ROLLANS ***SOIL & ENVIRONMENTAL SERVICES***

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

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Mobile: (704) 746-5046
E-mail: Rollansfortcj@aol.com

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Mobile (704) 746-6497
E-mail bfree209@yahoo.com

Attached is a proposed design for a PPBPS Septic System with low pressure distribution for a 4 bedroom single family residence on Lot 92 in Anniston Subdivision Iredell County, North Carolina.

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December 29, 2006
Project No.01-1005
Design By: Rollans Soil & Environmental Services

LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant: Anniston LLC

Address: 17824 Statesville Rd STE 112
Conover, NC 28031

Phone:

County: Iredell

Location: Anniston Subdivision Lot 92

Source of Wastewater Flow: 4 Bedroom Single Family Residence

Estimated Daily Wastewater Production: 480 gpd

System Flow: 31.98

Design Specifications

Drainfield Size: 335

Loading Rate: .25 gpd/ft.^{2}

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: 30

Supply Line Diameter: 2 in. SCH 40 PVC

Supply Line Volume: 5.22

Dosing Volume: 188.14

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: 0.71

Elevation Head: 1.50

Total Dynamic Head: 4.84

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

ANNISTON LOT 92
LP PPBPS

DESIGN FLOW:	480
SOIL APPLICATION RATE:	.25 gpd/ft²
TOTAL AREA TRENCH BOTTOM:	1005
TOTAL LATERAL LENGTH:	335
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	320.00
SUPPLY LINE LENGTH:	30
TOTAL DYNAMIC HEAD:	4.84
MANIFOLD SIZE:	N/A
DOSING VOLUME:	188.14
PUMP TANK DRAW DOWN*:	6.1
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.*

Anniston Lot 92

Project #:01-1005

LAYOUT FOR 4 BEDROOM HOME

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	########## DESIGN LINE LENGTH
TBM		19.8			100.00		
INSTR. 1			119.80				
HOUSE CNR				6.40	113.40		
P. TANK				13.50	106.30		
1	DARK PINK			9.80	110.00	40	40
2	BLUE			11.90	107.90	45	45
3	ORANGE			13.70	106.10	65	65
4	*PINK*			*14.00*	*105.80*	*90*	*90*
5	*BLUE*			*15.20*	*104.60*	*65*	*65*
6	*BLUE*			*15.20*	*104.60*	*55*	*55*
7	*DARK PINK*			*16.40*	*103.40*	*65*	*65*
8	*DARK PINK*			*16.40*	*103.40*	*60*	*60*
9	ORANGE			17.30	102.50	68	68
10	ORANGE			17.30	102.50	61	61
11	PINK			18.20	101.60	45	45
					Total	**659**	**659**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR	TRENCH SYSTEM	DISTRIBUTION
** System*	*335*	*0.25*	*MOD.*	*0.250*	*PPBPS*	*LOW PRESSURE*
Repair	324	0.25	MOD.	0.25	PPBPS	LOW PRESSURE

Notes:
** TBM located top of ground (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

