

February 6, 2008

Mr. & Ms. Franz Sturm
1343 Bridgeton Hill Road
Upper Black Eddy, PA 18972

Subject: Soil suitability evaluation for proposed four bedroom house on 12.371 acre property located at Denny's Store Road (SR 1536) in eastern Granville County.

Dear Mr. Sturm:

On January 5, 2007, I evaluated the soil suitability on the subject property for an on-site waste disposal system for a proposed four-bedroom house. The subject property consists of approximately 12.4 acres and is located at Denny's Store Road (SR 1536), just west of Lester McFarland Road (SR 1313), located northwest of Oxford, in eastern Granville County. Provisionally suitable soil area was identified for a shallow conventional septic system and 100% reserve area to adequately treat 480 gallons per day (gpd) according to current regulations.

A licensed soil scientist, Robin L. Maycock (LSS #1205), evaluated the soil on the subject lot using a soil auger and the long-term acceptance rate (LTAR) was estimated using tactile and visual characterization. The soil boring log is included at the end of this report. The soil boring map and site plan layout is also included with this report. According to the Person County NRCS Soil Survey, the soils in the provisionally suitable map unit are mapped as Orange (OrB) but have inclusions of the Georgeville (GeB) soil series. The unsuitable soils are mapped as Enon (EnB) and Lignum (LgB) soil series. The Georgeville soil series is described as having low shrink swell potential while Enon and Orange have high shrink swell potential, while Lignum has moderate shrink swell potential. All soil series for the subject site are described as having moderate to severe limitations for septic system drainfields, with slow percolation rates and wetness in the Orange and Lignum soil series. The subject site is found on Sheet 12 of the Person County USDA Soil Conservation Service Soil Survey.

This soil suitability evaluation confirms that there an area of provisionally suitable soil at the west frontage of the subject property for a conventional septic system designed to serve the proposed four-bedroom house or 480 gallons per day design flow of wastewater effluent. At a recommended installation depth for a conventional system (18 - 20 inches), a Group III soil (clay loam) was observed, with moderate sub-angular structure. No significant drainage limitations or restrictions to depths of over 30 inches from the top of the mineral soil surface horizon were observed within the designated drainfield area. The estimated LTAR is 0.25 gallons per day per square foot (gpd/sf) of trench bottom.

The provisionally suitable area is approximately 128 feet by 85 feet, in the area described by four auger borings. The estimated LTAR of 0.25 gallons per day per square foot of surface area would require 1920 square feet of trench bottom in order to adequately treat a design flow of 480 gallons per day of domestic wastewater. Five 128-foot long lines, three feet wide, would provide 1920 square feet of trench bottom, and would provide more than adequate treatment capacity at the estimated LTAR for the primary septic field. The 100% reserve area is also included in the 128' by 85' suitable area, as required by the regulations.

The subject property is shown on the attached property survey, on excerpts from the Granville County GIS maps, and the attached Granville County Soil Survey maps (Sheet 12). The soil suitability map shows the areas discussed above as suitable for conventional wastewater treatment systems. The property is located adjacent to Cat Tail Branch, within the Tar River Basin and thus, the stream is subject to the Tar River Basin Riparian Buffer Management Rules. For a listing of allowable actions within the 50 buffer zone, please refer to www.h2o.enr.state.nc.us for riparian buffer rules. Since the Cat Tail Branch borders the western edge of the property, it is unlikely that you will need to impact it for construction purposes.

Please submit this report and attached maps to the Granville County Environmental Health Department for review and contact me if they or you have any questions at (919) 418 -7645, or by email at robin.maycock@gmail.com. Please let me know if you have any further questions about this report. I appreciate this opportunity to work for you, and I look forward to helping you in any way I can in the future. I have enclosed an invoice for my services.

Sincerely,



Robin L. Maycock
Soil Scientist # 1205



Soil Suitability Assessment:

For: Franz and Barb Sturm, 1343 Bridgeton Hill Road, Upper Black Eddy, PA 18972
Located at: Denny's Store Road, Granville County, NC.
Date: January 5, 2008
Investigator: Robin Maycock, LSS #1205.

SOIL DESCRIPTIONS

Auger Boring #1

Depth (in.)	Horizon	Munsell / Color	Texture	Structure
0 – 8	A	5YR 4/4	clay loam	weak sbk
8 – 30	B	5YR 5/6	clay	weak sbk
30 – 38	C	7.5YR 5/6, 4/6	silty clay loam	

Provisionally suitable to 38", LTAR = 0.25 gpdpsf at 26" maximum depth.

