ROLLANS *SOIL & ENVIRONMENTAL SERVICES*

2120 Graham Road, Mount Ulla, NC 28125 *Phone/Fax (704) 278 – 0989*

Ashley Rollans, NC Licensed Soil Scientist
Mobile: (704) 746-5046
E-mail: Rollansfortcj@aol.com

Brady Freeman, Registered Sanitarian
Mobile: (704) 746-6497
E-mail: bfree209@yahoo.com

Attached is a proposed design for an Accepted (25% reduction) Septic System with Pressure Manifold distribution for a 3 bedroom single family residence on Lot 13 in Oak Ridge Subdivision, Iredell County, North Carolina.

Contents: **Page**

Information for the Installer---------- 1

Design Information
- Design Specifications---------- 2-3
- Layout Specifications---------- 4
- System Tapsheet---------- 5
- Pressure Manifold Diagram---------- 6

Site Plan/System Plan---------- 7

Calculations---------- 8

Profile Descriptions---------- 9

December 12, 2006
Project #: 01-1296
Design By: Rollans Soil and Environmental Services

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner: Corinthian Development LTD

Address: P.O. Box 3421
Mooresville, NC 28117
Phone: 704-664-4822
County: Iredell
Location: Oak Ridge Subdivision Lot #13

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

Design Specifications

Drainfield Size: 330
Loading Rate: 0.275
Depth of Gravel in Trench: NA (25% reduction)
Gravel Size: NA (25% reduction)
Trench Depth: 30 in.
Trench Width: 36 in.
Septic Tank Size: 1000
Pump Tank Size: 1000

Estimated Supply Line Length: 140
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 24.36
Dosing Volume: 150.84
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: 1.78
Elevation Head: 12.00
Total Dynamic Head: 18.14

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.

Oak Ridge Subdivision Lot #13
PRESSURE MANIFOLD DESIGN

DESIGN FLOW:	360	
SOIL APPLICATION RATE:	0.275	
TOTAL AREA TRENCH BOTTOM:	990	
TOTAL LATERAL LENGTH:	330	
NUMBER OF FIELDS:	1	
LATERAL LENGTH REQUIRED PER FIELD:	327.2727273	
SUPPLY LINE LENGTH:	140	
TOTAL DYNAMIC HEAD:	18.14	
MANIFOLD SIZE:	4 in.SCH 80 PVC	
DOSING VOLUME:	150.84	
PUMP TANK DRAW DOWN*:	7.2	
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.*

OAK RIDGE LOT #13

Project #: 01-1296

LAYOUT FOR 3 BEDROOM HOME

December 12, 2006

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		12.9			100.00		
INSTR. 1			112.90				
HOUSE CNR				10.80	102.10		
P. TANK				12.30	100.60		
1	BLUE			2.90	110.00	41	41
2	PINK			3.80	109.10	67	67
3	ORANGE			4.50	108.40	94	94
4	***DARK PINK***			***5.30***	***107.60***	***114***	***110***
5	***BLUE***			***6.00***	***106.90***	***138***	***110***
6	DARK PINK			6.70	106.20	50	50
7	***PINK***			***7.60***	***105.30***	***124***	***110***
8	ORANGE			9.00	***103.90***	91	91
					Total	**719**	**673**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
**** System***	***330***	***0.275***	***ACCEPT.***	***0.275***	***25% RED.***	**PRESSURE MANIFOLD**
Repair	343	0.275	*MOD.*	0.275	PPBPS	LOW PRESSURE

Notes:

** TBM located st property corner. (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

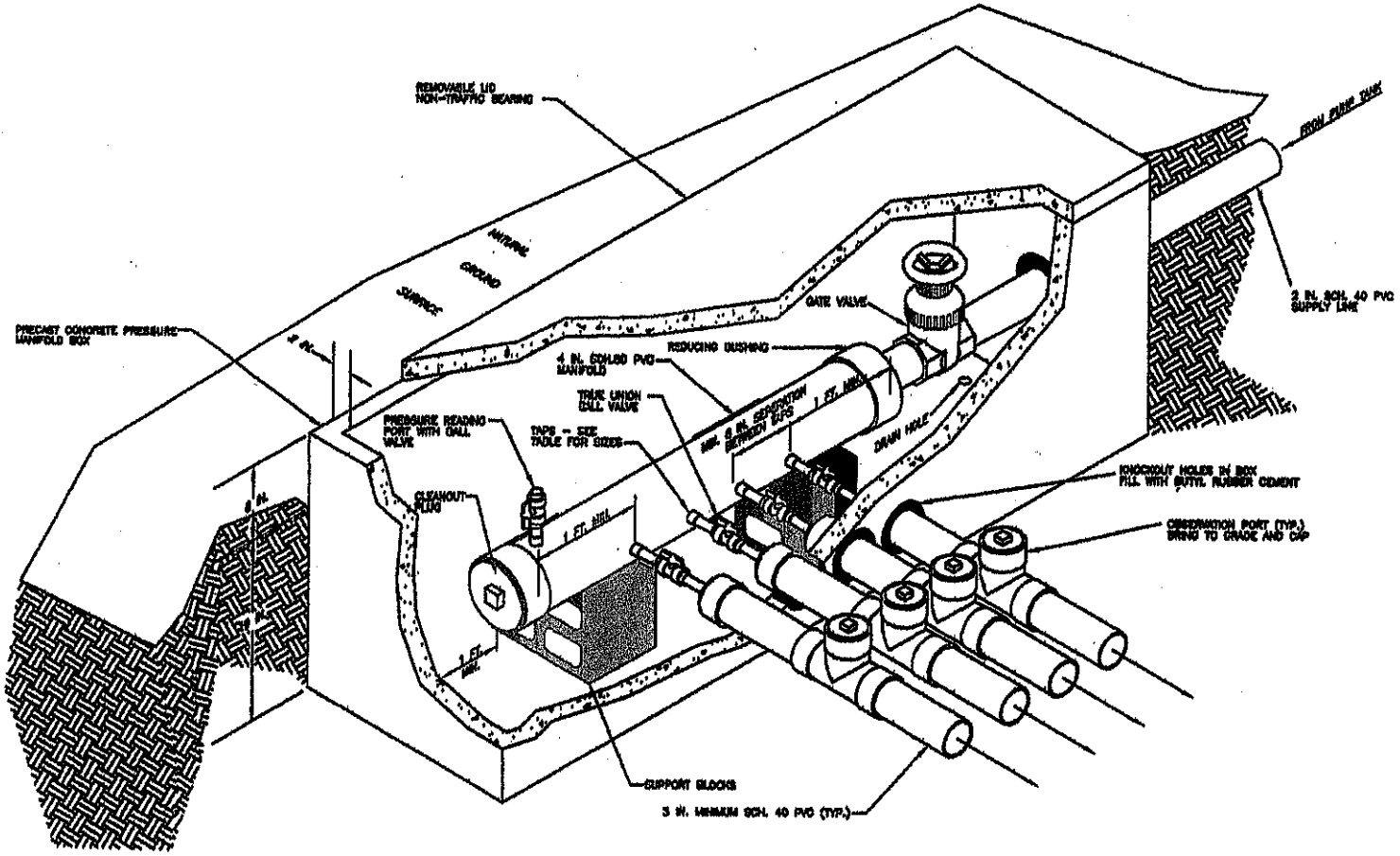
PRESSURE MANIFOLD TAPSHEET - OAK RIDGE LOT #13

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	Trench Area
4	*DARK PINK*	107.6	*110*	SCH 40 1/2	**7.11**	330
5	*BLUE*	106.9	*110*	SCH 40 1/2	**7.11**	330
7	*PINK*	105.3	*110*	SCH 40 1/2	**7.11**	330

totai	**feet =**	**330**	**gal/min =**	**21.33**
		Des. Flow	**360**	
		Pump Run=	**7.07**	
		soil LTAR	**0.275**	
		LTAR +5%	**0.28875**	
		LTAR with ACCEPTED	**0.366666667**	
		LTAR with ACCEPTED + 5%	**0.385**	

TYPICAL PRESSURE MANIFOLD DETAIL



CALCULATIONS

Location OAK RIDGE

Project Number 01-1296

Lot No: Lot 13

No. of Bedrooms 3

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

LTAR 0.275 gpd/ft²

25% RED.? (YES OR NO) YES

Supply Line Length 140 ft.

Supply Line Volume 24.36 gal.

Required Feet of Line 327.2727 ft.
Amount of Line from Layout 330 ft.

Gallons per Minute 21.33 $^{gal}/_{min}$

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

Lateral Line Volume 215.49 gal.

Dosing Volume 150.84 gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down 7.2 *Generic Draw Down of 21 gal.per in.*

Pump Run Time 7.07 minutes

Elevation Head 12 ft.
Pressure Head 2 ft.
Friction Factor 1.27 ft./100 ft. *(From the interpolater.)*
Friction Head 1.78 ft.

Total Dynamic Head (+15%) 18.14 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