Groundwater & Wastewater Services
Septic Project File & Data Review Worksheet

GWS File #: 7223 WASPS App #: 2402

Primary ES assigned to project: PW

Secondary ES assigned to project:

Project Type: New System ☑ Alteration ☐ Repair ☐ Modified Plot Plan ☐

I. File Review:

Rule or Law				
	Permit Application			
.1937(d)	Is the Application complete	Yes ☑	No ☐	N/A ☐
.1937(d)	Is there a Site plan/Plat with application	Yes ☑	No ☐	N/A ☐
.1937(d)	Is the Facility shown?	Yes ☑	No ☐	N/A ☐
.1937(d)	Are appurtenances shown	Yes ☑	No ☐	N/A ☐
	Site Evaluation Information			
.1939 (a)(1)	Topography and Landscape Position Recorded?	Yes ☑	No ☐	N/A ☐
.1940 (a-g)	Slope % Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Texture Class Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Structure type Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Consistence Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(2)	Mineralogy Recorded?	Yes ☑	No ☐	N/A ☐
.1939 (a)(3)	Soil Wetness Condition Recorded?	Yes ☐	No ☐	N/A ☑
.1939 (a)(4)	Soil Depth to Rock or Parent Material Recorded When Encountered	Yes ☐	No ☐	N/A ☑
.1939 (a)(5)	Depth to Restrictive Horizons Recorded When Encountered?	Yes ☐	No ☐	N/A ☑
.1939 (a)(6)	Sufficient Available Space Recorded?	Yes ☑	No ☐	N/A ☐
.1937(m)	Are the Profile Locations Shown?			
.1939(a)	Are the S/PS Profiles in system & in repair area?	Yes ☑	No ☐	N/A ☐
& .1945(b)	Number of auger borings made: 5 Were sufficient auger borings made?	Yes ☑	No ☐	N/A ☐
.1939(d), .1955, .1956, .1957	LTAR .3	Yes ☑	No ☐	N/A ☐
	Improvement Permit/Construction Authorization			
.1937(g) 130A-336(a)	Proposed System Type stated-Initial	Yes ☑	No ☐	N/A ☐
.1945(b) 130A-336 (a)(3)	Proposed System Type stated-Repair	Yes ☑	No ☐	N/A ☐
.1937(g) .1945(b)	System location identifiable by setbacks - Initial	Yes ☑	No ☐	N/A ☐
.1945(b)	System components shown – Initial	Yes ☑	No ☐	N/A ☐
.1937 (f)(g).	Repair area shown	Yes ☑	No ☐	N/A ☐
.1937 (f)(g)	Does System design match facility, flow & WWcharacteristics?	Yes ☑	No ☐	N/A ☐
.1937 (f)(g)	Is System design consistent with soil/site conditions?	Yes ☑	No ☐	N/A ☐
130A-336(a)	Is the System located in the approved area?	Yes ☑	No ☐	N/A ☐
	Is the Design flow (gpd) indicated?	Yes ☑	No ☐	N/A ☐

130A-336(a)	Number of Bedrooms, employees, seats, etc. indicated?	Yes ☑	No ☐	N/A ☐
.1937(g)	Trench depth indicated?	Yes ☑	No ☐	N/A ☐
.1937(g)	Trench width indicated?	Yes ☑	No ☐	N/A ☐
.1937(g)	Trench length indicated?	Yes ☑	No ☐	N/A ☐
130A-336(a)(1)	Proposed/existing well shown?	Yes ☐	No ☐	N/A ☑
130A-336(a)(1)	Property line lengths shown?	Yes ☑	No ☐	N/A ☐
130A-336(a)	Facility/appurtenance setbacks shown from fixed points?	Yes ☑	No ☐	N/A ☐
	Operation Permit			
.1937(i)	System type as described in table V(a) of rule .1961	Yes ☐	No ☐	N/A ☐
.1937(i)	Conditions for system performance, operation, maintenance, monitoring and reporting.	Yes ☐	No ☐	N/A ☐

II. WASPS Review:

Construction authorization issued	Yes ☐	No ☐	N/A ☐
Installation approval issued	Yes ☐	No ☐	N/A ☐
Operation permit issued	Yes ☐	No ☐	N/A ☐
Other related documentation	Yes ☐	No ☐	N/A ☐

Items requiring correction/modification: _____

Comments:

IA issued date: _____

OP issued date: _____

Review performed by: IR

Date performed: 1-15 OP

7212B
7215B

FILE NUMBER: _____ Revised On: January 3, 2007 APPLICATION NUMBER: 2482

SEPTIC FEE: 200.00
DATE: 7/6/07
CK # 306828 JKA

MECKLENBURG COUNTY GROUNDWATER & WASTEWATER SERVICES
APPLICATION FOR A RESIDENTIAL SITE IMPROVEMENT PERMIT/ CONSTRUCTION AUTHORIZATION FOR AN ON-SITE WASTEWATER SYSTEM, NEW WELL INSTALLATION, OR REPAIR OF EXISTING WELL

