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Eric:

This report concerns the preliminary soils and site investigations for septic system suitability on the Major Subdivision for Jackie Bragg Hurdle located on the south side of US Highway 264 Business about one mile west of the Town of Bailey in southern Nash County. The property identification number for the overall property is: 275400-40-2176.

The attached copy of the subdivision plat map shows the approximate locations of various soils areas on the property as well as selected cultural features. This map was prepared using property information and aerial photography obtained from the Nash County GIS web site as well as the preliminary plat obtained from Williams-Pearce & Associates Surveying. The USDA soil survey maps of the area and the USGS topographic maps were also consulted as to the general nature of the soils, landforms and streams.

The soils were investigated by hand auger borings made at selected locations and from field observations of soil related landforms and vegetation. The locations of the individual soils borings and certain of the cultural features were estimated using a Trimble mapping grade GPS receiver. This information is sufficient in scope to certify that each of the individual lots can be approved for sewage disposal. Additional consultations and soils investigations will be required before any permits for sewage disposal can be finalized. .

The lots in this subdivision will be served by individual septic systems for on-site sewage disposal. Water supply will be supplied from existing and new wells. Lots 5 & 6 have existing dwellings with septic systems located on the lots. .

SOILS GENERAL

The soils on this section of the property are mapped in the Norfolk (NrB), Georgeville GeB & GeC), Nason (NnB), Wickham (WkA) and Wehadkee (Wh) soils mapping units by the Soil Survey of Nash County (USDA, 1989). A copy of the relevant section of the USDA soils map obtained from the Nash County GIS web site is attached with this report. These soils maps are not recommended for detailed planning but are useful to describe the general soil conditions on a property. Under the USDA classification system **Norfolk, Georgeville, Nason & Wickham soils have moderate limitations for septic drain fields. The main potential limitations for use are the depth to a seasonally perched water table, the clayey subsoils and the depth to weathered rock. These soil types are usually permitted for septic drain fields in Nash County, although modifications to the standard installation are often required to overcome the site and soil limitations. The Wehadkee soils are classified as having severe limitations for septic system drain fields. The main potential limitation to use**

SOIL MAPPING • SITE INVESTIGATION • LAND RESOURCE DATA EVALUATION

Licensed Soil Scientist

is the depth to a seasonal high water table and flood hazard. This soil type is not normally permitted for septic drain fields due to the severity of the limitations.

LAND USE

From available soils information and aerial photography it appears that eastern 60 percent of the property has been predominantly in agricultural production for more than 75 years. The main crops were tobacco, sweet potatoes, soybeans, corn and small grain in rotations. There were some existing farm buildings as well as a residential dwelling unit located on the property that were part of the original farm operation. The western 40 percent of the property has been predominantly in woodlands for the past 44 to 75 years.

The property is presently in a fallow condition. There have been no recent changes in land use that will adversely affect the development of the property as planned. The existing structures are planned to remain as they are presently used.

SOIL SUITABILITY

The suitability classifications for septic system drain fields of the various soils areas based on State Sewage Disposal Regulations (15A NCAC 18E .0100-.1713) are as follows:

SOILS AREA 2: These soils will dominantly classify suitable for conventional or modified conventional septic system drain fields. These soils generally have grayish brown and light yellowish brown loamy sand to sandy loam surface layers 8 to 15 inches thick. The underlying subsoils are yellowish brown sandy loam to friable yellowish red to red sandy clay to clay, which are mottled with yellowish red and strong brown in the lower layers. The soils in western upland section of the property are underlain by loamy saprolite. The subsoils exhibit soil structure and are generally free of gray wetness mottles within the upper 24 to more than 36 inches or more of the soil profiles. For the most part these soils have potential for conventional septic system drain fields. The main concern for use is the presence of seasonally perched water and/or the presence of saprolite in some of the subsoils. Site or system modifications may be required for permits to be issued. The possible need for modifications will depend upon the specific conditions at the proposed drain field sites. The sewage loading rates (LTAR) are estimated to range from 0.30 to 0.40 gal./sq. ft. of trench bottom for conventional or modified conventional septic system drain fields.