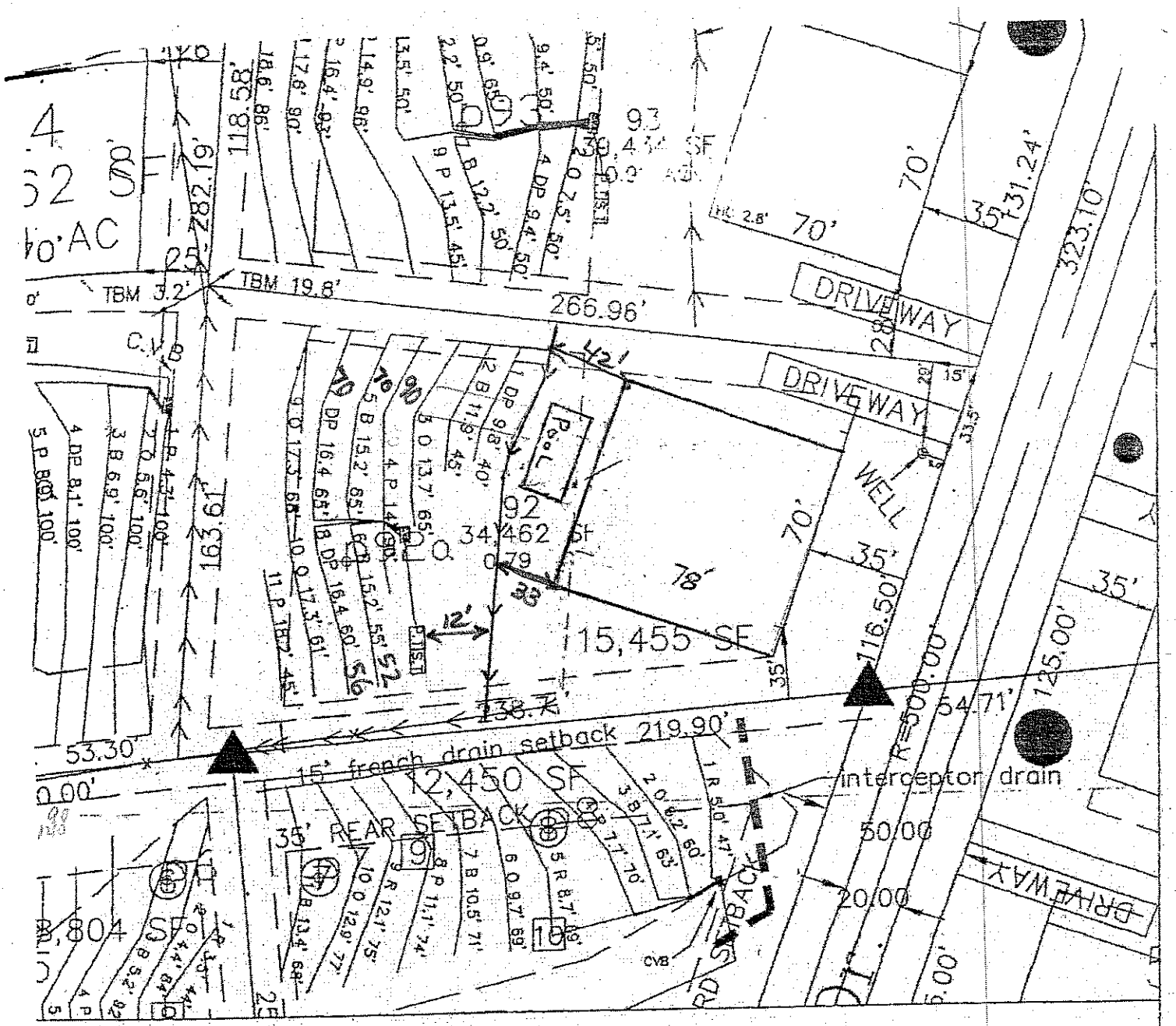
LP PPBPS TAPSHEET - Anniston Lot 92

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	Number of Panels
4	*PINK*	105.8	*90*	0.156	**0.41**	270	21
5	*BLUE*	104.6	*65*	0.156	**0.41**	195	15
6	*BLUE*	104.6	*55*	0.156	**0.41**	165	13
7	*DARK PINK*	103.4	*65*	0.156	**0.41**	195	15
8	*DARK PINK*	103.4	*60*	0.156	**0.41**	180	14
							78
	total	**feet =**	**335**	**gal/min =**	**31.98**		

Des. Flow	**480**
Pump Run=	**5.88**
soil LTAR	**0.25**
LTAR +5%	**0.2625**
LTAR with mod.	**0.27**
LTAR with mod.. + 5%	**0.2835**

.156 equals 5/32 inch hole



LEGEND

- Areas contain soils with 24 inches or more of useable material and have potential for conventional, modified conventional and low-pressure pipe (lpp) septic systems.
- House Footprint (All 70' x 70')
- System lines.
- Repair lines.
- TBM.
- (25) RS&ES Pit Location.
- Well Location.
- [28] Health Dept. Pit Location.

