

Date:	4/19/23	City, State:	Lake City, FL	SHEET:	1 OF 3
Client:	Texas Republic Signs, LLC	Overall Height:	130'-0"	Sean M. McFarland, P.E.	
Sign:	One 9 #1401	Wind Speed	120 mph	McFarland Engineering	

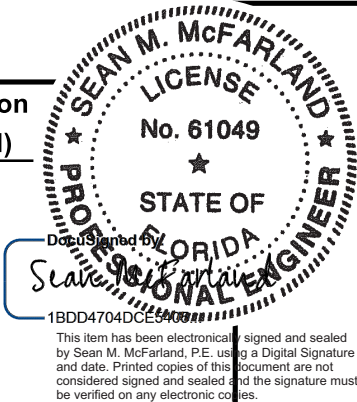
Sign Description	14170 US 441	Table of Contents	
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ME Job: 60918 A1		Design Loads. . . . .	1
	ULTIMATE LOADS	Support Design. . . . .	1-3
Height: Varies	42 KSI STEEL PIPE		
Width: Varies			

Structural Variables and Code Loading Specifications

Cabinet Type:	Miscellaneous	Code:	2020 FBC 7th Ed
Structural Section:	Steel Pipe - 42000psi	Wind Speed:	120
Number of Zones:	8	Wind Exposure:	C
Wind Loads Per ASCE 7-16			

Sign Sections:

Zone	Cabinet Wt. Per Sq. Ft.	Weight	Transition (Y or N)
1	20	43.4 #/FT	y
2	0	157.5 #/FT	
3	20	157.5 #/FT	
4	35	157.5 #/FT	y
5	0	221.6 #/FT	y
6	0	317.7 #/FT	y
7	0	436.8 #/FT	y
8	0	392.7 #/FT	y



Sean M.  
McFarland  
2023.04.19  
17:03:48 -04'00'  
2023.001.20093  
State License: Florida - 61049

Geometry:

Zone	Top Elevation	Height	* Approx. Width Width	Pressure	Force	Approx. Weight
1	130.00 FT	9.17 FT	24.00 FT *	36.19 PSF	7.96 K	4,799 #
2	120.83 FT	2.00 FT	2.50 FT *	15.56 PSF	0.08 K	315 #
3	118.83 FT	11.17 FT	25.08 FT *	34.32 PSF	9.61 K	7,362 #
4	107.66 FT	11.50 FT	42.67 FT *	32.51 PSF	15.95 K	18,986 #
5	96.16 FT	23.41 FT	3.50 FT *	14.85 PSF	1.22 K	5,188 #
6	72.75 FT	31.75 FT	5.00 FT *	14.01 PSF	2.22 K	10,088 #
7	41.00 FT	31.00 FT	5.50 FT *	12.39 PSF	2.11 K	13,540 #
8	10.00 FT	10.00 FT	6.00 FT *	10.08 PSF	0.60 K	3,927 #
Total Wind Force =				39.76 K		64,206 #

Date:	4/19/23	City, State:	Lake City, FL	SHEET:	2 OF 3
Client:	Texas Republic Signs, LLC	Overall Height:	130'-0"	Sean M. McFarland, P.E.	
Sign:	One 9 #1401	Wind Speed	120 mph	McFarland Engineering	

14170 US 441

ME Job: 60918 A1

**Moments at Transitions:**

Zone	Lateral Force	8 Mom. Arm	7 Mom. Arm	6 Mom. Arm	5 Mom. Arm	4 Mom. Arm	1 Mom. Arm
1	7.96 K	125.42 FT	115.42 FT	84.42 FT	52.67 FT	29.26 FT	4.59 FT
2	0.08 K	119.83 FT	109.83 FT	78.83 FT	47.08 FT	23.67 FT	
3	9.61 K	113.25 FT	103.25 FT	72.25 FT	40.50 FT	17.09 FT	
4	15.95 K	101.91 FT	91.91 FT	60.91 FT	29.16 FT	5.75 FT	
5	1.22 K	84.46 FT	74.46 FT	43.46 FT	11.71 FT		
6	2.22 K	56.88 FT	46.88 FT	15.88 FT			
7	2.11 K	25.50 FT	15.50 FT				
8	0.60 K	5.00 FT					
		4,008.53 K-FT	3,613.91 K-FT	2,433 K-FT	1,292 K-FT	491 K-FT	37 K-FT