WELL FEE: _____
DATE: _____

1. **SEPTIC / TYPE APPLICATION:** ☐ NONE ☒ NEW SYSTEM ☐ ALTERATION ☐ REPAIR ☐ MODIFIED PLOT PLAN

2. **WELL / TYPE APPLICATION:** ☐ NONE ☐ NEW WELL ☐ MAJOR REPAIR ☐ ABANDONMENT

3. **JOB LOCATION INFORMATION:**
TAX PARCEL NUMBER: 00333101, 00304103 (Part of 00333102)
STREET ADDRESS: ~~3513~~ Grey Road
CITY: Davidson
STATE: NC ZIP: 28036
SUBDIVISION NAME: ABERSHAM
LOT #: 34 LOT SIZE (acres): 2.30 acres
TOWNSHIP:
☐ 0-MECKLENBURG ☐ 3-CORNELIUS ☐ 6-HUNTERSVILLE
☐ 1-CHARLOTTE ☐ 4-PINEVILLE ☐ 7-MINT HILL
☒ 2-DAVIDSON ☐ 5-MATTHEWS

4. **BUILDING INFORMATION:**
BUILDING TYPE:
☐ SINGLE MOBILE HOME ☐ MODULAR HOME
☐ DOUBLE WIDE ☐ MULTIPLE FAMILY
☒ HOUSE ☐ OTHER _____
HEATED SQUARE FOOTAGE:
NUMBER OF BEDROOMS: 6
NUMBER OF OCCUPANTS: 12 maximum
FOUNDATION TYPE:
☐ CONCRETE SLAB ☒ BASEMENT WITH PLUMBING
☐ CRAWL SPACE ☐ BASMENT WITH NO PLUMBING

5. **IF PLANNING TO EXPAND OR ALTER THE EXISTING SYSTEM PLEASE COMPLETE THE FOLLOWING SECTION:** ☒ N/A
NUMBER OF BEDROOMS TO BE ADDED: _____ NUMBER OF ADDITIONAL OCCUPANTS IN THE RESIDENCE: _____

6. **WATER SUPPLY:** ☐ MUNICIPAL ☐ PUBLIC WELL ☒ PRIVATE WELL ☐ SHARED WELL ☐ SPRING

7. **PROPOSED USE OF WELL:** ☒ N/A ☐ IRRIGATION ☐ POTABLE ☐ GEOTHERMAL ☐ OTHER

8. **PLEASE INDICATE AND RANK DESIRED SEPTIC SYSTEM TYPE(S) IN ORDER OF PREFERENCE** *(1-MOST DESIRED 5-LEAST DESIRED):*

	☐ ANY TYPE	☒ CONVENTIONAL	☒ ACCEPTED	☒ INNOVATIVE	☒ ALTERNATIVE	☐ OTHER _____
8A. **RANK:**		1	2	3	4	

9. **DO ANY OF THE FOLLOWING APPLY TO THE PROPERTY IN QUESTION? IF "YES" PLEASE ATTACH SUPPORTING DOCUMENTATION.**

BURIED CABLES, LANDFILLS, STUMPHOLES	☐ YES	☒ NO	GRADING/SOIL REMOVAL PERFORMED	☐ YES	☒ NO
EXISTING WASTEWATER SYSTEMS	☐ YES	☒ NO	JURISDICTIONAL WETLANDS	☐ YES	☒ NO
WELLS, SPRINGS, OR WATER LINES	☐ YES	☒ NO	APPROVAL REQUIRED BY ANY OTHER PUBLIC AGENCY	☐ YES	☒ NO
EASEMENTS OR RIGHT-OF-WAYS	☐ YES	☒ NO	WASTEWATER OTHER THAN DOMESTIC SEWAGE	☐ YES	☒ NO

10. **PROPERTY OWNER:**
NAME: Neighborhoods at Abersham
ADDRESS: P.O. Box 99
CITY: Davidson
STATE: NC ZIP: 28036
HOME PHONE: N/A WORK PHONE: 704.895.0556
MOBILE PHONE: N/A FAX: 704.895.0558

11. **OWNER'S LEGAL REPRESENTATIVE, IF APPLICABLE:**
NAME: Rollans Soil & Environmental Services
ADDRESS: 470 N. Broad St., Suite D
CITY: Mooresville
STATE: NC ZIP: 28115
HOME PHONE: N/A WORK PHONE: 704.658.1723
MOBILE PHONE: 704.746.5046 FAX: 704.658.1724

12. **WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED?** _____
13 **WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY?** _____

14. **SEPTIC SYSTEM PERMIT APPLICATION SIGNATURE SECTION:**
If the information in this application is falsified, changed, or the site is altered, then the Improvement Permit and Authorization to Construct shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for either 60 months or is non-expiring depending upon the documentation submitted: complete site plan = 60 months, complete plat = non-expiring.

Samuel R Rollans
Property Owner's or Owner's Legal Representative Signature Date

15. **WELL PERMIT APPLICATION SIGNATURE SECTION:**
If the information in this application is falsified, changed, or the site is altered, then the Well Permit shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labeling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for a period of 12 months from the date of issuance.

