

INDEX OF SHEETS	
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B.14 - 15	Type B Sign Details
C Sheets	Quantities and General Information
C.1 - 7	Estimated Project Quantities and Reference Notes
C.8	Standards
C.8	Index of Tabulations
C.9 - 10	Tabulations
C.11 - 12	Signing Notes
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
N Sheets	Traffic Signing Sheets
N.1 - 13	Traffic Signing Sheets
N.14 - 17	Cross Section Sheets



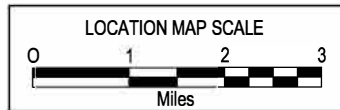
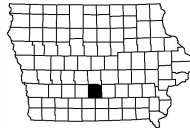
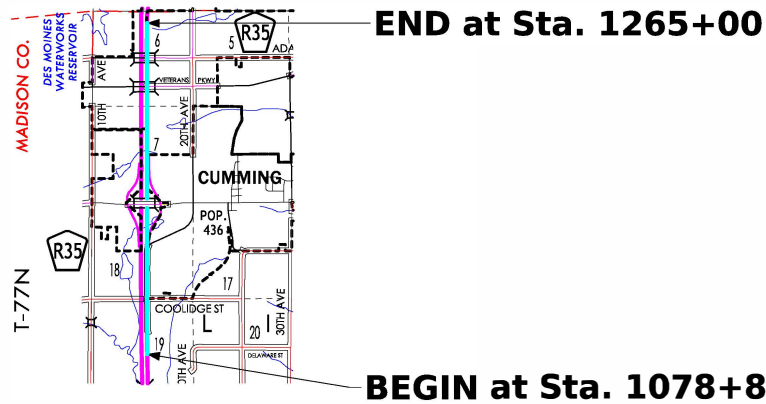
PLANS OF PROPOSED IMPROVEMENT ON THE
INTERSTATE ROAD SYSTEM
WARREN COUNTY
Traffic Signs

1.8 mi S of Co Rd G14 to 0.25 mi N of Adams St (NB)

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.13 of the Specifications.



INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	Jason Hermann	Primary Signature Block	C.1 - 7

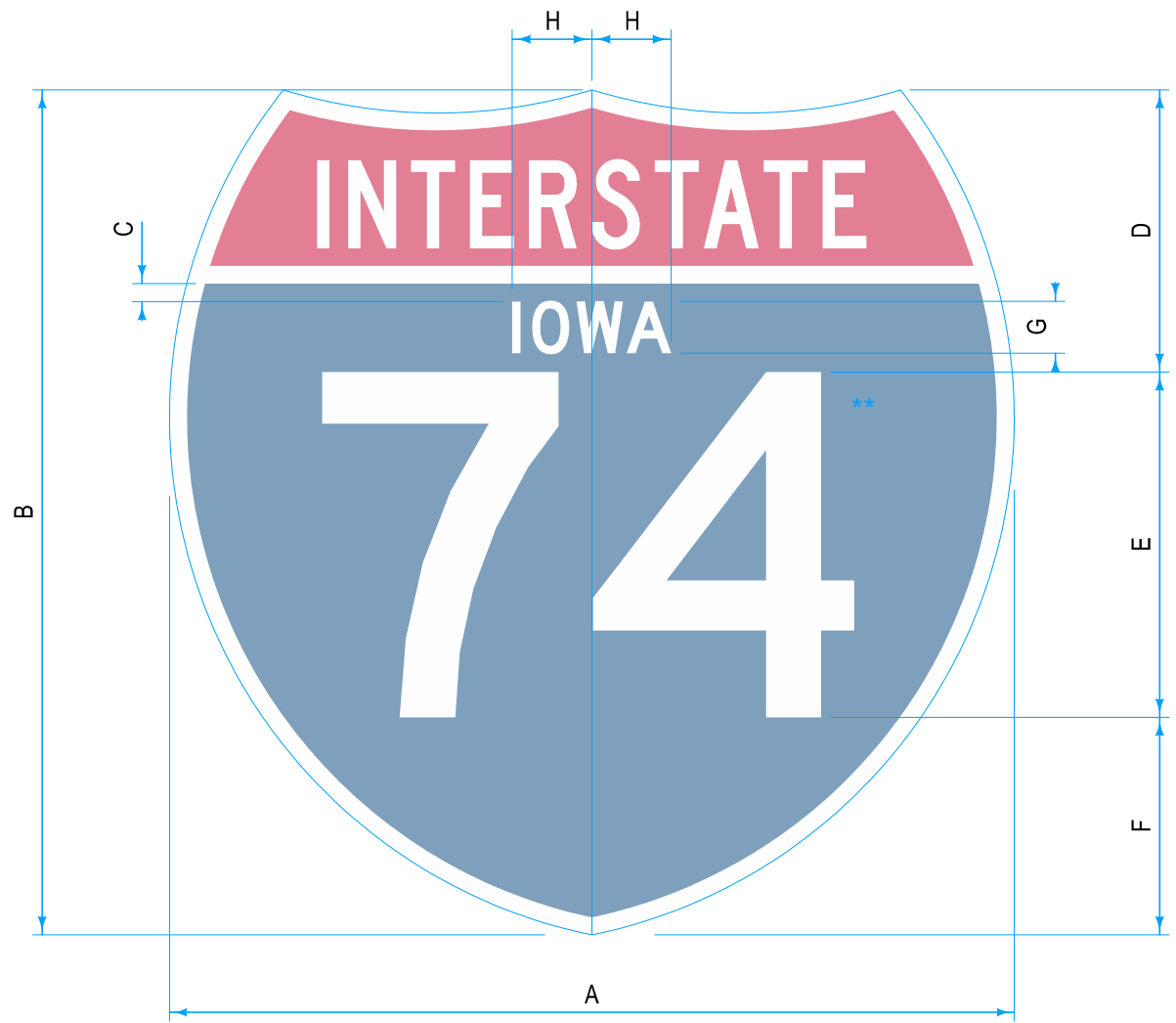


I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature Jason Hermann Date 09-01-2026
Printed or Typed Name Jason Hermann

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: A.1, B.1-13, C.1-12, J.1, N.1-17



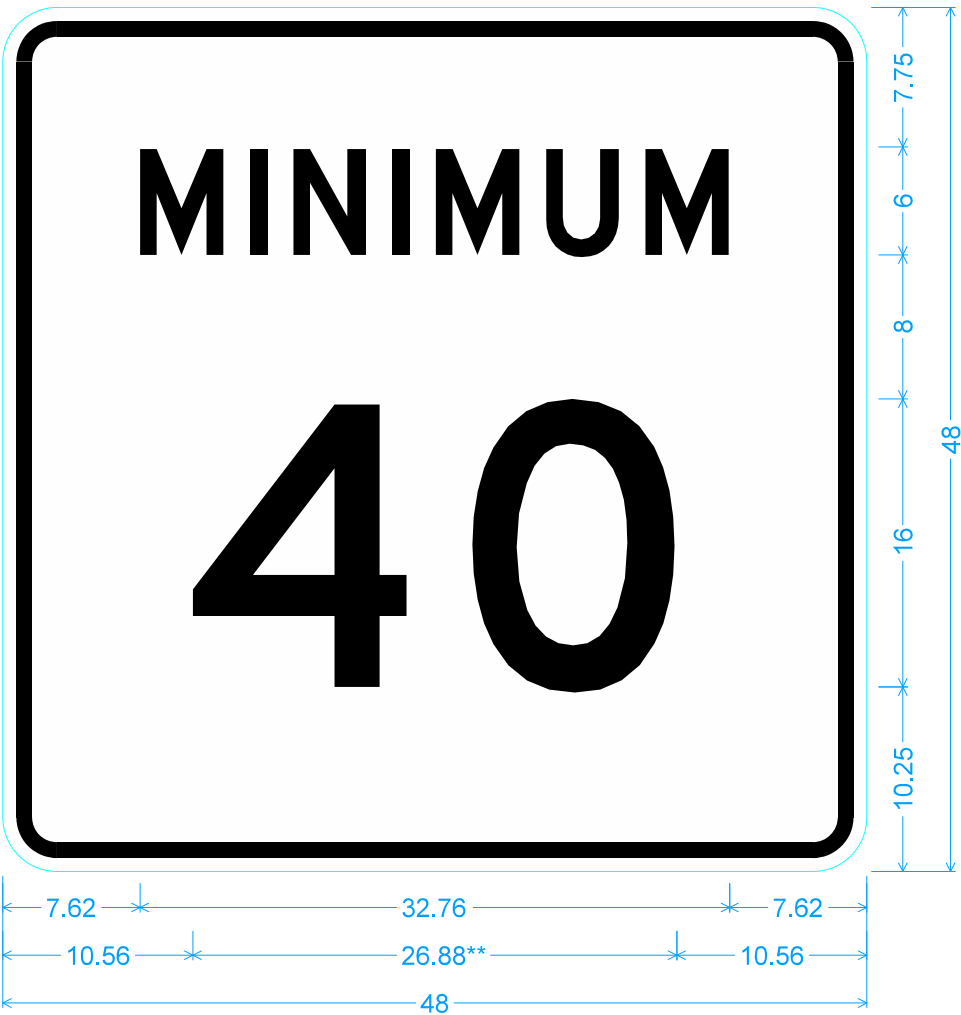
M1-1 (Iowa)
Stand Alone Route Shield
(Not for use on guide signs)

* Series 2000 Standard Alphabets.
** Optically space numerals about vertical centerline.

SIGN	A	B	C	D	E	F	G	H
1,2 digits	24	24	0.5	8	10 D	6	1.5 D	2.27
1, 2 digits	36	36	0.75	12	15 D	9	2.25 D	3.4
3 digits	30	24	0.5	8	10 C	6	1.5 D	2.27
3 digits	45	36	0.75	12	15 C	9	2.25 D	3.4

Refer to FHWA 'Standard Highway Signs, 2004 Edition' for additional sign layout and dimension information.

TYPE A SIGN DETAIL
M1-1 (IOWA)



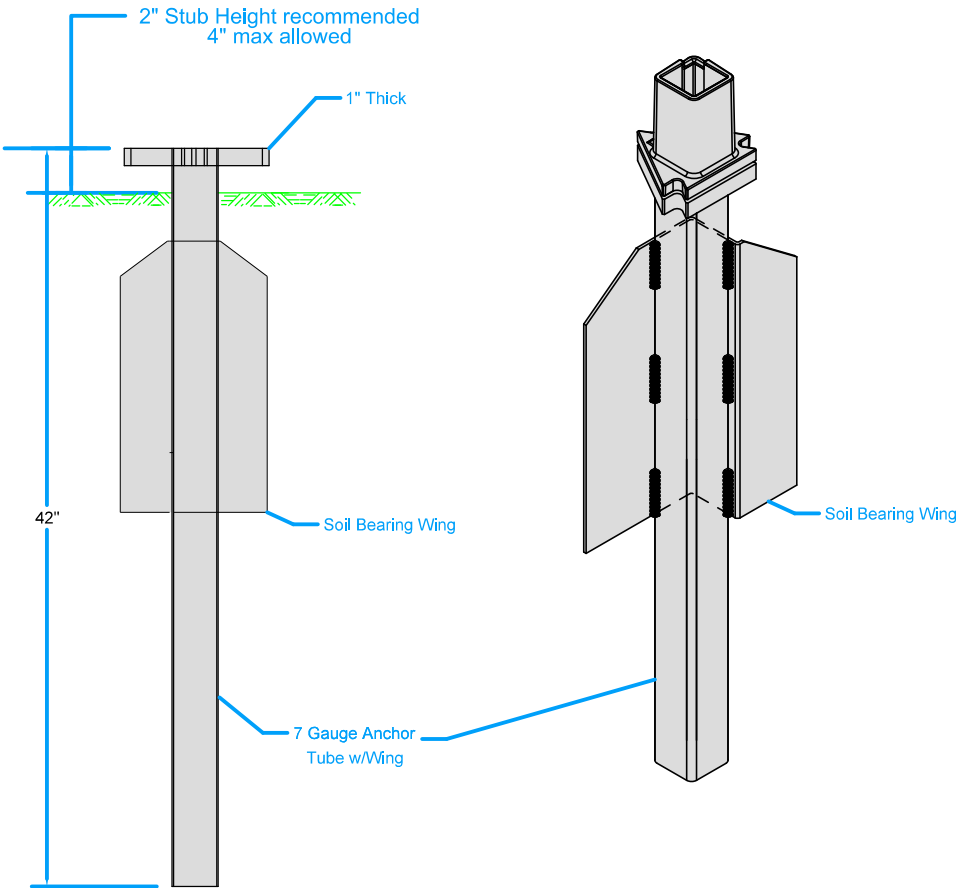
R2-4A;
3.000" Radius, 0.875" Border, 0.750" Indent, Black on White;
[MINIMUM] D 2K; [40] D 2K; *

R2-4 (Iowa)
Interstate/Freeway/Expressway use only.

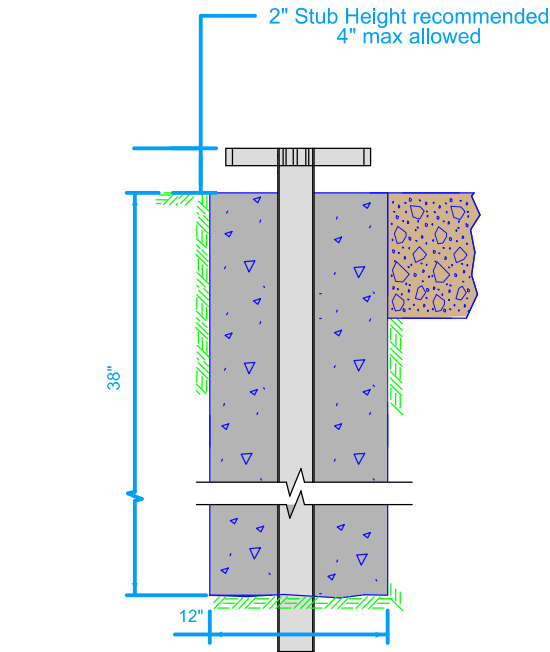
* Series 2000 Standard Alphabets.
** Optically space numerals about vertical centerline.

TYPE A SIGN DETAIL
R2-4 (IOWA)

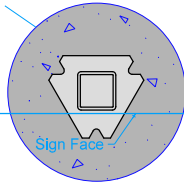
TYPE 3 INSTALLATION
(TRIANGULAR SLIP BASE SOIL)



TYPE 4 INSTALLATION
(TRIANGULAR SLIP BASE CONCRETE)



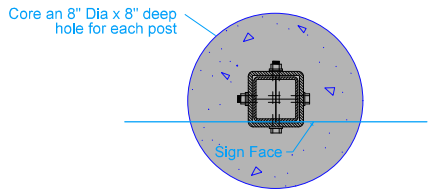
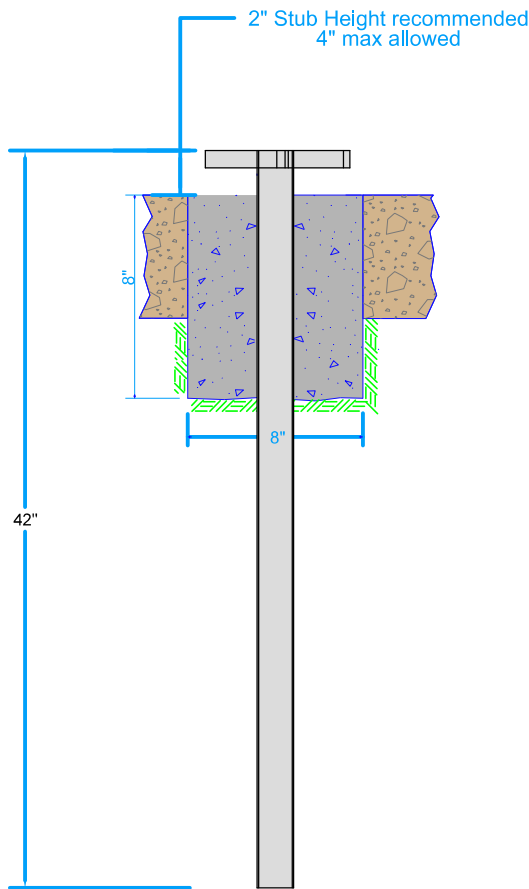
Core an 12" Dia x 3' -2" deep
hole for each post



REVISION	00-00-00
STANDARD ROAD PLAN	---
REVISION: _	TAS STANDARD
Support Structures - Perforated Square Steel Tube Anchor and Post	

TYPE B SIGN
OVERLAY DETAILS

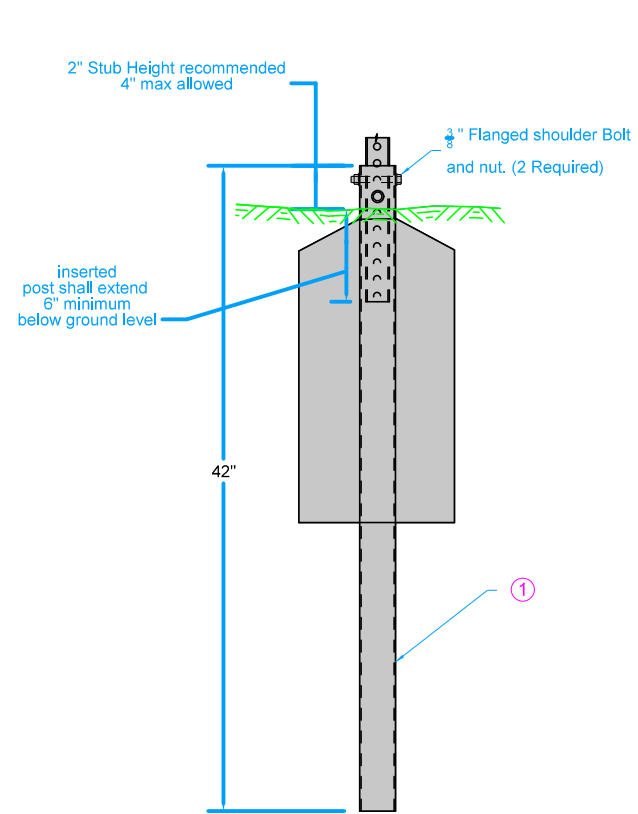
TYPE 5 INSTALLATION
(TRIANGULAR SLIP BASE CONCRETE)



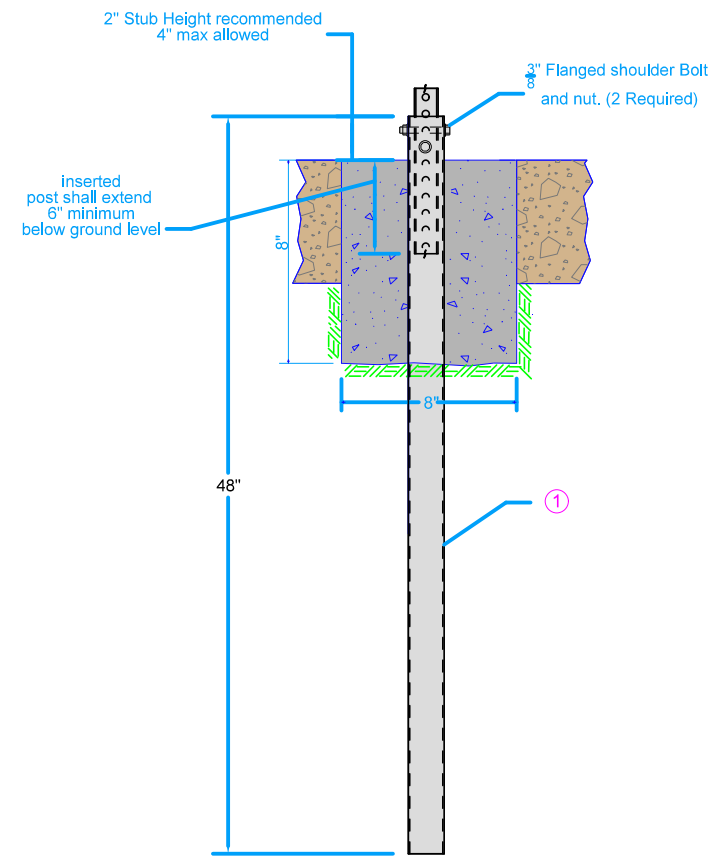
① Used in concrete islands.

