NORTH CAROLINA DEPARTMENT
OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION

INNOVATIVE WASTEWATER SYSTEM APPROVAL

INNOVATIVE WASTEWATER SYSTEM NO: IWWS-2002-R3

Issued To: Douglas Everson
Plastic Tubing Industries of Georgia, Inc
303 Industrial Dr
Warrenton, GA 30828
Phone: 800-780-5121 or 706-465-2100

For: PTI Multi-Pipe System (11-Pipe Model)

Approval Date:		
	April 18, 2002	
	April 9, 2003	Minor revision
	August 2, 2004	Modification for six inches of cover
	May 1, 2012	Name Change

In accordance with 15A NCAC 18A .1969, an application by Plastic Tubing Industries of Georgia, Inc of Warrenton, Georgia for a modification to the approval of the PTI Multi-Pipe System has been reviewed. The 11-Pipe Model trench system has been found to meet the standards of an innovative system when all of the conditions of this approval are met.

I. Permitting

Prior to the installation of the PTI 11-Pipe Multi-Pipe trench system at a site for which application is being made for an improvement permit or construction authorization or at a site for which an improvement permit or construction authorization has been previously issued for a system described in 15A NCAC 18A .1955, .1956, or .1957, the owner or authorized agent shall notify the local health department. The local health department shall issue an improvement permit or construction authorization or amend the previously issued improvement permit or construction authorization allowing for the use of the proposed innovative system upon a finding that all provisions of this approval and all other applicable rules shall be met. Use of the proposed innovative system and any conditions shall be described in the construction authorization or amended construction authorization, as applicable. Such information shall also be described on the operation permit to be issued upon the acceptable completion of the system installation.

II. System Description

A. Minimum pretreatment by septic tank as required in 15A NCAC 18A .1952.

B. The Multi-Pipe trench system is a patented drain field trench system comprised of a number of four-inch diameter corrugated polyethylene perforated pipes, which are used in lieu of aggregate. The 11-Pipe System is comprised of two 5-pipe void "bundles" and one distribution pipe.

C. Void pipes are 10-foot long, four-inch diameter corrugated polyethylene pipes with a minimum open area of no less than six square inches per linear foot. This open area is achieved by a combination of slots and holes. Void pipes are pre-packaged and shipped in "bundles" of five (5) pipes, secured by the manufacturer using soldered plastic bands.

D. The distribution pipe is a 10-foot long, four-inch diameter corrugated polyethylene pipe with two rows of holes from 45 to 60 degrees off the bottom centerline. The distribution pipe has a reference line along its longitudinal axis, which is placed on top of the installation to insure proper placement of the distribution holes.

E. A spun-bonded, non-woven filter fabric covers the top and encases the sidewall areas of the installed Multi-Pipe trench system.

III. Siting Criteria

The PTI Multi-Pipe System may be utilized on any site that one can use rock aggregate and pipe which meet the following criteria:

A. Sites which are classified Suitable or Provisionally Suitable for a conventional nitrification field system in accordance with 15A NCAC 18A .1948(a) or (b).

B. Sites which have been reclassified as Provisionally Suitable in accordance with 15A NCAC 18A .1956(1), (2), (4), (5), and (6).

C. Sites that meet the criteria for new or existing fill in accordance with 15A NCAC 18A .1957(b). The provisions of Rule .1957(b) are applicable whenever any portion of the void or distribution pipe in a Multi-Pipe trench system extends into fill material. There shall be no reduction in trench length compared to conventional gravel trench as computed per Rule .1955. This reference to "fill material" applies to the site fill and not the backfill placed between the trench and the pipe sidewall.

D. The required vertical separation shall be measured from the bottom edge of the lower void pipes.

IV. PTI Multi-Pipe Trench System Sizing

A. The maximum long-term acceptance rate (LTAR) shall be as follows:

TABLE I

<table>
<tr><th colspan="2" rowspan="2">Textural Group</th><th colspan="2">LTAR (gpd/sq ft)</th></tr>
<tr><th>Natural Soil</th><th>Saprolite</th></tr>
<tr><td rowspan="2">Soil/Group I
(Sands)</td><td>Sands</td><td rowspan="2">0.8-1.0</td><td>0.6-0.8</td></tr>
<tr><td>Loamy Sand</td><td>0.5-0.7</td></tr>
<tr><td rowspan="2">Soil Group II
(Coarse Loams)</td><td>Sandy Loam</td><td rowspan="2">0.6-0.8</td><td>0.4-0.6</td></tr>
<tr><td>Loam</td><td>0.2-0.4</td></tr>
<tr><td rowspan="2">Soil Group III
(Fine Loams)</td><td>Silt Loam</td><td rowspan="2">0.3-0.6</td><td>0.1-0.3</td></tr>
<tr><td>Other Fine Loams</td><td>NA</td></tr>
<tr><td>Soil Group IV</td><td>Clays</td><td>0.1-0.4</td><td>NA</td></tr>
</table>

B. The LTAR shall be based on the most hydraulically limiting naturally occurring soil horizon within three feet of the ground surface or to a depth of one foot below trench bottom, whichever is deeper.