Property Owner's or Owner's Legal Representative Signature Date

☐ SURVEY PLAT TO SCALE SUBMITTED ☒ SCALED SITE PLAN SUBMITTED ☐ UN-SCALED SITE PLAN SUBMITTED

Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Sheet: 1 of 2
Property ID: PO 003-331-01
Lot #: 34
File #: 7212B
AppID: 2482

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

Owner: Neighborhoods at Abersham
Applicant: Rollans Soil & Env. Services
Address: PO Box 99, Davidson, N. C. 28036
Date Evaluated: 7/27/07
Proposed Facility: Residence
Design Flow (.1949): 720gpd
Property Size: 2.3a
Location of Site: Off Grey road
Property Recorded:
Water Supply: [ ] Public [x] Individual [x] Well [ ] Spring [ ] Other
Evaluation Method: [ ] Auger Boring [x] Pit [ ] Cut
Type of Wastewater: [x] Sewage [ ] Industrial Process [ ] Mixed

PROFILE #	.1940 Landscape Position/ Slope%	Horizon Depth (IN.)	SOIL MORPHOLOGY .1941 .1941 Structure/ Texture	.1941 Consistence Mineralogy	b PROFILE FACTORS .1942 Soil Wetness/ Color	.1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr Horiz	Profile Class & LTAR
1	LS, 6	0-5	GR/CL	FR/SEXP/SS/SP	>48" TO SOIL WETNESS	48	N/A	NONE	PS, IV
		5-48	SBK/ABK/C	FI/SEXP/S/P					.3GPD/FT^2
2	"	0-2	GR/CL	FR/SEXP/SS/SP	>49" TO SOIL WETNESS	49	"	"	"
		2-49	SBK/ABK/C	FI/SEXP/S/P					
3	"	0-3	GR/CL	FR/SEXP/SS/SP	>52" TO SOIL WETNESS	52	"	"	PS, IV
		3-33	SBK/ABK/C	FI/SEXP/S/P					.275GPD/FT
		33-52	SBK/CL	FR/SEXP/SS/SP					
					SITE LTAR .3GPD/FT^2				
1-A	"	0-36	SBK/ABK/C	FR-FI/SEXP/SS/SP	>48" TO SOIL WETNESS	48	"	"	PS, IV
		36-48	SBK/ABK/CL	FR/SEXP/SS/SP					.3GPD/FT^2
2-A	"	0-20	SBK/CL	"	"	"	"	"	"
		20-40	SBK/ABK/C	FI/SEXP/S/P					
		40-48	SBK/CL	FR/SEXP/SS/SP					

Description	Initial System	Repair System
Available Space (.1945)		
System Type(s)		
Site LTAR		

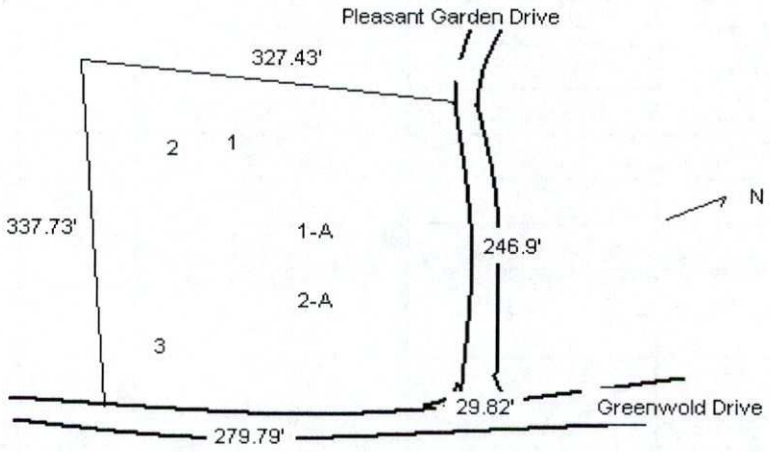
Other Factors (.1946):
Soil Evaluation By: W. R. Marlin, LSS, 8/7/2007, W. R. Marlin
Others Present: A. Rollans
Site Classification (.1948):
Site Evaluation By:
Others Present:

COMMENTS:
100% repair

Landscape Position	Group	Texture	.1955 LTAR	Structure
R-Ridge	I	S-Sand	1.2 - 0.8	SG-Single Grain
SS-Shoulder Slope		LS-Loamy Sand		M-Massive
LS-Linear Slope				CR-Crumb
FS-Foot Slope	II	SL-Sandy Loam	0.8 - 0.6	GR-Granular
NS-Nose Slope		L-Loam		SBK-Subangular Blocky
HS-Head Slope				ABK-Angular Blocky
CC-Concave Slope	III	SI-Silt	0.6 - 0.3	PL-Platy
CV-Convex Slope		SICL-Silty Clay Loam		PR-Prismatic
T-Terrace				
FP-Flood Plain		CL-Clay Loam		
		SCL-Sandy Clay Loam		
	IV	SC-Sandy Clay	0.4 - 0.1	
		SIC-Silty Clay		
		C-Clay		

Consistence Moist	Consistence Wet	Mineralogy
VFR-Very Friable	NS-Non-Sticky	SEXP-Slightly Expansive
FR-Friable	SS-Slightly Sticky	EXP-Expansive
FI-Firm	S-Sticky	
VFI-Very Firm	VS-Very Sticky	
EFI-Extremely Firm	NP-Non-Plastic	
	SP-Slightly Plastic	
	P-Plastic	
	VP-Very Plastic	

Sketch of Soil Evaluation Locations



Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Sheet: 1 of 2
Property ID: PO 003-331-01
Lot #: 34
File #: 7212B
AppID: 2482

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Type of Wastewater: [x] Sewage [ ] Industrial Process [ ] Mixed

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3	"	0-3	GR/CL	FR/SEXP/SS/SP	>52" TO SOIL WETNESS	52	"	"	PS, IV
		3-33	SBK/ABK/C	FI/SEXP/S/P					.275GPD/FT
		33-52	SBK/CL	FR/SEXP/SS/SP					
					SITE LTAR .3GPD/FT^2				
1-A	"	0-36	SBK/ABK/C	FR-FI/SEXP/SS/SP	>48" TO SOIL WETNESS	48	"	"	PS, IV
		36-48	SBK/ABK/CL	FR/SEXP/SS/SP					.3GPD/FT^2
2-A	"	0-20	SBK/CL	"	"	"	"	"	"
		20-40	SBK/ABK/C	FI/SEXP/S/P					
		40-48	SBK/CL	FR/SEXP/SS/SP					