	REVISION	
	-	00-00-00
STANDARD ROAD PLAN	■■■	
	TAS STANDARD	
REVISION: __		
Support Structures - Perforated Square Steel Tube Anchor and Post		

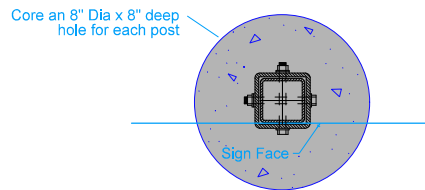
TYPE 1 INSTALLATION
(BREAK AWAY SOIL)



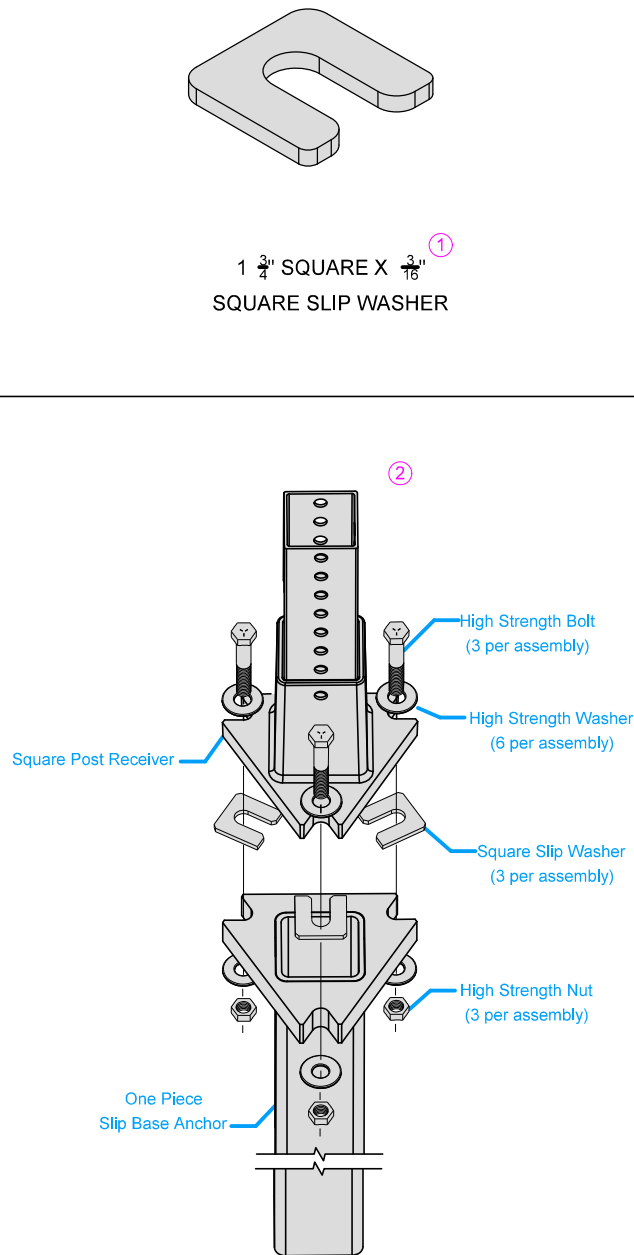
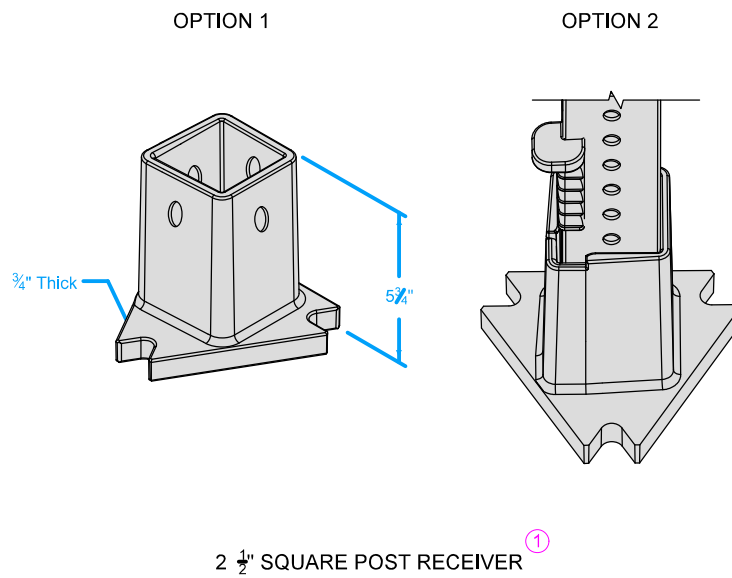
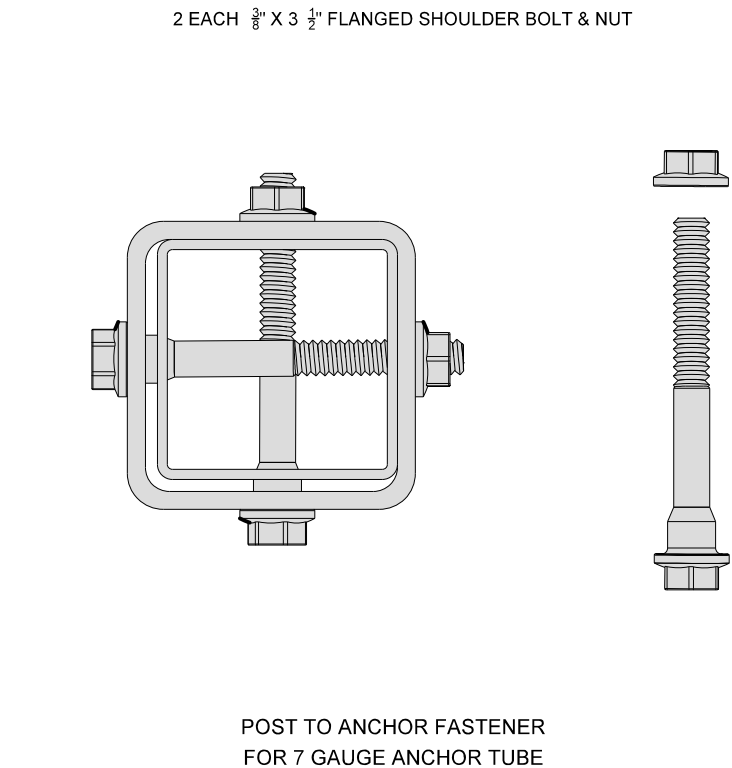
TYPE 2 INSTALLATION
(BREAK AWAY CONCRETE)



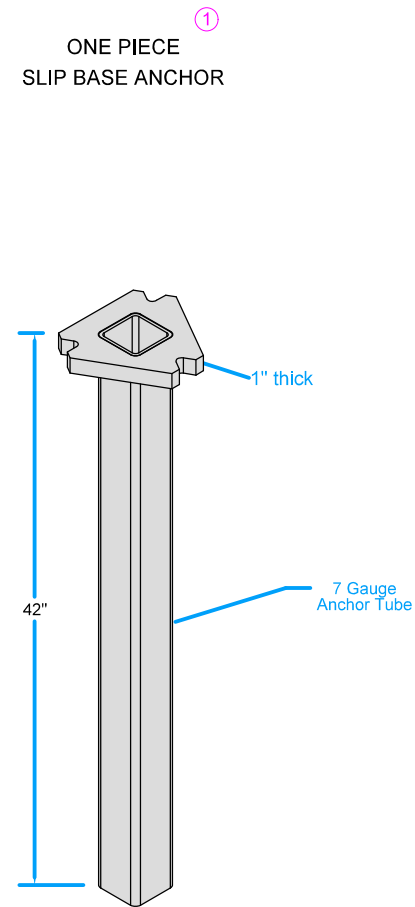
① 3" x 3" x 7 gauge anchor tube



REVISION	-	00-00-00
	---	TAS STANDARD
STANDARD ROAD PLAN		
REVISION: __		
Support Structures - Perforated Square Steel Tube Anchor and Post		



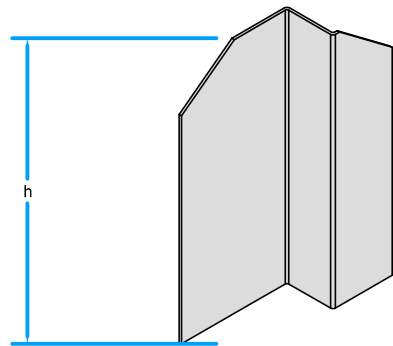
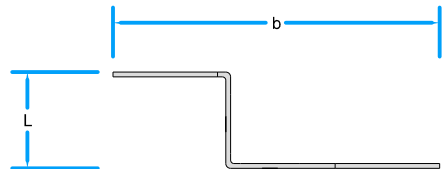
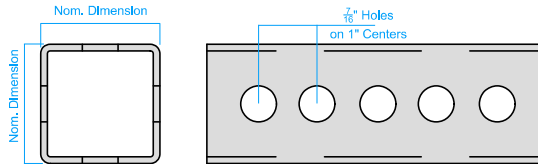
EXPLODED VIEW ①
SLIP BASE, RECEIVER AND
CONNECTION HARDWARE



- ① Type III/IV installation
- ② Fastener size and installation procedure shall be according to manufacturer's recommendation.

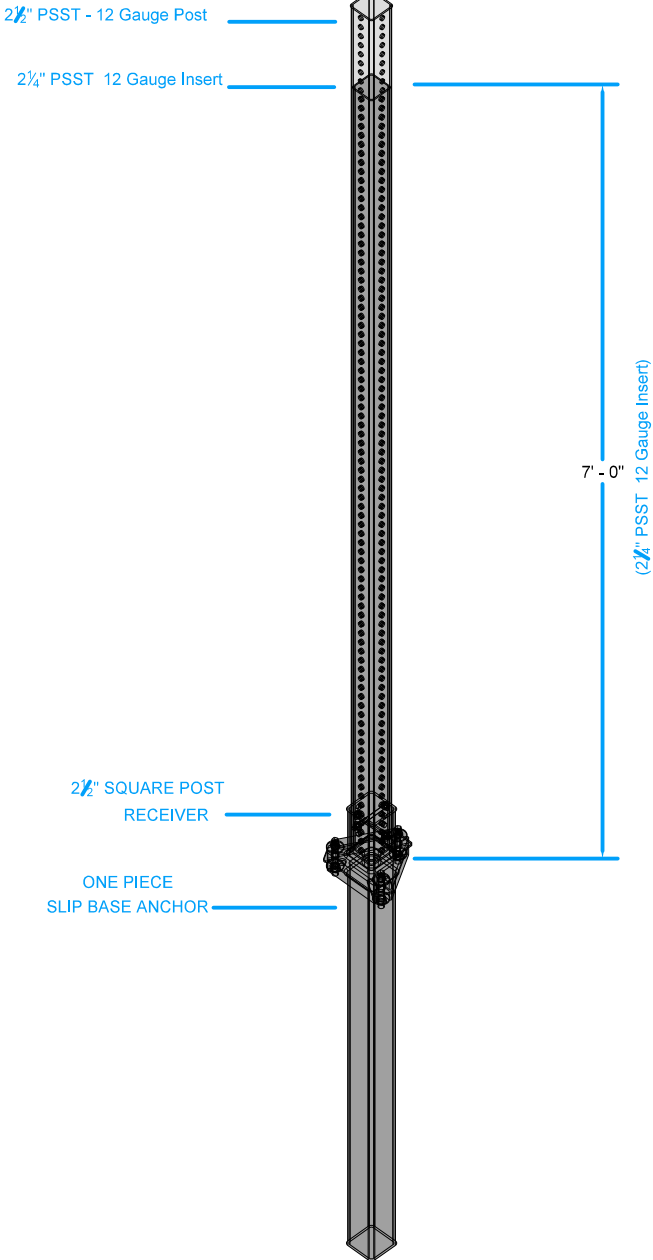
	REVISION	
	-	00-00-00
STANDARD ROAD PLAN		
	TAS STANDARD	
REVISION: __		
Support Structures - Perforated Square Steel Tube Anchor and Post		

PERFORATED STEEL SQUARE TUBE POST DETAILS

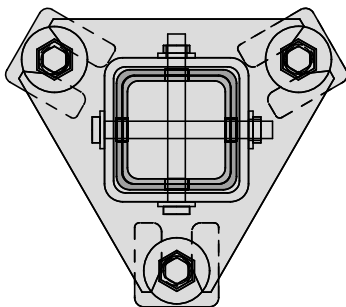
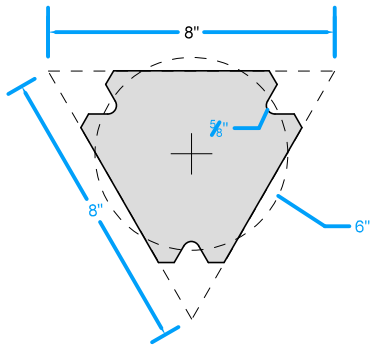


SOIL BEARING WING

SLIP BASE WITH NESTED PERFORATED SQUARE STEEL TUBE POST ①



SLIP PLATE DIMENSIONS ①

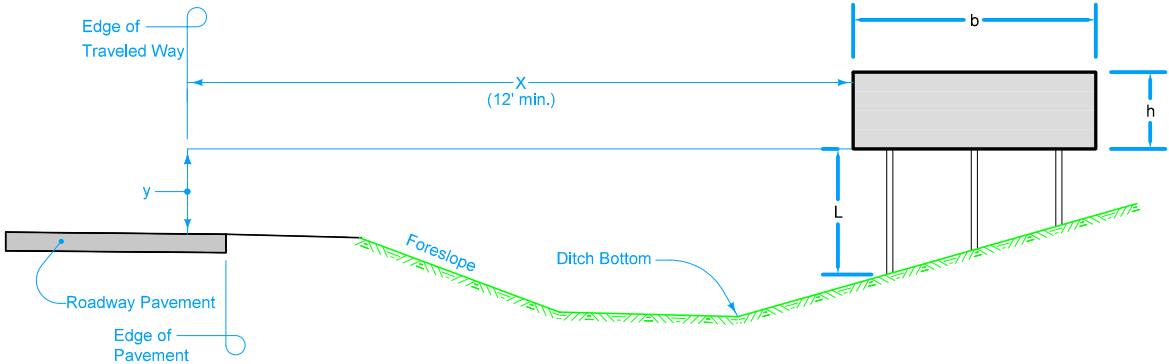


① Type III/IV installation only

	REVISION	
	-	00-00-00

STANDARD ROAD PLAN	TAS STANDARD	
REVISION: __		
Support Structures - Perforated Square Steel Tube Anchor and Post		

