



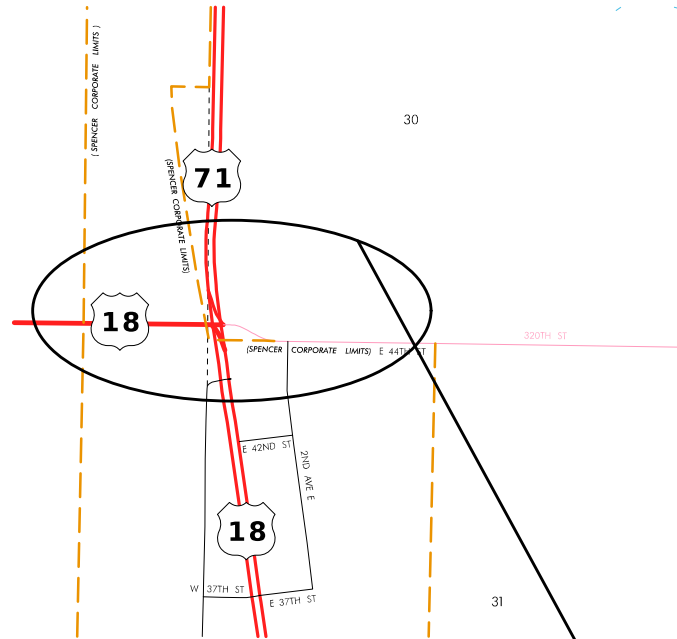
PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
CLAY COUNTY
Traffic Signs

N US 71 Intersection in Spencer

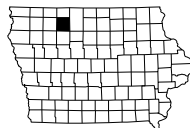
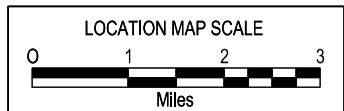
SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



PROJECT LOCATION



REVISIONS

TOTAL

18

PROJECT IDENTIFICATION NUMBER

23-21-018-020

PROJECT NUMBER

HSIPX-018-2(143)--3L-21

R.O.W. PROJECT NUMBER

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
* A.1	Title Sheet
* A.1	Location Map Sheet
B Sheets	Typical Cross Sections and Details
* B.1 - 9	Typical Cross Sections and Details
* B.10 - 11	Signing Notes
C Sheets	Quantities and General Information
* C.1 - 2	Project Description
* C.1 - 2	Estimated Project Quantities
* C.3 - 5	Index of Tabulations
* C.6 - 7	General Notes
N Sheets	Traffic Signal Sheets
* N.1 - 5	Traffic Signing Sheets "N US 71"



INDEX OF SEALS

SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	X	Primary Signature Block	X
X	X	X	X



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 J. Hermann Date 06-30-26

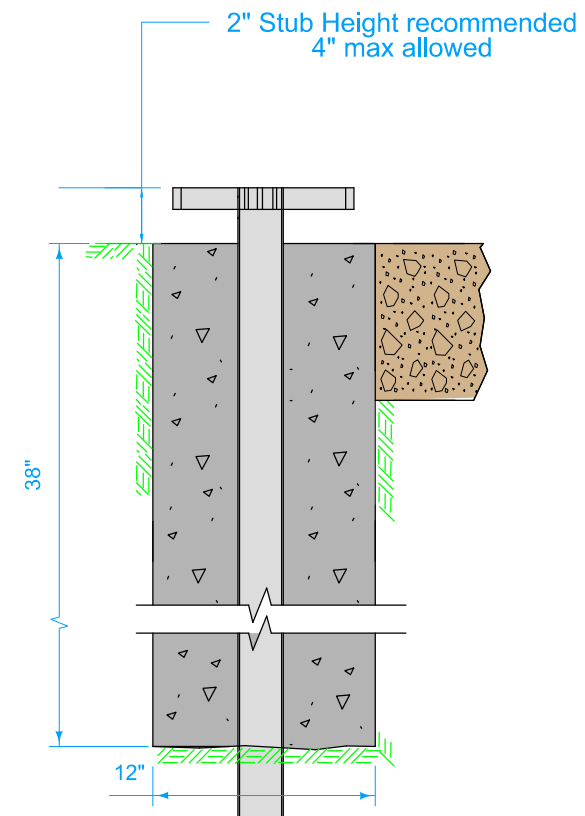
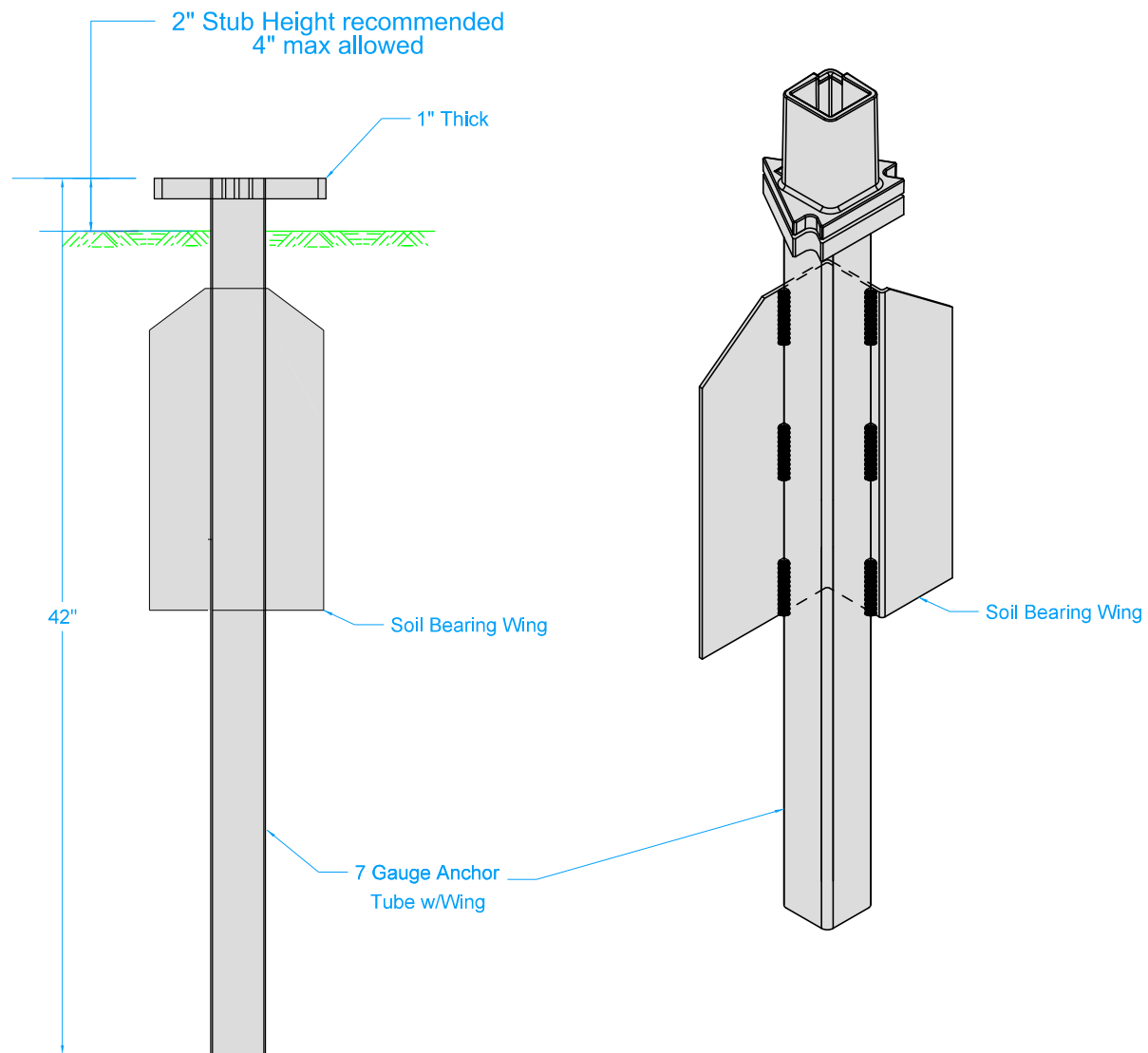
Printed or Typed Name
Jason Hermann