Description	Initial System	Repair System
Available Space (.1945)	PS	PS
System Type(s)	~~Ivb~~ IVa	~~Ivb~~ IVa
Site LTAR	0.3	0.275

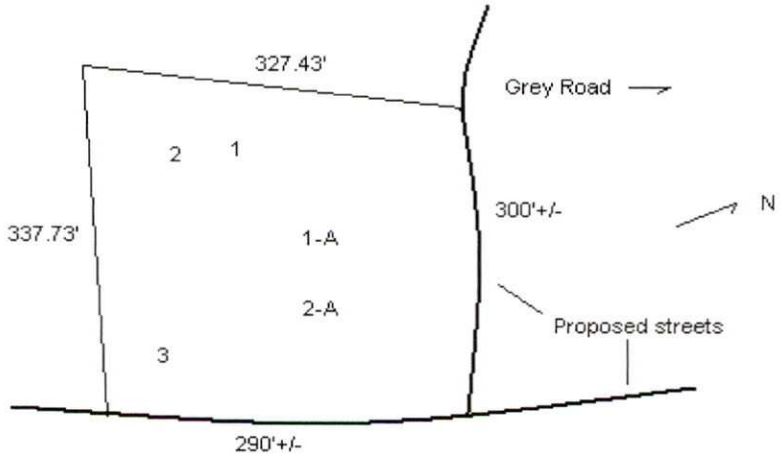
Other Factors (.1946):
Soil Evaluation By: W. R. Marlin, LSS, 8/7/2007, W. R. Marlin
Others Present: A. Rollans
Site Classification (.1948): PS
Site Evaluation By: PHILO WALKER RS
Others Present:

COMMENTS:
100% repair

Landscape Position	Group	Texture	.1955 LTAR	Structure
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T-Terrace				
FP-Flood Plain		CL-Clay Loam		
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	IV	SC-Sandy Clay	0.4 - 0.1	
		SIC-Silty Clay		
		C-Clay		

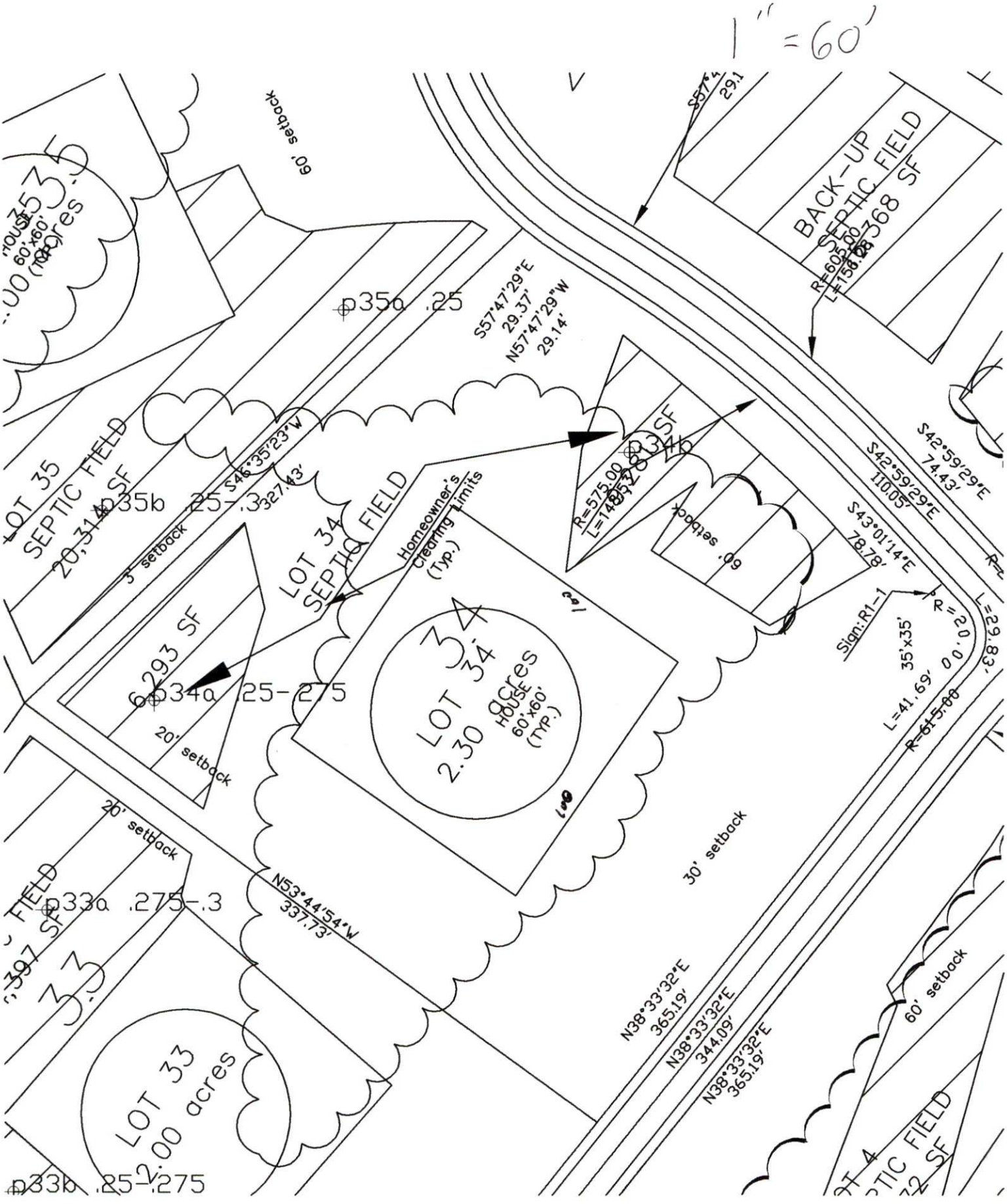
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FI-Firm	S-Sticky	
VFI-Very Firm	VS-Very Sticky	
EFI-Extremely Firm	NP-Non-Plastic	
	SP-Slightly Plastic	
	P-Plastic	
	VP-Very Plastic	

