Groundwater & Wastewater Services
Septic Project File & Data Review Worksheet

GWS File #: 2624B WASPS App #: 3233

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: 4 | | | |
| | Were sufficient auger borings made? | Yes ☐ | No ☐ | N/A ☐ |
| .1939(d), .1955, .1956, .1957 | LTAR .275 | 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 ☐ |

| | | | | |
|---|---|---|---|---|
| .1937(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 ☐ |
| | | 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:

Give me a copy of plat to verify 31' prop. line

IA issued date: _____

OP issued date: _____

Review performed by: JR

Date performed: 5/20/08

FILE NUMBER: 7624B

SEPTIC FEE: 200 DATE: 5/16/08 CK# 3791 0

Revised On: January 3, 2007

APPLICATION NUMBER: 3233

# 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 #: 53 LOT SIZE (acres) 2.06 Acres 13,946 SF

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: 5,E

NUMBER OF BEDROOMS: 6

NUMBER OF OCCUPANTS: 12 max. mum

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?** _____

**SEPTIC SYSTEM PERMIT APPLICATION SIGNATURE SECTION:**

he information in this application is falsified, changed, or the site is altered, n the Improvement Permit and Authorization to Construct shall become alid. I have read this application and certify that the information provided 'ein is true, complete and correct. Authorized county and state officials are nted right of entry to conduct necessary inspections to determine npliance with applicable laws and rules. I understand that I am solely ponsible for the proper identification and labeling of all property lines and ners and making the site accessible so that a complete site evaluation can performed. The permit is valid for either 60 months or is non-expiring ending upon the documentation submitted: complete site plan = 60 nths, complete plat = non-expiring.

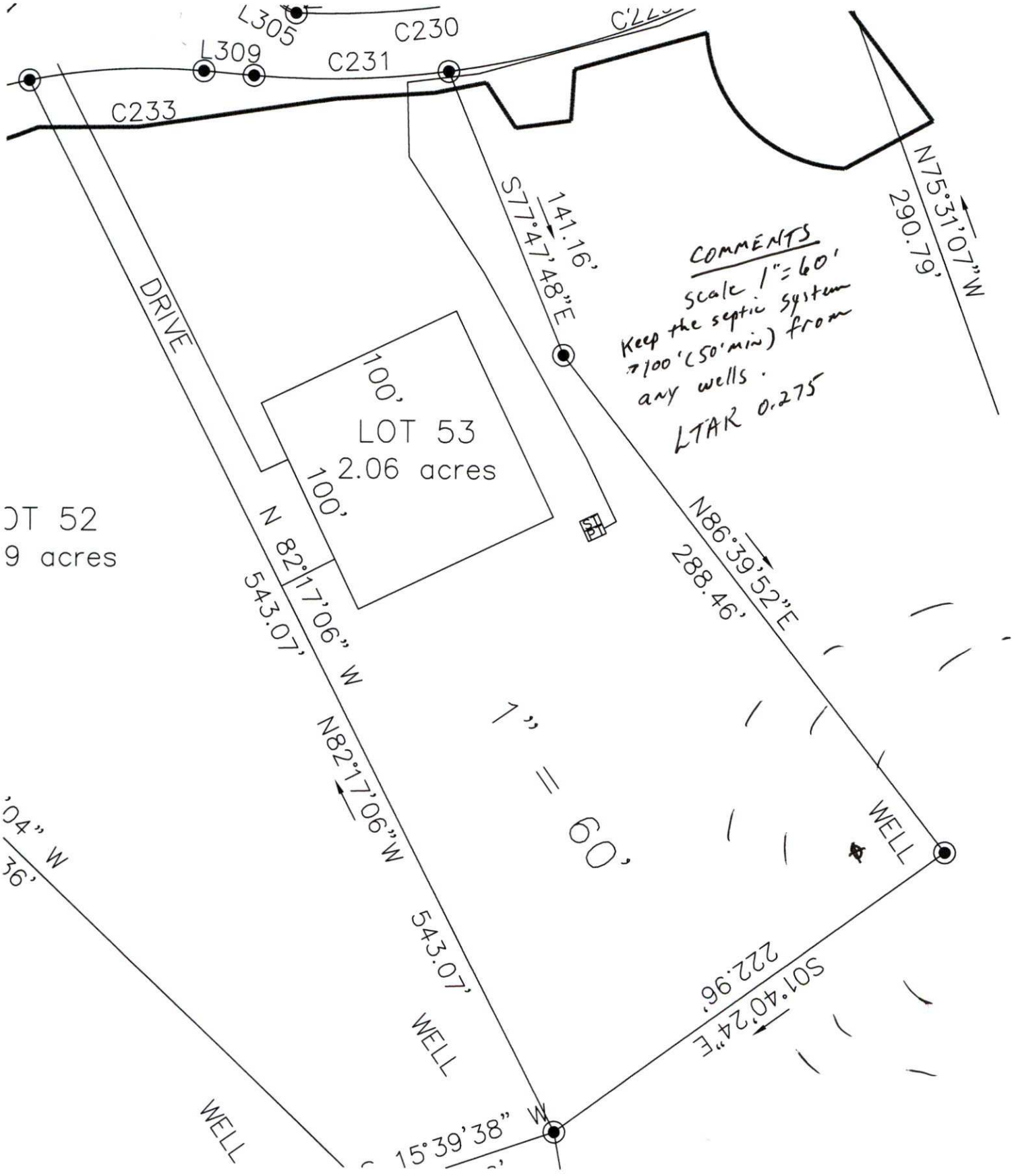
Property Owner's or Owner's Legal Representative Signature Date

