

**NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH**

**ACCEPTED WASTEWATER
SYSTEM APPROVAL**

Accepted Wastewater System Approval Number: AWWWS 2020-01-R2

Issued to: Crumpler Plastic Pipe, Inc
PO Box 2068
Roseboro, NC 28382
800-334-5071
www.cpp-pipe.com/

Contact: Houston L. Crumpler

For: 10-inch Large Diameter Pipe Trench Dispersal System

Approval Dates: August 5, 2020
August 2, 2023 Made changes based on S.L. 2023-63, Section 17.(a)
November 6, 2024 Updated for 15A NCAC 18E

In accordance with G.S. 130A-343 and 15A NCAC 18E, Section .1700, a petition to the Commission for Public Health by Crumpler Plastic Pipe, Inc. of Roseboro, NC, for modification of its approved accepted status for its 10-inch Large Diameter Pipe (LDP) systems has been reviewed by the Department and approved by the Commission. The 10-inch LDP system is a modified trench system that has been specifically identified in a Rule adopted by the Commission and has been found to perform in a manner that is equal or superior to a conventional wastewater system and to meet the standards of an accepted system when the following conditions are met.

I. General

Scope of this Accepted Approval

Use, design, and installation requirements for 10-inch LDP systems for new and repair systems.

II. System Description

- A. Minimum pretreatment by septic tank and sized in accordance with 15A NCAC 18E .0801.
- B. 10-inch LDP systems consist of laterals composed of 10-inch inside diameter (12-inch outside diameter) corrugated, polyethylene tubing encased in a nylon and polyester blend filter wrap that are installed in trenches in the dispersal field.

- C. 10-inch LDP pipe, filter wrap, and fittings shall meet the following criteria:
 - 1. Pipe and fittings shall comply with the requirements of ASTM F667;
 - 2. The corrugated pipe shall have two rows of holes, each hole between three-eighths inch and one-half inch in diameter, located 120 degrees apart along the bottom half of the pipe (each 60 degrees from the bottom center line) and staggered so that one hole is present in the valley of each corrugation;
 - 3. Pipe shall be marked with a visible top location indicator, 120 degrees away from each row of holes;
 - 4. Corrugated pipe shall be covered with filter wrap at the factory;
 - 5. Filter wrap shall be spun, bonded, or spunlaced nylon, polyester, or nylon/polyester blend filter wrap meeting the minimum requirements in Table I; and
 - 6. The 10-inch LDP with filter wrap shall be encased in a black polyethylene sleeve prior to installation in the trench to prevent physical damage and ultraviolet radiation deterioration of the filter wrap.

Table I – Minimum Filter Wrap Requirements for 10-inch LDP

Property	Value
Unit Weight	1.0 ounce per square yard
Sheet Grab Tensile Strength	Machine Direction: 23 pounds
Trapezoid Tear Strength	Machine Direction: 6.2 pounds Cross Direction: 5.1 pounds
Mullen Burst Strength	40 psi or 276 kilopascals
Frazier Air Permeability	500 cubic feet per minute per square foot at pressure differential of 0.5 inches of water

III. Siting Criteria

10-inch LDP systems may be utilized on any site on which a conventional wastewater system can be installed, and which meets the following criteria.

- A. Sites which are classified as Suitable for a conventional wastewater system in accordance with 15A NCAC 18E .0509(a) through (c).
- B. The required vertical separation shall be measured from the bottom edge of the pipe.
- C. 10-inch LDP systems shall not be permitted in Group I Soils.
- D. 10-inch LDP systems shall not be used with food service establishments or other facilities where the fats, oils, and grease exceed the limit of domestic strength effluent (DSE) as defined in 15A NCAC 18E .0402(a), Table III when measured as it enters the dispersal field. An advanced pretreatment system may be included in the system design to reduce pollutant concentrations to DSE.

IV. Dispersal Field System Sizing

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

Table II – LTAR for 10-inch LDP

Textural Group		LTAR (gpd/sq ft)	
		Natural Soil	Saprolite
Soil Group II	Sandy Loam	0.6-0.8	0.4-0.6
	Loam		0.2-0.4
Soil Group III	Silt Loam	0.3-0.6	0.1-0.3
	Other Fine Loams		NA
Soil Group IV	Clays	0.1-0.4	NA

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. The total trench bottom area (ft²) required shall be determined by dividing the design daily flow by the applicable LTAR shown in Table II. The minimum linear footage for 10-inch LDP systems shall be determined by dividing the total trench bottom area by the equivalency factor in Table III.

Table III – Trench Width and Equivalency Factors

Product	Excavated Trench Width (inches)	Equivalency Factor* (SF/LF)
10-inch LDP	12 to 24	2.5

* For systems having an equivalency factor of 2.5 SF/LF, the system may be used in an alternating dual field application pursuant to 15A NCAC 18E .0901(h) provided that the equivalency factor for sizing each of the two dispersal fields does not exceed 3.33 SF/LF.

