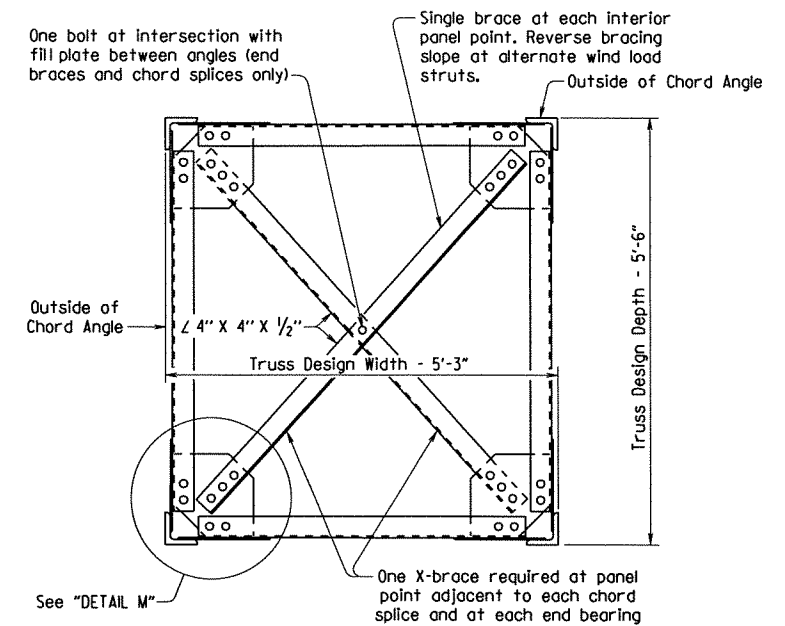
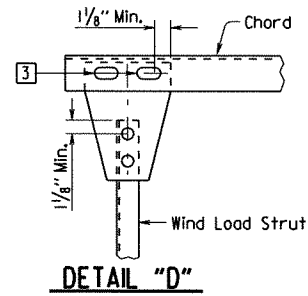
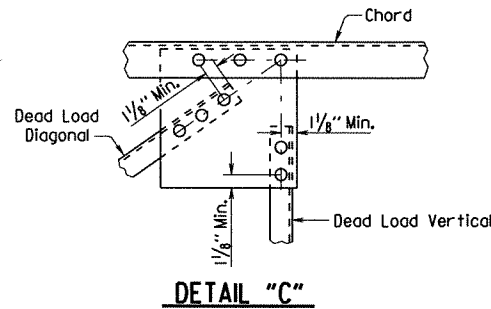
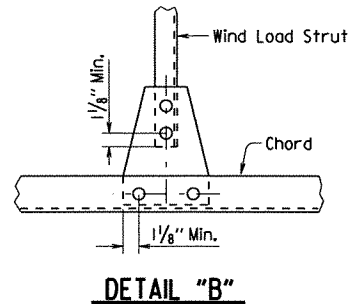
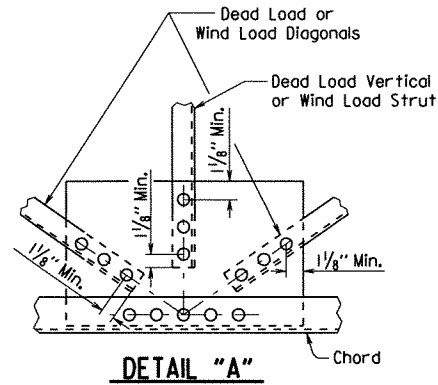
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/02/12 FILENAME: b061343_ohsign14.dgn
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 STR. NO. OH-270-26-04 DRAWING NO. 52505

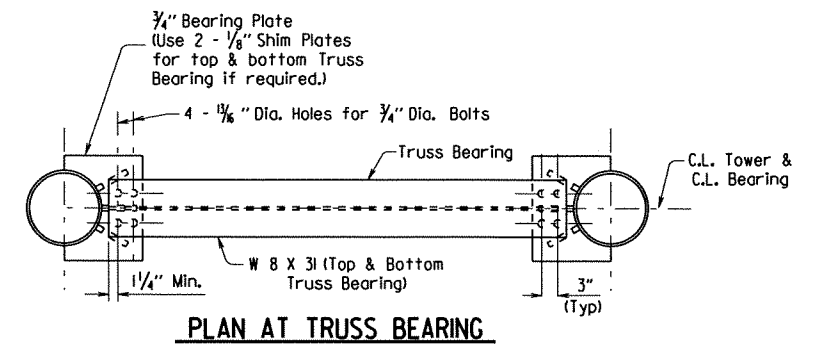
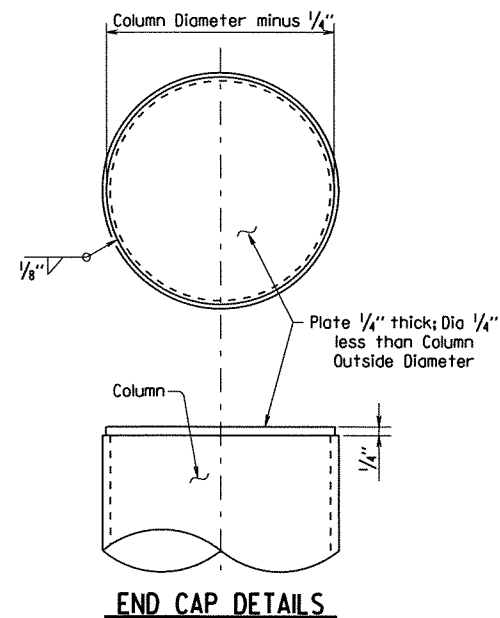


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				JOB NO.	061343	18	25	
				OH-270-26-04	OVERHEAD SIGN STR.	52506		

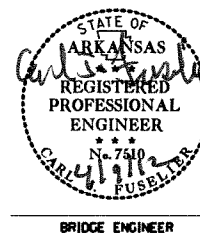
Note: Thickness of all Gusset Plates shall be $\frac{3}{8}$ ".



Note: Chord angles may be spliced in convenient lengths for galvanizing and sign placement.



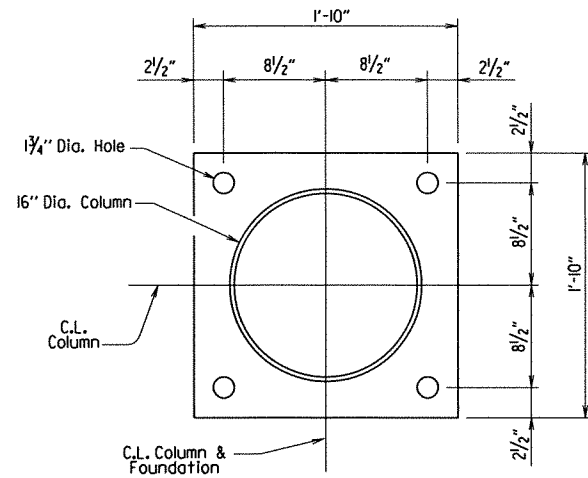
- 1 Bolts shall be $\frac{3}{4}$ " ϕ Dia. and open holes shall be $\frac{1}{8}$ ". Minimum center to center bolt spacing shall be $2\frac{1}{2}$ ".
- 3 $\frac{1}{8}$ " x 2" Slotted Holes in Gusset Plate and Chord Angle. Use plate washer on Gusset Plate side.



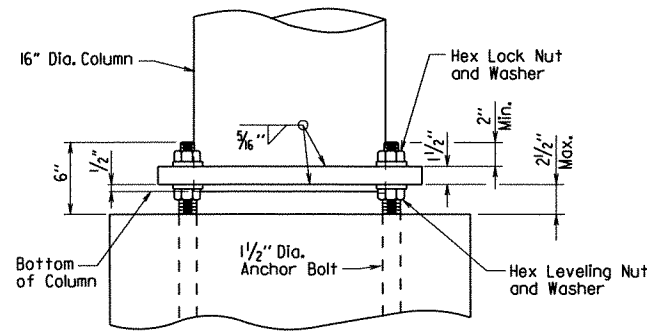
SHEET 3 OF 5
 DETAILS OF 101' TO 115'
 STEEL OVERHEAD SIGN STRUCTURE
 OH-270-26-04

ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: A.M.S. DATE: 2/02/12 FILENAME: b061343_ohsign14.dgn
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 STR. NO. OH-270-26-04 DRAWING NO. 52506

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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				JOB NO.	061343	19	25	
				OH-270-26-04	OVERHEAD SIGN STR.	52507		