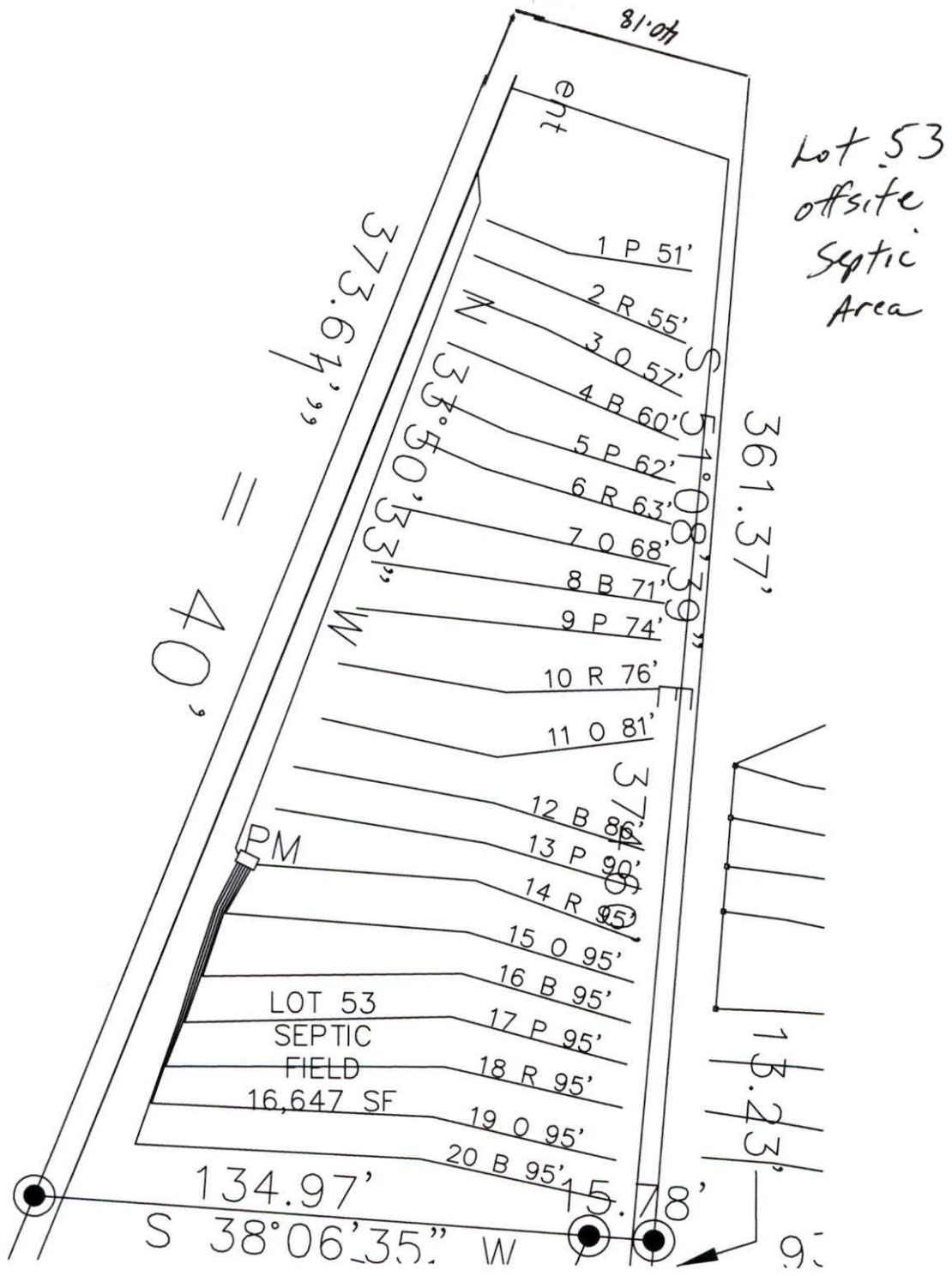
**15. WELL PERMIT APPLICATION SIGNATURE SECTION:**