OK ICHD

APPROVED NOV 07 2014

GRAPHIC SCALE
1" = 50'
50 0 50 100

FOR PRELIMINARY PLANNING PURPOSES ONLY. ALL LOTS WILL REQUIRE FINAL APPROVAL BY THE COUNTY HEALTH DEPARTMENT ON A LOT BY LOT BASIS. THIS MAP SHOULD BY USED AS A GENERAL GUIDE. SOME ADJUSTMENTS WILL BE NECESSARY IN THE FIELD DUE TO SOIL VARIABILITY AND COMPLEX TOPOGRAPHIC FEATURES. THIS MAP ONLY REFLECTS EXISTING SOIL SUITABILITY FOR ON-SITE SEPTIC TANK SYSTEMS.

PLEASE REFER TO ATTACHED SOIL REPORT FOR ADDITIONAL SITE SPECIFIC INFORMATION

ROLLANS SOIL & ENVIRONMENTAL SERVICES
170 GRAHAM ROAD
MOUNT ULLA, NC 28125
PHONE/FAX (704) 279-0989
ASHLEY ROLLANS, NC LICENSED SOIL SCIENTIST
MOBILE: (704) 716-5546
EMAIL: ROLLANSFORTC@AOL.COM

MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: [illegible]

LOCATION/DATE: [illegible] ROWAN COUNTY, NORTH CAROLINA JULY 2006

JOB # : 01-1005
FILE: C:\JOBS\01-1005
PROJECT MGR.: S.A.R.
FIELD WORK: S.A.R.
DRAWN BY: S.A.R.

CALCULATIONS

Location Anniston Subdivision

Project Number 01-1005

Lot No: 92

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.25	$^{gal}/_{ft^2\ day}$
PPBPS? (YES OR NO)	YES	
Supply Line Length	30	ft.
Supply Line Volume	5.22	gal.
Required Feet of Line	320	ft.
Amount of Line from Layout	335	ft.
Gallons per Minute	31.98	$^{gal}/_{min}$
	Note: Flow/hole (.41gpm) x # of panels	
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Panel Volume	3.6	gal.
# of Panels	78	
Dosing Volume	188	gal.
	Note: Dosing Volume based on 67% of # of panels times 3.6 gal/panel	
Tank Draw Down	6.1	*Generic Draw Down of 21 gal.per in.*
Pump Run Time	5.88	minutes
Elevation Head	1.5	ft.
Pressure Head	2	ft.
Friction Factor	2.37	ft./100 ft. *(From the interpolater.)*
Friction Head	0.71	ft.
Total Dynamic Head (+15%)	4.84	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

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

Sheet 1 of 1
PROPERTY ID #: Lot# 92
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Anniston, LLC
ADDRESS: Anniston Phase 3 APPLICATION DATE 10/6/06
PROPOSED FACILITY: 5-bedroom PROPOSED DESIGN FLOW (.1949): 600gpd DATE EVALUATED: 8/06
LOCATION OF SITE: Shearer's Road, Lt. on Anniston Way, Lt. Timberside Dr. PROPERTY SIZE: ac
WATER SUPPLY: ☐ Private ☐ Public ☐ Well ☐ Spring ☐ Other PROPERTY RECORDED:
EVALUATION METHOD: ☐ Auger Boring ☐ Pit ☐ Cut TYPE OF WASTEWATER: ☐ Sewage ☐ Industrial Process ☐ Mixed

