

7325 HOWELL RIDGE RD

01546143

1/8/2008

duponbj

Groundwater and Wastewater Services File Imaging Project

May 2007

Barcode Font = IDAutomationHC39M

FEE: 360 Chk # 10344
DATE: 12/14/04 JC

AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION

ACS

PERMIT NUMBER: 5457B
PARCEL NUMBER: 015-461-42

JOB LOCATION ADDRESS: 7305 Howell Ridge Road
PROPERTY OWNER: Terrence Atkinson
BUILDING CONTRACTOR: Terrence Atkinson
SUBDIVISION NAME: Lynn Estates
AUTHORIZATION ISSUED BY: Jeremy Michelone, R.S. **DATE:** 12/09/04

Jeremy Michelone, R.S.
DENR/DEH AUTHORIZED AGENT

AUTHORIZATION CONDITIONS

1. WASTEWATER SYSTEM CONSTRUCTION AND INSTALLATION MUST MEET ALL CONDITIONS AND SPECIFICATIONS AS SET FORTH IN IMPROVEMENT PERMIT NUMBER 5457B, AND THE ATTACHED SITE PLAN WITH SYSTEM DETAILS. CONSTRUCTION AND INSTALLATION MUST ALSO MEET ALL REQUIREMENTS SET FORTH IN THE RULES GOVERNING SANITARY SEWAGE COLLECTION, TREATMENT, AND DISPOSAL AND ANY OTHER APPLICABLE RULES AND LAWS.

2. AN *INSTALLATION, CONSTRUCTION, ALTERATION AND/OR REPAIR APPROVAL* MUST BE SECURED PRIOR TO INSTALLATION OF THE SEPTIC TANK SYSTEM. THE INSTALLER OF THE SYSTEM SHALL BE A REGISTERED SEPTIC TANK CONTRACTOR WITH THE MECKLENBURG COUNTY HEALTH DEPARTMENT.

3. ANY ALTERATION IN SITE OR SOIL CONDITIONS (INCLUDING LOCATION OF STRUCTURES AND APPURTENANCES) OR MODIFICATION IN USE, DESIGN WASTEWATER FLOW, OR WASTEWATER CHARACTERISTICS AS SPECIFIED IN THE ASSOCIATED IMPROVEMENT PERMIT AND APPLICATION, MAY SUBJECT THIS CONSTRUCTION AUTHORIZATION AND ASSOCIATED PERMIT(S) TO REVOCATION.

4. THIS CONSTRUCTION AUTHORIZATION AS PROVIDED IN G.S. 130A-335(f) AND G.S. 130A-336(b) SHALL BE VALID FOR A PERIOD EQUAL TO THE VALIDITY OF THE IMPROVEMENT PERMIT, NOT TO EXCEED 60 MONTHS.

5. OTHER CONDITIONS:
   Install system according to designed plans on file.

CONDITIONS OF IMPROVEMENT PERMIT / CONSTRUCTION AUTHORIZATON

Permit Number: **5457B** Tax Number: **015-461-42**

- The 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.

Basement: ☒ Yes ☐ No ☐ Partial Basement

Primary Wastewater System

Type: ☐ I ☐ II ☒ III ☐ IV ☐ V ☐ VI

☒ Conventional
☐ Prefabricated, permeable block panel system
☐ Shallow Placed Conventional
☐ Low Pressure Pipe
☐ Large Diameter Pipe
☐ Fill
☐ Other
☐ Innovative or Experimental:

0.39 Long-term acceptance rate (GPD/ft^2)	480 Max gallons/day wastewater flow	1245 Absorption Area (ft^2)	9 Trench spacing (min. on centers) (ft)
Serviced by private well: ☐ Yes ☒ No	1500 Gallon septic tank	415 Total trench length (ft)	36 Maximum trench depth (in) (At least 12" of provisionally suitable soil must remain between trench bottom and unsuitable soil conditions.)
4 Bedrooms in residence	1500 Gallon pump tank	12 Depth of stone (in)	

