

# Chapter 143 Septic Systems

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## Chapter 143 Septic Systems

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[HISTORY: Adopted by the Board of Supervisors of Clarke County as indicated in article histories. Amendments noted where applicable.]

### General References

Chapter 71 Building Construction

Chapter 161 Subdivision of Land

Chapter 180 Water and Wastewater, Article I Sewage Disposal

Chapter 184 Wells

Chapter 188 Zoning

### Code of Virginia References

§ 15.2-1200 General Powers of Counties

§ 15.2-2157. Septic tanks and sewage disposal when sewers not available

§ 32.1-163 et seq. - Sewage disposal

### Article I Intent, Definitions

[Adopted 1-19-1988 as Secs. 12-46 through 12-49 of the 1987 Code]

#### *§ 143-1. Intent; State Regulations.*

The intent of this article is to minimize the potential for groundwater contamination resulting from improper siting and construction of onsite sewage systems in Clarke County. Clarke County has Karst topography and fragile hydrogeology and has the potential for depletion and contamination of water sources and the potential for hazards to public health, safety and welfare as a result. To protect the health, safety and welfare of the general public, the standards as set forth hereafter in this chapter are established for all onsite sewage systems constructed or installed in the County. Pursuant to these goals, the Board of Supervisors hereby exercises its power, as granted by Sections 15.2-1200 and 15.2-2157 of the Code of Virginia (1950, as amended), to protect groundwater by regulating onsite sewage systems.

To the extent that any provision of this Chapter 143 conflicts with any other provision of State or local law, the more stringent provision shall apply; provided, however that, to the extent that any provision of Chapter 143 as applied to an alternative onsite sewage systems (AOSS) is deemed to be additional to or more stringent than the requirements and

standards for alternative onsite sewage systems of the State Board of Health, then this chapter shall apply to the greatest extent possible and the said State requirements and standards shall apply if (i) sewers or sewerage disposal facilities are not available in the area of the subject property, and (ii) the alternative onsite sewage system used on the subject site has been approved by the State Board of Health for use in the particular circumstances and conditions in which it is to be operating.

To that end, standards and procedures for soil evaluation, system siting and system design and installation are addressed herein, followed by conditions for obtaining a variance to the provisions of this article and the penalties associated with the violation of this article. Definitions of technical terms contained herein are addressed in § 143-2.

This Ordinance shall be administered and enforced by the Zoning Administrator and the Health Department who shall have all necessary authority on behalf of the governing body to administer and enforce the Ordinance, including the ordering in writing of the remedying of any condition found in violation, and the bringing of legal action to compel compliance with the Ordinance or provide for the imposition of the penalties hereinafter provided.

*§ 143-2 Definitions.*

Definitions of terms contained in this article shall be those given in the Sewage Handling and Disposal Regulations, Virginia Department of Health (VDH), as amended, except as noted herein. The following definitions shall apply:

<b>Alternative discharging sewage system</b>	Any device or system which results in a point source discharge of treated sewage for which the State Board of Health may issue a permit authorizing construction and operation when such system is regulated by the State Water Control Board pursuant to a general Virginia Pollutant Discharge Elimination System (VPDES) permit issued for an individual single family dwelling with flows less than or equal to 1,000 gallons per day.
<b>Alternative onsite sewage system (AOSS)</b>	A treatment works that is not a conventional onsite sewage system and does not result in a point source discharge.
<b>Approved method of the disposal of sewage</b>	Water carriage disposal of sewage to an approved public or private sewage treatment system; water carriage disposal of sewage to an approved onsite sewage treatment system; or non-water carriage disposal of human excrement only to an approved pit privy, portable toilet, or other approved privy facility.
<b>Conventional onsite sewage system (COSS)</b>	A treatment works consisting of one or more septic tanks with gravity, pumped, or siphoned conveyance to a gravity distributed subsurface drainfield.

<b>County</b>	Clarke County, Virginia.
<b>Cr horizon</b>	Weathered or soft bedrock and is used to indicate root restrictive layers of bedrock.
<b>Drainage way</b>	The concave portion of the landscape in which surface water or rain water runoff gathers intermittently to flow to a lower elevation.
<b>Electrical Resistivity tests Investigation (ERI)</b>	A test used to determine if there are voids or other anomalies located beneath the proposed soil treatment area.
<b>Enhanced flow distribution</b>	A pumping system designed to have a minimum capacity of 36 gallons per minute at system head per 1200 linear feet of percolation piping.
<b>Floodplain</b>	Any land area susceptible to being inundated by water from any source.
<b>Flood Plain Overlay District</b>	Lands zoned Flood Plain (FP) Overlay District as described in the Clarke County Zoning Ordinance (County Code Chapter 200), Section 4.2.1.
<b>Floodplain, Ten-Year</b>	The floodplain that is at or below the ten-year flood elevation, that is, the area which has a minimum statistical probability of one in ten of being flooded in any given year. The ten-year floodplain shall be regulated as delineated in the Clarke County Floodplain Study prepared by Dewberry and Davis (September 1, 1997).
<b>Geotechnical Engineer/Engineering Geologist” (GE/EG)</b>	A Virginia Certified Professional Engineer specializing in geotechnical engineering or a Virginia Certified Professional Geologist specializing in geotechnical engineering geology, either with a minimum of 5-years experience.
<b>Health Department</b>	The Virginia Department of Health (VDH) and its authorized employees and agents.
<b>Inspection</b>	The surveillance procedures as used by the Health Department to determine compliance with the provisions of this chapter and State regulations.
<b>Limiting Feature</b>	A feature of the soil that limits or intercepts the vertical movement of water, including seasonal, perched, or permanent water table, soil horizons having an estimated or measured percolation rate greater than 120 minutes per inch, soils having a high shrink-swell potential, fragipans or other pans, soil restrictions and impervious strata, soil horizons containing greater than 75% (by volume) coarse fragments, and pervious or impervious bedrock. The Soil Survey of Clarke County, Virginia, 1982

shall be consulted for soil characteristic information such as soil type, permeability, and high shrink-swell potential.

