(d) Pipe used for gravity distribution laterals shall be corrugated plastic tubing complying with ASTM F667 or smooth-wall plastic pipe complying with ASTM D2729 or ASTM F810. The pipe shall be marked as complying with ASTM standards. The corrugated tubing or smooth-wall pipe shall have three rows of holes, each hole between one-half inch and three-fourths inches in diameter and spaced longitudinally approximately four inches on centers. The rows of holes may be equally spaced 120 degrees on centers around the pipe periphery, or three rows may be located in the lower portion of the tubing, the outside rows being approximately on 120-degree centers. The holes may be located in the same corrugation or staggered in adjacent corrugations. Other types of pipe may be used for laterals provided the pipe satisfies the requirements of this Rule and is approved by the Department.
(e) Pump discharge piping, including the force main to the next component in the wastewater system, shall be of Schedule 40 PVC or stronger material and pressure rated for water service at a minimum of 160 psi or two times the maximum operating pressure, whichever is greater. The pipe shall meet ASTM D1784, ASTM D1785, and ASTM D2466.
(f) Pipe materials other than those identified in this Rule may be proposed when designed and certified by a PE, including any installation and testing procedures. Gravity pipe materials shall be shown to comply with the requirements of Paragraphs (a), (b), and (c) of this Rule. Alternative pressure rated pipe materials shall be constructed of PVC, polyethylene, or other pressure rated pipe and conform to applicable ASTM standards for pipe material and methods of joining. The proposed pipe shall be installed per ASTM D2774. Installation testing shall include a hydrostatic pressure test similar to pressure testing required for water mains for any line exceeding 500 feet in length and shall comply with the requirements of Rule .0701(a)(4) of this Section.

History Note: *Authority G.S. 130A-335(e), (f), and (f1).*

SECTION .0800 – TANK CAPACITY, LEAK TESTING, AND INSTALLATION REQUIREMENTS

15A NCAC 18E .0801 SEPTIC TANK CAPACITY REQUIREMENTS[15]

(a) Minimum liquid capacities for septic tanks shall be in accordance with the following:
(1) The minimum capacity of any septic tank shall be 1,000 gallons unless otherwise provided for in this Rule.
(2) The minimum capacity of any septic tank serving an individual dwelling unit with five bedrooms or less shall be sized as set forth in Table XIV.

TABLE XIV. Minimum septic tank liquid capacity for dwelling units

Number of bedrooms	Minimum liquid capacity in gallons
4 or less	1,000
5	1,250

(3) Septic tanks for dwelling units greater than five bedrooms, ~~multiple dwelling units,~~ places of business, or places of public assembly shall be sized in accordance with Table XV.
(4) The minimum septic tank capacity serving two or more dwelling units shall be ~~1,500 gallons.~~ based on the DDF of 120 gpd per bedroom or 60 gpd per person.

TABLE XV. Septic tank capacity for facilities not listed in Table XIV

Design daily flow in gpd (Q)	Minimum septic tank liquid capacity (V) calculation in gallons
$Q \leq 600$	$V = 2Q$
$600 < Q < 1,500$	$V = 1.17Q + 500$
$1,500 \leq Q \leq 4,500$	$V = 0.75Q + 1,125$
$Q > 4,500$	$V = Q$

(5) Septic tanks for RWTS and PIA Systems shall be sized in accordance with the RWTS or PIA Approval, pursuant to Sections .1500 and .1700 of this Subchapter.
(b) The minimum liquid capacity requirements of Paragraph (a) of this Rule shall be met by use of a single two compartment tank or by two tanks installed in series. The tanks in series may be constructed with or without a baffle wall. Each tank shall have a minimum liquid capacity of 1,000 gallons.
(c) When a grinder pump or sewage lift pump is installed prior to the septic tank, the required septic tank liquid capacity as set forth in this Rule shall be doubled. The minimum liquid capacity may be met by installing two or more septic tanks in series, each tank containing two compartments. The minimum liquid capacity of each tank shall be 1,000 gallons.
(d) The Department shall review other septic tanks designed to receive wastewater from grinder pumps or sewage lift pumps if designed by a PE to ensure that effluent discharged from the septic tank meets DSE as set forth in Table III of Rule .0402(a) of this Subchapter.

