PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner:	WARREN SMITH
Address:	PO BOX 3190 Mooresville, NC 28117
Phone:	704-363-1622
County:	Iredell
Location:	HIDDEN CREEKS LOT 52
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	35.55

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:	100
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	17.40
Dosing Volume:	182.84
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:	3.03
Elevation Head:	0.00
Total Dynamic Head:	5.78
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.

HIDDEN CREEKS LOT 52
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:	100
TOTAL DYNAMIC HEAD:	5.78
MANIFOLD SIZE:	4 in.SCH 80 PVC
DOSING VOLUME:	182.84
PUMP TANK DRAW DOWN*:	8.7
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.*

HIDDEN CREEKS LOT 52

Project #: 01-1095

LAYOUT FOR 4 BEDROOM HOME

February 11, 2009

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM					100.00		
INSTR. 1			100.00				
HOUSE					100.00		
TANK					100.00		
1	RED				100.00	50	50
2	***ORANGE***				***100.00***	***88***	***80***
3	***PINK***				***100.00***	***92***	***80***
4	***BLUE***				***100.00***	***92***	***80***
5	***RED***				***100.00***	***92***	***80***
6	***ORANGE***				***100.00***	***80***	***80***
7	PINK				100.00	118	118
8	BLUE				100.00	64	64
9	RED				100.00	35	35
					Total	**711**	**667**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
** System*	***400***	***0.300***	***ACCEPT.***	***0.300***	***25% RED.***	**PRESSURE MANIFOLD**
Repair	267	0.300	MOD.	0.300	PPBPS	LOW PRESSURE

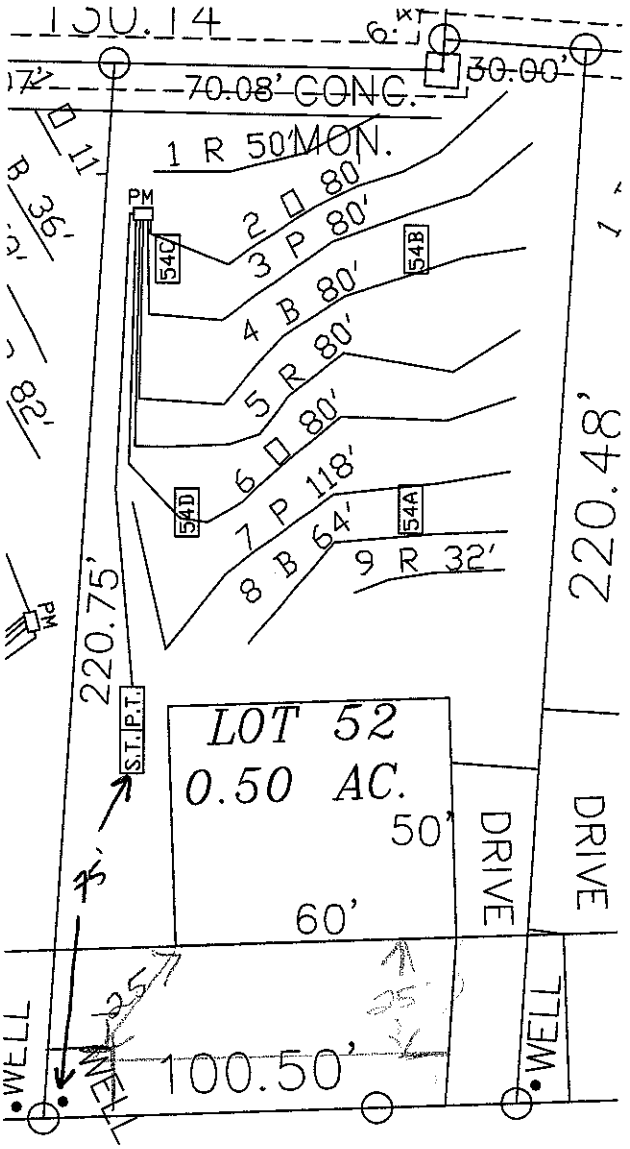
Notes:

** TBM located on left front corner 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

HIDDEN CREEKS LOT 52
SYSTEM

Line #	Color	Elev	Length	Hole Size	Flow/Tap	gpd	Trench Area	Line LTAR
2	*ORANGE*		*80*	SCH 40 1/2	**7.11**	36.57	240	0.15
3	*PINK*		*80*	SCH 40 1/2	**7.11**	36.57	240	0.15
4	*BLUE*		*80*	SCH 40 1/2	**7.11**	36.57	240	0.15
5	*RED*		*80*	SCH 40 1/2	**7.11**	36.57	240	0.15
6	*ORANGE*		*80*	SCH 40 1/2	**7.11**	36.57	240	0.15
	total	feet =	400	gal/min =	**35.55**			
			Des. Flow	480				
			Pump Run=	5.14				
			LTAR	0.30				
			LTAR + 5%	0.315				
			LTAR w / INNOV	0.4				
			LTAR w / INNOV + 5%	0.42				

Some lines flagged longer in the field, shorten to lengths shown here.


150.14
70.08' CONC.
30.00'
1 R 50' MON.
2 □ 80'
3 P 80'
4 B 80'
5 R 80'
6 □ 80'
7 P 118'
8 B 64'
9 R 32'
PM
54C
54B
54D
54A
220.75'
220.48'
S.T.I.P.T.
LOT 52
0.50 AC.
50'
60'
DRIVE
DRIVE
WELL
WELL
100.50'
25'
25'
36'
82'

1:40

CALCULATIONS

Location HIDDEN CREEKS

Project Number 01-1095

Lot No: Lot 52

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.3	$^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	100	ft.
Supply Line Volume	17.4	gal.
Required Feet of Line	400	ft.
Amount of Line from Layout	400	ft.
Gallons per Minute	35.55	$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	261.2	gal.
Dosing Volume	182.84	gal.

Note: Dosing Volume based on70% of lateral line volume

Tank Draw Down	8.7	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	5.14	minutes
Elevation Head		ft.
Pressure Head	2	ft.
Friction Factor	3.03	ft./100 ft. *(From the interpolater.)*
Friction Head	3.03	ft.
Total Dynamic Head (+15%)	5.78	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

SOIL/SITE EVALUATION

(Continuation Sheet)

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

HIDDEN CREEKS
LOT 52

Sheet ___ of ___

PROPERTY ID #: _____
DATE OF EVALUATION: _____
COUNTY: _____

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	SOIL MORPHOLOGY (.1941) .1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
A	5-10% LSS	0-17	BSL GR/WSBK	fri SSSP SGXP	—	54"	—	—	PS .3
		17-37	RC MFSBK	fri SSSP SGXP					
		37-54	RCL WSBK	fri SSSP SGXP — few SAP					
B		0-10	BSCL GR	fri SSSP SGXP	—	54"	—	—	PS .3
		10-25	RC MFSBK	fri SSSP SGXP					
		25-54	RCL WSBK	fri SSSP SGXP					
D		0-24	BSL WSBK	fri SSSP SGXP	—	54"	—	—	PS .3
		24-39	RC MFSBK	fri SSSP SGXP					
		39-54	RCL WSBK	fri SSSP few/common SAP					
C		0-14	BSL WSBK	fri SSSP SGXP	—	54"	—	—	PS .3
		14-35	RC MFSBK	fri SSSP SGXP					
		35-54	RCL WSBK	fri SSSP few/common SAP					
RA		0-12	SLWSBK	SSF		48"			.3
		12-48	CMSBK	SSF					

COMMENTS: _____

DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

Sheet ___ of ___
PROPERTY ID #: _____
COUNTY: _____

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: _____ APPLICANT: _____
ADDRESS: _____ APPLICATION DATE: _____ DATE EVALUATED: 1-25-05
PROPOSED FACILITY: _____ PROPOSED DESIGN FLOW (.1949): _____ PROPERTY SIZE: _____
LOCATION OF SITE: lot 52 Tingle Estates PROPERTY RECORDED: _____
WATER SUPPLY: ☐ Private ☐ Public / ☐ Well ☐ Spring ☐ Other _____
EVALUATION METHOD: ☐ Auger Boring ☐ Pit ☐ Cut (#5) 0-21 wk-mod sbk type plastic cl fr ss sp
TYPE OF WASTEWATER: ☐ Sewage ☐ Industrial Process ☐ Mixed 21-41 wk-m sbk/gr fr sp ss mp .25-.3
41-67 massive LS mp fr ss sp