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


L305
C230
L309
C231
C233
DRIVE
100'
LOT 53
2.06 acres
100'
OT 52
9 acres
N 82°17'06" W
543.07'
N82°17'06"W
543.07'
WELL
WELL
WELL
15°39'38" W
S01°40'24"E
222.96'
N86°39'52"E
288.46'
S77°47'48"E
141.16'
N75°31'07"W
290.79'
COMMENTS
Scale 1"=60'
Keep the septic system
>100'(50' min) from
any wells.
LTAR 0.275
1" = 60'


Lot 53
offsite
Septic
Area
40.18'
373.64'
N 37°50'33" W
361.37'
S 51°08'30" E
1 P 51'
2 R 55'
3 O 57'
4 B 60'
5 P 62'
6 R 63'
7 O 68'
8 B 71'
9 P 74'
10 R 76'
11 O 81'
12 B 86'
13 P 90'
14 R 95'
15 O 95'
16 B 95'
17 P 95'
18 R 95'
19 O 95'
20 B 95'
PM
LOT 53
SEPTIC
FIELD
16,647 SF
134.97'
S 38°06'35" W
15.78'
13.23'

Lot 53 of Environment, Health, and Natural Resources
, Environmental Health
On-site Wastewater Section

Sheet: 1 of 2
Property ID: PO 003-331-01
Lot #: 53
File #: 7624B
AppID: 3233

# SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Owner: Neighborhoods at Abersham
Address: PO Box 99, Davidson, N. C. 280036
Proposed Facility: Residence Design Flow (.1949) 720gpd
Location of Site: Off Grey Road
Water Supply: [ ] Public [ x ] Individual [ x ] Well [ ] Spring [ ] Other
Evaluation Method: [ x ] Auger Boring [ ] Pit [ ] Cut
Type of Wastewater: [ x ] Sewage [ ] Industrial Process [ ] Mixed

Applicant: Rollans Soil & Env. Services
Date Evaluated: 2/14/08
Property Size: .38a inv.
Property Recorded:

| 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 | 0-8 | GR/CL | FR/SEXP/SS/SP | >49" TO SOIL WETNESS | 49 | N/A | NONE | PS, IV |
| | | 8-44 | SBK/C | FI/SEXP/S/P | | | | | .3GPD/FT$^2$ |
| | | 44-49 | SBK/CL | FR/SEXP/SS/SP | | | | | |
| 2 | " | 0-8 | GR/CL | " | >48" TO SOIL WETNESS | 48 | " | " | PS, IV |
| | | 8-48 | SBK/ABK/C | FI/SEXP/S/P | | | | | .275GPD/FT$^2$ |
| 3 | " | 0-4 | GR/CL | FR/SEXP/SS/SP | " | " | " | " | " |
| | | 4-25 | SBK/C | FI/SEXP/S/P | | | | | |
| | | 25-34 | SBK/SCL | FR/SEXP/SS/SP | | | | | |
| | | 34-48 | SBK/ABK/C | FI/SEXP/S/P | | | | | |
| 4 | " | 0-5 | GR/SCL | FR/SEXP/SS/SP | " | " | " | " | " |
| | | 5-26 | SBK/ABK/C | FI/SEXP/S/P | | | | | |
| | | 26-48 | SBK/CL | FR/SEXP/SS/SP | | | | | |
| | | | | | SITE LTAR .275GPD/FT$^2$ | | | | |

| Description | Initial System | Repair System |
|---|---|---|
| Available Space (.1945) | PS | PS |
| System Type(s) | III b | III b |
| Site LTAR | 0.275 | 0.275 |

Other Factors (.1946):
Soil Evaluation By: W. R. Marlin, LSS, 2/15/2008. W. R. Marlin
Others Present: A. Rollans
Site Classification (.1948): PS
Site Evaluation By: Philo Walker 4/28/08
Others Present:

**COMMENTS:**

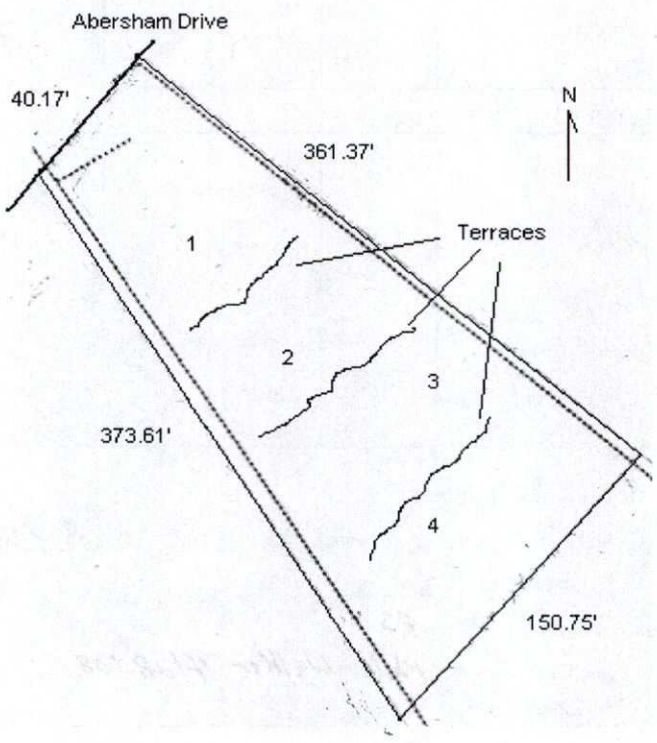
100% repair, dimensions of off-site area not available at time of investigation, added 4/18/08, WRM