<b>Section Properties:</b>	1735.29 IN <sup>3</sup>	1564.46 IN <sup>3</sup>	1053.12 IN <sup>3</sup>	559.21 IN <sup>3</sup>	212.47 IN <sup>3</sup>	15.81 IN <sup>3</sup>
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**Structural Sections to be used:**

Zone	Pipe (42 KSI)						
	Option	Dim.	Wall t.	Weight	Sxx	d/t	Sxx Req'd
8	Pipe (42 KSI)	72.00 IN	0.500 IN	392.7 #/FT	1,993.70 IN <sup>3</sup>	144.00	1,735.29 IN <sup>3</sup>
7	Pipe (42 KSI)	66.00 IN	0.625 IN	436.8 #/FT	1,954.08 IN <sup>3</sup>	105.60	1,564.46 IN <sup>3</sup>
6	Pipe (42 KSI)	60.00 IN	0.500 IN	317.7 #/FT	1,296.56 IN <sup>3</sup>	120.00	1,053.12 IN <sup>3</sup>
5	Pipe (42 KSI)	42.00 IN	0.500 IN	221.6 #/FT	628.43 IN <sup>3</sup>	84.00	559.21 IN <sup>3</sup>
4	Pipe (42 KSI)	30.00 IN	0.500 IN	157.5 #/FT	316.06 IN <sup>3</sup>	60.00	212.47 IN <sup>3</sup>
1	Pipe (42 KSI)	8.63 IN	0.500 IN	43.4 #/FT	23.04 IN <sup>3</sup>	17.25	15.81 IN <sup>3</sup>

**Structure Required**

# Req'd	Size	Wall Thickness
1	72.00 IN	0.500 IN
1	66.00 IN	0.625 IN
1	60.00 IN	0.500 IN
1	42.00 IN	0.500 IN
1	30.00 IN	0.500 IN
1	8.63 IN	0.500 IN

Date: 4/19/23	City, State: Lake City, FL	SHEET: 3 OF 3
Client: Texas Republic Signs, LLC	Overall Height: 130'-0"	Sean M. McFarland, P.E.
Sign: One 9 #1401	Wind Speed 120 mph	McFarland Engineering

14170 US 441

ME Job: 60918 A1

## One Pier Footing

## Pier Footing Design:

*Select the footing and soil type:*

$$d = A / 2 * (1 + (1 + (4.36 * h) / A)^{1/2})$$

$$\text{where } A = (2.34 * P) / (S1 * b)$$

Footing: Round ▼

Vert. Soil Bearing (psf): 1500 ▼

Lat. Soil Bearing (psf): 150 ▼

Mmax = 4,008,526 #-FT

Pmax (Lateral) = 39,764 #

LSBP = 150 PCF

S1 = 1,200 PCF X d

d = 9.000 FT

A = 8.62 FT^2

h = 100.807 FT

d = 35.376 FT

USE: 9.00 FT. RND. X 35.50 FT DEEP PIER w/ 12" SLAB w/ #5's @ 12" O.C.

## Soil Bearing Check:

8" ABOVE GRADE.

DLmax = 64,206 LBS

TWO MATS (TOP AND BOTTOM)

Area of Footing = 63.62 FT^2

Actual SBP = 1,009 PSF

Allowable SBP = 1,725 PSF (Includes code allowed 20% increase for every foot of footing below 12" into natural grade.)

1,009 PSF &lt; 1,725 PSF THEREFORE OK

## General Notes

- Contractor shall verify all dimensions and conditions on job site
- Structural steel pipe shall conform to ASTM A53 grade B type E or S, Fy=35 ksi min.
- Structural steel tube shall conform to ASTM A500 grade B, Fy=46 ksi min.
- Structural steel shapes and plates shall conform to ASTM A36.
- Welding shall conform to AISC specs or local codes and performed by certified welder using arc process E70XX electrodes.
- Isolate Aluminum from Steel
- All bolt holes to be drilled or punched.
- 2500 psi (min) 28-day Concrete Compressive Strength
- All electrical work to conform to the requirements of UL48 and section 600 of NEC.
- UL and Data labels required
- Sign to be a minimum of 6-ft horizontal & 12-ft vertical from high voltage wires.
- If there is no stub pipe to be used in the top cabinet, the supporting member immediately below the stub pipe shown can be extended to the top of the uppermost cabinet.
- All Pipe sizes shown are minimum sizes. Pipe with a larger diameter and/or greater Sxx may be substituted
- All structural lengths required are approximations only. Actual length may vary slightly depending on sign cabinet conditions.

