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SEVERSON SOIL CONSULTING, PLLC

Site Suitability for Domestic Sewage Treatment and Disposal Systems

Adjacent to 2740 Overhills Rd.
Bunnlevel, NC
Harnett County

PIN# 0525-65-6317.000

Prepared for: Alexander Reese, Acrewell Land Company

Prepared by: Erik Severson, Severson Soil Consulting, PLLC

Report Date: 3/21/2022

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Figure 5. Houses in the vicinity of the property built on similar soils and landscapes as the suitable area outlined by SSC

Thank you for your business. Please don't hesitate to ask for more a more information regarding this report.

Sincerely,

Erik D. Severson

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North Carolina Licensed Soil Scientist #1275



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Soil Borings

SSC found soils similar to both the Blaney and Gilead Soil Series. Limiting soil factors were the Gilead soil re: depth to a restrictive horizon and seasonal high water table (SHWT) indicators. Three soil mapping units were found by SSC: 1) the Blaney soil near the front of the lot on the broad upland- deep, permeable (suitable for conventional), 2) unsuitable soils and topography (no systems), and 3) mixture of unsuitable and suitable soils on the lower footslopes (drip only).

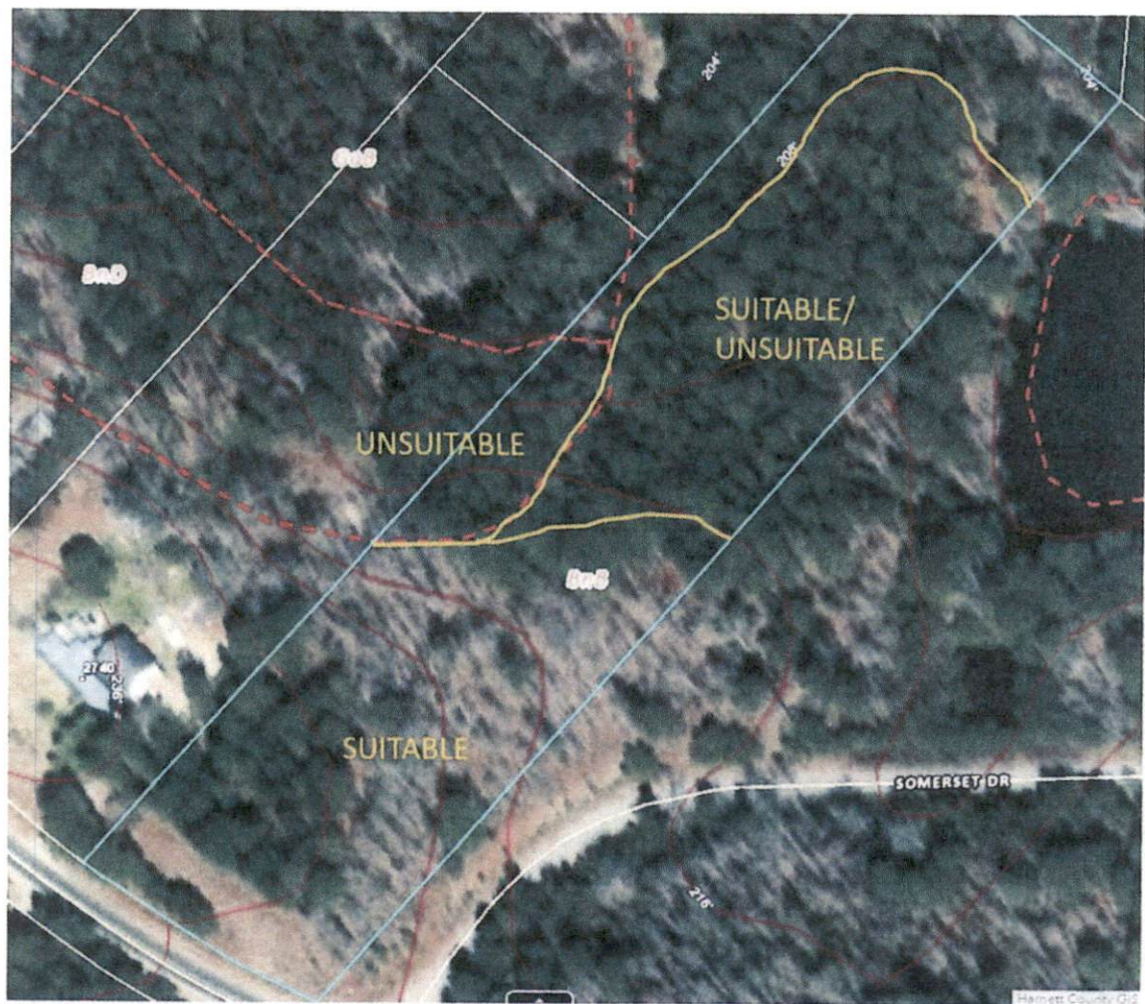


Figure 2. Soil Mapping units found by SSC with respect to onsite wastewater suitability.

