

Transmittal No. 22-08

December 6, 2022

Standard Plans

Distribution: Electronic Distribution Recipients

Subject: Standard Plans 710, 721, 745, and 761

The following standard plans are modified:

- 5-297.710 Extruded Panel Mounting Details
- 5-297.721 Three-Wall Base
- 5-297.745 Monotube Overhead Sign Structures
- 5-297.761 Standard Overhead Sign Structures – Design D

See attached Summary of Change documents for details.

Instructions:

1. Record this transmittal letter number, date and subject on the transmittal record sheet located in the front of the manual. The last transmittal letter was 22-07, dated October 14, 2022.
2. Remove from the manual:
 - Title
 - Foreword
 - Standard Plan Index
 - Standard Plan 5-297.710, Sheets 1 and 2 of 4
 - Standard Plan 5-297.721
 - Standard Plan 5-297.745
 - Standard Plan 5-297.761
3. Insert into the manual:
 - Title
 - Foreword
 - Standard Plan Index (November 29, 2022)
 - Standard Plan 5-297.710, Sheets 1 and 2 of 4 (11-29-2022)
 - Standard Plan 5-297.721 (11-29-2022)
 - Standard Plan 5-297.745 (11-29-2022)
 - Standard Plan 5-297.761 (11-29-2022)
4. The *Standard Plans Manual* and associated transmittal letters are available online in PDF format at <https://standardplans.dot.state.mn.us/StdPlan.aspx>

5. Direct any technical questions regarding this transmittal to Khamsai Yang, State Design Standards Engineer, at (612) 322-5601 or DesignStandards.DOT@state.mn.us



Khamsai Yang, P.E.

State Design Standards Engineer

Office of Project Management and Technical Support

Summary of Changes

Standard Plan 5-297.710

Extruded Panel Mounting Details

Sheet 1 of 4

1. Added inches to panel width dimension column of Panel Mounting Post table.

Sheet 2 of 4

1. Changed bolt description and added specification clarification.

Summary of Changes

Standard Plan 5-297.721

Three-Wall Base for 1 $\frac{3}{4}$ " Square-Tube Riser Post

General

1. Changed concrete mix designation and added specification reference.

Summary of Changes

Standard Plan 5-297.745

Monotube Overhead Sign Structures – General Elevations, Sections, and Notes

General

1. In Structure Quantities table, changed structural steel quantity for simple span posts with connections from 2210 LB + 145(H) LBS/FT to 2210 LB + 73(H) LBS/FT.
2. Added Simple Span Camber table with note 7 reference.
3. Added Cantilever Camber table.
4. Added height limitation to second simple span post on Simple Span detail.
5. Added “CAMBER (SEE TABLE)” callouts to the Simple Span and Cantilever details.
6. Changed minimum vertical clearance from 17’4” to 17’6” on the Simple Span and Cantilever details.
7. Added note 8 reference to post callout on the Cantilever detail.

Notes

1. Change note 5 from “PROVIDES STEEL WEIGHT FOR TWO POSTS AND CONNECTIONS” to “FOR SIMPLE SPAN STRUCTURES, $H=H_L+H_R$.”
2. Added note 7: “CAMBER AT QUARTER POINT TO BE APPROXIMATELY 75% OF THESE VALUES.”
3. Added note 8: “WHEN ERECTING THE CANTILEVER STRUCTURE, SET THE POST 1/8” PER FOOT OUT OF PLUMB AWAY FROM THE TRAFFIC LANE UNDER THE SUPPORTED SIGN TO COMPENSATE FOR DEFLECTION OF THE POST.”

Summary of Changes

Standard Plan 5-297.761

Standard Overhead Sign Structures – Design D – General Elevations, Sections, and Notes

General

1. Changed the minimum vertical clearance on the Simple Span and Cantilever Details:
 - a. From 18'8" to 18'10" below static signs on Simple Span.
 - b. From 17'4" to 17'6" below DMS on Simple Span.
 - c. From 18'8" to 18'10" below sign on Cantilever.

Standard Plans Manual



Developed by
Office of Project Management and Technical Support
Minnesota Department of Transportation

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Foreword

The Standard Plans Manual contains a set of drawings developed by the Minnesota Department of Transportation and approved by the Federal Highway Administration. The plans show standard details of construction and materials.

Include applicable standard plans in the construction plan set. The standard plans are available in both PDF and ZIP/DGN format at <http://standardplans.dot.state.mn.us/stdplan.aspx>.

Guidance for incorporating modified standard plans into a construction plan set is available at https://edocs-public.dot.state.mn.us/edocs_public/DMResultSet/download?docId=950426

Users of this manual are encouraged to submit suggestions for the improvement of design standards. These suggestions should be submitted via the web form at <https://standardplans.dot.state.mn.us/review/stdplanchangerequest.aspx> or they can be submitted via email to DesignStandards.dot@state.mn.us.

Hard copies of this manual are available upon request by mail or in-person at Map and Manual Sales, Transportation Building, Room G19, MS 260, 395 John Ireland Boulevard, St. Paul, MN 55155-1800, or by phone at 651-366-3017, or by email at maps.and.manual.sales.dot@state.mn.us.

When new or revised standard plans are developed by the Office of Project Management & Technical Support, a transmittal letter outlining the changes becomes available. To receive an email when this manual is updated, subscribe at <https://public.govdelivery.com/accounts/MNDOT/subscriber/new>.

State Design Engineer
Minnesota Department of Transportation

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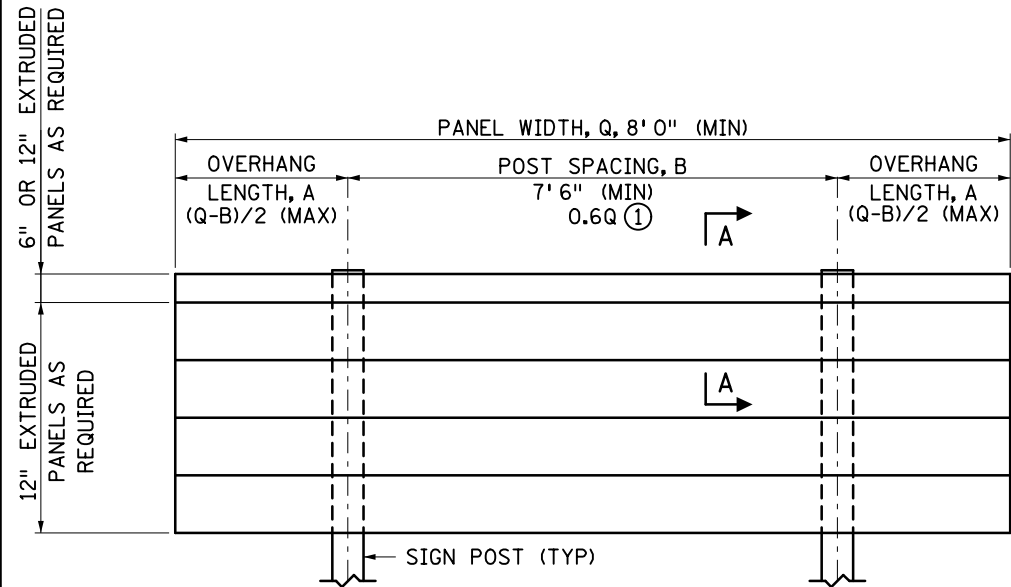
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5-297.740 (3 of 4)	Concrete Rail Mounted Sign - Sign Mounting Details	06-04-2019	
5-297.740 (4 of 4)	Concrete Rail Mounted Sign - Sign Connection Details	06-04-2019	
5-297.741	Structural Details for Bridge Mounted Type D Signs	06-04-2019	
5-297.742	Structural Details for Bridge Mounted Type D Signs - Minor Guide Signs	06-04-2019	
5-297.745	Monotube Overhead Sign Structures - General Elevations, Sections, and Notes	11-29-2022	
5-297.746 (1 of 2)	Monotube Overhead Sign Structures - Foundation Details	01-15-2021	
5-297.746 (2 of 2)	Monotube Overhead Sign Structures - Foundation Details	01-15-2021	
5-297.747 (1 of 2)	Monotube Overhead Sign Structures - Simple Span - Post and Baseplate Details	01-15-2021	
5-297.747 (2 of 2)	Monotube Overhead Sign Structures - Simple Span - Beam Details	01-15-2021	
5-297.748 (1 of 2)	Monotube Overhead Sign Structures - Cantilever - Post and Baseplate Details	01-15-2021	
5-297.748 (2 of 2)	Monotube Overhead Sign Structures - Cantilever - Beam Details	01-15-2021	
5-297.749 (1 of 2)	Monotube Overhead Sign Structures - Sign Panel and Exit Panel Geometry	01-15-2021	
5-297.749 (2 of 2)	Monotube Overhead Sign Structures - Sign Panel and Exit Panel Details	01-15-2021	
5-297.750	Panel Mounting Post Modification Details	06-12-2022	
5-297.752	Type F Median Barrier Foundation - Spread Footing	03-11-2022	
5-297.753	Type F Median Barrier Foundation - Drilled Shaft Footing	03-11-2022	
5-297.754	Single Slope Median Barrier Foundation - Spread Footing	03-11-2022	
5-297.755	Single Slope Median Barrier Foundation - Drilled Shaft Footing	03-11-2022	
5-297.760 (1 of 3)	Standard Overhead Sign Structures - Design D - Implementation Instructions and Notes	05-01-2019	05-28-2019
5-297.760 (2 of 3)	Standard Overhead Sign Structures - Design D - Cantilever Span Post and Truss Selection Table	05-01-2019	05-28-2019
5-297.760 (3 of 3)	Standard Overhead Sign Structures - Design D - Cantilever Span Post and Truss Selection Table	05-01-2019	05-28-2019
5-297.761	Standard Overhead Sign Structures - Design D - General Elevations, Sections, and Notes	11-29-2022	
5-297.762	Standard Overhead Sign Structures - Design D - Camber, Post Type, and Estimated Quantities	03-05-2020	