<b>Lithic Contact</b>	The boundary between soil and underlying bedrock that is sufficiently coherent when moist to make hand digging impractical. Cracks that can be penetrated by roots must be > 4 inches apart
<b>Lithic rock</b>	The partially weathered to unweathered rock material which cannot be bored using a standard, hand-operated three and one-quarter inch barrel auger and sixteen-inch cross handle, or upon which refusal is encountered when using a backhoe.
<b>Losing Stream</b>	A perennial or intermittent stream which loses flow volume into its bed due to the presence of sub-channel (hyporheic) solution cavities or conduits.
<b>Natural outlet</b>	Any outlet into a watercourse, pond, ditch, lake or other body of surface or ground water. Open throat sinkholes, swallets, and losing streams are considered natural outlets into the groundwater.
<b>Onsite Sewage Treatment System</b>	A complete system for the collection, treatment and disposal of sewage constructed on the property it serves or by easement on another parcel. This includes conventional, alternative and alternative discharging systems.
<b>Onsite soil evaluator (OSE)</b>	A person licensed or certified under Chapter 23 (§ 54.1- 2300 et seq.) of Title 54.1 of the Code of Virginia.
<b>Paralithic rock</b>	Weathered rock material that may be found above lithic rock and below the natural soil.
<b>Parapet</b>	The discernable outer edge or perimeter of a sinkhole
<b>Percolation test</b>	A standardized water test used to determine the rate of water absorption by soil.
<b>Pit privy</b>	A pit for receiving non-water carriage of human waste, over which is placed a privy house with seats.
<b>Point source discharge</b>	Any discernible, confined, and discrete conveyance including any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water run-off.

<b>Portable Toilet</b>	A manufactured, portable structure maintained by a licensed operator containing chemicals to neutralize odors, and made specifically for the use of waste disposal.
<b>Professional Engineer (PE)</b>	A person licensed or certified under Chapter 4 (§ 54.1-400 et seq.) as a professional engineer.
<b>Restrictive strata</b>	Soil or soil materials with an estimated or measured percolation rate in excess of 120 minutes per inch, including fragipans or other pans, lithic rock, paralithic rock and Cr horizons.
<b>Sanitary sewer or public sewer</b>	A carriage system specifically for transporting sewage from houses and commercial buildings through pipes to a public sewage treatment plant.
<b>Seasonal water table</b>	The minimum depth to seasonal water table. As used herein, “seasonal water table” means that portion of the soil profile where a color change has occurred in the soil as a result of saturated soil conditions or where soil concretions have formed. Typical colors are gray iron depletions, solid gray or black masses or concretions, or other low chroma redoximorphic depletions as described in the Munsell soil color charts. The depth in the soil at which these conditions first occur is termed “seasonal water table”.
<b>Septage</b>	The mat of grease and scum on the surface of septic tanks, the accumulated sludge at the bottom of tanks and the sewage present at the time of pumping.
<b>Septic tank</b>	A settling tank in which part of the heavy solids are settled and the organic solids decompose by anaerobic bacterial action.
<b>Sewage</b>	Human excrement and the liquid wastes derived from dwellings, business establishments, institutions and other structures or places used for human habitation, employment or congregation, exclusive of those wastes derived from industrial processes.
<b>Sinkhole</b>	A basin- or funnel-shaped hollow or depression in limestone, dolostone or other soluble bedrock, ranging in diameter from less than a few feet up to a several hundred feet and in depth from a few to several hundred feet. Some sinkholes are gentle grassy hollows or depressions; others are rocky cliff-bounded basins. A distinction may be made by direct solution of the limestone surface zone (solution sinkholes), and those formed by collapse over a cave (collapse sinkholes), but it is generally not possible to establish the origin of individual examples.

<b>Sinking Stream/Swallet</b>	A perennial or intermittent stream whose bed and bank disappear entirely underground, usually through an open throat sinkhole or cave entrance.
<b>Site and Soil Verification</b>	A full level 2 review prior to submittal of the application for a new sewage onsite system application. A Level 2 review (field check or quality assurance check) is a detailed onsite evaluation of the site conditions.
<b>Slope</b>	The incline surface of a hill, mountain, etc., or any part of the surface of the earth or the angle at which such surfaces deviate from the horizontal, commonly expressed in percent.
<b>Soil/site evaluation</b>	A systematic approach to evaluation of soil conditions by a Commonwealth of Virginia Department of Professional and Occupational Regulation (DPOR) licensed onsite soil evaluator.
<b>Soil absorption area or soil absorption system</b>	A physical location in the naturally occurring soil medium where final treatment and dispersal of effluent occurs.
<b>Spring</b>	<p>A natural issue of water from the earth or a rock formation or fracture onto the land or into a body of water via defined channel, the place of issuance being relatively restricted in size; or</p> <ol style="list-style-type: none"> <li>1) shown as a spring on the USGS 7 1/2-Inch Quadrangle Map (incomplete) or, Virginia Division of Mineral Resources Publication 102, Map of Hydrogeologic Components for Clarke County, Virginia Plate 2 (incomplete); or</li> <li>2) identified as a spring in the USGS Water-Resources Investigations Report 90-413, Ground-Water Hydrology and Quality in the Valley and Ridge and Blue Ridge Physiographic Provinces of Clarke County, Virginia; or</li> <li>3) which is currently used as a domestic drinking water source, but is not a well; or,</li> <li>4) which is currently used as a source of water for watering animals, but is not a pond or stream; or,</li> <li>5) which feeds a pond or lake less than 500 feet from where the spring issues; or,</li> <li>6) which has been designated as a significant hydrologic feature by the Clarke County Board of Supervisors prior to the filing of an application for an on-site waste disposal system (a list of such designated features is on file with the Clarke County Planning Department); or</li> <li>7) which by right may be used as a source of water by an adjoining property owner; or</li> </ol>

- 8) which has manmade features indicating past or present use as a water supply.

