

Site Suitability for Domestic Sewage Treatment and Disposal Systems

Ephesus Church Road
Semora, NC
Person County
Parcel #: lot A33, parcel 66

Prepared for: Calvin Stumpf

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SYNOPSIS

This report shows the findings of a preliminary soil and site evaluation of the referenced parcel in Person County, NC (red box in figure below). The site evaluation revealed two sufficient areas for an advanced pre-treatment to drip primary and pretreatment to drip repair system for a five-bedroom dwelling on the property. The drip systems require a maintenance contract with a certified subsurface operator and would need to be designed by a professional engineer or authorized designer. Additional site study may need to be performed prior for their design. This report is intended to aid the permitting authority to evaluate the site.

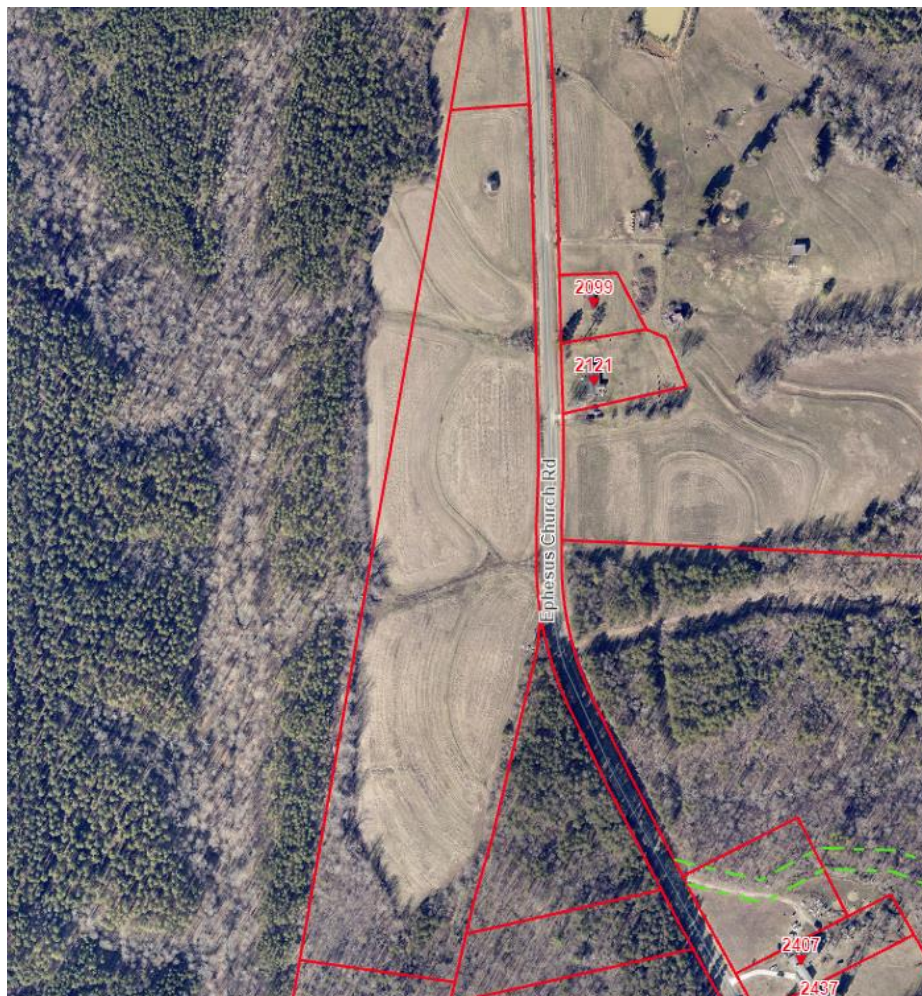


Figure 1. Property Location

Calvin, 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 17-acre tract was off Ephesus Church Road, north of Lake Hyco (figure 1). The potential drainfield site lay in the Piedmont physiographic province in three open grassed fields and a small portion of wooded area. There were two mapping units of interest in the NRCS soil map, HaB, Halifax soils, and FaC3, Fairview soils; (figure 2).

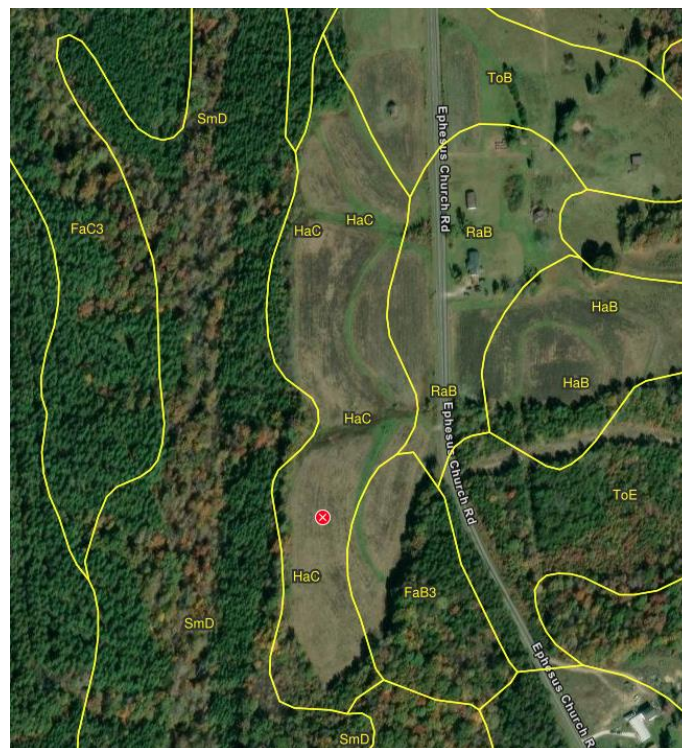


Figure 2. Soil map of the of the subject property (Web Soil Survey).