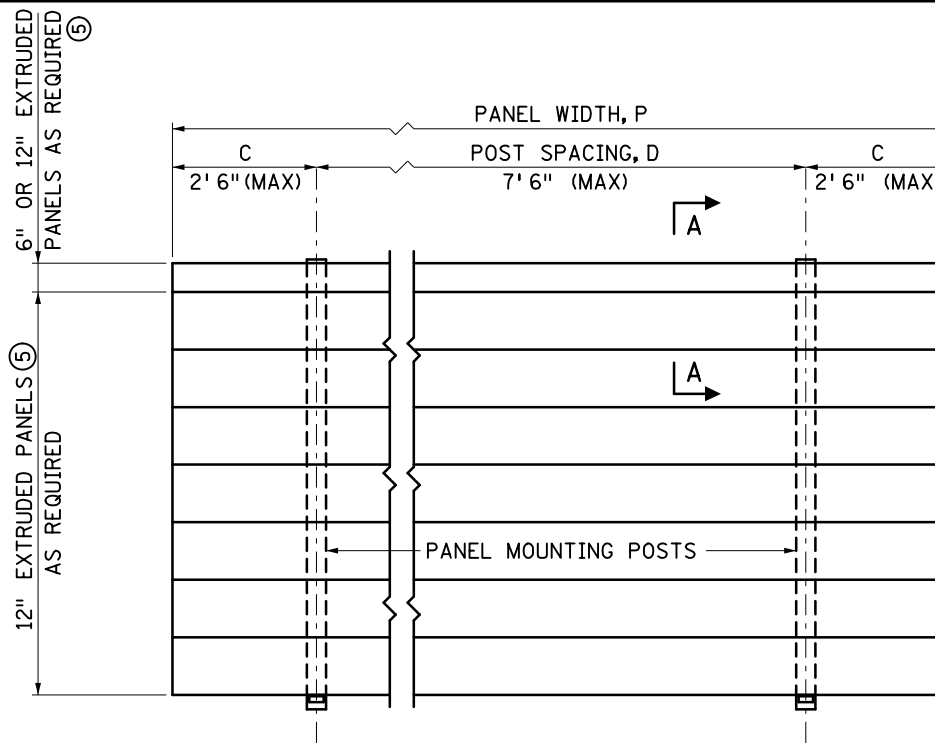
Plan Sheet Number	Subject	Approval Date	Revision Date
5-297.763 (1 of 2)	Standard Overhead Sign Structures - Design D - Foundation Details	03-05-2020	02-14-2022
5-297.763 (2 of 2)	Standard Overhead Sign Structures - Design D - Foundation Details	03-05-2020	02-14-2022
5-297.764	Standard Overhead Sign Structures - Design D - Base Plate, Hand-hole, Electrical, and Cover Plate Details	03-05-2020	
5-297.765	Standard Overhead Sign Structures - Design D - Truss-to-Post Connection Details	03-05-2020	
5-297.766	Standard Overhead Sign Structures - Design D - Sign Truss Details Type A	05-01-2019	05-28-2019
5-297.767	Standard Overhead Sign Structures - Design D - Sign Truss Details Type B	05-01-2019	05-28-2019
5-297.768	Standard Overhead Sign Structures - Design D - Sign Truss Details Type C	05-01-2019	05-28-2019
5-297.769 (1 of 3)	Standard Overhead Sign Structures - Design D - Walkway Details	03-05-2020	
5-297.769 (2 of 3)	Standard Overhead Sign Structures - Design D - Walkway Details: Railing	03-05-2020	
5-297.769 (3 of 3)	Standard Overhead Sign Structures - Design D - Walkway Details	05-01-2019	
5-297.770	Standard Overhead Sign Structures - Design D - Walkway and Railing Retrofit Details	05-01-2019	
5-297.772	Standard Overhead Sign Structures - Design D - DMS Mounting Details	03-23-2022	
5-297.773	Standard Overhead Sign Structures - Design D - Rock Socket Foundation Details	01-15-2021	
5-297.774	Standard Overhead Sign Structures - Design D - Variable Length Drilled Shaft Details	01-15-2021	
5-297.779	Overhead Sign Structures - Foundation Extension - Design D Extension Details - Type 1-4 Posts	01-15-2021	
5-297.780 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design D Extension Details - Type 5-6 Posts	01-15-2021	
5-297.780 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design D Extension Details - Type 5-6 Posts	01-15-2021	
5-297.781	Overhead Sign Structures - Foundation Extension - Interim Design B Extension Details - Type 1-4 Posts	01-15-2021	
5-297.782 (1 of 2)	Overhead Sign Structures - Foundation Extension - Interim Design B Extension Details - Type 5-7 Posts	01-15-2021	
5-297.782 (2 of 2)	Overhead Sign Structures - Foundation Extension - Interim Design B Extension Details - Type 5-7 Posts	01-15-2021	
5-297.783	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 1-3 Posts	01-15-2021	
5-297.784 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 4-5 Posts	01-15-2021	
5-297.784 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 4-5 Posts	01-15-2021	
5-297.785 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 6-7 Posts	01-15-2021	
5-297.785 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 6-7 Posts	01-15-2021	

Plan Sheet Number	Subject	Approval Date	Revision Date
5-297.786 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 8-9 Posts	01-15-2021	
5-297.786 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 8-9 Posts	01-15-2021	
5-297.787 (1 of 3)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 10-13 Posts	01-15-2021	
5-297.787 (2 of 3)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 10-13 Posts	01-15-2021	
5-297.787 (3 of 3)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 10-13 Posts	01-15-2021	
5-297.788	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 14-15 Posts	01-15-2021	
5-297.789 (1 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 16-19 Posts	01-15-2021	
5-297.789 (2 of 2)	Overhead Sign Structures - Foundation Extension - Design B Extension Details - Type 16-19 Posts	01-15-2021	
Series 800: Temporary Traffic Control, Pavement Marking, Lighting, and Signals			
5-297.801	Interim Pavement Markings and Signing	10-10-2019	
5-297.805 (1 of 5)	Temporary Overhead Sign Structures - General Elevation and Notes	03-06-2020	
5-297.805 (2 of 5)	Temporary Overhead Sign Structures - Foundation Details	03-06-2020	
5-297.805 (3 of 5)	Temporary Overhead Sign Structures - Post and Baseplate Details	03-06-2020	
5-297.805 (4 of 5)	Temporary Overhead Sign Structures - Beam Details	06-28-2021	
5-297.805 (5 of 5)	Temporary Overhead Sign Structures - Sign Panel and Panel Mounting Post Details	03-06-2020	
5-297.811 (1 of 2)	Alternate Pedestrian Route (APR) Layouts	03-18-2021	
5-297.811 (2 of 2)	Alternate Pedestrian Route (APR) Layouts	03-18-2021	
5-297.813 (1 of 2)	Temporary Pedestrian Access Route (TPAR) Devices - Channelizers, Sidewalk Barricades, and Portable Stands	03-18-2021	
5-297.813 (2 of 2)	Temporary Pedestrian Access Route (TPAR) Devices - Temporary Curb Ramps and Walkway Surfaces	03-18-2021	
5-297.840 (1 of 3)	T-100 Light Tower Pile Foundation Design	11-05-2019	
5-297.840 (2 of 3)	T-120 Light Tower Pile Foundation Design	11-05-2019	
5-297.840 (3 of 3)	T-140 Light Tower Pile Foundation Design	11-05-2019	
5-297.841 (1 of 3)	T-100 Light Tower Mat Foundation Design	11-05-2019	
5-297.841 (2 of 3)	T-120 Light Tower Mat Foundation Design	11-05-2019	
5-297.841 (3 of 3)	T-140 Light Tower Mat Foundation Design	11-05-2019	
5-297.869	350 ATCC and SSB Cabinet Equipment Pad - Cast in Place	02-22-2022	
5-297.870	352 ATCC and SSB Cabinet Equipment Pad - Cast in Place	02-22-2022	