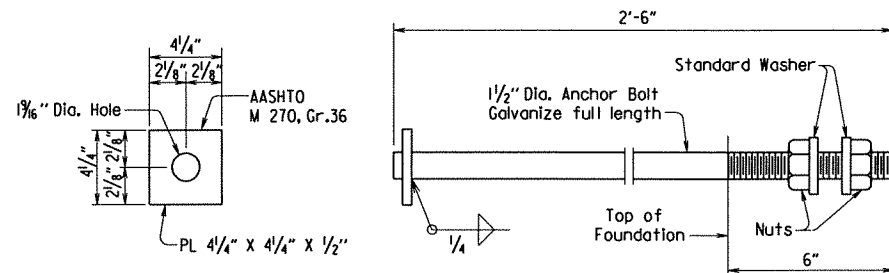


PLAN - COLUMN BASE



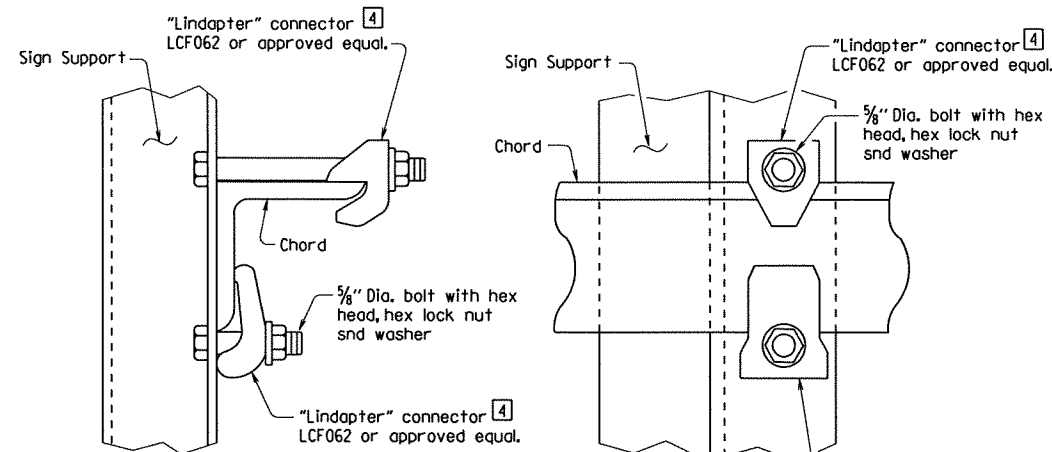
Note: Diameter of hole in base plate to be 1/8" larger than column diameter.

ELEVATION - COLUMN BASE

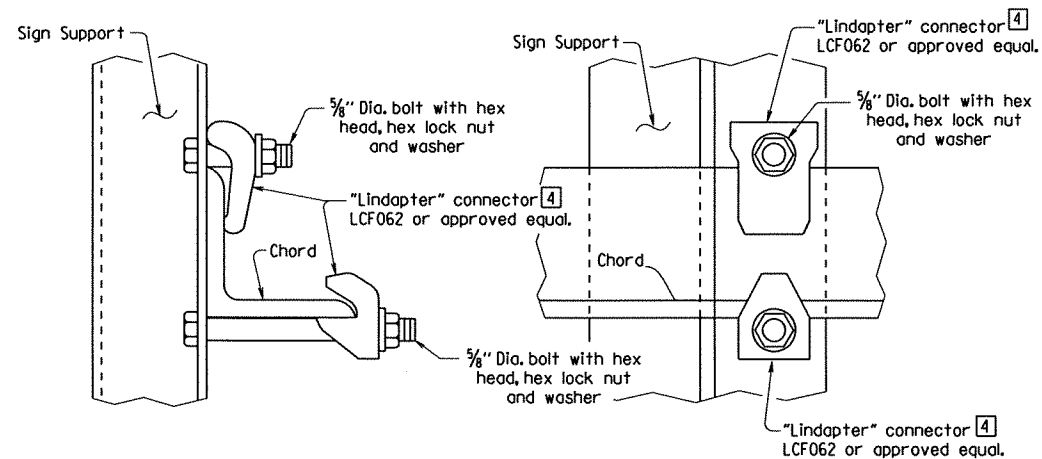


Anchor bolts shall comply with AASHTO M 314, Grade 55 with Supplementary Requirement S1, and galvanized according to subsection 807.07. Nuts for bolts shall be as specified in subsection 807.07.

ANCHOR BOLT DETAIL



TOP CHORD

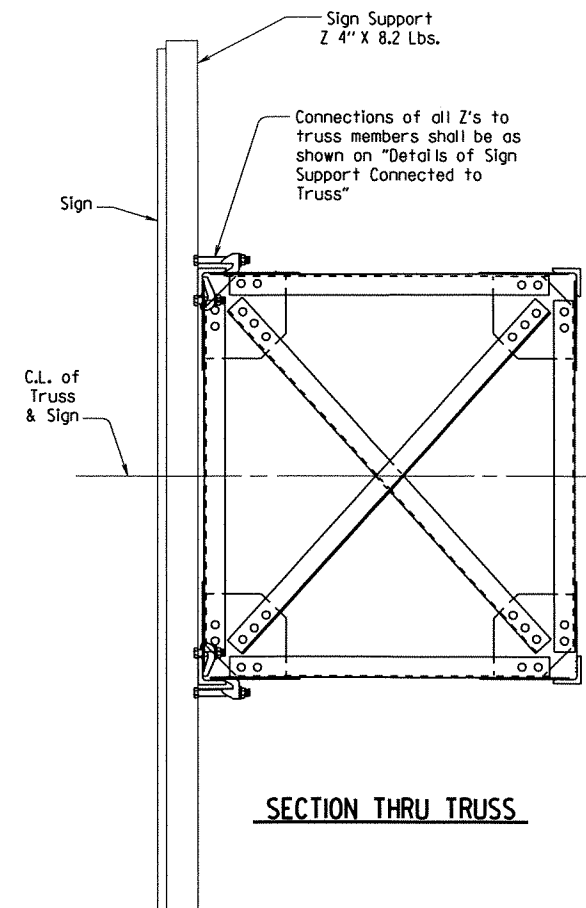


BOTTOM CHORD

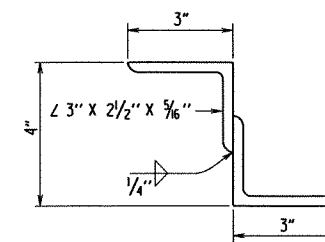
4 All "Lindapter" connectors or approved equal shall be installed according to manufacturer's recommendations. All connectors, bolts, nuts and washers shall be galvanized.

Note: Install all support connectors clear of the gusset plates and splice locations.

DETAILS OF SIGN SUPPORT CONNECTED TO TRUSS



SECTION THRU TRUSS



NOTE: Structural Z support may be fabricated from angles as shown.

DETAILS OF ALTERNATE Z SUPPORT



BRIDGE ENGINEER

SHEET 4 OF 5
 DETAILS OF 101' TO 115'
 STEEL OVERHEAD SIGN STRUCTURE
 OH-270-26-04

ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/02/12 FILENAME: b061343_ohsign14.dgn

CHECKED BY: JJP DATE: 4-9-12 SCALE: Not to Scale

DESIGNED BY: JJP DATE: 12-11

STR. NO. OH-270-26-04 DRAWING NO. 52507

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.	061343	20	25	
				OH-270-26-04	OVERHEAD SIGN STR.	52508		

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 Edition, with applicable supplemental specifications and special provisions. Section and subsection refer to the Standard Construction Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, Fifth Edition, 2009.

Basic Wind Speed = 90 mph.

This structure is approved for a maximum sign area equal to 75% of the span length times a sign height of 15 feet. Use of additional sign area must be approved by the Engineer. If the structure height ("H1" or "H2") exceeds 30'-0" contact the Engineer.

FOUNDATION MATERIALS AND STRENGTHS:
 Class 5 Concrete $f'_c = 3,500$ psi
 Reinforcing Steel (AASHTO M 31 or M 53, Grade 60) $f_y = 60,000$ psi

Structural steel sign support members shall comply with the following specifications:

- Angles: AASHTO M 270, Grade 36 ($F_y = 36,000$ psi)
- Plate, W-Section: AASHTO M 270, Grade 50 ($F_y = 50,000$ psi)
- 5 Pipe: ASTM A 139, Gr. C, straight-seam welded ($F_y = 42,000$ psi),
 ASTM A 500, Gr. B ($F_y = 42,000$ psi),
 ASTM A 501, Gr. B ($F_y = 50,000$ psi),
 ASTM A 714, Class 2, Grade 11, Type E or S ($F_y = 50,000$ psi)
- Z-Shapes: AASHTO M 270, Grade 36 ($F_y = 36,000$ psi)
- Shim Plates: ASTM A 1101, SS, Grade 36, Type 2, or Grade 40
- Bolts: AASHTO M 164, Type 1
- Locknuts - Approved Type: Meeting or exceeding AASHTO M 292
- Washers: AASHTO M 293
- Nuts: AASHTO M 291 or M 292, Grade 2H or Grade DH (Grade 10S)

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 1/2" 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 Job Special Provision "Steel Overhead 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.

No circumferential butt welds will be allowed in any pipe sections.

All fillet welds of critical members shall be tested according to AWS D11 Structural Welding Code - Steel using the magnetic particle method. Critical welds shall include: column to base plate and truss bottom support to column.