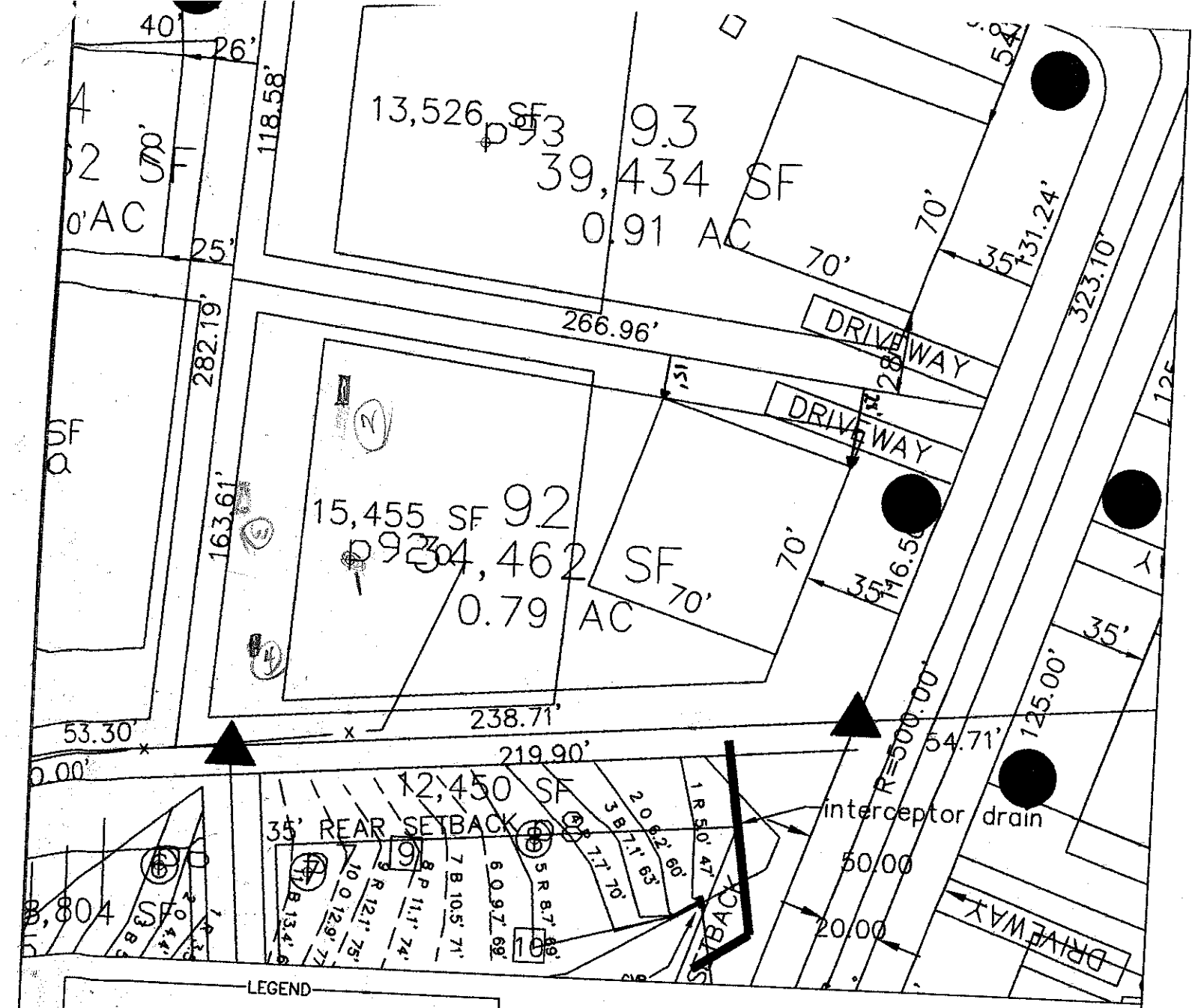
PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
P	LSS	0-50	RBC WFABk	FrSS,PSExP	few Sap	50+	—	—	PS
92A	0-5%								
									0.3
2		0-12	wk-mfsbk (dk brn) c	frssp	soap				
		12-55	m-f-sbk red/dk	frssp	soap few/common mottles				025
			French Drain req'd		water bearing zone				
3	10+%	0-23	wk-f-sbk	frssp	soap				
		23-48	M-sbk red/dk	frssp	few common gleyed mottles				.25
			French Dr. req'd		water bearing zone				
6		0-22	wk-m-fsbk/abk red dk brn	c frssp	soap				
		22-52	M-sbk red/dk	frssp	few/common mottles in lower horiz drainage mottles, few/mod soap				.25
			French Dr. req'd.		water bearing zone				

