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

CYPRESS CREEK FARM RD
Harnett County
Sanford, NC
PIN#: 9567-85-5274.000

Prepared for: David Sclarow, Small Axe Capital LLC

Prepared by: Erik Severson, Severson Soil Consulting, PLLC

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SYNOPSIS

This report shows the findings of a preliminary soil and site evaluation of the referenced parcel in Harnett County, NC. The site evaluation revealed two separate sufficient areas for the installation of conventional system for a 4-bedroom dwelling depending on location. This report is intended to aid the permitting authority to evaluate the site.



Figure 1. Property Location

David, 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 4.94–acre tract was at the end of Cypress Creek Farm Road, near Olivia, NC. The site was in the coastal plain province. The site was partially in open farmed field and in mixed forest. The soil mapping units of interest in the NRCS soil map, GaB; Gilead (figure 2).



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

Soil Borings

Over 24 soil borings and observations were advanced on the parcel as seen in figure 3 below. Their depths of suitable soils categorized the soils. The red dots represent suitable soils to 30". The brown dots represent soils to 24" (figure 3) soils. The yellow dots represent soils with an unsuitable soil condition at 18-19". The spine of the ridge was an eroded Gilead soil. The soils on the northeast side of the ridge were a deeper uneroded Gilead. The recommended LTAR (long term acceptance rate) for these soils in the patch of woods on the north east corner of the property are 0.3 gallons per day per foot squared (GPD/ft2). The soils on the west side of the ridge were the eroded topsoil of the ridgetop that accumulated at the field edge. The recommended LTAR for these soils are 0.6 GPD.ft2.



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

Usable Areas

Two suitable areas for the potential installation of a conventional septic system are labeled A and B in figure 4 below. Areas A and B are potential spaces an accepted status (conventional) onsite septic system. Area A was in a wooded patch northeast of the main spine of the ridge in the open field. Area B was located in the field edge and in the woods as a shelf before dropping off into a lower elevation. It spanned the length of the ridgetop.



Figure 4. Usable Soil Areas

GPS files, KML files, or GPS coordinates of areas and boreholes can be provided upon request.

Required Area

A conservative estimate of the required linear footage needed the primary drainfield for an accepted status trench 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 (0.3 GPD/ft2). Then dividing that number by a 3-foot-wide trench bottom. Finally multiplying that product by 0.75 to account for the 25% reduction.

Area A Scenario: Northeast side of the ridge

[480 gpd / 0.3 gpd/ft2) / 3ft wide trench)] x 0.75 = 400 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 three 100-foot-long trench lengths, the minimum total area required would then be 10,000 ft2 including primary and a 100% repair area (5,000 ft2 x 2). Other drainfield lengths and configurations could be employed, such as additional shorter or longer lines.

Area B Scenario: West side of the ridge - 0.6 GPD/ft2 Loading Rate

[480 gpd / 0.6 gpd/ft2) / 3ft wide trench)] x 0.75 = 200 Linear Feet

Assuming four 50-foot-long trench lengths, the minimum total area required would then be 5,000 ft2 including primary and a 100% repair area (2,500 ft2 x 2)

Usable Soil Area A

This area is in the northeast corner of the lot in mature woods. It is 0.44 acres in size (19,166 ft2). This is 1.9 times the minimum required space needed for a four-bedroom dwelling primary and repair system.



Figure 5. Usable Soil Area A

Usable Soil Area B

This area is located on sideslope of the farmed field. It is 0.44 acres in size (19,166 ft2). This is 3.8 times the minimum required space needed for a four-bedroom dwelling primary and repair system. The suitability for a septic system decreases rapidly near the boundary of this area. It is imperative to keep a potential septic system within its boundary.



Figure 6. Usable Soil Area B



Figure 7. Fine sandy loam at 24”in Area B

Permitting

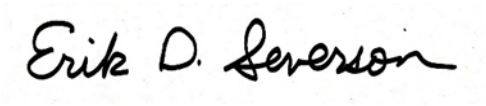
Prior to the issuance of a septic permit, the lot will require a soil and site evaluation by the Harnett County Health Department of other permitting authority. The specific trench product type and soil loading rate will be determined by their assessment. The areas for proposed drainfields shall not 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.

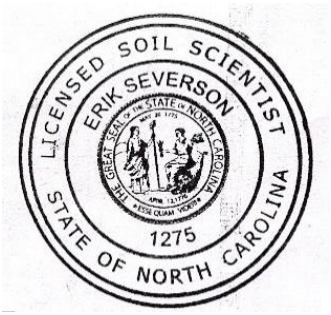
Exact locations of future drainfields, repair areas, buffer from property lines (current and future), building foundations, pools, decks, and well locations are not addressed in this report. Those items should be fully considered as the plans develop for the potential future use of the site. Depending 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 2-4 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, Ph–D., LSS
North Carolina Licensed Soil Scientist #1275