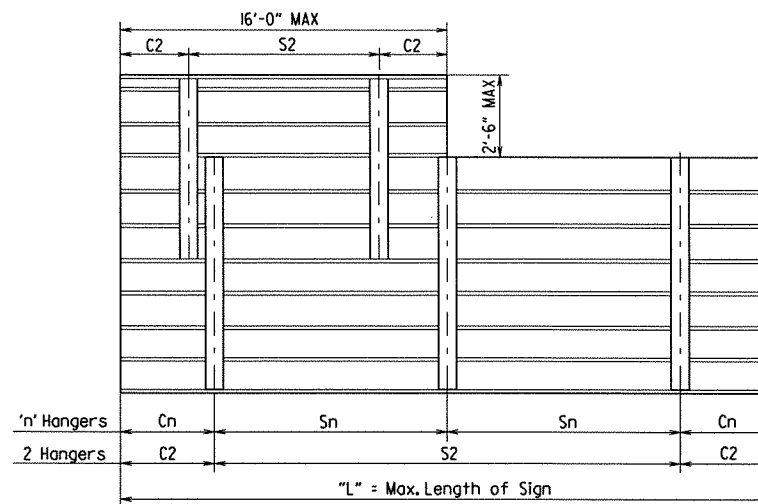
Connections shall be bolted with high-strength bolts. Unless otherwise noted, bolts shall be 3/8" diameter and open holes shall be 1/8". Bolt spacing shall be 2 1/4" for 3/8" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of all members.

All truss frame bolts shall comply with AASHTO M 164 Type 1, galvanized according to subsection 807.06. Nuts and washers for AASHTO M 164 Type 1 bolts shall be furnished and galvanized in accordance with subsection 807.06.

Lock nuts to be equipped with nylon locking inserts or other approved type locking system. Lock nuts to be installed according to manufacturer's recommendations.

Anchor bolts shall comply with AASHTO M 314, Grade 55 including Supplementary Requirement S1, and galvanized according to subsection 807.07. Nuts and washers for anchor bolts shall be furnished and galvanized in accordance with subsection 807.07.

Shoring may be required to protect existing shoulders 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.



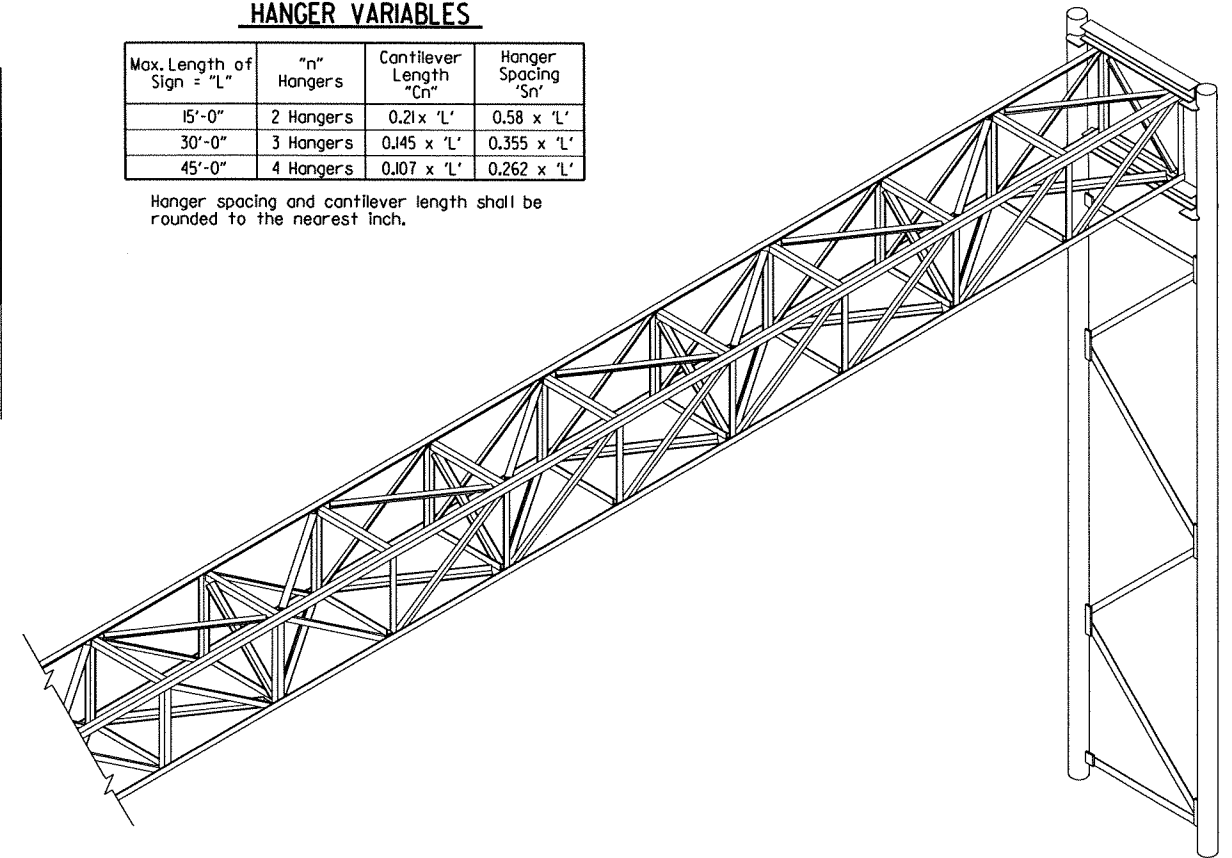
Note: See sign details and plan sheets for number, size and dimensions of signs.

HANGER SPACING DETAILS FOR EXTRUDED PANEL SIGNS

HANGER VARIABLES

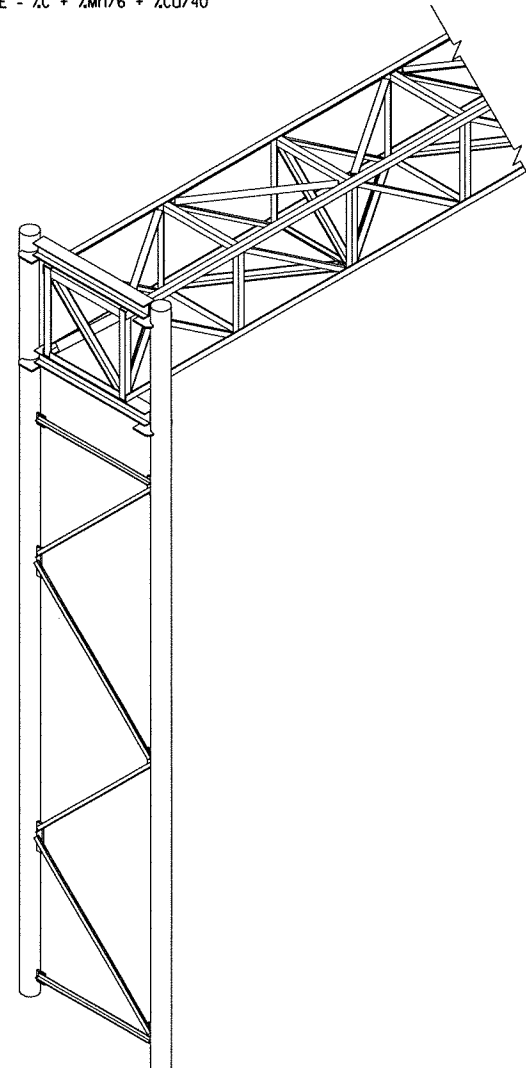
Max. Length of Sign = "L"	"n" Hangers	Cantilever Length "Cn"	Hanger Spacing "Sn"
15'-0"	2 Hangers	0.21 x 'L'	0.58 x 'L'
30'-0"	3 Hangers	0.145 x 'L'	0.355 x 'L'
45'-0"	4 Hangers	0.107 x 'L'	0.262 x 'L'

Hanger spacing and cantilever length shall be rounded to the nearest inch.



ISOMETRIC VIEW

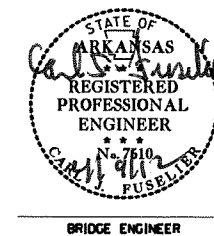
5 In addition to material requirements, all pipe used for welded applications shall have a maximum carbon equivalency (CE) of 0.4 using the following equation: $CE = \%C + \%Mn/6 + \%Cu/40 + \%Ni/20 + \%Cr/10 - \%Mo/50 - \%V/10$



SHEET 5 OF 5
 DETAILS OF 10' TO 115'
 STEEL OVERHEAD SIGN STRUCTURE
 OH-270-26-04

ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/02/12 FILENAME: b061343_ohsign14.dgn
 CHECKED BY: JJP DATE: 4-9-12 SCALE: Not to Scale
 DESIGNED BY: JJP DATE: 12-11
 STR. NO. OH-270-26-04 DRAWING NO. 52508



BRIDGE ENGINEER

ADVANCE DISTANCES (XXXX)


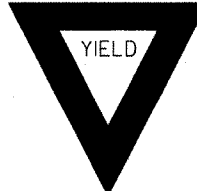



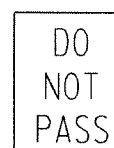



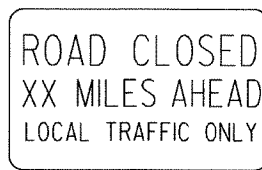
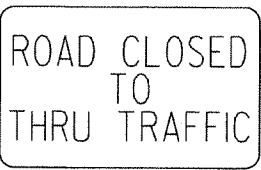
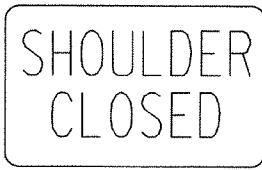
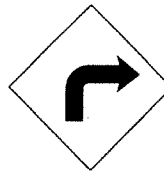
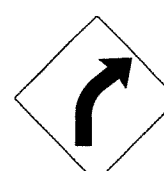