Auger Boring #2

Depth (in.)	Horizon	Munsell / Color	Texture	Structure
0 – 15	A	5YR 4/4	clay loam	loose, friable
15 – 20	B	5YR 5/6	clay	weak sbk, MnO
20 – 36	C	5YR 5/6,	silty clay loam	weak
sbk				
36 +	C	10YR 6/2	silt loam	50% wxd rock

Provisionally suitable to 36", LTAR = 0.25 gpdpsf at 24" maximum depth.

Auger Boring #3

Depth (in.)	Horizon	Munsell / Color	Texture	Structure
0 – 18	A	5 YR 5/6	clay loam	friable
18 – 30	B	7.5 YR 5/6	clay	sbk
30 – 44	C	7.5 YR 5/6, 5yr 5/6	silty clay loam	weak sbk

Provisionally suitable to 30", LTAR = 0.25 gpdpsf at 18" maximum depth.

Auger Boring #4

Depth (in.)	Horizon	Munsell / Color	Texture	Structure
0 – 24	AE	5 YR 4/6	clay loam	sbk
24+	Bg	5YR 4/6, 10YR 7/2	clay	

Unsuitable for conventional system, recommend pretreatment or drip irrigation.

Auger Boring #5

Depth (in.)	Horizon	Munsell / Color	Texture	Structure
0 – 20	AB	5 YR 5/6	clay loam	wk sbk
20+	Bg	5YR 5/6, 10YR 7/2	clay	plastic

Unsuitable for conventional system

Auger Boring #6

Depth (in.)	Horizon	Munsell / Color	Texture	Structure
0 – 30	A	5 YR 5/6	clay loam	friable
30+	Bg	5YR 5/6, 10YR 7/2	clay	plastic

Unsuitable for conventional system

Auger Boring #7

Depth (in.)	Horizon	Munsell / Color	Texture	Structure
0 – 24	A	5 YR 5/6	sandy loam	friable
24 +	Bg	5YR 5/6, 10YR 7/2	clay	plastic

Unsuitable for conventional system

Auger Boring #8

Depth (in.)	Horizon	Munsell / Color	Texture	Structure
0 – 8	A	5 YR 5/6	clay loam	weak sbk
8 – 26	B	5YR 5/6	clay	plastic
26 – 33	C	7.5YR 5/6	silty clay loam	weak sbk
33+	CR			

Provisionally suitable to 33", LTAR = 0.25 gpd/sf at 21" depth.

LOADING RATE CALCULATIONS AND RECOMMENDATIONS:

Estimated Long Term Acceptance Rate (LTAR) = permeability = 0.25gallons/day/square foot in limiting horizon at 18 - 20 inch depth..

For three bedroom house: Design flow = 120 gal/bedroom x 4 = 480 gpd.

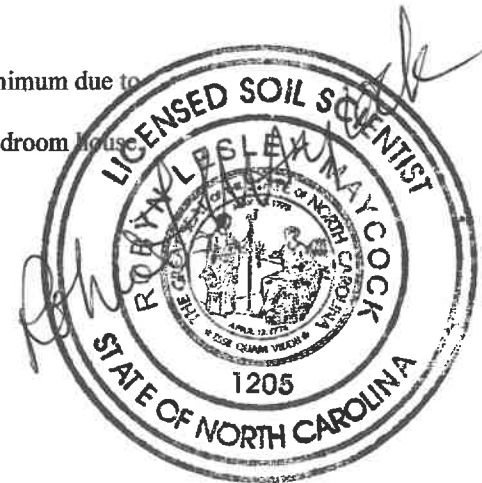
Estimated trench or surface area needed = 480 g/d ÷ 0.25 g/d/sf = 1920 sf

For conventional gravity septic system: 1920 sf ÷ 3 ft wide trenches = 640 linear feet of three ft wide trenches = 5 x 128 ft long trenches for initial septic drainfield.

Plus 100% Reserve Area = total of 10 128 ft long trenches,

So, total area needed on 9 ft center to center spacing = 128 ft by 85 ft (minimum due to topographic contours).

Therefore, sufficient area of suitable soil is available for proposed four-bedroom house.



SOIL SUITABILITY MAP

SCALE 1" = 100'

- EOP = EDGE OF PAVEMENT
- CL = CENTER LINE OF ROAD
- PL = PROPERTY LINE
- = BLUFF
- = APPROXIMATE DRAIN FIELD LOCATION

