April 27, 2009

Mr. James Manhart
Harnett County Environmental Health
307 West Cornelius Harnett Blvd.
Lillington, NC 27546

Reference: Soil Evaluation and Septic System Design
Lot 22, Stockton Subdivision
PIN# 0673-16-8990.000

Dear Mr. Manhart,

A site investigation was conducted for the above referenced property located at 177 Kings Way, Stockton Subdivision, Black River Township, Harnett County, North Carolina. The purpose of the investigation was to determine the ability of this lot to modify the existing septic system to accommodate a deck and screened porch addition to the existing three-bedroom residence while maintaining 100 % repair area. Public water supplies are utilized at this residence. The existing septic system was permitted as a gravity driven conventional septic system to three 80-ft drainlines to be located behind the home with the repair area occupying the space between this existing system and the rear property line.

Upon my investigation of the existing system, I encountered a different drainline configuration. These drainline locations were confirmed by probing the soil with a tile probe and were marked with pink pin flags. The system that was located appears to have been installed off contour and consists of three drainlines of variable length. Those lengths are 100-ft, 80-ft, and 75-ft from house to rear of property. They were installed progressively deeper as you near the rear property line so as to allow a gravity driven system since the surface topography rises as you progress toward the rear property line. There is only sufficient space left on the rear of the property to add one additional drainline and still maintain the proper regulatory setbacks. By abandoning the majority of the first line closest to the home to allow for the newly proposed deck and screened porch, proper setbacks can be maintained for all subsequent drainlines. The portion of the first drainline that runs along the side of the house may be able to be connected to Line 2 to allow a 120-ft long drainline (80-ft + 40-ft). Adding one 65-ft long drainline at the rear of the lot would allow a total of 260-ft of conventional drainline to service this residence. In order to maintain the proper fall from the existing septic tank, this additional line would need to be installed 27 inches below ground surface. The distribution box would feed to existing Line 2 and portion of existing Line 1 (120-ft) and to new line 4 (65-ft) that would be fitted with a drop box to overflow to existing line 3 (75-ft) which has a trench bottom depth of 35 inches below ground surface on the distribution end.

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The repair area is proposed along the front and side of the home as shown on the attached schematic. This repair system is proposed as a pump to a pressure-manifold that would distribute to two unequal length drainlines totaling 180 linear feet of accepted system drainline. This system would need to be installed off contour to make best use of the space available on this lot. Should the time come that the repair system is needed, the water line would need to be rerouted under the driveway and ran into the west side of the house to maintain proper setbacks from the drainlines. The power lines will likely need to be reconnected after installation. Due to the depth of the drainlines at the location between the power box and house, the power lines will not likely need to be rerouted from their present location.

Attached is the septic system layout and supporting information for this lot. I trust that this report provides all the information that you require at this time. If you have any questions or need additional information, please contact me at your convenience.

Sincerely,

Laura J Fortner

Laura J. Fortner
Licensed Soil Scientist

Lot 22, Stockton Subdivision

Owner: Michael Reeves

Bedrooms: 3 (Daily Flow 360 gallons)