SOILS AREAS 3: These soils will dominantly classify unsuitable for conventional or modified conventional septic system drain fields. The main potential limitations are seasonal wetness in the subsoils and the presence of a riparian buffer. These soils are not recommended for sewage disposal mainly due to the wetness limitation regardless of the buffer status, which will be subject to review for re-classification.

SUMMARY

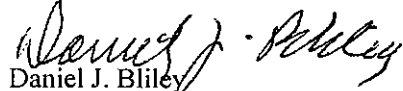
Overall this property is fairly well suited for development into single family residential building lots. Each of the lots shown on the attached plat contain excess of 10,000 sq. ft. of soils that will classify or can be re-classified to suitable for conventional or modified conventional septic system drain fields. These lots have sufficient usable soils for drain fields to support new three bedroom dwellings or larger subject

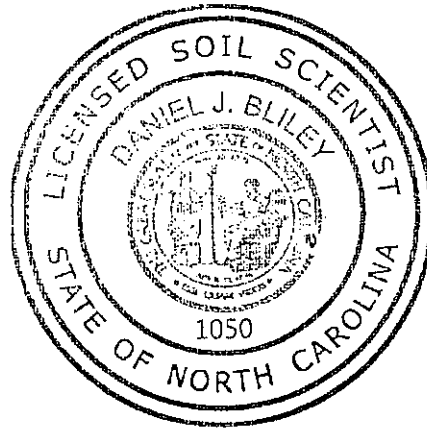
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to the conditions of individual proposed site plans and a field inspection by Environmental health. The lots with existing dwellings have sufficient usable soils for the repair of the existing septic systems.

Please call me if you want to discuss these investigations in more detail or if you want to discuss the development of any of the lots in more detail..

Sincerely


Daniel J. Bliley
Licensed Soil Scientist



REPRESENTATIVE SOIL PROFILE DESCRIPTION

Soil Area 2

<u>Horizon</u>	<u>Depth(in)</u>	<u>Characteristics</u>
Ap	0 - 8	grayish brown (10YR 5/2) loamy sand; weak granular type structure; very friable; non-sticky, non-plastic; common fine roots; gradual boundary.
E	8 - 12	light yellowish brown (10YR 6/4) loamy sand; weak granular type structure; friable; non-sticky, non-plastic; gradual boundary.
Bt1	12 - 24	yellowish brown (10YR 5/6) sandy loam; to sandy clay loam; weak blocky type structure; friable to firm; slightly sticky, slightly plastic to plastic; few fine roots; gradual boundary.
Bt2	24 - 32	yellowish brown (10YR 5/6) sandy clay loam to friable sandy clay; common yellowish red (5YR 5/6) and few light yellowish brown (10YR 6/4) mottles; weak blocky type structure; friable; slightly sticky, slightly plastic; few fine roots; gradual boundary.
BC	32 - 48	mottled yellowish brown (10YR 5/6), yellowish red (5YR 5/6) and light gray (10YR 7/1) sandy loam to sandy clay loam; weak coarse blocky type structure to massive; friable to slightly firm; sticky plastic to slightly plastic; diffuse boundary;
C	48+	mottled yellowish red (5YR 5/8), reddish yellow (5YR 6/6) light yellowish brown (10YR 6/4) and light gray (10YR 7/1) sandy loam to sandy clay loam; massive; friable; sticky to slightly sticky; slightly plastic.

Range of Characteristics

The A horizons are dominantly sandy loam but range from sandy loam to loamy sand. They range in color from grayish brown to dark grayish brown.

The E horizons range in color from light yellowish brown to pale brown. textures are generally similar to the Ap horizons The Bt horizons are dominantly yellowish brown and are mottled with yellowish red gray in the lower

horizons. The gray mottling occurs at depths ranging from 30 to more than 36 inches from the surface.

