

SOIL REPORT

24-2488 Tortoise Ventures
LLC - Pearson Rd Site 2

August 9, 2024

Prepared By:
Tyler Sgro, L.P.S.C. #119, South Carolina
Davis Horizons
843-484-5117
info@davishorizons.com



Site Location and Characteristics

The project site is located in Fairfield County, South Carolina and was reviewed on August 9, 2024. The sampled locations are geographically situated on a backslope area of a broadly described hillslope. The vegetative community in the sampled area is generally described as immature forest, and more specifically is a mixed hardwood and pine forest. Elevation data recorded at these locations shows elevations ranging no more than 253 inches between sample points.

Soil Sampling Methodology

In order to measure site elevations, a Trimble R10-2 external GNSS receiver was used to measure elevations at each soil boring location. Fixed real-time kinematic (RTK) positioning was obtained in order to maximize data accuracy. Elevation error was measured to not exceed 1 inch, based on data provided from the GNSS receiver. Orthometric elevation data was recorded at each data point and recorded on the subsequent data sheet. Elevation ranges between the soil borings were obtained by computing the difference between elevation points.

Soil colors described in the data sheets were determined using a Munsell Soil Color Book. Soil textures described in the enclosed data sheets were determined using field techniques provided by the United States Department of Agriculture, Natural Resource Conservation Service (see: Thien, S.J., 1979. *Flow Chart to Determine Soil Texture by Feel*). In total, 4 data points were recorded for the purposes of finalizing the footprint of the proposed drainfield and repair area.

SCDHEC Regulations and Standards

This site was examined for suitability for an onsite wastewater system as outlined in SCDHEC Regulations 61-56. Based on the observations described in the enclosed data sheets, estimated zone of seasonal saturation (ZOS), elevation gradient in the sampled area, and depth to limiting soil textures, the recommended standard for the investigated area is the 100/101 System - Conventional with 14" Aggregate.

The criteria used to determine the estimated zone of seasonal saturation (ZOS) was primarily based on the presence of wetness characteristics, described as low chroma soil colors identified with a Munsell Soil Color Book and/or evidence of redoximorphic reactions. The presence of low chroma soil colors and redoximorphic features are indicative of the prolonged presence of water and/or a fluctuating water table. In addition, other criteria, such as position on the landscape, surface color (estimate of organic carbon), and experience of the Soil Classifier were utilized to obtain the ZOS. The data in this report is intended to be used for land use planning purposes, as well as supplemental soil data that can be submitted to SCDHEC and/or a Professional Engineer to assist in the onsite wastewater permitting process. The point data utilized to inform this report does not guarantee the denial or issuance of a permit for an on-site wastewater system and is solely a recommendation, based on the observations of the Soil Classifier during the site visit. The final decision of issuance or denial of permits is a decision made by SCDHEC.

Design Criteria and Recommendations

A ZOS of 34 inches will be used as design criteria. Depths to apparent water tables (if observed) can be found on the corresponding data sheets. In all test locations, apparent water tables were not observed above (more shallow) than the identified ZOS. A minimum of a six-inch separation between the ZOS and the bottom of the trenches is required for this system recommendation. Horizons with more than trace amounts of organic carbon content existed to maximum depths of 3 inches. The aforementioned soil horizons with more than trace amounts of soil organic carbon do not need to be removed. However, the root mat should be removed prior to adding fill material if required. Based on the recommended system design, a 14 inch aggregate depth is suggested. Also, backfill will be necessary for the installation of the recommended system. Soil textures and amounts of backfill needed for the recommended system can be found within the system standard descriptions within the 61-56 Regulations.

Class 4 textures are the most limiting texture in the excavated soil profile. A long-term acceptance rate (LTAR) of 0.3 gallons per day (GPD)/square foot (SF) will be utilized for the loading rate². If applicable based on system recommendations, upon the completion of the construction of the drain field/disposal area, the fill material over this area will be immediately seeded and protected with straw or mulch or sodded to establish a permanent vegetative cover. The final grading plan will be designed to remove surface water from the drain field/disposal area.

Based on the recommended system, a septic tank with a maximum flow capacity that does not exceed 1500 gallons per day (gpd) can be installed. The minimum total linear footage required for the trench lines is 400 feet, based on an expected gallons per day (gpd) of 360 gpd and a system design utilizing a 3' wide trench. However, the proposed design intends to incorporate the usage of alternative aggregate product. As such, the aforementioned required total linear footage will be reduced by 25%. Lastly it will be required that a licensed septic installer authorized by Infiltrator complete the installation of this system.

Soil Classification

The soils in this area formed from metamorphic rock typical of the Piedmont and in relation to the site's geomorphic position on the landscape. Thus, the soil conditions reflect drainage characteristics typical of soils of the mapped series below. This soil classification was based on the observed soil morphology in the excavated soil profile. Descriptions to further depths are not necessary to make interpretations for onsite wastewater disposal systems. The soil observations provided in this report and the below classification are derived by soil conditions in the observed sampled locations/area only. It should be noted that the below classification does not take into account any inclusions that might exist with the sampled area.

Similar to soils of the Hard Labor series: Fine, Kaolinitic, Thermic Oxyaquic Kanhapludults

Other Considerations



Adherence to Report:

The depth to the ZOS, water table separation, LTAR, and the land preparation prescriptions outlined in this report are site condition minimums that must be adhered to in the design and installation of an onsite wastewater disposal system. Any expenses incurred due to deviations from the soil prescriptions outlined in this report that result in system malfunctions or repairs will be the liability of the responsible party.

Notification Regarding Wetlands:

It is the responsibility of the landowner and/or equipment operators to avoid regulated impacts to waters of the United States (WOTUS), including wetlands. Should any part of the proposed onsite wastewater system be located in WOTUS, including wetlands, approval from the appropriate State and/or Federal agency [i.e., US Army Corps of Engineers, SCDHEC, etc.] must accompany the application for an onsite wastewater system. It is recommended that the landowner and/or equipment operators contact the applicable State and/or Federal agencies prior to initiating site work in order to avoid regulated impacts to WOTUS, including wetlands.

Footnotes:

1. Where applicable, fill material should be inspected and approved by Tyler Sgro prior to placement of material and system installation.
2. Long-term acceptance rates (LTAR) are **estimated** using the South Carolina Department of Health and Environmental Control, Bureau of Environmental Health Long Term Acceptance Rate Standard for Onsite Wastewater Systems. The long-term acceptance rate is based on the most hydraulically limiting naturally occurring soil texture from the ground surface to 12 inches below the bottom of the proposed absorption trenches/disposal tubing. Estimates on the acceptance rates are based on soil texture.