Sketch of Soil Evaluation Locations



PPBPS Design Worksheet	(Primary System)							File #:	7212B
								Tax #:	
System Requirements								Address:	Lot 34 - Abersham
Design Flow	720	gpd							
LTAR	0.300	gpd/ft.^2						Consultant:	Ashley Rollans
Linear footage	800	ft. (conventional)						Phone:	
Linear footage	400	ft. (50% Reduction)							
								Reviewed By:	
Design Layout								Date:	
Laterals	Length (ft)	# Panels	Calculated						
Line # 1	40	9	9.23		T & J Panels				
Line # 2	40	9	9.23		Linear Feet	# Panels			
Line # 3	45	10	10.38		20	5			
Line # 4	45	10	10.38		30	7			
Line # 5	55	13	12.69		40	9			
Line # 6	60	14	13.85		50	11			
Line # 7	40	9	9.23		60	14			
Line # 8	40	9	9.23		70	16			
Line # 9	40	9	9.23						
Line # 10	0	0	0.00						
Totals	**405**	**92**	93.46						
	*Lines longer than 70 ft. must be center-fed to comply with sewage rules.								
Absorption Area									
Length (ft)	Width (ft)	Area (ft^2)							
405	3	1,215							
System Pressure Head	2	ft.	Value selected by system designer (must be between 2-5 ft.)						
Orifice Diameter	5/32	in.	Size selected by system designer (1/8 in. minimum)						
Flow Rate per Orifice	0.41	gpm	Determined from orifice flow design table (use table from Flow Rate tab)						
Total System Flow Rate	37.45	gpm	Total number of panels required multiplied by the orifice flow rate						
System Dose Volume	331.20	gal.	Total number of panels required multipled by 3.6 gal./panel						
Doses Per Day	2.17	cycles	Number of dose cycles per day based on daily design flow						
Pump Run Time	8.84	min.	System dose volume divided by the total system flow rate						
Pump Tank Volume / Inch	29	gal./in.	1,000 gal. Pump tank, volume is approximately 21 gallons per inch. 1,500 gal. pump tank, volume is approximately 29 gallons per inch						
Pump Tank Drawdown	11.42	in.	Depth of effluent pumped per dose cycle.						
Cells with blue shading require user input.									
Cells with yellow shading are automatically calculated.									
Comments:									
1. Install system using 3 ft. wide trenches.									
2. Install drainlines on 9 ft. centers, level, and on contour.									
3. System design requires effluent pump for distribution.									
4. 100% Repair area is reguired.									

7212B


1" = 60'
60' setback
BACK-UP SEPTIC FIELD 5,368 SF
R=605.50
L=156.68
S57°47'29"E 29.37'
N57°47'29"W 29.14'
S42°59'29"E 74.43'
S42°59'29"E 110.05'
S43°01'14"E 78.78'
Sign: R1-1
R=20.00
L=29.83'
35'x35'
L=41.69'
R=615.00
LOT 35
SEPTIC FIELD
20,314 SF
35b .25
35a .25
S46°35'23"W 327.43'
3' setback
LOT 34
SEPTIC FIELD
Homeowner's Clearing Limits (Typ.)
R=575.00
L=148.52
813 SF
34b
6,293 SF
34a .25-.275
20' setback
LOT 34
2.30 acres
HOUSE 60'x60' (TYP.)
30' setback
26' setback
33a .275-.3
N53°44'54"W 337.73'
N38°33'32"E 365.19'
N38°33'32"E 344.09'
N38°33'32"E 365.19'
LOT 33
2.00 acres
33b .25-.275
60' setback

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30002482** GWS File #: **7212B** Tax Parcel #: **003-331-01**

- This IMPROVEMENT PERMIT is subject to revocation if site plans or the intended use change. There is to be **NO** grading, filling, or disturbance of the soil in the area of the septic tank system or repair area.
- CONSTRUCTION AUTHORIZATION must be obtained prior to receiving a Building Permit. The Construction Authorization is **NOT** transferable. Do not clear, grade, fill or disturb soil prior to obtaining a Construction Authorization.
- Domestic-type wastewater only. No industrial process wastewater may be discharged into the system.