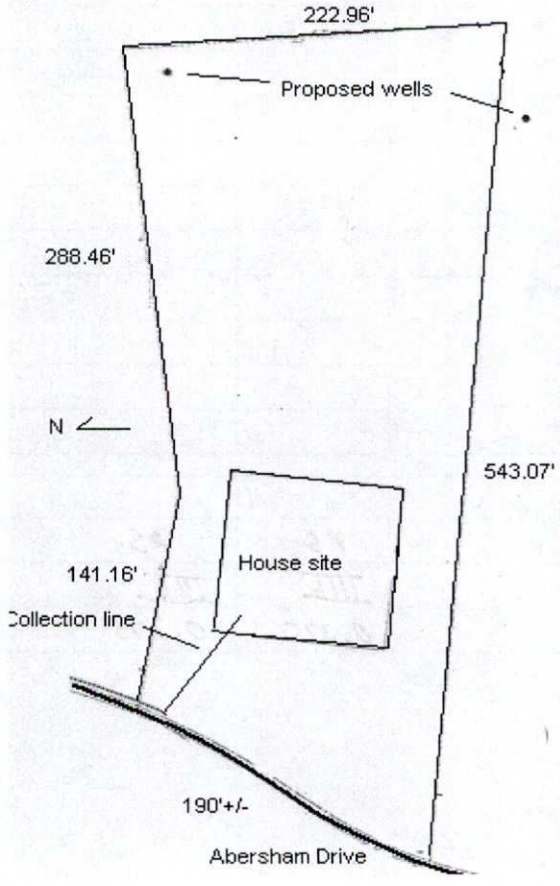
| Landscape Position | Group | Texture | .1955 LTAR | Structure |
|---|---|---|---|---|
| R-Ridge | I | S-Sand | 1.2 - 0.8 | SG-Single Grain |
| SS-Shoulder Slope | | LS-Loamy Sand | | M-Massive |
| LS-Linear Slope | | | | CR-Crumb |
| FS-Foot Slope | II | SL-Sandy Loam | 0.8 - 0.6 | GR-Granular |
| 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** Lot 53

Off-site area



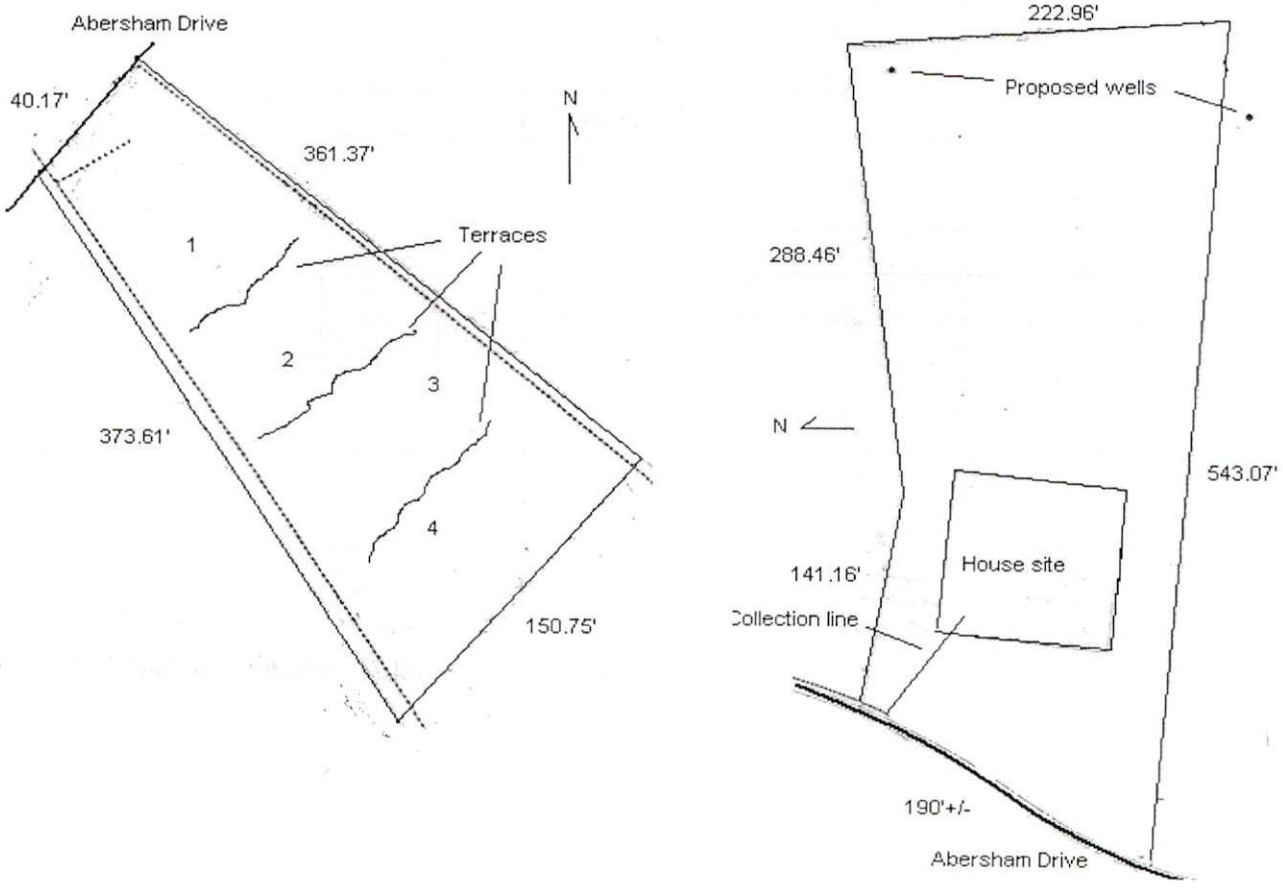
**COMMENTS:**
100% repair, dimensions of off-site area not available at time of investigation, added 4/18/08, WRM