My license renewal date is December 31, 20 XX

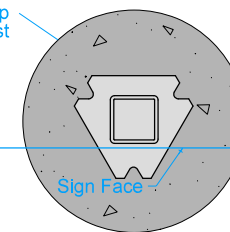
Pages or sheets covered by this seal: X

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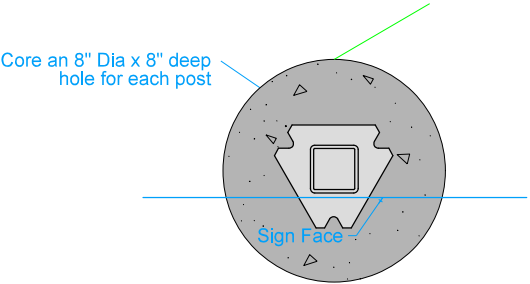
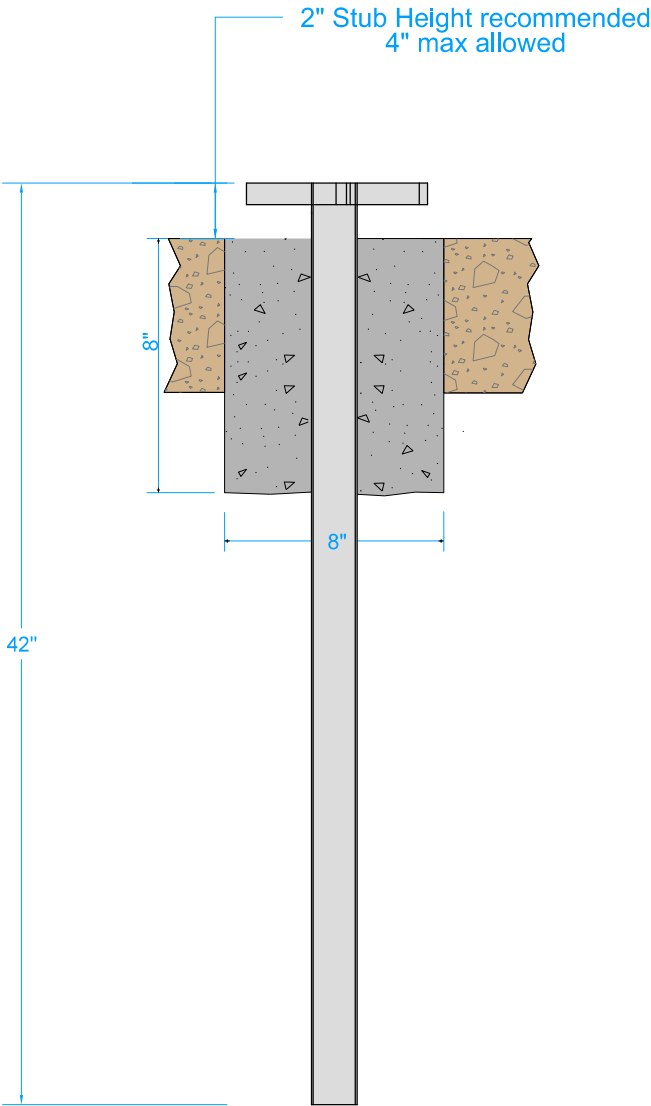
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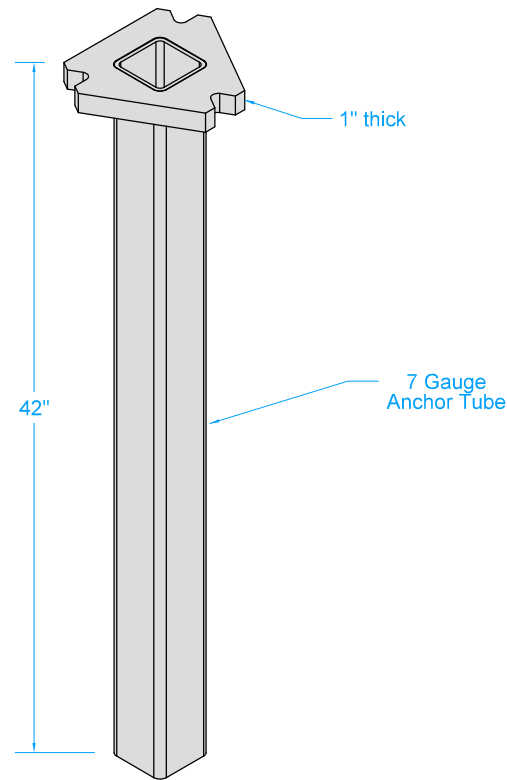
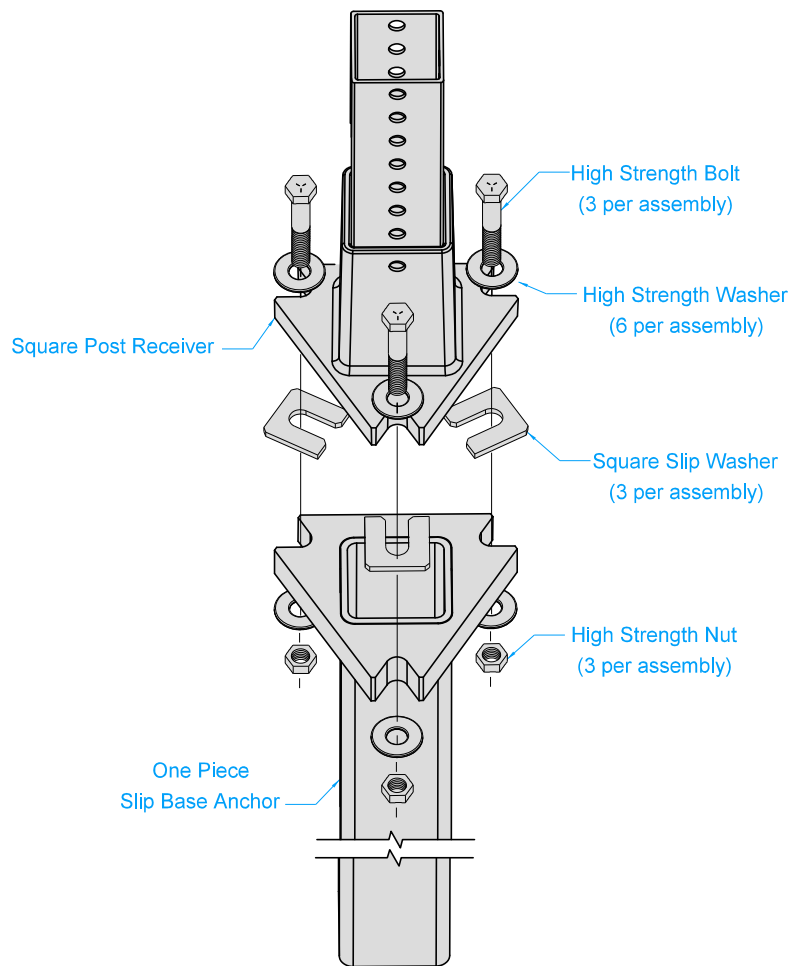
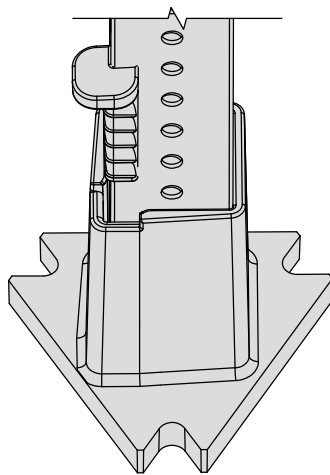
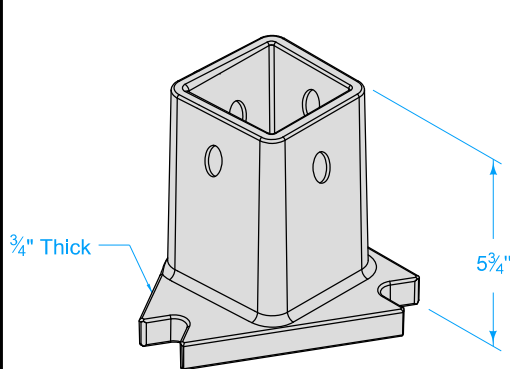
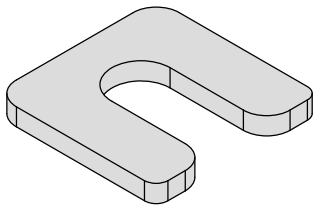
Core an 12" Dia x 3' -2" deep hole for each post



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		TAS STANDARD	
Support Structures - Perforated Square Steel Tube Anchor and Post			

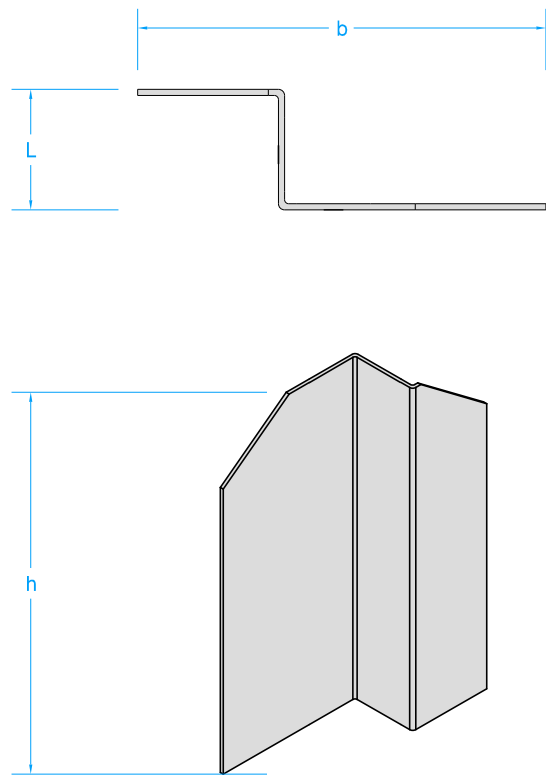
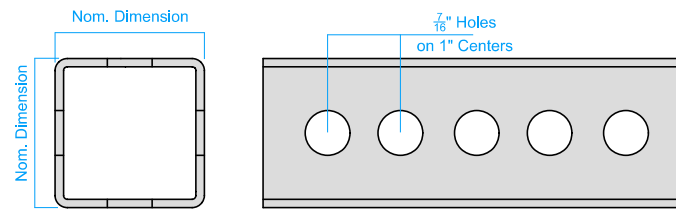


