

Site Suitability for Domestic Sewage Treatment and Disposal Systems

1285 Veachs Mill Road
Lot 3
Warsaw, NC
Duplin County
Parcel ID#: 02-1316

Prepared for: Pete Reese, ReelVest

Prepared by: Erik Severson, Severson Soil Consulting, PLLC

Report Date: 10/30/2024

Peete, 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 47-acre tract was off Veachs Mill Rd., Warsaw, NC (figure 1) was proposed to be split into different lots. The site lies in the lower Coastal Plain region. There was one mapping unit of interest for exploration for my site visit in the NRCS soil map, FoA, Foreston loamy sand. The Rains Soils are wholly unsuitable and therefore were not evaluated.



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

Soil Borings

Over 14 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 to 30" and were the Georgeville Soil Series. The brown dots represented the Foreston soil with suitable depths to 20–24 inches (brown). The black dots are the Rains soil and are unsuitable for conventional septic systems. The blue dot represents a drainage ditch.

The recommended LTAR (long-term acceptance rate) for the Foreston soils are 0.4 per day per foot squared (GPD/ft²).

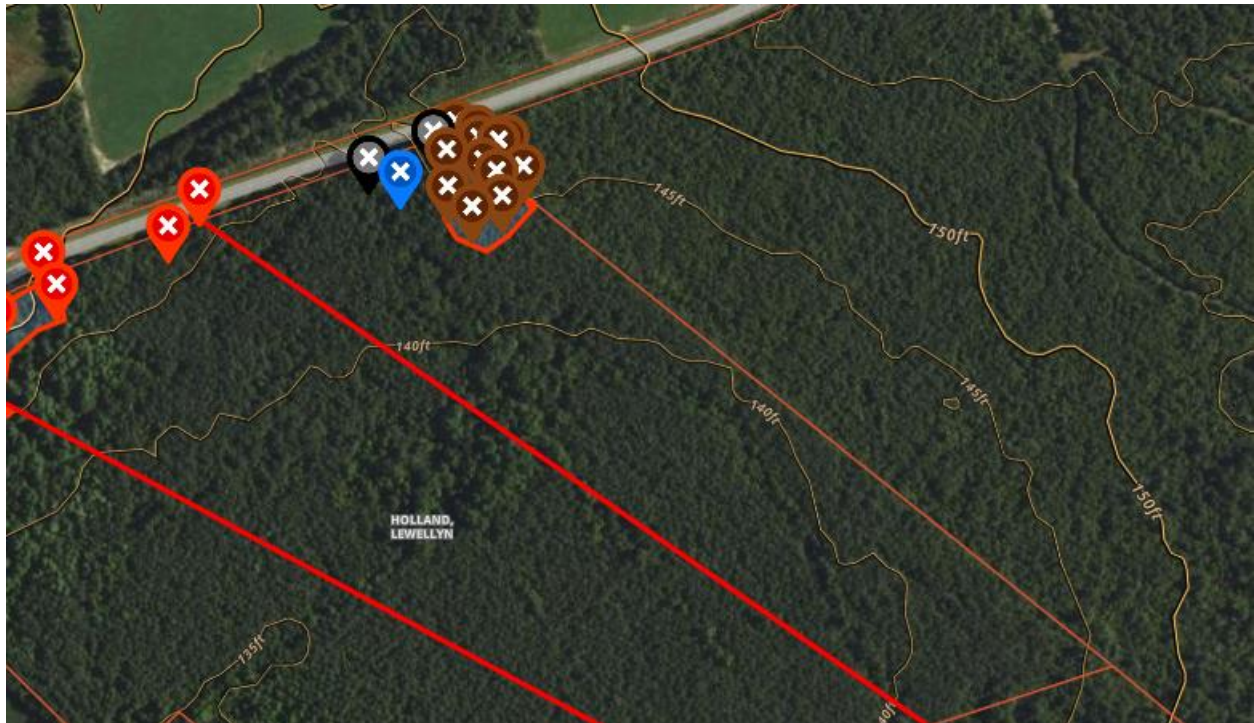


Figure 3. Soil boring locations within the lot as located by the onX Hunt application.

Required Area

The required linear footage needed for a conventional trench accepted status drainfield product is calculated by dividing the flow rate for a four-bedroom dwelling (4-BR= 480 gpd) by the long-term acceptance rate, LTAR (0.4 GPD/ft²). Then dividing that number by a 3-foot-wide trench bottom and finally multiplying that number by 0.75 (to account for a 25% reduction trench product).

$$[(480\text{gpd} / 04 \text{ gpd}/\text{ft}^2) / 3\text{ft wide trench}] \times 0.75 = 300 \text{ Linear Feet}$$

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 four 100-foot-long trench lengths, the minimum total area required would then be 8,000 ft² including primary and a 100% repair area (4,000 ft² x 2).