| 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 |
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| FS-Foot Slope | II | SL-Sandy Loam | 0.8 - 0.6 | GR-Granular |
| NS-Nose Slope | | L-Loam | | SBK-Subangular Blocky |
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| 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** Lot 53

Off-site area



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 #: **30003233** GWS File #: **7624B** 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):** 3/19/2013

Type of Installation: Residential - New System Lot Number: 53

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

Building Foundation: Basement With Plumbing Water Supply: Private Well

**II. Initial System Type:** Pump to Approved **System Classification:** IIIb

Initial 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 ($ft^2$): | 1964 | Total Trench Length (ft): | 655 |
| Maximum Trench Depth (in): | 30 | Depth of Media (in): | 12 | Distribution Device: | Pressure Manifold | | |

**III. Repair System Type:** Pump to Approved **System Classification:** IIIb

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 ($ft^2$): | 1964 | Total Trench Length (ft): | 655 |
| Maximum Trench Depth (in): | 30 | Depth of Media (in): | 12 | Distribution Device: | Pressure Manifold | | |

**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 Walker RS

Date Issued: 3/19/2008

Owner/Legal Agent: Leslie Sito
Print Name

Signature: Leslie Sito

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 #: **30003233** GWS File #: **7624B**

**IV. Permit Conditions/Comments:**

- Easement agreement forms shall be on file and the property shall be deeded and recorded prior to issuance of Construction Authorization.
- This type of septic system requires an inspection once every 5 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.
- The septic system shall be installed in accordance with the plans submitted by the wastewater system design consultant.
- All components of the septic system must be located at least 100 ft. from all private wells (saprolite system).
- The system must be water tested during the final inspection to verify proper operation and set system pressure.
- OFFSITE SYSTEM AND REPAIR

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:

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- 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 Walker PS

Date Issued: 3/19/2008

Owner/Legal Agent: Leslie Sito
Print Name

Signature: Leslie Sito

# 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: bfree209@yahoo.com


**Attached is a proposed design for an Accepted (25% reduction) Septic System with Pressure Manifold distribution for a 6 bedroom single family residence on Lot # 53 Abersham Subdivision, Mecklenburg County, North Carolina.** 7624B

**Contents:** **Page**


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

Design Information
- Design Specifications---------- 2-3
- Layout Specifications---------- 4
- System Tapsheet---------- 5
- Pressure Manifold Diagram---------- 6

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

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

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


**February 26, 2008**
**Project #: 01-1044**
**Design By: Rollans Soil and Environmental Services**

**GWS Septic System Design Review**

| | | |
|---|---|---|
| **GWS File #:** 7624B | **Approved** | **Disapproved** |
| **Design Review:** TCT 3-4-08 | ☒ | ☐ |
| **Field Review:** JSW 3/4/08 | ☒ | ☐ |

*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 is within 2" from the highest to the lowest points of elevation 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.
- Septic tank riser shall be a minimum of 6" above finished grade.
- System is specified as an innovative 25% reduction installation.
- Repair is specified as an Modified 50% reduction installation.
- Rake trench walls, lime sidewalls, install trenches 36" wide and have no more than 1/4" fall in 10 feet.