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	TAS STANDARD	
Support Structures - Perforated Square Steel Tube Anchor and Post		



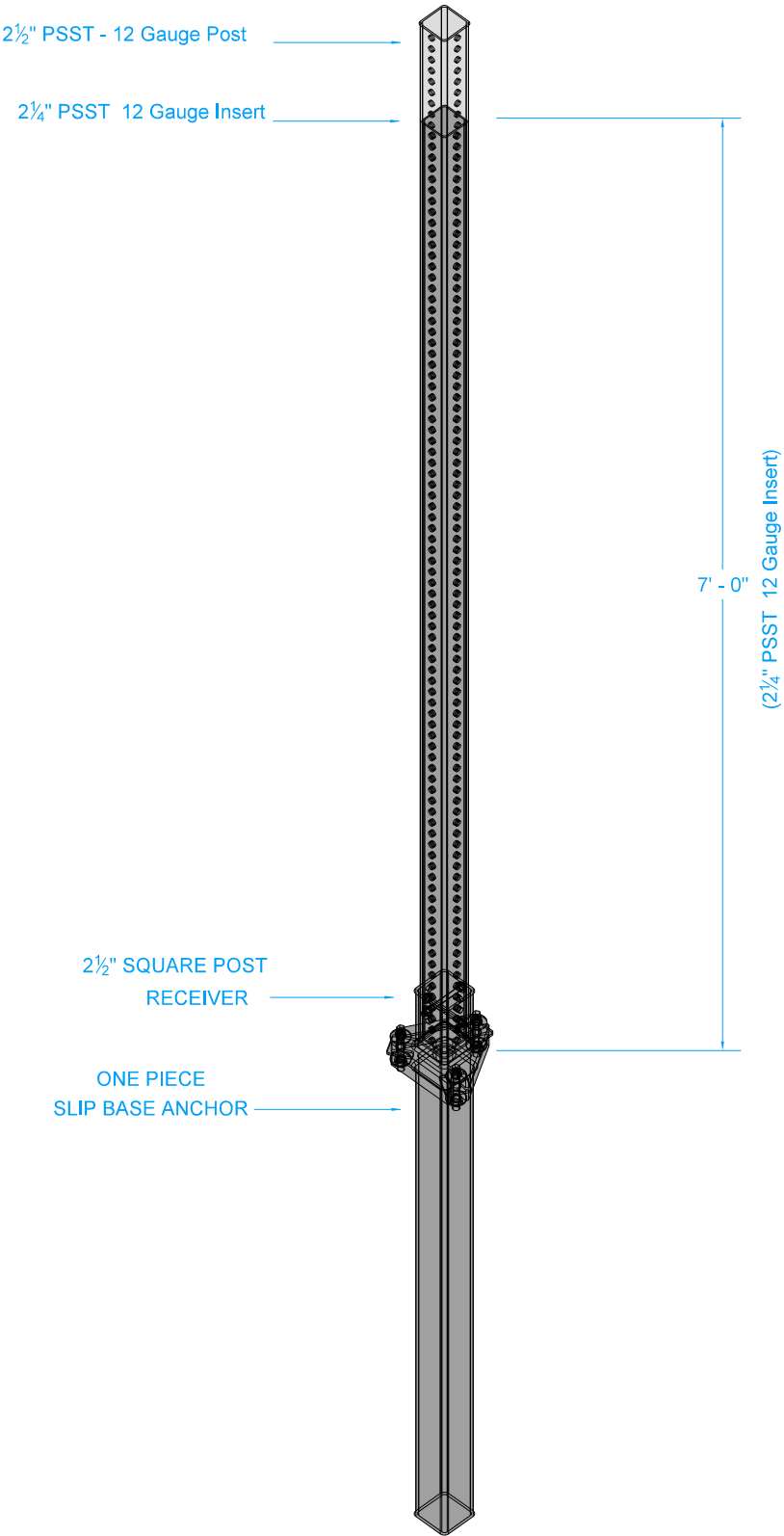
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	TAS STANDARD	
Support Structures - Perforated Square Steel Tube Anchor and Post		

PERFORATED STEEL SQUARE TUBE POST DETAILS

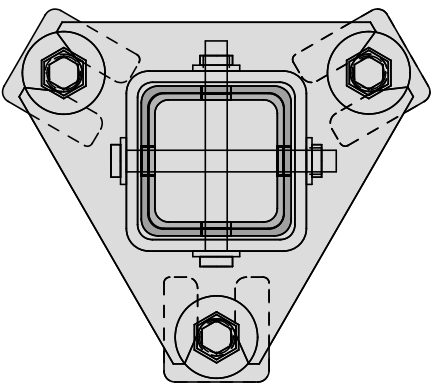
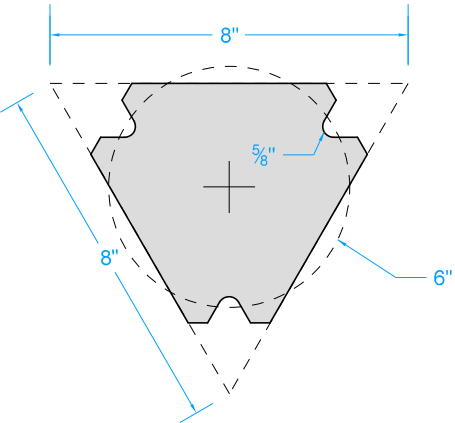


SOIL BEARING WING

SLIP BASE WITH NESTED PERFORATED SQUARE STEEL TUBE POST^①



SLIP PLATE DIMENSIONS^①

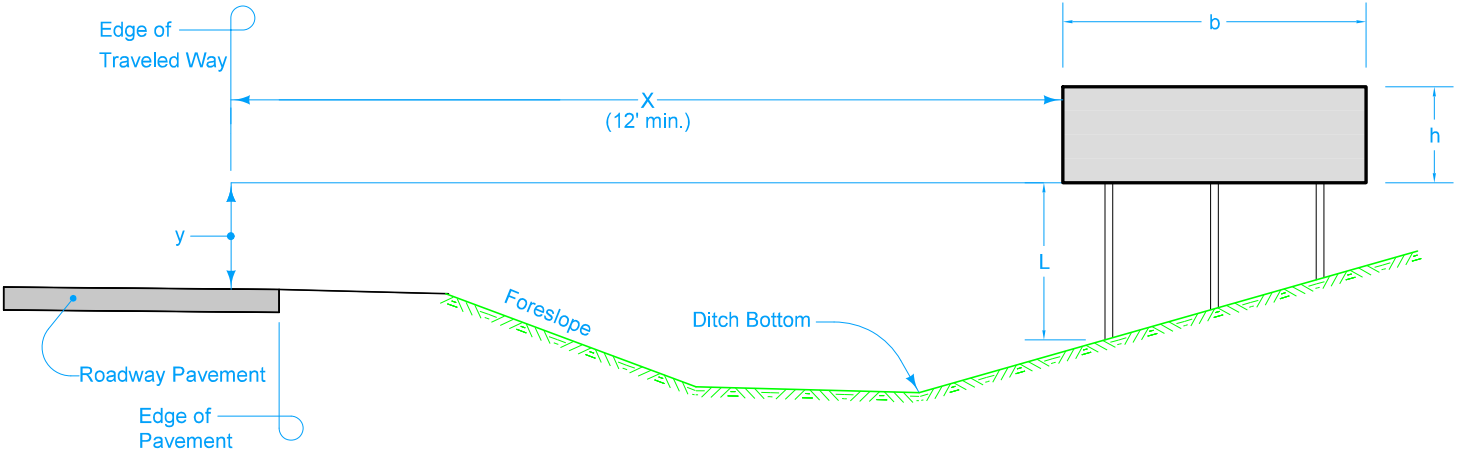


^① Type III/IV installation only

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

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 $b \times h$.

