



January 22, 2014

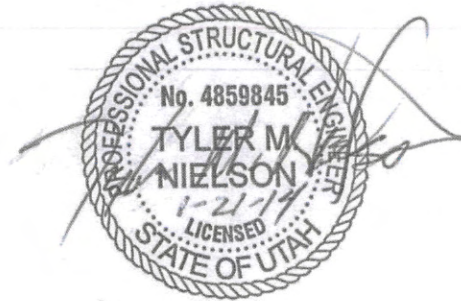
Weber County Engineering,

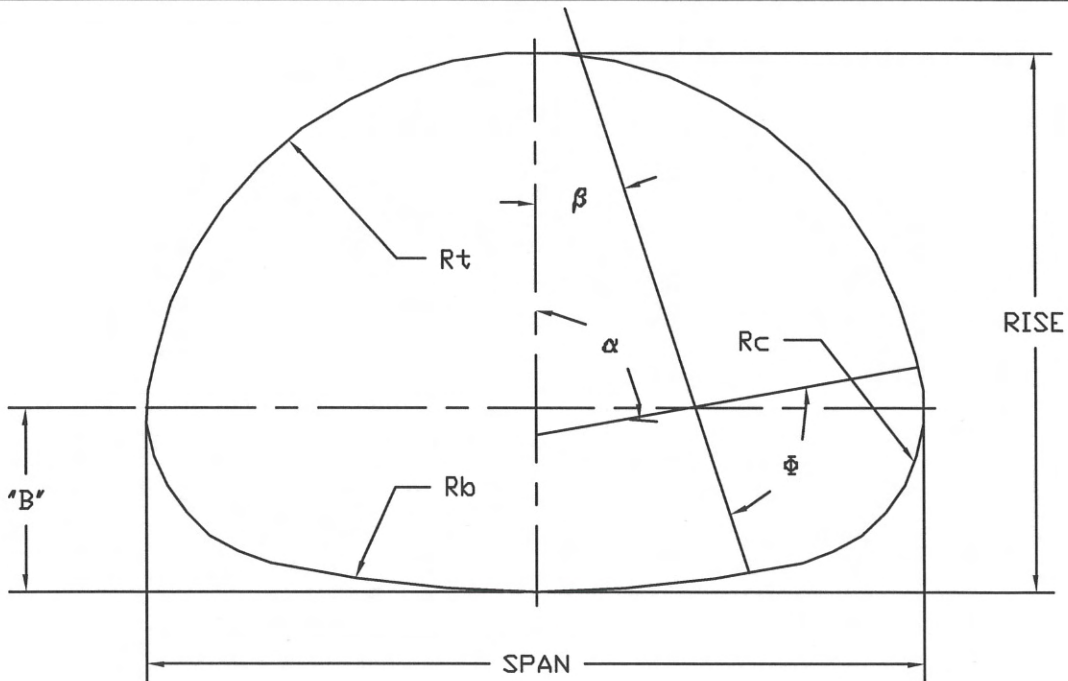
To whom it may concern:

This letter is to inform you that in the spring of 2013, Mr. Matt Cardon installed a 54" corrugated metal pipe in the creek crossing of what is a proposed shared driveway for his single lot subdivision. I have reviewed the specifications provided to me by the pipe supplier, Contech Construction Product Inc. The pipe that was installed is rated as H20 and H25 live loads, which allow for 32,000 lb. per axle. I have attached and highlighted the specification provided by the pipe supplier and a H20 loading diagram. Please let me know if you need anything further.

Sincerely,

Tyler Nielson





* **NOTE:** "B" Dimension is measured from the springline (the widest portion of the pipe-arch) to the lowest portion of the invert.

Equivalent Diameter in.	Layout Dimensions									
	Span in.	Rise in.	Waterway Area sq.ft.	"B" in.	Rc in.	Rt in.	Rb in.	α	β	Φ
15	17	13	1.1	4 1/8	3 1/2	8 5/8	25 5/8	82.6	13.4	84.0
18	21	15	1.6	4 7/8	4 1/8	10 3/4	33 1/8	76.3	12.8	90.9
21	24	18	2.2	5 5/8	4 7/8	11 7/8	34 5/8	85.6	13.6	80.8
24	28	20	2.9	6 1/2	5 1/2	14	42 1/4	80.0	13.1	86.9
30	35	24	4.5	8 1/8	6 7/8	17 7/8	55 1/8	76.3	12.8	90.9
36	42	29	6.5	9 3/4	8 1/4	21 1/2	66 1/8	76.3	12.8	90.9
42	49	33	8.9	11 3/8	9 5/8	25 1/8	77 1/4	76.3	12.8	90.9
48	57	38	11.6	13	11	28 5/8	88 1/4	76.3	12.8	90.9
54	64	43	14.7	14 5/8	12 3/8	32 1/4	99 1/4	76.3	12.8	90.9
60	71	47	18.1	16 1/4	13 3/4	35 3/4	110 1/4	76.3	12.8	90.9
66	77	52	21.9	17 7/8	15 1/8	39 3/8	121 1/4	76.3	12.8	90.9
72	83	57	26.0	19 1/2	16 1/2	43	132 1/4	76.3	12.8	90.9