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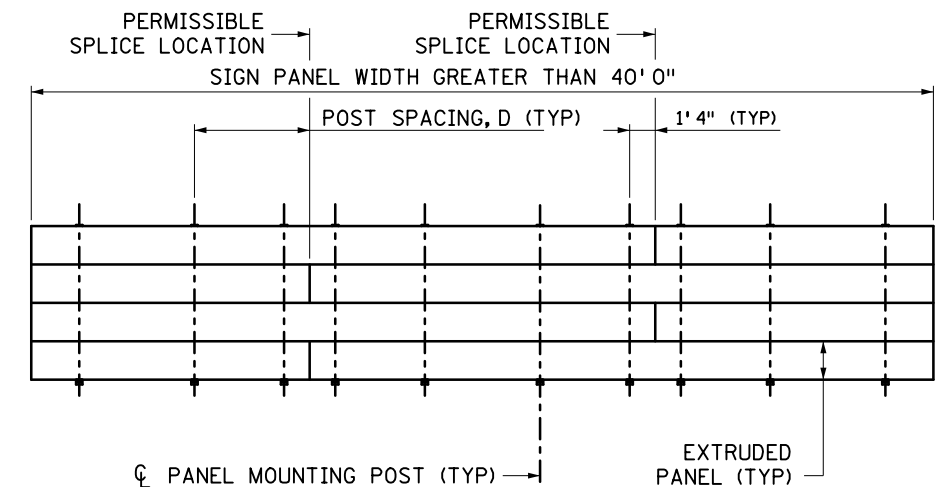
I-BEAM MOUNTED EXTRUDED PANEL ELEVATION ②



OVERHEAD SIGN STRUCTURE EXTRUDED PANEL ELEVATION

NO. OF POSTS	PANEL MOUNTING POST		
	P	C	D
2	12' 0" (144") OR LESS	0.207P	0.586P
3	12' 6" (150") THRU 17' 0" (204")	0.145P	0.355P
4	17' 6" (210") THRU 23' 0" (276")	0.107P	0.262P
5	23' 6" (282") THRU 29' 0" (348")	0.084P	0.208P
6	29' 6" (354") THRU 35' 0" (420")	0.070P	0.172P
7	35' 6" (426") THRU 40' 0" (480")	0.059P	0.147P
9	40' 6" (486") THRU 41' 0" (492")	0.059P	0.147P
10	41' 6" (498") THRU 47' 0" (564")	0.052P	0.128P
11	47' 6" (570") THRU 53' 0" (636")	0.048P	0.113P
12	53' 6" (642") THRU 59' 0" (708")	0.041P	0.102P
13	59' 6" (714") THRU 65' 0" (780")	0.040P	0.092P

POST SPACING MAY BE ADJUSTED $\pm 12"$ AS REQUIRED IF CONFLICT WITH TRUSS MEMBERS IS ENCOUNTERED.



EXTRUDED PANEL SPLICE STAGGER DIAGRAM
EXTRUDED PANEL WIDTH EXAGGERATED FOR CLARITY

DESIGN CRITERIA:

THE DETAILS SHOWN ON THESE STANDARD PLANS ARE BASED ON THE AASHTO "LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS", FIRST EDITION, 2015 AND THE 2017, 2018, 2019, AND 2020 INTERIM REVISIONS.

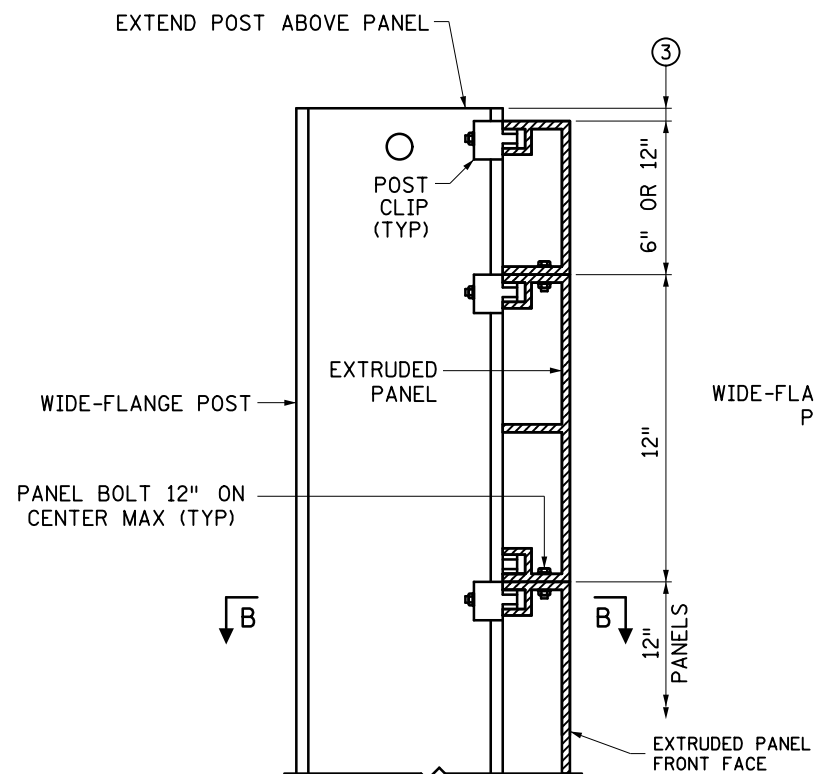
STRENGTH LIMIT WIND LOADING OF 120 MPH
SERVICE LIMIT WIND LOADING OF 76 MPH

GENERAL NOTES:

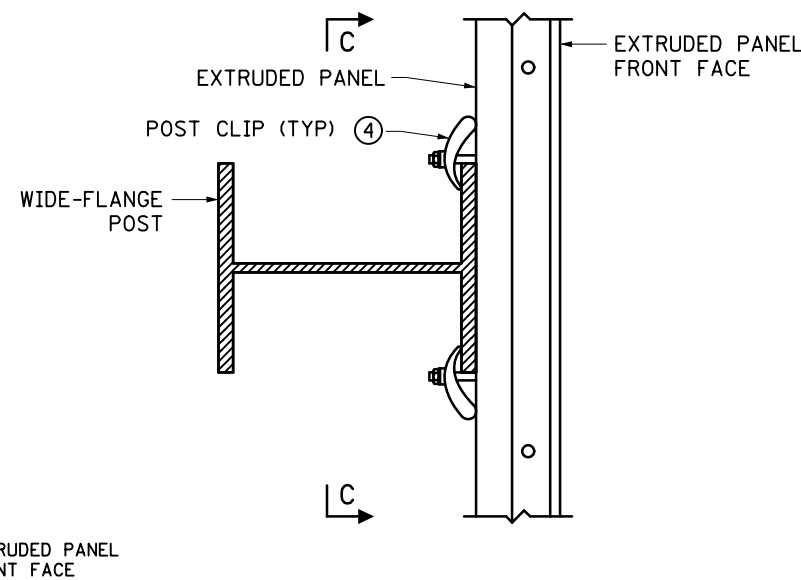
FOR POST CLIP DETAILS, SEE SHEET 3 OF 4.

SAW CUT ALL POST CUTS. PLATES MAY BE SHEARED OR FLAME CUT USING A MECHANICALLY GUIDED CUTTING TORCH. PREPARE EDGES IN ACCORDANCE WITH SPEC. 2471.3.C.4 AND SPEC. 2471.3.D.4.

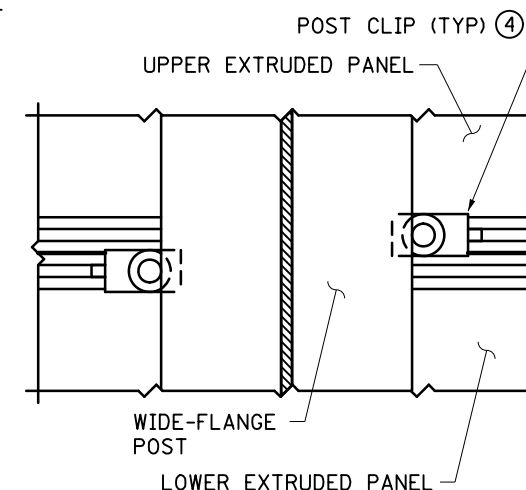
- ① ROUND TO THE NEAREST EVEN INCH FOR DIMENSION D.
- ② SEE I-BEAM-SUPPORTED SIGN STRUCTURAL ELEVATION FOR PANEL WIDTH, POST SPACING, AND OVERHANG LENGTHS.
- ③ 1/2" - OVERHEAD SIGN STRUCTURE SUPPORTED
1/2" MIN.; 1" MAX. - I-BEAM SUPPORTED
- ④ PLACE ONE POST CLIP ON THE UPPER EXTRUDED PANEL AND THE ADJACENT POST CLIP ON THE LOWER EXTRUDED PANEL ON THE OPPOSITE SIDE OF THE WIDE FLANGE POST.
- ⑤ EXTRUDED PANELS FOR INDIVIDUAL SIGN WIDTHS GREATER THAN 40' 0" MAY BE SPLICED.
USE NO MORE THAN ONE SPLICE PER EXTRUDED PANEL.
LOCATE SPLICES AS SHOWN. USE AN ADDITIONAL PANEL MOUNTING POST AT EACH SPLICE LOCATION.
SPLICED EXTRUDED PANEL SEGMENTS MUST SPAN A MINIMUM OF THREE POSTS. STAGGER SPLICE LOCATIONS.