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:

$$360 \text{ gpd} / 0.5 \text{ LTAR} = 720 \text{ ft}^2$$

The required linear footage for 10-inch LDP systems is:

$$720 \text{ ft}^2 / 2.5 = 288 \text{ linear ft}$$

Where 2.5 SF/FT is the equivalency factor for 10-inch LDP systems

D. The available space requirements of 15A NCAC 18E .0508 shall be met, and this approved accepted system may be designated as the required repair system.

V. Special Site Evaluation

A special site evaluation may be required based on the proposed dispersal field. Refer to 15A NCAC 18E .0510.

VI. Design Criteria

Refer to the Siting Criteria in Section III and Installation information in Section VII for design details.

VII. Installation

- A. 10-inch LDP systems used in trenches shall be installed according to the minimum and maximum dimensions in Table IV.
- B. The inlet to the 10-inch LDP system shall be in the uppermost portion of the end cap. For dosed systems receiving effluent from a pump or siphon, manufacturer's installation procedures shall be followed.
- C. 10-inch LDP systems shall be installed with the yellow strip in the 12 o'clock position and the discharge at the 4 and 8 o'clock positions. Trench installation requirements are presented in Table IV.

Table IV – Trench Installation Requirements

Model	Minimum Trench Width (in)	Minimum Trench Depth (in)	Minimum Trench Spacing (ft on center)	Minimum Soil Cover ¹ (in)
10-inch LDP	12	18	6	6

¹On sloping lots, minimum required trench and cover depths may be greater.

- D. Backfill shall be placed between the trench and the 10-inch LDP sidewall to a minimum compacted and carefully placed height that is equal to the top of the pipe. LDP systems can be installed utilizing native soil backfill. Backfill material shall have no more than 10 percent by volume of fibrous organics, building rubble, rocks, large clods, or other debris. The latest version of the manufacturer's installation procedures shall be followed.

Vehicular traffic or construction equipment may traverse the 10-inch LDP system only when the load is bridged over the trench so as not to disturb the 10-inch LDP system. The load may be bridged with a minimum of six inches of compacted soil cover over shallow 10-inch LDP.

- E. 10-inch LDP system trenches shall be constructed level in all directions with a plus or minus one-half-inch tolerance from side-to-side and maximum fall in a single trench bottom not exceeding one inch in 100 feet. Trenches shall have a uniform depth and follow the contours of the ground surface elevation. Trenches shall be constructed with continuous interlocking pipe, including appurtenances, without any dams, stepdowns, or other water stops.
- F. 10-inch LDP systems installed on a sloping site may use distribution devices or stepdowns as described in 15A NCAC 18E .0901(g)(9) and (11) when it is necessary to change level trench line segments from upper to lower elevations. The requirement to fully utilize the upstream trench applies to an elevation that is at least equal to the top of the 10-inch LDP bundle.

- G. Manufacturer's installation instructions for the 10-inch LDP system used in on-site wastewater systems shall be followed except as required herein or by 15A NCAC 18E.
- H. All 10-inch LDP systems shall be installed by an installer authorized in writing by Crumpler Plastic Pipe, Inc, or its authorized representative.
- I. All 10-inch LDP systems shall be installed with compatible inlet caps at the proximal end and end caps at the distal ends of each 10-inch LDP trench.

VIII. Operation, Maintenance, and Monitoring

The accepted 10-inch LDP system shall have a System Classification of IIb in accordance with 15A NCAC 18E .1301(b), Table XXXII.

IX. Responsibilities and Permitting

- A. The local health department (LHD) shall permit these accepted systems in an equivalent manner as a conventional system when the requirements of 15A NCAC 18E, laws, and conditions of this accepted system approval are met.
- B. When use of this accepted system is requested in the application for a Construction Authorization (CA), the LHD shall include a design for the designated accepted system in accordance with the approved siting, sizing, and design criteria on the CA.
- C. When an Improvement Permit (IP) or CA is issued for a conventional system, the IP or CA shall contain a statement that indicates that an accepted system may also be used.
- D. When substitution with an accepted system is made, IP or CA modification, prior approval of the LHD, or separate owner sign-off is not required as long as the accepted system can be installed in the permitted initial dispersal field area in accordance with this accepted system approval and without unauthorized product alteration, and no changes are proposed for any of the following:
 - 1. Trench depth;
 - 2. Slope correction;
 - 3. Effluent distribution method;
 - 4. Design daily flow; or
 - 5. Wastewater strength.
- E. Notwithstanding paragraphs C and D above, when a substitution in system type compared to a previously permitted system type shall result in a change in any of the items listed in Paragraph D, prior approval by the LHD is required before system installation. The LHD shall modify the IP and/or CA upon a finding that all provisions of this approval and all other applicable rules are met.
- D. The system type installed shall be indicated on the Operation Permit, including designation of the manufacturer and model or unique code.

X. Repair of Systems

The provisions of 15A NCAC 18E .1306 shall apply to the use of 10-inch LDP systems for repairs to existing malfunctioning on-site wastewater systems.

Approved by: _____ Date: _____