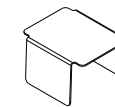
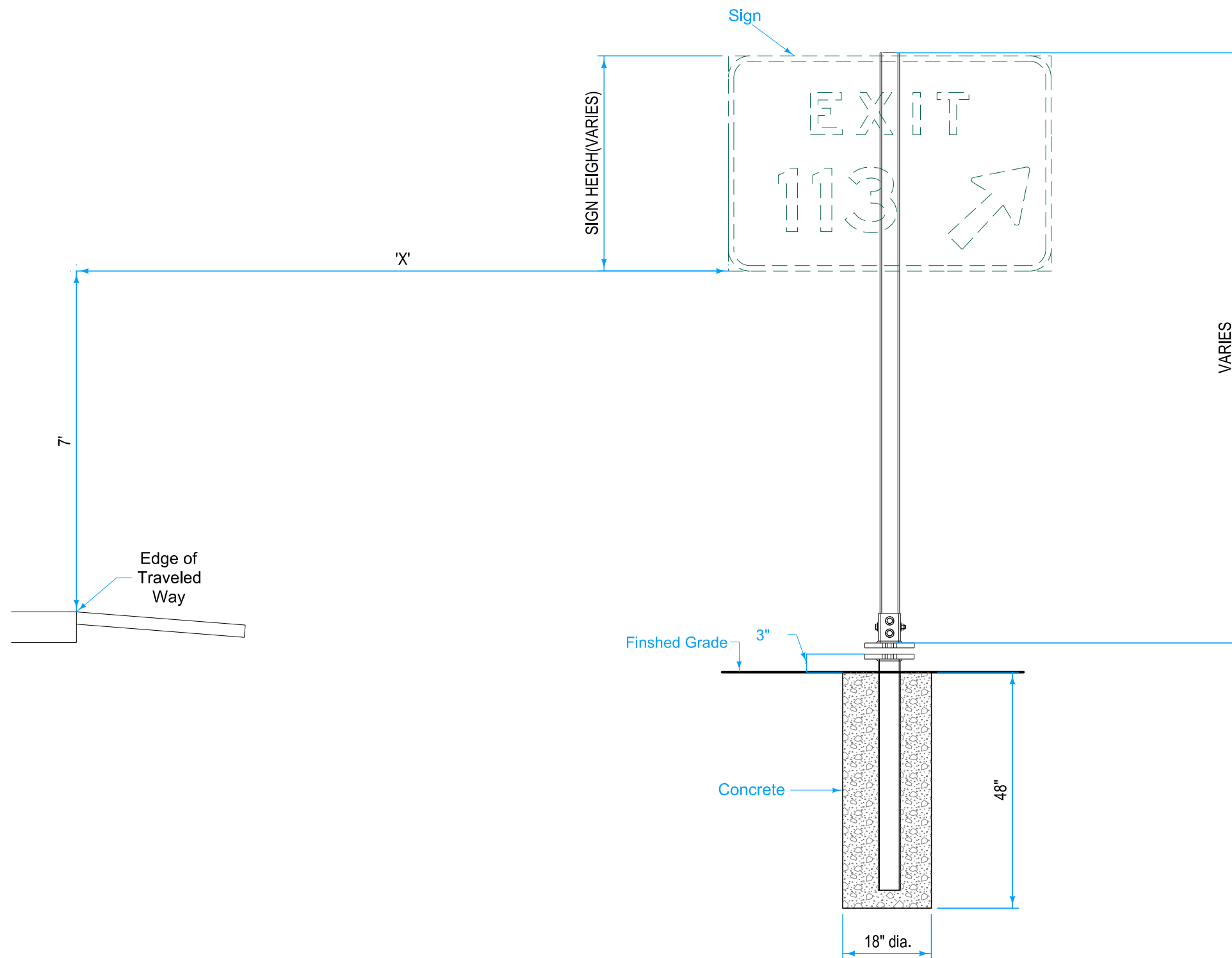
POST LOADING FOR PERFORATED SQUARE STEEL TUBE POSTS							
SIGN CENTROID (FT)	SIGN AREA (SQ-FT) YIELDING DESIGN						
	TYPE 1 TYPE 2	TYPE 3/TYPE 4 (SLIP BASE REQUIRED)					
		2 ½" x 12ga	2 ½" x 12ga		2 ¼" x 12ga inserted into a 2 ½" x 12 ga		
		1 Post	2 Post	3 Post	1 Post	2 Post	3 Post
16.5	10.44	20.88	31.32	18.78	37.56	56.34	
16	10.76	21.52	32.28	19.36	38.72	58.08	
15.5	11.11	22.22	33.33	19.99	39.98	59.97	
15	11.48	22.96	34.44	20.65	41.3	61.95	
14.5	11.87	23.74	35.61	21.36	42.72	64.08	
14	12.3	24.6	36.9	22.13	44.26	66.39	
13.5	12.75	25.5	38.25	22.95	45.9	68.85	
13	13.24	26.48	39.72	23.83	47.66	71.49	
12.5	13.77	27.54	41.71	24.78	49.56	74.34	
12	14.35	28.7	43.05	25.82	51.64	77.46	
11.5	14.97	29.94	44.91	26.94	53.88	80.82	
11	15.65	31.3	46.95	28.16	56.32	84.48	
10.5	16.4	32.8	49.2	29.5	59	88.5	
10	17.22	34.44	51.66	30.98	61.96	92.94	
9.5	18.12	36.24	54.36	32.61	65.22	97.83	
9	19.13	38.26	57.39	34.42	68.84	103.26	
8.5	20.26	40.52	60.78	36.45	72.9	109.35	
8	21.52	43.04	64.56	38.72	77.44	116.16	



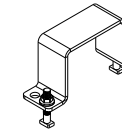
Note: The sign centroid is equivalent to $L + h/2$, (length of the longest post from the ground to the bottom of the sign plus the half the height of the sign.) and the Sign Area Yielding Design is the maximum area that the corresponding sign can have without failure. Sign Area is equivalent to $b \times h$.

- ① Adapted from AASHTO Standard Specifications for - Highway Signs, Luminaires, and Traffic Signals. 6th Edition 2013. <Rev B 4/7/14>
- ② 90 MPH Wind Load

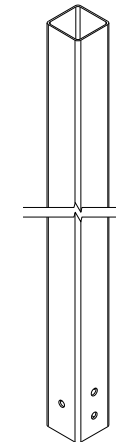
	REVISION	
	-	00-00-00
	■■■	
	TAS STANDARD	
STANDARD ROAD PLAN		
REVISION: __		
Support Structures - Perforated Square Steel Tube Anchor and Post		



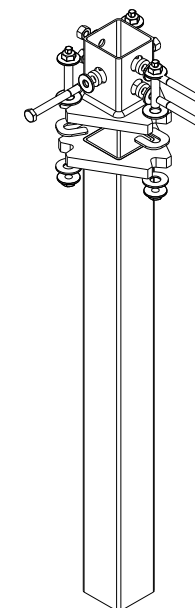
X4SQCC
Post Cap



UPC400SQ
Post Clamp



4" x 8ga
galvanized
sign post

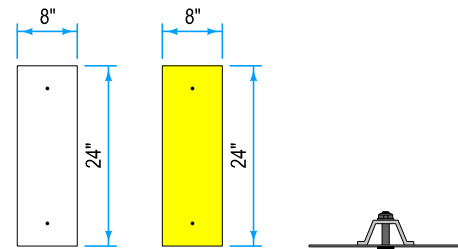
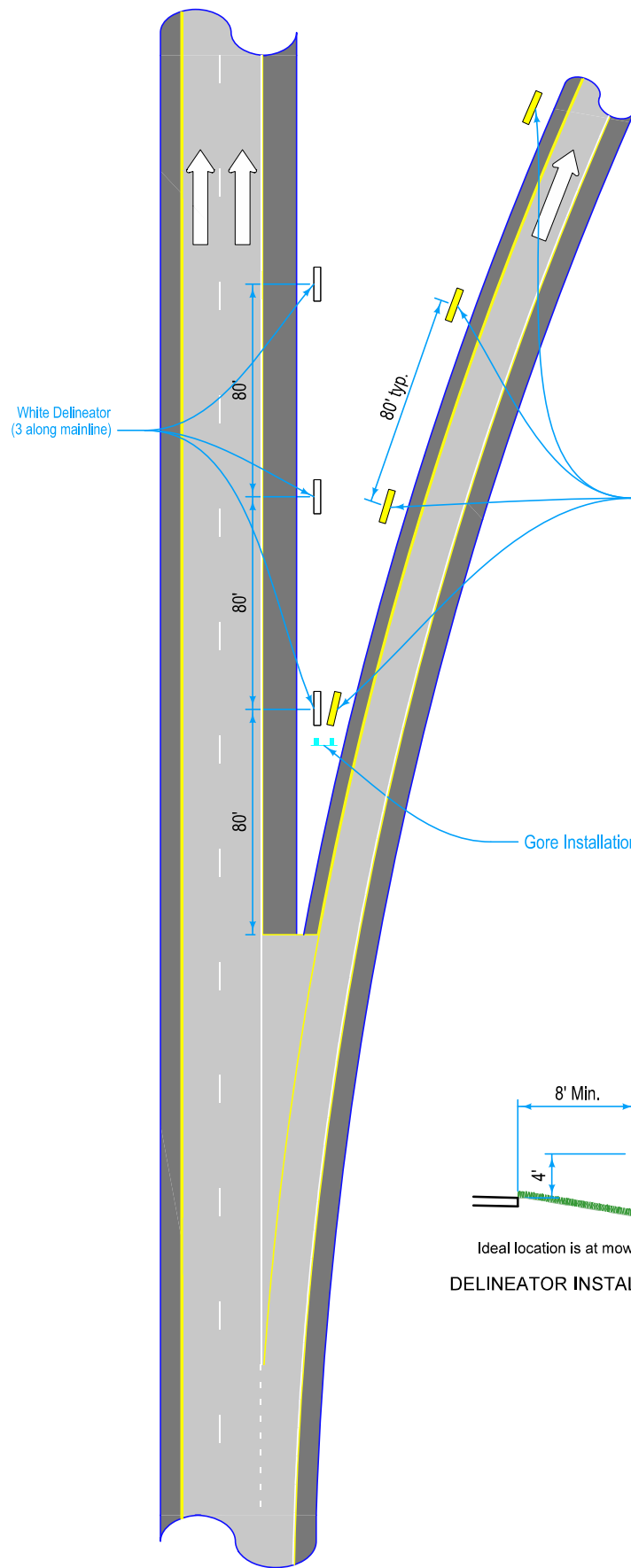


RT13UX-400A-48C-G
slip base assembly

TYPICAL INSTALLATION

NOTE:
For sign installations, install 18" diameter by 48" depth concrete foundation.
Top of concrete foundation shall be flush with surrounding grade.
Top of slip base plate shall extend no higher than 3" above ground.

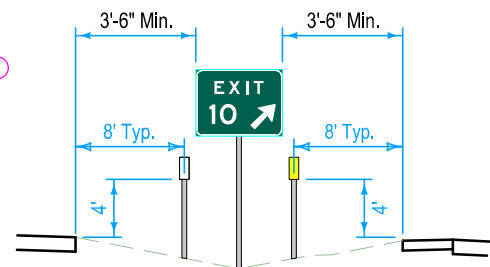
MASSH POST
DETAIL



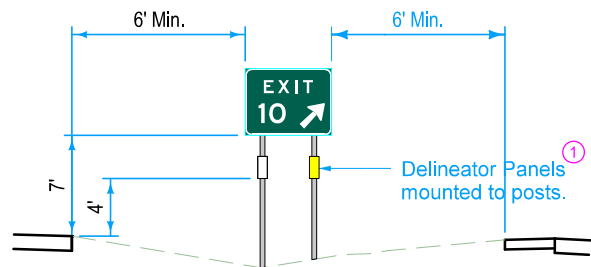
White or Yellow
(match edge line)

Panel to post attachment
same as for reference post
(refer to SI-171)

RETROREFLECTIVE DELINEATOR PANEL



MASSH-400 POST GORE INSTALLATION



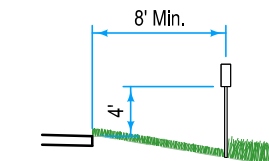
Exit gore sign must be installed at 7' height above
edge of roadway and be less than 80' from end
of paved gore.

GORE INSTALLATION

This is a typical layout. Additional route signing may be required

Only one direction of travel shown.

The distances given are for a rural application and may vary
to fit existing conditions.



Ideal location is at mow edge.

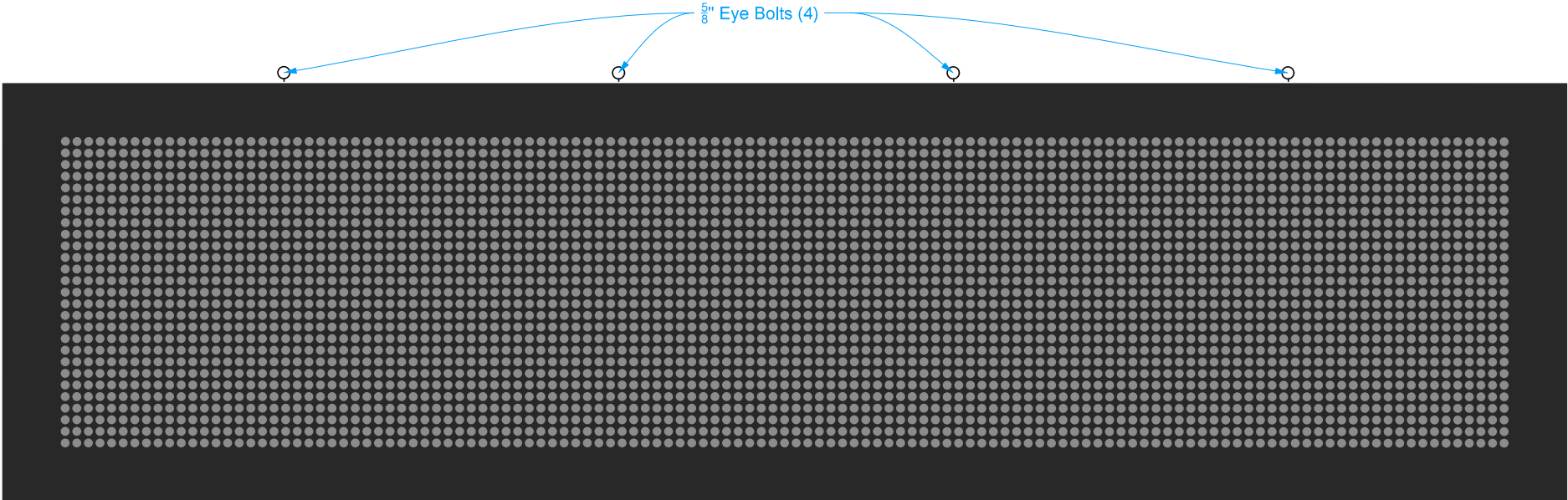
DELINEATOR INSTALLATION

TYPICAL SIGNING LAYOUT	REVISION	
	NEW	10-05-15
TAS-811		
TAS STANDARD		
REVISION: __		
Gore Delineation		

DIMENSIONAL INFORMATION
SKYLINE OVERHEAD DMS

Type: VMSLED-WV-20F-112x432-30C-I+-ISC
Pixels: 112 x 432 (width x height)

Height: 9' 2 5/8"
Width: 30' 3 13/16"
Depth: 3' 4" (4' 2" including brackets)
Weight: 4440 lbs. (maximum)



DELIVERY REQUIREMENTS

Contractor to coordinate delivery with the Engineer and the manufacturer.

Contractor responsible to secure the DMS when shipped to the project or the contractor's storage yard.

TRANSPORTATION REQUIREMENTS

All material and equipment necessary to transport the sign to or from the storage site and/or installation site shall be furnished by the Contractor.

The sign shall be transported in the upright position. At no point in time shall the sign be laid on its side, front, or back.

To avoid damage to the sign during transport, consult the sign manufacturer to determine the correct method to secure the sign to the trailer.

Any damage incurred during transportation shall be the responsibility of the Contractor.

STORAGE REQUIREMENTS

All material and equipment necessary to store the sign at the designated site shall be furnished by the Contractor.

The sign shall be stored upright and level. At no point in time shall the sign be laid on its side, front, or back.

The sign must be blocked up at least three inches from the ground. When the sign is not stored on concrete, extra blocking shall be used to provide for settlement.

Remove shipping support legs from the DMS after installation on the support structure.

During transportation and storage, the DMS shall be secured at all times to prevent tipping. The DMS shall be secured with dead man anchors or other suitable methods. The DMS shall not be marred by the selected method. Tipping may be caused by any number of reasons, but high winds and other weather related events are the primary concern while the DMS is on the ground.

Any damage resulting from the failure to properly secure the DMS shall be the responsibility of the Contractor.

ATTACHMENT HARDWARE

All materials necessary to attach the DMS to the support structure will be furnished by the contractor.

Dry fit the DMS to the sign truss to determine the actual attachment bracket locations. Adjust the brackets to avoid conflicts between the U Bolts and the internal members of the sign truss. Drill the bolt holes in the Z bracket on the back of the DMS after conflicts are resolved.

After installation of the DMS onto the truss, ensure that all unused hardware (bolts, nuts, washers, etc), construction materials, tools and such are removed from the structure. The Contractor is liable for any damages that result from materials falling into traffic.

LIFTING REQUIREMENTS

The following procedures should be followed when lifting the sign for either removal or installation, including lifting the sign from the storage site to the trailer or the reverse, and from the trailer to the support structure or the reverse.

The Contractor shall provide all equipment necessary to lift the DMS.

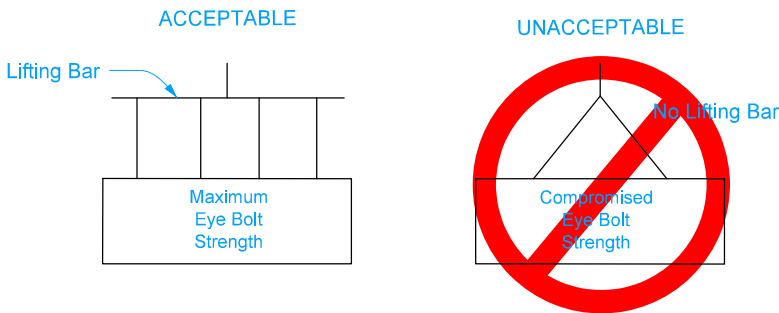
The crane and lifting bar shall be rated to lift the weight of the sign.

Any damage incurred during lifting shall be the responsibility of the Contractor.

Consult the manufacturer for complete lifting requirements.

The eyebolts used to lift the sign shall be furnished by the Contractor. The rated load of the eyebolts shall not be exceeded. Consult manufacturer for specific information about the eyebolts.

The figures illustrate the correct (left example) and the incorrect (right example) method of lifting a sign. Lift the sign with the lifting bar as shown on the left. Use every lifting point (eyebolt) provided. Not doing so may cause the eyebolts to fail.



After installation, plug and seal the eyebolt openings as per the manufacturer's requirements. Any damage incurred by improperly sealed openings shall be the responsibility of the Contractor.