<b>Spring Conservation Overlay District</b>	Lands zoned Spring Conservation (SC) Overlay District as described in the Clarke County Zoning Ordinance (County Code Chapter 200), Section 4.2.2.
<b>Standard disinfection</b>	A disinfection process that results in a fecal coliform concentration of less than or equal to 200 colonies/100 ml.
<b>Streams, intermittent or perennial</b>	Any stream that is depicted as intermittent or perennial on the most recent U.S. Geological Survey 7½ minute topographic quadrangle (scale 1:24,000). A millrace or other such manmade flowing surface water shall be considered an intermittent stream. The Shenandoah River and Opequon Creek shall be considered perennial streams.
<b>Sullage</b>	Waste from household, sinks, showers and baths but not toilets.
<b>Time dose distribution</b>	A pumping system designed to dose effluent evenly throughout a given time period.
<b>Treatment level 2 effluent or TL-2 effluent</b>	Secondary effluent that has been treated to produce five-day biochemical oxygen demand BOD5 and total suspended solids TSS concentrations equal to or less than 30 mg/l each.
<b>Treatment level 3 effluent or TL-3 effluent</b>	Effluent that has been treated to produce BOD5 and TSS concentrations equal to or less than 10 mg/l each.
<b>Vault privy</b>	A watertight chamber for receiving non-water carriage of human waste, over which is placed a privy house with seats.
<b>Virginia pollutant discharge elimination system permit VPDES</b>	A permit issued by the State Water Control Board SWCB under the authority of the federal National Pollutant Discharge Elimination System NPDES program.

*§ 143-3. Approved Method of Sewage Disposal Required.*

- A. No person shall use or occupy, or rent or lease for use or occupancy, any house, trailer, mobile home, whether self-propelled or not, warehouse, public or private building or other structure or gathering place in which there is human habitation, employment or congregation, until such house, trailer, mobile home, warehouse, public or private building or other structure or gathering place is supplied with an adequate, approved method for the disposal of sewage as provided for in this chapter or by sanitary sewer. Septic tanks shall be inspected and approved by the Health Department before they are permitted to be used.



- B. Following the effective date of this chapter, no person shall construct a new dwelling unit unless and until it can be furnished with minimum sanitary facilities to include a toilet, hand lavatory, tub and/or shower and kitchen sink, inasmuch as these minimum facilities are necessary to proper sanitation. All such fixtures shall be supplied with hot and cold running water, with the exception of the flush toilet. In new units intended for purposes other than use as dwelling units where tubs and/or showers are not necessary for sanitation, minimum facilities shall consist of at least a toilet and hand lavatory with hot and cold running water.
- C. Alternative discharging systems are not permitted.
- D. Mass drainfields are not permitted.

*§ 143-4. Permit for Installation.*

It shall be unlawful for any person to install or have installed in the county an onsite sewage system without first obtaining a permit from the Health Department.

- A. Education Requirement. Prior to issuance of an operation permit for an Onsite Sewage System, the applicant shall be required to review educational material describing the operation and maintenance requirements for such system and demonstrate a basic understanding of the requirements by completing a short questionnaire provided by the Health Department.
- B. Conditional permits shall not be issued unless specifically requested by the Health Department and only if approved by the Board of Septic & Well Appeals.

*§ 143-5. License Requirements for Installers.*

- A. License. No person shall install, repair or contract to install or repair individual onsite sewage treatment systems or parts thereof without first obtaining a license therefor from the Virginia Department of Professional and Occupational Regulation (DPOR).
- B. Sewage Handling Permit. No person shall engage in the business of cleaning septic tanks, settling tanks and/or vaults designed to hold or retain solids and/or liquids in conjunction with any sewage disposal system, by whatever name called, without first obtaining a sewage handling permit from the Health Department.
- C. Disposition of sludge. It shall be unlawful for any person to dispose of the sludge and other material removed from septic tanks except by depositing it into a sewage treatment plant approved for such disposal.

*§ 143-6. Inspections of Existing Systems*

The Health Department shall inspect all existing system component replacements. Existing components include building sewers, distribution boxes, conveyance lines and header pipes. Contractors replacing existing system components shall submit for a County only permit

detailing the changes to the existing system for inspection, review and approval or denial by the Health Department.

In addition, the Health Department may inspect the entire system of sewage treatment maintained at all premises in the County for the purpose of determining if such is being operated and maintained in a sanitary manner. Such inspection shall be done at reasonable times and, whenever practical, in the company of the owner or occupant of the premises.

The Health Department shall make such inspections as may be deemed necessary during the construction of any sewage treatment system installed in the County to determine compliance with this chapter and State Board of Health regulations. No person shall use, allow to be used or cause to be used, any system until after the Health Department has inspected and approved the same in writing. No part of any system shall be covered until it is inspected and approved by the Health Department, and any such part which has been covered prior to inspection shall be uncovered for inspection upon order of the Health Department. In extraordinary circumstances, the Health Department may approve system installations when reasonable professional judgment indicates a revisit is not practical or feasible or an inspection has been conducted by an onsite soil evaluator or professional engineer.

#### *§ 143-7. Responsibility of Owner of System.*

No owner, tenant or lessee of any premises properly supplied with an approved method of disposal of sewage shall misuse or neglect such a system or any part thereof so as to cause it to cease functioning as designed in a sanitary manner. The issuance of a permit, subsequent installation and acceptance of the onsite sewage treatment system upon inspection by the Health Department does not denote or imply any guarantee of operation of such system, and it shall be the responsibility of the owner, or any subsequent owner of the system, to maintain, repair or replace any system which has ceased to function as designed in a sanitary manner. The system shall be maintained and operated by the property owner to conform to the requirements of the State Board of Health.

## Article II Determining Suitability of Soil/Sites for Onsite Sewage Treatment Systems

#### *§ 143-8. Inspection and Approval of Design and Location (New Systems).*

The Health Department, Onsite Soil Evaluator (OSE), and/or Professional Engineer (PE) shall determine whether the land available for the installation of an onsite sewage treatment system is adequate and satisfactory as to size, topography, characteristics of the soil, and the nature and location of the water supply. The Health Department, OSE, and/or PE shall be responsible for approving the system design and capacity and the location of the septic tank. The Health Department shall conduct a "Site and Soil Verification" of all proposed onsite sewage treatment system sites prior to submittal of an application.

