



Central Carolina Soil Consulting, PLLC

1900 South Main Street, Suite 110

Wake Forest, 27587

919-569-6704

January 24, 2017

Project # 2111

Contentnea Creek Development Company

Attention: Dan Sullivan

8502-202 Six Forks Road

Raleigh, NC 27615

RE: Detailed soil/site evaluation on ~56-acres (Tripp Property) east of Mt. Gilead Church Road in Chatham County, NC.

Dear Mr. Sullivan:

Central Carolina Soil Consulting, PLLC conducted a detailed soil evaluation on the referenced parcel to determine the areas of soils which are provisionally suitable for subsurface wastewater disposal systems (conventional & LPP only). The soil/site evaluation was performed using hand auger borings during moist to saturated soil conditions based on the criteria found in the State Subsurface Rules, 15ANCAC 18A .1900 "Laws and Rules for Sewage Treatment and Disposal Systems. From this evaluation, CCSC gps field located the boundary between the provisionally suitable soils and unsuitable soils to increase mapping accuracy.

The above referenced is located north of Hudson Woods Road and east of Mt. Gilead Church Road. These piedmont soils have formed from felsic crystalline parent material such as gneiss. The soils that have formed on this parcel have characteristics similar to the Cecil, Appling, Wedowee, Wake and Colfax Soil Series. The attached soils map indicates the areas of provisionally suitable vs. unsuitable soils. The Cecil, Appling and Wedowee series are generally provisionally suitable for subsurface

wastewater systems. That is, the morphology of the soils contain suitable characteristics that would support subsurface septic systems such as clay to sandy clay loam textured subsoils which are not considered expansive and have blocky structure with no indicators of restrictive characteristics within 24 inches of the soil surface. The Colfax soils have formed in the floodplains of the property and are unsuitable due field indicators of a high water table anywhere from 0-18 inches in the soil profile. The Wake soil series is unsuitable due to exposed or shallow areas of rock in the soil profile. Additional unsuitable soil areas are due to complex topographic features such as farm paths, wells, barns, etc.

The attached soils map indicates the areas of soils which are suitable for subsurface wastewater systems. The "hatched soil units" on the attached map indicates the areas of soils that have 30 inches or more of suitable soil material. These areas have potential for conventional and modified conventional septic systems. There may be inclusions of soils 24-29 inches that would support LPP or ultra-shallow conventional septic systems in the areas mapped as conventional. The "cross hatched" soil units indicates areas of soils with 24-29 inches of provisionally suitable soils suitable for Low Pressure Pipe septic systems. Unit "UN" on the attached map indicates areas of soils with restrictive horizons within 24 inches of the soil surface or areas of unsuitable topography. Please note that the area of suitable soils was delineated by soil borings using hand auger in various locations and flagging out the unsuitable borings along with the unsuitable topography on the property. Central Carolina Soil Consulting cannot guarantee that every square foot of area shown as potentially suitable for septic systems will be permitted by the local health department due to the variability of naturally occurring soils.

Future Subdivision Considerations

Several factors should be considered before a final subdivision plan is created for this property. One consideration is that each proposed lot shall contain an adequate amount of suitable soils, which can support a primary septic system along with a

repair septic system. The suitable soil areas cannot be affected by future homes, driveways, patios, excavation or filling activities and if an on-site well is used then a 100' setback is required around the well head. An exact square footage of suitable soils required per lot to obtain a permit cannot be given due to soil variability and topographic characteristics on each lot. The amount of suitable soils required to support a 4-bedroom residence will range between 11,000ft²-13,000 ft² (could be more or less) per lot. These soil area estimates are based upon soil application rates for a sandy clay loam to clay textured subsoil with a site LTAR of .275-.3 gallons per day/square foot for conventional type systems and 0.1-0.15 for LPP septic systems. The ultimate application rate will be assigned by the Chatham County Health Department based on a detailed evaluation of each new lot.

Some designed lots minimum areas of suitable soils will need a septic system field layout demonstrating the system and repair, along with the location of a house, well, drive, decks, etc. If the layout proves the lot can accommodate a system and repair on the lot with the house and other features, then typically the lot can be recorded as a buildable lot. The amount of drain line required for each lot will be based upon the daily flow, soil application rate and type of system proposed on the lot. The daily flow is assigned by the number of actual bedrooms in a proposed home (120 gallons/day/bedroom). The field layouts do not represent a septic permit or a guarantee of a permit on such lots. The permits are ultimately issued by the local health department based on current subsurface wastewater regulations.

The septic areas for each lot also need to meet setbacks from future stormwater treatment devices. The typical setback is 25' for a dry device and 50' for a "Wet Pond". Please make sure your designer meets all setbacks as required by 15ANCAC 18A .1900.

During the road construction process of a subdivision it is important not to impact any suitable soil areas with such activities as excavating or filling. Only the actual roadways and required drainage ditches and/or sediment basins should be constructed during this process. If the contractor requires a staging area to place fill from the construction process, then areas of unsuitable soils on the property should be utilized

as long as they are not state/county buffers, jurisdictional wetlands or other areas protected by local zoning regulations. If this is not possible, then the disturbed areas should be minimized as much as possible. The same precautions should be taken when the individual lots are cleared for home sites. Only the vegetation should be removed in the areas of the proposed drain fields on lots to prevent any disturbance of the naturally occurring soil. A lot with adequate areas of suitable soils can be deemed unsuitable due to poor planning or site disturbance. Central Carolina Soil Consulting recommends that all lot clearing activities are delayed until a permit is issued by the local health department, with the exception of clearing thick vegetation to access the lot.

This report discusses the location of suitable soils for subsurface wastewater disposal systems and does not guarantee any permits or approval required by the local health department. Central Carolina Soil Consulting, PLLC is a professional consulting firm specializing in soil delineations and design for on-site wastewater disposal systems. The rules governing on-site wastewater disposal systems are complex and the interpretation of the rules are based upon the opinions of regulators (state and county level). Due to the subjective nature of the permitting process and the variability of naturally occurring soils, CCSC cannot guarantee that areas delineated as suitable for on-site wastewater disposal systems will be permitted by the governing agencies. These permitting considerations should be taken into account before a financial commitment is made on a tract of land.

If you have any questions regarding the findings on the attached map or in this report, please feel free contact me at anytime. Thank you allowing Central Carolina Soil Consulting to perform this site evaluation for you.

Sincerely,



Jason Hall

NC Licensed Soil Scientist #1248

Encl: Soil Map



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