Soil Pits

Over 25 soil pits and observations were advanced on the parcel as seen in figure 3 below. Their depths of suitable soils categorized the soils. The brown and yellow dots represented soils that were 20 inches and 18–19 inches, respectively to a limiting condition (LC). The purple dots were soils that were 13–17” to a seasonal high–water table (SHWT) or LC which. All of the soils were variants of the Halifax Soils. The black dots are soils <12 to the LC and were the Orange Soils. The limiting condition was various depths to horizons with expansive mineralogy, rock, and or the SHWT. The recommended LTAR (long term acceptance rate) for the Halifax soils are 0.05 gallons per day per foot squared (GPD/ft²) for an advanced pre–treatment to drip system.

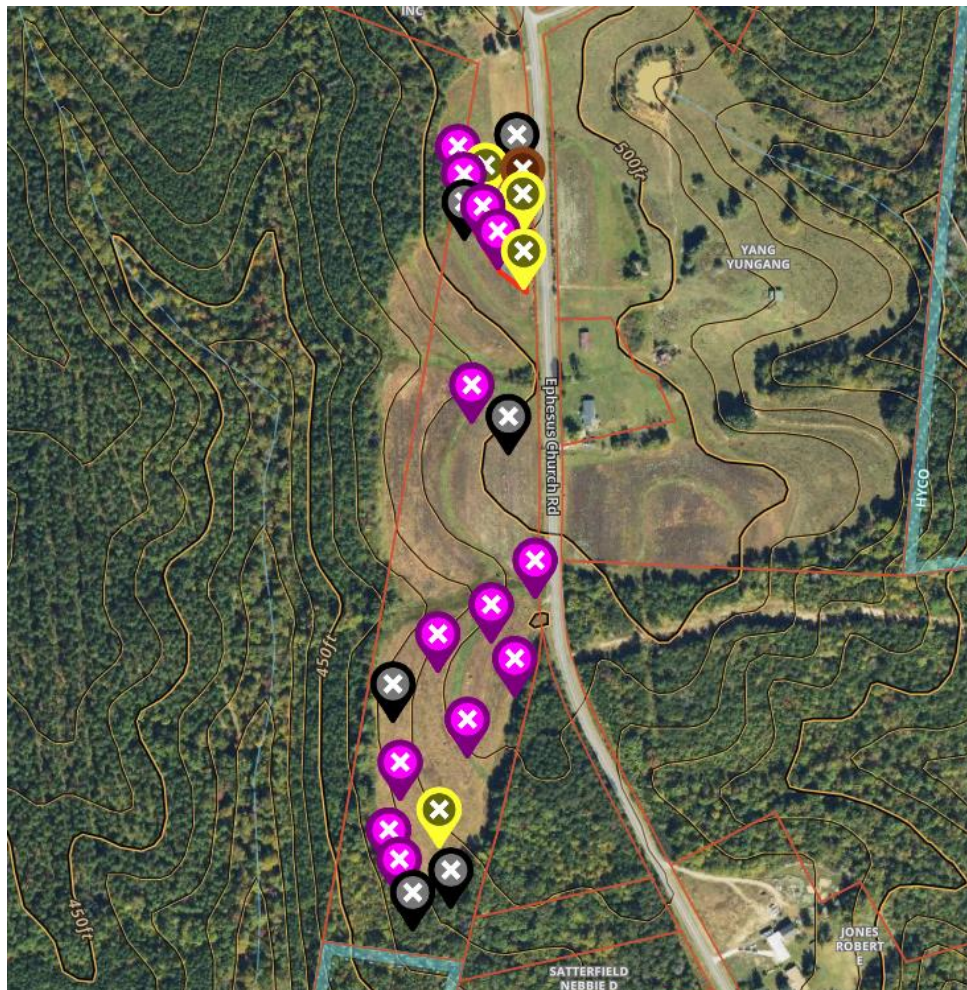


Figure 3. Soil pit locations within the lot as located by the onX Hunt application.

Required Area

Pretreatment to Drip Systems:

The minimum area for a 5-bedroom drip system plus repair area would be 24,000 ft² (12,000 ft² x 2) using a 0.05 GPD/ft² loading rate. This is calculated by:

$$600 \text{ GPD} / 0.05 \text{ GPD/ft}^2 = 12,000 \text{ ft}^2 \text{ for primary system}$$

The drip system would require a maintenance contract with a certified subsurface operator. An advanced pre-treatment drip system would need to be designed by a professional engineer.