*§ 143-9. Soil Evaluation Criteria; Field Testing.*

Minimal soil evaluation criteria for suitability of an onsite sewage system are established in this ordinance and the current Sewage Handling and Disposal Regulations, Virginia Department of Health (VDH), as amended. Backhoes are required for Health Department soil/site evaluations and verifications of private sector submitted soil/site evaluations unless waived by the Health Department. Soil characteristics shall be evaluated by the Health Department or by an OSE and/or PE and reviewed by the Health Department by "Site and Soils Verification".

- A. Closure of Onsite Inspection Pits. Any property owner causing or permitting inspection pits to be excavated for the purpose of determining soil suitability for the installation of a septic system shall have the pits filled within thirty days of final determination of suitability of the site for installation of a system. "Final determination" shall be defined as the latter of the following: the date of determination of suitability or unsuitability by the Health Department; the date of a determination of suitability by a licensed Onsite Soil Evaluator, or, the date of any decision by any appellate board or court having review jurisdiction.
- B. The Health Department, OSE, or PE and excavation contractors providing service relating to the investigation of suitability of any site for the installation of an onsite sewage system shall inform property owners of this requirement of the Clarke County Code. Failure of any of the above to so notify the property owner shall not be a defense against non-compliance.

*§ 143-10. Determining Suitability of Soil/Sites for Onsite Sewage Treatment Systems.*

A permit for construction of an onsite sewage treatment system on an individual lot or property shall be issued after completion of a satisfactory evaluation which indicates that such a system can be installed and is expected to perform in a sanitary manner so as not to create a health hazard.

- A. Evaluation. Soil evaluation reports submitted for onsite sewage treatment system approval shall contain detailed soil/site investigations, as described in subsection D. hereof. Evaluations shall indicate whether or not the soils meet the criteria specified herein for the installation of the type of on-site sewage treatment system proposed. In addition to information gathered during the soils and geotechnical investigation, the topography, available area, proximity to ground and drinking water supplies, proximity to bodies of water, rates of water absorption by the soil horizon proposed for use, or a combination of any of the above, shall also be considered in such evaluation. If absorption rate problems are suspected, percolation tests or other infiltration tests may be required, but their results shall not be presumptive, prima-facie or conclusive evidence as to the suitability for effluent absorption. Soil reports shall be field reviewed by the Health Department unless administratively denied or deemed approved.

- B. Site Sketch and Structure Identification. A sketch, prepared by the applicant, is to accompany all applications for permits to construct on-site sewage treatment systems and must show accurately:
1. The dimensions of the property.
  2. Proposed and/or existing structures and driveways.
  3. Underground utilities.
  4. Adjacent sewage treatment systems.
  5. Bodies of water.
  6. Drainageways and floodplains.
  7. Wells and springs within a 200-foot radius of the edge of the proposed onsite sewage treatment system, and springs within 500' if at a lower elevation than a proposed onsite sewage treatment system in Karst areas.
  8. Any surface karst features including sinkholes, cave entrances, losing streams or swallets, or any place where surface water is preferentially being absorbed into the subsurface at a higher rate than in the surrounding terrain
- C. Soil Profiles
1. Depth of profile hole. The minimum depth of the profile hole shall be five feet, or deep enough to verify all stand offs unless prevented or made unnecessary by some physical feature of the soil, such as redoximorphic features, rock or when a potential horizon is found at a lesser depth. When a potential soil horizon is considered for use, the soil evaluation shall be extended below the soil horizon, with potential for use, to ensure that there is no interference with seasonal high water tables, lithic rock, paralithic rock or other impervious strata within the vertical offset limitation.
  2. Number and location of profile holes. A minimum of five holes is necessary to determine the design requirements of an area for the placement of any soil absorption area. Holes shall be evenly placed to bound the area under consideration with one hole installed in the center. If more than one area is required in which to install the soil absorption area, each area shall be evaluated with at least three profile holes. The actual area and number of profile holes necessary shall be determined on a case-by-case basis.
- D. Requirements for a detailed soil/site evaluation. Detailed soil-site evaluation reports generated for any proposed onsite sewage treatment system are required by and are to be submitted to the Health Department. A detailed investigation may also be required by the Health Director for specialized land use applications such as solid waste operations, composting facilities or other similar uses. The detailed soil/site evaluation report should include the following, where appropriate, unless determined by the

Health Director, at the request of the developer, to be inapplicable based upon sound engineering principals:

1. Results of field investigation.
  - a. A map, drawn to 1:2,400 scale (1 inch = 200 feet) and larger, as requested on a sheet twenty-four inches by thirty-six inches. Where small tracts are involved, an eight by eleven-inch sheet may be acceptable, provided it complies with all other requirements set forth herein.
  - b. Existing water supplies within 100 feet of the property and 200 feet of sewage treatment systems on the property.
  - c. The location of all backhoe pits. Test holes are to be numbered and located dimensionally, including surface elevations.
  - d. The location of all numbered proposed on-site soil absorption areas, if applicable. All soil absorption areas must be shown on contour and delineated by five pits.
  - e. The following items as they relate to the proposal, if applicable:
    - i. The landscape type and position, the slope, topography and the surface drainage.
    - ii. The soil morphology, including the texture, color, structure, consistency, depth, lithologic discontinuities, boundaries, etc.
    - iii. The permeability, internal drainage and perched water tables.
    - iv. The parent material and associated problems.
    - v. Restrictive strata.
  - f. The soil evaluation form.
2. The following items shall be required in the report when soil absorption areas are proposed:
  - a. Depth of installation, type of system, relative suitability and modifications.
  - b. The depth, thickness and description of each horizon, including paralithic and lithic contacts encountered.
  - c. Locations of all samples taken and analyses to be conducted on each sample.
  - d. The depth to perched water and/or the ground water table if observed (or if indicated by soil color patterns).
  - e. The name and title of the person responsible for the description and sampling.

