

Soil Suitability for Domestic Sewage Treatment and Dispersal Systems
Fairport Road & Hight Road, Oxford
Granville County, North Carolina
Parcel Identification Number(s): 193000590790

PREPARED FOR: Mr. Glenn Powell

PREPARED BY: Derrick A. Smith, LSS, REHS

DATE: March 22, 2026

Soil suitability for domestic sewage treatment and dispersal systems was evaluated on March 21, 2026 on property located at the intersection of Fairport Road and Hight Road, Oxford, NC. I, Derrick Smith, a NC licensed soil scientist conducted the soil evaluation. This was performed at your request as part of the preliminary planning process in order to determine areas of soil with potential for accepted or conventional wastewater systems to serve three or four bedroom single family residences on three proposed lots.

I traversed the three proposed lots and observed landforms (slope, drainage patterns, past use, etc.) as well as soil conditions (depth, texture, structure, seasonal wetness, restrictive horizons, etc.) through the use of hand auger borings. The site was evaluated during dry soil conditions. From these observations, an evaluation of the site, relative to subsurface disposal of wastewater, was developed. Soil areas were estimated in the field. The soil/site evaluation criteria used is that contained in 15 A NCAC 18E "Laws and Rules for Wastewater Treatment and Dispersal Systems".

FINDINGS

These lots contains a mixture of pines and hardwood trees with cedars. There is a well on the adjacent property that will affect some of the usable soil on Lot 3. Lot 1 and Lot 2 contains areas with unsuitable soil and these areas were cut out using yellow ribbons. The suitable soils on these lots are similar to the Cecil/Pacolet soil series. The Cecil/Pacolet soils are at least 24 inches or more to an unsuitable soil characteristic and can be utilized for accepted, panel block and/or low profile chamber wastewater systems. Please reference the attached site sketch map for the suitable soil areas. Soil structure was suitable and was estimated to be granular near the soil surface and subangular to angular blocky in the subsoil within the suitable soil areas. Soil borings flagged with red ribbon were suitable to 30 inches deep or more. Blue ribbons represent soil borings that were less than 18 inches to an unsuitable soil feature. Pink/black stripe ribbons represent suitable soil borings that were 24 inches deep to an unsuitable soil characteristic.

The site plan for these lots must ensure that adequate soil area for the system and repair is unaffected by onsite and offsite elements (house placement, driveway, wells, patios, decks, workshops, etc.). The area ultimately designated by the Granville County health department on the site plan for the septic system and repair must remain undisturbed (no mechanical clearing, excavation, heavy traffic or other significant site disturbing

activities) until authorized by the Granville County health department. A property with initially adequate useable soil area may be rendered unusable as a result of improper site planning and/or soil disturbance.

Final site approval for issuance of improvements is based on regulations in force at the time of permitting and is dependent on satisfactory completion of individual site evaluations following application for an improvement permit detailing a specific use.

GENERAL WASTEWATER CONSIDERATIONS

Once potentially useable areas are located through vertical borings and/or backhoe pits, the next consideration is the horizontal extent of those areas. The size and configuration of the useable soil areas dictate the utility of that area. The size of a subsurface disposal field is determined by : 1) the design flow from the source (120 gallons/bedroom/day in residences), and 2) the long term acceptance rate (LTAR) of the soil (based on the hydraulic conductivity of the soil, a functions of the soil's texture, mineralogy, structure, porosity, etc.). The configuration must be such that an efficient layout of disposal lines (on contour) is possible. An additional consideration is the required setbacks for the system from various elements such as wells (100'), streams and ponds (50') or more (depending on watershed regulations), property lines (10'), top of embankment (15'), watershed buffers, etc.

The utility of a potential useable soil area for a subsurface system is most accurately determined by an on-ground layout of the proposed system. The total area needed for the system area will depend upon the system type, the layout of that system and the total design flow (factors mentioned above). A typical area needed for a four bedroom residence is approximately 12,000 ft² (could be more depending on site features) or 960 linear feet of accepted product (system and repair). These estimates reference Laws and Rules for Wastewater Treatment and Dispersal Systems for North Carolina and use a LTAR of 0.25 gpd/ft². I recommend a trench bottom depth of 12 to 18 inches on the downslope side of each nitrification trench.

This report discusses the general location of potentially useable soils for on-site subsurface wastewater disposal and, of course, does not constitute or imply any approval or permit as needed from the Granville County health department. As a licensed soil scientist, I am hired for my professional opinion in these matters. The rules governing wastewater treatment (interpreted and governed by local and state agencies) are evolving constantly, and in many cases, affected by the opinions of individuals employed by these governing agencies. Because of this, I cannot guarantee that areas delineated and/or systems designed will be permitted by the governing agencies. As always, I recommend that anyone making financial commitments on a piece of property be fully aware of individual permit requirements on each lot prior to final action.

An individual septic system permit will be required for each lot prior to obtaining a building permit. This will involve a detailed evaluation by the Granville County health department to determine, among other things, system size and layout, driveway, well site

and house location. Only after developing this information can a final determination be made concerning specifics of system design and site utilization.

I do recommend having a surveyor locate the yellow soil boundary ribbons to overlay onto the proposed lot plats to see how much suitable soil remains on each lot. While every attempt was made to identify any shallow soils, please be advised that there could be spots containing shallow soils to rock. Lot 1 appears to be the only lot that may not contain enough suitable soil for the initial and repair system for a four bedroom home.

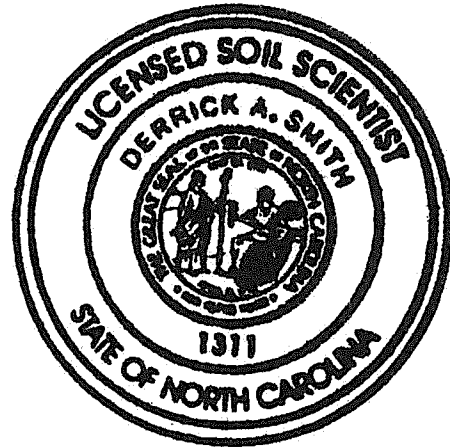
I am pleased to be of service in this matter and I look forward to assisting in any site analysis needs you may have in the future. Please feel free to call with any questions or comments.

Sincerely,

Derrick A. Smith

3/22/26

Derrick A. Smith, LSS, REHS
NC Licensed Soil Scientist #1311
NC Registered Environmental Health Specialist #2402

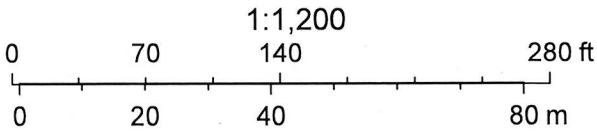


* NOT A SURVEY



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 AREA CONTAINS SUITABLE SOILS FOR
AN ACCEPTED WASTEWATER SYSTEM;
≥ 24" SOILS



SCALE : NTS

* AREA SHOWN IS APPROXIMATE
UN UNSUITABLE SOILS