SEVERSON SOIL CONSULTING, PLLC

Erik D. Severson, Ph.D., LSS
3004 Upland Circ Raleigh, NC 27607
919-623-6175 seversonsoil@gmail.com

Site Suitability for Domestic Sewage Treatment and Disposal Systems

6311 Canadian Avenue
Hope Mills, NC
Cumberland County
Parcel#: 0442-66-9386

Prepared for: Harshdeep Ahluwalia, Premier Land Hub

Prepared by: Erik Severson, Severson Soil Consulting, PLLC

Report Date: 4/23/2026

SYNOPSIS

This report shows the findings of a preliminary soil and site evaluation of the referenced parcel and lot in Cumberland County, NC (figure 1). The site evaluation revealed a sufficient area for the potential installation of a conventional septic system for a three-bedroom dwelling on the property. Any potential septic system should be cordoned off to protect from traffic. This report is intended to aid the permitting authority to evaluate the site.

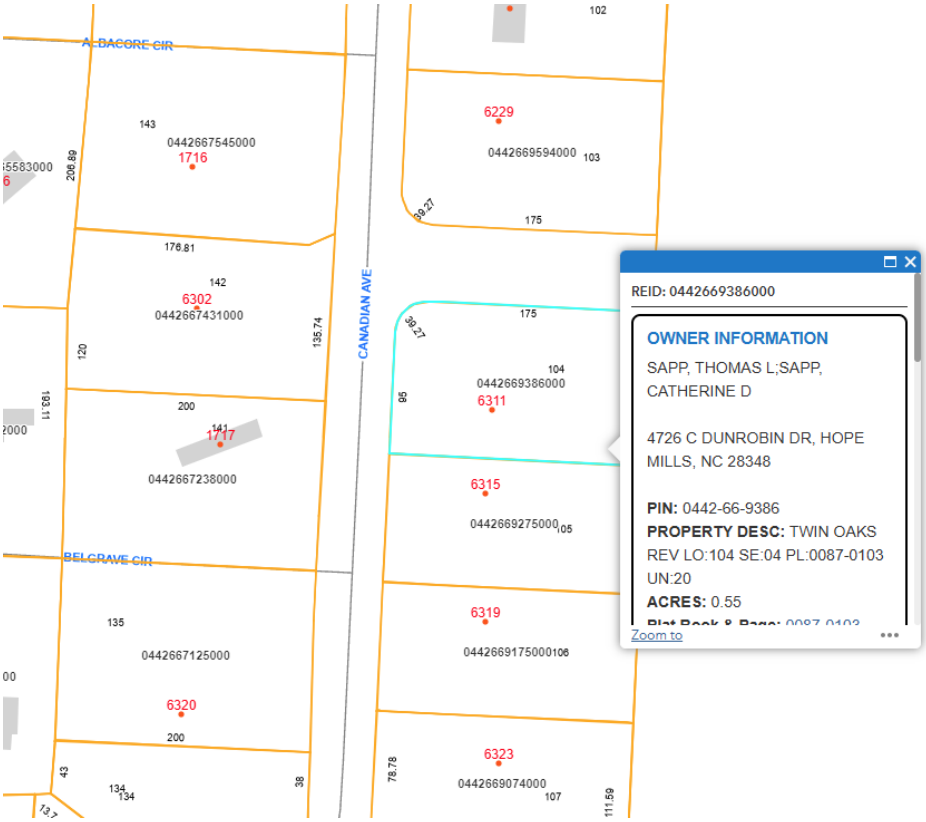


Figure 1. Property Location

Harsh, 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 criteria in the Rules and Laws Governing Onsite Wastewater Systems (18E rules). From this evaluation, SSC sketched an area suitable for the installation of a septic system. All dimensions, locations are approximate.

Site Description

The 0.55–acre tract was off Canadian Avenue, south of Morton Fork (figure 1). The site lay in the Sandhills physiographic province. The site was in woods. There were several mapping units of interest in the NRCS soil map; CaD (Candor sand) and BaB (Blaney soils) as shown in figure 2.