SECTION A-A



SECTION B-B



VIEW C-C

LEAD EXPERT OFFICE

EDWARD LUTGEN
OFFICE DIRECTOR
BRIDGE OFFICE



STANDARD PLAN 5-297.710

1 OF 4

THOMAS STYRBICKI
STATE DESIGN ENGINEER

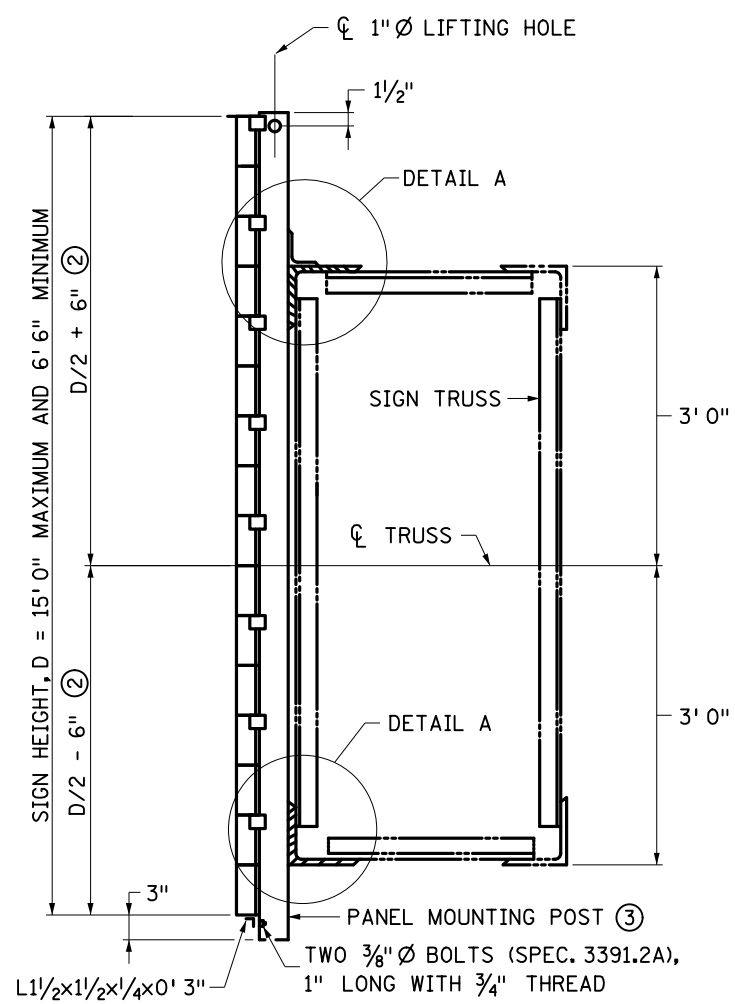
APPROVED: 11-29-2022
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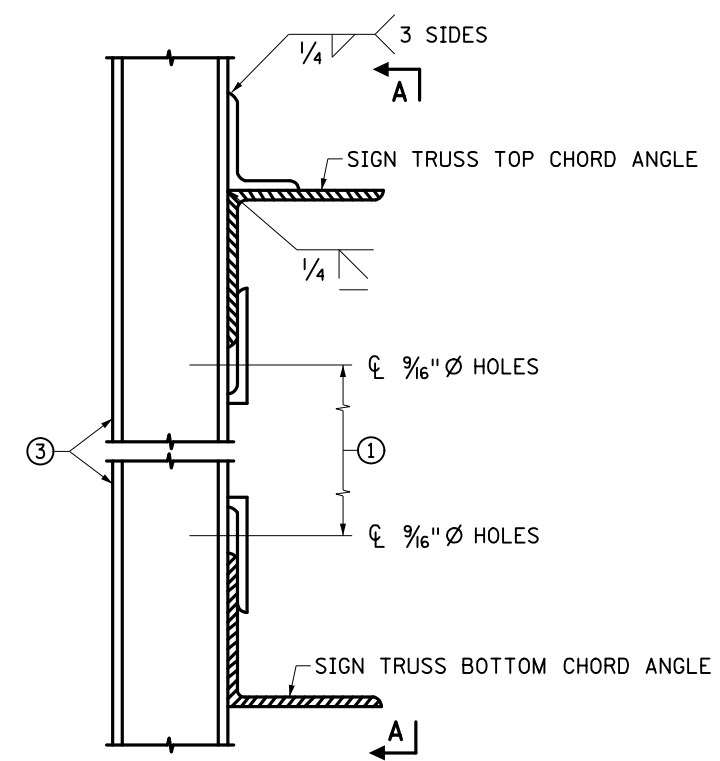
EXTRUDED PANEL MOUNTING DETAILS

(TH) SHEET NO. OF SHEETS

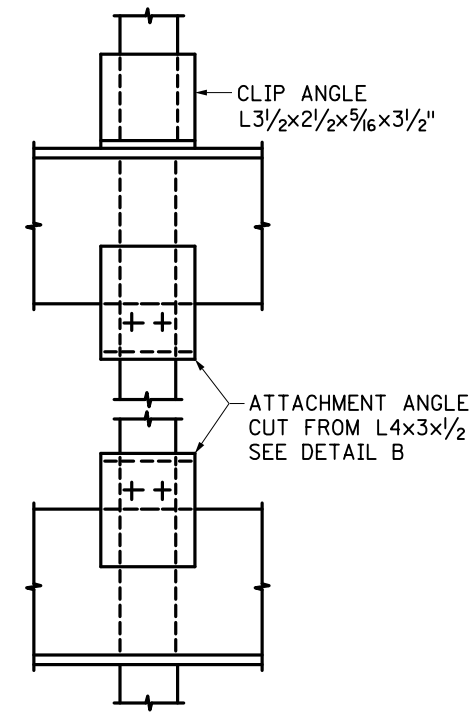
DESIGN D PANEL MOUNTING POST QUANTITIES INCLUDES MOUNTING ANGLES	
PANEL HEIGHT	WEIGHT PER POST (LBS.)
6' 6" (78")	70
7' 0" (84")	74
7' 6" (90")	78
8' 0" (96")	82
8' 6" (102")	86
9' 0" (108")	90
9' 6" (114")	93
10' 0" (120")	97
10' 6" (126")	101
11' 0" (132")	105
11' 6" (138")	160
12' 0" (144")	166
12' 6" (150")	172
13' 0" (156")	178
13' 6" (162")	184
14' 0" (168")	190
14' 6" (174")	196
15' 0" (180")	202



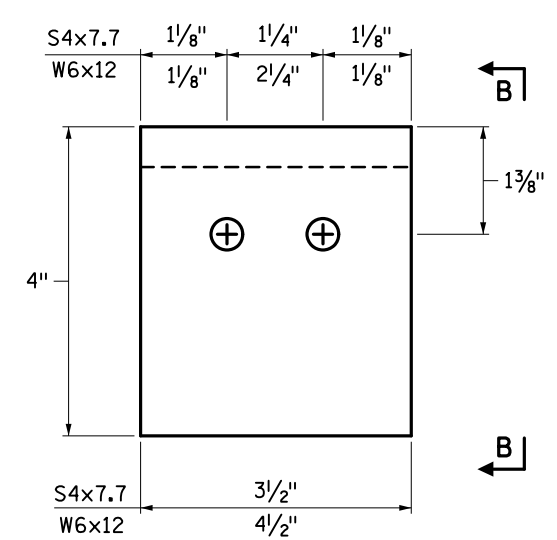
TYPICAL SECTION
DESIGN D TRUSS SHOWN



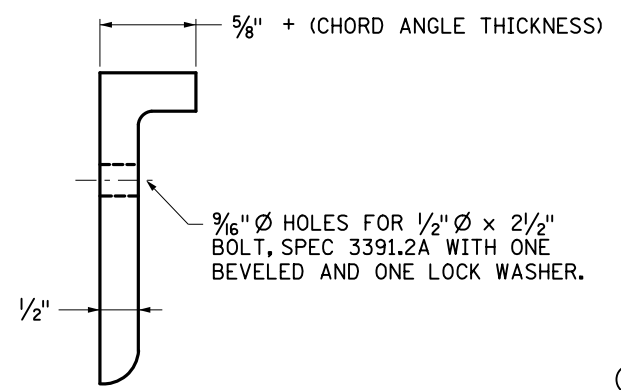
DETAIL A



VIEW A-A



DETAIL B



VIEW B-B

- NOTES:
- PROVIDE STRUCTURAL STEEL IN ACCORDANCE WITH SPEC 3308. GALVANIZE STRUCTURAL STEEL IN ACCORDANCE WITH SPEC. 3394 AND HARDWARE IN ACCORDANCE WITH SPEC. 3392. FURNISH BOLTS IN ACCORDANCE WITH SPEC. 3391.2A. PLACE COMMON BOLTS IN ACCORDANCE WITH SPEC. 2402.
- ① (TRUSS DEPTH) - (TOP & BOTTOM CHORD ANGLE LEGS) - 1/4".
- ② SEE NOTE ① ON STANDARD PLAN 5-297.761 WHEN STANDARD PANELS AND DMS ARE MOUNTED ON THE SAME SPAN.
- ③ S4x7.7 FOR SIGN HEIGHTS LESS THAN OR EQUAL TO 11' 0". W6x12 FOR SIGN HEIGHTS OVER 11' 0".