Overhead
Dynamic Message Sign
Typical Dimensions
and Care and Handling
Requirements

NOTES:

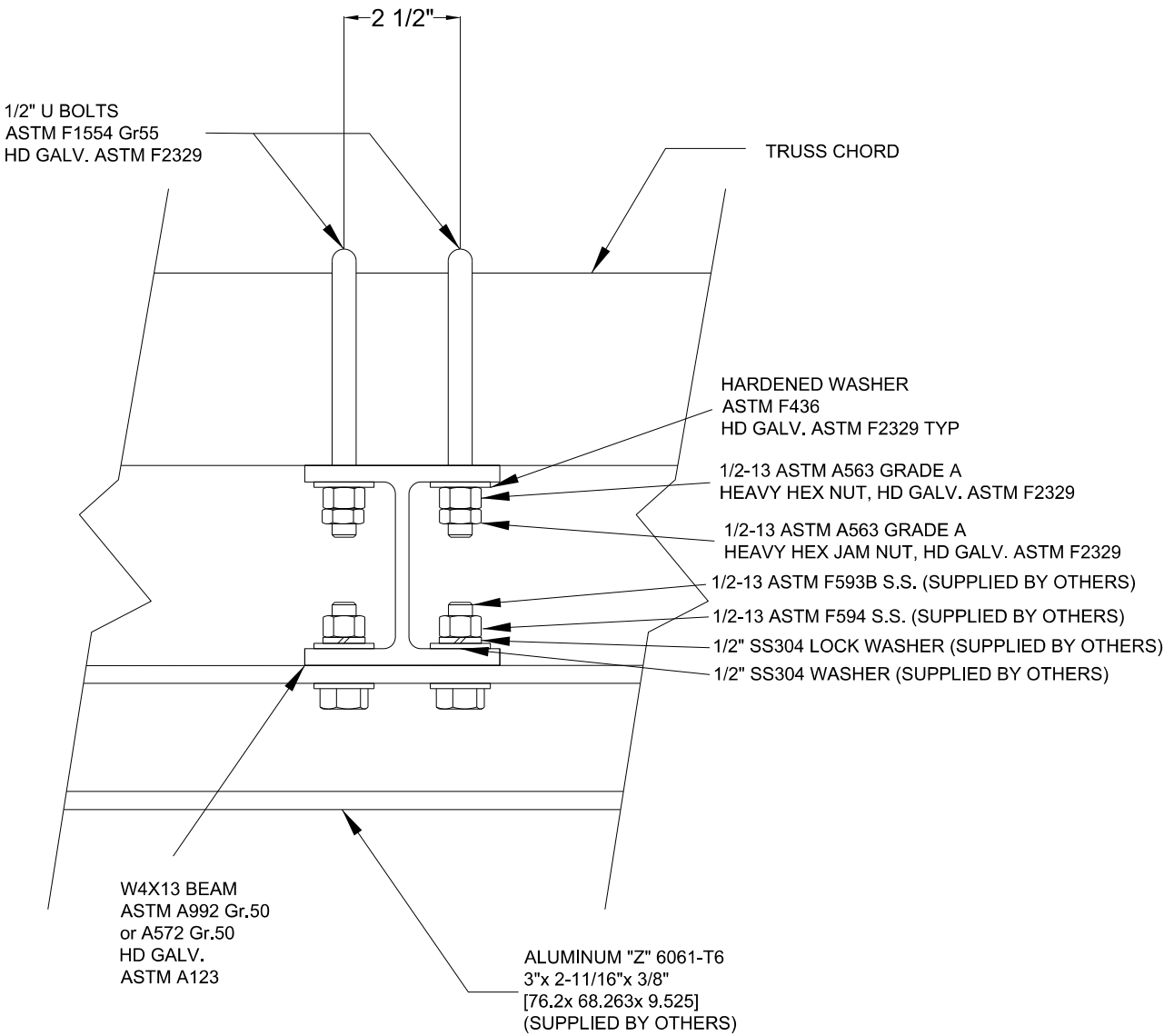
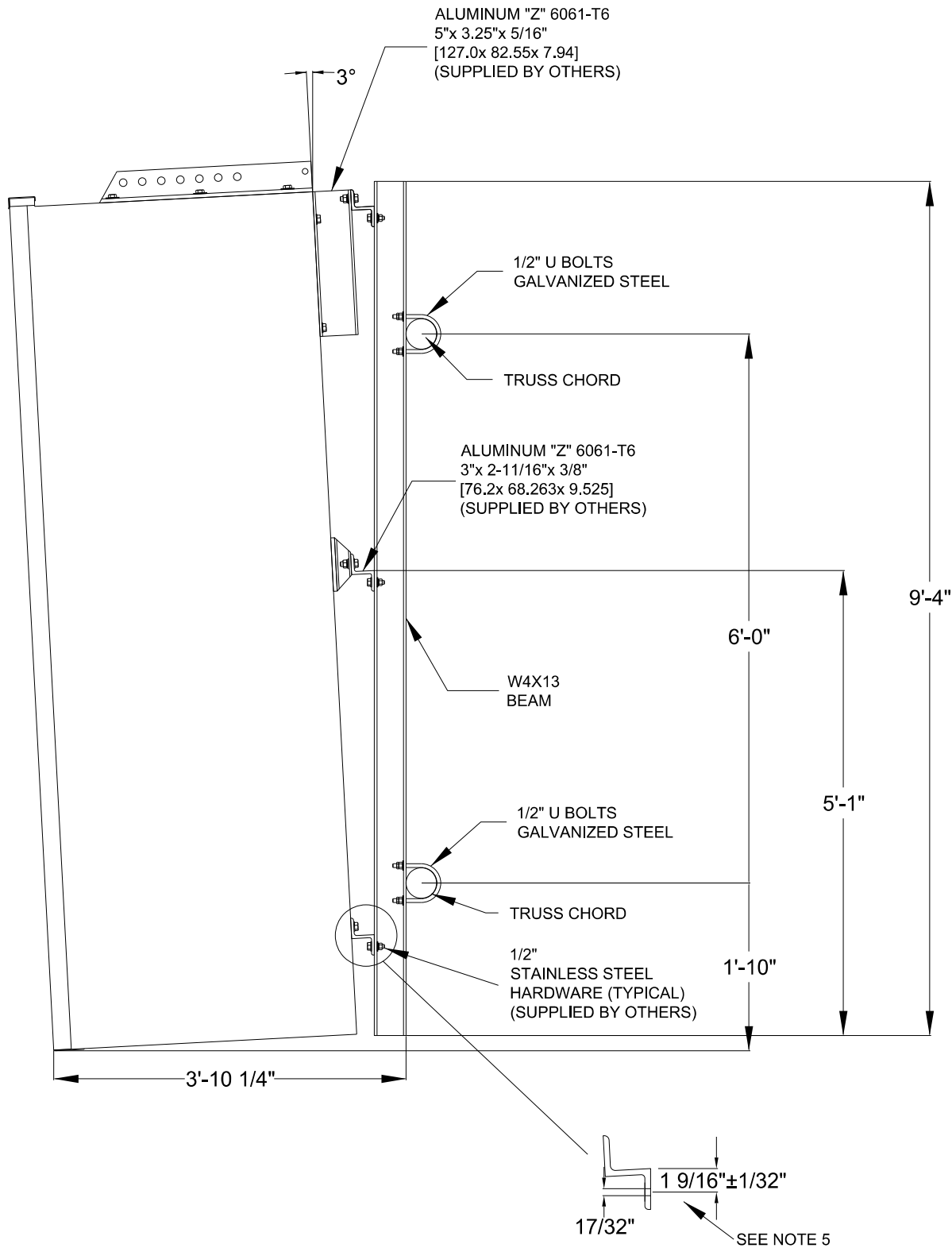
1. PART/ASSEMBLY SHALL COMPLY WITH ALL APPLICABLE MANUFACTURER WORKMANSHIP STANDARDS.

2. SIGN HOUSING, BACK, SIDES, TOP, BOTTOM & INSIDE NATURAL ALUMINUM, MILL FINISH.

3. ALL EXPOSED HARDWARE AND FASTENERS ARE STAINLESS STEEL, GALVANIZED STEEL, OR ALUMINUM.

4. ALL DISSIMILAR METALS TO HAVE AN ELECTROLYTIC BARRIER MATERIAL APPLIED.

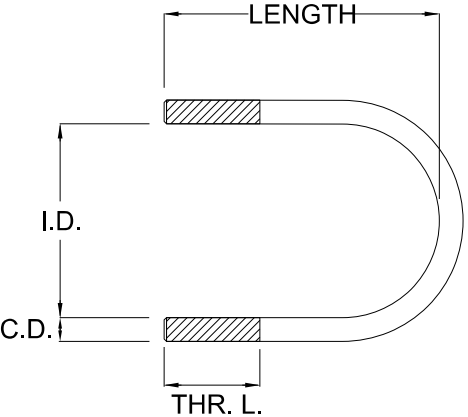
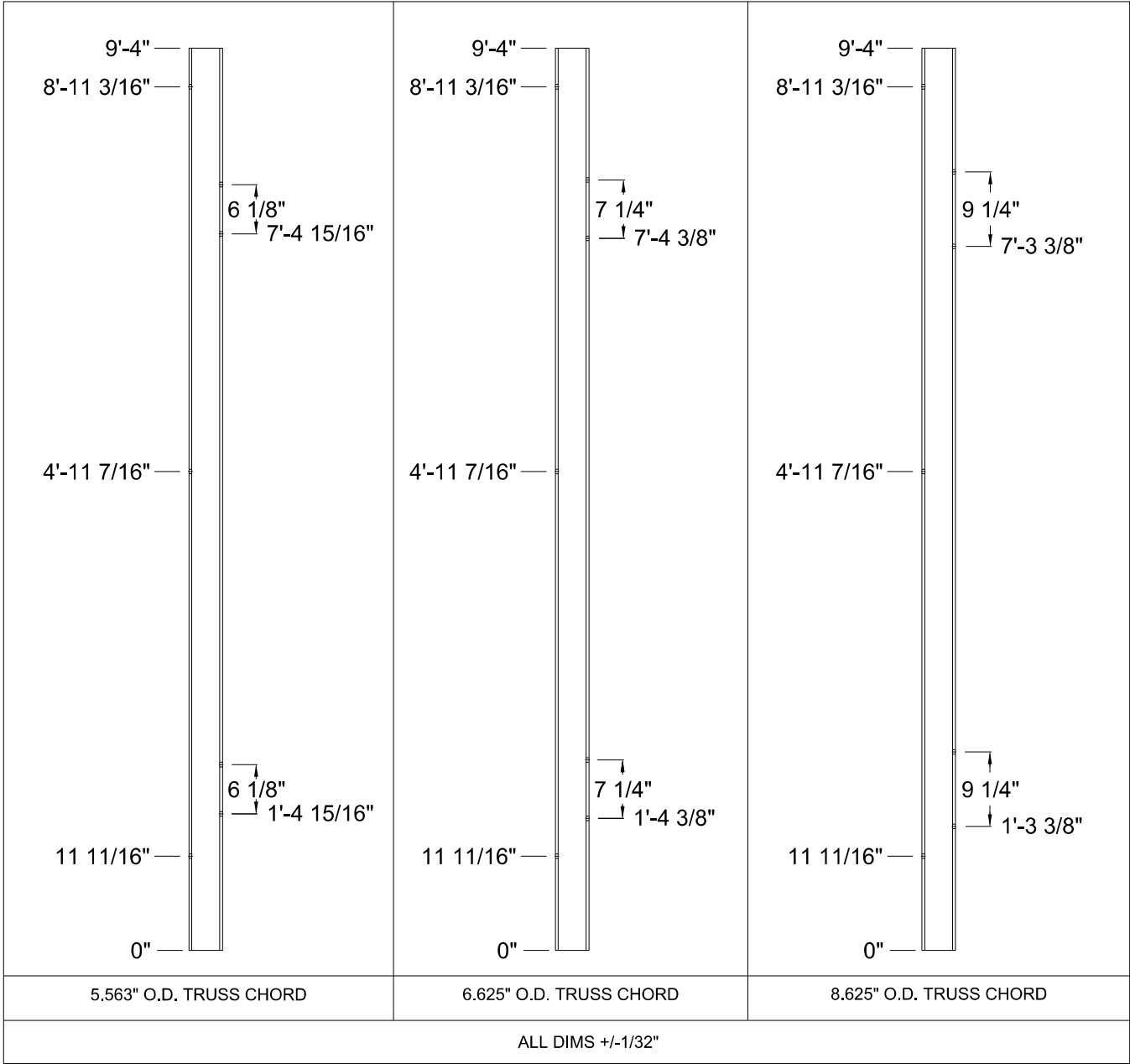
5. FIELD DRILL ZEE TO BEAM HOLES WITHIN SPECIFIED DIMENSIONS.
6. TO MOUNT DMS CABINET TO SUPPORT TRUSS, PROVIDE A W4x13 VERTICAL SUPPORT BEAM WITHIN 1 FOOT OF EACH DMS CABINET INTERNAL PRIMARY FRAME LINE. THE INTERNAL PRIMARY FRAME LINES ARE SPACED HORIZONTALLY AT APPROXIMATELY 5 FEET ON CENTER. THE FIRST PRIMARY FRAME LINE IS BETWEEN 6 INCHES AND 1 FOOT FROM THE END OF CABINET. CONTRACTOR SHALL REVIEW APPLICABLE DMS CABINET DESIGN DRAWINGS TO VERIFY NUMBER AND LOCATIONS OF INTERNAL PRIMARY FRAME LINES.



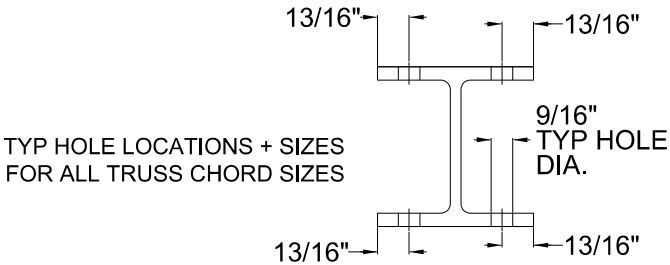
INFORMATION ONLY

OVERHEAD
DYNAMIC MESSAGE SIGN
ATTACHMENT DETAILS

- NOTES:
- 1. PART/ASSEMBLY SHALL COMPLY WITH ALL APPLICABLE MANUFACTURER WORKMANSHIP STANDARDS.
 - 2. SIGN HOUSING, BACK, SIDES, TOP, BOTTOM & INSIDE NATURAL ALUMINUM, MILL FINISH.
 - 3. ALL EXPOSED HARDWARE AND FASTENERS ARE STAINLESS STEEL, GALVANIZED STEEL, OR ALUMINUM.
 - 4. ALL DISSIMILAR METALS TO HAVE AN ELECTROLYTIC BARRIER MATERIAL APPLIED.
 - 5. FIELD VERIFY TRUSS CHORD SIZES AND SPACING PRIOR TO BEAM FABRICATION.
 - 6. REPAIR GALVANIZED COATING WITH AN APPROVED ZINC-RICH PAINT IN ACCORDANCE WITH IOWA DOT MATERIALS I.M. 482.02 APPENDIX A.

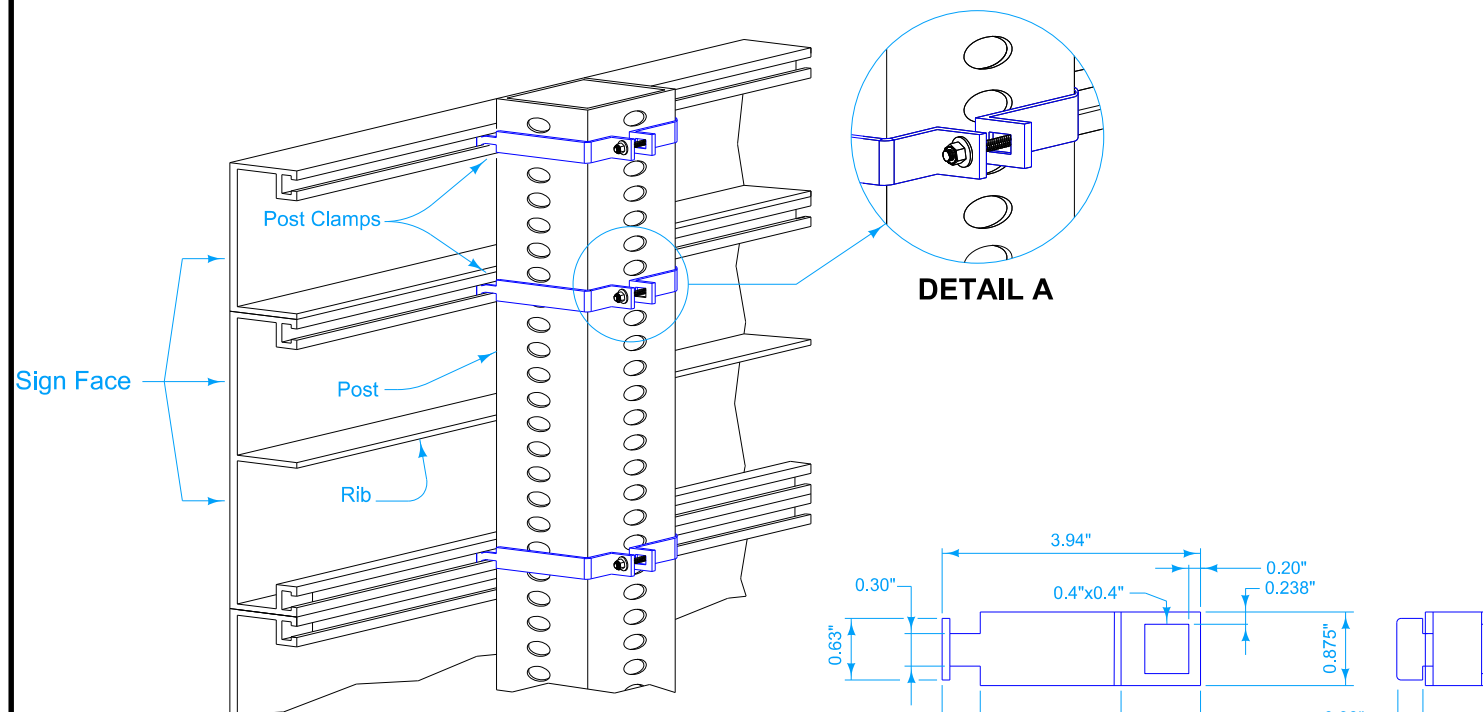


U BOLT SIZE CHART				
TRUSS CHORD O.D.	THREAD LENGTH	I.D.	C.D.	LENGTH
5.563"	2"	5 5/8"	1/2"	7 1/4"
6.625"	2"	6 3/4"	1/2"	8 3/8"
8.625"	2"	8 3/4"	1/2"	10 3/8"

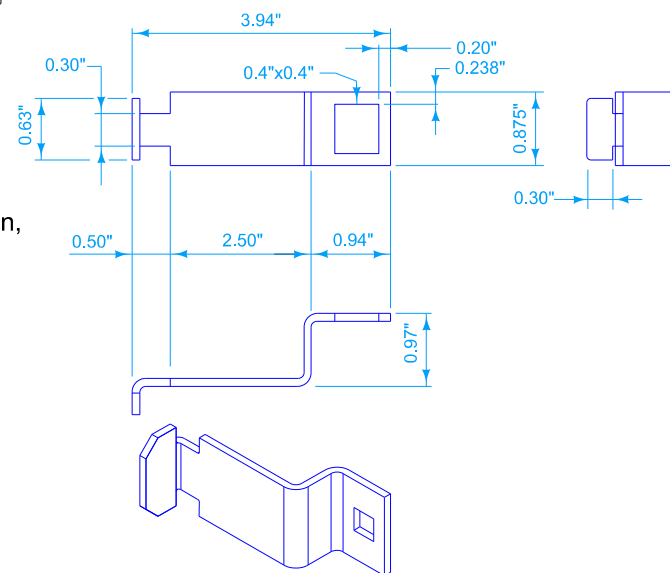


INFORMATION ONLY

OVERHEAD
DYNAMIC MESSAGE SIGN
ATTACHMENT DETAILS

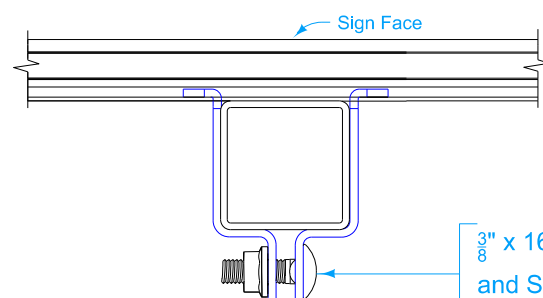


Install post clamps at top and bottom of the sign,
and at each joint for each post.