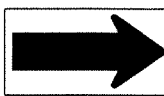

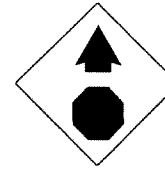
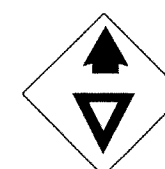
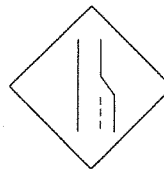



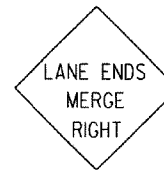

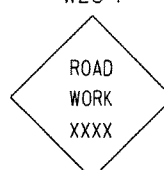
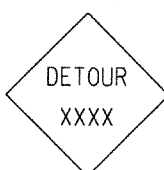
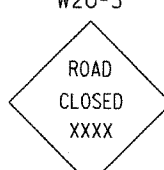

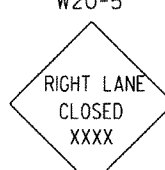


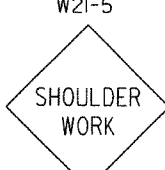

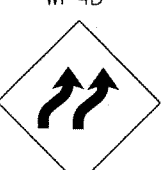

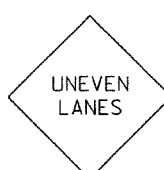
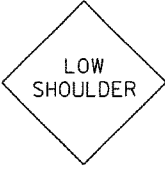
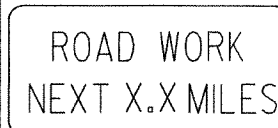
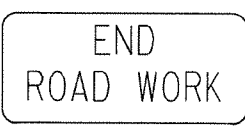
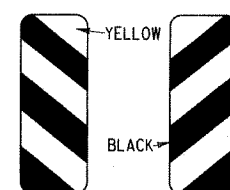


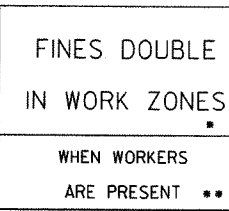
500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

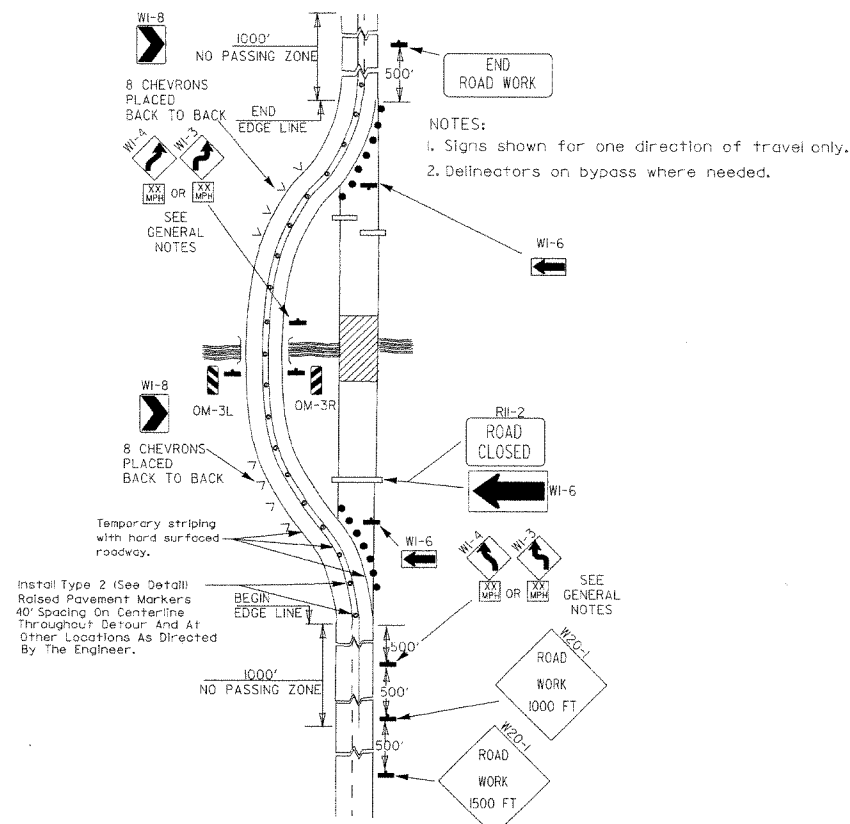
- GENERAL NOTES:
- ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
 - TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
 - EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
 - SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
 - SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
 - POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
 - ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.

- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
- R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

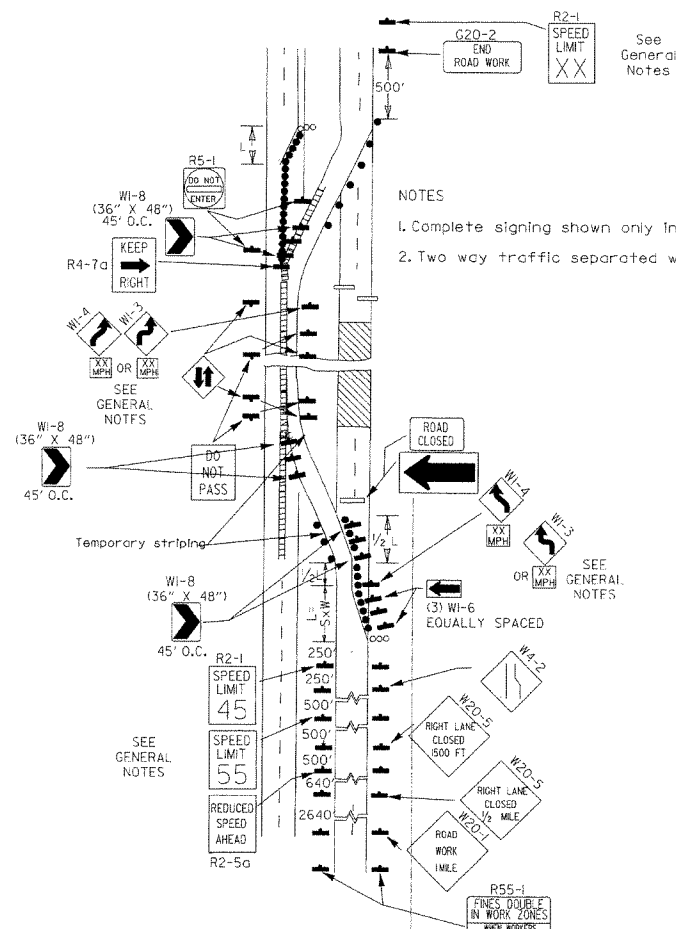
NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILED
12-15-81	REVISED W24-1	
11-17-80	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

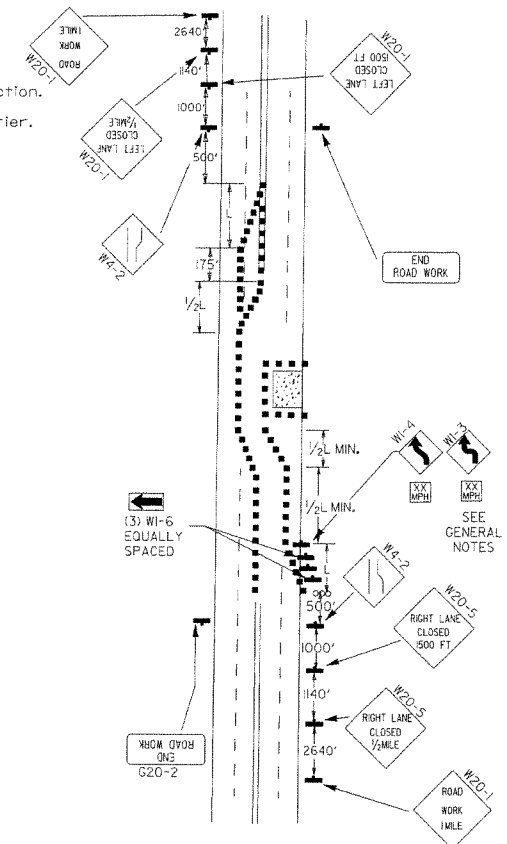
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>500 FEET 18" W16-2 24"</p> <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>WI-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>WHEN WORKERS ARE PRESENT **</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>



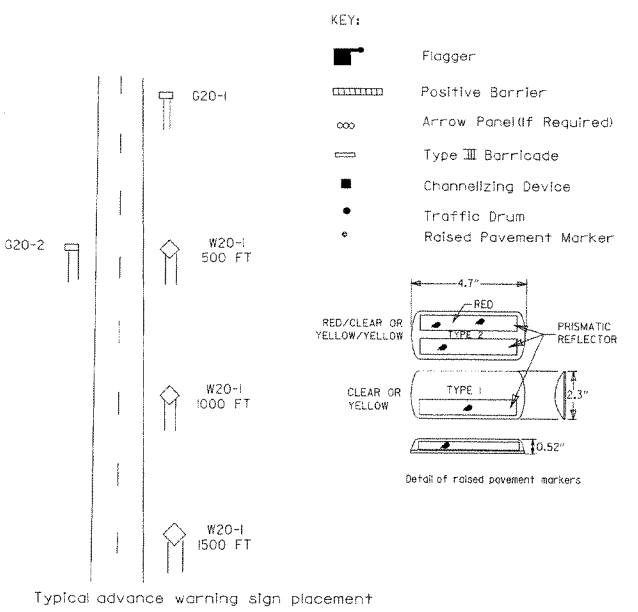
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



(B) Typical application - 4-lane divided roadway where one roadway is closed.