C. To determine the total trench bottom area (ft^2) required, the design daily sewage flow shall be divided by the applicable LTAR shown in Table I above. The minimum linear footage for Multi-Pipe trench systems shall be determined by dividing the total trench bottom area by the following equivalency factor:

Table II

Product	Excavated Trench Width (inches)	Equivalency Factor (SF/LF)
Multi-Pipe 11-Pipe	30	3.00

Example:

Three bedroom residence with a design daily sewage flow of 360 gallons on a sandy clay loam (Group III) soil

Total computed trench bottom area is:
360 gpd/0.5 LTAR = 720 ft²

The required linear footage for the Multi-Pipe 11-Pipe trench system is:
720 ft² /3.0 ft = 240 linear ft
Where 3.0 ft is the equivalency factor for the 11-Pipe Multi-Pipe trench system

D. The minimum area (without reduction or equivalency factor) for a bed system shall be determined as required in 15A NCAC 18A .1955(d) except that the 11-Pipe System Bundles shall be placed in rows next to each other.

E. The available space requirements of 15A NCAC 18A .1945 shall apply. Also this approved innovative system may be designated as the required replacement system.

V. Design and Installation Criteria

A. The Multi-Pipe 11-Pipe trench system used in nitrification trenches shall be installed with a minimum trench width of 30 inches and a maximum trench width of 36 inches. The minimum trench spacing shall be nine feet on center.

B. The distribution pipe shall be on top of the installation, between the two void pipe bundles, with its centered reference line pointing upward.

C. Filter fabric shall be installed over the top and encasing the sidewalls of the installed bundles prior to backfilling. This barrier shall in no instance be placed beneath the Multi-Pipe trench system.

D. Backfill shall be placed between the trench and bundle sidewalls to a minimum compacted (carefully walked in) height that is equal to the top of the void and distribution pipe. Multi-Pipe trench systems can be installed utilizing native soil backfill (Group I, II, III, or IV). Backfill shall

be free of trash or debris. The area adjacent to void pipe shall be free of large (8"or greater) clods that do not break apart during the walk in procedure. The latest version of the manufacturer's installation procedure shall be followed. Additional soil backfill (Group I, II, III, or IV) shall be placed above the system to a minimum compacted height of six inches above the top of the void and distribution pipe.

No vehicular traffic or construction equipment shall traverse the PTI Multi-Pipe trench system unless the load will be temporarily bridged over the trench so as not to disturb the void and distribution pipe.

E. Individual Multi-Pipe trenches shall be constructed level in all directions (both across and along the trench bottom) and shall follow the contour of the ground surface elevation (uniform depth) without any dams, stepdowns, or other water stops. Distribution pipe in adjoining bundle sections shall be interconnected as in a conventional system, and the adjoining void pipe shall butt up against each other. Installation may include turns of up to, but not greater than, 45-degrees by uniformly bending individual 10-foot bundles within the excavation. Turns of greater than 45-degrees over the course of a single 10-foot long section of the product shall not be allowed (Note: to make a 90-degree turn, the installer must combine two 45-degree turns made over the course of two 10-foot long sections of product within a 20-foot long trench segment).

F. The Multi-Pipe trench systems installed on a sloping site may use distribution devices or stepdowns as described in 15A NCAC 18A .1955(j) and (l) when it is necessary to change level nitrification line segments from upper to lower elevations.

G. PTI Multi-Pipe bundles come in 10-foot long bundles. The bundles may not be cut. For trenches with line lengths that do not end in a round number (10, 20, 30, etc), the trench length should be extended for the full bundle length. The health department should be contacted prior to installation to confirm the additional trench line length is in suitable or provisionally suitable soil and site conditions per Rule .1950.

H. Manufacturer's installation instructions for the PTI Multi-Pipe trench system used in septic tank systems shall be followed except as required herein or 15A NCAC 18A.1900 et. seq.

I. All PTI Multi-Pipe trench systems shall be installed by a contractor or installer appropriately certified in writing by the manufacturer.