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Soil Profile Descriptions

Blaney Soil (deep sandy version)

Ap- 0-6 inches; grayish brown (10YR 5/2) sandy loam; very friable.

E- 6-28 inches; light yellowish brown (10YR 6/4) sandy loam; very friable.

Bt- 28-42 inches; yellowish brown (10YR 5/6) light sandy clay loam; friable.

Gilead Soil

Ap- 0-8 inches; grayish brown (10YR 5/2) sandy loam; very friable.

Bt1- 8-18 inches; yellowish brown (10YR 5/6) clay loam; firm; sticky, plastic.

Bt2- 18-36 inches; brownish yellow (10YR 6/8) clay with common distinct light gray (10YR 7/1) iron depletions and common prominent red (2.5YR 5/6) iron concentrations; very firm, very plastic.

Over 20 borings were advanced on this site. The Blaney Soils were on the more suitable (well drained and permeable) side of their range in characteristics. There were no limiting features found in these soils to a depth of 42 inches. The hydraulic loading rate of these soils were estimated to be 0.4-0.5 gallons per day per square foot. The Gilead soils were unsuitable for a conventional onsite sewage system due to the presence of a seasonal high water table and an unsuitable soil condition (expansive mineralogy).

The suitable mapping unit was comprised solely of the Blaney soil. The unsuitable mapping unit was dominated by the Gilead soil and also gullies and ruts in the land surface. The suitable/unsuitable map unit had an inseparable intermingling presence of both the Blaney and Gilead soils.

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To: Alexander Reese, Acrewell Land Company
Re: Soil Feasibility for parcel next to: 2740 Overhills Road
Bunnlevel, NC Harnett County
PIN: 0488-31-3778

Alex, this is a summary of my 2/25/2021 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 conventional 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 the suitable soils onto a base map derived from the Harnett County, NC Online GIS map application. All soil locations are approximate and not survey located. The soils shown in the figures found later show soil areas that are suitable for a conventional septic system.

The one 4.08-acre tract was north of Overhills Road. From south to north, the lot was situated on a broad level upland ridge near the road that narrowed down a nose slope that sloped until broadening out toward the bottom. The *Soil Survey of Harnett Co., NC* shows that the soils are mapped as the Blaney Soil Series. Which is generally suitable but is known for having a broad range of soil characteristics and therefore a broad range in suitability for onsite septic systems. Therefore, this area was examined thoroughly. Figure 1 shows the entirety of the property and the soil mapping units.