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

A low-profile chamber system may need to be utilized depending on soil conditions found during the permitting stage.

Usable Area

One area was found that would support a potential installation of a conventional septic system. It was 0.47 acres, or 20,473 ft². This would be over 2.5 times the minimum space needed for a potential drainfield and repair for a 4-BR dwelling (see red outline figure 4). The best and most suited soils and landscape is highest in elevation and nearest the property line. A low-profile chamber system may need to be utilized if the lower elevation areas are used.

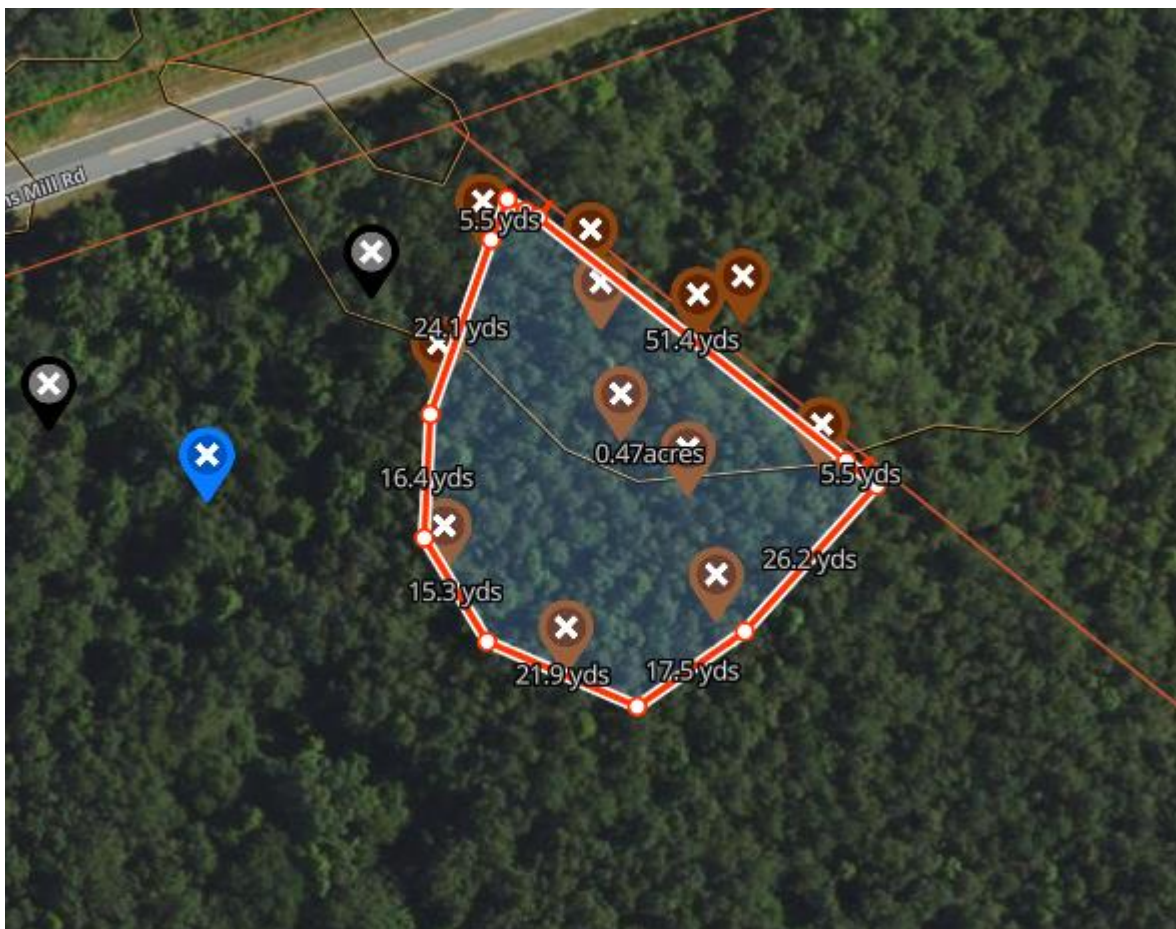


Figure 4. Usable soil area.

Permitting

Prior to the issuance of a septic permit, the lot will require a soil and site evaluation by the Duplin County Health Department or 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 2.5 times the needed space for a 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.

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