

CHAPTER 832

Site Approval Requirements

- 832.01 Condition of soil.
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CROSS REFERENCES

Private sewer systems - see ORC 6112
Private sewers - see OAC 4101:2-51-411
Sewage system site inspection fees - see EHC 220.03(b)
Approval of Health Commissioner of design and location of systems - see EHC 816. 01
Installation of systems prohibited in multiple home site allotments - see EHC 872. 01

EHC Environmental Health Code **ORC** Ohio Revised Code **OAC** Ohio Administrative Code

832. 01 CONDITION OF SOIL.

No household sewage treatment system (HSTS) utilizing a leaching tile field, evapotranspiration (ET) or other forms of soil treatment shall be permitted where the depth to the apparent ground water table, bedrock or rock strata is less than four feet below the bottom of the proposed device.

No HSTS shall be installed within a seasonal or a perched water table or where the texture, structure or porosity of the soil is not suitable for adequately and continuously absorbing and dissipating sewage effluent and must have a minimum of six inches of vertical separation between the infiltrative surface and the above described restriction.

832.02 EXPIRATION OF APPROVAL.

Site approval for installation of a HSTS shall expire one year after the date of issuance or when changes have been made in house location or house size which affect installation of the originally approved HSTS.

832.03 SOIL RATINGS.

In addition to soil test pits, the following documents may regularly be consulted to assist in determining the suitability of soils and to determine the appropriate type of HSTS:

- (a) Soil Survey, Summit County, Ohio, U.S. Department of Agriculture, Soil Conservation Service. 1969, reissued 1990.
- (b) Soil Potential Ratings for Home Sewage Treatment and Disposal Systems, Summit County, Ohio, Summit County Soil and Water Conservation District & the Summit County Combined General Health District, January, 1991.

- (c) Suitability of Ohio Soils for Treating Wastewater, Ohio State University Extension Bulletin # 896, 2002.
- (d) Appendix A, Tyler Table.

832.04 SOIL ABSORPTION PROVISIONS.

This rule addresses technical standards for the siting and design of a soil absorption component. The rule assigns vertical separation distances to allow for treatment in the soil profile and provides options for sites where adequate depth of suitable soil is not available. This rule applies to all STS soil absorption components and includes provisions for applying soil depth credits, determining loading rates, and general design and installation requirements. The specifications listed in EHC chapter 888 do not substitute for the provisions in this rule nor do they preclude the use of any soil absorption component that may be designed to comply with this rule.

- (A) Soil absorption components shall maintain a vertical separation distance of at least eighteen inches to any limiting condition with the exception of apparent ground water table, bedrock, rock, and other fragments which require at least four feet of vertical separation distance. The vertical separation distance is the depth from the infiltrative surface of the distribution system of the soil absorption component to a limiting condition.
- (B) A minimum vertical separation distance of six inches of in situ soil shall be maintained. A vertical separation distance established in paragraph (A) of this rule may be reduced through the use of soil depth credits as specified in paragraph (C) of this rule, provided the minimum six inch vertical separation distance is maintained within suitable in situ soil. The area of the suitable in situ soil to be used for the soil absorption component shall be free of any limiting conditions within the horizontal and vertical distances designated for treatment and dispersal.
- (C) Soil depth credits for infiltrative surface elevation, pretreatment pathogen reduction and/or timed micro-dosed distribution shall be available as follows and in accordance with this chapter. A one foot credit may be applied for those limiting conditions requiring a one and one-half foot vertical separation distance. For apparent ground water table, bedrock, rock and other fragments requiring a four foot vertical separation distance, soil depth credits may be used individually or in combinations not to exceed a maximum of two feet of credit:
 - (1) A one-to-one equivalency soil depth credit shall apply to soil absorption components that elevate the infiltrative surface of the distribution system to achieve vertical separation distance. Sand fill material in an elevated soil absorption component such as a mound system shall comply with applicable design specifications including the preparation of the sand soil interface and sand placement requirements. The loading rate for the sand fill material shall not exceed 1.0 gpd/ft². Concrete sand meeting ASTM C 33 for fine aggregate may be used provided the material meets the following specifications:
 - (a) An effective size in the range of 0.15 to 0.30 mm;
 - (b) A uniformity coefficient in the range of four to six;
 - (c) No more than twenty per cent by weight is gravel greater than two mm; and
 - (d) No more than five per cent by weight is silt and clay less than 0.053 mm.