[15] Changed by S.L. 2023-77, Section 14

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(e) An effluent filter approved in accordance with Rule .1404 of this Subchapter shall be in the outlet of the final compartment of the septic tank.
(f) When two or more tanks are used in series in accordance with Paragraphs (b) or (c) of this Rule, the following conditions shall be met:

(1) the outlet of the initial tank shall consist of an outlet sanitary tee extending down 25 to 50 percent of the liquid depth; and
(2) an approved effluent filter shall be in the outlet of the final compartment.

History Note: *Authority G.S. 130A-334; 130A-335(e), (f), and ~~(f1).~~ (f1); S.L. 2023-77, s.14.*

15A NCAC 18E .0802 PUMP TANK CAPACITY REQUIREMENTS

(a) The minimum pump tank liquid capacity shall be greater than or equal to the required septic tank liquid capacity as set forth in Rule .0801 of this Section.
(b) For a flow equalization system, the minimum pump tank capacity shall be based upon the sum of the volumes of the following parameters:

(1) volume is sufficient to ensure pump submergence or as recommended by the pump manufacturer;
(2) minimum dose volume in accordance with Rule .1101(d) of this Subchapter;
(3) flow equalization storage; and
(4) emergency storage capacity in accordance with Paragraph (e) of this Rule.

(c) An alternate minimum pump tank liquid capacity may be proposed by the authorized designer or PE to the LHD based upon the sum of the volumes of the following parameters:

(1) volume is sufficient to ensure pump submergence or as recommended by the pump manufacturer;
(2) minimum dose volume in accordance with Rule .1101(d) of this Subchapter;
(3) flow equalization storage, if applicable; and
(4) emergency storage capacity in accordance with Paragraph (e) of this Rule.

(d) A PE may propose an alternative design to the LHD to calculate the minimum pump tank liquid capacity required. The alternative method shall provide documentation of pump submergence, dose volume capacity, emergency storage capacity, and flow equalization storage, as applicable. The LHD shall approve the alternative design upon a showing that all required storage capacity is accounted for in the wastewater system without reducing the required septic tank or grease tank capacities specified in Rules .0801 and .0803 of this Section.
(e) The pump tank emergency storage capacity requirement shall be determined based on the following criteria and Table XVI:

(1) type of facility served;
(2) classification of surface waters that would be impacted by a pump tank failure; and
(3) availability of standby power devices and emergency maintenance personnel.

TABLE XVI. Pump tank emergency storage capacity requirements

Facility Type	Surface Water Classification of Watershed	Standby Power and Emergency Maintenance Personnel Provisions	Emergency Storage Capacity Period Requirement
Residential systems and other systems in full time use	WS-I, WS-II, WS-III, SA, SB, and B waters	No standby power	24 hours
		Manually activated standby power and telemetry contacting a 24-hour maintenance service	12 hours
		Automatically activated standby power and telemetry contacting a 24-hour maintenance service	4 hours
	All other surface waters or no surface waters	No standby power	12 hours
		Manually activated standby power and telemetry contacting a 24-hour maintenance service	8 hours
		Automatically activated standby power and telemetry contacting a 24-hour maintenance service	4 hours
Non-residential systems not in full-time use and all other systems	All surface waters	No standby power	12 hours
		Manually activated standby power and telemetry contacting a 24-hour maintenance service	8 hours
		Automatically activated standby power and telemetry contacting a 24-hour maintenance service	4 hours

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(f) Telemetry shall be demonstrated to be operational to the authorized agent and the Management Entity prior to issuance of the OP.

History Note: *Authority G.S. 130A-335(e), (f), and (f1).*

15A NCAC 18E .0803 GREASE TANK CAPACITY REQUIREMENTS

(a) Grease tanks or grease tanks used with grease traps shall be required for food preparation facilities, food processing facilities, and meat markets; churches, institutions, and places of public assembly that include a full kitchen; and other facilities expected to generate FOG levels that are higher than DSE as defined in Table III of Rule .0402(a) of this Subchapter. The grease tank shall be plumbed to receive all wastes associated with food handling, preparation, and cleanup. No toilet wastes shall be discharged to a grease tank.