POST LOADING FOR PERFORATED SQUARE STEEL TUBE POSTS ^{① ②}						
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



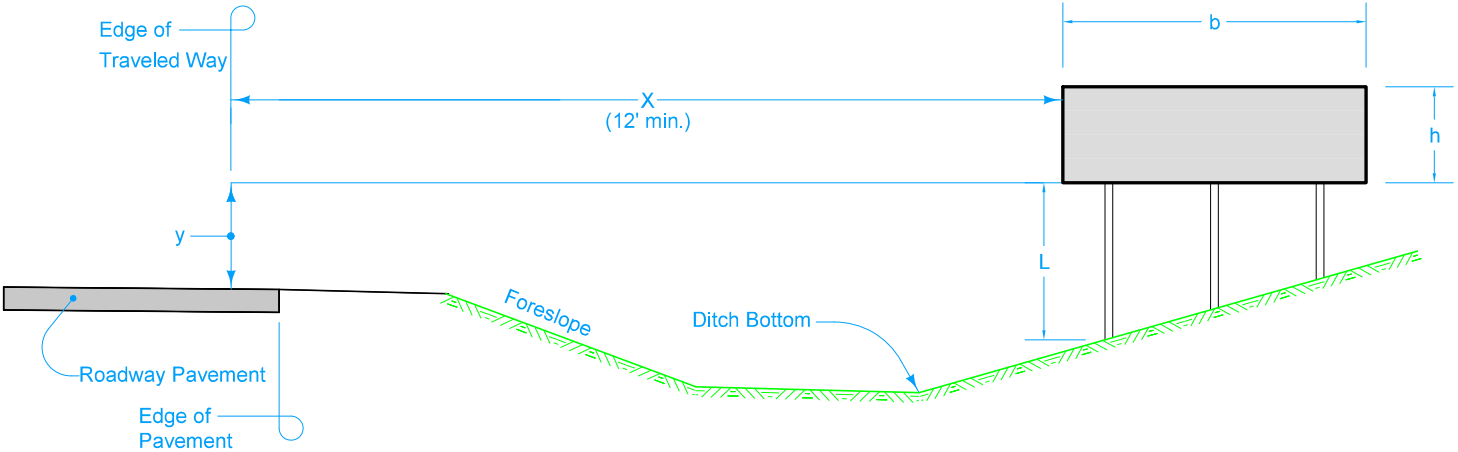
① Adapted from AASHTO Standard Specifications for - Highway Signs, Luminaires, and Traffic Signals. 6th Edition 2013. <Rev B 4/7/14>

② 90 MPH Wind Load

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

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 $b \times h$.

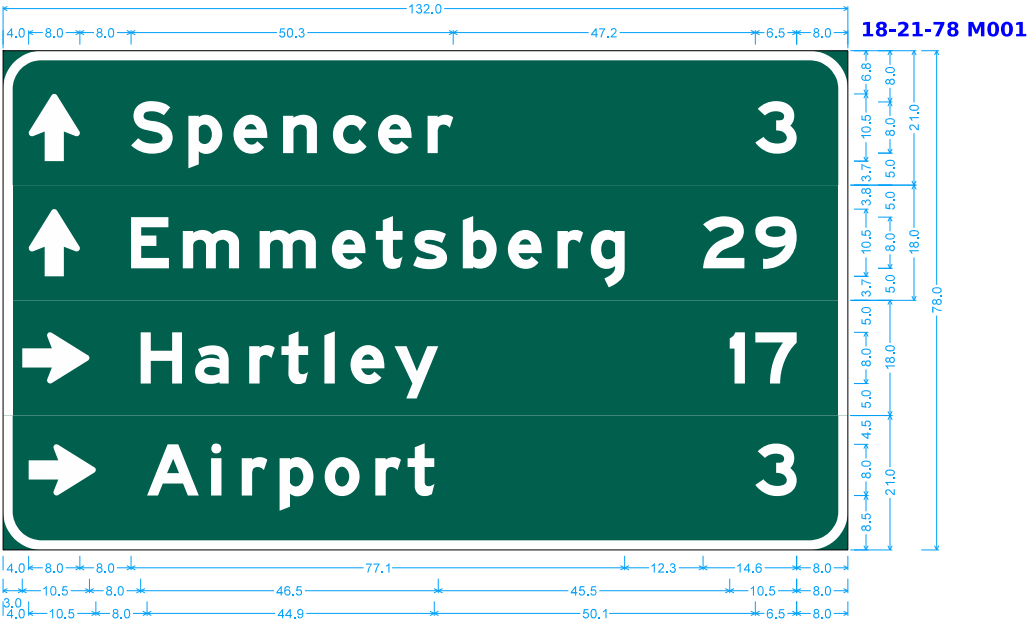
POST LOADING FOR PERFORATED SQUARE STEEL TUBE POSTS						
SIGN CENTROID (FT)	SIGN AREA (SQ-FT) YIELDING DESIGN					
	TYPE 1 TYPE 2	TYPE 3/TYPE 4 (SLIP BASE REQUIRED)				
		2 1/2" x 12ga		2 1/4" x 12ga inserted into a 2 1/2" x 12 ga		
		1 Post	2 Post	3 Post	1 Post	2 Post
16.5	10.44	20.88	31.32	18.78	37.56	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



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

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



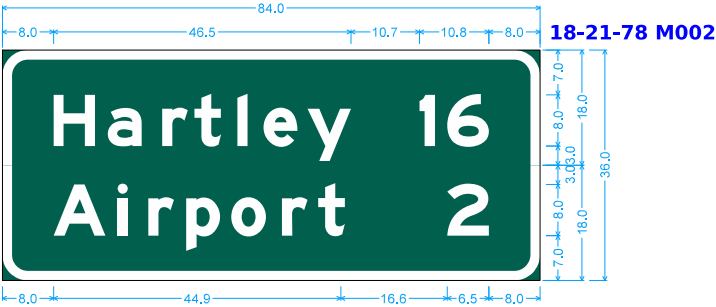
Expressway Destination 4 Line;

6.0" Radius, 1.5" Border, White on Green;
Arrow III-S - 10.5" 90°; "Spencer", E Mod 2K; "3", E Mod 2K;

6.0" Radius, 1.5" Border, White on Green;
Arrow III-S - 10.5" 90°; "Emmetsberg", E Mod 2K; "29", E Mod 2K;

6.0" Radius, 1.5" Border, White on Green;
Arrow III-S - 10.5" 0°; "Hartley", E Mod 2K; "17", E Mod 2K;

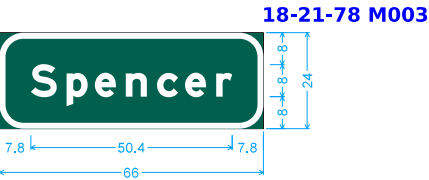
6.0" Radius, 1.5" Border, White on Green;
Arrow III-S - 10.5" 0°; "Airport", E Mod 2K; "3", E Mod 2K;



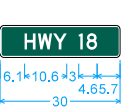
Expressway Mileage 2 Line;

4.0" Radius, 1.5" Border, White on Green;
"Hartley", E Mod 2K; "16", E Mod 2K;

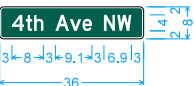
4.0" Radius, 1.5" Border, White on Green;
"Airport", E Mod 2K; "2", E Mod 2K;



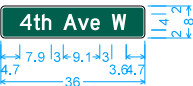
6.0" Radius, 1.5" Border, White on Green;
"Spencer", E Mod 2K;



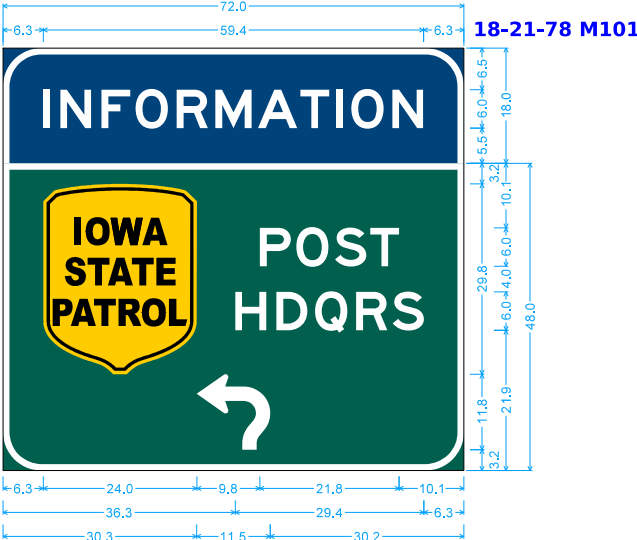
1.0" Radius, 0.4" Border, White on Green;
"HWY", D 2K;
"18", D 2K;



1.0" Radius, 0.4" Border, White on Green;
"4th", D 2K;
"Ave", D 2K;
"NW", D 2K;

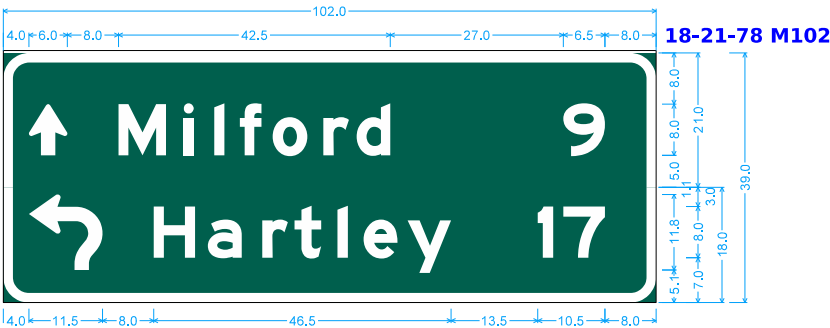


1.0" Radius, 0.4" Border, White on Green;
"4th", D 2K;
"Ave", D 2K;
"W", D 2K;



