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Attached is a proposed design for an Accepted (25% reduction) Septic System with Pressure Manifold distribution for a 3 bedroom single family residence on 145 Beechwood Farm Road, Iredell County, North Carolina.

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LICENSED SOIL SCIENTIST
Samuel A. Rollans
1231
STATE OF NORTH CAROLINA

4/12/06

April 12, 2006
Project No. Lanny Craven
Design By: **Rollans Soil and Environmental Services**

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner: James Craven Jr.

Address: 163 Bbeechwood Farm Rd.
Statesville, NC 28625
Phone: 704 878 9655
County: Iredell
Location: 145 Beechwood Farm Road

Source of Wastewater Flow: 3 Bedroom Single Family Residence
Estimated Daily Wastewater Production: 360 gpd
System Flow: 21.33

Design Specifications

Drainfield Size: 300'
Loading Rate: .3 gpd/ft²
Depth of Gravel in Trench: NA (25% Reduction)
Gravel Size: NA (25% reduction)
Trench Depth: 36in
Trench Width: 36 in.
Septic Tank Size: 1000
Pump Tank Size: 1000

Estimated Supply Line Length: 95'
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 16.53
Dosing Volume: 137.13
Supply Manifold: 4" Sch 80 PVC
Supply Manifold Length: 4 ft. (minimum
Supply Manifold Volume: N/A

Recommended Float Controls: SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalents

Recommended Control Panel: SJE Rhombus model 112 (NEMA 4x) Control Panel or County Approved Control Panel

Pressure Head: 2 ft.
Friction Head: 1.21
Elevation Head: 11.00
Total Dynamic Head: 18.34

Threaded Union: In Tank
Gate Valves: 1 in Tank
1 at Pressure Manifold
Check Valves: In Tank
Inspection Hole: NA
Additional Comments: Soil suitability was performed by Rollans Soil & Environmental Services.

145 BEECHWOOD FARM ROAD
~~PRESSURE~~ MANIFOLD DESIGN

DESIGN FLOW: 360
SOIL APPLICATION RATE: .3 GPD/FT^2
TOTAL AREA TRENCH BOTTOM: 900

TOTAL LATERAL LENGTH: 300
NUMBER OF FIELDS: 1
LATERAL LENGTH REQUIRED PER FIELD: 300

SUPPLY LINE LENGTH: ~~95~~ 5'
TOTAL DYNAMIC HEAD: 16.34
MANIFOLD SIZE: 4 in.SCH 80 PVC

DOSING VOLUME: 137.13
PUMP TANK DRAW DOWN*: 6.5
SEPTIC TANK SIZE: 1000
PUMP TANK SIZE: 1000

**Pump tank draw down based on a volume basis of 21 gallons per inch Draw down may vary among pump tank manufacturers.*

CALCULATIONS

Location 145 Beechwood Farm Road

Project Number Lanny Craven

Lot No: 2

No. of Bedrooms 3

Design Flow 360 $^{gal}/_{day}$

LTAR .3 gpd/ft²

25% RED.? (YES OR NO) YES

Supply Line Length	95	ft.
Supply Line Volume	16.53	gal.
Required Feet of Line	300	ft.
Amount of Line from Layout	300	ft.
Gallons per Minute	21.33	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	195.9	gal.
Dosing Volume	137.13	gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	6.5	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	6.43	minutes
Elevation Head	11	ft.
Pressure Head	2	ft.
Friction Factor	1.27	ft./100 ft. *(From the interpolater.)*
Friction Head	1.21	ft.
Total Dynamic Head (+15%)	16.34	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

145 Beechwood Farm Road

Project #: Lanny Craven

LAYOUT FOR 3 BEDROOM HOME — April 12, 2006

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		2.5			100.00		
TANK		8.50	94.00				
HOUSE		3.90	98.60				
INSTR. 1			102.50				
1	BLUE			1.80	100.70	48	48
2	PINK			2.30	100.20	63	63
3	***RED***			***2.90***	***99.60***	***100***	***100***
4	***ORANGE***			***3.60***	***98.90***	***118***	***100***
5	***BLUE***			***4.20***	***98.30***	***100***	***100***
6	PINK			4.70	97.80	90	90
7	RED			5.00	97.50	75	75
					Total	**594**	**576**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
**** System***	***300***	***0.30***	***ACCEPT.***	***0.30***	***25% RED.***	**PRESSURE MANIFOLD**
Repair	276	0.29	*MOD.*	0.30	PPBPS	LOW PRESSURE

Notes:

** TBM located on top of ground @right rear eip (see site plan)

**TBM is assumed to be 100'

**All measures in feet

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

**BS, HI, and FS indicate rod readings

PRESSURE MANIFOLD TAPSHEET - 145 BEECHWOOD FARM ROAD

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area
3	RED	99.6	100	SCH 40 1/2	7.11	300
4	ORANGE	98.9	100	SCH 40 1/2	7.11	300
5	BLUE	98.3	100	SCH 40 1/2	7.11	300
	total	**feet =**	**300**	**gal/min =**	**21.33**	
			Des. Flow	**360**		
			Pump Run=	**6.43**		
			soil LTAR	**0.3**		
			LTAR +5%	**0.315**		
			LTAR with ACCEPTED	**0.33075**		
			LTAR with ACCEPTED + 5%	**0.3472875**		

PRESSURE MANIFOLD DETAILS

[redacted]

TAP SIZES

LINE No.	TAP SIZE
1	1/2" SCH. 40
2	1/2" SCH. 40
3	1/2" SCH. 40
[redacted]	[redacted]