POST CLAMP DETAIL

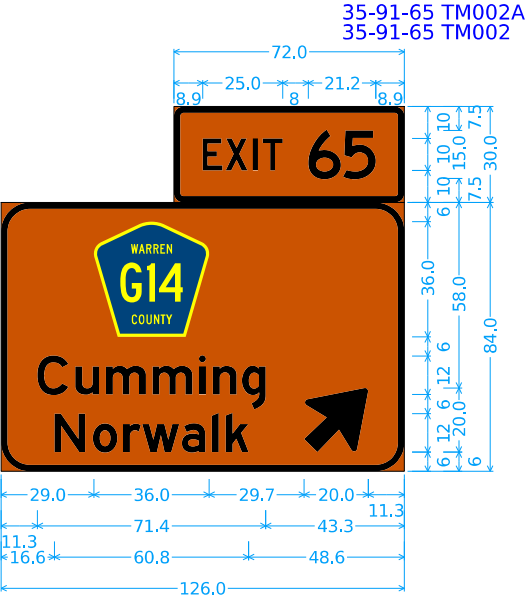
Post clamp shall be stainless.



PLAN VIEW

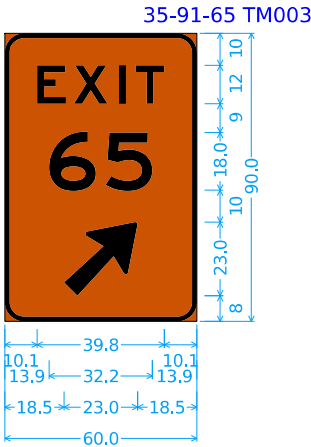
DETAILS OF PERFORATED SQUARE STEEL TUBE POST TYPE "B" SIGN ATTACHMENT

PSST POST - TYPE B
SIGN ATTACHMENT



E1-5P;
2.0" Border, Black on Orange;
"EXIT", D 2K; "65", D 2K 23% spacing;

9.0" Radius, 2.0" Border, Black on Orange;
Pentagonal County G14 M1-6;
"Cumming", E 2K; "Norwalk", E 2K;
Arrow I-E - 25.0" 45°;



top;
6.0" Radius, 1.5" Border, Black on Orange;
"EXIT", E 2K 150% spacing;
"65", E 2K;
Arrow Custom - 29.3" 45°;

STAGE 1 SIGN DETAILS
I-35



E1-5P;
2.0" Border, Black on Orange;
"EXIT", D 2K;
"65", D 2K 23% spacing;

9.0" Radius, 2.0" Border, Black on Orange;
Pentagonal County G14 M1-6;
"Cumming", D 2K;
"Norwalk", D 2K; "1 MILE", E 2K;

STAGE 3 SIGN DETAILS
I-35



top;
6.0" Radius, 1.5" Border, White on Green;
"EXIT", E 2K 150% spacing;
"65", E 2K;
Arrow Custom - 29.3" 45°;



E1-5P;
2.0" Border, White on Green;
"EXIT", E 2K 120% spacing; "65", E 2K;

12.0" Radius, 2.0" Border, White on Green;
Pentagonal County G14 M1-6; "Cumming", E Mod 2K;
"Norwalk", E Mod 2K; "1 MILE", E 2K;



Expressway Mileage 1 Line;
2.0" Radius, 1.5" Border, White on Green;
"West Des Moines", E Mod 2K;



E1-5P;
2.0" Border, White on Green;
"EXIT", E 2K 120% spacing; "65", E 2K;

12.0" Radius, 2.0" Border, White on Green;
Pentagonal County G14 M1-6; "Cumming", E Mod 2K;
"Norwalk", E Mod 2K; Arrow Custom - 35.6" 45°;

STAGE 3 SIGN DETAILS
I-35

STAGE 3A SIGN DETAILS
I-35

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Traffic Sign Items : Traffic Sign Items
Transport and Storage of
Salvaged Items :

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Traffic Sign Items	Transport and Storage of Salvaged Items	Total	
1	2401-6745355	REMOVAL OF CONCRETE FOOTINGS OF HIGHWAY SIGNS	EACH	4		4	Refer to Tabulation 190-62 for locations and details. This item shall consist of removal of concrete footings for steel breakaway sign support posts. Concrete footings or parts of concrete footings removed shall become the property of the Contractor, and shall be removed in accordance with Article 1104.08 of the Standard Specifications. Unless otherwise provided or ordered, concrete footings for steel breakaway sign support posts shall be removed 1 foot below natural ground surface. Where portions of the existing concrete footings lie wholly or in part within limits for a new structure (culvert, concrete footing, or other), they shall be removed as necessary to accommodate construction of the proposed structure. Holes remaining from the removal of concrete footings for steel breakaway sign support posts shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09 of the Standard Specifications. Measurement: The Engineer will count each concrete footing for steel breakaway sign support post removed. Payment: For each concrete footing for steel breakaway sign support post removed, the Contractor shall be paid the contract unit price. This payment shall be full compensation for furnishing all material, equipment, and labor and for the performance of all work necessary for removal of the concrete footings from the project and for any backfilling made necessary by these operations.

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Traffic Sign Items	Transport and Storage of Salvaged Items	Total	
2	2401-6745916	REMOVAL OF SIGN SUPPORT STRUCTURE AND FOUNDATION	EACH	1		1	Refer to Tabulation 190-62 for location and details. This item shall consist of removal of Type B Sign Support Structures and Foundations from the project. Each of the following is to be considered a Type B Sign Support Structure: - Overhead sign truss and foundations - Cantilevered sign truss and foundations - Bridge mounted brackets - Monotube sign structure and foundations - Mastarm sign structure and foundation The Contractor shall remove each sign support structure identified in the plans. Unless otherwise noted, all sign support structures or parts of sign support structures to be removed shall become property of the Contractor. Sign support structures which may be reused shall be match marked, dismantled, and stored as designated in the plans. Dismantling and handling shall be done in such a way to not impair strength or usefulness of the material. All loose parts shall be wired to adjacent members or packed in suitable containers. Dismantled members shall be stored in neat piles at locations specified in the plans or within the right-of-way in the vicinity of the work at points designated by the Engineer. When provided in the plans, the Contractor shall deliver the sign support structure to be reused to a DOT storage area within 50 miles, as designated by the Engineer. Unless otherwise provided or ordered, concrete foundations for sign support structures shall be removed 1 foot below natural ground surface. Where portions of the existing concrete foundations lie wholly or in part within the limits for a new structures (culvert, concrete foundation, or other), they shall be removed as necessary to accommodate construction of the proposed structure. Holes remaining from the removal of concrete foundations for sign support structures shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09 of the Standard Specifications. Iowa DOT ITS Coordination Contact: Jason Dale (515)239-1995, contact at least 14 days prior to the DMS being removed from the roadway. Measurement: The Engineer will count each Type B Sign Structure removed Payment: For each Type B Sign Support Structure removed, the Contractor shall be paid the contract unit price. This payment shall be full compensation for furnishing all material, equipment, and labor and for performance of all work necessary for removal of the Type B Sign Support Structure from the project and for any backfilling made necessary by these operations.
3	2402-2720000	EXCAVATION, CLASS 20	CY	559		559	Refer to Tabulation 190-52 for locations and details.
4	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	121.7		121.7	
5	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	19,274		19,274	

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Traffic Sign Items	Transport and Storage of Salvaged Items	Total	
6	2423-0001010	DYNAMIC MESSAGE SIGN (D.M.S.) INSTALLATION	EACH	1		1	Refer to Tabulation 190-52 and Steel Overhead Sign Truss (SOST) standard drawings for more information. The following item will be provided by the DOT or the DMS vendor: DMS. Work shall consist of furnishing all labor, equipment, and materials to construct and install Dynamic Message Sign (DMS), generally including, but not limited to: - DMS-to-sign support structure attachment and hardware (I-beams and U-bolts). - Installation of the conduit between the sign support structure foundation and the ITS Handhole. - Coordination with the Engineer for the delivery of the DMS. The Contractor is responsible to secure the DMS when shipped to the project or the Contractor's storage yard. Existing station markers or delineators which may be impacted by the proposed construction shall be removed prior to starting work and replaced when construction is complete. The Contractor shall assume full responsibility for the DOT furnished materials prior to accessing them. This assumption of responsibility shall be documented with an itemized invoice clearly identifying each item and shall be signed and dated by the Contractor and the Engineer. Lacking a signed invoice, the default date of assumption of responsibility for these materials shall be the date the contract between the DOT and the Contractor is signed. Upon the assumption of responsibility for any and all materials, the Contractor shall be wholly liable for safe handling, storage, and installation of the equipment. Any damaged equipment shall be replaced at the Contractor's expense, without additional compensation. Iowa DOT ITS Coordination Contact: Jason Dale (515)239-1995. Measurement: By count. Payment: The Contractor shall be paid the contract unit price for each Dynamic Message Sign (D.M.S.) installed. This payment shall be considered full compensation for furnishing all material, equipment (except as noted above) and labor, and for the performance of all work necessary, including storage of all provided materials, to provide DMS installation.
7	2423-1051380	STEEL CANTILEVER SIGN TRUSS, 38 FT. ARM	EACH	1		1	Refer to Tabulation 190-52 for locations and details.
8	2423-1051400	STEEL CANTILEVER SIGN TRUSS, 40 FT. ARM	EACH	1		1	Refer to Tabulation 190-52 for locations and details. A 39'-6 Cantilever may be substituted for a 40'-0 Cantilever.
9	2423-1060085	STEEL OVERHEAD SIGN TRUSS, 85 FT. SPAN	EACH	1		1	Refer to Tabulation 190-52 for locations and details. For fabrication and installation of steel overhead sign truss, refer to SOST series standards for dimensions and details. These items shall be constructed as per Section 2423 of the Standard Specifications.
10	2518-0000090	ITS HANDHOLE, 36x24x36	EACH	1		1	Refer to the Developmental Specifications for Intelligent Transportation Systems,

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Traffic Sign Items	Transport and Storage of Salvaged Items	Total	
11	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN	EACH	3		3	Refer to Tabulations 190-50 and 190-62. The Contractor shall remove each sign and the hardware used to secure the sign to another sign, posts, or sign support structure. For signs mounted directly to posts, removal of the sign shall include removal of the posts. Posts may be either wood posts or steel breakaway sign posts. The removal of concrete footings for steel breakaway sign posts will be measured and paid for separately. Holes remaining from the removal of wood posts shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09 of the Standard Specifications. All steel posts removed shall remain property of the DOT. Unless otherwise noted, wood posts removed shall become property of contractor. The Contractor shall deliver the wood posts to a DOT storage area within 50 miles, as designated by the Engineer. **The existing sign shall be removed and stored. The Contractor shall remove the sign and transport it to a DOT storage area within 50 miles, as designated by the Engineer. The Contractor shall transport the sign back to the job site when ready for reinstallation. The Contractor shall furnish all necessary hardware to install the signs. When the new installation is similar to the original installation, unless otherwise noted, the existing hardware may be used to reinstall the sign. Signs damaged by the Contractor's activities shall be replaced at the Contractor's expense. Replacement materials shall be new. The DOT will furnish all details necessary for fabrication of the replacement materials. Measurement: The Engineer will count each sign removed and reinstalled. Payment: For each sign removed and reinstalled, the Contractor shall be paid the contract unit price.
12	2524-6765210	REMOVAL OF TYPE A SIGN ASSEMBLY	EACH	3		3	Refer to Tabulation 190-62 for location and details. This item for the removal of Type A Sign Assemblies, including the sign panels, sign brackets, supporting structures and hardware. Contractor shall carefully dismantle each sign assembly. Sign posts, brackets and hardware shall become property of the Contractor. Sign panels shall become property of the DOT and shall be delivered to the nearest DOT maintenance facility. All holes resulting from removal of post shall be filled level with the adjacent grade with backfill material conforming to the Standard Specifications. Measurement: The Engineer will count the number of sign assemblies removed. Payment: The Contractor will be paid the contract unit price for each sign assembly removed.

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Traffic Sign Items	Transport and Storage of Salvaged Items	Total	
13	2524-6765220	REMOVAL OF TYPE B SIGN ASSEMBLY	EACH	7		7	Refer to Tabulation 190-62 for location and details. This item for the removal of Type B Sign Assemblies, including the sign panels, sign brackets, supporting structures and hardware. Contractor shall carefully dismantle each sign assembly. Sign posts, panels, brackets and hardware shall become property of the Contractor. All holes resulting from removal of posts shall be filled level with the adjacent grade with backfill material conforming to the Standard Specifications. Measurement: The Engineer will count the number of sign assemblies removed. Payment: The Contractor will be paid the contract unit price for each sign assembly removed.
14	2524-9089100	DELINEATOR, RIGID - TYPE I	EACH	3		3	Refer to Tabulation 190-25 for locations and details. Removal of existing delineators and mileposts shall be incidental.
15	2524-9089110	DELINEATOR, RIGID - TYPE IA	EACH	58		58	Refer to Tabulation 190-25 for locations and details.
16	2524-9089200	DELINEATOR, RIGID - TYPE II	EACH	17		17	Refer to Tabulation 190-25 for locations and details. Removal of existing delineators and mileposts shall be incidental.
17	2524-9210007	REFERENCE LOCATION SIGNS	EACH	3		3	Refer to Tabulation 190-25 for locations and details.
18	2524-9276010	PERFORATED SQUARE STEEL TUBE POSTS	LF	69		69	Refer to Tabulation(s) 190-50 and/or 190-51 for locations and details.
19	2524-9276027	PERFORATED SQUARE STEEL TUBE POST ANCHOR, TRIANGULAR SLIP BASE ASSEMBLY	EACH	5		5	
20	2524-9325001	TYPE A SIGNS, SHEET ALUMINUM	SF	47		47	Refer to Tabulation 190-51 and 190-66 for locations and details.
21	2524-9380001	TYPE B SIGNS, EXTRUDED ALUMINUM STRUCTURAL PANEL	SF	608		608	Refer to Tabulation 190-50 for locations and details.
22	2533-4980005	MOBILIZATION	LS	1		1	- -
23	2555-0000010	DELIVER AND STOCKPILE SALVAGED MATERIALS	LS		1	1	Refer to Tab. 110-13. The Contractor shall transport, store and secure the DMS at the delivery location per the Transportation and Storage requirements detailed on Sheet B.10.
24	2599-9999005	('EACH' ITEM) ANCHOR BOLT ASSEMBLY - INSTALL AND SURVEY	EACH	6		6	See Tabulation 190-52 for locations and details. For accurately installing and surveying anchor bolt assemblies: Measurement: The Engineer shall count Each Anchor Bolt Assembly installed and surveyed. Payment: The Contractor shall be paid the contract unit price for each Anchor Bolt Assembly installed and surveyed.

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Traffic Sign Items	Transport and Storage of Salvaged Items	Total	
25	2599-9999005	('EACH' ITEM) DMS LADDER, GATE, AND RUNWAY	EACH	1		1	Refer to Tabulation 190-50 for location and details. For the fabrication and installation of runway, runway gate, ladder, and ladder security door, refer to SOST series standards shown on TAB 190-01. These items shall be constructed as per Section 2423 of the Standard Specifications. The designs shown have located the DMS to avoid assumed fit up conflicts between support angles and truss gusset plates. Field measurements and verification of the existing truss, DMS support angles, and DMS fit up should be performed to ensure proper runway fit up prior to fabrication. Measurement: The Engineer shall count each DMS Ladder and Runway installed. Payment: The Contractor shall be paid the contract unit price for each DMS Ladder and Runway (including runway, runway gate, ladder, and ladder security door) furnished and installed. This payment shall be considered full compensation for furnishing all materials, equipment and labor, and for the performance of all work necessary including transport of all provided materials from the present location, to provide DMS Ladder and Runway installation.
26	2599-9999005	('EACH' ITEM) GORE DELINEATORS	EACH	7		7	This item is for gore delineators as detailed in Typical Signing Layout TAS-811. Refer to Tabulation 190-25 for location and details. Fabricate gore delineators with materials complying with Section 4186 of the Standard Specifications. Gore delineators shall be: - 8" wide by 24" tall. - White or yellow (to match edge lines). Measurement: Each gore delineator panel will be counted by the various types installed. Payment: The Contractor shall be paid the contract until price for each gore delineator furnished and installed complete. Payment is full compensation for furnishing, fabricating, and erecting the gore delineators including posts, fittings and attachments, and all labor necessary to complete the work.

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Traffic Sign Items	Transport and Storage of Salvaged Items	Total	
27	2599-9999005	('EACH' ITEM) MASSH-400 SIGN POST	EACH	1		1	Item is for furnishing and installing MASSH-400 breakaway post system. Refer to sheet B.1 for installation details. Item includes: - (1) 13” slip base top kit - (1) 13” unibase 4”x48" (including concrete for complete 18"x48" footing) - (1) 18"x48" concrete footing - (1) ¾” redi Torque kit - (3) universal post clamp note: minimum of 1 clamp per 10 sq. ft. of sign with a min. of at least 3 clamps - (1) closure cap for 4” sq post - (1) sign post 4”x(varies)’ 8ga. - All hardware required to assemble the sign post system complete Refer to Tabulation 190-50 for location and details on posts. Post lengths are assumed and not based on survey information. The Contractor should take steps to verify post lengths prior to ordering/fabrication to minimize installation conflicts. The Contractor shall install the posts per the manufacturer’s installation guidelines. Measurement: Each. The Engineer shall count each MASSH-400 post furnished and installed. Payment: Each. The Contractor shall be paid the contract until price for each MASSH-400 post furnished and installed complete.
28	2599-9999008	('POUNDS' ITEM) ANCHOR BOLT ASSEMBLY FURNISH	LB	5,678		5,678	See Tab 190-52 for locations and details. For furnishing anchor bolt assemblies: Measurement: The Engineer shall count each Anchor Bolt Assembly Furnished. Furnished Payment: The Contractor Shall be paid the contract unit price for each Anchor Bolt Assembly Furnished.