LEAD EXPERT OFFICE

EDWARD LUTGEN
OFFICE DIRECTOR
BRIDGE OFFICE

m MINNESOTA
DEPARTMENT OF TRANSPORTATION

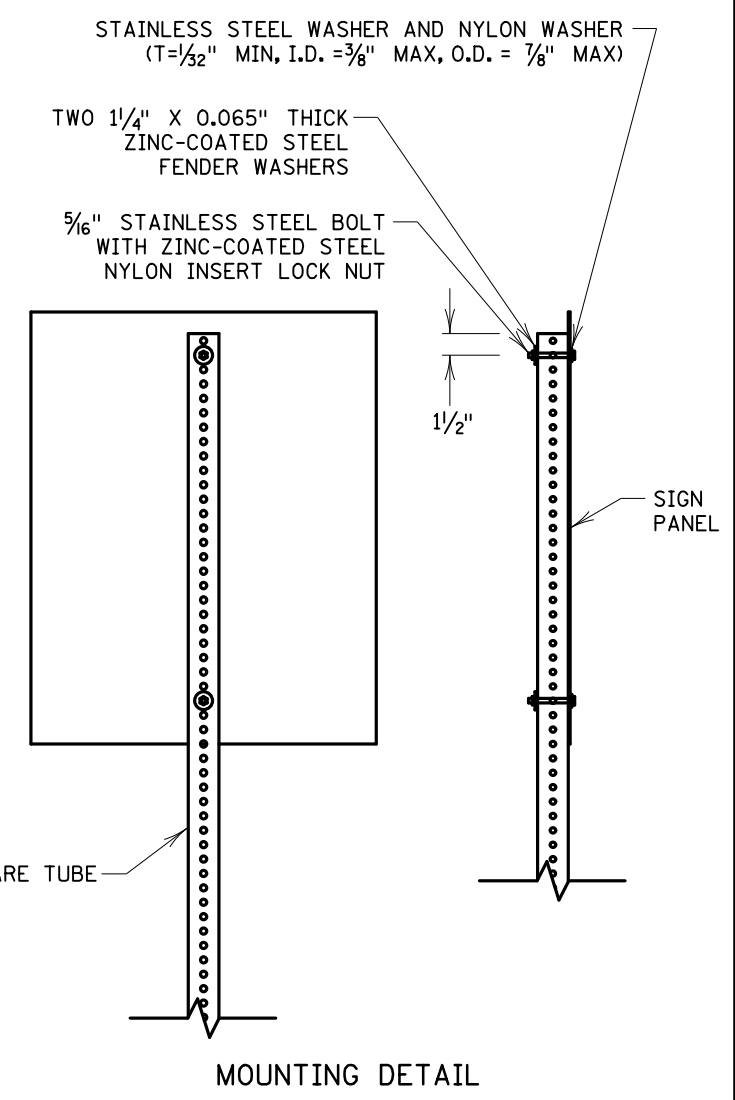
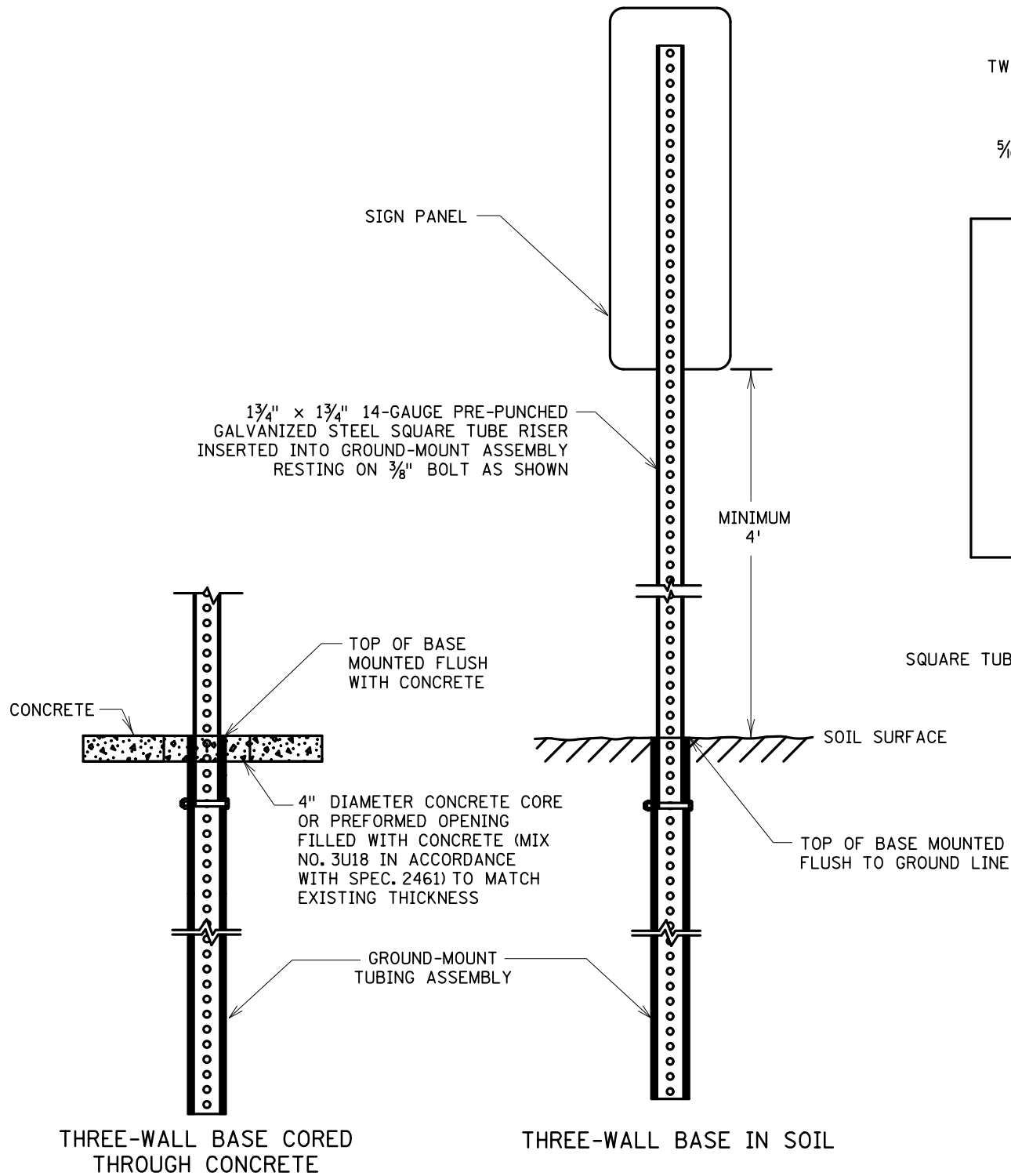
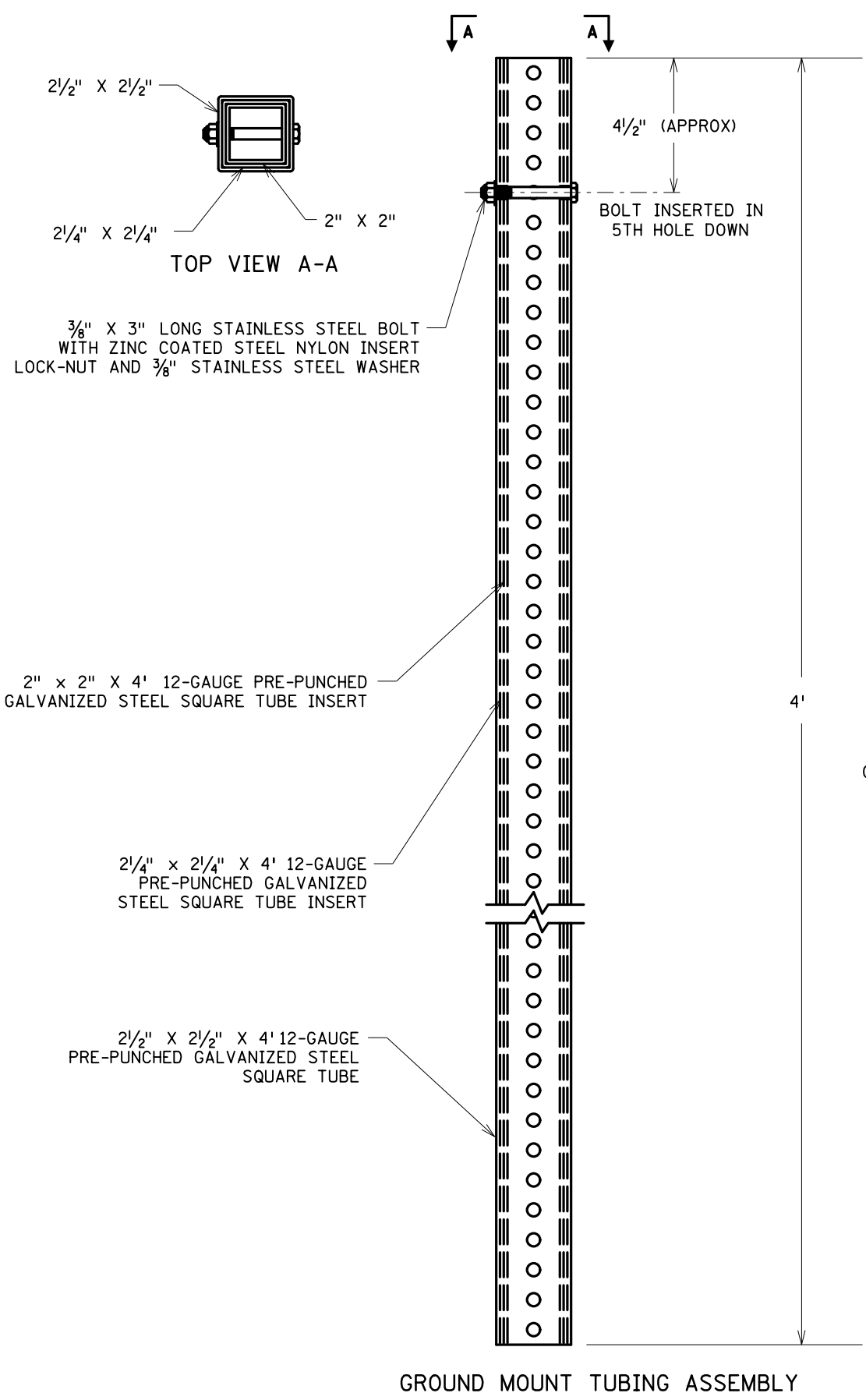
STANDARD PLAN 5-297.710 2 OF 4

APPROVED: 11-29-2022
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

EXTRUDED PANEL MOUNTING DETAILS
PANEL MOUNTING POST DETAILS

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS



NOTES:

THE CRASH RESPONSE FOR THIS STRUCTURE IS BENDABLE.