Dimensions shown are not for specification purposes and are subject to manufacturing tolerances.



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CORRUGATED METAL PIPE
PIPE-ARCH LAYOUT DETAILS
2-2/3" X 1/2" CORRUGATION

DRAWN BY: F.B.	REV. BY: GMG	SCALE: N/A
DATE: 11-5-91	DATE: 11-11-98	1008588C

Corrugated Steel Pipe

Heights-of-Cover

2-2/3" x 1/2" Height-of-Cover Limits for Corrugated Steel Pipe

H 20 and H 25 Live Loads

Diameter Minimum or Span, Inches	Cover, Inches	Maximum Cover, Feet ⁽²⁾					
		Specified Thickness, Inches					
		0.052	0.064	0.079	0.109	0.138	0.168
6 ¹⁰	12	388	486				
8 ¹⁰		291	365				
10 ¹⁰		233	392				
12		198	248	310			
15		158	199	248			
18		132	166	207			
21		113	142	178	249		
24		99	124	155	218		
30		79	99	124	174		
36		66	83	103	145	186	
42		56	71	88	124	160	195
48			62	77	109	140	171
54				66	93	122	150
60					79	104	128
66					68	88	109
72						75	93
78							79
84	12						66

H 20 and H 25 Live Loads, Pipe-Arch

Size		Minimum Structural Thickness, Inches	Minimum Cover, Inches	Maximum ⁽⁷⁾ Cover, Feet
Round Equivalent, Inches	Span x Rise, Inches			
15	17 x 13	0.064	12	16
18	21 x 15	0.064		15
21	24 x 18	0.064		
24	28 x 20	0.064		
30	35 x 24	0.064		
36	42 x 29	0.064		
42	49 x 33	0.064*		
48	57 x 38	0.064*		
54	64 x 43	0.079*		
60	71 x 47	0.109*		
66	77 x 52	0.109*		
72	83 x 57	0.138*	12	15

E 80 Live Loads

Diameter Minimum or Span, Inches	Cover, Inches	Maximum Cover, Feet ⁽²⁾					
		Specified Thickness, Inches					
		0.052	0.064	0.079	0.109	0.138	0.168
12	12	198	248	310			
15		158	199	248			
18		132	166	207			
21		113	142	178	249		
24		99	124	155	218		
30		79	99	124	174		
36		66	83	103	145	186	
42		56	71	88	124	160	195
48	12		62	77	109	140	171
54	18			66	93	122	150
60					79	104	128
66					68	88	109
72	18					75	93
78	24						79
84	24						66