- A. For Lots zoned Spring Conservation Overlay District (SC) as described in Section 4.2.2 of the Clarke County Zoning Ordinance:
  - 1. No new onsite sewage disposal systems shall be located within 1,000 feet of Prospect Hill Spring.
  - 2. Onsite sewage treatment systems shall be an alternative onsite sewage system (AOSS) designed to produce a minimum of treatment level 2 (TL-2) effluent, with soil absorption areas sized at (1.5 times the normal size)
  - 3. Alternative systems not utilizing pressurized dispersal methods must provide unsaturated soil conditions (enhanced flow) within the soil treatment area.
  - 4. A 100% reserve area shall be provided for each system.
  - 5. Installation of any onsite sewage treatment system shall be inspected and approved by the County's designated engineer or representative.
- B. In all cases, the soil and site evaluation shall determine if a Conventional Onsite Sewage System (COSS) can be designed to serve the proposed use. If so, the COSS shall be proposed, unless explicitly directed otherwise such as in the Spring Conservation Overlay District. If a COSS cannot be designed for the site, a statement must accompany the soil evaluation, signed by a licensed Onsite Soil Evaluator that states the site restrictions that restrict the site to an AOSS.
- C. Soil restrictions for Onsite Sewage Treatment Systems. The following Table 1 details the soil restrictions for soil absorption system installation. In all cases, systems shall be installed below the ground surface in naturally occurring in-situ (undisturbed) soils as indicated:

Table 1

		sidewalls (horizontal)	bottom (vertical)
Distance to rock/restrictive strata – Non-karst (COSS)		24"	24"
Distance to rock/restrictive strata – Karst (COSS)		24"	24"
AOSS	TL-2	18"	18"
AOSS	TL-3	18"	18"
Distance to seasonal water table (COSS)			20"
AOSS	TL-2		18"
AOSS	TL-3		18"

- 1. Alternative Onsite Sewage Systems must be installed a minimum depth of 3” below the ground surface in naturally occurring, undisturbed in-situ soil.
- 2. Conventional Onsite Sewage Systems must be installed a minimum of 18 inches below the ground surface in naturally occurring, in-situ soil.
- 3. Onsite Sewage Systems installed at less than 18” depth require at least 12 inches of soil cover in the soil treatment area.

4. Onsite Sewage System soil treatment areas, utilizing gravel less dispersal, shall have no reduced footprints.
5. Onsite Sewage Systems shall not be installed in soil horizons having “high shrink-swell potential”, soils classified as “poorly drained” or having “slow permeability”, or having known descriptions of pans of any type. A soil test is required to confirm the aforementioned characteristics. If the percolation rate is satisfactory, all vertical and horizontal siting requirements must also be satisfied.

D. Site Restrictions.

[Amended 2005-03-15; 2016-12-20]

Minimum distances between components of septic systems and site features are prescribed in the current Sewage Handling and Disposal Regulations, Virginia Department of Health, as amended.

Onsite sewage treatment system components shall be prohibited or restricted on sites as described in Table 2, Minimum Separation Distances.

Table 2: Minimum Separation Distances

Minimum Distance From

Structure or Topographic Features	Soil Treatment Area (feet)	Septic Tanks or Vault Privies (feet)	All Other Parts of the Septic System (feet)
Slopes greater than 25%	Not permitted	N/A	N/A
Flood Plain (Ten-Year)	Not permitted	Not permitted	Not permitted
Free flowing streams, natural lakes or impounded waters (measured from edge)	100	100	50
Intermittent stream	50	50	50

Table 2: Minimum Separation Distances

Minimum Distance From

Structure or Topographic Features	Soil Treatment Area (feet)	Septic Tanks or Vault Privies (feet)	All Other Parts of the Septic System (feet)
Drainageways (measured from low point)	50	50	N/A
Wells	100	100	50
Surface Rock Outcrops	Karst: 10' Non-karst: 2'	Karst: 10' Non-karst: 2'	N/A N/A
Parapet (visually discernible edge) of sinkholes and cave entrances	100	100	50
Springs at a lower elevation than the septic system	Karst: 500 Non-karst: 200*	Karst: 500 Non-karst: 200*	Karst: 100 Non-karst: 100
Springs at a higher elevation than the septic system	Karst: 200 Non-karst: 100	Karst: 200 Non-karst: 100	Karst: 100 Non-karst: 100
Utility Easement (edge of)			
Upslope	10	10	10
Downslope	25	25	10



Table 2: Minimum Separation Distances

Minimum Distance From

Structure or Topographic Features	Soil Treatment Area (feet)	Septic Tanks or Vault Privies (feet)	All Other Parts of the Septic System (feet)
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N/A = Not applicable.

\*Refer to Item (6) below.

NOTE: In the event that there is disagreement between an OSE and/or PE and the Health Department regarding whether a natural outflow of water from an underground supply to the ground surface is a spring or a seep, then it shall be determined by a licensed professional geologist or hydrologist.

1. The distance from the structure served by the onsite sewage treatment system to the nearest point of the soil treatment area shall not be greater than 500 feet.
2. Driveways and parking areas. Driveways and parking areas shall be a minimum of 10 feet from onsite sewage treatment systems except for sewer and conveyance lines crossing the area and soil absorption areas designed to be placed under paved surfaces.
3. Minimum Size. For onsite sewage treatment systems using trench dispersal, the size of the soil absorption area based on the square footage of the trench bottoms shall consist of a minimum of 600 square feet. Drip disposal systems or any systems installed shallower than 6" shall have a minimum square footage of 1200 sq. ft.
4. Reserve area. An onsite sewage system reserve area with a capacity at least equal to that of the primary area (100%) shall be provided in accordance with the provisions of this article regardless of parcel recordation date. If existing lots must be merged to create a satisfactory building lot, then a 100% reserve area is required.
5. Reserve area. An onsite sewage system reserve area with a capacity at least equal to that of the primary area (100%) shall be provided in accordance with the provisions of this article regardless of parcel recordation date. If existing lots must be merged to create a satisfactory building lot, then a 100% reserve area is required.
6. Setback distance exceptions for onsite sewage disposal areas in non-karst soil areas for lots of record in existence prior to November 17, 1987, the setback

distance from a spring at a lower elevation than a proposed onsite sewage system may be reduced below 200' provided:

- a. The spring location, the proposed onsite sewage disposal area, and the impact area between the two features shall be identified as Non-Karst soil areas.
  - b. The spring is not used as a domestic drinking water supply or identified as a developed spring by the Virginia Department of Health.
  - c. The minimum allowable setback is 100 feet.
  - d. The proposed onsite sewage disposal system disperses at least a "TL-3 effluent" standard as defined by the Virginia Department of Health Regulations for Alternative Onsite Sewage Systems as effluent that has been treated to produce BOD5 and TSS concentrations equal to or less than 10 mg/l each.
  - e. A detailed public health and safety narrative report shall be provided by a licensed Onsite Soil Evaluator. This report shall include:
    - i. Explanation of the site conditions and design of the septic system.
    - ii. Assurance that all conditions noted in this section are satisfied.
    - iii. An affidavit stating that an onsite sewage disposal system is unable to be located on the property meeting this requirement and that the location of the proposed onsite sewage system meets this requirement to the greatest extent possible being located as far from the spring as is feasible.
    - iv. A listing of recommendations to mitigate any potential degradation of and effect on the groundwater.
    - v. The proposed onsite sewage disposal system meets all State and County requirements.
- E. Explosives or pneumatic hammers. The use of explosives or pneumatic hammers (other than hand-held pneumatic hammers) shall not be permitted for the excavation associated with septic tanks or onsite sewage treatment systems or within 50 feet of any soil treatment areas.
- F. Easements. Easements for off-site installation of onsite sewage systems are not permitted:
1. Except for residences constructed prior to December 15, 1987.
  2. Except for commercial uses:
    - a. Located in a commercial zoning district.

3. Provided that such off-site onsite sewage systems for such qualifying commercial uses:
  - a. Do not constitute a mass drain field (a sewage disposal system or systems which will discharge effluent to a single absorption area or multiple absorption areas with or without combined flows, such that the loading rate applied to any acre, as determined by the department, exceeds 1,200 gallons per day.
  - b. Have a one-hundred percent reserve area.
  - c. Have a maintenance program which includes pumping out of the septic tank every five years at a minimum.
  - d. Need not be located in a commercial zoning district.
  - e. Shall be shown on an approved site plan and placed under an easement, recorded in the land records of Clarke County within six months of site plan approval. Such easement shall allow the land area encompassing the septic facilities, provide means of access and state the party responsible for the maintenance of the septic system.
  - f. Shall be abandoned if public sewer service becomes available to the property being served by the off-site septic system easement. Hookup to the public sewer system is required and the requirement for an easement shall terminate.

#### *§ 143-12. Subsurface Investigations.*

This section is to establish review procedures and performance standards for non-invasive subsurface investigations designed to identify the potential for voids beneath primary and reserve onsite sewage system soil treatment areas so as to avoid locating in areas where subsidence may occur.

- A. Site Review. Whenever an application is filed for an onsite sewage treatment system permit or certification letter with the Health Department, except for emergency repair applications as determined by the Health Department, in any region underlain with limestone, dolomite, calcareous shale, or marble, specifically described as areas containing soils derived from these materials, which include soil types (4, 5B, 5C, 10, 15B, 15C, 17B, 18, 23, 24, 30B, 31B, 32B, 33B, 35B, 35C, 36B, 36C, 37B, 38B, 38C, 38D2, 39B, 39C, 39D2, 43C, 44B, 45B, 46B, 47B, 47C, 48B, 51B, 55D, 56, 57C2, and 57D2, as identified in the Clarke County Soil Survey, 1982), the applicant will hire a Geotechnical Engineer (GE) to conduct Electrical Resistivity Investigation (ERI) to determine if voids or other anomalies are located beneath the proposed soil treatment area. NOTE: If the area evaluated is shown as the soil types listed above, however based on field conditions observed by the OSE and/or PE it is determined to be a non-karst soils area, then the Health Department can be asked to review the site for the final determination. In the event that there is disagreement between an OSE and/or PE and the Health

Department regarding karst or non-karst soils, then it shall be determined by a licensed professional geologist.

- B. ERI Testing. The ERI testing shall be performed by an individual with a 4-year degree in geology or engineering with a minimum of 2-years' experience conducting resistivity testing;

Testing shall utilize dipole-dipole resistivity surveying array;

Testing shall consist of a minimum of two lines laid out through the soil treatment area (two lines each primary and reserve area, unless contiguous), perpendicularly to the strike of the bedrock, and extending a minimum distance beyond the drain field area of 60 feet so as to provide a minimum depth of penetration of 20 feet at the edge of the field, and allow for movement of the field should irregularities be identified;

Testing shall include use of a minimum of 24 electrodes per 100 feet of line, so as to provide a minimum of 200 soundings;

Testing shall provide minimum reading depth of 40 feet;

Electrode contact resistance shall be less than 5000 ohms, if not a salt-water mix shall be poured over the soil where electrodes are placed;

Lines shall be clearly marked at each end with stakes or other identifiable markers;

The results of the ERI testing shall be evaluated and reported upon by an individual with a 4 year degree in geology or geotechnical engineering and a masters degree in geophysical studies or equivalent. (Equivalent shall consists of not less than 5 years experience in interpreting the results of geophysical investigations, in particular ERI.