(b) The minimum grease tank liquid capacity shall be 1,000 gallons or as calculated by one of the following, whichever is greater:

(1) five gallons per meal served per day;

(2) equal to the required septic tank liquid capacity calculated in accordance with Rule .0801 of this Section; or

(3) equal to the capacity as determined in accordance with the following:

GLC = D x GL x ST x HR/2 x LF

Where GLC = grease tank liquid capacity, in gallons

D = number of seats in dining area

GL = gallons of wastewater per meal: 1.5 single-service or 2.5 multiuse

ST = storage capacity factor = 2.5

HR = number of hours open

LF = loading factor: 1.25 if along an interstate highway; 1.0 if along US Highway or recreational areas; or 0.8 if along other roads

(c) When the required minimum grease tank capacity for a facility is less than or equal to 1,500 gallons, the grease tank may be a single tank with two compartments and a minimum 2:1 length to width ratio.

(d) When the required minimum grease tank capacity for a facility is greater than 1,500 gallons, the grease tank shall have a minimum 4:1 length to width ratio and four compartments. This requirement can be met by two or more tanks in series. When this requirement is met by having two or more tanks in series, each tank in the series shall have a minimum liquid capacity of 1,000 gallons and a minimum 2:1 length to width ratio.

(e) A grease rated effluent filter approved in accordance with Rule .1404 of this Subchapter shall be in the final compartment of the grease tank.

(f) When two or more grease tanks are used in series in accordance with Paragraph (d) of this Rule, the following conditions shall be met:

(1) an approved grease rated effluent filter shall be in the final compartment; and

(2) the outlet of the initial tank shall consist of a sanitary tee extending down 40 to 60 percent of the liquid depth.

(g) The grease tank liquid capacity requirements set forth in this Rule may be reduced by up to 50 percent when used in conjunction with a grease trap located inside the facility. The system shall be designed by a PE, if required by G.S. 89C, and approved by the Department when review of documentation provided by the PE and manufacturer demonstrate that the grease trap is projected to reduce FOG concentration by at least 50 percent.

(h) Grease traps and grease tanks shall be maintained by a septage management firm permitted in accordance with G.S. 130A-291.1, and the contents disposed of in accordance with 15A NCAC 13B .0800.

History Note: *Authority G.S. 130A-335(e), (f), and (f1).*

15A NCAC 18E .0804 SIPHON TANK CAPACITY REQUIREMENTS

Siphon tanks shall be sized to provide the minimum dose requirements of Rule .1101(d) of this Subchapter, plus three inches of freeboard above the siphon trip level.

History Note: *Authority G.S. 130A-335(e), (f), and (f1).*

15A NCAC 18E .0805 TANK LEAK TESTING AND INSTALLATION REQUIREMENTS[16]

(a) All tanks installed under the following conditions shall be leak tested:

(1) when a SWC is present within four feet of the elevation of the top of a mid-seam pump tank;

(2) with advanced pretreatment when required in the RWTS or PIA Approval;

(3) when required in the approved plans and specifications for a wastewater system designed by a PE;

(4) when the tank is constructed in place; or

(5) as required by the authorized agent based upon site or system specific conditions, such as misaligned seams, exposed reinforcement, or damage observed that may have occurred during transport or installation.

(b) Tanks subject to leak testing in accordance with Paragraph (a) of this Rule shall be leak tested using either a hydrostatic test procedure or vacuum test procedure as follows:

(1) The operational procedures to be followed for the hydrostatic test are:

[16] Changed by S.L. 2023-77, Section 15

(A) fill tank with water to the underside of the top of the tank or, for corrugated tanks, to the bottom of the upper most corrugation that forms the top of the tank; ~~outlet invert or pipe, as applicable;~~
(B) allow the tank to sit for one hour;
(C) tank shall be approved if the water level drops less than or equal to one-eighth inch in one hour;
(D) if a leak is detected, the tank may be repaired in accordance with the tank manufacturer's written instructions, refilled, and retested;
(E) surface wetness or condensation shall not be considered an active water leak; and
(F) the tank manufacturer or installer is allowed one attempt to retest the tank before the authorized agent can deny the tank for use in the installation based on failure to pass the leak test.

