CK# 5131 Pd $75.00 7-22-11 PAW

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Attached is a proposed redraw (to accommodate pool) illustrating a revised PPBPS Repair System with low pressure distribution for a 4 bedroom single family residence on Lot # 4 in KnoxHaven Subdivision, Iredell County, North Carolina.

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November 20, 2011
Project #: 01-1509
Design By: Rollans Soil & Environmental Services

EXISTING LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant:	Jim Elahan
Address:	14632 Holly Springs Dr. Huntersville, NC 28078
Phone:	(704) 321-2917
County:	Iredell 831-2917
Location:	KNOXHAVEN LOT 4
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	26.65

Design Specifications

Drainfield Size:	280
Loading Rate (gpd/ft.^{2}):	0.3
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:	1000
Estimated Supply Line Length:	473
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	82.30
Dosing Volume:	156.78
Supply Manifold:	N/A
Supply Manifold Length:	N/A
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:	8.42
Elevation Head:	14.20
Total Dynamic Head:	28.31
Threaded Union:	In Tank
Gate Valves:	1 in Tank 1 per lateral
Check Valves:	In Tank
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services

KNOXHAVEN LOT 4

LP PPBPS

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	840
TOTAL LATERAL LENGTH:	280
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	266.6666667
SUPPLY LINE LENGTH:	473
TOTAL DYNAMIC HEAD:	28.31
MANIFOLD SIZE:	N/A
DOSING VOLUME:	156.78
PUMP TANK DRAW DOWN*:	7.5
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.*

KNOXHAVEN LOT 4

Project #: 01-1509

INTERMEDIATE RELAYOUT FOR 4 BEDROOM HOME November 20, 2011

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		1.5			100.00		
INSTR. 1			101.50				
HOUSE CNR				5.40	96.10		
P. TANK				11.00	90.50		
1	RED			1.80	99.70	41	41
2	*ORANGE*	*(existing)*		*2.20*	*99.30*	*47*	*47*
3	*BLUE*	*(existing)*		*2.70*	*98.80*	*52*	*52*
4	*PINK*	*(existing)*		*3.40*	*98.10*	*56*	*56*
5	*RED*	*(existing)*		*4.00*	*97.50*	*62*	*62*
6	*ORANGE*	*(existing)*		*4.60*	*96.90*	*63*	*63*
7	BLUE			5.10	96.40	55	55
8	PINK			5.60	95.90	37	37
9	ORANGE			9.90	91.60	22	22
10	PINK			10.70	90.80	35	35
11	BLUE			11.00	90.50	36	36
12	ORANGE	*(existing)*		11.30	90.20	32	32
13	RED			12.00	89.50	26	26
14	RED	*(existing)*		13.00	88.50	60	60
15	BLUE	*(existing)*		13.60	87.90	54	54
16	ORANGE	*(existing)*		14.20	87.30	44	44
					Total	**564**	**564**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
** System*	*280*	*0.3*	*MOD.*	*0.300*	*PPBPS*	*LOW PRESSURE*
Repair	441	0.3	MOD.	0.300	PPBPS	LOW PRESSURE

Notes:
** TBM located top of ground at EIP at corner of lot (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
**EXISTING 25%RED. LINES TO BE CONVERTED TO PPBPS LINES FOR REPAIR

CALCULATIONS

Location	KNOXHAVEN	
Project Number	01-1509	
Lot No:	Lot 4	
No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.300	$^{gal}/_{ft^2 day}$
PPBPS? (YES OR NO)	YES	
Supply Line Length	473	ft.
Supply Line Volume	82.302	gal.
Required Feet of Line	266.6667	ft.
Amount of Line from Layout	280	ft.
Gallons per Minute	26.65	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Panel Volume	3.6	gal.
# of Panels	65	
Dosing Volume	156.78	gal.
	Note: Dosing Volume based on 67% of # of panels times 3.6 gal/panel	
Tank Draw Down	7.5	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	5.88	minutes
Elevation Head	14.2	ft.
Pressure Head	2	ft.
Friction Factor	1.78	ft./100 ft. *(From the interpolater.)*
Friction Head	8.42	ft.
Total Dynamic Head (+15%)	28.31	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

LP PPBPS TAPSHEET -KNOXHAVEN LOT# 4

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	Number of Panels
2	***ORANGE***	2.20	*47*	0.156	**0.41**	141	11
3	***BLUE***	2.70	*52*	0.156	**0.41**	156	12
4	***PINK***	3.40	*56*	0.156	**0.41**	168	13
5	***RED***	4.00	*62*	0.156	**0.41**	186	14
6	***ORANGE***	4.60	*63*	0.156	**0.41**	189	15
							65
	total	**feet =**	**280**	**gal/min =**	**26.65**		

Des. Flow	**480**
Pump Run=	**5.88**
soil LTAR	**0.3**
LTAR +5%	**0.315**
LTAR with mod.	**0.6**
LTAR with mod.. + 5%	**0.63**

.156 equals 5/32 inch hole