Results of test shall be included in a report which includes, in part, the following, to be provided to the county Natural Resource Planner:

1. summary of methods,
2. resistivity described in Ohm-meters,
3. electrode spacing,
4. directional orientation,
5. plan maps describing the line layout and in relation to onsite system soil treatment areas
6. color image profiles detailing the results and identifying any hazards, images shall maintain a consistently applied color scale ranging from blue-green-yellow-red, and indicate the location of the soil treatment area relative to the profile. The Ohm-m scale shall range from 0 to 4000 to provide consistency between consultants. Hazards shall be labeled on the profile so as to indicate the type of irregularity as described below,

7. irregularities in the profile shall include pinnacle/cutter topography, float rocks, soft zones, voids, mud-filled voids, extreme fracturing, and any other such anomaly,
8. the amount of overburden,
9. surface elevations shall be integrated with ER profiles,
10. discuss the significance of the geologic structure,
11. quantify qualitative terms such as “low”, “moderate” or “high” risk
12. implications of findings, i.e. should drain fields be located as proposed, and if so why, and
13. discuss the possible benefits if any of relocating a soil treatment area;

If the profiles show anomalies, and the ERI testing engineer/geologist recommends use of the site, then air track drilling is recommended to explore rock discontinuities or anomalies. In questionable soil (like cutters) conventional test borings are preferable. In either case the drilling/test shall be conducted to determine the extent and significance of the anomaly. The location of drilling or borings shall be documented and the findings of each described in detail, including a summary of the implications of the feature, if the site continues to be recommended for use, and why the feature is inconsequential;

If evidence of voids is documented beneath the proposed soil treatment area, or if anomalies encompass 20% or more of the proposed site, or the implications of findings recommend avoidance of the site, then the soil treatment area shall be relocated and the new area evaluated as described above; and

Subdivision plats and onsite sewage system permits shall include the following statement:

“Subsurface investigations have been conducted for the onsite sewage system sites on the parcels identified herein. Reports detailing the findings are available at the Clarke County Planning Department.”

*§ 143-13. Design and Installation.*

- A. Removal of vegetation. Vegetation, such as maples, willows and other plant species with extremely hydrophilic (water loving) root systems, shall be removed at least ten feet from the actual absorption areas. All trees should be removed from the absorption area.
- B. Onsite sewage systems that provide unsaturated soil conditions (enhanced flow) within the soil treatment area shall be required in the following soils:
  1. Soils that have an estimated or measured percolation rate of 16 or less minutes per inch.

2. Soils that have an estimated or measured percolation rate of 91 to 120 minutes per inch.
  3. Soil horizons containing between 50% and 75% (by volume) coarse fragments
- C. Privies. The Health Department shall issue permits for portable privies within the floodplain of the Shenandoah River. Portable privies in areas outside of the floodplain shall no require permits.
1. Portable privies are allowed only for use in association with government owned facilities or for temporary activities such as construction sites, entertainment events or agricultural or forestry activities.
  2. Within the Flood Plain Overlay District as described in Section 4.2.1 of the Clarke County Zoning Ordinance, portable privies:
    - a. Require a permit from the Health Department.
    - b. May not be located on a parcel for more than 15 consecutive days between October 1 and April 30.
    - c. Shall be located at least two feet above the elevation of the annual floodplain.
    - d. Shall be removed from the floodplain of the Shenandoah River when flooding of the river is predicted by the National Weather Service.
    - e. Shall submit a maintenance contract with the waste hauler, indicating that the privy will be pumped when the tank is 3/4 full, with the permit application.

*§ 143-14. Reutilization of Existing System.*

This section is to establish review procedures and performance standards for:

- A. The reutilization of existing on-site sewage disposal systems in the event of replacement of a structure having been lost by fire or other circumstances, or
- B. When the applicant desires to substantially modify an existing structure, which is defined as:
  1. doubling the square footage of the structure; or
  2. the construction value (as determined by the Building Department) is more than the assessed value (Commissioner of the Revenue), or
- C. When the applicant proposes a change of use, or
- D. When an existing system's use has been discontinued or utilized under design capacity.

A County official will determine the need for and must request an existing system review by the Health Department. Reviews are generally requested by the Building Department when there is a potential for well or septic encroachments.

In order to be considered for reutilization the following criteria must be met, as determined by the Health Department:

- A. The system must have no known history of failure or malfunction either since installation or previously authorized repair or replacement.
- B. Adequate information about the system must exist or be determined in order to make a judgment as to its adequacy for the proposed use. This information may include, but is not limited to, the following:
  - 1. system location, landscape, setbacks, etc.
  - 2. tank size and integrity
  - 3. size of the absorption system
  - 4. construction and materials
  - 5. design plan
- C. The system shall be of a nature previously or presently approved by the Health Department.
- D. The owner shall supply evidence that the septic tank has been pumped within the last 5 years.
- E. The structure that the system is proposed to serve must have been in recent and continuous service, as determined by the Health Department. Any structure not in use for the previous two years must meet current standards for a new system.
- F. A reserve area shall be provided as described in Section 143-11-C-4.

#### System Evaluation

In cases where Health Department records are insufficient, the following procedures shall be completed in order to determine the adequacy of the system:

- A. If needed, hold a preliminary fact-finding meeting with the applicant to discuss status of the existing system and requirements for completing a soil evaluation report, as-built drawings, and an inspection report.
- B. Conduct a physical walkover of the site to insure that there is no evidence of ponding on the ground surface. Also the perimeters of the site shall be checked to ensure that there are no discharges of sewage or gray water.
- C. Put dye in suspicious systems (possible straight pipes, wet spots, etc.) and conduct follow up visits as needed to ensure proper system operation.

- D. Note any structures, driveways, trees, etc. built over system components and make recommendations for removal as needed.
- E. Confirm the footprint of any new proposed addition conforms with current separation distances to sewage disposal system(s) and well(s).
- F. Any proposal for an increase in waste-loading rate more than the design will require a standard site and soil evaluation to pursue a septic system construction permit for expansion.
- G. At a minimum, all distribution boxes, both lids of the septic tank(s), and the end of the last line shall be uncovered by the owner for further evaluation.
- H. Check number of outlet ports and attempt to estimate size.

### Reporting

The Health Department shall:

- A. Forward a letter to the County official requesting the evaluation that describes the system and any recommendations.
- B. A disclaimer shall be attached to the report stating, "This report is only intended to address the above referenced request. This report is not intended for use as part of a real estate transfer or any other unauthorized use. There is no implied guarantee of future system performance based on this report. In the event of sewage disposal malfunction, the owner will be responsible for any repairs or other actions deemed necessary to correct the situation."