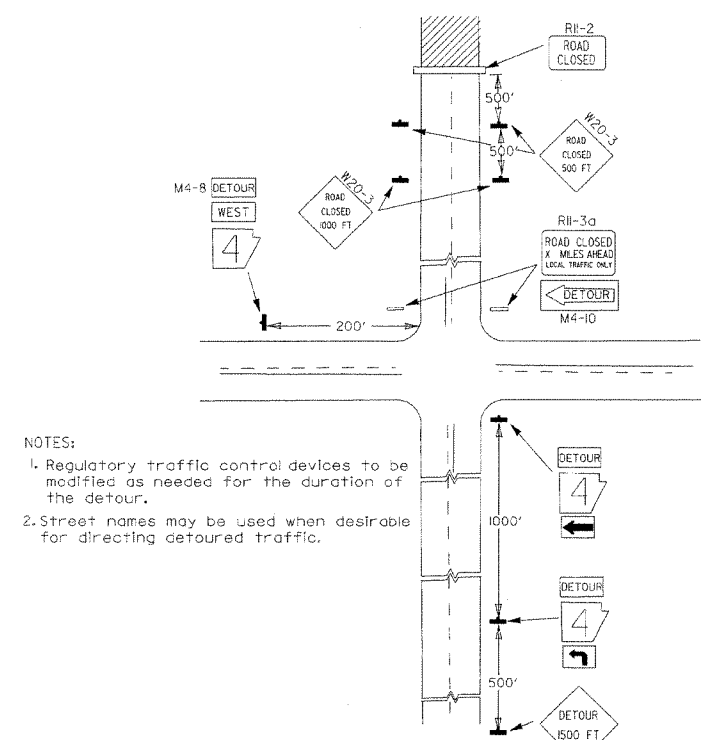


(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.

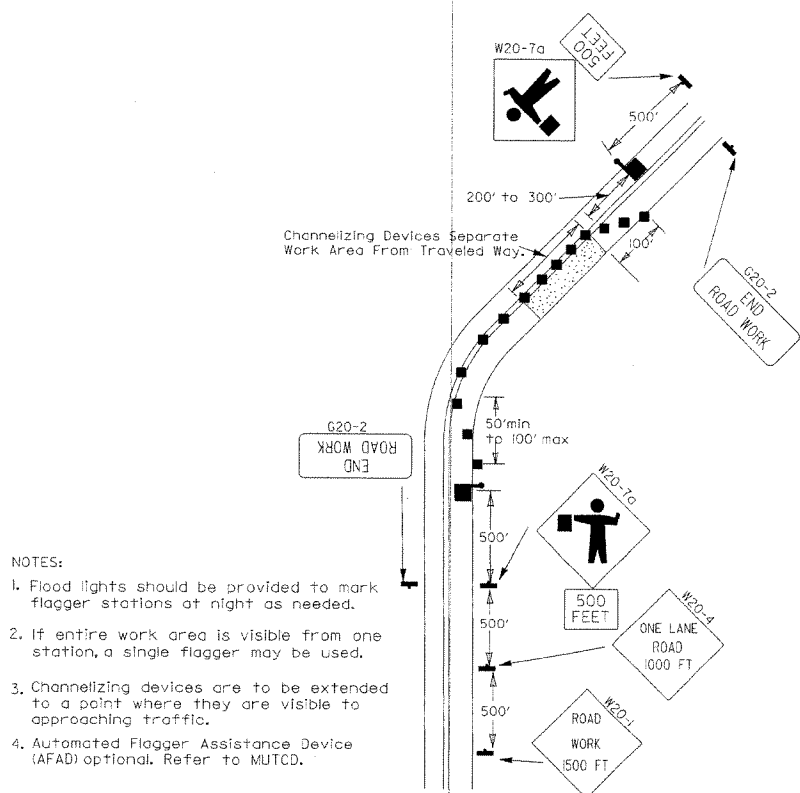


Taper formulae:
 $L = S \times W$ for speeds of 45mph or more.
 $L = \frac{W S^2}{60}$ for speeds of 40mph or less.
 Where:
 L = Minimum length of taper.
 S = Numerical value of posted speed limit prior to work or 85th percentile speed.
 W = Width of offset.

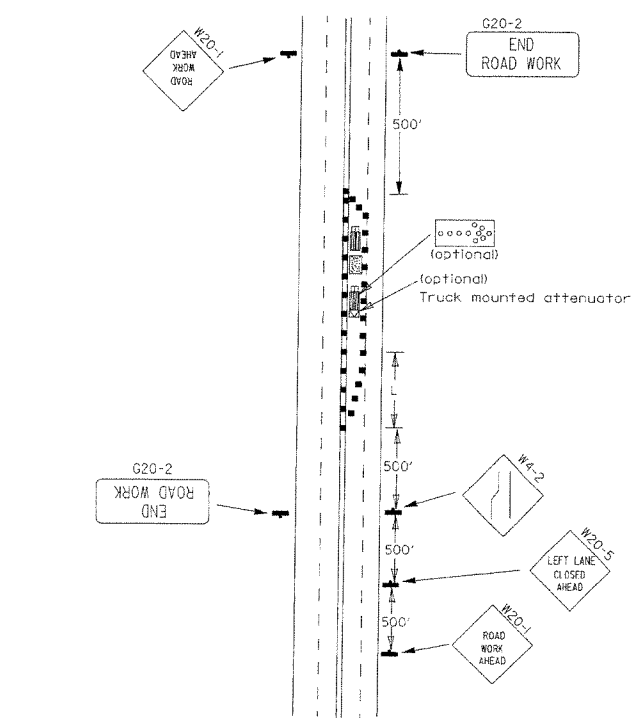
- GENERAL NOTES:
- Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
 - When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-(45) shall be omitted and the R2-5A shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1xx shall be installed to match original speed limit.
 - When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-(45) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1xx shall be installed to match original speed limit.
 - The maximum spacing between channelling devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.
 - Warning lights and/or flags may be mounted to signs or channelling devices at night as needed.
 - Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
 - Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.



(D) Typical application - roadway closed beyond detour point.



(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.

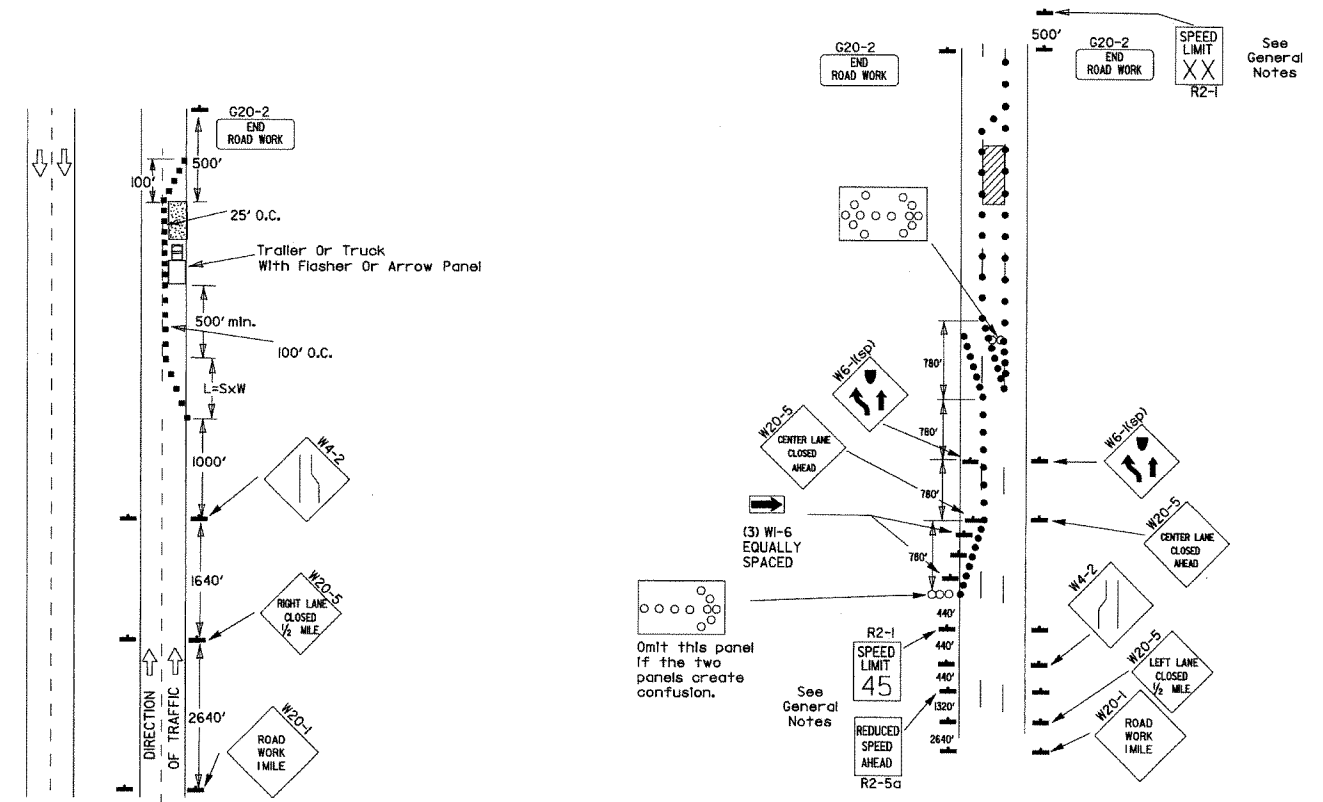


(F) Typical application - 4-lane undivided roadway with inside lane closed.