TO MEET CRASHWORTHY REQUIREMENTS THE DISTANCE BETWEEN THE BOTTOM OF THE SIGN PANEL AND THE GROUND SURFACE BELOW ANY PORTION OF THE SIGN PANEL SHALL BE A MINIMUM OF 4'. SEE TABULATIONS FOR MOUNTING HEIGHT.

SQUARE TUBE SIGN POSTS PER MnDOT SPEC. 3402.

LEAD EXPERT OFFICE

BRIAN SORENSON
STATE TRAFFIC ENGINEER
OFFICE OF TRAFFIC ENGINEERING

m MINNESOTA
DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.721 1 OF 1

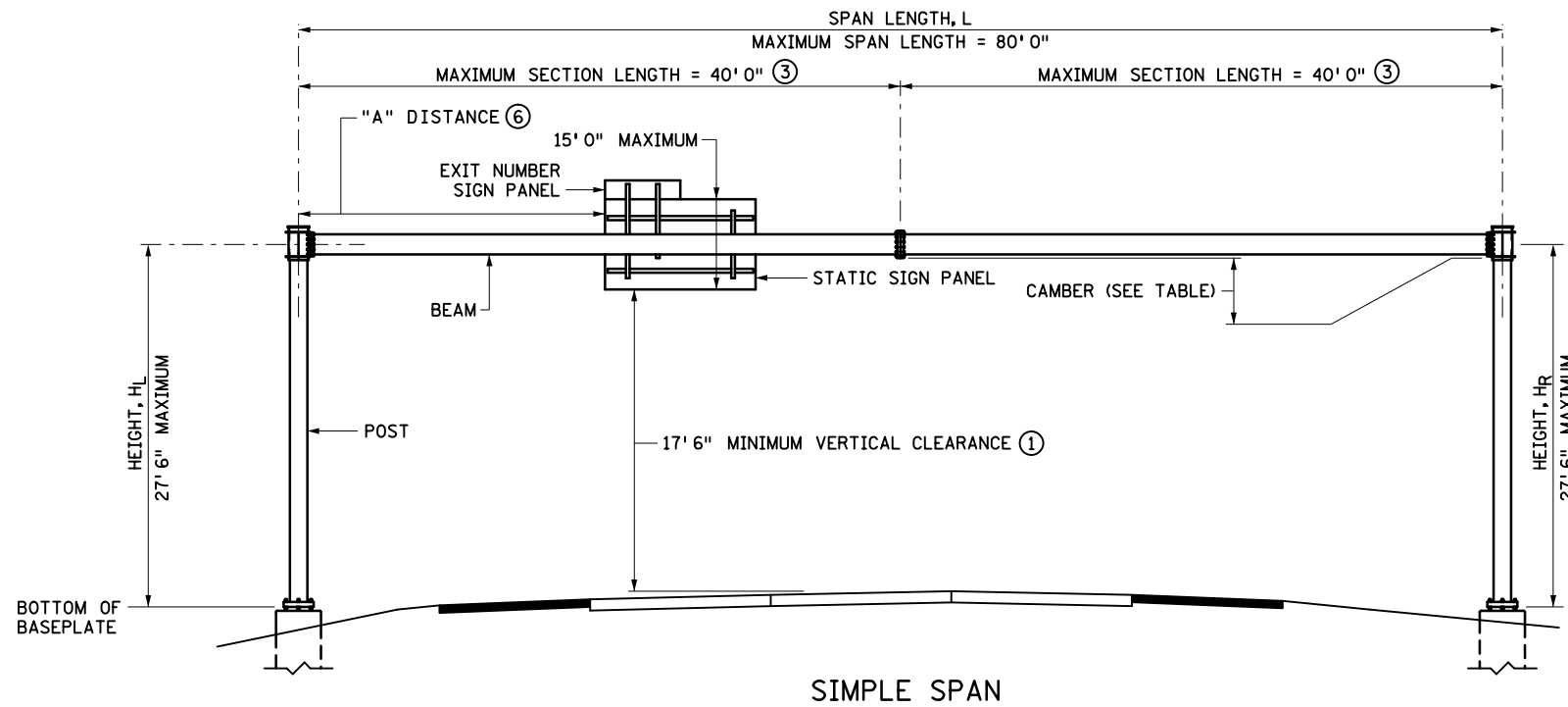
APPROVED: 11-29-2022
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

THREE-WALL BASE
FOR 1 3/4" SQUARE-TUBE RISER POST

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

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STRUCTURE QUANTITIES			
-LENGTH (L) OF SIMPLE SPAN SUPPORT STRUCTURE IS FROM ϕ POST TO ϕ POST.			
-LENGTH (L) OF CANTILEVER STRUCTURE IS FROM ϕ POST TO END OF PROJECTING ELEMENT.			
-HEIGHT (H) OF SUPPORT STRUCTURE IS FROM BOTTOM OF BASEPLATE TO ϕ BEAM.			
-STRUCTURAL STEEL QUANTITIES INCLUDE THE FOLLOWING:			
SIMPLE SPAN: BASEPLATES, POSTS, SLEEVES, BEAM, AND BEAM SPLICE PLATES.			
CANTILEVER: BASEPLATE, POST, POST/BEAM CONNECTION, BEAM, AND END CAPS.			
STRUCTURAL STEEL	SIMPLE SPAN	BEAM WITH CONNECTIONS	676 LBS + 83(L) LBS/FT
		POSTS WITH CONNECTIONS	2210 LBS + 73(H) LBS/FT (5)
	CANTILEVER	BEAM WITH CONNECTIONS	366 LBS + 105(L) LBS/FT
		POST WITH CONNECTIONS	1678 LBS + 79(H) LBS/FT

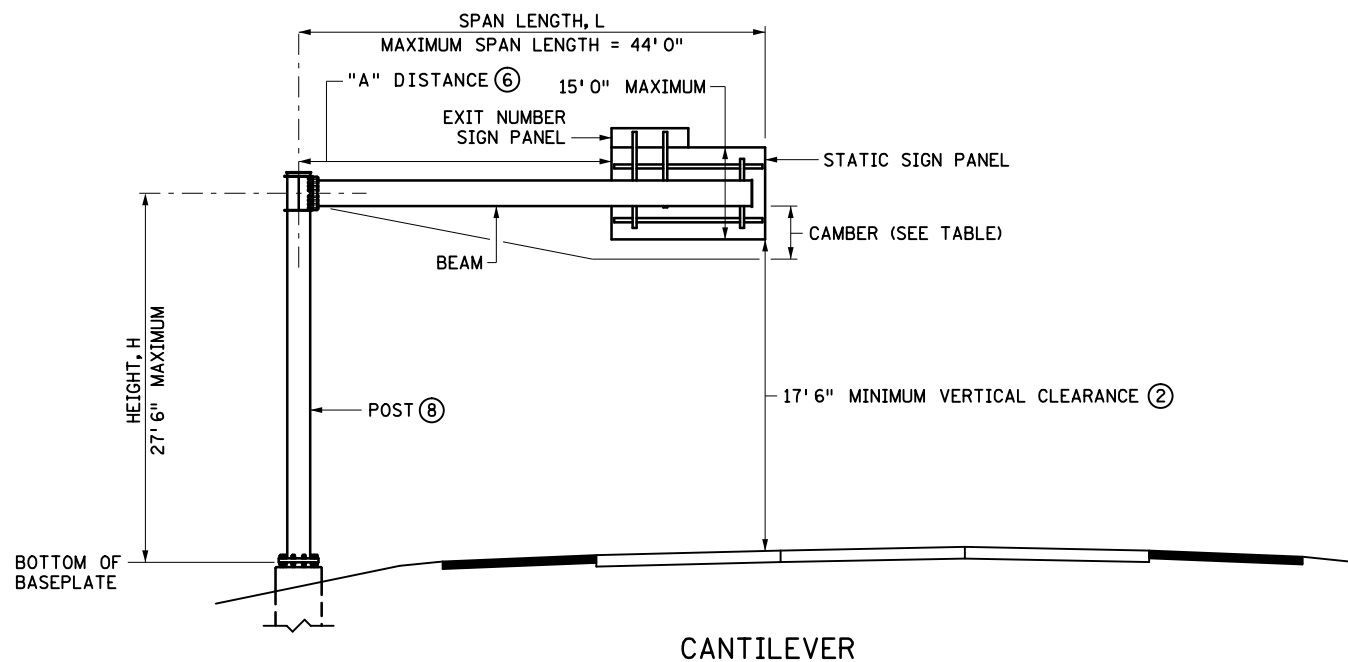
SIMPLE SPAN	
SPAN LENGTH	MAX. SIGN AREA (4) SQ FT
55' 0"	225
70' 0"	210
80' 0"	200

CANTILEVER	
SPAN LENGTH	MAX. SIGN AREA (4) SQ FT
20' 0"	205
25' 0"	200
30' 0"	170
35' 0"	140
40' 0"	115
44' 0"	100

SIMPLE SPAN CAMBER (INCHES)	
SPAN LENGTH	MID-SPAN CAMBER (7)
45' 0"	1/4
50' 0"	1/16
55' 0"	1/8
60' 0"	1/8
65' 0"	23/16
70' 0"	25/8
75' 0"	3/8
80' 0"	3/4

CANTILEVER CAMBER (INCHES)	
SPAN LENGTH	CANTILEVER END CAMBER
20' 0"	1/16
25' 0"	13/16
30' 0"	13/8
35' 0"	15/8
40' 0"	2
44' 0"	2 1/2

SIMPLE SPAN



CANTILEVER

GENERAL NOTES:

DESIGN CRITERIA:

THE DETAILS SHOWN ON THESE STANDARD PLANS ARE BASED ON THE AASHTO "LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS," FIRST EDITION, 2015, 2017, 2018, 2019, AND 2020 INTERIM REVISIONS.