- (2) Soil depth credits shall apply for pathogen reduction as specified for effluent meeting the fecal coliform standards and pretreatment component requirements of Section 3 of this Appendix.
 - (3) A soil depth credit of one foot shall apply when distribution to the soil absorption area provides for timed micro-dosing controlled at each point of application not to exceed one quarter gallon per dose and one gallon per four square feet of infiltrative area for each point of application per day. A soil absorption component in compliance with the requirements of this Section shall be eligible for this soil depth credit when the provisions of this paragraph are met.
- (D) The following requirements for effluent distribution to the soil absorption component shall be met, as applicable:
- (1) Gravity distribution of effluent shall be used in accordance with this chapter and any referenced design specifications in accordance with paragraph (F)(6) of this section and in compliance with the following conditions and limitations:
 - (a) Septic tank effluent may be distributed by gravity to an in situ soil absorption component meeting the vertical separation distances described under paragraph (A) of this rule.
 - (b) Effluent from a pretreatment component meeting the BOD₅/TSS soil loading rate selected in accordance with paragraph (E)(1)(a) of this section may be distributed by gravity to in situ soil having at least two feet of vertical separation distance from the shallowest limiting condition.
 - (c) Effluent from a pretreatment component meeting the one foot pathogen reduction credit may be distributed by gravity to in situ soil having at least two feet of vertical separation distance to apparent ground water table, bedrock, rock, and other fragments provided there are no shallower limiting conditions.
 - (d) Effluent meeting the BOD₅/TSS and/or pathogen reduction standards in rule Section 3 of this Appendix shall not be applied by gravity distribution to the infiltrative surface of in situ soils that have loamy sand or coarser textures and allow rapid access to ground water.
 - (2) Uniform distribution of effluent across the infiltrative surface of the soil absorption component shall be used in accordance with this chapter and any referenced design specifications in accordance with paragraph (F)(6) of this section and in compliance with the following conditions and limitations:
 - (a) Uniform distribution shall be required when applying effluent to the sand fill infiltrative surface of an elevated soil absorption component.
 - (b) Uniform distribution shall be required when using pretreatment component effluent quality meeting the BOD₅/TSS and/or pathogen reduction standards in Section 3 of this Appendix except as specified in paragraph (D)(1) of this rule.
 - (c) The means of distribution may include but are not limited to pressure distribution in a low pressure pipe system for leaching trenches or mounds and drip distribution in accordance with this chapter.

- (E) The soil absorption component area shall be of adequate size and configuration to disperse the effluent and prevent surface seepage. When sizing the soil absorption area the following requirements shall be met:
- (1) Soil loading rates, including basal loading rates for sand fill systems, shall be based on effluent quality and on soil structure, texture, and consistence and shall be justified through reference to soil and site evaluation information and the loading rate estimates referenced in the appendix to this chapter.
 - (a) The selection of soil loading rates based on effluent quality shall be limited to a rate for septic tank effluent or a rate for effluent meeting the BOD₅/TSS standard under paragraph (A)(1) of Section 3 of this Appendix.
 - (b) The structure, texture, and consistence of the most limiting in situ soil layer within the vertical separation distance shall be used to determine a soil loading rate.
 - (2) Linear loading rate (LLR) estimates shall be used to determine the required length of the distribution system parallel to surface contours and shall be based on soil characteristics, land slope, and depth to limiting conditions. LLR estimates shall be justified through reference to soil and site evaluation information and the loading rate estimates referenced in the appendix to this chapter. If site and soil conditions indicate horizontal subsurface flow, the minimum horizontal isolation distances shall be increased in undisturbed areas around the perimeter or down-slope of the soil absorption component as necessary for adequate dispersal and prevention of surface seepage.
- (F) General requirements for designing an STS soil absorption component are as follows:
- (1) Effluent dispersal components shall be oriented parallel to natural surface contours and shall not be sited on slopes exceeding 15% or limitations specified in this chapter or applicable design manuals or product specification as referenced in accordance with this paragraph.
 - (2) Observation ports shall be provided to monitor the infiltrative surface of the soil absorption component as required in this chapter and when determined to be necessary by the board of health.
 - (3) Designs shall prevent damage to components or operational failures due to freezing temperatures.
 - (4) For short term repairs or resting of a soil absorption component, easily accessible shut-off mechanisms shall be provided to allow for segregation of flows to portions of the soil absorption component. Examples of such mechanisms include but are not limited to shut-off valves at a mound manifold split or drop box plugs for serial distribution leach lines.
 - (5) Pressure distribution networks shall have a means of measuring design pressure or operating head for both initial baseline measurement and future monitoring of orifice clogging and other network operations and shall include a means of scouring or flushing distribution laterals.
 - (6) The design plan or layout plan for a soil absorption component may include referenced design manuals, proprietary soil absorption component specifications including those for gravelless and chamber products, or alternative aggregate product specifications provided these do not conflict with this chapter. Unless an available internet source for any referenced manual or specification is included in a design plan or layout plan, the design manual, proprietary soil absorption component specifications, or alternative aggregate product specifications shall accompany the plan. Inclusion of

referenced resources does not substitute for critical information or calculations required for board of health approval of a design or layout plan.

- (H) Installation shall be conducted by a registered installer in a manner consistent with an approved plan to assure proper operation and future servicing or monitoring of the soil absorption component.
- (1) Soil moisture conditions shall be evaluated at the time of installation, and the excavation or preparation of the soil infiltration interface, such as a trench or basal area, shall not proceed when there is a risk of smearing or compaction as evidenced by a deformability test, commonly referred to as rib boning, or other means established by the board of health.
 - (2) Proprietary soil absorption components or alternative aggregate product specified in an approved design plan or layout plan shall be installed in accordance with the manufacturer's installation instructions or product specifications provided these do not conflict with this chapter.
 - (3) Testing of any pressure distribution components shall be conducted prior to installation approval by the board of health. Flow rate and distal pressure or operating head shall meet specifications and a baseline shall be recorded for future performance monitoring.
 - (4) Baseline records and any soil absorption component O&M instructions shall be provided by the installer to both the owner and the board of health as a condition of installation approval.

(Resolution 165-07, July 12, 2007)