6.0" Radius, 1.0" Border, White on Blue;
"INFORMATION", E 2K;

6.0" Radius, 1.0" Border, White on Green;
signcad; "POST", E 2K; "HDQRS", E 2K;



Expressway Mileage 2 Line;

4.0" Radius, 1.5" Border, White on Green;
Arrow III-S - 8.0" 90°; "Milford", E Mod 2K; "9", E Mod 2K;

4.0" Radius, 1.5" Border, White on Green;
"Hartley", E Mod 2K; "17", E Mod 2K;



Expressway Mileage 2 Line;

4.0" Radius, 1.5" Border, White on Green;
"Milford", E Mod 2K; "8", E Mod 2K;

4.0" Radius, 1.5" Border, White on Green;
"Spirit Lake", E Mod 2K; "21", E Mod 2K;

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Division 1 : Traffic Sign Items
Division 2 :

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Division 1	Division 2	Total	
1	2524-6765210	REMOVAL OF TYPE A SIGN ASSEMBLY	EACH	40		40	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.
2	2524-6765220	REMOVAL OF TYPE B SIGN ASSEMBLY	EACH	2		2	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, 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.
3	2524-9081275	CONCRETE FOOTING FOR BREAKAWAY SIGN POST, 2'-8" DIA. X 7'-6"	EACH	4		4	Refer to Tabulation(s) 190-50 (and 190-51) for details.
4	2524-9276010	PERFORATED SQUARE STEEL TUBE POSTS	LF	403		403	Refer to Tabulation(s) 190-50 and/or 190-51 for locations and details.
5	2524-9276027	PERFORATED SQUARE STEEL TUBE POST ANCHOR, TRIANGULAR SLIP BASE ASSEMBLY	EACH	81		81	
6	2524-9281210	STEEL BREAKAWAY SIGN POSTS FOR TYPE A OR B SIGNS, W 8 X 21	LF	152.95		152.95	Refer to Tabulation 190-50 for locations and details.
7	2524-9290009	SIGN MOUNTING BRACKETS, SPECIAL	EACH	14		14	Refer to Tabulation 190-51 for locations and details. Measurement: Each. Payment: The Contractor will be paid the contract unit price for each sign mounting bracket furnished and installed.

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Division 1	Division 2	Total	
8	2524-9325001	TYPE A SIGNS, SHEET ALUMINUM	SF	392.9		392.9	Refer to Tabulation 190-51 and 190-66 for locations and details.
9	2524-9380001	TYPE B SIGNS, EXTRUDED ALUMINUM STRUCTURAL PANEL	SF	202.9		202.9	Refer to Tabulation 190-50 for locations and details.
10	2528-8445110	TRAFFIC CONTROL	LS	1		1	
11	2533-4980005	MOBILIZATION	LS	1		1	- -
12	2555-0000010	DELIVER AND STOCKPILE SALVAGED MATERIALS	LS		1	1	Refer to Tab. 110-13.

105_04 4/21/26		
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-112	04-19-16	Footings For Steel Breakaway Posts
SI-113	10-15-19	Support Structures - Steel Breakaway Posts
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-133	10-17-17	Installation - Type 'A' Sign Shim
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

111_25 4/21/26			
INDEX OF TABULATIONS			
Line No.	Tabulation	Tabulation Title	Sheet No.
		Cannot find value for Tabulation of ()	
1.0	105_04	STANDARD ROAD PLANS	
2.0	110_13	DELIVERY AND STOCKPILING	
3.0	111_25	INDEX OF TABULATIONS	
4.0	190_50	MATERIALS FOR TYPE B SIGNS	
5.0	190_51	MATERIALS FOR TYPE A SIGNS	
6.0	190_61	EXISTING SIGNS TO BE REINSTALLED	
7.0	190_62	EXISTING SIGNS TO BE REMOVED	
8.0	190_65	SPECIAL SIGN MOUNTING BRACKETS	
9.0	190_66	SUMMARY OF TYPE A SIGNS	

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" (L F)	Wood Posts 4"x6" (L F)	Installation Type	Installation Dim 'X'	See Signing Notes
1.0	Bicycle - Pedestrian	WB	3629+97.00	2	11.5			1	24.0	RR,PP PSST
2.0	Diagonal Left Arrow	WB						1	24.0	RR,PP PSST
3.0	Bicycle - Pedestrian	EB	3629+61.00	2	11.5			1	24.0	RR,PP PSST
4.0	Diagonal Left Arrow	EB						1	24.0	RR,PP PSST
5.0	Left Turn	EB	6156+25.00	2	11			1	24.0	RR,PP PSST
6.0	Advisory Speed	EB								
7.0	Alternative	EB	6161+00.00	2	13			1	24.0	RR,PP PSST
8.0	Truck Route	EB							24.0	
9.0	Route 71	EB							24.0	
10.0	Route 18	EB							24.0	
11.0	Route B19	EB	6163+00.00	2	13			1	24.0	RR,PP PSST
12.0	Byway	EB								
13.0	Alternative	EB	7160+25.00	2	13			1	24.0	RR,PP PSST
14.0	Truck Route	EB							24.0	
15.0	Route 71	EB							24.0	
16.0	Route 18	EB							24.0	

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		M1-3	4	24x24	16.0
2.0	M1-4		15	24x24	60.0
3.0	M14-1		1	24x18	3.0
4.0	M2-1		3	36x18	13.5
5.0	M3-1		3	36x18	13.5
6.0	M3-2		5	36x18	22.5
7.0	M3-3		3	36x18	13.5
8.0	M3-4		4	36x18	18.0
9.0		M4-1	2	36x18	9.0
10.0		M5-3	8	21x15	17.5
11.0		M6-2R	4	21x15	8.8
12.0	R1-1		1	30x30	6.3
13.0	R1-2		11	36x36	99.0
14.0	R2-1		4	36x48	48.0
15.0	R4-7		2	24x30	20.0
16.0		W11-2	4	30x30	25.0
17.0		W16-7L	4	24x12	8.0
18.0		W2-6	4	36x36	36.0

190_65 8/15/22		
SPECIAL SIGN MOUNTING BRACKETS		
Line No.	Bracket Type	Quantity (EA)
1.0	Type 2	9
2.0	Type 6	5

110_13 8/15/22							
DELIVERY AND STOCKPILING							
Line No.	Item Description	Quantity	Quantity Units	Delivery Location	Contact Name	Contact Number	Remarks
1.0	Remove Type 'A' Signs	1	LS	Spencer Garage	Bill Boles	712-262-1645	
2.0				1107 11th Ave. S.W.	Supervisor		
3.0				Spencer, IA 51301			
4.0							
5.0							

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	Stop Ahead	4053+87.00	EB	1					1		RA
2.0	One Way	3633+58.00	EB	1					1		RA
3.0	Bike/Ped Xing	3632+34.00	EB	1					1		RA
4.0	Route 18 Assembly	3630+79.00	EB	1					1		RA
5.0	Bike/Ped Xing	3629+97.00	EB	1					1		RR
6.0	Speed Limit	3629+23.00	EB	1					1		RA
7.0	Route B19 Assembly	6161+00.00	EB	1					1		RR
8.0	Alternative Assembly	7160+25.00	EB	1					1		RR
9.0	ISP Sign	4047+70.00	NB	1					1		RA
10.0	Object Marker	4055+22.00	NB	1					1		RA
11.0	One Way Assembly	4056+75.00	NB	1					1		RA
12.0	Route 71 Assembly	4058+50.00	NB	1					1		RA
13.0	Do Not Enter Assembly	4058+37.00	NB	1					1		RA
14.0	Buckle Up Assembly	4060+22.00	NB	1					1		RA
15.0	Slower Traffic Assembly	4061+74.00	NB	1					1		RA
16.0	Do Not Enter Assembly	4048+43.00	NB	1					1		RA
17.0	AAH / Route Assembly	4058+72.00	NB	1					1		RA
18.0	Stop Assembly	4047+21.00	SB	1					1		RA
19.0	Stop Assembly	4057+78.00	SB	1					1		RA
20.0	Do Not Enter Assembly	5045+41.00	SB	1					1		RA
21.0	One Way Assembly	5052+33.00	SB	1					1		RA
22.0	One Way Assembly	5052+30.00	SB	1					1		RA
23.0	East 18	5053+73.00	SB	1					1		RA
24.0	Do Not Enter Assembly	5058+37.00	SB	1					1		RA
25.0	South 71 Assembly	5070+49.00	SB	1					1		RA
26.0	Spencer Type B Assembly	4055+51.00	SB	1					1		RB
27.0	South 71 Assembly	5067+32.00	SB	1					1		RA
28.0	State Patrol Assembly	5068+23.00	SB	1					1		RB
29.0	Begin Left Turn Lane	5068+26.00	SB	1					1		RA
30.0	Do Not Enter Assembly	4058+69.00	SB	1					1		RA
31.0	Do Not Enter Assembly	5045+41.00	SB	1					1		RA
32.0	Do Not Enter Assembly	4055+60.00	SB	1					1		RA
33.0	Yield	2634+63.00	SB	1					1		RA
34.0	South 71 Assembly	5059+31.00	SB	1					1		RA
35.0	Spencer Type B Assembly	5065+20.00	SB	1					1		RA
36.0	Stop Ahead	4053+87.00	WB	1					1		RA
37.0	Speed Limit	3629+97.00	WB	1					1		RR
38.0	Route 18 Assembly	3630+79.00	WB	1					1		RA
39.0	Bike/Ped Xing	3632+34.00	WB	1					1		RA
40.0	One Way Assembly	3633+58.00	WB	1					1		RA