Any surface water present: **NO** Type: Minimum separation distance (ft):

Additional conditions: **Install trenches 36" deep. Install sand from 24" - 36". Install 12" gravel from 12" - 24". Agreement forms on file before CA release.**

Repair Area System

Type: ☐ I ☐ II ☒ III ☐ IV ☐ V ☐ VI

☒ Conventional
☐ Prefabricated, permeable block panel system
☐ Shallow Placed Conventional
☐ Low Pressure Pipe
☐ Large Diameter Pipe
☐ Fill
☐ Other
☐ Innovative or Experimental:

1191 Absorption Area (ft^2) 397 Total trench length (ft)	12 Depth of stone (in)	9 Trench spacing (min. on centers) (ft)	36 Maximum trench depth (in)

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department has approved the Request for the Job Location contained in this document. The approval is granted in accordance with the provisions of Laws and Rules For Sewage Treatment, and Disposal Systems in effect at the time of issuance of the permit and is subject to the following provisions:

*** No work shall be conducted on the septic tank system until an Installation, Construction, Alteration and/or Repair Approval is granted by this Department.

*** This Improvement permit is transferable.

Tommy Mackey, R.S. 12/9/04 — DENR Authorized Agent — Date

Owner/Agent Signature — 12-14-04 — Date

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
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

FOR REGISTRATION JUDITH A. GIBSON
REGISTER OF DEEDS
MECKLENBURG COUNTY, NC
2004 DEC 13 11:04 AM
BK:18113 PG:182-185 FEE:$20.00

INSTRUMENT # 2004257526

2004257526

Returned to customer

STATE OF NORTH CAROLINA

COUNTY OF MECKLENBURG

WASTEWATER TREATMENT AND DISPOSAL SYSTEM DESIGN AGREEMENT: 15A NCAC 18A .1948 AND ANY OF THE FOLLOWING RULES: .1956; .1957(a); .1957(b); or .1957(c); OR .1969

FILE # 54578
PARCEL # 015-461-42 LOT 4

The undersigned, Terrence L. Atkinson Sr., owner of property located at 7305 Howell Ridge Road, (the "site") and described in an instrument recorded in Book 15033 at Page 631, Mecklenburg Public Registry, hereby acknowledges that the undersigned applied to the Mecklenburg County Health Department (the "Department") for a permit to install a septic tank sewage disposal system on the site; that the Department evaluated the site for suitability for such a system in accordance with the regulations promulgated by the North Carolina Commission for Health Services as 15A NCAC 18A .1900 et seq.; that the Department originally classified the site as "unsuitable" pursuant to the standards set forth in the regulations; that the undersigned requested that the Department reclassify the site as "provisionally suitable" in light of the particular septic tank system proposed by the undersigned; that the Department considered various studies, data, and other information which indicate to the Department that the septic tank system proposed by the undersigned is allowed by the rules; and that the Department therefore reclassified the site as "provisionally suitable" and issued an appropriate permit for such proposed septic tank system.

The undersigned further acknowledges that the proper design, construction, operation and maintenance of such septic tank system is the responsibility of the designer, owner, developer, installer, or user of the system, as applicable, and that neither the Department nor its officials, employees, or agents warrant or guarantee that the said system installed pursuant to the permit issued by the Department will function in a satisfactory manner for any given period of time or that the Department, its officials, employees or agents assume any liability for any damages of any kind which are caused, or which may be caused, by a malfunction of such system.

The undersigned further acknowledges that the following conditions will apply to the site:

This instrument was prepared by: Terrence L. Atkinson Sr.
Mail after recording to: 9504 Beatties Ford Rd
Huntersville, NC 28078

-- Any changes on the property may make the Improvement Permit null and void and may make the Improvement Permit subject to revocation.

-- Do not grade, cut, fill, pave, construct a building or deck, dig a well, install a swimming pool or otherwise cover or disturb the soil (except for planting and maintaining grass or other ground covers) in a manner which will adversely affect the repair area or area where the septic tank system is located.

