PRESSURE MANIFOLD SYSTEM FOR WASTEWATER TREATMENT

Owner:	Freedom Homes
Address:	1124 Charlotte Hwy Troutman, NC 28166
Phone:	704 883-6148
County:	Iredell
Location:	SHINNVILLE ESTATES LOT 28
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	28.44

Design Specifications

Drainfield Size:	400
Loading Rate (gpd/ft.^{2}):	0.3
Depth of Gravel in Trench:	NA (25% reduction)
Gravel Size:	NA (25% reduction)
Trench Depth:	36 in.
Trench Width:	36 in.
Septic Tank Size:	1000
Pump Tank Size:	1000
Estimated Supply Line Length:	135
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	23.49
Dosing Volume:	195.90
Supply Manifold:	4 in. 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:	2.19
Elevation Head:	3.40
Total Dynamic Head:	8.73
Threaded Union:	In Tank
Gate Valves:	1 in Tank 1 at Pressure Manifold
Check Valves:	In Tank
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services.

SHINNVILLE ESTATES LOT 28
PRESSURE MANIFOLD DESIGN

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	1200
TOTAL LATERAL LENGTH:	400
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	400
SUPPLY LINE LENGTH:	135
TOTAL DYNAMIC HEAD:	8.73
MANIFOLD SIZE:	4 in.SCH 80 PVC
DOSING VOLUME:	195.90
PUMP TANK DRAW DOWN*:	9.3
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.*

SHINNVILLE ESTATES LOT 28

Project #: 01-1857

LAYOUT FOR 4 BEDROOM HOME

June 25, 2013

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		3.9			100.00		
TANK		3.50	100.40				
HOUSE		3.90	100.00				
INSTR. 1			103.90				
1	YELO		EXTRA	1.90	102.00	54	0
2	RED			2.10	101.80	83	80
3	PINK			2.70	101.20	100	100
4	YELO			3.40	100.50	94	90
5	***RED***			***4.30***	***99.60***	***113***	***100***
6	***PINK***			***4.90***	***99.00***	***124***	***100***
7	***YELO***			***5.90***	***98.00***	***118***	***100***
8	***RED***			***6.70***	***97.20***	***121***	***100***
					Total	**807**	**670**

	LINE LENGTH	LTAR GPD/FT²	SYSTEM TYPE	SOIL LTAR GPD/FT²	TRENCH SYSTEM	DISTRIBUTION
**** System***	***400***	***0.30***	***ACCEPT.***	***0.30***	***25% RED.***	**PRESSURE**
Repair	270	0.30	MOD	0.30	PPBPS	**MANIFOLD** LPP

Notes:

** TBM located on back left house corner
**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 - SHINNVILLE ESTATES LOT 28

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area
1	RED	99.6	**100**	SCH 40 1/2	**7.11**	300
2	PINK	99	**100**	SCH 40 1/2	**7.11**	300
3	YELO	98	**100**	SCH 40 1/2	**7.11**	300
4	RED	97.2	**100**	SCH 40 1/2	**7.11**	300
	total	**feet =**	**400**	**gal/min =**	**28.44**	
			Des. Flow	**480**		
			Pump Run=	**6.89**		
			soil LTAR	**0.30**		
			LTAR +5%	**0.315**		
			LTAR with ACCEPTED	**0.33075**		
			LTAR with ACCEPTED + 5%	**0.3472875**		

CALCULATIONS

Location Shinnville Estates

Project Number 01-1857

Lot No: 28

No. of Bedrooms	4
Design Flow	480 $^{gal}/_{day}$
LTAR	0.30 $^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES
Supply Line Length	135 ft.
Supply Line Volume	23.49 gal.
Required Feet of Line	400 ft.
Amount of Line from Layout	400 ft.
Gallons per Minute	28.44 $^{gal}/_{min}$
Required Septic Tank Capacity	1000 gal.
Minimum Standard Tank Size	1000
Lateral Line Volume	261.2 gal.
Dosing Volume	195.90 gal.

Note: Dosing Volume based on75% of lateral line volume

Tank Draw Down	9.3 *Generic Draw Down of 21 gal.per in.*
Pump Run Time	6.89 minutes
Elevation Head	3.4 ft.
Pressure Head	2 ft.
Friction Factor	1.62 ft./100 ft. *(From the interpolater.)*
Friction Head	2.19 ft.
Total Dynamic Head (+15%)	8.73 ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
21.33	0.95
25	1.27
28.44	1.62
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