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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)	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		M2-1	NB	4047+25.00				11.5		11.5		2										1	24.0	IA, PP	
2.0		M1-4																							
3.0		M3-4	NB	4050+00.00				12.8		12.8												1	24.0	IA, PP	
4.0		M1-4																							
5.0		M5-3																							
6.0		M1-6																							
7.0		M5-3																							
8.0		W2-6	NB	4052+00.00				10.0		10.0		2										1	24.0	IA, PP	
9.0		M3-1	NB	4060+00.00				11.5		11.5		2										1	24.0	IA, PP	
10.0		M1-4																							
11.0		R2-1	NB	4064+00.00				11.0		11.0		2										1	24.0	IA, PP	
12.0		R2-1	SB	5050+00.00				11.0		11.0		2										1	24.0	IA, PP	
13.0		M3-1	SB	5054+00.00				11.5		11.5		2										1	24.0	IA, PP	
14.0		M4-1																							
15.0		W2-6	SB	5062+00.00				10.0		10.0		2										1	24.0	IA, PP	
16.0		M3-2	SB	5067+00.00				12.8		12.8		2										1	24.0	IA, PP	
17.0		M1-4																							
18.0		M5-3																							
19.0		M3-4																							
20.0		M5-3																							
21.0		M2-1	EB	2625+00.00				10.0		10.0		2										1	24.0	IA,PP	
22.0		M1-4																							
23.0		W2-6	EB	2629+00.00				10.0		10.0		2										1	24.0	IA,PP	
24.0		R1-1	EB	2627+00.00				9.5		9.5		1										1	24.0	IA,PP	
25.0		M3-2	EB	2631+50.00				12.8		12.8		2										1	24.0	IA, PP	
26.0		M1-4																							
27.0		M5-3																							
28.0		M3-3																							
29.0		M1-4																							
30.0		M5-3																							
31.0		W1-2	EB	6159+25.00				11.0		11.0		2										1	24.0	IA, PP	
32.0		W13-1P																							
33.0		R2-1	WB	3627+50.00				11.0		11.0		2													
34.0		M3-2	WB	3631+50.00				11.5		11.5		2										1	24.0	IA, PP	
35.0		M1-4																							
36.0		W2-6	WB	7161+50.00				11.0		11.0		2										1	24.0	IA, PP	
37.0		M3-3	WB	7159+50.00				12.8		12.8		2										1	24.0	IA, PP	
38.0		M1-4																							
39.0		M5-3																							
40.0		M3-2																							
41.0		M1-4																							
42.0		M5-3																							
43.0		M2-1	WB	7163+00.00				10.0		10.0		2										1	24.0	IA, PP	
44.0		M1-4																							
45.0		M3-2	WB	3631+50.00				11.5		11.5		2										1	24.0	IA, PP	
46.0		M1-4																							
47.0		R2-1	WB	3627+50.00				11.0		11.0		2										1	24.0	IA, PP	
48.0																									
49.0		R4-7	WB	3633+00.00				10.0		10.0		2										1	24.0	IA, PP	
50.0		W11-2	WB	3633+25.00				11.5		11.5		2										1	24.0	IA, PP	
51.0		W16-7L																							
52.0		R2-1	WB	3633+25.00				11.0		11.0		2										1	24.0	IA, PP	
53.0		R1-2	WB	5057+75.00				10.0		10.0		2										1	24.0	IA, PP	
54.0		M3-4	WB	3633+50.00				11.3		11.3		2										1	24.0	IA, PP	

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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)	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
55.0		M1-3																							
56.0		M6-2R																							
57.0		R1-2	WB	5058+00.00				10.0		10.0		2										1	24.0	IA, PP	
58.0		R4-7	WB	5058+25.00				9.5		9.5		2										1	24.0	IA, PP	
59.0		M3-1	WB	4058+00.00				11.3		11.3		2										1	24.0	IA, PP	
60.0		M1-3																							
61.0		M6-2R																							
62.0		R1-2	WB	4057+00.00				10.0		10.0		2										1	24.0	IA, PP	
63.0		R1-2	WB	7157+25.00				10.0		10.0		2										1	24.0	IA, PP	
64.0		R4-7	WB	7159+75.00				9.5		9.5		2										1	24.0	IA, PP	
65.0																									
66.0		R1-2	NB	4047+00.00				10.1		10.1		2										1	24.0	IA, PP	
67.0		R1-2	NB	4057+25.00				10.1		10.1		2										1	24.0	IA, PP	
68.0		R1-2	SB	5057+50.00				10.1		10.1		2										1	24.0	IA, PP	
69.0		R1-2	SB	5056+50.00				10.1		10.1		2										1	24.0	IA, PP	
70.0		R1-1	NB	9609+75.00				9.5		9.5		2										1	24.0	IA, PP	
71.0		R1-1	EB	2627+00.00				9.5		9.5		2										1	24.0	IA, PP	
72.0		W3-1	NB	9611+75.00				9.5		9.5		2										1	24.0	IA, PP	
73.0		W3-1	EB	9624+00.00				9.5		9.5		2										1	24.0	IA, PP	
74.0		R2-1	WB	9611+50.00				9.5		9.5		2										1	24.0	IA, PP	
75.0		R2-1	SB	9624+00.00				9.5		9.5		2										1	24.0	IA, PP	

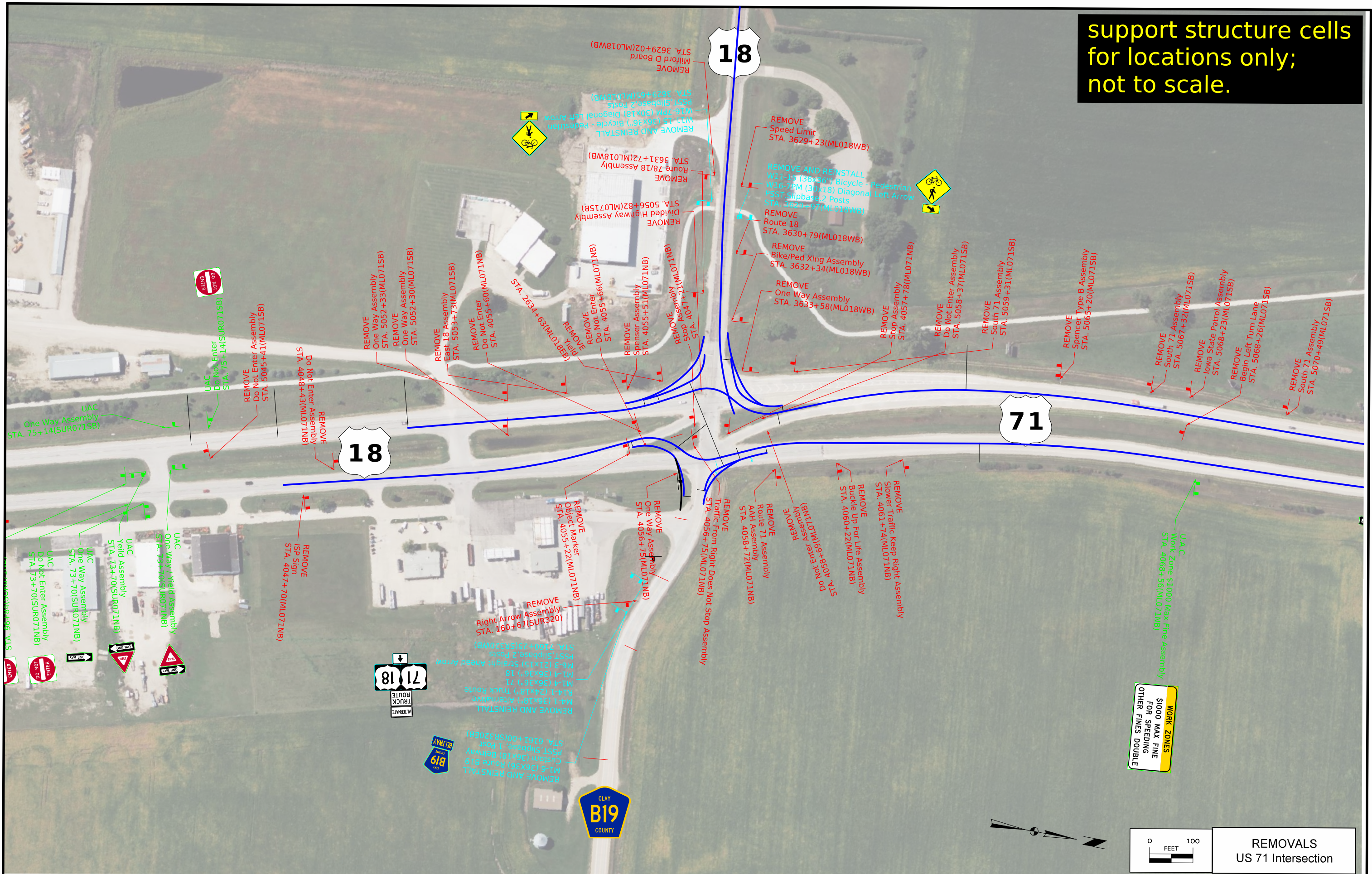
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MATERIALS FOR TYPE 'B' SIGNS