I. This Improvement Permit Shall: Expire in Five (5) Years **Expiration Date (If Applicable):** 10/25/2012

Type of Installation: Residential - New System Lot Number: 34

Structure Type: HOUSE Size (ft^2): 0 # Bedrooms: 6 # Occupants: 12

Building Foundation: Basement With Plumbing Water Supply: Private Well

II. Initial System Type: PPBPS (pressurized) **System Classification:** IVa

Initial System Specifications:

Design Flow (gpd):	720	LTAR (gpd/ft^2):	0.3	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1200	Total Trench Length (ft):	400
Maximum Trench Depth (in):	36	Depth of Media (in):	N/A	Distribution Device:	Manifold (LPP Distri		

III. Repair System Type: PPBPS (pressurized) **System Classification:** IVa

Repair System Specifications:

Design Flow (gpd):	720	LTAR (gpd/ft^2):	0.275	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1200	Total Trench Length (ft):	400
Maximum Trench Depth (in):	36	Depth of Media (in):	N/A	Distribution Device:	Manifold (LPP Distri		

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment, and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the Department.
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: Philo Walker

Signature: Philo A Walker RS

Date Issued: 10/25/2007

Owner/Legal Agent: GREG. C. WILLIAMS
Print Name

Signature: G C Williams

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30002482** GWS File #: **7212B**

IV. Permit Conditions/Comments:

- This type of septic system requires an inspection once every 3 years by our office. The system owner is responsible for any fees, as determined by the Mecklenburg County Board of Commissioners, associated with this inspection.
- This type of septic system requires a Certified Operator to maintain the system. A system maintenance contract with a Certified Operator must be on file prior to issuance of an Operation Permit.
- X This type of repair system requires the installation of a pump tank and all associated components. This type of system will require routine inspections by our office. The system owner is responsible for all fees associated with these inspections. NOT REQUIRED PUMP WILL BE INSTALLED W/ INITIAL SYSTEM.
- This type of repair system requires the property owner to obtain a contract with a Certified Operator to perform routine inspections and maintenance on the system.
- This type of repair system requires periodic inspections by our office. The system owner is responsible for any fees, as determined by the Mecklenburg County Board of Commissioners, associated with this inspection.
- All components of the septic system must be located at least 100 ft. (50 ft. minimum) from all private wells.

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the Department.
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: Philo Walker

Signature: Philo J Walker III

Date Issued: 10/25/2007

Owner/Legal Agent: GREG C. WILLIAMS (Print Name)

Signature: G C Williams

Page 2 of 2

ROLLANS *Soil & Environmental Services, Inc.*

470 North Broad St , Suite D, Mooresville, NC 28115 *Phone: (704) 658-1723* *Fax: (704) 658-1724*

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: bfrcc209@yahoo.com

Attached is a proposed design for a PPBPS Septic System with low pressure distribution for a 6 bedroom single family residence on Lot #34 in ABERSHAM Subdivision, Iredell County, North Carolina.

Contents: **Page**

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

Design Information
- Design Specifications---------- 2-3
- Layout Specifications---------- 4
- System Tapsheet---------- 5

Site Plan/System Plan---------- 6-7

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

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

August 17, 2007
Project #: 01-1044
Design By: Rollans Soil & Environmental Services

GWS Septic System Design Review
GWS File #: 7212B **Approved** ☒ **Disapproved** ☐
Design Review: TCT 1-3-08
Field Review: PDW 12/6/07
***Projects are not considered "APPROVED" until both sections above are completed and indicate an APPROVED status.**

INFORMATION FOR THE INSTALLER:

The permit should be read very carefully prior to bidding. The following are details that must be considered along with all other considerations.

- Tanks shall be approved by NC DENR, and certification supplied by the manufacturer.
- Tanks shall be water tested prior to installation.
- The installer shall be responsible to the owner for placement of the tanks and to insure that final grades are returned to the original natural grade, with exception of added structural features.
- The supply trench shall be compacted to eliminate cavities left during initial fill placement.

Installation of the system shall be during dry conditions in order to protect the soil structure.

- All fittings shall be pressure rated fittings.
- All joints shall be cleaned with PVC pipe cleaner and a heavy bodied glue applied to weld all joints.
- Where required by the county health department, post installation inspections by the designer must be scheduled 5 week days in advance.
- Trenches shall be carefully excavated so the bottom does not exceed 1/4" per 10 ft of fall within the trench. If the bottom elevation needs

adjusting after it has been trenched, it will be done by removing high points rather than filling low points. It is extremely important to insure that trenches are not over excavated during initial trenching. All fine grading within the trench will be hand done with a shovel. No loose material will be left in the trench

All pipe openings in the tanks shall be properly grouted. This also applies to the joints around the riser.

- All tanks shall be properly back filled and compacted to prevent slump at a later date.
- Earth dams, constructed of relatively impervious material, shall be installed at the beginning and end of each lateral.
- No heavy equipment shall be used on the field during or after installation. The use of a small loader (i.e. Bobcat) or a trencher (i.e. Ditch Witch 2300/2310) may be used for installation.
- Elevations at pinflag locations should be checked by the installer prior to beginning trenches.
- Pumptank riser should be 6" above grade, control panel should be 12" above grade.

Design precludes foundation drains.

Septic tank riser shall be a minimum of 6" above finished grade.

- System is specified as a PPBPS installation.
- Repair is specified as a PPBPS installation.
- Backfill 4 - 6" of material (County Approved) over panels, rake trench walls, lime side-walls, install trenches 36" wide and have no more than 1/4" fall in 10 feet.