E 80 Live Loads, Pipe-Arch

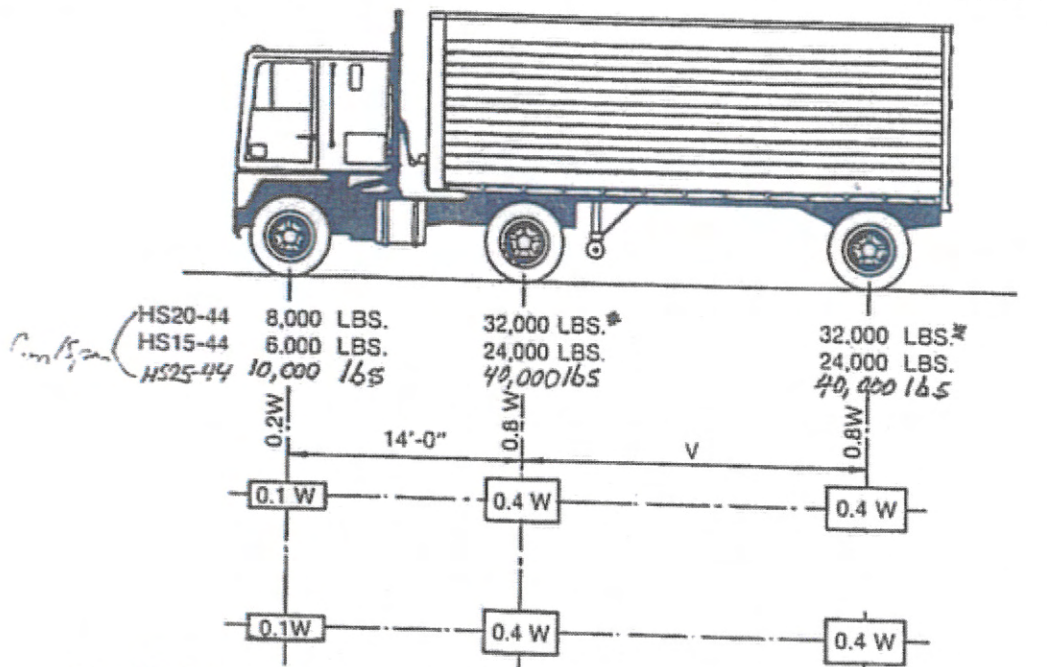
Size		Minimum Structural Thickness, Inches	Minimum Cover, Inches	Maximum ⁽⁸⁾ Cover, Feet
Round Equivalent, Inches	Span x Rise, Inches			
15	17 x 13	0.079	24	22
18	21 x 15	0.079		
21	24 x 18	0.109		
24	28 x 20	0.109		
30	35 x 24	0.138		
36	42 x 29	0.138		
42	49 x 33	0.138*		
48	57 x 38	0.138*		
54	64 x 43	0.138*		
60	71 x 47	0.138*	24	22

* These values are based on the AISI Flexibility Factor limit (0.0433 x 1.5) for pipe-arch. Due to variations in arching equipment, thicker gauges may be required to prevent crimping of the haunches.

Heights-of-cover notes

1. These tables are for lock-seam or welded-seam construction. They are not for riveted construction. Consult your CONTECH Sales Representative for height-of-cover tables on riveted pipe.
2. These values, where applicable, were calculated using K=0.86 as adopted in the AISI Handbook, Fifth Edition, 1994.
3. The haunch areas of a pipe-arch are the most critical zone for backfilling. Extra care should be taken to provide good material and compaction to a point above the spring line.
4. E 80 minimum cover is measured from top of pipe to bottom of tie.
5. H 20 and H 25 minimum cover is measured from top of pipe to bottom of flexible pavement or top of rigid pavement.
6. The H 20 and H 25 pipe-arch tables are based on 2 tons per square foot corner bearing pressures.
7. The E 80 pipe-arch tables minimum and maximum covers are based on the corner bearing pressures shown. These values may increase or decrease with changes in allowable corner bearing pressures.

8. 0.052" is 18 gauge.
0.064" is 16 gauge.
0.079" is 14 gauge.
0.109" is 12 gauge.
0.138" is 10 gauge.
0.168" is 8 gauge.
9. For construction loads, see Page 12.
10. 1-1/2" x 1/4" corrugation. H20, H25 and E80 loading.
11. SmoothCor and HEL-COR Concrete Lined have same height-of-cover properties as corrugated steel pipe. The exterior shell of SmoothCor is manufactured in either 2-2/3" x 1/2" or 3 x 1 corrugations; maximum exterior shell gauge is 12.



W = COMBINED WEIGHT ON THE FIRST TWO AXLES WHICH IS THE SAME AS FOR THE CORRESPONDING H TRUCK.
 V = VARIABLE SPACING — 14 FEET TO 30 FEET INCLUSIVE. SPACING TO BE USED IS THAT WHICH PRODUCES MAXIMUM STRESSES.

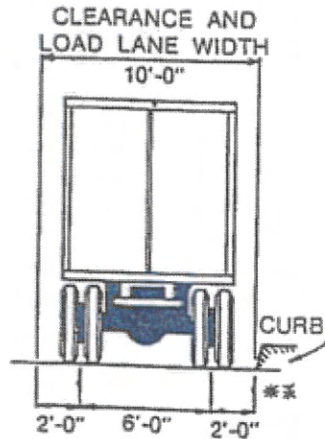


Figure 3.7.7A. Standard HS Trucks

*In the design of timber floors and orthotropic steel decks (excluding transverse beams) for HS 20 loading, one axle load of 24,000 pounds or two axle loads of 16,000 pounds each, spaced 4 feet apart may be used, whichever produces the greater stress, instead of the 32,000-pound axle shown.

**For slab design, the center line of wheels shall be assumed to be 1 foot from face of curb. (See Article 3.24.2.)