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		18	21	78	M	001	NB		NEW	6.0	5.5	33.0				12.2		13.2		2										1	24.0	7.0	IB, PP		
2.0		18	21	78	M	002	NB		NEW	8.5	3.3	27.6				10.3		11.7		2										1	24.0	7.0	IB, PP		
3.0		18	21	78	M	003	NB		NEW	5.5	2.0	11.0																						Install on Speed Limit Sign	
4.0		18	21	78	M	101	SB		NEW	11.0	6.5	71.5				13.5		15.3		2									1	24.0	7.0	IB, PP			
5.0		18	21	78	M	102	SB		NEW	7.0	3.0	21.0				10.0		11.5		2									1	24.0	7.0	IB, PP			
6.0		18	21	78	M	103	SB		NEW	9.5	3.3	30.9				10.3		11.7		2										1	24.0	7.0	IB, PP		
7.0		18	21	78		001	NB		NEW	3.0	0.7	2.0					8.3			1															
8.0		18	21	78		002	NB		NEW	3.0	0.7	2.0					8.3			1															
9.0		18	21	78		003	EB		NEW	3.0	0.7	2.0					8.3			1															
10.0		18	21	78		004	EB		NEW	3.0	0.7	2.0					8.3			1															

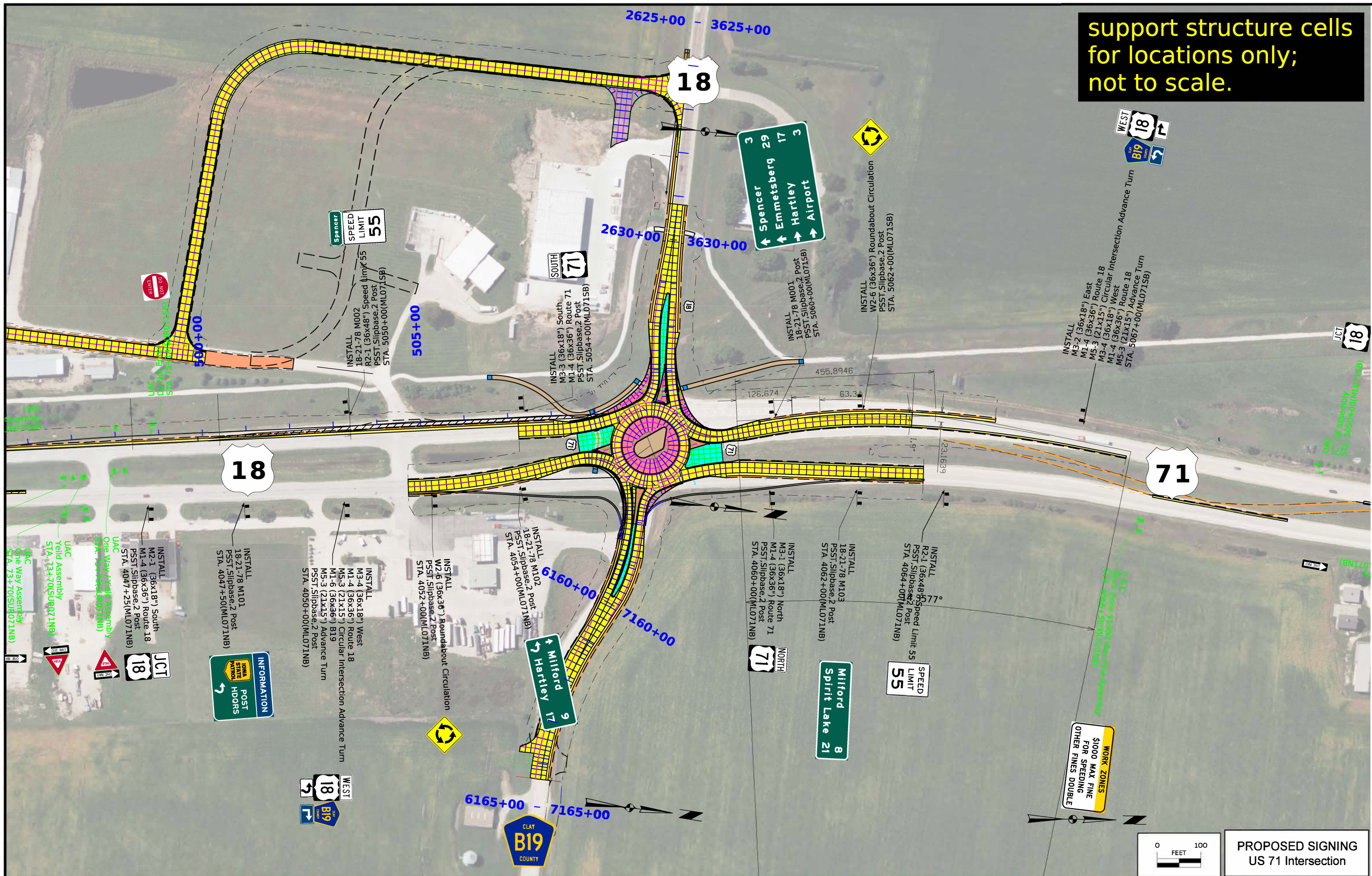
259-1 10-15-13 SIGNING NOTES The following tolerances will be allowed on all signs: Accumulation error of not greater than +/-0.50" per line of copy, not greater than +/-0.50" for spacing between lines of copy, and the margin between lines of copy and the inside edge of the sign border. The following tolerances will be allowed on each letter or numeral: 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" ----- 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. This guideline may not apply if the traffic control plans have sufficient temporary signing. 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. 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. The Engineer may approve reducing this distance to a minimum of 1 ft where field conditions warrant. 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			259-1 10-15-13 SIGNING NOTES IA INSTALL NEW TYPE A SIGN Install new signs at the location identified in the plans. 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 that 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 steel posts, install the sign at the top of the posts. For installation of new signs on an existing sign support structure, refer to note (L). Payment for installing Type A signs or Type B signs includes furnishing hardware for mounting, extending signs above existing posts, and cutting off wood posts. MS MODIFY EXISTING SIGN Modify the copy on the existing sign as shown in the plans. Deliver existing copy which is removed to a DOT storage area within 50 mi, as designated by the Engineer. Install the new copy as needed to make sign modifications. Payment for Modification of Existing Sign includes removal of existing copy and installation of new copy. MB INSTALL SPECIAL MOUNTING BRACKET Install special mounting brackets at the locations identified in the plans. Refer to Tabulations 190-10, 190-51, and/or 190-65. PW INSTALL NEW WOOD POSTS PB INSTALL NEW BREAKAWAY STEEL POSTS AND FOOTING PP INSTALL NEW PERFORATED SQUARE TUBE POSTS AND ANCHORS Install new wood posts, breakaway steel posts and footings, or perforated square tube posts and anchors at the locations indicated in the plans. Refer to Tabulations 190-51 and 190-50 for post size and footing information. If note (RR) accompanies (PW), (PB), or (PP), install an existing sign on the new posts. RR REMOVE AND REINSTALL SIGN: 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 within 50 mi, as designated by the Engineer. Transport the signs back to the job site when ready for installation at the new location. 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 the DOT storage area (if applicable), and reinstallation. RA REMOVE TYPE A SIGN ASSEMBLY RB REMOVE TYPE B SIGN ASSEMBLY Type A Sign Assembly consists of one or more signs installed on one or more wood 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 the wood or steel posts.			259-1 10-15-13 SIGNING NOTES 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. Disassemble each sign assembly removed 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. Place backfill in holes remaining from the removal of wood posts and restore to the normal surrounding conditions. Deliver the removed signs, special sign mounting brackets, and extruded aluminum panels to a DOT storage area within 50 mi, 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 1 ft below ground. 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 truss and foundation, - Cantilevered sign truss and foundation, or - Bridge mounted brackets. For removal purposes, wood and steel post are not considered Type B Support Structures. Unless stated otherwise in the plans, existing overhead trusses, cantilevered trusses, and bridge brackets which are removed become the property of the Contractor. If stated in the plans, deliver overhead trusses, cantilevered trusses, and bridge brackets to a DOT storage area within 50 mi, 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. L MODIFTY SIGN SUPPORT ANGLES NEEDED TO INSTALL SIGNS ON EXISTING SIGN SUPPORTS 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. 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 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;			259-1 10-15-13 SIGNING NOTES 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. Field verify post lengths. 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-113 from the footing excavation and/or the area immediately adjacent to the footing. Ensure reshaping work does not substantially change foreslopes or the drainage in the vicinity of the sign. Significant differences between the design template and the actual field conditions need to 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 on to the design Engineer in order to complete a new post design. Install the footings, stub posts, and posts according to the following tolerances: -elevation difference from the edge of pavement to the bottom of the sign within 6 inches of the dimension shown. -elevation difference of less than 2 inches between the top of the highest post and the lowest post at a site. 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 field shots in order to verify site installation.		
FILE NO.	ENGLISH	DESIGN TEAM Hermann/Bignar	Des Moines	COUNTY	PROJECT NUMBER	HSIPX-018-2(143)--3L-21	SHEET NUMBER	C.7			

support structure cells
for locations only;
not to scale.