			105_04 10/20/26
STANDARDS The following Standards apply to construction work on this project.			
Number	Date	Title	
SI-101	04-19-16	Locations - Type 'A' Signs	
SI-102	04-19-16	Locations - Type 'B' Signs	
SI-119	10-17-17	Support Structures - Mounting Brackets	
SI-121	10-16-18	Fabrication - Sign Legend Components	
SI-123	10-20-20	Fabrication - Type 'B' Signs	
SI-131	10-18-16	Installation - Type 'A' Signs	
SI-132	04-17-18	Installation - Type 'B' Signs	
SI-171	04-18-17	Reference Location Sign Posts	
SI-172	04-19-16	Delineators	
SI-173	04-19-16	Object Markers	
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)	
TC-202	04-18-23	Work Within 15 ft of Traveled Way	
TC-402	04-18-23	Work Within 15 ft of Traveled Way	

110_13 8/15/22							DELIVERY AND STOCKPILING	
Line No.	Item Description		Quantity	Quantity Units	Delivery Location	Contact Name	Contact Number	Remarks
1.0	Skyline Amber DMS Cabinet		1	LS	Ames Maintenance Garage	Scott Robinson	515-663-6367	
2.0					3917 Turing St			
3.0					Ames, IA 50010			

190_01 9/23/25			
SIGN SUPPORT STRUCTURES			
Line No.	Number	Date	Title
1.0	SCST-01-17	11-2025	Index and Notes
2.0	SCST-02-17	11-2025	Sign Support Views
3.0	SCST-03-17	11-2025	Isometric View Typical Truss
4.0	SCST-04-17	11-2025	Truss-to-Post Connection Details
5.0	SCST-05-17	11-2025	Gusset Plate Connection Details
6.0	SCST-06-17	11-2025	Post Base Support Details
7.0	SCST-07-17	11-2025	Sign Attachment Details
8.0	SCST-08-17	11-2025	Foundation Details - Spread Footing
9.0	SOST-01-11	06-2025	Index and Notes for 50'-130' Spans
10.0	SOST-03-11	06-2025	Elevation Views for 80'-100' Spans
11.0	SOST-06-11	06-2025	Support Base and DMS Electrical Access Details for 50'-100' Spans
12.0	SOST-08-11	06-2025	Gusset Plate Connections
13.0	SOST-09-11	06-2025	Truss Support and Chord Splice Details for 50'-100' Spans
14.0	SOST-12-11	06-2025	Dynamic Message Sign (DMS) Runway Details
15.0	SOST-13-11	06-2025	DMS Runway Details
16.0	SOST-14-11	06-2025	DMS Runway Gate Details
17.0	SOST-15-11	06-2025	DMS Ladder Details
18.0	SOST-16-11	06-2025	DMS Ladder Security Door Details
19.0	SOST-17-11	06-2025	Foundation Details - Non-staged
20.0	SOST-18-11	06-2025	Conduit Location Details

111_25 10/20/26				INDEX OF TABULATIONS			
Line No.	Tabulation	Tabulation Title					Sheet No.
1.0	105_04	STANDARD ROAD PLANS					C.8
2.0	110_02	REMOVAL OF EXISTING STRUCTURES					C.8
3.0	110_13	DELIVERY AND STOCKPILING					C.8
4.0	111_25	INDEX OF TABULATIONS					C.8
5.0	190_01	SIGN SUPPORT STRUCTURES					C.8
6.0	190_25	REFERENCE LOCATION SIGNS AND DELINEATORS					C.9
7.0	190_50	MATERIALS FOR TYPE B SIGNS					C.9
8.0	190_52	MATERIALS FOR OVERHEAD SIGN SUPPORT STRUCTURES					C.9
9.0	190_51	MATERIALS FOR TYPE A SIGNS					C.10
10.0	190_61	EXISTING SIGNS TO BE REINSTALLED					C.10
11.0	190_62	EXISTING SIGNS TO BE REMOVED					C.10
12.0	190_66	SUMMARY OF TYPE A SIGNS					C.10
13.0	259_01	SIGNING NOTES					C.11-12

110_02 8/15/22				REMOVAL OF EXISTING STRUCTURES			
Line No.	Location		Description	Remarks			
1.0	125140		NB DMS Truss				

REFERENCE LOCATION SIGNS AND DELINEATORS

Refer to SI-171, SI-172 and SI-173.

Line No.	Station From	Station To	Location	Reference Location Sign Type	Quantity (EA)	Enhanced Reference Location Sign Type	Quantity (EA)	Intermediate Reference Location Sign Type	Quantity (EA)	Type I Delineator White (EA)	Type I Delineator Yellow (EA)	Type IA Delineator White (EA)	Type IA Delineator Yellow (EA)	Type II Delineator White (EA)	Type II Delineator Yellow (EA)	Type III Delineator White (EA)	Type III Delineator Yellow (EA)	Object Marker Type 1 (EA)	Object Marker Type 2 (EA)	Object Marker Type 3 (EA)	Installation Type	Installation Offset
1.0			STAGE 3																			
2.0	1081+38.00	1147+38.00	I-35 Mainline NB			D10-3A	1					25									1	8.0
3.0	1157+93.00	1184+34.00	I-35 Mainline NB			D10-3A	1					10									1	8.0
4.0	1189+18.00	1199+18.00	I-35 Entrance Ramp											11							1	8.0
5.0	1200+18.00	1263+54.00	I-35 Mainline NB			D10-3A	1					23									1	8.0
6.0			STAGE 3A																			
7.0	1148+38.00	1154+38.00	I-35 Exit Ramp							1				6							1	8.0
8.0	1187+18.00	1188+18.00	I-35 Entrance Ramp							2											1	8.0
9.0			STAGE 4																			
10.0	1154+82.00	1156+42.00	Exit 65 Gore																3		1	8.0
11.0	1154+82.00	1157+22.00	Exit 65 Gore																4		1	8.0
12.0			Total				3			3		58		17					7			

MATERIALS FOR TYPE 'B' SIGNS

Line No.	Number	Route	County	Exit Number	Road ID	Seq. No.	Dir of Travel	Sign Location Station	Fab Info	Sign Width (FT)	Sign Height (FT)	New Area (SF)	4x6 L (FT)	4x6 M (FT)	4x6 R (FT)	Perf. Sq. Steel L (FT)	Perf. Sq. Steel M (FT)	Perf. Sq. Steel R (FT)	Perf. Sq. Anchor Type	Anchor Quantity (EA)	W8x21 L (FT)	W8x21 M (FT)	W8x21 R (FT)	Footing 2'8"x7'6" (EA)	W12x26 L (FT)	W12x26 M1 (FT)	W12x26 M2 (FT)	W12x26 R (FT)	Footing 2'8"x9' (EA)	Install Type	Install Dim 'X'	Install Dim 'Y'	See Signing Notes	Remarks	
1.0	STAGE 1																																		
2.0		35	91	65	TM	2	NB	1148+00.00	NEW	10.5	7.0	73.5																		1	24.0	7.0	IB, PP	SKID Mount	
3.0		35	91	65	TM	002A	NB	1148+00.00	NEW	6.0	2.5	15.0																		1	24.0	7.0	IB, PP	SKID Mount	
4.0		35	91	65	TM	3	NB	1154+65.00	NEW	5.0	7.5	37.5																		3	12.0	7.0	IB, PP	SKID Mount	
5.0	STAGE 3																																		
6.0		35	91	65	TM	1	NB	1088+20.00	NEW	7.5	8.5	63.8																		1	24.0	7.0	IB, PP	SKID Mount	
7.0		35	91	65	TM	001A	NB	1088+20.00	NEW	6.0	2.5	15.0																		1	24.0	7.0	IB, PP	SKID Mount	
8.0		35	91	65	M	1	NB	1097+50.00	NEW	12.5	12.0	150.0																		4			IB		
9.0		35	91	65	M	001A	NB	1097+50.00	NEW	9.5	2.5	23.8																		4			IB		
10.0		35	91	65	M	6	NB	1218+50.00	NEW	10.5	2.0	21.0				13.0		13.0	SLIP	2										1	30.0	7.0	IB, PP		
11.0	STAGE 3A																																		
12.0		35	91	65	M	4	NB	1150+25.00	NEW	15.5	9.5	147.3																		4			IB		
13.0		35	91	65	M	004A	NB	1150+25.00	NEW	9.5	2.5	23.8																		4			IB		
14.0	STAGE 4																																		
15.0		35	91	65	M	5	NB	1154+75.00	NEW	5.0	7.5	37.5					14.0		SLIP	1										3	4.2	7.0	IB, PP	MASSH Post	
16.0	Total											608.0					40.0																		

MATERIALS FOR OVERHEAD SIGN SUPPORT STRUCTURES

Line No.	Roadway	Reference Location Sign	Station	State Plane North	State Plane South	Direction of Travel	Span Length	Structure Designation	Sign Truss Standard Series	Inside Foundation Offset (FT)	Outside Foundation Offset (FT)	Additional Stem Height 'L' Inside (FT)	Additional Stem Height 'L' Outside (FT)	Class 20 Excavation (CY)	Reinforcing Epoxy Coated Steel (LB)	Structural Concrete (CY)	Anchor Bolt Assembly (EA)	Anchor Bolt Assembly (LB)
1.0	I-35	35-91-65 M001	1097+50.00			NB	40.0	Cantilever	SCST		40.0			181.60	6351	33.8	1	2063
2.0	I-35	35-91-65 M004	1150+25.00			NB	38.0	Cantilever	SCST		50.0			162.60	6351	33.8	1	2063
3.0	I-35	DMS	1250+90.00			NB	85.0	Truss	SOST	-45.0	40.0	1.0	3.0	215.60	6572	54.1	4	1552
4.0	Total													559.80	19274	121.7	6	5678

190_61
2/10/23

EXISTING SIGNS TO BE REINSTALLED										
Line No.	Sign Description	Direction of Travel	Location Station	Number of Posts	Square Tube Steel Posts	Wood Posts 4"x4" (LF)	Wood Posts 4"x6" (LF)	Installation Type	Installation Dim 'X'	See Signing Notes
1.0	STAGE 3									
2.0	Temp Exit Final	NB	1148+00.00	2	2			1	24.0	RR, SKID MOUNT
3.0	Temp Exit Gore	NB	1154+65.00	2	2			1	24.0	RR, SKID MOUNT
4.0	Reduce Speed Limit	NB	1259+50.00	2				1	-30.0	RR
5.0	Speed Limit Assembly	NB	1264+50.00	1				1	-30.0	RR
6.0	STAGE 3A									
7.0	Temp Exit Gore	NB	1147+40.00	2	2			1	24.0	RR, SKID MOUNT
8.0	STAGE 4									
9.0	Merge Right	NB	1178+75.00	2	2			1	30.0	RR

190_66
9/29/23

SUMMARY OF TYPE 'A' SIGNS					
Line No.	Sign Number	Non-Standard Sign Number or Name	Quantity (EA)	Size (IN)	Total Sign Area (SF)
1.0		R5-1a	2	42x30	17.5
2.0	W4-1		1	48x48	16.0
3.0	M3-1		1	36x18	4.5
4.0	M1-1		1	36x36	9.0
5.0		Total			47.0

190_62
2/13/23

EXISTING SIGNS TO BE REMOVED											
Line No.	Sign Number or Description	Location Station	Direction of Travel	Type 'A' Sign Assembly (RA) (EA)	Type 'B' Sign Assembly (RB) (EA)	Type 'A' Remove and Reinstall (RR) (EA)	Type 'B' Remove and Reinstall (RR) (EA)	Concrete Foundation (RF) (EA)	Support Structure & Foundation (RS) (EA)	Applicable Signing Notes	Remarks
1.0	STAGE 1										
2.0	Exit Direction Sign	1148+00.00	NB		1			2		RB, RF	
3.0	Exit Gore	1155+75.00	NB		1					RB	
4.0	STAGE 3										
5.0	Exit Advance	1095+05.00	NB		1			2		RB, RF	
6.0	Temp Exit Final	1148+00.00	NB				1			RR	
7.0	Temp Exit Gore	1154+65.00	NB				1			RR	
8.0	Wrong Way	1154+65.00	NB			1				RR	
9.0	Merge Right	1181+75.00	NB	1						RA	
10.0	Route Shield Assembly	1204+60.00	NB	1						RA	
11.0	City Name Sign	1218+47.00	NB	1						RA	
12.0	DMS	1251+40.00	NB						1	RS	
13.0	Reduce Speed	1259+50.00	NB			1				RR	
14.0	Speed Limit	1264+50.00	NB			1				RR	
15.0	STAGE 3A										
16.0	Temp Exit Gore	1147+40.00	NB				1			RR	
17.0	Wrong Way	1147+40.00	NB			1				RR	
18.0	STAGE 4										
19.0	Temporary Exit Advance	1088+20.00	NB		1					RB	
20.0	Temporary Exit Direction	1141+00.00	NB		1					RB	
21.0	Temporary Gore	1152+65.00	NB		1					RB	
22.0	Wrong Way	1151+25.00	NB		1					RB	
23.0	Merge Ahead	1178+75.00	NB			1				RR	
24.0	Total			3	7	4	3	4	1		

190_51
2/10/23

MATERIALS FOR TYPE 'A' SIGNS																									
Refer to SI-101, SI-111, SI-119 and N Sheets.																									
Line No.	Type A Signing Typicals	Sign Number	Dir. of Travel	Sign Location Station	Wood Posts (No.)	4 x 6 Leg 1 (FT)	4 x 6 Leg 2 (FT)	Perf. Sq. Steel Leg 1 (FT)	Perf. Sq. Steel Leg 2 (FT)	Perf. Sq. Steel Leg 3 (FT)	Perf. Sq. Anchor Type	Anchor Quantity (EA)	Steel Rect. Tube (No)	Steel Rect. Tube (FT)	Steel Rect. Tube Anchors (EA)	Type A Bracket One Post	Type A Bracket Two Post	Type A Bracket Auxiliary	Type A Bracket (H)	Type A Bracket (F)	Type A Bracket (F1)	Install. Type	Install. Dim X (FT)	Install. Signing Notes	Remarks
1.0	STAGE 1																								
2.0		R5-1A	NB	1154+65.00																		3		IA	Install on back of exit gore sign
3.0	STAGE 3																								
4.0		W4-1	NB	1178+75.00				14.0		15.0	SLIP	2										1	24.0	IA, PP	
5.0		M3-1	NB	1204+25.00					14.0		SLIP	1										1	30.0	IA, PP	
6.0		M1-1	NB	1204+25.00																		1			
7.0	STAGE 4																								
8.0		R5-1A	NB	1154+75.00																		3		IA	Install on back of exit gore sign
9.0	Total								43.0			3													

259_01 10/15/25 SIGNING NOTES		259_01 10/15/25 SIGNING NOTES		259_01 10/15/25 SIGNING NOTES		259_01 10/15/25 SIGNING NOTES										
The following tolerances will be allowed on all signs: Accumulation error of not greater than +/-0.50" per line of copy, not greater than +/-0.50" for spacing between lines of copy, and the margin between lines of copy and the inside edge of the sign border. The following tolerances will be allowed on each letter or numeral: <table><tr><td>nominal height</td><td>variation in height</td><td>variation in width</td></tr><tr><td>4" thru 12"</td><td>-1/8" to +3/8"</td><td>-1/4" to +1/4"</td></tr><tr><td>over 12"</td><td>-1/8" to +3/8"</td><td>-3/8" to +3/8"</td></tr></table> ----- Type B signs can be separated into two categories: - Major Guide Signs. - Minor Guide Signs. Major Guide Signs include the advance and exit direction guide signs for an interchange or intersection. Minor Guide Signs include all other guide signs such as NEXT EXIT signs, supplemental guide signs, logo signs, exit gore signs, post-interchange mileage signs, ramp destination signs, and ramp logo signs for an interchange, as well as destination signs along sideroads. Type A signs are not separated into categories, but special consideration should be given to regulatory signs. Do not remove Type B signs until replacement signs have been installed. If construction activities require the removal of a sign, the existing sign may be relocated to temporary posts, or a temporary plywood sign may be installed to replace the existing sign. Existing non-regulatory Type A signs are NOT required to remain in place until installation of replacement signs. Existing regulatory Type A signs, particularly Stop signs, should not be removed until replacement signs are installed. Where a staged traffic control plan is contrary to this guidance, follow the direction of the traffic control plan. Apply the following during the replacement or modification of signs: - No more than one of the major guide signs for each direction of travel at an interchange out of service at any one time. - No major guide sign out of service for more than 8 hours. - No minor guide out of service for more than 24 hours. Remove existing signs and posts within 24 hours following the installation of a new replacement sign. In any case where the plans call for a new sign and posts to be installed at the same station location and offset as an existing sign, install the new posts at a minimum of either 5 ft ahead or behind the existing sign installation. Signs shall not be installed more than 25 ft ahead or behind the existing sign installation. Whenever posts for a replacement sign are erected directly in front of an existing sign, install the new replacement sign and remove the existing sign installation within 24 hours of the time that the new posts are erected. Where signs are located behind guardrail, locate the near edge of the sign a minimum of 3 ft behind the guardrail posts.		nominal height	variation in height	variation in width	4" thru 12"	-1/8" to +3/8"	-1/4" to +1/4"	over 12"	-1/8" to +3/8"	-3/8" to +3/8"	Unless noted otherwise, leave auxiliary panels, such as exit number panels, in place or reattach to the sign using the existing mounting hardware. Also, when replacing an existing logo sign with a new logo sign, remove the business logo panel(s) from the existing sign and attach to the new sign as directed by the Engineer. Do not damage the auxiliary or logo panels when removing and reattaching them. This work is incidental to other work and no separate payment will be made. The following notes apply to the corresponding sign installations shown on the plan sheets and listed in the tabulations. IB INSTALL NEW TYPE B SIGN IA INSTALL NEW TYPE A SIGN Install new signs at the location identified in the plans. For installation of new signs on an existing sign support structure, refer to note (L). For installation of new signs on existing posts: - if the new sign is taller than the existing sign, furnish the necessary hardware to extend the sign above the posts. Refer to Standard Road Plan SI-132. - if the new sign is shorter than the existing sign: - for wood posts and perforated square tube posts, install the sign at the proper height and cut off the excess post length. - for MASSH-400 and steel breakaway posts, install the sign at the top of the posts. For plywood signs, no vertical splices are allowed in signs less than or equal to 10 ft wide. No horizontal splices are allowed in signs less than or equal to 4 ft tall. Each new sign installed shall have a sticker applied to the back of the sign that shows the date the sign was installed. The Contractor shall supply the sticker for all contractor supplied signs. The DOT will supply date stickers on any signs supplied by the department. Payment for installing Type A signs or Type B signs includes furnishing hardware for mounting, extending signs above existing posts, and cutting posts to length. MS MODIFICATION OF EXISTING SIGNS For removal and/or installation of logo panels, and other sign modifications. Refer to the project plans and typical details for additional information. SC SIGN COVER For the installation or removal of temporary sign covers for the purposes of temporary traffic control. Sign covers shall completely cover the existing Sign. Care should be taken so that covers, fasteners, and installation practices do not damage the existing sign. Tape of any type shall not be applied to the sheeted face of the existing sign under any circumstances. Repair of damage to the existing sign caused by sign covers will be the responsibility of the Contractor. SO OVERLAY TYPE B GUIDE SIGNS MB INSTALL SPECIAL MOUNTING BRACKET Install special mounting brackets at the locations identified in the plans. Refer to Tabulations 190-51 and/or 190-65.		PB INSTALL NEW BREAKAWAY STEEL POSTS AND FOOTING PP INSTALL NEW PERFORATED SQUARE TUBE POSTS AND ANCHORS PM INSTALL NEW MASSH-400 POSTS AND ANCHORS Install new breakaway steel posts and footings, perforated square tube posts and anchors, or MASSH-400 posts and anchors at the locations identified in the plans. Refer to the Standard Road Plans, Typicals, and Tabulations 190-51 and 190-50 for post size and footing information. New posts shall be installed in undisturbed soil. The new posts shall not be placed in the hole of removed posts. Remove excess soil from footing hole. Do not spread soil on adjacent seeded or vegetated areas. If note (RR) accompanies (PB), (PP), or (PM), install an existing sign on the new posts. RR REMOVE AND REINSTALL SIGN AS PER PLAN Do not remove existing major Type B guide signs on posts until the new posts are installed. Promptly remove sign and install at the new location. Existing major Type B guide signs on overhead support structures, minor Type B guide signs, plywood signs, and Type A signs may be removed and stored. Transport the signs to a DOT storage area as designated by the Engineer. Transport the signs back to the job site when ready for installation at the new location. Signs to be reinstalled shall not be stored for any length of time with the sheeted face in contact with the ground. Replace signs damaged by the Contractor's activities at no additional cost to the Contracting Authority. Payment for Remove and Reinstall Sign includes sign removal, delivery to and from the DOT storage area (if applicable), and reinstallation, including any hardware required for reinstallation. When noted in the plans, payment for delivery and stockpile of existing signs will be separate from the payment for Remove and Reinstall Sign. RA REMOVAL OF TYPE A SIGN ASSEMBLY RB REMOVAL OF TYPE B SIGN ASSEMBLY Type A Sign Assembly consists of one or more signs installed on one or more posts, either directly mounted to the post or mounted to the post with special sign mounting brackets. Type B Sign Assembly consists of the main sign, all auxiliary signs and brackets, and posts. Unless stated otherwise in the plans, remove all posts with the signs and brackets. Remove each sign assembly identified in the plans. Sign posts removed become the property of the Contractor. All other materials removed remain the property of the DOT. For each sign assembly removed, disassemble each assembly before delivering to the DOT. * For Type A sign assemblies, unbolt all signs,		special mounting brackets, and posts from each other. * For Type B assemblies, unbolt all extruded aluminum panels, brackets, and posts from each other. Do not damage the disassembled materials. When the plans call for the removal of posts, the entire existing post shall be removed. The post shall not be broken off or cut off at the ground line. Place backfill in holes remaining from the removal of posts and restore to the surrounding conditions. Deliver the removed signs, special sign mounting brackets, and extruded aluminum panels to a DOT storage area, as designated by the Engineer. The concrete footings for steel posts are not considered part of the sign assembly. Refer to note RF for concrete footing removal. Payment for Removal of Type A Sign Assembly or Removal of Type B Sign Assembly includes sign assembly removal and disassembly, post removal (if applicable), delivery to the DOT storage area, placing backfill in holes, and restoration of the surrounding conditions. RF REMOVE EXISTING CONCRETE FOOTING FOR STEEL POST Remove existing concrete footings to a depth of at least 1 ft below the natural groundline. Place backfill in holes remaining from removal and restore to the normal surrounding conditions. This work is incidental to other work and no separate payment will be made. RS REMOVE EXISTING TYPE B SIGN SUPPORT STRUCTURE The following are considered Type B Sign Support Structures: - Overhead sign trusses and foundations - Cantilever sign trusses and foundations - Bridge-mounted brackets Unless stated otherwise in the plans, existing overhead trusses, cantilever trusses, and bridge brackets which are removed become the property of the Contractor. If stated in the plans, deliver overhead trusses, cantilever trusses, and bridge brackets to a DOT storage area, as designated by the Engineer. Payment for Removal of Sign Support Structure and Foundation includes sign support structure removal, delivery to the DOT storage area (if applicable), and restoration of the surrounding conditions. Removal of the foundation includes removal of the stem to a minimum of 1 ft below the natural groundline. L MODIFY SIGN SUPPORT ANGLES NEEDED TO INSTALL SIGNS ON EXISTING SIGN SUPPORT STRUCTURES Refer to the sign support structure details for information on the required angle brackets. Provided all specifications are met, the existing sign support angles may be reused. Install existing sign support angles to be reused only on the sign support structure from which they were removed. Sign support angles removed and not reused become the property of the Contractor.	
nominal height	variation in height	variation in width														
4" thru 12"	-1/8" to +3/8"	-1/4" to +1/4"														
over 12"	-1/8" to +3/8"	-3/8" to +3/8"														
FILE NO.	ENGLISH	DESIGN TEAM	Hermann/Hecker	WARREN COUNTY	PROJECT NUMBER	IM-035-2(468)63--03-91	SHEET NUMBER	C.11								