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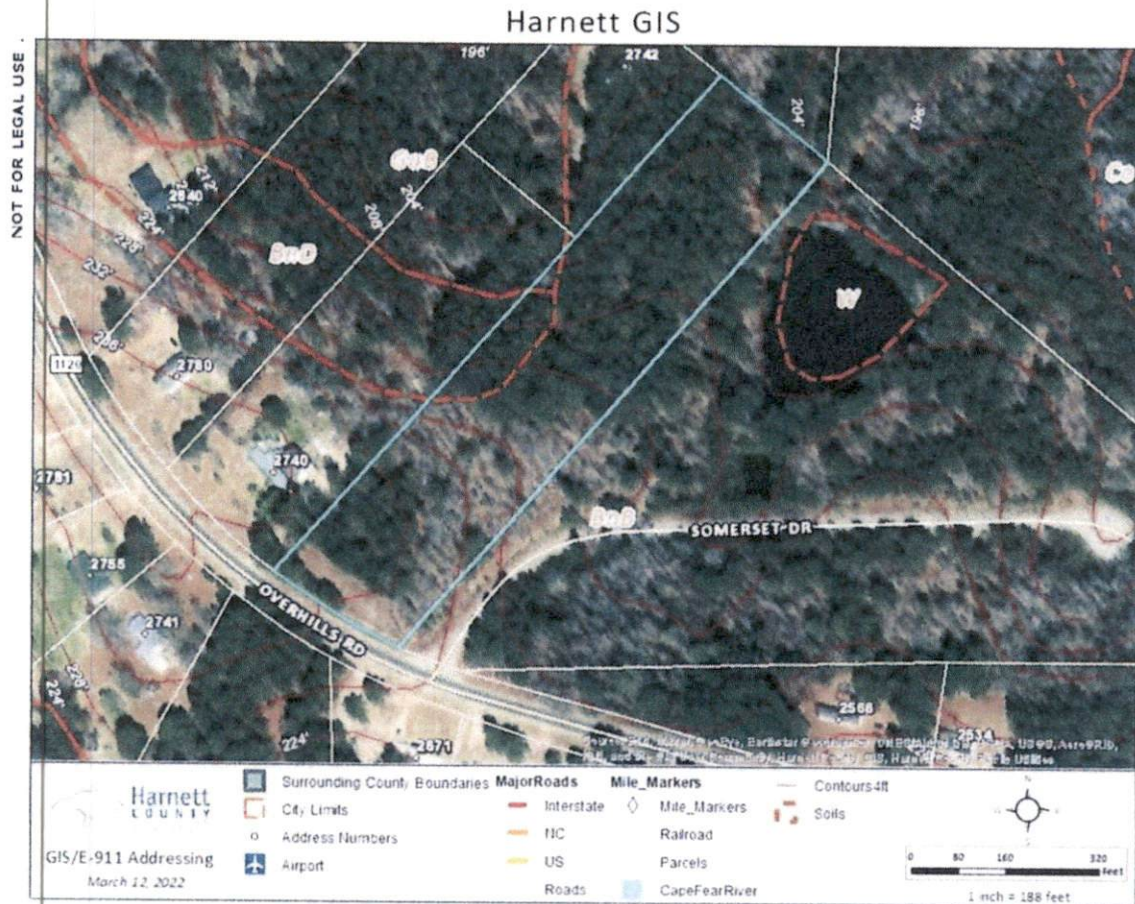


Figure 1. Location and Soils map produced in the Harnett Co, NC GIS Viewer showing the subject property in light blue box.

The soil map shows (see figure 1 above) the BnB soil mapping unit, which is a gently sloping area (2-7% slopes) of the Blaney Soil Series. According to SSC's experience with this soil and the soil survey description of the mapping unit, the Blaney soil can have either deep sands or shallow limiting layers. The Gilead Soil Series is also a component soil that occurs in these mapping units, which has expansive mineralogy and has a restrictive layer at some depth in the profile.

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Soil Area

The area most probable of supporting a conventional onsite sewage system was found 50 feet north of Overhills Rd. extending north to 450 feet northwest of Overhills Rd. (Figure 4). This is over 58,000ft² of suitable soils in the 'best' or most well-suited location on the property. For reference, a 3 BR drainfield at a 0.4 gpd/ft²/d rate would need to have 4,500ft² of suitable soil for primary and reserve. Area was calculated with the Harnett Co. GIS web mapper. Points were geolocated with the Avenza™ map application.



Figure 4. Approximate suitable soil area shaded blue (over 58,000 ft²). Not a survey. Lengths are approximate. Not to scale.

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Permitting

The lot will require a detailed soil and site evaluation by the Harnett Co., NC Health Dept. prior to the issuance of a septic permit. A septic layout and design may be required before a permit can be issued which would demonstrate available space for primary and reserve septic areas. SSC offers these services if requested. 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. Setbacks to property lines, roads, wells, etc. are to be maintained.

This lot may require a septic system utilizing pumps, shallow, or ultra-shallow conventional trenches. The soil areas found in this report are preliminary in nature and no further assumptions or subdivision should be made without a more detailed evaluation.

Due to the subjective nature of the permitting process, zoning, variability of naturally occurring soil, and unforeseen circumstances Severson Soil Consulting cannot guarantee that areas delineated as suitable for on-site wastewater disposal systems will be permitted by the governing agency. However, the suitable area found by SSC is over 12 times the area needed for a primary and reserve drainfield at a 0.4-0.5 gpd/ft²/d loading rate. For reference, Figure 5 shows that there are single family dwellings situated on similar soils and landforms as found in the site in question.