The subsoil textures are dominantly clay to sandy clay loam but range to clay loam in texture.

The BC and C horizons are commonly mottled in shades of yellow, red and gray and have textures that range from sandy clay loam to clay loam.

REPRESENTATIVE SOIL PROFILE DESCRIPTION

Soil Area 2

Horizon	Depth(in)	Characteristics
Ap	0 - 5	dark brown (7.5YR 4/2) fine sandy loam; weak granular type structure; very friable; non-sticky, non-plastic; many fine roots; clear boundary.
E	5 - 8	light brown (7.5YR 6/4) fine sandy loam; weak granular type structure; very friable; non-plastic, non-sticky; common fine roots; clear boundary.
Bt	8 - 30	red (2.5YR 4/6) clay; few medium yellowish brown (7.5YR 6/6) mottles in the lower part. moderate blocky type structure; friable; sticky, slightly plastic; few fine roots; gradual boundary.
BC	30 - 38	red (2.5YR 4/8) and yellowish red (5YR 5/6) clay loam; few to common reddish yellow (5YR 6/6) mottles; weak blocky type structure grading to massive; friable; slightly sticky, slightly plastic; common quartz gravels; few fine roots; diffuse boundary.
C	38 - 48+	mottled yellowish red (5YR 5/6), reddish brown (5YR 4/4) and light brown (7.5YR 6/4) and very dark brown loam to fine sandy loam saprolite; massive or rock controlled structure; friable; non-sticky to slightly sticky, non-plastic.

Range of Characteristics

The Ap and A horizons range from grayish brown to dark grayish brown in color. They range in texture from sandy loam to loamy fine sand.

The E horizons have similar textures as the Ap horizons. They are pale brown or light yellowish brown. The combined thickness of the A & E horizons ranges from 12 to more than 15 inches. The Bt horizons range from yellowish red to red clay to clay loam. The lower Bt and BC horizons range from yellowish red to yellowish brown and are commonly mottled in consistencies range from friable to very friable. The lower Bt and BC horizons dominantly clay loam. shades of red and yellow. The upper Bt horizons are sandy clay loam to sandy loam.

REPRESENTATIVE SOIL PROFILE

Soil Area 3

Horizon	Depth(in)	Characteristics
A	0 - 8	dark grayish brown (10YR 4/2) loam; weak granular type structure; friable; sticky, slightly plastic; common roots; clear boundary.
BE	8 - 12	pale brown (10YR 6/3) sandy loam; weak granular type structure; friable; sticky, slightly plastic; common roots; clear boundary.
Bt	12 - 23	yellowish brown (10YR 5/6) clay loam; common medium light yellowish brown (10YR 6/4) and yellowish red (5YR 5/6) mottles; weak blocky type structure; firm to friable; sticky, plastic; few fine and medium roots; gradual boundary.
BC	23 - 48	mottled yellowish brown (10YR 5/6) light yellowish brown (2.5Y 6/4) and light gray (10YR 7/2) clay to clay loam; weak blocky type structure; friable; sticky slightly plastic to plastic; few roots;

Range in Characteristics

The A and Ap horizons range in color from grayish brown to dark grayish brown. The textures range from loamy sand to sandy loam.

The E horizons have similar textures as the A horizons. The colors range from pale brown to light yellowish brown.

The upper Bt horizons dominantly have yellowish brown colors. Textures range from sandy clay loam to clay loam.

The lower Bt horizons are dominantly have yellowish brown colors and are mottled with yellowish red, light yellowish brown and light gray. Textures range from sandy clay loam to clay and consistencies range from friable to firm or very firm.

The BC & C horizons are mottled yellowish brown, light yellowish brown, very dark brown, gray and yellowish red. The underlying parent materials range from weathered slat belt bedrocks to clayey marina sediments.