ME #: 60918

SIGN TYPE A1 QUANTITY: 1

SCOPE OF WORK: HI-RISE  
PROVIDE AND INSTALL NEW HI-RISE  
WITH NEW STEEL STRUCTURE.

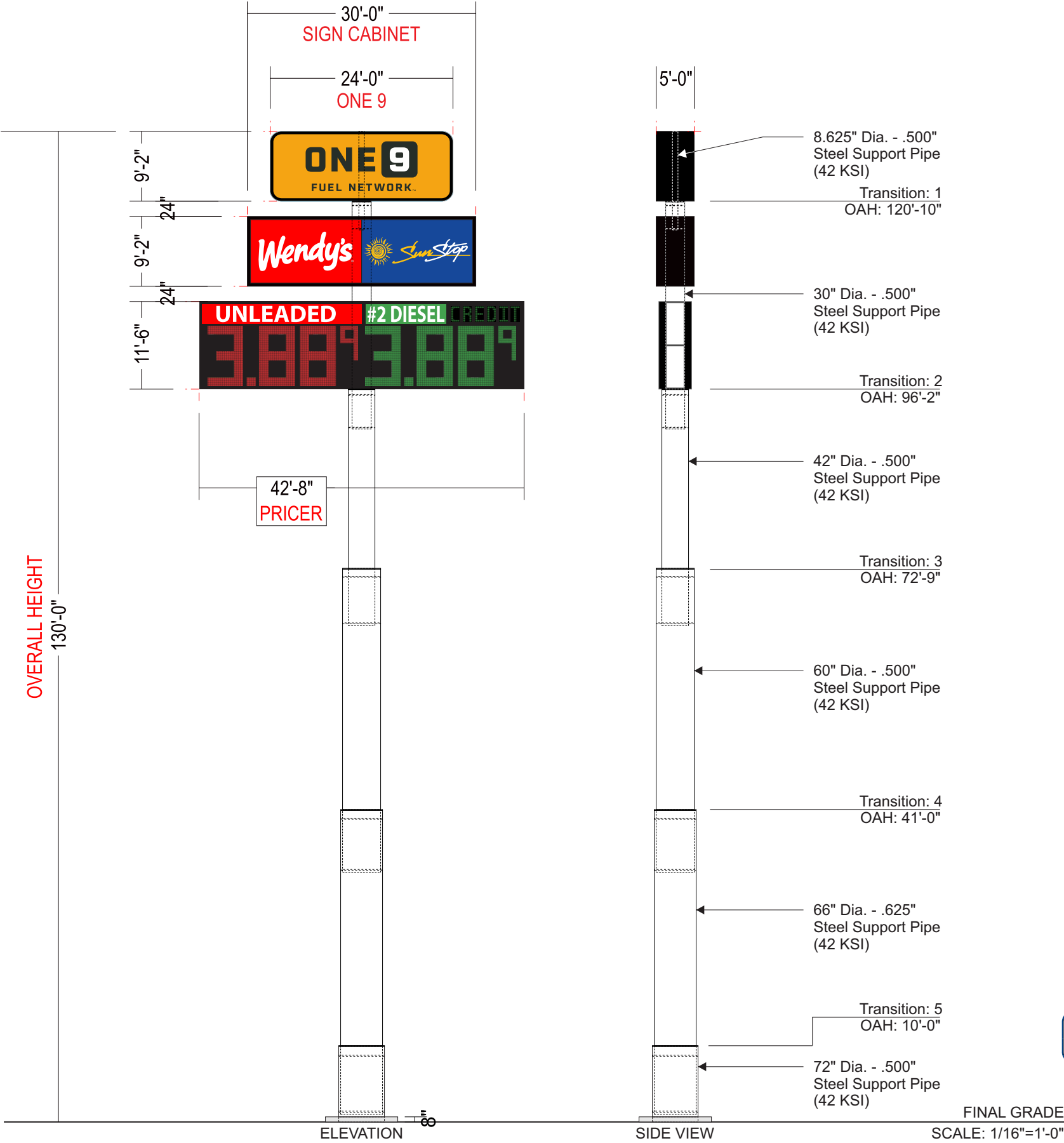
SPECIFICATIONS: ONE 9 SIGN  
• CABINET FILLER AND 5" RETAINERS  
PAINTED, P1  
• WHITE FLEX FACES WITH APPLIED  
V1 VINYL