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

COMMENTS:

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948): PS

EVALUATED BY: Samuel Rollans & Brady Freeman
OTHER(S) PRESENT:



LEGEND

- Areas contain soils with 24 inches or more of useable material and have potential for conventional, modified conventional and low-pressure pipe (lpp) septic systems.
- House Footprint (All 70' x 70')
- System lines.
- Repair lines.
- TBM.
- (25) RS&ES Pit Location.
- Well Location.
- [28] Health Dept. Pit Location.

GRAPHIC SCALE
1" = 50'

50 0 50 100

FOR PRELIMINARY PLANNING PURPOSES ONLY. ALL LOTS WILL REQUIRE FINAL APPROVAL BY THE COUNTY HEALTH DEPARTMENT ON A LOT BY LOT BASIS. THIS MAP SHOULD BY USED AS A GENERAL GUIDE, SOME ADJUSTMENTS WILL BE NECESSARY IN THE FIELD DUE TO SOIL VARIABILITY AND COMPLEX TOPOGRAPHIC FEATURES. THIS MAP ONLY REFLECTS EXISTING SOIL SUITABILITY FOR ON-SITE SEPTIC TANK SYSTEMS.

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ASHLEY ROLLANS, NC LICENSED SOIL SCIENTIST
MOBILE: (704) 746-5046
EMAIL: ROLLANSFORTC@AOL.COM

MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: ANNISTON LLC. / ANNISTON PHASE II

LOCATION/DATE: SHERRER CHAPEL ROAD, REDELL COUNTY, NORTH CAROLINA, JULY 2006

JOB # : 01-1005
FILE: C:\JOBS\01-1005
PROJECT MGR.: S.A.R.
FIELD WORK: S.A.R.
DRAWN BY: S.A.R.

LPP PPPBS SYSTEM INSPECTION CHECKLIST File # _____

Location 117 Timberside annston s/o lot 92

ITEM	INITIALS	DATE
SYSTEM SETBACKS	_____	_____
Public Water Supply Wells Setback 100'		
Private Water Supply Wells Setback 100' (50')		
SA Water Setback 100' (50')		
Other Surface Waters 50'		
Marsh 50'		
Property Lines 10' (5')		
House Foundations 5'		
Goundwater Lowering Devices 25 (10')		
Water Lines 10'		
Other Drainfields 20'		
Swimming Pools 15'		
Embankments of 2 feet or more 15' (5')		
Interceptor Drains 10', 15', 25'		
Basements 8'		
SEPTIC TANK STB 825-1000	_____	_____
Location		
Size 1000 gallons		
Date Manufactured 11/26/14		
Baffle		
Sanitary Tee		
Vent Clear		
Level		
Outlet Pipe Sealed with Concrete		
PUMP TANK RST PT 302	_____	_____
Location		
Size 1000 gallons		
Date Manufactured 11/1/14		
Manhole > 24" Diameter		
Manhole > 6" Above Grade		
Manhole Sealed to Tank		
Connected to Septic Tank		
SUPPLY LINE	_____	_____
Size _____ inch		
Schedule 40		
Located in Said Easement if Applicable		
Private Water Supply Setback 50' (25')		
SA and SB Water Setback 50' (10')		
Other Surface Waters, Basements, Embankments, Goundwater Lowering Devices and Swimming Pools 10'		
Property Lines, Interceptor Drains and Other Fields 5'		

