CONTECH®
CONSTRUCTION PRODUCTS INC.

CONTECH ULTRA FLO Storm Sewer Pipe Installation

When Your Pipe Arrives

Slings should be used to lift the pipe off the trailer and for positioning pipes into the trench.

All pipes should be lifted off the trailer to avoid damage while unloading.

SAFETY WARNING: Never drag or roll pipe from truck.

Stack the pipe on the trailer or ground with proper blocking or strapping.

Be careful when removing binders or strapping on pipe bundles, either on the trailer or ground.

No person should be beneath or near a lifted pipe.

Pipe ends may be sharp. Handle with care. Use gloves and other proper protective clothing and equipment.

Before unloading a nested pipe shipment, make sure that the delivery site has ample room for unnesting the various pipe sizes.

To unnest a pipe, use a section of 2" x 4" lumber that is 1" to 2" longer than the pipe's inside diameter. Wedge it into rib valley and then pull on the 2" x 4" with a chain or wire rope.

For more detailed information consult CONTECH publication **SAFETY Instructions for Unloading and Handling CONTECH Corrugated Metal Pipe.**

Trench Installation ULTRA FLO Pipe

Overview

Millions of feet of ULTRA FLO® have been installed in a variety of storm sewer projects across the United States. Like all pipe products, proper installation is important for long-term performance. Your CONTECH® sales engineer will be glad to assist you if you have any questions.

Bedding and Backfill

Typical ULTRA FLO installation requirements are the same as for any other corrugated steel pipe installed in a trench. Bedding and backfill materials follow the requirements of the Corrugated Steel Pipe (CSP) installation specification, ASTM

Table 1
HS20 Live Load

ALUMINIZED STEEL Type 2 or Galvanized Steel ULTRA FLO

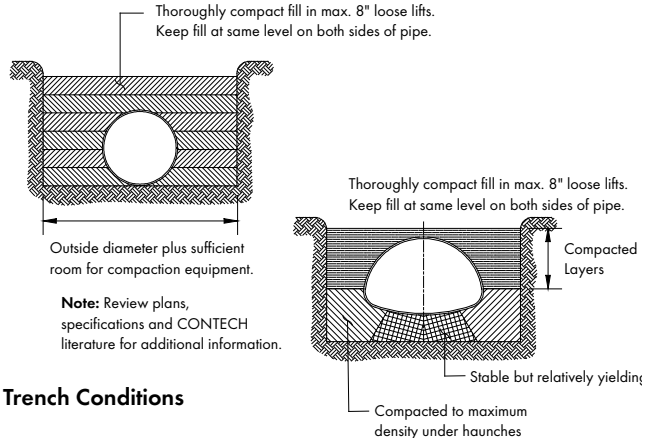
Diameter (Inches)	Minimum/Maximum Cover (Feet) Specified Nominal Thickness and Gage (0.064") 16	(0.079") 14	(0.109") 12
18	1.0/68		
21	1.0/58		
24	1.0/51		
30	1.0/41		
36	1.0/34	1.0/48	
42	1.0/29	1.0/41	1.0/69
48	1.0/25	1.0/36	1.0/60
54	1.25/22	1.25/32	1.0/53
60	1.25/20*	1.25/28	1.0/48
66		1.5/26	1.25/44
72		1.5/24*	1.25/40
78		1.75/22*	1.5/37
84			1.75/34
90			2.0/32*
96			2.0/30*
102			2.5/28*

NOTES

1. Allowable minimum cover is measured from top of pipe to bottom of flexible pavement or top of pipe to top of rigid pavement. Minimum cover in unpaved areas must be maintained.
2. All heights of cover are based on trench conditions. If embankment conditions exist, there may be restrictions on gages for large diameter pipes. Your CONTECH Sales Engineer can provide further guidance for a project in embankment conditions.
3. Table 1 is for HS20 loading only. For heavy construction loads, higher minimum compacted cover may be needed. See Table 2.
4. Heights of cover are for 3/4" x 3/4" x 7-1/2" external rib corrugation.

   *These sizes and gage combinations are installed in accordance with ASTM A796 paragraph 17.2.3 and ASTM A798. For aluminum ULTRA FLO refer to ASTM B790 and B788. These sizes marked with an * require a clean, easily compacted granular backfill.

5. For heights of cover tables for steel pipe arch, aluminum round pipe and aluminum pipe arch refer to the other CONTECH literature.



Trench Conditions

A 798; and must be free from stones, frozen lumps or other debris.

Embankment Conditions

ULTRA FLO is a superior CSP storm sewer product that is normally installed in a trench condition. In those unusual embankment installation conditions, pipe sizes and gages may be restricted. Your CONTECH sales engineer can provide you with further guidance.

Construction Loads

For temporary construction vehicle loads, an extra amount of compacted cover may be required over the top of the pipe. The height-of-cover shall meet the minimum requirements shown below in Table 2. The contractor must provide the additional cover required to avoid damaging the pipe, Minimum cover is measured from the top of the pipe to the top of the maintained roadway surface.

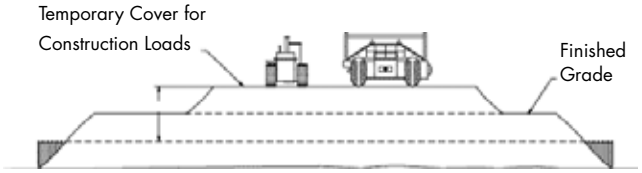


Table 2
Heavy Construction Loads

Minimum Height of Cover Requirements for *Construction Loads* on ULTRA FLO Pipe

Diameter/Span (Inches)	Axle Load (Kips) Steel 3/4" x 3/4" x 7-1/2"			
	>32≤50	50≤75	75≤110	110≤150
15-42	2.0 ft.	2.5 ft.	3.0 ft.	3.0 ft.
48-72	3.0 ft.	3.0 ft.	3.5 ft.	4.0 ft.
78-108	3.0 ft.	3.5 ft.	4.0 ft.	4.5 ft.
Aluminum 3/4" x 3/4" x 7-1/2"				
15-42	2.5 ft.	3.0 ft.	3.5 ft.	3.5 ft.

Pipe Spacing

For multiple runs of ULTRA FLO, ample spacing must be used between runs to allow proper backfill placement and compaction. Pipe spacing will change depending upon pipe diameter, backfill material and compaction methods. General guidelines for spacing between runs of pipe are as shown below in Table 3:

Table 3

Diameters	Spacing*
Up to 24"	1/2 diameter of pipe
24" to 72"	1/2 diameter of pipe
Over 72"	36" space

*Spacing may be reduced if using controlled, low-strength material (flowable fill) for the backfill.

For more information, call one of CONTECH's Regional Offices located in the following cities:

Ohio (Corporate Office)	**513-645-7000**
California (San Bernardino)	909-885-8800
Colorado (Denver)	303-431-8999
Florida (Tampa)	727-544-8811
Georgia (Atlanta)	770-409-0814
Indiana (Indianapolis)	317-842-7766
Kansas (Kansas City)	913-906-9200
Maryland (Baltimore)	410-740-8490
Oregon (Portland)	503-258-3180
Texas (Dallas)	972-590-2000

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