STRENGTH LIMIT WIND LOADING OF 120 MPH
SERVICE LIMIT WIND LOADING OF 76 MPH

MATERIAL PROPERTIES:

PROVIDE STRUCTURAL CONCRETE (3052) PER SPEC. 2461 FOR DRILLED SHAFTS.

PROVIDE DEFORMED BILLET BARS IN ACCORDANCE WITH AASHTO M 31, GRADE 60 (SPEC. 2472 AND SPEC. 3301) FOR FOUNDATION REINFORCEMENT. PROVIDE EPOXY-COATED BARS WHERE IDENTIFIED.

ALL REINFORCEMENT IS IN ENGLISH DESIGNATIONS.

STRUCTURAL STEEL (EXCEPT POST) - SPEC. 3306
STRUCTURAL STEEL PIPE ----- SPEC. 3362, ASTM A 500 GRADE B ($F_y = 42$ ksi)
OR GREATER API 5L, GRADES B, X42, X46,
X52, X56, X60, X65

HIGH-STRENGTH BOLTS----- SPEC. 3391.2B
ANCHOR RODS----- SPEC. 3385 TYPE B
CASTINGS----- SPEC. 3322

REINFORCEMENT
BARS----- SPEC. 3301
SPIRAL----- SPEC. 3305

DEMONSTRATE THAT THE POST MATERIAL MEETS THE REQUIREMENTS OF ONE OF THE ABOVE CITED SPECIFICATIONS AND THE MINIMUM YIELD STRENGTH.

FINISH:

WITH THE EXCEPTION OF REINFORCEMENT BARS, THE LOWER PORTIONS OF ANCHOR RODS, AND ALUMINUM AND OTHER NON-FERROUS INCIDENTALS, GALVANIZE COMPONENTS AFTER FABRICATION IN ACCORDANCE WITH SPEC. 3392 OR SPEC. 3394 AS APPLICABLE. BEARING SURFACES MUST BE SMOOTH.

FABRICATION:

FABRICATE STRUCTURAL METALS IN ACCORDANCE WITH SPEC. 2471 AND 2564. ALL WELDING TO BE CONTINUOUS. ALL CONTACT SURFACES MUST BE COMPLETELY SEALED.

INSPECTION:

PROVIDE INSPECTION BEFORE AND AFTER GALVANIZING IN ACCORDANCE WITH SPEC. 1511 AND 2471.

SPECIFIC NOTES:

- (1) MEASURE MINIMUM CLEARANCE FROM THE HIGHEST ELEVATION OF THE TRAVELED WAY OR SHOULDER, OR IF BARRIER CURBS ARE USED, THE HIGHEST ELEVATION BETWEEN CURB LINES TO THE LOW SIGN EDGE.
- (2) MEASURE MINIMUM CLEARANCE FROM THE LOW SIGN EDGE OF THE TALLEST PANEL TO THE HIGHPOINT ELEVATION OF TRAVELED WAY OR SHOULDER BENEATH THE STRUCTURE.
- (3) NO MORE THAN TWO SECTIONS ARE ALLOWED. THE SECTIONS ARE NOT REQUIRED TO BE EQUAL LENGTHS.
- (4) INCLUDES EXIT PANEL.
- (5) FOR SIMPLE SPAN STRUCTURES, $H = H_L + H_R$.
- (6) THE "A" DISTANCE IS SHOWN ON THE PLANS. IT IS THE DISTANCE FROM THE CENTER OF THE RIGHT POST (WHEN FACING THE DIRECTION OF TRAVEL) TO THE EDGE OF THE SIGN PANEL.
- (7) CAMBER AT THE QUARTER POINT TO BE APPROXIMATELY 75% OF THESE VALUES.
- (8) WHEN ERECTING THE CANTILEVER STRUCTURE, SET THE POST 1/8" PER FOOT OUT OF PLUMB AWAY FROM THE TRAFFIC LANE UNDER THE SUPPORTED SIGN TO COMPENSATE FOR DEFLECTION OF THE POST.

LEAD EXPERT OFFICE

EDWARD LUTGEN
OFFICE DIRECTOR
BRIDGE OFFICE



STANDARD PLAN 5-297.745

1 OF 1

APPROVED: 11-29-2022
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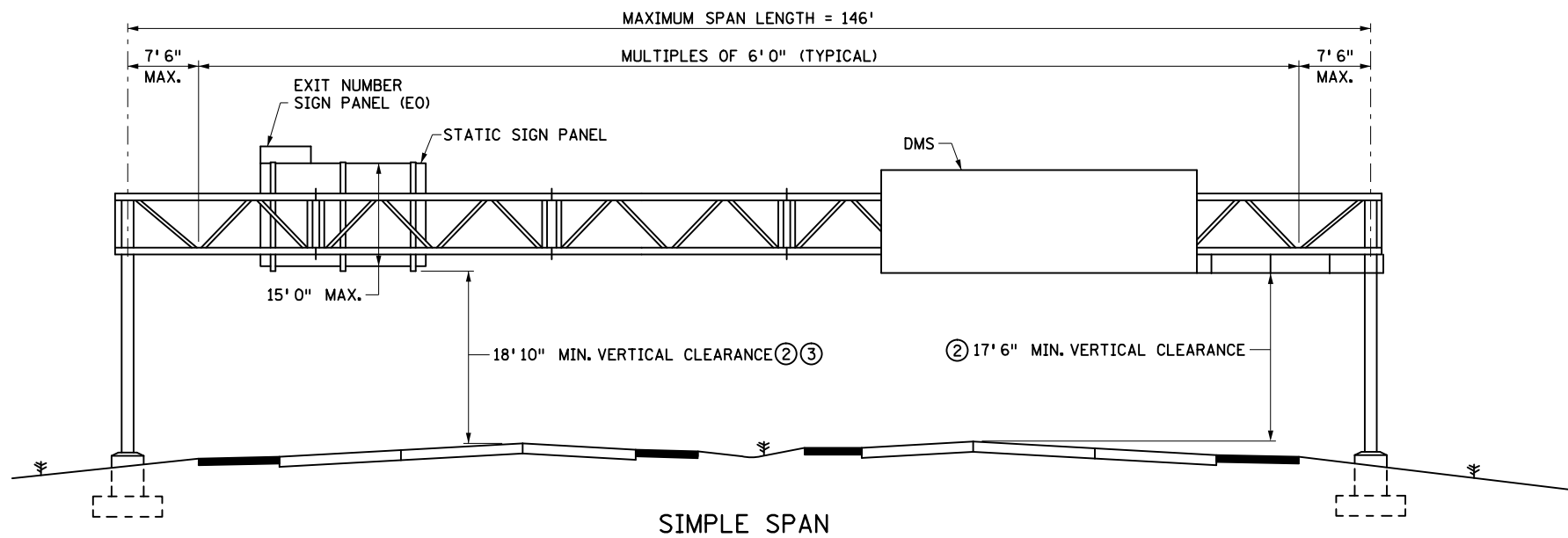
THOMAS STYRBICKI
STATE DESIGN ENGINEER

