ROLLANS *Soil & Environmental Services, PA.*

P.O. Box 832 Mooresville, NC 28115 Phone: (704) 658-1723 Fax: (704) 278-0989

Ashley Rollans, NC Licensed Soil Scientist
Mobile: (704) 746-5046
Email: rollans.ashley@yahoo.com

Attached is a proposed design for an 25% Reduction Septic System with gravity distribution for an upgrade from an existing 4 bedroom to a 5 bedroom single family residence on Lot # 2 in Walden Ridge Subdivision, Iredell County, NC.

Contents:

	Page
Information for the Installer	1
Design Information	
Design Specifications	2-3
Layout Specifications	4
Site Plan/System Plan	5
Calculations	6
Operations Permit	7

September 3, 2012
Project #: 01-1724
Design By: Rollans Soil & Environmental Services, PA

INFORMATION FOR THE INSTALLER:

The permit should be read very carefully prior to bidding. The following are details that must be considered along with all other considerations.

- Tanks shall be approved by NC DENR, and certification supplied by the manufacturer.
- Tanks shall be water tested prior to installation.
- The installer shall be responsible to the owner for placement of the tanks and to insure that final grades are returned to the original natural grade, with exception of added structural features.
- The supply trench shall be compacted to eliminate cavities left during initial fill placement.
- Installation of the system shall be during dry conditions in order to protect the soil structure.
- All fittings shall be pressure rated fittings.
- All joints shall be cleaned with PVC pipe cleaner and a heavy bodied glue applied to weld all joints.
- Where required by the county health department, post installation inspections by the designer must be scheduled 5 week days in advance.
- Trenches shall be carefully excavated so the bottom is within 2" from the highest to . the lowest points of elevation within the trench. If the bottom elevation needs adjusting after it has been trenched, it will be done by removing high points rather than filling low points. It is extremely important to insure that trenches are not over excavated during initial trenching. All fine grading within the trench will be hand done with a shovel. No loose material will be left in the trench
- All pipe openings in the tanks shall be properly grouted. This also applies to the joints around the riser.
- All tanks shall be properly back filled and compacted to prevent slump at a later date.
- Earth dams, constructed of relatively impervious material, shall be installed at the beginning and end of each lateral.
- No heavy equipment shall be used on the field during or after installation. The use of a small loader (i.e. Bobcat) or a trencher (i.e. Ditch Witch 2300/2310) may be used for installation.
- Elevations at pinflag locations should be checked by the installer prior to beginning trenches.
- Septic tank riser shall be a minimum of 6" above finished grade.
- System is specified as a gravity 25% reduction (Accepted) installation.
- Repair is specified as a PPBPS installation.
- Proposed additional of 1 Accepted Trench @ 100 linear feet for 1 bedroom upgrade.
- Proposed addition of a 1000 gallon Septic Tank in series with existing 1000 gallon tank
- Future pool location and dimensions based on previous operations permit.

GRAVITY ACCEPTED SYSTEM FOR WASTEWATER TREATMENT

Owner/Applicant:	Jon Sands
Address:	112 Walden Drive Mooresville, NC 28115
Phone:	704.907.2541
County:	Iredell
Location:	WALDEN RIDGE LOT 2
Source of Wastewater Flow:	5 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	600
System Flow:	N/A

Design Specifications

Drainfield Size:	500
Loading Rate (gpd/ft.^{2}):	0.3
Depth of Gravel in Trench:	N/a
Gravel Size:	N/A
Trench Depth:	36 in.
Trench Width:	36 in.
Existing Septic Tank Size:	1000
Proposed New Septic Tank:	1000 gal.
Estimated Supply Line Length:	60
Supply Line Diameter:	4 in. SCH 40 PVC
Supply Line Volume:	39.18
Dosing Volume:	N/A
Supply Manifold:	N/A
Supply Manifold Length:	N/A
Supply Manifold Volume:	N/A
Recommended Float Controls:	N/A
Recommended Control Panel:	N/A
Pressure Head:	N/A
Friction Head:	N/A
Elevation Head:	N/A
Total Dynamic Head:	N/A
Threaded Union:	N/A
Gate Valves:	N/A
Check Valves:	N/A
Anti-Siphon Hole:	N/A
Additional Comments:	Soil suitability was performed by Iredell County Health Department

WALDEN RIDGE LOT 2

ACCEPTED SYSTEM

DESIGN FLOW (gpd):	600
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	1500
TOTAL LATERAL LENGTH:	500
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	500
SUPPLY LINE LENGTH:	60
TOTAL DYNAMIC HEAD:	N/A
MANIFOLD SIZE:	N/A
DOSING VOLUME:	N/A
PUMP TANK DRAW DOWN*:	N/A
SEPTIC TANK SIZE:	1000

WALDEN RIDGE LOT 2

Project #: 01-1724

LAYOUT FOR 5 BEDROOM HOME

September 3, 2012

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM							
INSTR. 1							
1	RED	(Existing)				100	100
2	ORANGE	(Existing)				100	100
3	BLUE	(Existing)				100	100
4	PINK	(Existing)				100	100
5	RED	(Proposed)				100	100
6	ORANGE					100	100
7	BLUE					117	117
8	RED					31	31
9	ORANGE					31	31
10	BLUE					31	31
11	***ORANGE***					***40***	***40***
					Total	**850**	**850**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
* *System*	*500*	*0.300*	*ACCEPT.*	*0.300*	*ACCEPT.*	*GRAVITY*
Repair	350	0.300	MOD.	0.300	PPBPS	LOW PRESSURE

Notes:
** Existing 4 Bedroom Accepted System Lines 1 - 4 (see site plan)
**Additional Primary Accepted Trench for 1 Bedroom, Line 5
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
**Additional Proposed Primary and 5BR PPBPS Repair within original permitted area.

CALCULATIONS

Location Walden Ridge Lot 2

Project Number 01-1724

Lot No: 2

No. of Bedrooms 5

Design Flow 600 $^{gal}/_{day}$

LTAR 0.300 $^{gal}/_{ft^2 day}$

PPBPS? (YES OR NO) NO

Supply Line Length 60 ft.

Supply Line Volume 39.18 gal.

Required Feet of Line 500 ft.
Amount of Line from Layout 500 ft.

Gallons per Minute N/A $^{gal}/_{min}$

Required Septic Tank Capacity 1500 gal.
Existing Septic Tank Size 1000 gal.
Proposed Septic Tank 1000 gal.
Panel Volume N/A gal.
# of Panels N/A
Dosing Volume N/A gal.

Tank Draw Down N/A

Pump Run Time

Elevation Head N/A ft.
Pressure Head N/A ft.
Friction Factor N/A ft./100 ft. *(From the interpolater.)*
Friction Head N/A ft.

Total Dynamic Head (+15%) N/A ft.

FRICTION FACTOR
INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
	-0.88
25	1.27
	-1.28
30	1.78
	-1.76
35	2.37
	-2.25
40	3.03
43.07	3.48
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42