# PRESSURE MANIFOLD SYSTEM FOR WASTEWATER TREATMENT

| | |
|---|---|
| **Owner:** | William Brewster Company |
| **Address:** | PO Box 99 Davidson NC 28036 |
| **Phone:** | 704 895 0556 |
| **County:** | Mecklenburg |
| **Location:** | Abersham LOT # 53 |
| **Source of Wastewater Flow:** | 6 Bedroom Single Family Residence |
| **Estimated Gallons Per Day Flow:** | 720 |
| **System Flow:** | 49.77 |

## Design Specifications

| | |
|---|---|
| **Drainfield Size:** | 665 |
| **Loading Rate (gpd/ft.$^2$):** | 0.275 |
| **Depth of Gravel in Trench:** | NA (25% reduction ) |
| **Gravel Size:** | NA (25% reduction ) |
| **Trench Depth:** | 36 in. |
| **Trench Width:** | 36 in. |
| **Septic Tank Size:** | 1500 gal. |
| **Pump Tank Size:** | 1500 gal. |
| **Estimated Supply Line Length:** | 2320 |
| **Supply Line Diameter:** | 2 in. SCH 40 PVC |
| **Supply Line Volume:** | 403.68 |
| **Dosing Volume:** | 303.97 |
| **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:** | NA |
| **Elevation Head:** | NA |
| **Total Dynamic Head:** | NA |
| **Threaded Union:** | In Tank |
| **Gate Valves:** | 1 in Tank<br>1 at Pressure Manifold |
| **Check Valves:** | In Tank |
| **Anti-Siphon Hole:** | NA |
| **Additional Comments:** | Soil suitability was performed by Mecklenburg County Health Department. |

## Abersham LOT # 53
## PRESSURE MANIFOLD DESIGN

| | |
|---|---|
| **DESIGN FLOW (gpd):** | 720 |
| **SOIL APPLICATION RATE (gpd/ft.$^2$):** | 0.275 |
| **TOTAL AREA TRENCH BOTTOM:** | 1995 |
| **TOTAL LATERAL LENGTH:** | 665 |
| **NUMBER OF FIELDS:** | 1 |
| **LATERAL LENGTH REQUIRED PER FIELD:** | 654.5454545 |
| **SUPPLY LINE LENGTH:** | 2320 |
| **TOTAL DYNAMIC HEAD:** | NA |
| **MANIFOLD SIZE:** | 4 in.SCH 80 PVC |
| **DOSING VOLUME:** | 303.97 |
| **PUMP TANK DRAW DOWN*:** | 14.5 |
| **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 # 53

Project #: 01-1044

LAYOUT FOR 6 BEDROOM HOME

February 26, 2008

| LINE # | FLAG COLOR | BS | HI | FS | ELEVATION | FLAGGED LINE LENGTH | DESIGN LINE LENGTH |
|---|---|---|---|---|---|---|---|
| TBM | | NA | | | NA | | |
| INSTR. 1 | | | NA | | | | |
| HOUSE CNR | | | | NA | NA | | |
| P. TANK | | | | NA | NA | | |
| 1 | PINK | | | NA | NA | 51 | 51 |
| 2 | RED | | | NA | NA | 55 | 55 |
| 3 | ORANGE | | | NA | NA | 57 | 57 |
| 4 | BLUE | | | NA | NA | 60 | 60 |
| 5 | PINK | | | NA | NA | 62 | 62 |
| 6 | RED | | | NA | NA | 63 | 63 |
| 7 | ORANGE | | | NA | NA | 68 | 68 |
| 8 | BLUE | | | NA | NA | 71 | 71 |
| 9 | PINK | | | NA | NA | 74 | 74 |
| 10 | RED | | | NA | NA | 76 | 76 |
| 11 | ORANGE | | | NA | NA | 81 | 81 |
| 12 | BLUE | | | NA | NA | 86 | 86 |
| 13 | PINK | | | NA | NA | 90 | 90 |
| ***14*** | ***RED*** | | | *NA* | *NA* | ***95*** | ***95*** |
| ***15*** | ***ORANGE*** | | | *NA* | *NA* | ***101*** | ***95*** |
| ***16*** | ***BLUE*** | | | *NA* | *NA* | ***105*** | ***95*** |
| ***17*** | ***PINK*** | | | *NA* | *NA* | ***108*** | ***95*** |
| ***18*** | ***RED*** | | | *NA* | *NA* | ***111*** | ***95*** |
| ***19*** | ***ORANGE*** | | | *NA* | *NA* | ***114*** | ***95*** |
| ***20*** | ***BLUE*** | | | *NA* | *NA* | ***118*** | ***95*** |
| | | | | | **Total** | **1646** | **1559** |

