



## Central Carolina Soil Consulting, PLLC

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Raleigh, NC 27615-6809  
919-784-9449

May 8, 2007  
Job # 326

Real Properties of Cary, LLC.  
Attention: Brantley Powell  
PO Box 5365  
Cary, NC 27512

RE: Preliminary soil/site evaluation on ~16 in Chatham County, NC

Dear Mr. Powell:

Central Carolina Soil Consulting, PLLC conducted a preliminary soil evaluation on the parcels listed above to determine the areas of soils that are suitable for subsurface wastewater disposal systems (conventional & LPP). The soil/site evaluation was performed with hand auger borings under moist 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 sketched the boundary between the suitable soils and unsuitable soils onto an aerial and topographic map of the property.

The above referenced parcels are located north of east of Highway 15-501 in northern Chatham County. This area lies in the mixed felsic and mafic geologic unit, where soils have formed from residual parent material such as gneiss, schist and diorites. The soils that have formed on this parcel are similar to the Appling, Wedowee, Helena and Worsham soil series. The attached soils map indicates the areas of suitable vs. unsuitable soils. The Appling and Wedowee soil series are generally suitable for subsurface wastewater systems. That is, the morphology of the soils contain suitable characteristics that would support subsurface septic systems such as clay textured subsoils that are not considered expansive, blocky structure and no indicators of restrictive characteristics within 24 inches of the soil surface. The Helena soils contain expansive clays and indicators of a perched water table within 24 inches of the soil surface. The Worsham soil series are located in the drainage ways and floodplain of the property and are unsuitable for subsurface septic systems.

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 will be inclusions of soils that can only support LPP or ultra-shallow conventional septic systems in the areas mapped as conventional. Unit "AR" indicates areas of soils that could not be evaluated with hand augers due to the dense amounts of rock in the soil

profile. These areas will also need backhoe pits to evaluate the soil/saprolite. Unit "UN" on the attached map indicates areas of unsuitable soils that are located in unsuitable soils or topography and cannot be used for the systems mentioned above.

### **Future Subdivision Considerations**

Several factors should be considered before a final subdivision plan is created for any 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 12,000 ft<sup>2</sup> - 15,000 ft<sup>2</sup> (could be more or less) per lot. These soil area estimates are based upon soil application rates for a sandy clay loam to a clay textured subsoil with a range of 0.27 gallons per day/square foot and 0.33 gallons per day/square foot for conventional type systems 0.1 to 0.13 gallons per/day/square foot for low pressure pipe septic systems. The ultimate application rate will be assigned by the Chatham County Health Department based on a detailed evaluation.

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. Please note that Central Carolina Soil Consulting only completed a preliminary soils evaluation on the parcel per the client's request and a more detailed evaluation may be required to maximize lot yield. 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

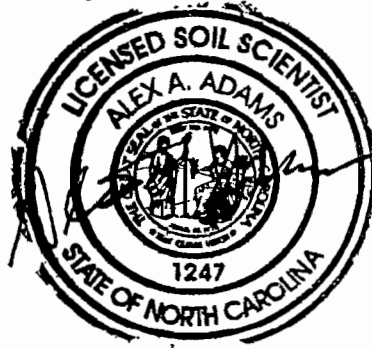
by the governing agencies. Central Carolina Soil Consulting does not guarantee that the areas shown as potentially suitable for septic systems will be granted septic permits by the local health department. These permitting considerations should be taken into account before a financial commitment is made 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,



Alex Adams  
NC Licensed Soil Scientist #1247



Encl: Soil Map