ROLLANS *Soil & Environmental Services, PA.*

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Attached is a proposed design for a PPBPS Septic System with gravity distribution for a 4 bedroom single family residence on Lot 110 in Mallard Head Subdivision Iredell County, North Carolina.

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June 6, 2012
Project No.01-1706
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 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.
- Pumptank riser should be 6" above grade, control panel should be 12" above grade.
- Septic tank riser shall be a minimum of 6" above finished grade.
- System is specified as a PPBPS installation with gravity distribution.
- Partial Repair is specified as a PPBPS installation with gravity distribution.
- Backfill 4 - 6" of material (County Approved) over panels, rake trench walls, lime side-walls, install trenches 24" wide to be level but have no more than 1/4" fall in 10 feet.
- **Flow Splitters and divided T must be bedded on level concrete pad.**

GRAVITY PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant: Dumitru (Wesley) Zdrentan

Address: 406 Canvasback Road
Mooresville, NC 28117

Phone: 704.658.5106

County: Iredell

Location: Mallard Head Lot 110

Source of Wastewater Flow: 4 Bedroom Single Family Residence

Estimated Daily Wastewater Production: 480 gpd

System Flow: N/A

Design Specifications

Drainfield Size: 296

Loading Rate: 0.275

Depth of Gravel in Trench: NA (PPBPS)

Gravel Size: NA (PPBPS)

Trench Depth: 36 in.

Trench Width: 24 in.

Septic Tank Size: 1000

Pump Tank Size:

Estimated Supply Line Length: 60

Supply Line Diameter: 3 in. SCH 40 PVC

Supply Line Volume: 22.80

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 Rollans Soil & Environmental Services

Mallard Head Lot 110
GRAVITY PPBPS

DESIGN FLOW:	N/A
SOIL APPLICATION RATE:	0.275
TOTAL AREA TRENCH BOTTOM:	592
TOTAL LATERAL LENGTH:	296
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	290.91
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
PUMP TANK SIZE:	

Mallard Head Lot 110

Project #:01-1706

LAYOUT FOR 4 BEDROOM HOME

June 6, 2012

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM							
INSTR. 1							
HOUSE CNR							
P. TANK							
1	BLUE					32	32
2	PINK					32	32
3	ORANGE					19	19
4	RED					24	24
5	PINK					25	25
6	BLUE					20	20
7	***ORANGE***					*46*	*37*
8A	***RED***					*51*	*37*
8B	***RED***					*49*	*37*
9A	***BLUE***					*45*	*37*
9B	***BLUE***					*42*	*37*
10A	***ORANGE***					*37*	*37*
10B	***ORANGE***					*37*	*37*
11	***PINK***					*62*	*37*
12	RED					44	44
					Total	565	492

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
* *System*	*296*	*0.275*	*MOD.*	*0.275*	*PPBPS*	*GRAVITY*
Repair	268	0.275	MOD.	0.275	PPBPS	LOW PRESSURE

Notes: **Lot recorded prior to January 1, 1983. Exempt from Repair Requirement

**All measures in feet

**Nitrification lines are demonstrated on contour via colored pin flags

GRAVITY PPBPS SPECIFICATIONS - Mallard Head Lot 110

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	# of Panels
7	ORANGE	N/A	37	N/A	N/A	74	8
8A	RED	N/A	37	N/A	N/A	74	8
8B	RED	N/A	37	N/A	N/A	74	8
9A	BLUE	N/A	37	N/A	N/A	74	8
9B	BLUE	N/A	37	N/A	N/A	74	8
10A	ORANGE	N/A	37	N/A	N/A	74	8
10B	ORANGE	N/A	37	N/A	N/A	74	8
11	PINK	N/A	37	N/A	N/A	74	8
						592	64

total	feet =	296	gal/min =	N/A
		Des. Flow	480	
		Pump Run=	N/A	
		soil LTAR	0.275	
		LTAR +5%	0.28875	
		LTAR with mod.	0.55	
		LTAR with mod.. + 5%	0.5775	

.156 equals 5/32 inch hole

CALCULATIONS

Location MALLARD HEAD LOT 110 (Spring Run Drive)

Project Number 01-1706

Lot No: 110

No. of Bedrooms 4

Design Flow N/A $^{gal}/_{day}$

LTAR 0.275 $^{gal}/_{ft^2\ day}$

PPBPS? (YES OR NO) YES

Supply Line Length 60 ft.

Supply Line Volume 22.8 gal.

Required Feet of Line 290.91 ft.
Amount of Line from Layout 296 ft.

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

Required Septic Tank Capacity 1000 gal.
Minimum Standard Tank Size 1000

Panel Volume 3.6 gal.
# of Panels 64
Dosing Volume N/A gal.

Tank Draw Down N/A

Pump Run Time N/A minutes

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