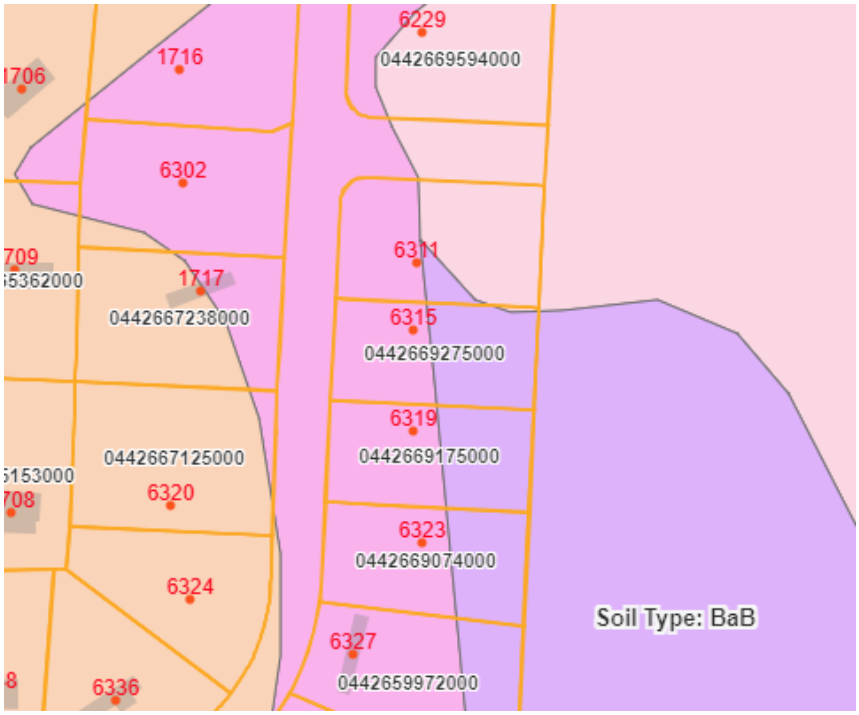


Figure 2. Soil map of the of the subject property

Soil Borings

Over 9 soil borings and observations were advanced on the parcel as seen in figure 3 below. Their depths to suitable soils categorized the soils: the red dots represent suitable soils from 40-42" and were the Candor (figure 3) soils. The brown dot represented soils that were suitable to 28" and were the Blaney soils. There was a dense clay layer that occurred in this profile at 28 inches. The remaining holes were sandy throughout the profile (group 1 sand). The recommended LTAR (long term acceptance rate) for the Candor soils are 0.8 to 0.9 gallons per day per foot squared (GPD/ft2).

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

Required Area

An estimate of the required linear footage needed for a low-profile chamber drainfield product is calculated by dividing the flow rate for a three-bedroom dwelling (3-BR= 360 gpd) by the long-term acceptance rate, LTAR (0.9 GPD/ft2). Then divide that number by a 3-foot-wide trench bottom. Multiply that number by 0.75 for the reduction.

[(360gpd / 0.9 gpd/ft2) / 3ft wide trench)] x 0.75 = 100 Linear Feet

The required space of suitable soils was calculated based upon a 3-foot-wide trench and a 9-foot minimum center to center spacing of each trench. Assuming two 50-foot-long trench lengths, the minimum total area required would then be 3.000 ft2 including primary and a 100% repair area (1,500 ft2 x 2).

Other drainfield lengths and configurations could be employed, such as additional shorter or longer lines.

Slope Correction

The slope of the landform of the potential drainfield was 13 percent. The slope correction would be approximately 5 inches.

Usable Area

This area was located in the southern portion of the property. The usable area was 0.3 acres or 13,068 ft2 which is 4 times the needed area for a conventional accepted status system and repair area.

Figure 4. Usable soil area

Permitting

Prior to the issuance of a septic permit, the lot will require a soil and site evaluation by the Cumberland County Health Department of other permitting authority. The specific trench product type and 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.

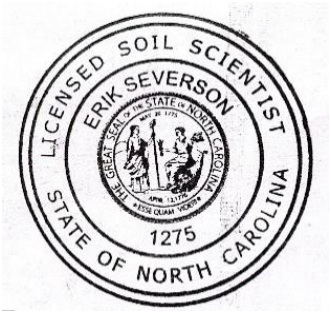
Due to the subjective nature of the permitting process, zoning, variability of naturally occurring soil, and unforeseen circumstances, SSC cannot guarantee that areas delineated as suitable for on-site wastewater disposal systems will be permitted, as the permits are issued by the local governing agency.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

The lot line in this report is approximate, proposed, and subject to change. Any new lots should be field staked and identified by a licensed surveyor and properly recorded.

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

Sincerely,

Erik D. Severson



Erik D. Severson, Ph–D., LSS
North Carolina Licensed Soil Scientist #1275