



## **SMOOTH-FLOW AASHTO DUAL WALL PIPE & FITTINGS SPECIFICATION**

Diameter:	4"-60" (100-1500mm)
Length:	10', 13.5', 14.6' & 20'
Specifications:	AASHTO M252 & M294

### **Description**

This specification includes Haviland Drainage's SMOOTH-FLOW, diameters 4"-60" (100-1500mm), for use in non-pressure gravity flow applications, including storm sewers, culverts, highway drains, and various other gravity flow drainage applications.

### **Pipe Requirements**

SMOOTH-FLOW Dual Wall pipe shall have a smooth interior and annular exterior corrugations. SMOOTH-FLOW shall meet AASHTO M252 & M294

### **Material Properties**

Smooth-Flow pipe and fabricated fittings shall be manufactured using virgin High Density Polyethylene meeting the minimum requirements of cell class of 424400C For 4in through 10in and 435400CC, for 12in through 60in, as described and defined in ASTM D3350 with the expectation the carbon black content shall not be greater than 4%.

### **Joint Performance**

Haviland's Smooth-Flow pipe is available in soil-tight and water-tight (per ASTM D3212). Standard bell and spigot joint includes manufacturer installed gasket (an elastomeric gasket per ASTM F477) and protected by a removable plastic wrap. During pipe installation and joint assembly, a joint lubricant is to be used. This lubricant is available from Haviland Drainage Products.

### **Fittings**

Fittings shall conform to ASSHTO M252 or M294. Standard fittings available.

### **Installation**

Installation shall be in accordance with ASTM D2321 and Haviland Drainages installation guidelines. For the latest copy of our installation guide please contact your local sales representative or visit our website at [www.haviland-drainage.com](http://www.haviland-drainage.com)

### **Build America, Buy America (BABA)**

SMOOTH-FLOW pipe, is manufactured in accordance with AASHTO M252 & M294, and complies with the requirements set forth in the Build America, Buy America (BABA) Act.



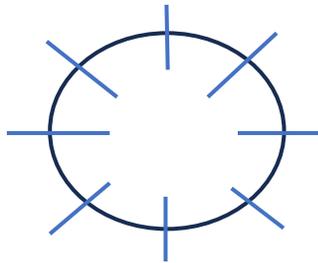
## Pipe Dimensions

Nominal Dimension			
ID Inch	ID MM	OD Inch	OD MM
4	100	4.6	117
6	150	6.97	177
8	200	9.5	241
10	250	11.8	298
12	300	14.5	368
15	375	17.5	444
18	450	21.4	547
24	600	27.9	709
30	750	35.5	892
36	900	41.7	1059
42	1050	47.2	1204
48	1200	54	1372
60	1500	67.5	1704

Pipe OD values are provided for reference purposes only.

## Perforations

Haviland's perforated pipe follows the AASHTO classification system requirements for Class 2 Perforation. Perforated sticks come without gaskets. Gaskets are available upon request.



Perf Locations

D	L x W	WIA
4	0.75 x 0.0675	3.8
6	0.75 x 0.0675	3.8
8	0.85 x 0.055	3.061
10	0.85 x 0.055	3.281
12	0.94 x 0.059	2.64
15	1.12 x 0.082	3.53
D	d	WIA
18	0.265	1.656
24	0.328	2.016
30	0.375	2.04
36	0.375	2.03
42	0.375	2.64
48	0.375	2.64
60	0.406	2.08

D= nominal pipe diameter(in)  
d= diameter of circular perforation  
L= average length of slotted perforation(in)  
W= average width of slotted perforation (in)  
WIA= water inlet area (in<sup>2</sup>/ft)

All diameters available with or without perforation

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## Reference Specification

This specification references the latest edition of the following standard specification:

- AASHTO M252- *Standard Specification for Corrugated Polyethylene Drainage Pipe*
- AASHTO M294- *Standard Specification for Corrugated Polyethylene Pipe, 12in to 60in (300mm to 1500mm) Diameter*
- ASTM D3550- *Standard Specification for Polyethylene Plastic Pipe and Fittings Material*
- ASTM D3212- *Standard Specification for Joints for Drains and Sewer Plastic Pipes Using Flexible Elastomeric Seals*
- ASTM F477- *Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe*
- ASTM D2321- *Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Application*