SPECIFICATIONS: LED PRICER  
• TWO (2) PRODUCT PRICER PROVIDED  
BY CLIENT AND INSTALLED BY TRS

SPECIFICATIONS: STEEL PIPE  
• PROVIDE NEW STEEL PIPE  
STRUCTURE; PAINT BLACK; P1

SPECIFICATIONS: WENDY'S/SUN STOP  
• CABINET FILLER AND 5" RETAINERS  
PAINTED, P1  
• WHITE FLEX FACES WITH APPLIED  
VINYL

COLOR LEGEND	
PAINT COLORS	
<div></div>	1: BLACK
VINYL COLORS TO MATCH	
<div>ONE 9</div>	V1: TO MATCH LOGO COLORS
<div></div>	1: PANTONE 137 C CMYK: 0/41/100/0
<div></div>	2: PANTONE BLACK 3C CMYK: RICH BLACK 60/40/40/100
<div></div>	3: WHITE CMYK: 0/0/0/0
V2: TO MATCH LOGO COLORS	
<div>Wendy's</div>	1: RED (PMS 186C)
<div></div>	2: WHITE
<div>SunStop</div>	DIGITAL GRAPHIC VINYL



ASCE 7-16, 120 mph Wind, Exposure C  
This design Complies with the High Velocity  
Hurricane Zone Code and with the 2020 FBC 7th Ed.



183 Edgewater Ct  
Mocksville, NC 27028

Structural Sign Design  
&  
Engineering Services

Ph: (281) 813-7439  
Email: sean@signstructures.com  
Web: www.signstructures.com

ONE 9 #1401

Address: 14170 US 441

City/State: LAKE CITY, FL

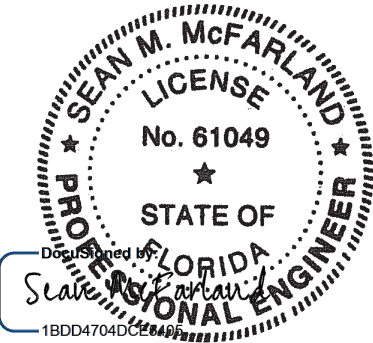
Client: TEXAS REPUBLIC SIGNS, LLC

ENGINEERING OF  
VERTICAL SUPPORT AND  
FOUNDATION ONLY.  
NO CABINET ENGINEERING  
PROVIDED OR IMPLIED.

Initial Drawing: (60918) DS

NC Firm Registration: F-1136  
Florida License Number: 61049  
Florida License Expires: Feb. 28, 2025

The electronic seal appearing on this document was  
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by Sean M. McFarland, P.E. using a Digital Signature  
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be verified on any electronic copies.

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McFarland  
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Date: 4-19-2023  
Sheet #: 1 of 2

ME #: 60918

ASCE 7-16, 120 mph Wind, Exposure C  
This design Complies with the High Velocity  
Hurricane Zone Code and with the 2020 FBC 7th Ed.



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Mocksville, NC 27028

Structural Sign Design  
&  
Engineering Services

Ph: (281) 813-7439  
Email: sean@signstructures.com  
Web: www.signstructures.com

ONE 9 #1401

Address: 14170 US 441

City/State: LAKE CITY, FL

Client: TEXAS REPUBLIC SIGNS, LLC

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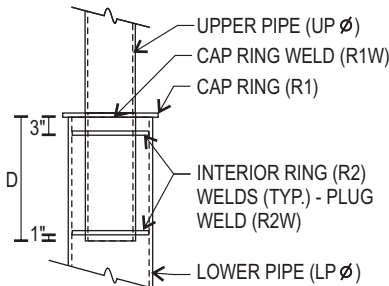
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Date: 4-19-2023  
Sheet #: 2 of 2