LTAR: 0.5 gal/day/sqft

Prepared by: LJF
Black Water Soil Investigations
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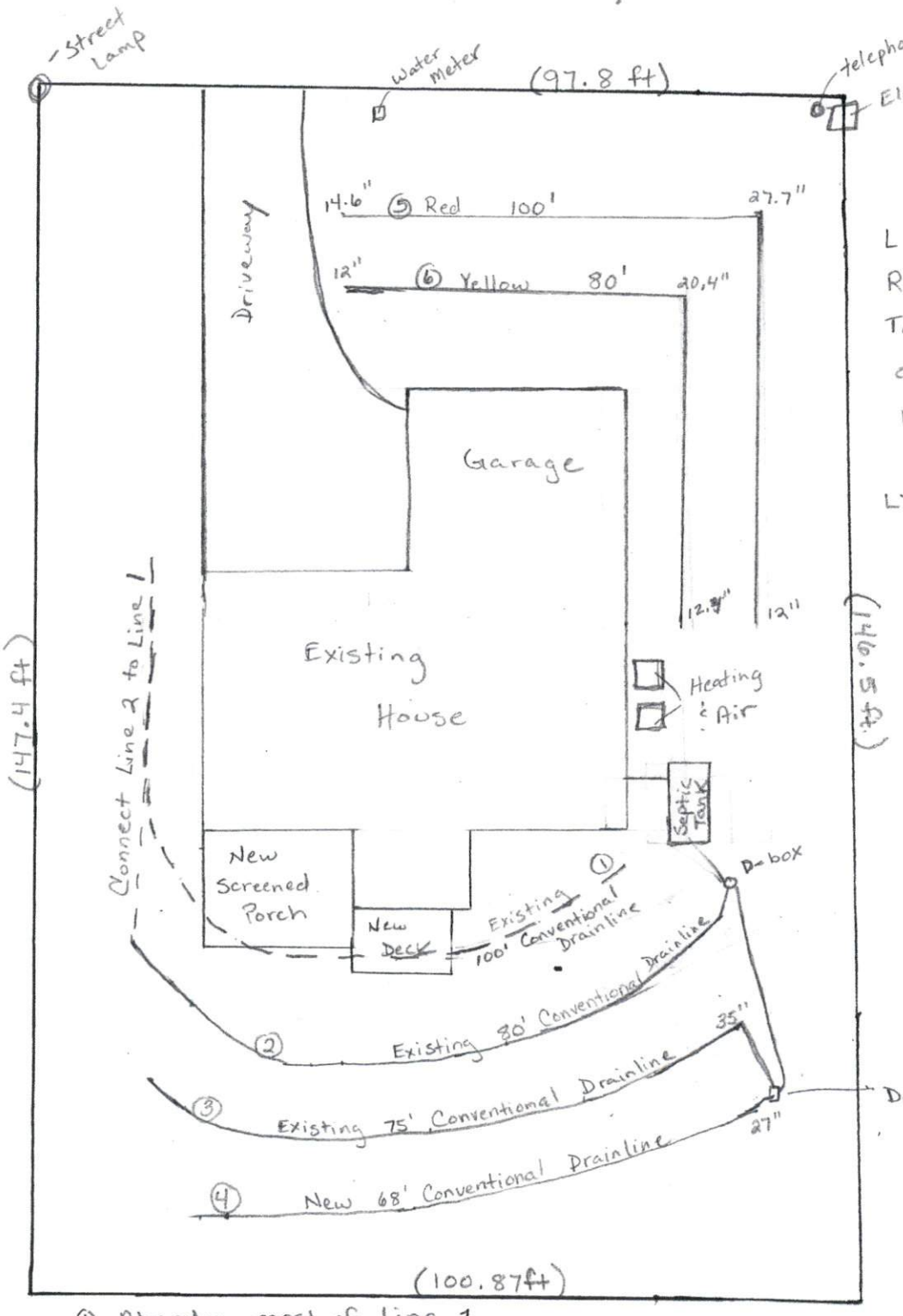
177 Kings Way



Lines 5 & 6
Repair field.
To be installed
off contour
180' Accepted System
Drainlines.
LTAR: 0.5 gpd/sqft

Scale
1" = 20'

① Abandon most of Line 1
② Connect Line 2 to Line 1 along side of house creating 120' long line
③ Add Line 4 with dropbox to drainback to Line 3
④ Existing system is off contour
⑤ New line 4 trench bottom depth 27" slightly off contour w/ ± 1" variability

Lot 22, Stockton Subdivision

Lines flagged at site on 9-ft centers off contour.

Initial/ Repair	Line #	Color	Drainline Length(ft)	Measured Field Line Length (ft)	Relative Elevation (ft) Distribution / Middle / Terminal
Existing	1	P	40	100	
Existing	2	P	80	80	
Existing	3	P	75	75	95.82 / /
Initial	4	B	65	68	95.85 / 95.91 / 95.85
Repair	5	R	100	113	96.30 / 97.61 / 96.52
Repair	6	Y	80	80	96.40 / 97.07 / 96.37
Septic Tank Outflow:					94.32
		Total:	**440**	**516**	**Top of Phone Box=100**

Stockton Subdivision, l :2

Pressure Manifold Design Criteria

Repair System

Line Number	Line Color	Elevation	Drainline Length(ft)	Tap Size/ Schedule	Flow/tap (gpm)	gpd/ft	LTAR (gpd/sqft)
1	R	96.3	100	3/4" sch 40	12.50	1.991	0.664
2	Y	96.4	80	3/4"sch 80	10.10	2.011	0.670

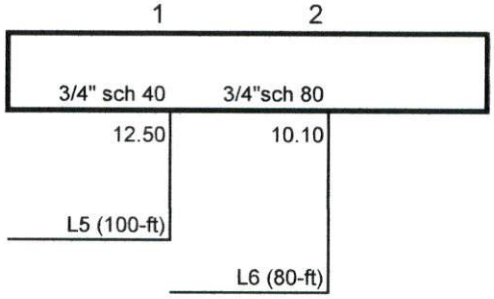
Total Drainline= 180 Total Flow= 22.60

Pressure Head (ft)= 2 Target LTAR= 0.667 gpd/sqft LTAR + 5% 0.70

Daily Flow= 360 Total Flow (gpm)= 22.60 Daily PRT(min)= 15.93

Dose Vol= 88.16 gallons w/ Pipe Vol @% 75 Dose PRT (min)= 3.90

MANIFOLD DIAGRAM:



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4/27/2009