

<b>METROPOLITAN UTILITIES DISTRICT</b>	<b>Construction Standard</b>	No: <b>1.12.1</b>
	<b>Installation of Polyethylene Encasement on Cast Iron or Ductile Iron Pipe and Fittings</b>	Page: 1 of 4
Prepared by: D.J. Satterfield		<a href="#">Supersedes:</a> 12-15-00
Approved by: Jeff Schovanec		Effective: 1-18-17

**GENERAL**

This Construction Standard covers installation of polyethylene encasement on cast iron or ductile iron pipe, fittings, valves, and other appurtenances.

**MATERIAL**

Polyethylene shall be according to District Specification 119, “Specification for Materials”.

**INSTALLATION**

Polyethylene encasement shall be installed in accordance with this Construction Standard, and AWWA C105-10 on all cast iron and ductile iron pipe and fittings unless otherwise specified on the drawings.

The polyethylene encasement shall prevent contact between the pipe and the surrounding soil. All lumps of clay, mud, and so forth, on the pipe surface shall be removed prior to installation of the polyethylene encasement. During installation, care shall be taken to prevent soil from becoming trapped between the pipe and the polyethylene.

The polyethylene film shall be installed in a manner to provide a snug but not tight fit. Extra care shall be taken in order to prevent the stretching of the polyethylene where it bridges irregular surfaces such as bell-spigot interfaces, bolted connections, and fittings.

1. **INSTALLATION ON PIPING**

Only polyethylene film in the form of tube shall be allowed on piping. The minimum size tube for each pipe size shall be as shown in Table 1.

**TABLE 1**

<u>Nominal Pipe Size (in.)</u>	<u>Minimum Flat Tube Polyethylene Width (in.)</u>
4	14
6	16
8	20
* 12	30
16	34
20	41

\* Revised Text



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**TABLE 1 (CONT'D)**

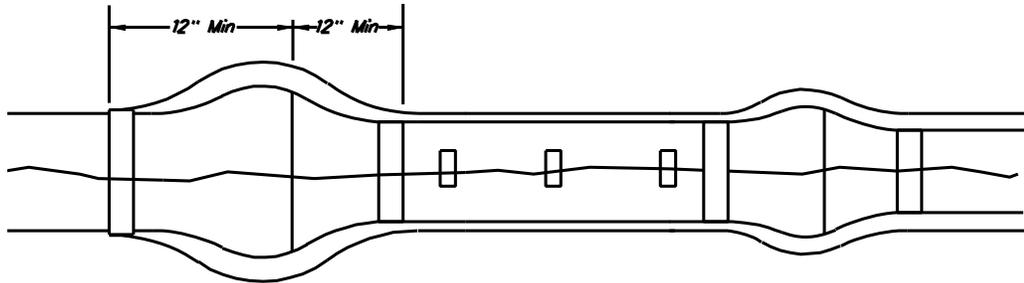
<u>Nominal Pipe Size (in.)</u>	<u>Minimum Flat Tube Polyethylene Width (in.)</u>
24	54
30	67
36	81
42	81
48	95
54	108
60	108
64	121

Cut the polyethylene tube to a length approximately 2' longer than the pipe section. Slip the tube around the pipe, centering it to provide a 1' overlap on each adjacent pipe section, and bunching it accordion-fashion lengthwise until it clears the pipe ends. See Fig 1.

Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole is necessary and shall be made at joints to facilitate installation of the polyethylene tube.

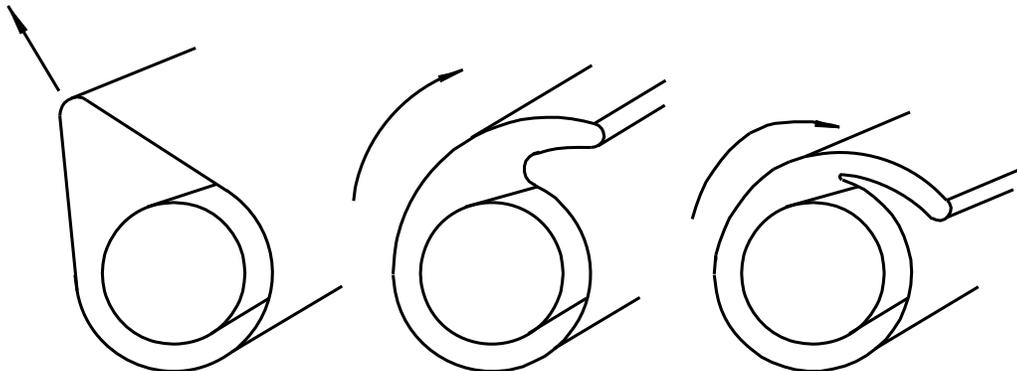
After assembling the pipe joint, make the overlap of the polyethylene tube. Pull the bunched polyethylene from the preceding length of pipe, slip it over the end of the new length of pipe, and secure it in place. Then slip the end of the polyethylene from the new pipe section over the end of the first wrap until it overlaps the joint at the end of the preceding length of pipe. Secure the overwrap in place. Take up the slack width at the top of the pipe as shown in Fig 2 to make a snug but not tight fit along the barrel of the pipe, securing the fold at quarter points. Fold shall be made such that open area of fold does not collect back-fill material.

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*Fig 1 Installation Method*

NOTE: One length of polyethylene tube for each length of pipe, overlapped at joint.



*Fig 2 Slack Reduction Procedure for*

NOTE: Take up the slack in the tube to make a snug but not tight fit. Fold the excess back over the top of the pipe, securing the fold at quarter points along the length of the pipe.

## 2. INSTALLATION ON ODD SHAPED APPURTENANCES

When it is not practical to wrap valves, tees, crosses, and other odd shaped pieces in a tube, wrap with a flat sheet or split length of polyethylene tube by passing the sheet under the appurtenance and bringing it up around the body. Make seams by bringing the edges of the polyethylene sheet together, folding over twice, and taping down. Handle width and over laps at joints as described in Section 1. Tape polyethylene securely in place at valve stems and other penetrations.

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3. REPAIRS

Repair cuts, tears, punctures, or damage to polyethylene with adhesive tape or with a short length of polyethylene sheet or a tube cut open, wrapped around the pipe to cover the damaged area, and secured in place.

4. BACKFILL

Special care shall be taken to prevent damage to the polyethylene encasement when placing backfill. Backfill material shall be free from cinders, refuse, boulders, rocks, stones, or other material that could damage the polyethylene.