

Site Suitability for Domestic Sewage Treatment and Disposal Systems

Centennial Drive
Yanceyville, NC
Caswell County
PIN#: 052.00.00.0155

Prepared for: Jenifer Kelly, Land Duo

Prepared by: Erik Severson, Severson Soil Consulting, PLLC

Report Date: 4/29/2023

SYNOPSIS

This report shows the findings of a preliminary soil and site evaluation of the referenced parcel in Caswell County, NC. The soil evaluation found that there were two areas of provisionally suitable soils on the property that were suitable for an in-ground conventional septic system. This report is intended to assist the permitting authority pursuant to citing onsite wastewater systems. All applicable setbacks must be maintained.



Figure 1. Property Location (Caswell County, NC)

To: Jennifer Kelly
Re: Soil Feasibility for parcel:

Centennial Drive
PIN#: 052.00.00.0155

Jennifer, this is a summary of my findings:

Severson Soil Consulting, PLLC (SSC) conducted a preliminary onsite wastewater soil feasibility study on the above referenced parcel to determine the area of soils, suitable for a subsurface onsite wastewater disposal system. The soil and site evaluation were performed by using a hand auger boring during moist soil conditions based on the recommended criteria found in the “Laws and Rules for Sewage Treatment and Disposal Systems”, 15NCAC 18A.1900. From this evaluation, SSC sketched an area suitable for the installation of a septic system. All dimensions, locations are approximate.

Site Description

The 4-acre tract was located off Centennial Drive near its confluence with Blackwell Road (figure 1). The site lay in the Piedmont physiographic province. The NRCS soil map (figure 2) shows the soil mapping units on the property: FbB2 (Fairview 2–8% slopes), FbC2 (Fairview 8–15% slopes), and FbD2 (Fairview 15–25% slopes). The Fairview soils are typically suitable for conventional septic systems.



Figure 2. Soil map of the of the subject property (Soil Web).

Soil Borings

Over 19 soil borings and observations were advanced on the parcel (figure 3). Their depths of suitable soils categorized the borings. The red dots were suitable soils to 30” (in ground conventional septic system. The red dots were the Cecil and Pacolet soils. The recommended loading rate (LTAR) these soils are 0.3 gallons per day per square foot (GPD/ft2).



Figure 3. Soil boring locations within the lot as located by the onX Hunt application.

Usable Areas

Two usable areas were found on the property. The first was a 0.58-acre (25,264 ft²) area near the front of the property (figure 4). The second was a 0.54-acre (23,522 ft²) area near the rear of the property (figure 5).



Figure 4. Usable area 1 on the parcel.



Figure 5. Usable area 2 on the parcel.

The required linear footage of trench product is calculated by dividing the flow rate (4-BR= 480 gpd) by the LTAR (0.3), then dividing that by 3 feet (for a 3-foot wide trench), and finally multiplying by 0.75 to account for a 25% reduction in linear footage:

$$480\text{gpd} / 0.3 \text{ gpd/ft}^2 = 1,600 \text{ ft}^2 / 3\text{ft wide trench} \times 0.75 = 400 \text{ linear feet of trench product}$$

Assuming a potential configuration of 4- 100-foot lines, the area needed for the primary drainfield would be 3,000 ft². The total area required would then be 6,000 ft² including primary and a 100% repair area. Both usable areas evaluated were approximately 0.54-0.58 acres, or at least 25,264 ft². The two areas shown in figure 4 and 5 is four times the needed area for a primary and reserve drainfield to service a 4- bedroom dwelling.

Permitting

Prior to the issuance of a septic permit, the lot will require a soil and site evaluation by the Caswell County Health Department or other permitting authority. The specific trench product type and final soil loading rate will be determined by their assessment. The areas for proposed drainfields shall not be impacted by home sites, pools, garages, nor be mechanically altered from the natural lay of the land. Regulatory setbacks to property lines, roads, wells, etc. are to be maintained.

Exact locations of future drainfields, repair areas, buffer from property lines (current and future), building foundations, pools, decks, and well locations are not addressed in this report. Those items should be fully considered as the plans develop for the potential future use of the site. Depending on the position of the house location, house size, property lines and setbacks that may encroach on available usable space, this lot may require a septic system utilizing a pump.

Due to the subjective nature of the permitting process, zoning, variability of naturally occurring soil, and unforeseen circumstances, SSC cannot guarantee that areas delineated as suitable for on-site wastewater disposal systems will be permitted, as the permits are issued by the local governing agency or permitting authority. However, the areas of suitable soil have 4 times the needed space for a conventional system and repair depending on the final loading rate. This report may be used to assist the local permitting agency to issue a septic permit.

Thank you for your business. Please do not hesitate to ask for more information regarding this report.

Sincerely,

Erik D. Severson



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