SIGNING NOTES

When reusing the existing sign support angles with a shorter replacement sign, the sign support angles may need to be trimmed. Refer to the sign support details to determine if and where to trim the sign support angles.

Do not use existing fasteners. Use new U-Bolts, stainless steel bolts and nuts to install the existing or new sign support angles to the sign support structure.

Removal of existing sign support angles is incidental to removal of the sign.

Reinstalling and/or modifying existing sign support angles; furnishing and installing new sign support angles (if required); and furnishing and installing new fasteners is incidental to work associated with Type B signs.

SIGN INSTALLATION QUALITY CONTROL NOTES

Post lengths have been derived from the proposed grading cross sections. Verify post lengths in the field prior to ordering or fabrication.

Slight differences between the design template and the actual conditions should be expected. These variations should be resolved by doing some localized shaping and grading. Obtain material needed to meet the site requirements of SI-112 from the excavation and/or the area immediately adjacent to the work. Ensure reshaping work does not substantially change foreslopes or the drainage in the vicinity of the sign.

Significant differences between the plan design and the actual field conditions shall be resolved in this manner:

Survey the location and draw the actual template on the cross section. Recalculate each post length and compare to the maximum allowable leg length. If all of the maximum leg lengths are less than or equal to the maximum allowable leg length, then the proposed post design will be sufficient. If any leg is greater than the maximum allowable leg length, then submit the cross section with the actual template drawn (including offsets and elevation from the survey shown) to the Engineer. The Engineer may forward this information to the Engineer of Record in order to complete a new post design.

Install the footings, stub posts, and posts according to the tolerances shown on the applicable SI Series Standard Road Plans.

Footing construction is the controlling activity that substantially affects the quality of the site installation. Verify the elevation difference between the stubs is exactly the same as the elevation difference between the post lengths. If the Engineer requests, submit documentation detailing the site cross section in order to verify site installation.

REFER TO ROADWAY PROJECT IM-NHS-035-2(467)63--03-91 FOR TRAFFIC CONTROL DETAILS.

REFERENCE POST & DELINEATOR LEGEND

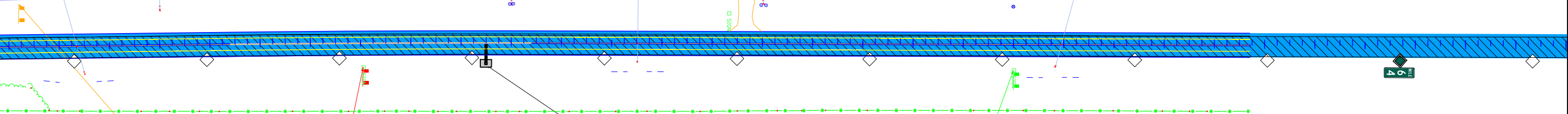
- Reference Post (SI-171)
- One-Tenth Reference Post (SI-171)
- Single White Delineator (SI-172, Type IA)
- Single White Delineator (SI-172, Type I)
- Double White Delineator (SI-172, Type II)
- Single Yellow Delineator (SI-172, Type I)
- Double Yellow Delineator (SI-172, Type II)
- Yellow Object Marker (TAS-811)
- White Object Marker (TAS-811)



Indianola 20
Kansas City 176

U.A.C.
Destination
Steel Breakaway Posts
STA. 1119+00(GeomBL_ML035)

1088+00 1089+00 1090+00 1091+00 1092+00 1093+00 1094+00 1095+00 1096+00 1097+00 1098+00 1099+00 1100+00 1101+00 1102+00 1103+00 1104+00 1105+00 1106+00 1107+00 1108+00 1109+00 1110+00 1111+00 1112+00 1113+00 1114+00 1115+00 1116+00 1117+00 1118+00 1119+00 1120+00

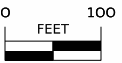
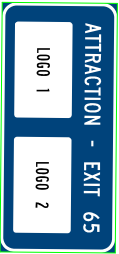


INSTALL
STAGE 3
35-91-65 TM001A
35-91-65 TM001
SKID Mount
STA. 1088+20(GeomBL_ML035)

REMOVE
STAGE 3
Advance Guide Sign
Steel Breakaway Posts
STA. 1095+05(GeomBL_ML035)

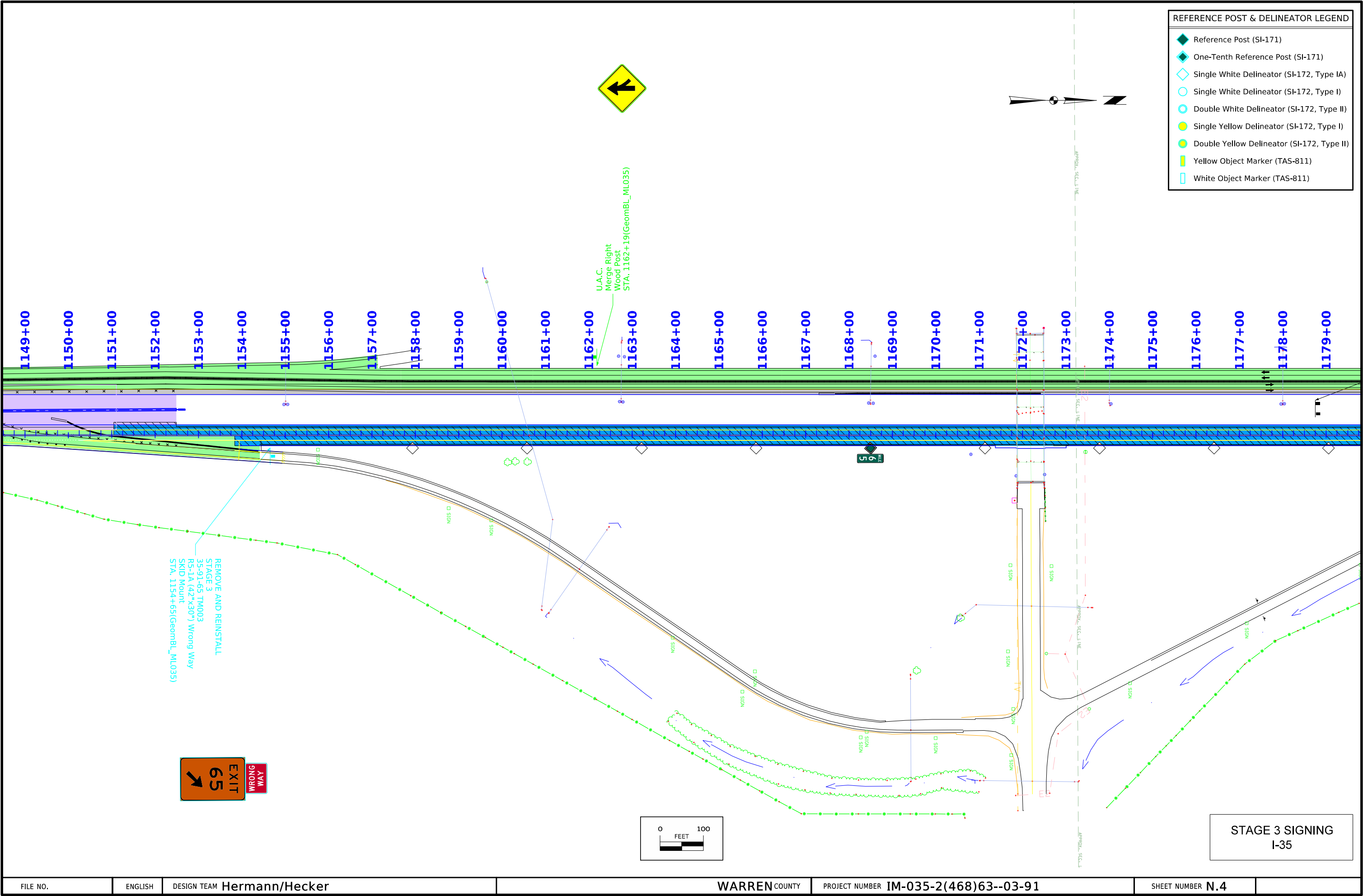
INSTALL
STAGE 3
35-91-65 M001
35-91-65 M001A
SCST 40' Cantilever
STA. 1097+50(GeomBL_ML035)

U.A.C.
STAGE 3
Attraction Logo Sign
Steel Breakaway Posts and Footings
STA. 1108+00(GeomBL_ML035)

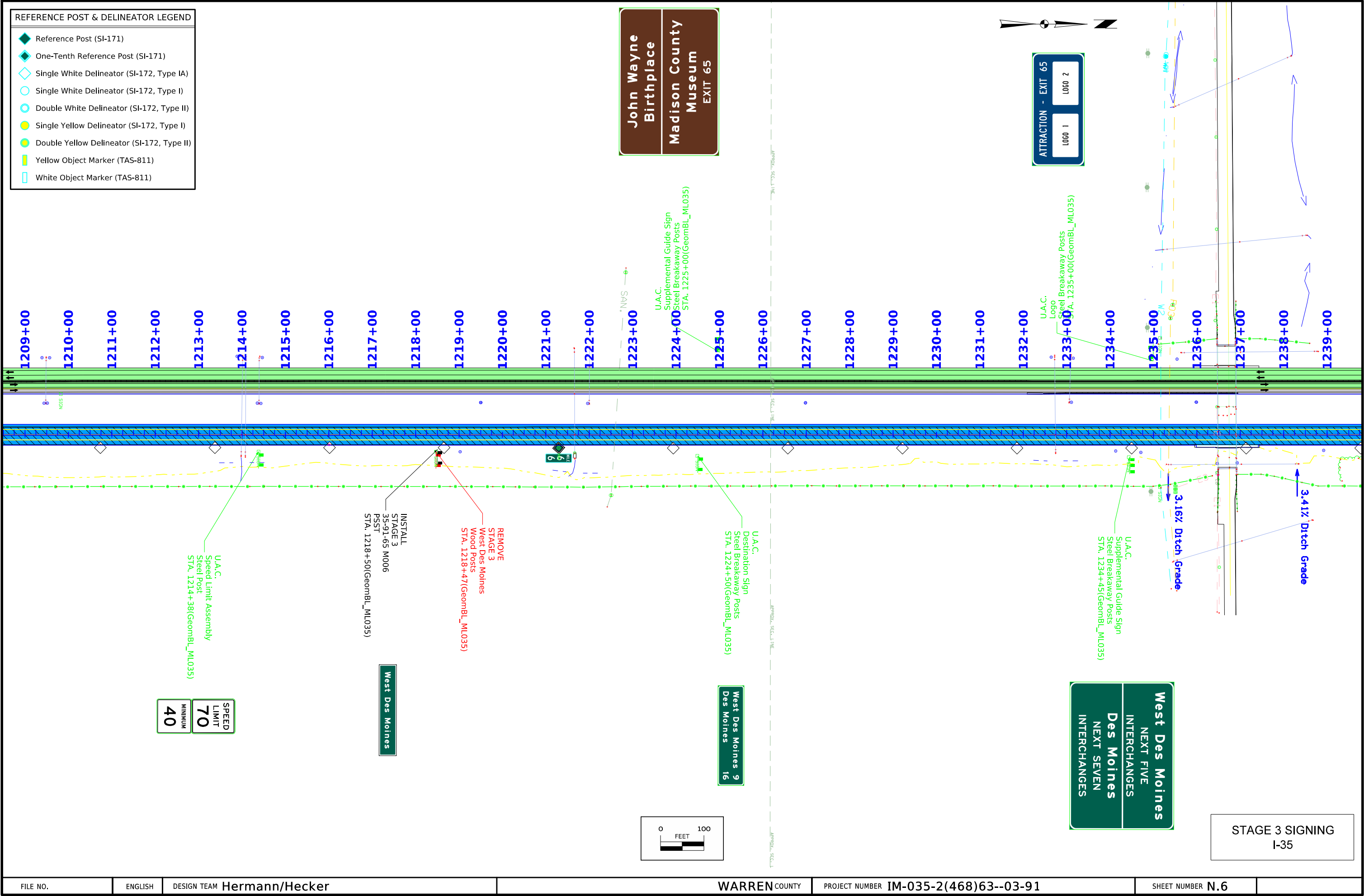


STAGE 3 SIGNING
I-35

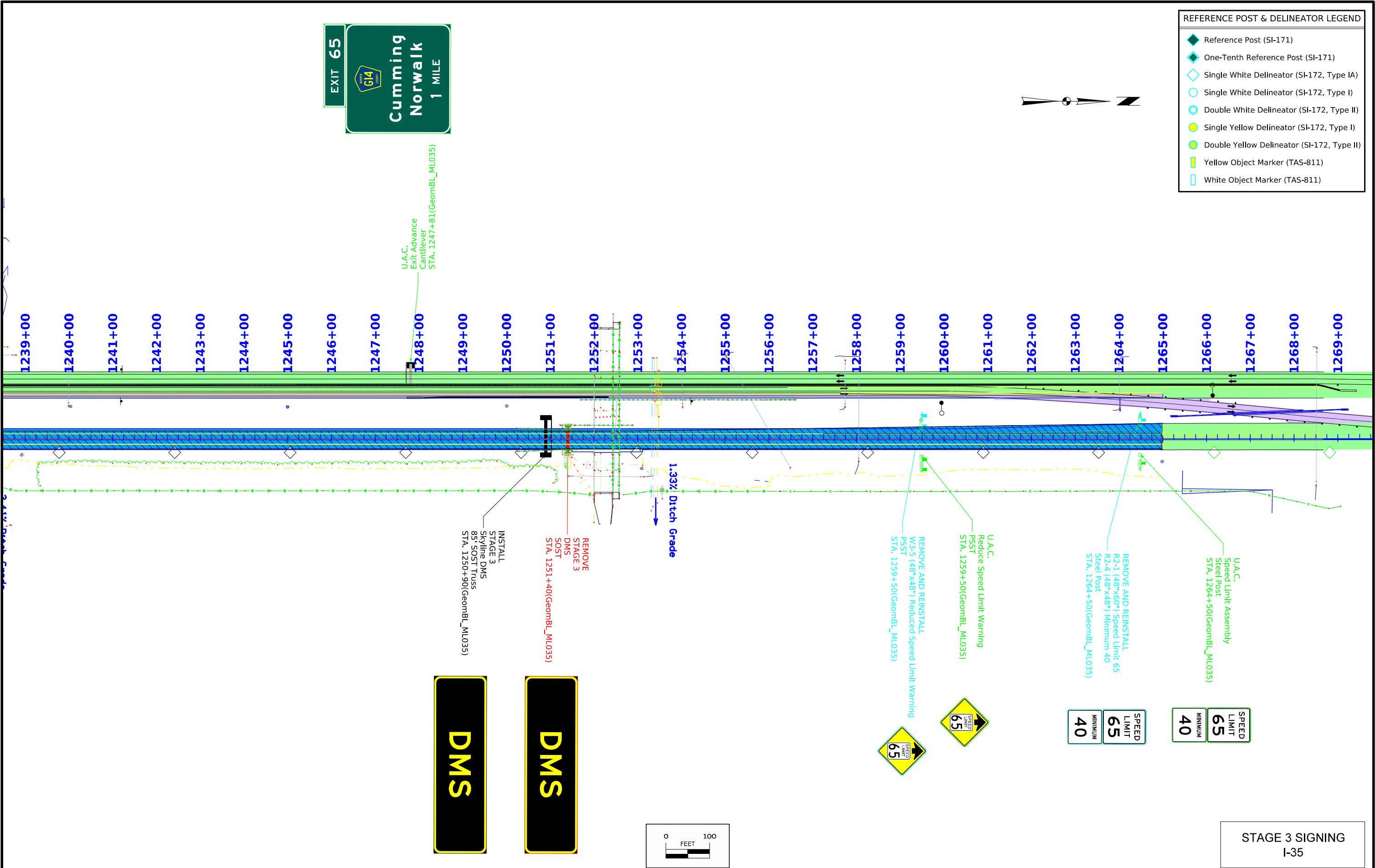
3 Plan 3



3 Plan 5



REFERENCE POST & DELINEATOR LEGEND	
	Reference Post (SI-171)
	One-Tenth Reference Post (SI-171)
	Single White Delineator (SI-172, Type IA)
	Single White Delineator (SI-172, Type I)
	Double White Delineator (SI-172, Type II)
	Single Yellow Delineator (SI-172, Type I)
	Double Yellow Delineator (SI-172, Type II)
	Yellow Object Marker (TAS-811)
	White Object Marker (TAS-811)