FILE NO.	ENGLISH	DESIGN TEAM	Hermann/Bignar	Clay COUNTY	PROJECT NUMBER	HSIPX-018-2(143)--3L-21	SHEET NUMBER	N.1
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support structure cells
for locations only;
not to scale.

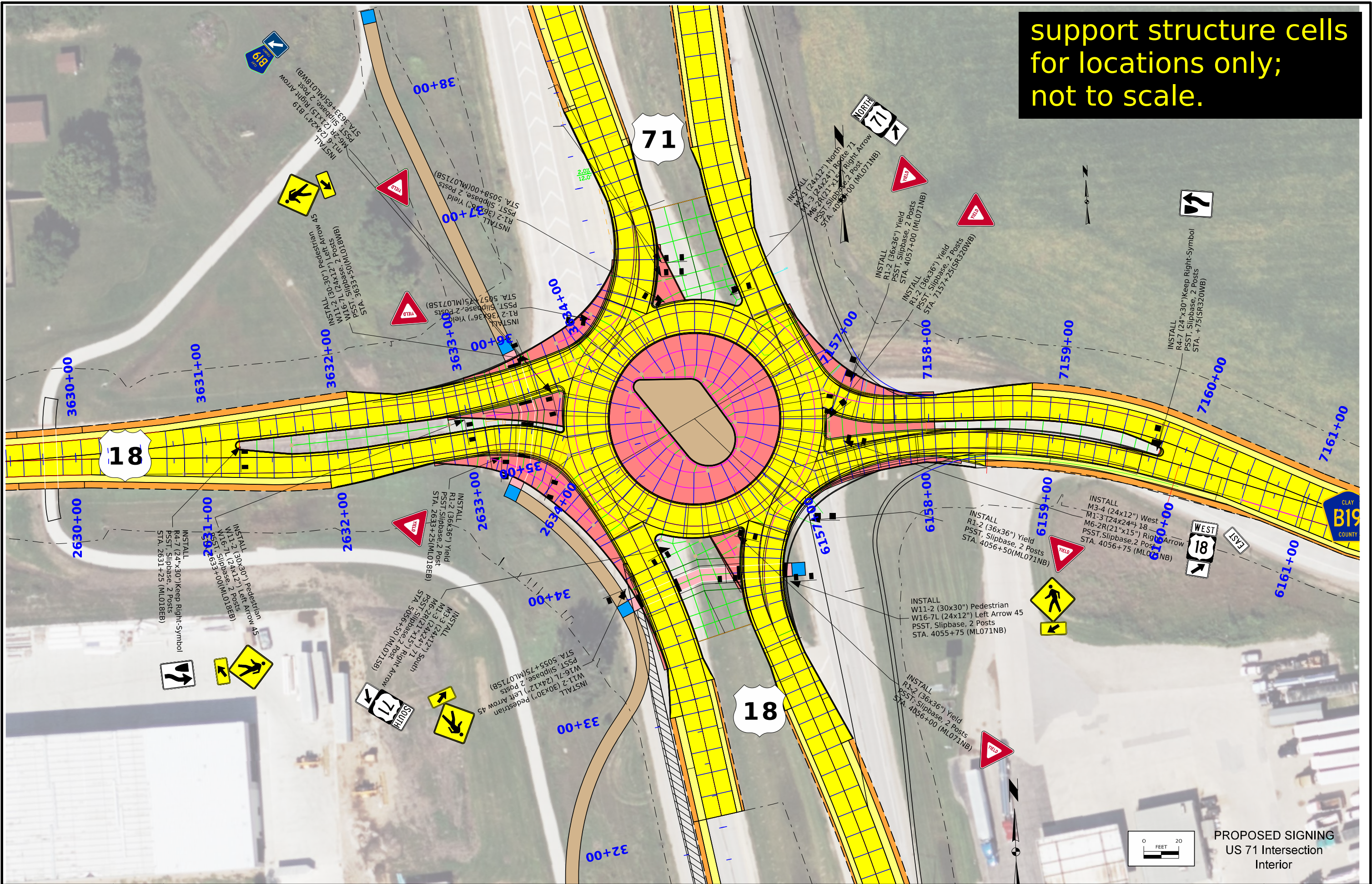


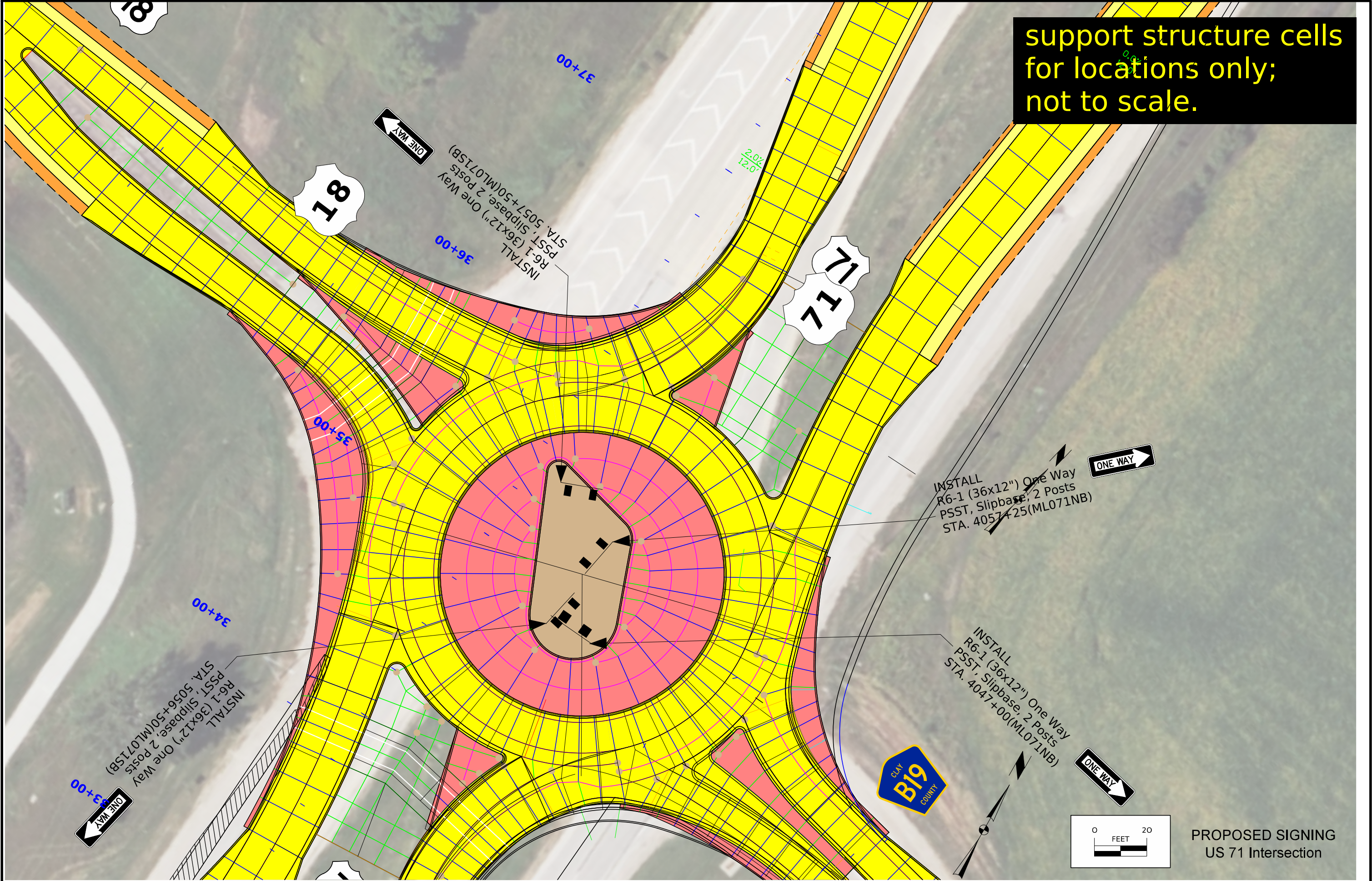
PROPOSED SIGNING
US 71 Intersection

support structure cells
for locations only;
not to scale.



support structure cells
for locations only;
not to scale.





support structure cells
for locations only;
not to scale.