MONOTUBE OVERHEAD SIGN STRUCTURES
GENERAL ELEVATIONS, SECTIONS, AND NOTES

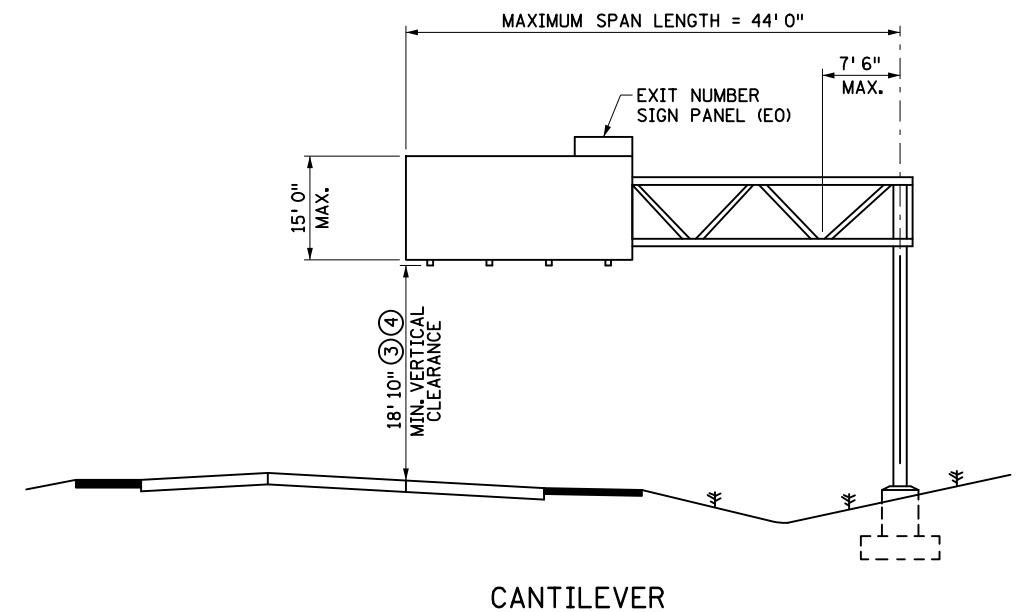
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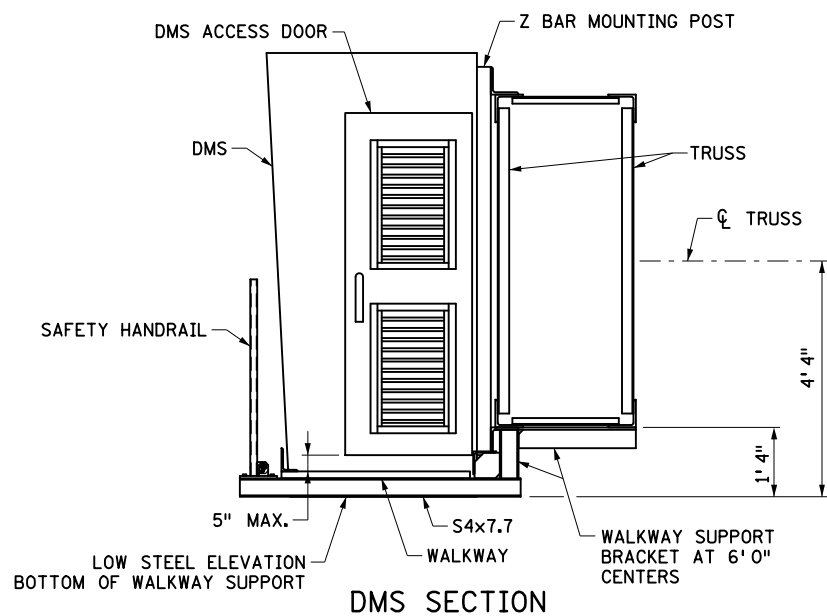
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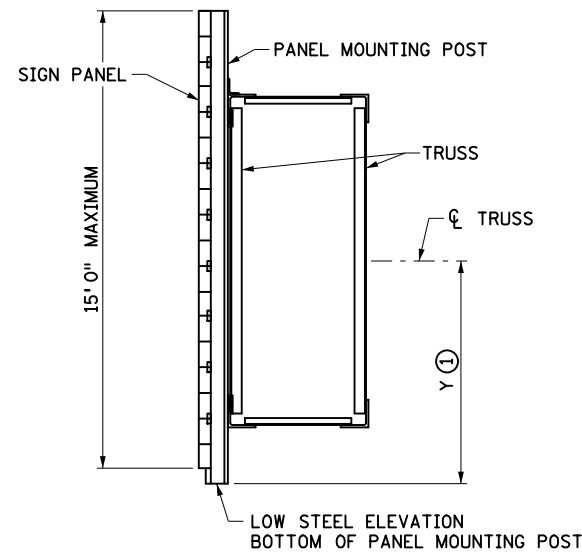
SIMPLE SPAN



CANTILEVER



DMS SECTION



STATIC SIGN SECTION

SIGN HEIGHT	Y (1)
6' 6"	3' 0"
7' 0"	3' 3"
7' 6"	3' 6"
8' 0"	3' 9"
8' 6"	4' 0"
9' 0"	4' 3"
9' 6"	4' 6"
10' 0"	4' 9"
10' 6"	5' 0"
11' 0"	5' 3"
11' 6"	5' 6"
12' 0"	5' 9"
12' 6"	6' 0"
13' 0"	6' 3"
13' 6"	6' 6"
14' 0"	6' 9"
14' 6"	7' 0"
15' 0"	7' 3"

DESIGN CRITERIA:

THE DETAILS SHOWN ON THESE STANDARD PLANS ARE BASED ON THE AASHTO "LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS," FIRST EDITION, 2015, 2017, 2018, AND 2019 INTERIM REVISIONS.

STRENGTH LIMIT WIND LOADING OF 120 MPH
SERVICE LIMIT WIND LOADING OF 76 MPH

MAINTAIN AT LEAST 1' 0" BETWEEN DMS AND STATIC PANEL IN THE SAME DIRECTION OF TRAFFIC.

MATERIAL PROPERTIES:

PROVIDE STRUCTURAL CONCRETE (3052) PER SPEC. 2461 FOR SPREAD FOOTINGS AND/OR DRILLED SHAFTS.

PROVIDE DEFORMED BILLET BARS PER AASHTO M 31, GRADE 60 (SPEC. 2472 AND SPEC. 3301) FOR FOUNDATION REINFORCEMENT. PROVIDE EPOXY COATED BARS FOR PEDESTAL REINFORCING BARS.

ALL REINFORCEMENT IS IN ENGLISH DESIGNATIONS.

STRUCTURAL STEEL (EXCEPT POST, TUBES)- SPEC. 3306
STRUCTURAL STEEL PIPE POST- SPEC. 3362, ASTM A500 GRADE B (F_y = 42 ksi) OR GREATER API 5L, GRADES B, X42, X46, X52, X56, X60, X65

STRUCTURAL TUBE----- SPEC. 3361, TYPE A OR TYPE B, GRADE B (F_y = 46 ksi) OR GREATER

HIGH STRENGTH BOLTS----- SPEC. 3391.2B
ANCHOR RODS----- SPEC. 3385 TYPE B

CASTINGS----- SPEC. 3322

REINFORCEMENT

BARS----- SPEC. 3301

SPIRAL----- SPEC. 3305

WALKWAY GRATING----- FEDERAL SPECIFICATIONS RR-G-661b, TYPE 1, STEEL

DEMONSTRATE THAT THE POST MATERIAL MEETS THE REQUIREMENTS OF ONE OF THE ABOVE CITED SPECIFICATIONS AND THE MINIMUM YIELD STRENGTH.

FINISH:

WITH THE EXCEPTION OF REINFORCEMENT BARS, THE LOWER PORTIONS OF ANCHOR RODS, AND ALUMINUM AND OTHER NON-FERROUS INCIDENTALS, GALVANIZE COMPONENTS AFTER FABRICATION IN ACCORDANCE WITH SPEC. 3392 OR SPEC. 3394 AS APPLICABLE. BEARING SURFACES MUST BE SMOOTH.

FABRICATION:

FABRICATE STRUCTURAL METALS IN ACCORDANCE WITH SPEC. 2471, SPEC. 2564, AND THE APPLICABLE SPECIAL PROVISIONS. ALL WELDING TO BE CONTINUOUS. ALL CONTACT SURFACES MUST BE COMPLETELY SEALED.

INSPECTION:

PROVIDE INSPECTION BEFORE AND AFTER GALVANIZING PER SPEC. 1511 AND 2471.

SPECIFIC NOTES:

- DIMENSION Y IS NOT CONSTANT AND IS BASED ON THE TALLEST SIGN PANEL. EXCEPT WHEN STATIC SIGN PANEL(S) AND DMS ARE MOUNTED ON THE SAME SPAN DIRECTION, DIMENSION Y SHALL BE 3' 3".
- MEASURE MINIMUM CLEARANCE FROM THE HIGHEST ELEVATION OF THE TRAVELED WAY OR SHOULDER, OR IF BARRIER CURBS ARE USED, THE HIGHEST ELEVATION BETWEEN CURB LINES TO THE LOWEST LOW STEEL ELEVATION.
- 18' 8" MINIMUM VERTICAL CLEARANCE INCLUDES ALLOWANCE FOR 16" OF FUTURE OVERLAYS OR OTHER CHANGES TO ROADWAY ELEVATIONS. IF ADDITIONAL CHANGES ARE EXPECTED, ADJUST MINIMUM CLEARANCE ACCORDINGLY.
- MEASURE MINIMUM CLEARANCE FROM THE LOW STEEL ELEVATION OF THE TALLEST PANEL TO THE HIGHPOINT ELEVATION OF TRAVELED WAY OR SHOULDER BENEATH THE STRUCTURE.

LEAD EXPERT OFFICE

EDWARD LUTGEN
OFFICE DIRECTOR
BRIDGE OFFICE



STANDARD PLAN 5-297.761

1 OF 1

THOMAS STYRBICKI
STATE DESIGN ENGINEER

APPROVED: 11-29-2022
REVISED:

STATE PROJ. NO.

STANDARD OVERHEAD SIGN
STRUCTURES - DESIGN D
GENERAL ELEVATIONS, SECTIONS, AND NOTES

(TH) SHEET NO. OF SHEETS

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