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Attached is a proposed design for a PPBPS Septic System with low pressure distribution for a 4 bedroom single family residence on Lot #9 in Kerri Subdivision, Iredell County, North Carolina.

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August 20, 2007
Project #: 01-1043
Design By: Rollans Soil & Environmental Services

LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant: E&J DEVELOPMENT

Address: 227 Hideaway Lane
Mooresville, NC 28117
Phone: 704-201-6465
County: Iredell
Location: KERRI SUBDIVISION LOT 9

Source of Wastewater Flow: 4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow: 480
System Flow: 30.75

Design Specifications

Drainfield Size: 315
Loading Rate (gpd/ft.^{2}): 0.275
Depth of Gravel in Trench: NA (PPBPS)
Gravel Size: NA (PPBPS)
Trench Depth: 36 in.
Trench Width: 36 in.
Septic Tank Size: 1000
Pump Tank Size: 1000

Estimated Supply Line Length: 89
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 15.49
Dosing Volume: 180.90
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: 2.11
Elevation Head: 10.50
Total Dynamic Head: 16.80

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

KERRI SUBDIVISION LOT 9
LP PPBPS

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.275
TOTAL AREA TRENCH BOTTOM:	945
TOTAL LATERAL LENGTH:	315
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	290.9090909
SUPPLY LINE LENGTH:	89
TOTAL DYNAMIC HEAD:	16.80
MANIFOLD SIZE:	N/A
DOSING VOLUME:	180.90
PUMP TANK DRAW DOWN*:	8.6
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.*

KERRI SUBDIVISION LOT 9

Project #: 01-1043

LAYOUT FOR 4 BEDROOM HOME

August 20, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		4.5			100.00		
INSTR. 1			104.50				
HOUSE CNR				3.00	101.50		
P. TANK				8.90	95.60		
1	***PINK***			***3.40***	***101.10***	***53***	***50***
2	ORANGE			4.00	100.50	37	37
3	***BLUE***			***4.30***	***100.20***	***95***	***95***
4	DARK PINK			4.60	99.90	47	47
5	***ORANGE***			***5.60***	***98.90***	***88***	***85***
6	***DARK PINK***			***7.00***	***97.50***	***87***	***85***
7	DARK PINK			10.00	94.50	67	67
8	BLUE			10.60	93.90	56	56
9	ORANGE			11.70	92.80	92	92
					Total	**622**	**614**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
****System***	***315***	***0.275***	***MOD.***	***0.275***	***PPBPS***	***LOW PRESSURE***
Repair	299	0.275	MOD.	0.275	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

70
100
45
100

LP PPBPS TAPSHEET -KERRI LOT#9

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	Number of Panels
1	*PINK*	101.1	*50*	0.156	**0.41**	150	12
3	*BLUE*	100.2	*95*	0.156	**0.41**	285	22
5	*ORANGE*	98.9	*85*	0.156	**0.41**	255	20
6	*DARK PINK*	97.5	*85*	0.156	**0.41**	255	20
							75
	total	**feet =**	**315**	**gal/min =**	**30.75**		

Des. Flow	**480**
Pump Run=	**5.88**
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	KERRI	
Project Number	01-1220	
Lot No:	Lot 9	
No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.275	$^{gal}/_{ft^2\ day}$
PPBPS? (YES OR NO)	YES	
Supply Line Length	89	ft.
Supply Line Volume	15.486	gal.
Required Feet of Line	290.9091	ft.
Amount of Line from Layout	315	ft.
Gallons per Minute	30.75	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Panel Volume	3.6	gal.
# of Panels	75	
Dosing Volume	180.90	gal.
	Note: Dosing Volume based on 33% of # of panels times 3.6 gal/panel	
Tank Draw Down	8.6	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	5.88	minutes
Elevation Head	10.5	ft.
Pressure Head	2	ft.
Friction Factor	2.37	ft./100 ft. *(From the interpolater.)*
Friction Head	2.11	ft.
Total Dynamic Head (+15%)	16.80	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