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
1		0-7	wk sbk fine sdl	fr ss sp					.3
		7-28	m sbk RC	fr sp ss mp					
		28-48	wk sbk RCl	fr ss sp few med mp					
		48-60	massive LSmp	fr ss sp					
2		0-2	fine sdl	fr					.3
		2-17	m sbk RC	fr sp ss mp					
		17-53	wk sbk gr cl	fr ss sp few med mp					
		53-66	Massive LS mp	fr ss sp					
3		0-2	fine sdl						.3
		2-23	m sbk RC	fr ss sp ss mp					
		23-45	wk sbk gr cl	fr ss sp					
		45-64	massive LS mp	fr ss sp					
4	1-26-05	0-19	m fgr sbk RC	fr sp ss mp					.3
		19-48	wk sbk gr cl	fr ss sp few med mp					
		48-64	massive LS mp	fr ss sp					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)		
System Type(s)		
Site LTAR		

OTHER FACTORS (.1946): _____
SITE CLASSIFICATION (.1948): _____
EVALUATED BY: _____
OTHER(S) PRESENT: _____

DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

Sheet ___ of ___
PROPERTY ID #: _____
COUNTY: _____

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: _____ APPLICANT: _____
ADDRESS: _____ APPLICATION DATE: _____ DATE EVALUATED: 1-26-05
PROPOSED FACILITY: _____ PROPOSED DESIGN FLOW (.1949): _____ PROPERTY SIZE: _____
LOCATION OF SITE: lot 53 Twyford Estates PROPERTY RECORDED: _____
WATER SUPPLY: ☐ Private ☐ Public ☐ Well ☐ Spring ☐ Other _____
EVALUATION METHOD: ☐ Auger Boring ☐ Pit ☐ Cut
TYPE OF WASTEWATER: ☐ Sewage ☐ Industrial Process ☐ Mixed

#5 0-12 gn-wk sbk ybrn scl frsssp
12-28 m fsbk RC frspsexp .3
28-51 wk fsbk yr cl frsssp few mica sap
51-71 marine LSAP frsssp

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
1		0-9	gn-wk sbk brn scl	fr sssp SEXP					.3
		9-24	m fsbk RC	fr sssp SEXP					
		24-62	wk fsbk yr cl	fr SSSP few mica mottles/sand SAP					
2		0-13	gn brn scl	fr sss p					.25-.3
		13-33	m fsbk c	fr sp SEXP					
		33-54	Bo wk fsbk cl	fr SSSP					
		54-69	Marine LSAP	fr sss p					
3		0-17	gn brn SL	fr sss p					.25-.3
		17-25	wk sbk gn brn scl/cl	fr sss p					
		25-43	wk-m fsbk RC	fr sp SEXP					
		43-60	wk fsbk yr cl	fr sss p few common sap					
4		0-12	gn brn SL	fr sss p					.25-.3
		12-16	wk fsbk yr scl	fr sss p					
		16-41	m fsbk R C	fr sp SEXP					
		41-60	wk fsbk yr cl	fr sss p few common sap					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)		
System Type(s)		
Site LTAR		

OTHER FACTORS (.1946): _____
SITE CLASSIFICATION (.1948): _____
EVALUATED BY: _____
OTHER(S) PRESENT: _____

35' SETBACK

L12

35' SETBACK

LOT 39

LOT 38

LOT 37

LOT 2

476

475

61

59

57

820

CONC. MON.

LOT 54

LOT 53

LOT 3

462

463

466

467

470

471

457

460

461

464

465

468

469

472

35' SETBACK

Revised Lot 52