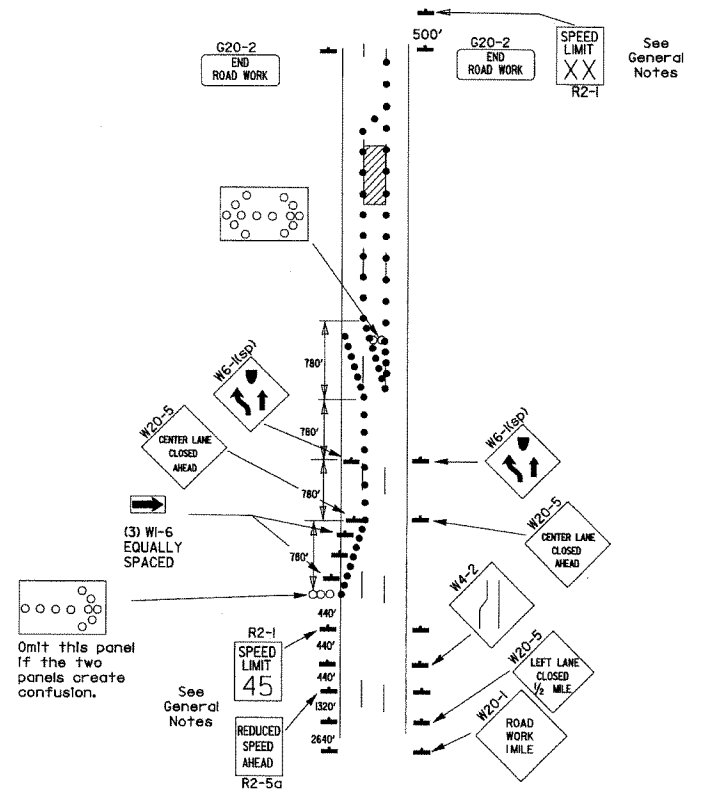
DATE	REVISION	FILMED
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION
 STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
 STANDARD DRAWING TC 2

Channelizing devices



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.

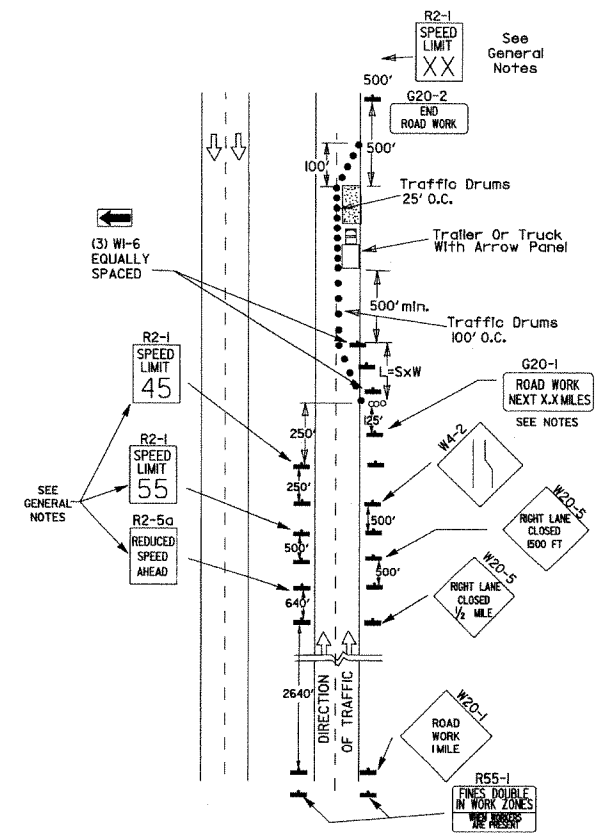


(B) Typical application - 3-lane oneway roadway where center lane is closed.

- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

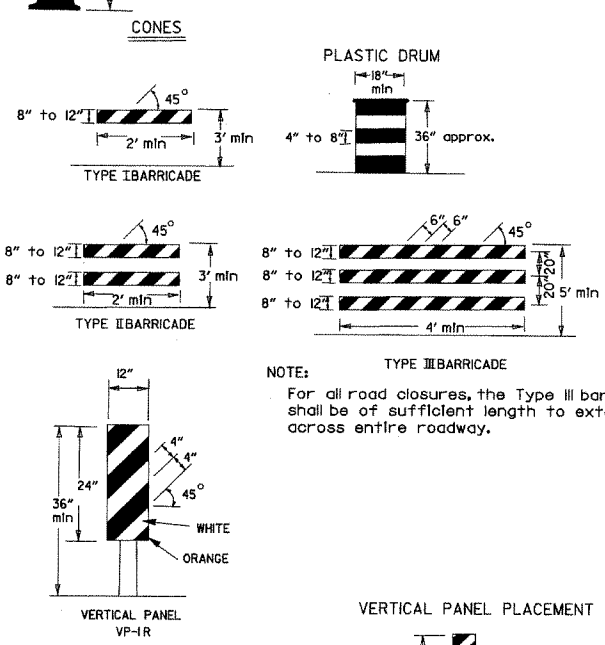
GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(65) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1(1/2 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.



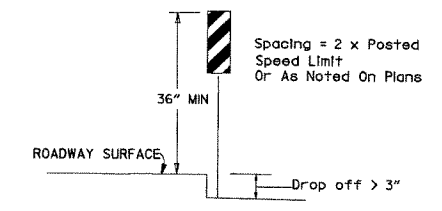
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.



NOTE: For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

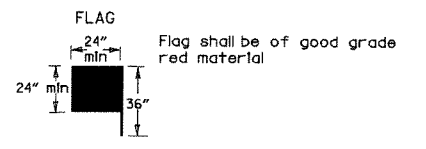
VERTICAL PANEL PLACEMENT



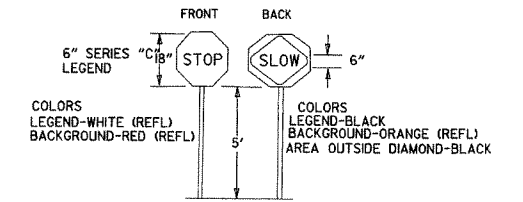
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-land vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

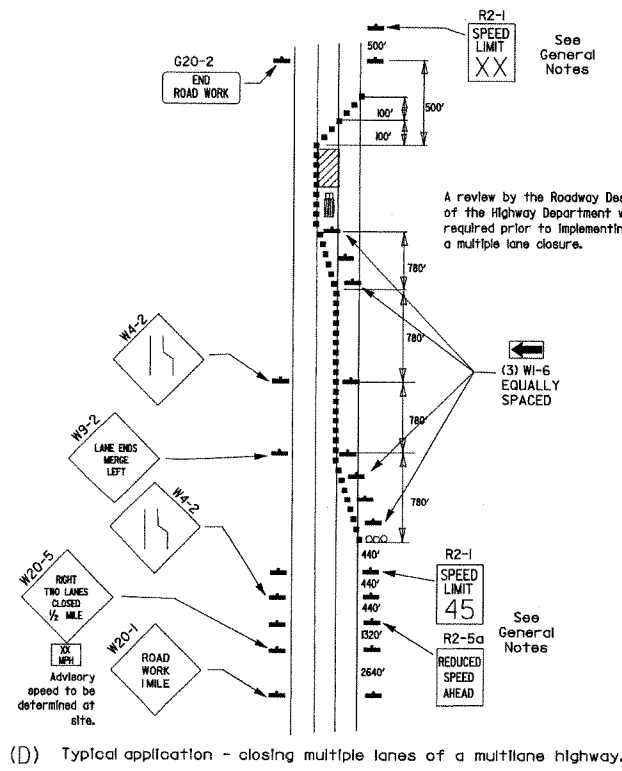
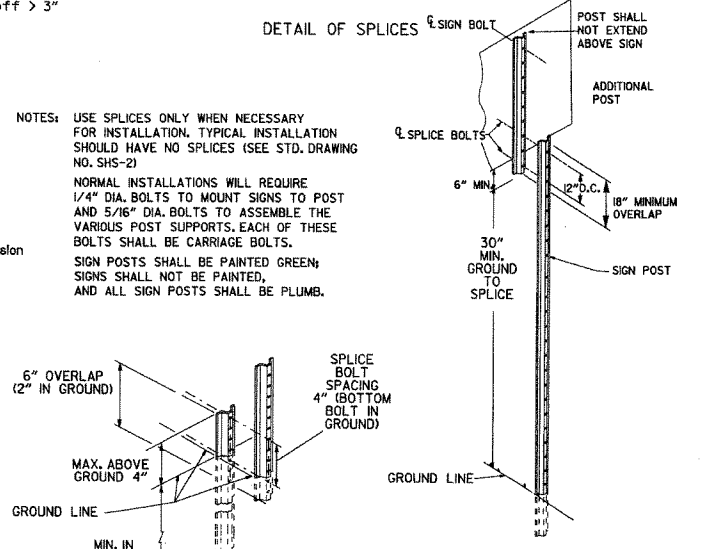
* When shown on the plans concrete barrier will be used. When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