-- When a private certified operator is required, no improvement permit for the designated repair shall be issued unless there is a private certified operator to carry out this management program in the service area where the proposed system is to be located. (Refer to Rule .1961, "Maintenance of Sewage Systems," for further information.)

-- Additional fees will be required according to the Mecklenburg County user fee schedule applicable at the time for the issuance of a repair permit for any subsequent repairs to the sewage treatment and disposal system or for installation of a replacement system.

-- At the time repairs to the sewage treatment and disposal system are to be made or a replacement system installed, the regulations in effect at that time will govern the repairs or installation of a replacement system.

The undersigned further agrees for himself, his heirs and assigns that he shall indemnify and hold harmless theDepartment, its employees, and officials, as well as Mecklenburg County and its employees and officials, for any damages or other claims of any person or persons whatsoever arising out of the installation, operation, or failure of said septic tank system.

Use of the singular masculine pronoun forms herein shall be deemed to also include the plural and feminine forms as the context may require.

This document shall be placed on the public records of the Register of Deeds of Mecklenburg County and indexed therein under the Grantor Index in the name or names of the undersigned, and the foregoing acknowledgements shall henceforth be binding on all persons claiming any right, title, or interest in the site.

IN WITNESS WHEREOF, the undersigned has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, this 13 day of December, 2009

Terrence L Atkins Sr. (SEAL)

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

_____ (Corporate Name)

By: _____

_____ President

ATTEST:

_____

_____ Secretary

(Corporate Seal)

STATE OF NORTH CAROLINA
COUNTY OF Mecklenburg

I, Heather M. Mayor, a Notary Public for said County and State, do hereby certify that Terrence L. Atkinson, Sr. personally appeared before me this date and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and notarial seal, this 13th day of December, 2004.

HEATHER M. MAYOR NOTARY PUBLIC MECKLENBURG COUNTY, N.C.

Heather M. Mayor
Notary Public

My Commission Expires:

10/7/09

STATE OF NORTH CAROLINA
COUNTY OF _____

I, _____, a Notary Public for said County and State, do hereby certify that _____ personally came before me this day and acknowledged that he is _____ Secretary of _____, a North Carolina corporation, and that by authority duly given and as the act and deed of said corporation, the foregoing instrument was signed in its name by its _____ President, sealed with its corporate seal, and attested by _____ as its _____ Secretary.

WITNESS my hand and notarial seal, this _____ day of _____, 20____.

_____
Notary Public

My Commission Expires:

_____

REVISED 8-13-02

JUDITH A. GIBSON
REGISTER OF DEEDS, MECKLENBURG
COUNTY & COURTS OFFICE BUILDING
720 EAST FOURTH STREET
CHARLOTTE, NC 28202

PLEASE RETAIN YELLOW TRAILER PAGE

It is part of the recorded document, and must be submitted with original for re-recording and/or cancellation.

****

Filed For Registration: 12/13/2004 11:04 AM

Book: RE 18113 Page: 182-185

Document No.: 2004257526

PRMIT 4 PGS $20.00

Recorder: F. RAY BAKER JR.

****

State of North Carolina, County of Mecklenburg

The foregoing certificate of HEATHER M. MAYOR Notary is certified to be correct. This 13TH of December 2004

JUDITH A. GIBSON, REGISTER OF DEEDS By: Valerie F. White
Deputy/Assistant Register of Deeds

****

2004257526

S&EC

Soil & Environmental Consultants, PA

236 LePhillip Court, Suite C • Concord, North Carolina 28025 • Phone: (704) 720-9405 • Fax: (704) 720-9406
www.SandEC.com

Attached is a proposed design for a Pressure Manifold Septic System for a 4 bedroom single family residence at Lot 4 Lynn Estates in Mecklenburg County, North Carolina.