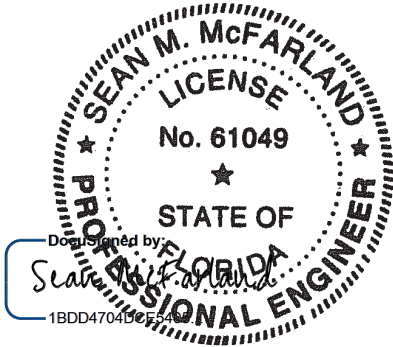
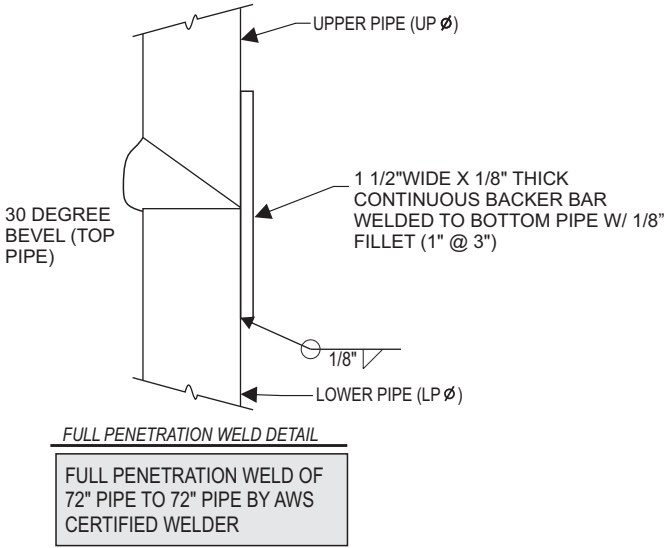
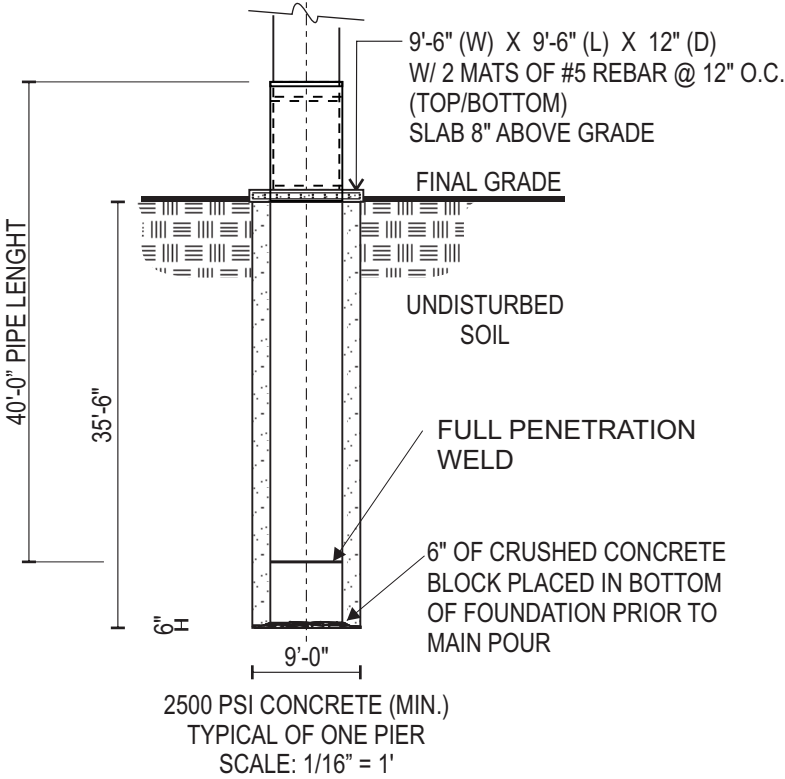


TRANSITION

- (4) 1/2" Wide x 2" Long Plug Welds (<=24" Dia.)
- (6) 1/2" Wide x 2" Long Plug Welds (24" to 48" Dia.)
- (8) 5/8" Wide x 2-1/2" Long Plug Welds (>48" Dia.)

TRANSITION TABLE

#	UP $\phi$	LP $\phi$	D	R1	R1(DIA.)	R2	R2(DIA.)	R1W	R2W
1	8"	30"	3.75'	1"	31"	5/8"	28.75"	3/8"	3/8"
2	30"	42"	5.25'	1"	43"	3/4"	40.75"	3/8"	3/8"
3	42"	60"	7.5'	1-1/2"	61"	1"	58.75"	3/8"	3/8"
4	60"	66"	8.25'	1-1/2"	67"	1"	64.5"	3/8"	3/8"
5	66"	72"	9.0'	1-1/2"	73"	1"	70.75"	3/8"	3/8"



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