STOP SLOW PADDLE



DETAIL OF SPLICES

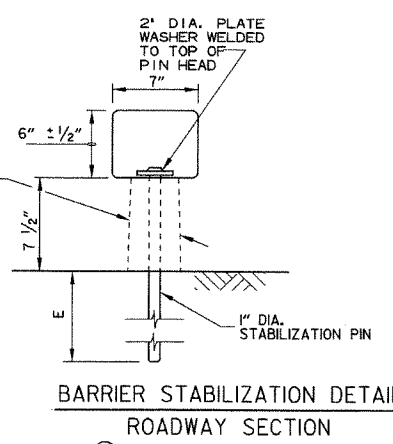
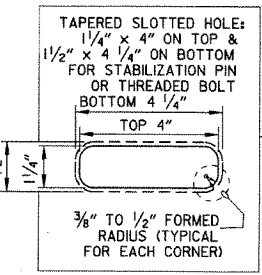
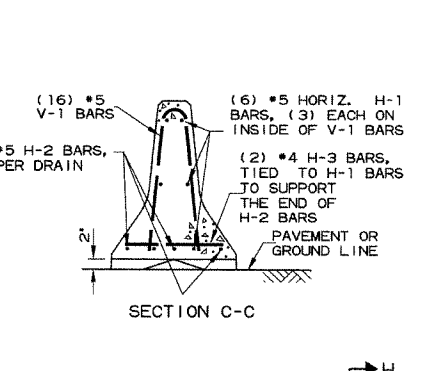
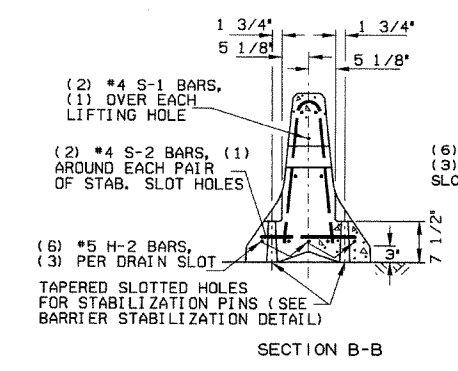
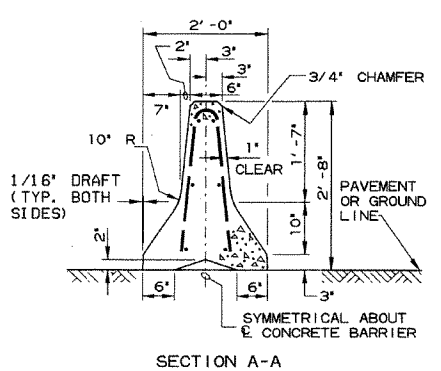
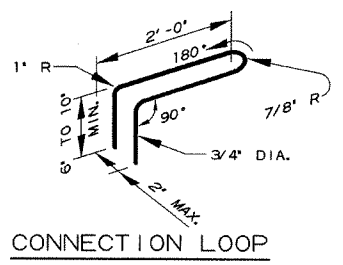
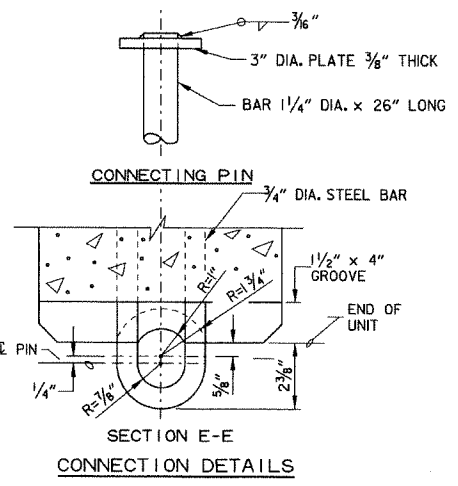


(D) Typical application - closing multiple lanes of a multilane highway.

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SPI) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-3

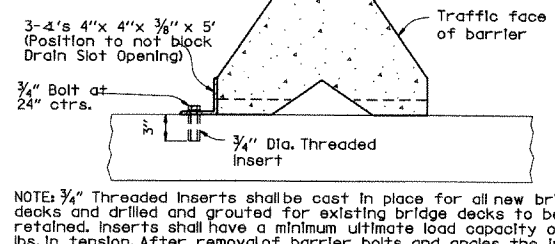
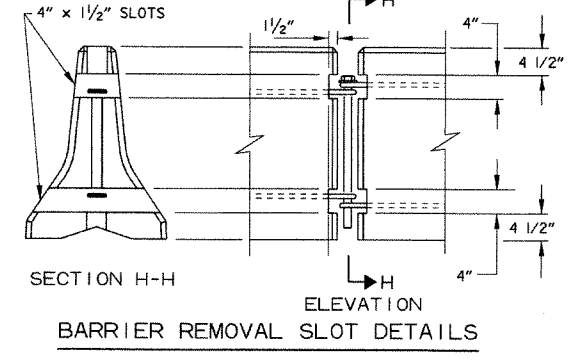
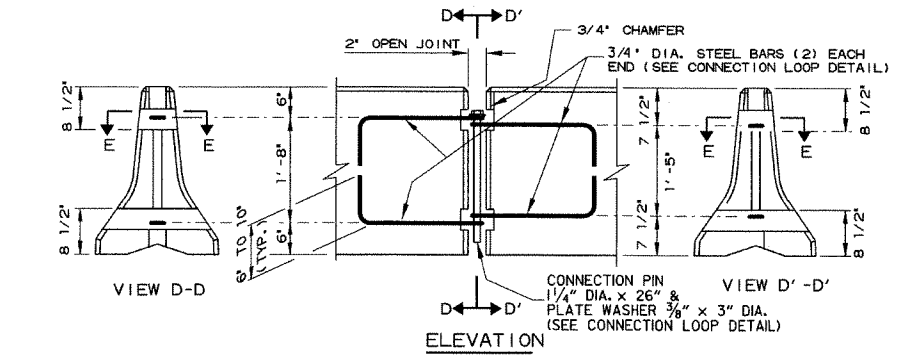
REINFORCING BAR TABLE PER BARRIER UNIT			
MARK	LOCATION	BAR SIZE	(NO. BARS)
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)
S-1	OVER LIFT HOLES	#4	(2)
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4	(2)
V-1	VERTICAL IN BARRIER (3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)



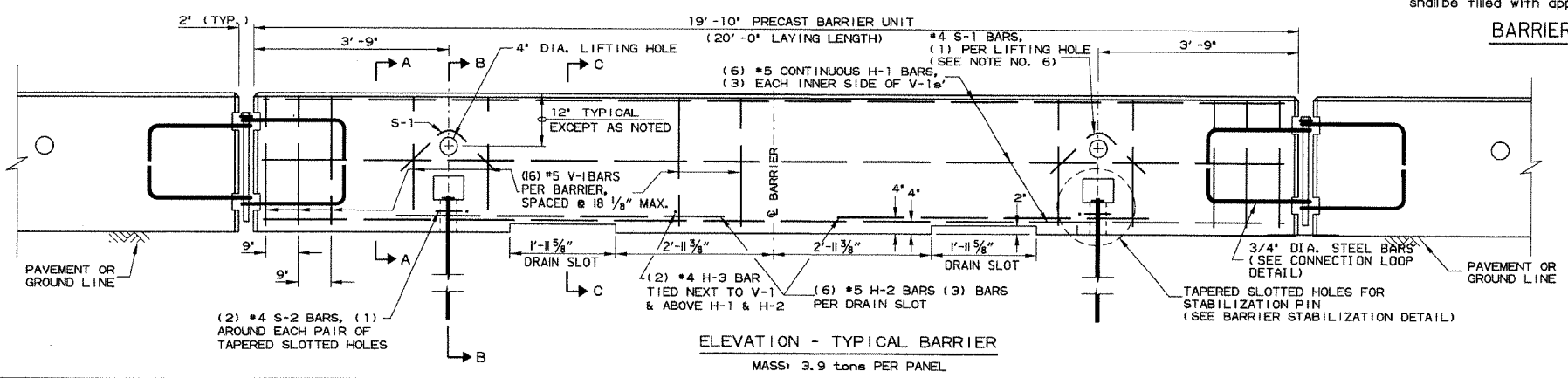
- General Notes**
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
 - Materials shall meet the following minimum requirements: Concrete: 2500 psi compressive strength at 28 days. Reinforcing Steels: AASHTO M 31 or M 53, Grade 60. Structural Steels: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin. Delimiters: Delimiters shall be mounted at 10' spacing on top of precast barrier.