60, 5 strap
63" strut

6.5
43
130 gal / 3 min run time

MANIFOLD _____ _____
Location
Level
Size _____ inch
Schedule 40
Reducing Tees
Cleanout

LATERALS _____ _____
Location
Size _____ inch
Material: _____Schedule 40, _____ 160 psi
Length _____ feet
Spacing_____ feet
Turnups Schedule 40
Hole Spacing
Hole Size_____ inch
Level
Sleeves (>6")
Head check _____ feet

PANEL BLOCKS AND DRAINFIELD _____ _____
Location
Trench Bottom Width
Trench Bottom Depth
Blocks level
Block compartments lined with adequate sand
Trenches backfilled with good quality sand
Trench sidewalls raked if applicable
Lids secure
Outer seal around lateral pipe
Topsoil Cover if Required
Grass Seeded (Follow up at Maintenance Inspection)

EFFLUENT PUMP _____ _____
Sitting on Block (4" or 8")
Size _____ Hp., Make _____, Model _____
Submerged When Pump is Off
Rope or Corrosion Resistant Chain
Pump Discharge Pipe is at Least Schedule 40
Type of Flow Control Valve _____
Flow Control Valve Accessible
Type of Pipe Disconnect Device _____
Check Valve if Needed
Anti-siphon Hole if Needed
(3/16" located behind check valve)

FLOATS _____ _____
Pump Float(s): _____ One _____ Two
Floats Secured to Pipe or Tree
Dose Volume _____ inches
Alarm Float Less Than 6 Inches Above Float On Level
Wire Conduit Sealed at Both Ends
No Splices in Tank or Manhole

ELECTRICAL CONTROL PANEL _____ _____

Secured Against Unauthorized Access (Panel Screws)
Weatherproof (NEMA _____)
Adjacent to Pump Tank (Less than 50' and within sight of pump tank)
Greater Than 12" Above Finished Grade
Manual Disconnects for Pump and Alarm
Separate Electrical Circuits for Pump and Alarm
Alarm is Audible to System Users
Alarm is Visible by System Users
If Alarm is Separate From The Panel,
It Must Be Weatherproof If Installed Outdoors
Panel is Above 100 yr. Flood Elevation

MANAGEMENT CONTRACT APPROVED _____ _____

REMARKS:

12, 2 Rowan Septic

Anniston Lot 92 117 Timberside

Project #:01-1065

LAYOUT FOR 4 BEDROOM HOME

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		19.8	119.80		100.00		
INSTR. 1				6.40	113.40		
HOUSE CNR				13.50	106.30	40	40
P. TANK				9.80	110.00	45	45
1	DARK PINK			11.90	107.90	65	65
2	BLUE			13.70	106.10	*90*	*90*
3	ORANGE			*14.00*	*105.80*	*65*	*65*
4	*PINK*			*15.20*	*104.60*	*55*	*55*
5	*BLUE*			*15.20*	*104.60*	*65*	*65*
6	*BLUE*			*16.40*	*103.40*	*60*	*60*
7	*DARK PINK*			*16.40*	*103.40*	68	68
8	*DARK PINK*			17.30	102.50	61	61
9	ORANGE			17.30	102.50	45	45
10	ORANGE			18.20	101.60	**659**	**659**
11	PINK				**Total**		

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR	TRENCH SYSTEM	DISTRIBUTION
	335	*0.25*	*MOD.*	*0.250*	*PPBPS*	*LOW PRESSURE*
* *System*						
Repair	324	0.25	MOD.	0.25	PPBPS	LOW PRESSURE

Notes:

** TBM located top of ground (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

188 gal/day should be 9½" - not 6.1" as in design
system is delivering 43 gal/min rather than 32 gpm in design
78 panels × .41 gal/unit = 3.98 min dose time