LP PPBPS SYSTEM
FOR WASTEWATER TREATMENT

Owner/Applicant:	William Brewster Company
Address:	PO Box 99 Davidson NC 28036
Phone:	704 895 0556
County:	Mecklenburg
Location:	ABERSHAM LOT #34
Source of Wastewater Flow:	6 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	720
System Flow:	37.72

Design Specifications

Drainfield Size:	405
Loading Rate (gpd/ft.^{2}):	0.3
Depth of Gravel in Trench:	NA (PPBPS)
Gravel Size:	NA (PPBPS)
Trench Depth:	36 in.
Trench Width:	36 in.
Septic Tank Size:	1500 gal.
Pump Tank Size:	1500 gal.
Estimated Supply Line Length:	185
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	32.19
Dosing Volume:	221.90
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:	N/A
Elevation Head:	N/A
Total Dynamic Head:	N/A
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 Mecklenburg County Health Department.

ABERSHAM LOT #34

LP PPBPS

DESIGN FLOW (gpd):	720
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	1215
TOTAL LATERAL LENGTH:	405
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	400
SUPPLY LINE LENGTH:	185
TOTAL DYNAMIC HEAD:	N/A
MANIFOLD SIZE:	N/A
DOSING VOLUME:	221.90
PUMP TANK DRAW DOWN*:	10.6
SEPTIC TANK SIZE:	1500 gal.
PUMP TANK SIZE:	1500 gal.

**Pump tank draw down based on a volume basis of 31 gallons per inch. Draw down may vary among pump tank manufacturers.*

ABERSHAM LOT #34

Project #: 01-1044

LAYOUT FOR 6 BEDROOM HOME

August 17, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		N/A			100.00		
INSTR. 1			N/A				
HOUSE CNR				N/A	N/A		
P. TANK				N/A	N/A		
1	BLUE			N/A	N/A	90	90
2	***RED***			*N/A*	*N/A*	***40***	***40***
3	***RED***			*N/A*	*N/A*	***40***	***40***
4	***PINK***			*N/A*	*N/A*	***45***	***45***
5	***PINK***			*N/A*	*N/A*	***45***	***45***
6	***ORANGE***			*N/A*	*N/A*	***55***	***55***
7	***ORANGE***			*N/A*	*N/A*	***60***	***60***
8	***BLUE***			*N/A*	*N/A*	***40***	***40***
9	***BLUE***			*N/A*	*N/A*	***40***	***40***
10	***RED***			*N/A*	*N/A*	***40***	***40***
11	RED			N/A	N/A	40	40
12	PINK			N/A	N/A	44	44
13	RED			N/A	N/A	65	65
14	ORANGE			N/A	N/A	71	71
15	BLUE			N/A	N/A	90	90
16	PINK			N/A	N/A	97	97
17	RED			N/A	N/A	33	33
					Total	**935**	**935**

	LINE LENGTH	LTAR GPD/FT2	SYSTEM TYPE	SOIL LTAR GPD/FT2	TRENCH SYSTEM	DISTRIBUTION
****System***	***405***	***0.3***	***MOD.***	***0.300***	***PPBPS***	***LOW PRESSURE***
Repair	330	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