(2) The operational procedures to be followed for the vacuum test are:
(A) temporarily seal inlet and outlet pipes and access openings;
(B) using calibrated equipment, draw a vacuum on the empty tank to a negative pressure of two and one half inches of mercury;
(C) hold the vacuum for five minutes and re-measure and record the ending negative pressure inside the tank;
(D) no bracing or internal support that is not part of the approved tank shall be allowed;
(E) tank shall be approved if the difference between the starting negative pressure and the ending negative pressure is less than or equal to one-fifth inch;
(F) if a leak is detected, the tank may be repaired in accordance with the tank manufacturer's written instructions and retested;
(G) the tank manufacturer or installer is allowed one attempt to retest the tank before the authorized agent can deny the tank for use in the installation based on the failure to pass the leak test; and
(H) all tank openings shall be un-sealed after the vacuum test is completed.

(3) Instead of the operational procedures set out in Paragraphs (b)(2)(B) and (b)(2)(E) of this Rule, a tank manufacturer may choose to use a negative pressure of five inches of mercury held for two minutes with the tank approved if the difference between the starting negative pressure and the ending negative pressure is less than or equal to two-fifths of mercury.

(c) Tanks unable to pass a leak test or be repaired to pass a leak test shall be removed from the site and the imprint described in Rule .1402(d)(15) or (e)(8) of this Subchapter marked over.
(d) The septic tank outlet pipe shall be inserted through the outlet pipe penetration boot, creating a watertight joint, and extending a minimum of two feet beyond the septic tank outlet. The pump tank outlet pipe shall be inserted through the outlet pipe penetration boot, creating a watertight joint, or through another watertight joint, such as a rubber grommet, in the pump tank riser.
(e) The septic tank outlet pipe and pump tank outlet pipe shall be placed on undisturbed soil or bedded in accordance with Rule .0703(b) of this Subchapter to prevent differential settling of the pipe. The pipe shall be level for a minimum of two feet after exiting the tank.
(f) The tank shall be installed level. A tank is considered level if the difference between the front and back is plus or minus one inch and the difference from side to side is plus or minus one inch. The tank excavation, bedding, backfill, and compaction shall be in accordance with the tank manufacturer's installation requirements, specifications, and the tank approval.
(g) The tank excavation shall be separated from the dispersal system by at least two feet of undisturbed soil. Piping from the tank to the next component shall be placed on undisturbed soil, compacted soil, or bedded using sand, gravel, stone, or other aggregate.
(h) Effluent filters and risers shall be installed in accordance with the design and construction criteria of Rule .1402(b) and (c) of this Subchapter.
(i) Any system serving a facility with a DDF greater than 3,000 gpd shall have access manholes installed on the tank and extending at a minimum to finished grade. The access manholes shall be designed and maintained to prevent surface water inflow and sized to allow access for routine inspections, operation, and maintenance.

History Note: *Authority G.S. 130A-335(e), (f), and ~~(f1).~~ (f1); S.L. 2023-77, s.15.*

SECTION .0900 – SUBSURFACE DISPERSAL

15A NCAC 18E .0901 GENERAL DESIGN AND INSTALLATION CRITERIA FOR SUBSURFACE DISPERSAL SYSTEMS

(a) Wastewater systems shall be used on sites classified suitable in accordance with Rule .0509 of this Subchapter. The sizing and siting criteria in this Rule shall be based on soil receiving DSE. The site shall meet the following minimum criteria:
(1) 12 inches of naturally occurring soil between the infiltrative surface and any LC; and
(2) 18 inches of separation between the infiltrative surface and any SWC if more than six inches of separation consists of Group I soils.

(b) If any part of the trench or bed media extends above the naturally occurring soil surface, the system shall be a fill system and shall meet the requirements of Rule .0909 of this Section.
(c) The LTAR shall be determined in accordance with the following:
(1) Tables XVII and XVIII shall be used, as applicable;
(2) the LTAR shall be assigned based upon soil textural class or saprolite textural class, as applicable, structure, consistence, SWC, depth, percent coarse rock, landscape position, topography, and system type;