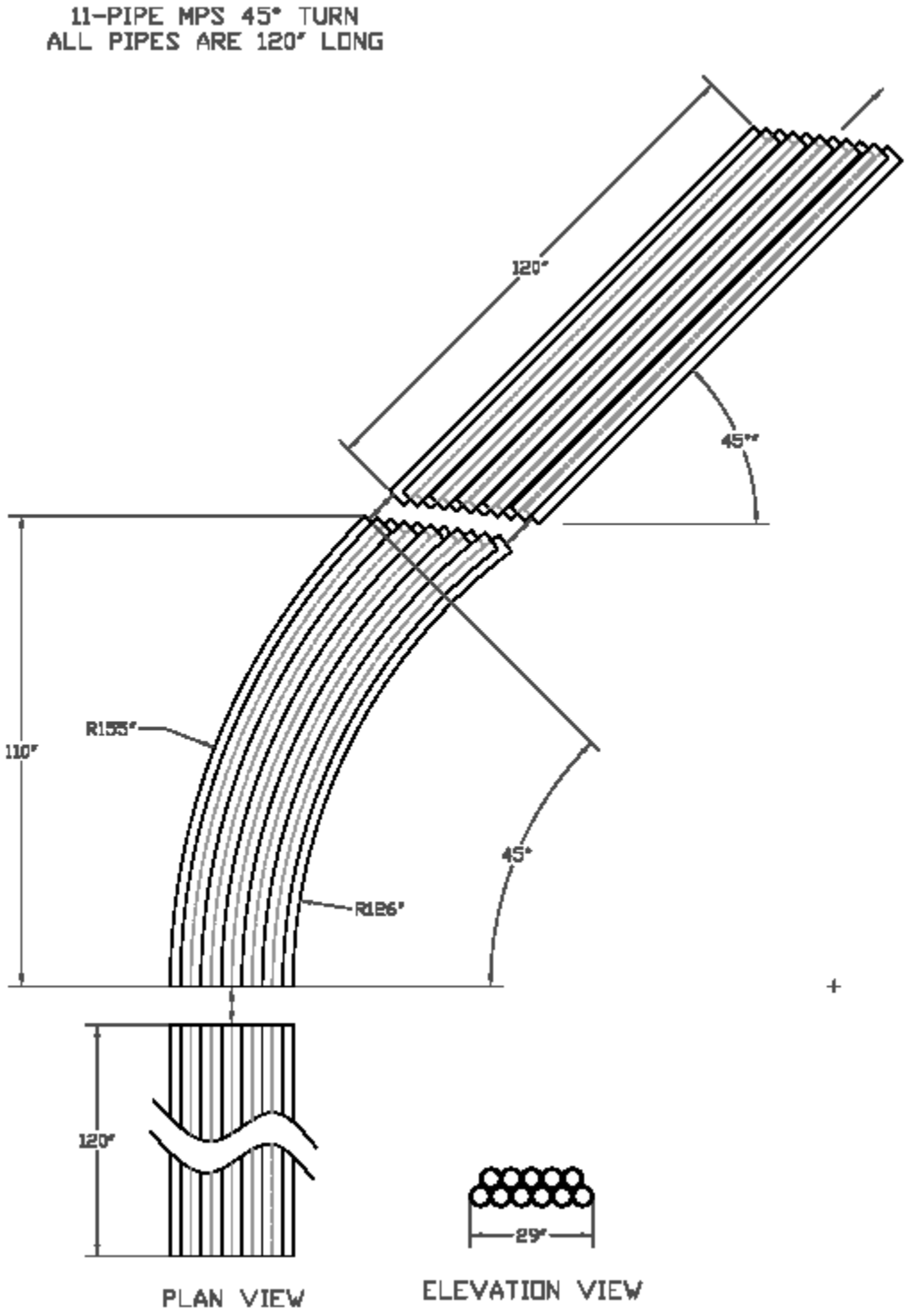
VI. Operation and Maintenance Requirements

The PTI Multi-Pipe trench system shall have a minimum classification as a Type III g system (other non-conventional trench systems) in accordance with Table V(a) of 15A NCAC 18A .1961(b).

VII. Repair of Systems

The provisions of 15A NCAC 18A .1961(l) shall apply to the use of the PTI Multi-Pipe trench system for repairs to existing malfunctioning septic tank systems.

Approved by:_____Date:_____


11-PIPE MPS 45° TURN
ALL PIPES ARE 120" LONG
120"
45°
110"
R155"
45°
R126"
120"
29"
PLAN VIEW
ELEVATION VIEW