| | LINE LENGTH | LTAR GPD/FT² | SYSTEM TYPE | SOIL LTAR GPD/FT² | TRENCH SYSTEM | DISTRIBUTION |
|---|---|---|---|---|---|---|
| **** System*** | ***665*** | ***0.275*** | ***ACCEPT.*** | ***0.275*** | ***25% RED.*** | **PRESSURE MANIFOLD** |
| Repair | 894 | 0.275 | *ACCEPT.* | 0.275 | 25% RED. | PRESSURE MANIFOLD |

**Notes:**

**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

# PRESSURE MANIFOLD TAPSHEET - ABERSHAM LOT# 53

## SYSTEM

| Line # | Color | Elevation | Length | Hole Size | Flow/Tap | Trench Area | Line LTAR |
|---|---|---|---|---|---|---|---|
| *14* | ***RED*** | NA | *95* | SCH 40 1/2 | 7.11 | 285 | 0.24 |
| *15* | ***ORANGE*** | NA | *95* | SCH 40 1/2 | 7.11 | 285 | 0.24 |
| *16* | ***BLUE*** | NA | *95* | SCH 40 1/2 | 7.11 | 285 | 0.24 |
| *17* | ***PINK*** | NA | *95* | SCH 40 1/2 | 7.11 | 285 | 0.24 |
| *18* | ***RED*** | NA | *95* | SCH 40 1/2 | 7.11 | 285 | 0.24 |
| *19* | ***ORANGE*** | NA | *95* | SCH 40 1/2 | 7.11 | 285 | 0.24 |
| *20* | ***BLUE*** | NA | *95* | SCH 40 1/2 | 7.11 | 285 | 0.24 |

| | | | | |
|---|---|---|---|---|
| total | feet = | 665 | gal/min = | 49.77 |
| | | Des. Flow | 720 | |
| | | Pump Run= | 6.11 | |
| | | soil LTAR | 0.275 | |
| | | LTAR +5% | 0.28875 | |
| | | LTAR with ACCEPTED | 0.366666667 | |
| | | LTAR with ACCEPTED + 5% | 0.385 | |

FD=FLOW DIVIDER

## CALCULATIONS

Location ABERSHAM

Project Number 01-1044

Lot No: Lot 53

| | | |
|---|---|---|
| No. of Bedrooms | 6 | |
| Design Flow | 720 | $^{gal}/_{day}$ |
| LTAR | 0.275 | $^{gpd/ft^2}$ |
| 25% RED.? (YES OR NO) | YES | |
| Supply Line Length | 2320 | ft. |
| Supply Line Volume | 403.68 | gal. |
| Required Feet of Line | 654.5455 | ft. |
| Amount of Line from Layout | 665 | ft. |
| Gallons per Minute | 49.77 | $^{gal}/_{min}$ |
| Required Septic Tank Capacity | 1500 | gal. |
| Minimum Standard Tank Size | 1500 gal. | |
| Lateral Line Volume | 434.245 | gal. |
| Dosing Volume | 303.97 | gal. |

*Note: Dosing Volume based on70% of lateral line volume*

| | | |
|---|---|---|
| Tank Draw Down | 14.5 | *Generic Draw Down of 31 gal per in.* |
| Pump Run Time | 6.11 | minutes |
| Elevation Head | NA | ft. |
| Pressure Head | NA | ft. |
| Friction Factor | 4.58 | ft./100 ft. *(From the interpolater.)* |
| Friction Head | NA | ft. |
| Total Dynamic Head (+15%) | NA | 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 |