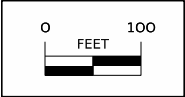
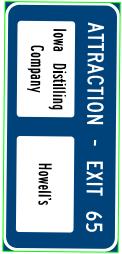
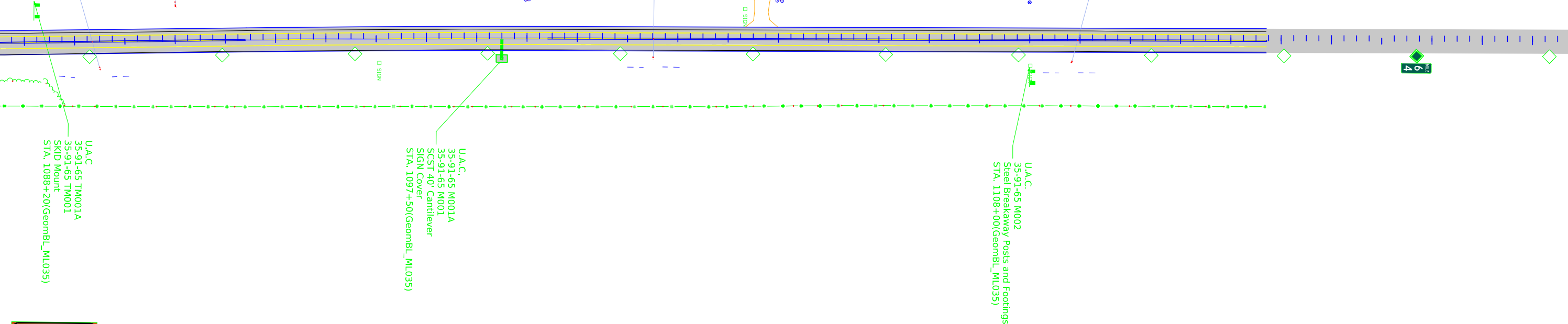
REFERENCE POST & DELINEATOR LEGEND	
	Reference Post (SI-171)
	One-Tenth Reference Post (SI-171)
	Single White Delineator (SI-172, Type IA)
	Single White Delineator (SI-172, Type I)
	Double White Delineator (SI-172, Type II)
	Single Yellow Delineator (SI-172, Type I)
	Double Yellow Delineator (SI-172, Type II)
	Yellow Object Marker (TAS-811)
	White Object Marker (TAS-811)



Indianola 20
Kansas City 176

U.A.C.
Destination
Steel Breakaway Posts
STA. 1119+00(GeomBL_ML035)

1088+00
1089+00
1090+00
1091+00
1092+00
1093+00
1094+00
1095+00
1096+00
1097+00
1098+00
1099+00
1100+00
1101+00
1102+00
1103+00
1104+00
1105+00
1106+00
1107+00
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1114+00
1115+00
1116+00
1117+00
1118+00

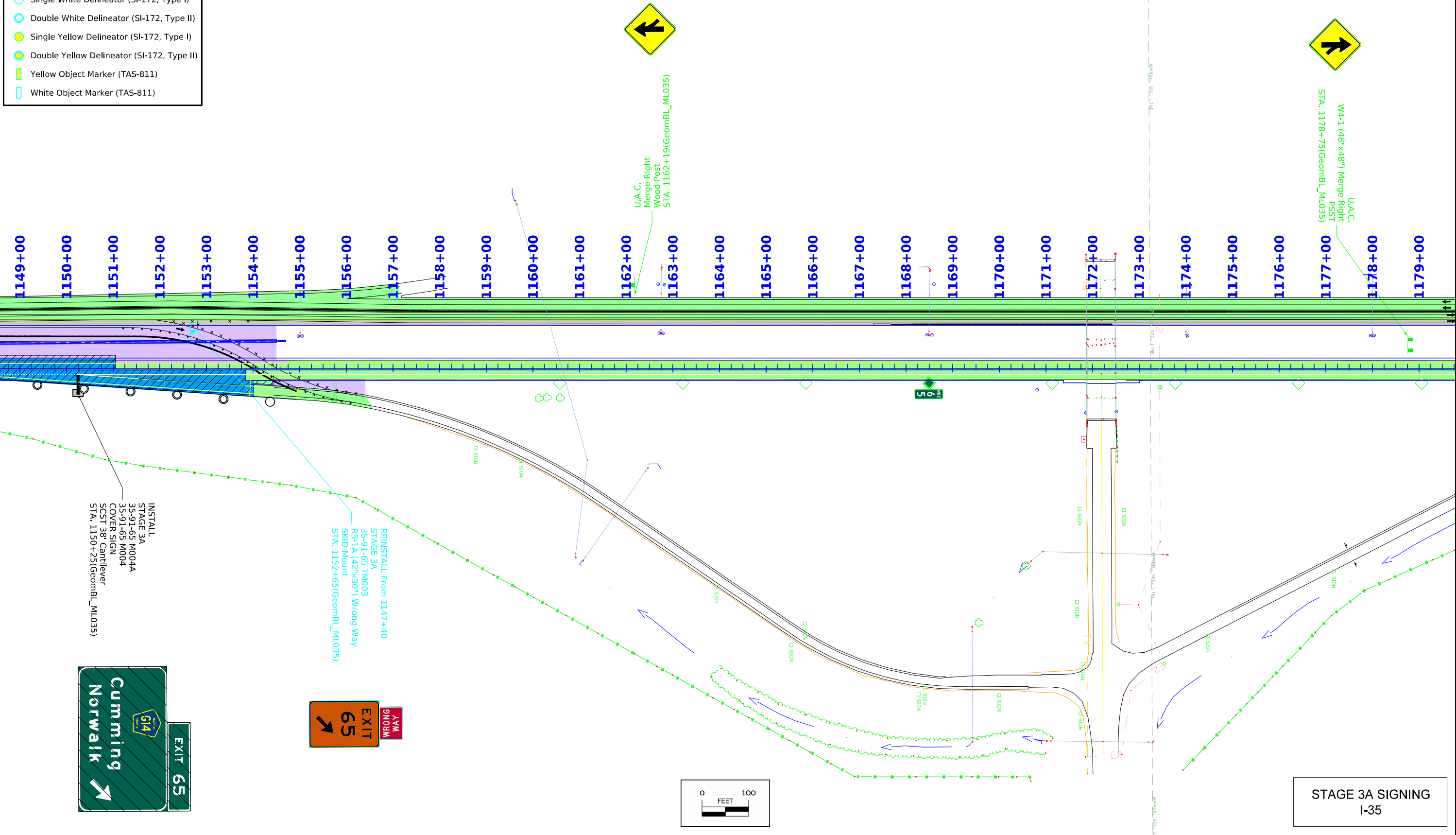


STAGE 3A SIGNING
I-35

FILE NO.	ENGLISH	DESIGN TEAM	Hermann/Hecker	WARREN COUNTY	PROJECT NUMBER	IM-035-2(468)63--03-91	SHEET NUMBER	N.8
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					

3A Plan 3

REFERENCE POST & DELINEATOR LEGEND	
	Reference Post (SI-171)
	One-Tenth Reference Post (SI-171)
	Single White Delineator (SI-172, Type IA)
	Single White Delineator (SI-172, Type I)
	Double White Delineator (SI-172, Type II)
	Single Yellow Delineator (SI-172, Type I)
	Double Yellow Delineator (SI-172, Type II)
	Yellow Object Marker (TAS-811)
	White Object Marker (TAS-811)

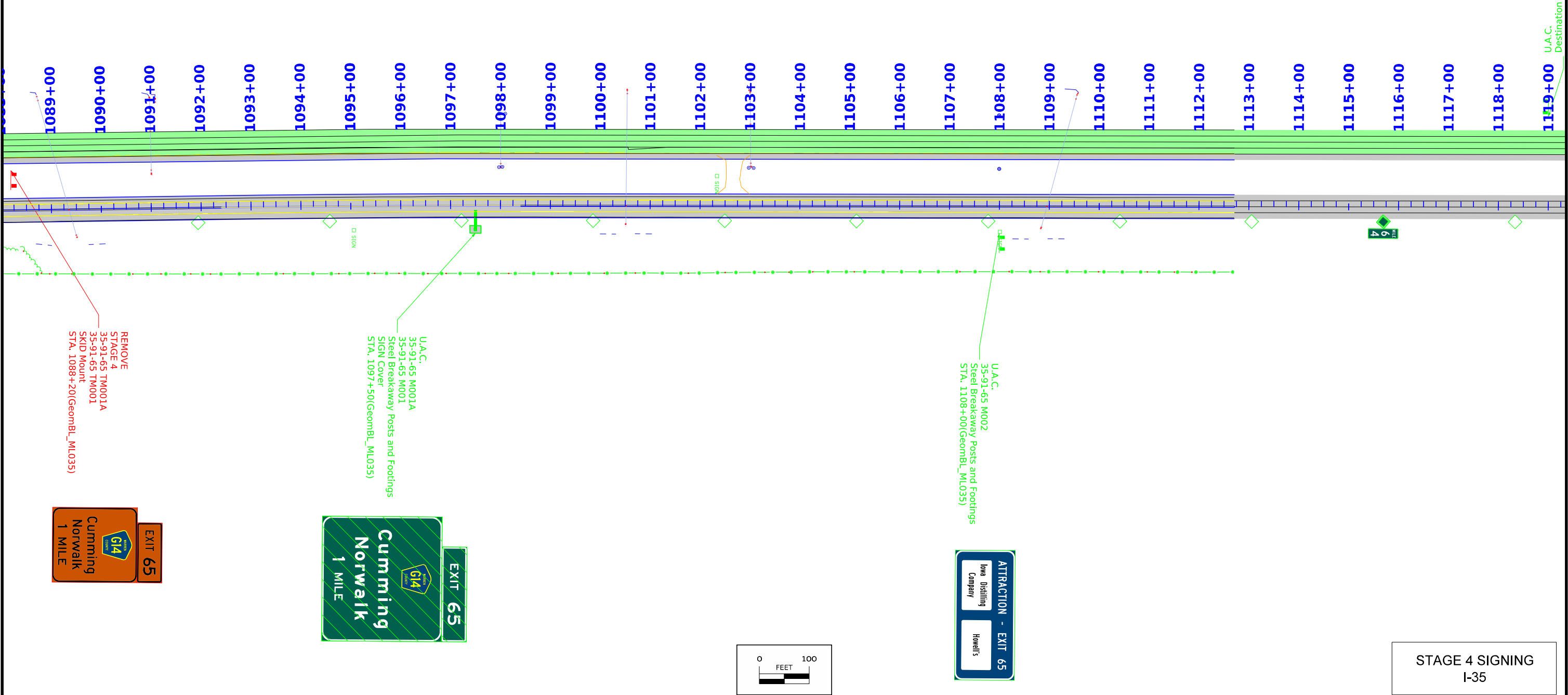


FILE NO.	ENGLISH	DESIGN TEAM Hermann/Hecker	WARREN COUNTY	PROJECT NUMBER IM-035-2(468)63--03-91	SHEET NUMBER N.10
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC		

REFERENCE POST & DELINEATOR LEGEND	
	Reference Post (SI-171)
	One-Tenth Reference Post (SI-171)
	Single White Delineator (SI-172, Type IA)
	Single White Delineator (SI-172, Type I)
	Double White Delineator (SI-172, Type II)
	Single Yellow Delineator (SI-172, Type I)
	Double Yellow Delineator (SI-172, Type II)
	Yellow Object Marker (TAS-811)
	White Object Marker (TAS-811)

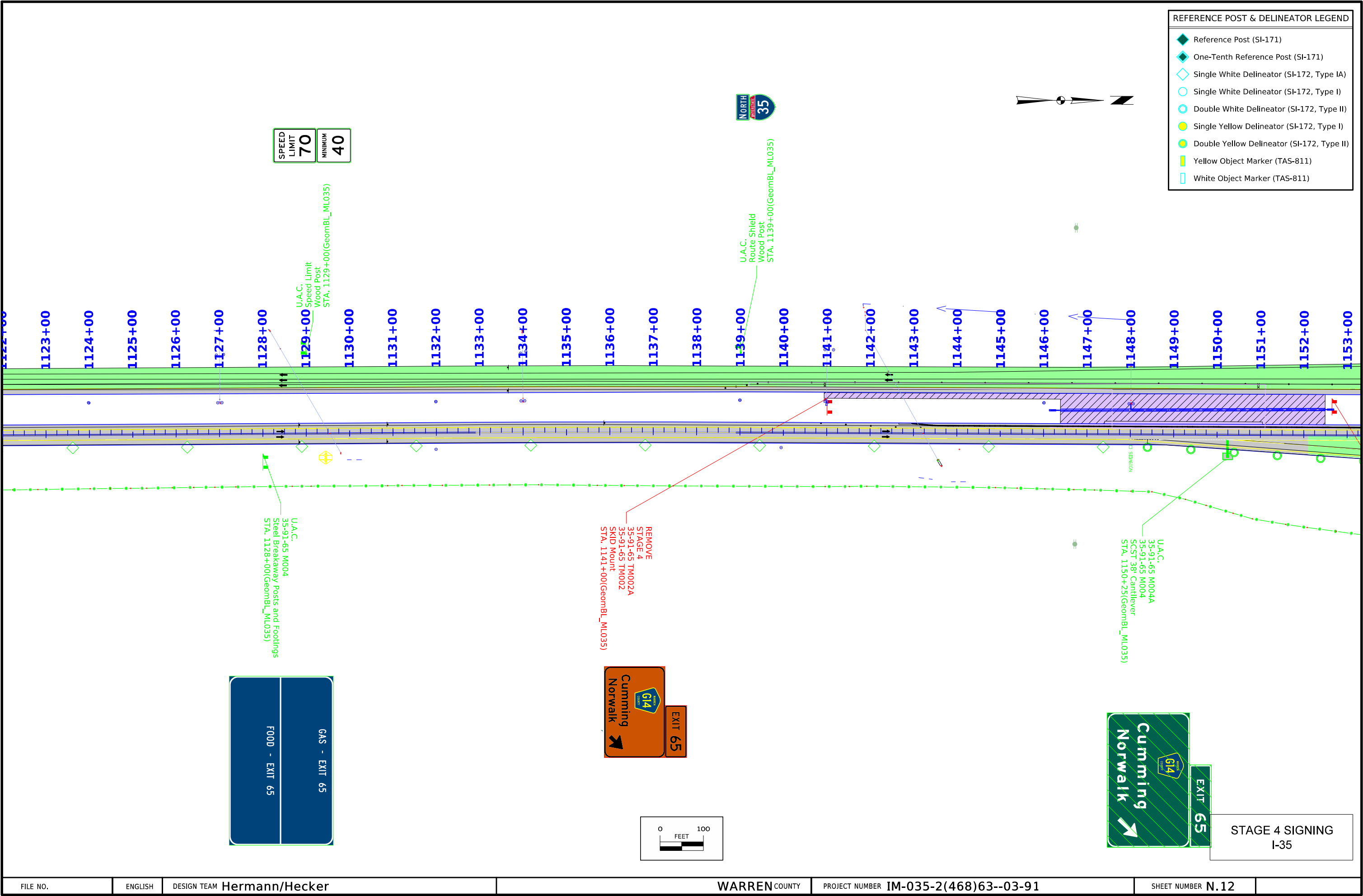


Indianola 20



4 Plan 1

4 Plan 2



REFERENCE POST & DELINEATOR LEGEND	
	Reference Post (SI-171)
	One-Tenth Reference Post (SI-171)
	Single White Delineator (SI-172, Type IA)
	Single White Delineator (SI-172, Type I)
	Double White Delineator (SI-172, Type II)
	Single Yellow Delineator (SI-172, Type I)
	Double Yellow Delineator (SI-172, Type II)
	Yellow Object Marker (TAS-811)
	White Object Marker (TAS-811)



U.A.C.
Merge Right
Wood Post
STA. 1162+19(GeomBL_ML035)



REMOVE AND REINSTALL
STAGE 4
W4-1 (48"x48") Merge Right
PSST
STA. 1178+75(GeomBL_ML035)



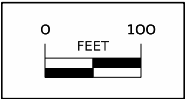
STAGE 4 SIGNING
I-35



REMOVE
STAGE 4
35-91-65 TMO03
R5-1A (42"x30") Wrong Way
SKID Mount
STA. 1152+65(GeomBL_ML035)



INSTALL
STAGE 4
35-91-65 M005
R5-1A (42"x30") Wrong Way
MASSH Post
STA. 1154+75(GeomBL_ML035)



4 Plan 3

FILE NO.	ENGLISH	DESIGN TEAM	Hermann/Hecker	WARREN COUNTY	PROJECT NUMBER	IM-035-2(468)63--03-91	SHEET NUMBER	N.13
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					