In applications where barrier walls within 6 feet of a traffic lane, additional delimiters shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delimiters shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers. Delimiter color shall be in accordance with the Manual Uniform Traffic Control Devices. Payment for delimiters shall be considered included in the price bid per Lin.Ft. for "Furnishing and installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

- Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.
- Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.



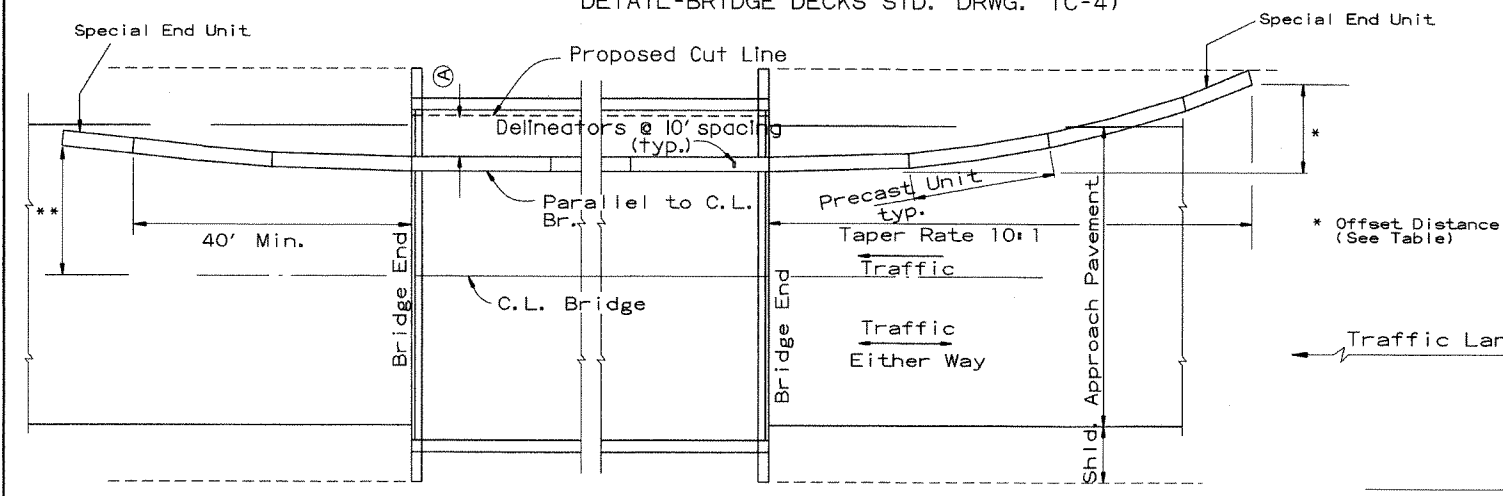
NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks to be retained. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.



DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER
STANDARD DRAWING TC-4

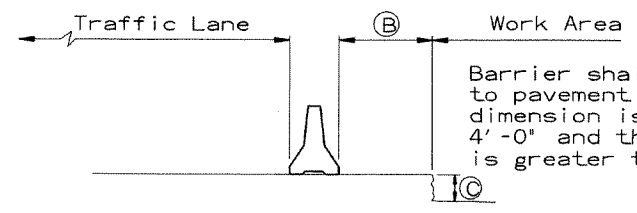
(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

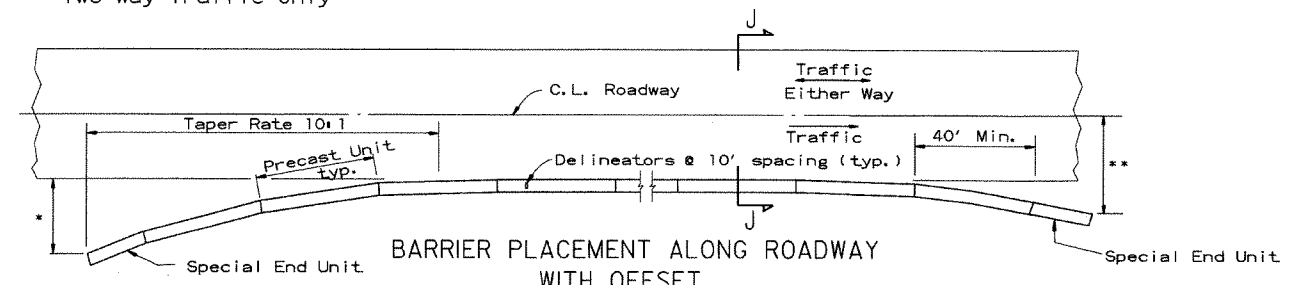
No Scale

** Offset Distance for Two Way Traffic Only



SECTION J-J
No Scale

Barrier shall be doweled to pavement when the (B) dimension is less than 4'-0" and the (C) dimension is greater than 24 inches.



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

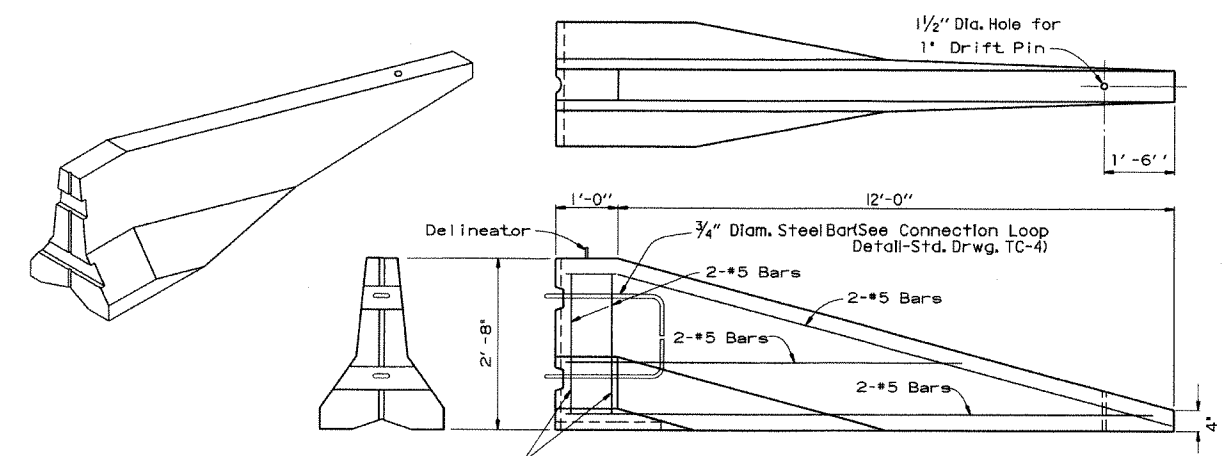
No Scale

** Offset Distance for Two Way Traffic Only

* Offset Distance (See Table)

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

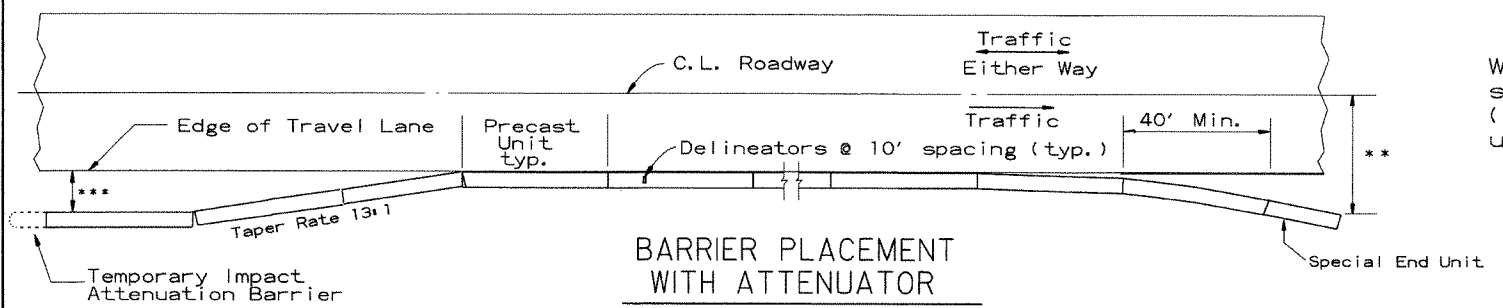
If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.



SPECIAL END UNIT
No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."



BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance for Two Way Traffic Only

***Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

			ARKANSAS STATE HIGHWAY COMMISSION
			STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER
			STANDARD DRAWING TC-5
10-15-09	ADDED REFERENCE TO MASH		
5-25-06	REVISED BARRIER PLACEMENT		
8-22-02	ISSUED NEW DRAWING		
DATE	REVISION	FILMED	