Usable Areas

The most suitable soils found on the property in the usable soil area near the northern property line in the northern field surrounding an existing old barn (see figure 4 below). It was located on a gentle summit and sideslope. It was 0.78 acres or 33,976 ft² in size. This area is 1.4 times the needed space for a pre-treated drip and repair area servicing a five-bedroom property.



Figure 4. Usable soil area in northern field

There is another usable soil area near the northern property line in the southernmost field (see figure 5 below). It was located on a gentle summit and sideslope and backslope. It was 3.08 acres or 134,164 ft² in size. This area is 5.6 times the needed space for a pre-treated drip and repair area servicing a five-bedroom property.

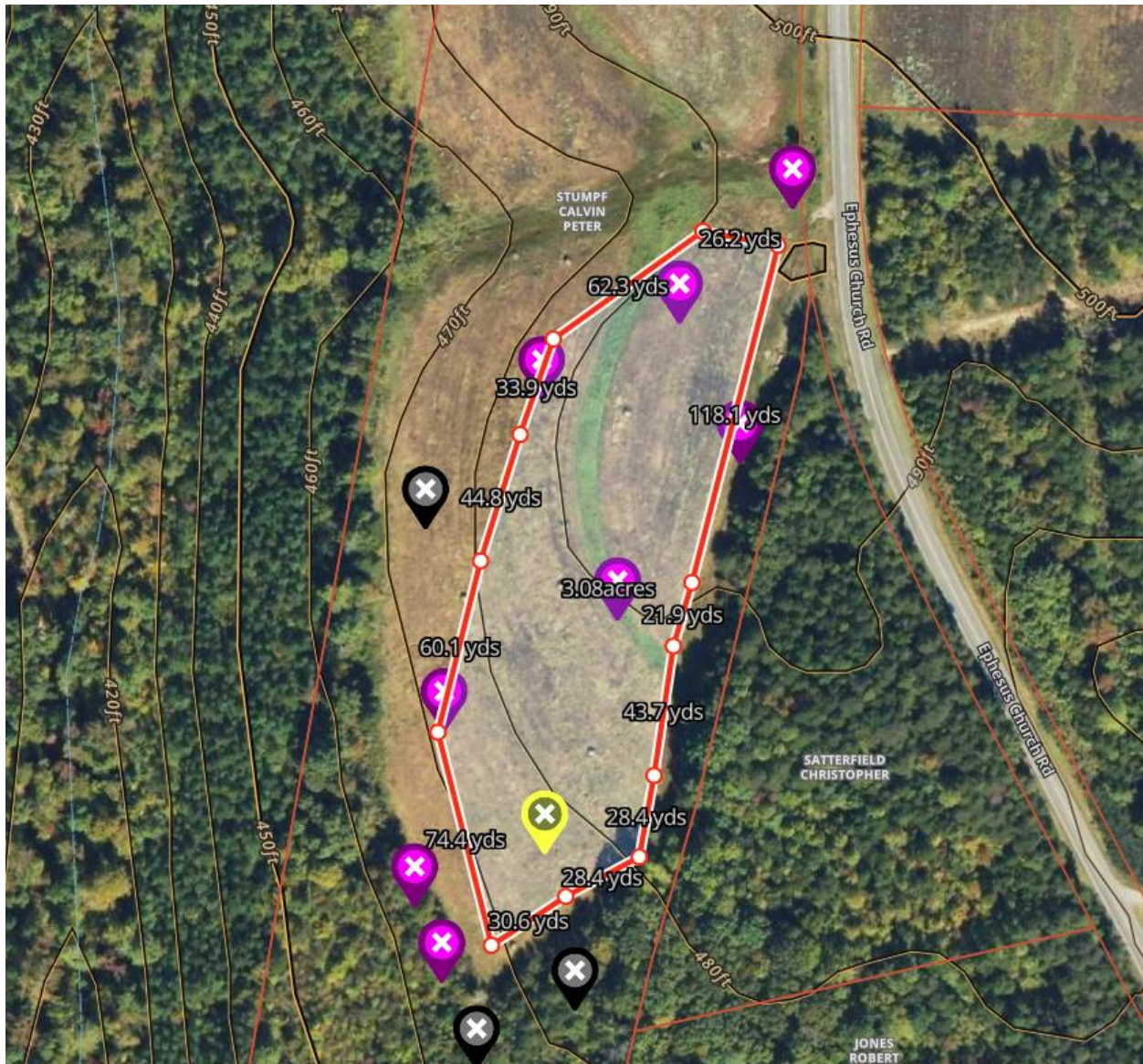


Figure 5. Usable soil area in southern field

Permitting

Prior to the issuance of a septic permit, the lot will require a soil and site evaluation by a Licensed Soil Scientist or Authorized Onsite Wastewater Evaluator. The specific trench product type and soil loading rate will be determined by the assessment of an authorized designer (usually a Professional Engineer). 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 1.4–5.6 times the needed space for a pretreated drip 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



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