### *§ 143-15. Appeals and Variances.*

[Amended 1999-08-17; 2000-04-17, 2002-02-19, 2004-02-17; 2005-08-16; 2022-12-21]

- A. Board of Septic and Well Appeals
  - 1. Appeals of administrative interpretations of this article, and applications for variances, shall be heard by a Board of Septic and Well Appeals ("The Board").
  - 2. The Board of Septic and Well Appeals shall consist of three members:
    - a. a member of the Board of Supervisors, with any other member of the Board designated as his/her alternate.
    - b. a member of the of Planning Commission with any other member of the Planning Commission designated as his/her alternate, and
    - c. a member of the public, who is a resident of the county with a member of the Planning Commission designated as his/her alternate.

All members shall be appointed by the Board of Supervisors at their first regular meeting of each year. [Added 1999-08-17, Amended 2004-02-17]



3. The Board shall have the following powers and duties:
  - a. To hear and decide appeals from any order, requirement, decision or determination made by the Clarke County Health Department in the administration or enforcement of this article.
  - b. To hear and decide applications for variances in accordance with the provisions of this section.

#### B. Appeals

1. Any appeal shall be filed within 30 days of the issuance date of the order, requirement, decision, or determination.
2. Any person seeking an appeal shall apply in writing to the Board. Such application shall include:
  - a. A citation to the order, decision, determination or regulation to which an appeal of interpretation or application is requested;
  - b. Any relevant analytical results, including results of tests conducted pursuant to the requirements of this article;
  - c. Other information, if any, deemed pertinent by the applicant; and
  - d. Such other information as the Board may require.
3. The Board shall act on any appeal request within 60 calendar days from the Board's first review.
4. All appeals shall be consistent with the intent of this article. The Board may attach reasonable conditions consistent with the intent of this article in granting appeals.
5. No appeal may be heard except after notice and hearing as required by § 15.2-2204, Code of Virginia and in accordance with the requirements of Section 10-E of the Clarke County Zoning Ordinance.
6. An appeal of a decision of the Board shall be made within 30 days to the Board of Supervisors. Any appeal of the decision of the Board of Supervisors shall be made within 30 days to the Circuit Court of Clarke County.
7. The concurring vote of two members shall be necessary to reverse any order, requirement, decision, or determination of an administrative officer, or to decide in favor of the applicant on any matter upon which the Board is required to pass under this Ordinance, or to effect any variance from the Ordinance.

#### C. Variances

1. Variance Criteria.

- a. In order to be eligible for a variance, the system for which the variance is requested serves or is planned to serve one of the following:
  - i. An existing single-family dwelling or structure serving an existing business
  - ii. An existing single-family dwelling or structure serving an existing business that has been destroyed by circumstances beyond the control of the owner or occupant of the building within one year of the variance application.
  - iii. A building that is eligible to be on the Virginia Landmarks Register or the National Register of Historic Places or is eligible to be a contributing property in an historic district listed in the Virginia Landmarks Register or the National Register of Historic Places.
  - iv. The variance is requested so as to provide for septic systems or water supply systems replacing existing septic systems or water supply systems that are more consistent with the regulations of this article. An existing single-family dwelling or structure serving an existing business must be located on the property with the existing septic system or water supply system.
  - v. The entire parcel of land has been placed under a permanent conservation easement.
2. Variances shall be approved to alleviate a clearly demonstrable hardship approaching confiscation involving existing single-family dwellings or structure serving an existing business as distinguished from a special privilege or self-imposed (elective) convenience or option sought by the applicant.
3. Variance Procedure. If the proposed variance involves a request to locate a soil treatment area farther than 500 feet from the single family dwelling or structure serving an existing business, the applicant must provide an affidavit signed by the soil consultant stating that no suitable area could be found within the 500 feet radius. Attached to the affidavit shall be a written report detailing the reasons why no site could be found, including but not limited to soil test pit locations and profiles, site conditions such as topography, and/or setback restrictions.
  - a. Any person seeking a variance shall apply in writing to the Board. Such application shall be in writing and shall include:
    - i. A citation to the order, decision, determination or regulation from which a variance is requested.

- ii. Identification of which of the variance criteria in paragraph C.(1) applies;
  - iii. The nature of the variance requested.
  - iv. Any relevant analytical results, including results of tests conducted pursuant to the requirements of this article.
  - v. Statements or evidence why the public health and welfare as well as the groundwater resources would not be degraded if the variance were granted.
  - vi. Suggested conditions that might be imposed on the granting of a variance that would limit the detrimental impact on public health and welfare or groundwater resources.
  - vii. Other information, if any, deemed pertinent by the applicant.
  - viii. Such other information as the Board may require.
- b. The Board of Septic And Well Appeals shall act on any variance request within 60 calendar days of receipt of the request.
  - c. The Board may attach reasonable conditions consistent with the intent of this article in granting variances. Compliance with conditions shall be required for the life of the system for which the variance is issued, unless specified otherwise by the Board.
  - d. No variance may be granted except after notice and hearing as required by §15.2-2204, Code of Virginia. Posting and notification of adjacent property owners are waived for existing failed systems requiring emergency repairs, which alter the configuration of the existing system as determined by the county Health Department.
  - e. A denial of a variance, or an appeal from the terms and conditions set forth in the variance, shall be made within 30 days to the Board of Supervisors. Any appeal of the decision of the Board of Supervisors shall be made within 30 days to the Circuit Court of Clarke County.
  - f. Each variance shall be attached to the onsite sewage disposal system permit to which it is granted and shall remain in effect so long as the permit is valid. Each variance is revoked when the permit to which it is attached is revoked.

*§ 143-16. Fees.*

The Board of Supervisors shall set by resolution such fees as it deems necessary and reasonable to defray the cost of permits and/or licenses, inspections and testing as are required to be issued under this article.

*§ 143-17. Violations and Penalties.*

Penalties for violation of the provisions of this article shall be as provided in Clarke County Code Chapter 1, General Provisions, Article I.

**Amendments Chapter 143**

2021-12-21 Complete rewrite of Chapter 143. Previous versions can be found in County Administration or Planning & Zoning.