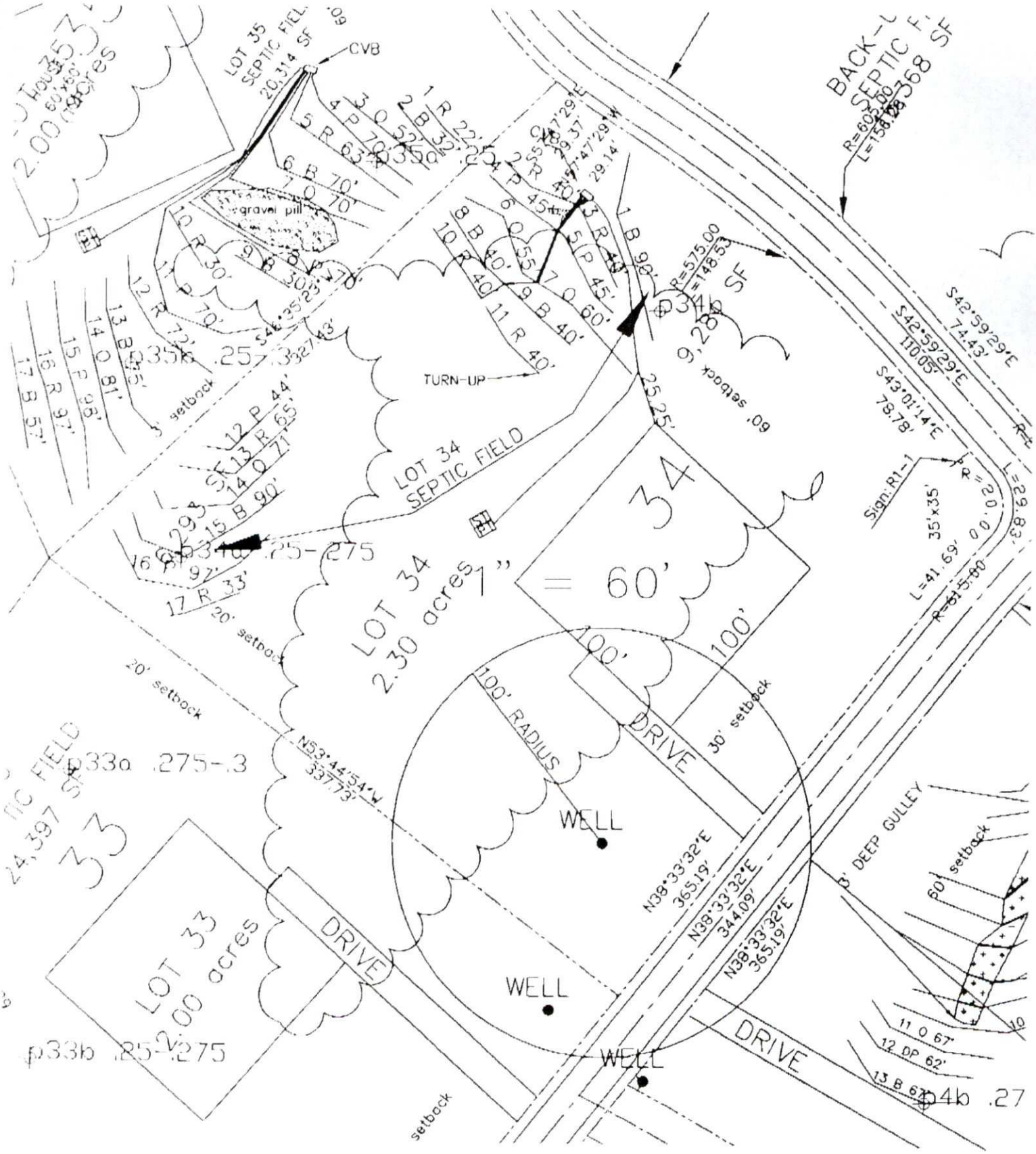
LP PPBPS TAPSHEET -ABERSHAM LOT 34

SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/hole	Trench Area	Number of Panels
2	RED	N/A	40	0.156	0.41	120	9
3	RED	N/A	40	0.156	0.41	120	9
4	PINK	N/A	45	0.156	0.41	135	10
5	PINK	N/A	45	0.156	0.41	135	10
6	ORANGE	N/A	55	0.156	0.41	165	13
7	ORANGE	N/A	60	0.156	0.41	180	14
8	BLUE	N/A	40	0.156	0.41	120	9
9	BLUE	N/A	40	0.156	0.41	120	9
10	RED	N/A	40	0.156	0.41	120	9
							92
	total	feet =	405	gal/min =	37.72		
			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

LOT 33
SEPTIC FIELD
24,397 SF
LOT 33
2.00 acres
LOT 35
SEPTIC FIELD
20,314 SF
LOT 35
2.00 acres
LOT 34
2.30 acres
LOT 34
SEPTIC FIELD
DRIVE
WELL
WELL
Keep the septic system > 100' from proposed well
34
6 Bedroom House
100'
100'
337'
345'
307'
725'
TURN-UP
CVB
3' DEEP GULLEY
HARD PIPE AREA
BACK-UP SEPTIC FIELD
16,368 SF
COMMENTS 6 Bedroom House
Scale 1" = 60'
> 100' from well
Keep septic system
> 25' upslope from foundation


LOT 35
SEPTIC FIELD
20,314 SF
CVB
gravel pit
TURN-UP
LOT 34
SEPTIC FIELD
LOT 34
2.30 acres
1" = 60'
LOT 33
2.00 acres
WELL
WELL
WELL
DRIVE
DRIVE
DRIVE
100' RADIUS
30' setback
20' setback
setback
setback
setback
60' setback
3' DEEP GULLEY
N53°44'54"W
337.73'
N38°33'32"E
365.19'
N38°33'32"E
344.09'
N38°33'32"E
365.19'
R=575.00
L=148.53
9,288 SF
R=603.50
L=158.68
368 SF
S42°59'29"E
74.43'
S42°59'29"E
110.05'
S43°01'14"E
78.78'
Sign: R1-1
35'x35'
L=41.69'
R=615.00
L=29.83'
R=20.00
25.25'
60' setback
S55°28'29"E
39.57'
S47°47'29"E
29.14'
S46°35'23"W
327.43'
LOT 33
44,397 SF
p33a .275-.3
p33b .25-.275
p34b .27

CALCULATIONS

Location ABERSHAM

Project Number 01-1044

Lot No. Lot 34

No. of Bedrooms	6	
Design Flow	720	$^{gal}/_{day}$
LTAR	0.300	$^{gal}/_{ft^2\ day}$
PPBPS? (YES OR NO)	YES	
Supply Line Length	185	ft.
Supply Line Volume	32.19	gal.
Required Feet of Line	400	ft.
Amount of Line from Layout	405	ft.
Gallons per Minute	37.72	$^{gal}/_{min}$
Required Septic Tank Capacity	1500	gal.
Minimum Standard Tank Size	1500	gal.
Panel Volume	3.6	gal.
# of Panels	92	
Dosing Volume	221.90	gal.

Note: Dosing Volume based on 67% of # of panels times 3.6 gal/panel to reduce overloading of system.

Tank Draw Down	10.6	*Generic Draw Down of 31 gal per in.*
Pump Run Time	5.88	minutes
Elevation Head	N/A	ft.
Pressure Head	N/A	ft.
Friction Factor	3.03	ft./100 ft. *(From the interpolater.)*
Friction Head	N/A	ft.
Total Dynamic Head (+15%)	N/A	ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
[illegible]	[illegible]
25	1.27
[illegible]	[illegible]
30	1.78
[illegible]	[illegible]
35	2.37
[illegible]	[illegible]
40	3.03
[illegible]	[illegible]
45	3.77
[illegible]	[illegible]
50	4.58
[illegible]	[illegible]
60	[illegible]