Contents: **Page**

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

Design Information
- Design Specifications---------- 2-4
- Layout Specifications---------- 5
- System Tapsheet---------- 6
- Repair Tapsheet---------- 7

Site Plan/System Plan---------- 8

Repair Plan---------- 9

Septic Tank Diagram---------- 10

Pump Tank Diagram---------- 11

Pressure Manifold Diagram---------- 12

Control Panel Specifications---------- 13-17

Pump Specifications---------- 18-19

Calculations---------- 20

July 14, 2004
S & EC Project No. 5-1385
Design By: B. Kaplan

Greensboro Office:
3817-E Lawndale Drive
Greensboro, NC 27455
Phone: (336) 540-8234
Fax: (336) 540-8235

Hickory Area Office:
710 Boston Road
Taylorsville, NC 28681
Phone: (828) 635-5820
Fax: (828) 635-5820

Raleigh Office:
11010 Raven Ridge Road
Raleigh, NC 27614
Phone (919) 846-5900
Fax: (919) 846-9467

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 DEHNR, 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.
- Install system at 36" trench bottom in saprolite with sand from 24" to 36", gravel from 12" to 24" and Group II or III backfill from 0 to 12"

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner: Terrence Atkinson

Address: 9504 Beatties Ford Road
Huntersville,NC 28078
Phone: 704 398-8587
County: Mecklenburg
Location: Lynn Estates Lot 4

Source of Wastewater Flow: 4 Bedroom Single Family Residence
Estimated Daily Wastewater Production: 480 gpd
System Flow: 40.67

Design Specifications

Drainfield Size: 415
Loading Rate: 0.39 gpd/ft.^{2}
Depth of Gravel in Trench: 8 in.
Gravel Size: 3, 4, 5, 57, or 6 ASTM
Trench Depth: *30 in.*
Trench Width: 36 in.
Septic Tank Size: 1500
Pump Tank Size: 1500

Estimated Supply Line Length: 105
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 18.27
Dosing Volume: 189.70
Supply Manifold: 3 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: 3.29
Elevation Head: 10.00
Total Dynamic Head: 17.58

Threaded Union: In Tank
Gate Valves: 1 in Tank
1 at Pressure Manifold
Check Valves: In Tank
Anti-Siphon Hole: NA

Recommended Pump: Myers Model ME50 or County Approved Effluent

Rated Pump Capable of Delivering ~20 ft.of Head at ~41 gpm Total Flow

Additional Comments: Soil suitability was performed by the Mecklenburg County Health Department & S&EC.

LYNN ESTATES LOT 4
PRESSURE MANIFOLD DESIGN

DESIGN FLOW:	480
SOIL APPLICATION RATE:	0.39 gpd/ft.^{2}
TOTAL AREA TRENCH BOTTOM:	1245
TOTAL LATERAL LENGTH:	415
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	410
SUPPLY LINE LENGTH:	105
TOTAL DYNAMIC HEAD:	17.58
MANIFOLD SIZE:	3 in.SCH 80 PVC
DOSING VOLUME:	189.70
PUMP TANK DRAW DOWN*:	9.0
SEPTIC TANK SIZE:	1500
PUMP TANK SIZE:	1500
RECOMMENDED PUMP:	Myers Model ME50 or County Approved Effluent Rated Pump Capable of Delivering ~20 ft.of Head at ~40 gpm Total Flow

**Pump tank draw down based on a volume basis of 21 gallons per inch. Draw down may vary among pump tank manufacturers.*

Lot 4 Lynn Estates

Project No. 5-1385

LAYOUT FOR 4 BEDROOM HOME — July 15, 2004

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM					100.00		
INSTR. 1			100.00				
*1	BLUE			3.00	97.00	50	50
*2	PINK			3.30	96.70	115	115
*3	RED			3.80	96.20	130	130
*4	BLUE			3.90	96.10	70	70
*5A	ORANGE			4.20	95.80	50	50
5B	ORANGE			4.20	95.80	100	100
6	YELO			4.40	95.60	130	130
7	BLUE			4.80	95.20	87	87
8	PINK			5.30	94.70	90	90
					Total	**822**	**822**

	LINE LENGTH	LTAR GPD/FT²	SYSTEM TYPE	SOIL LTAR GPD/FT²	INNOVATIVE SYSTEM	DISTRIBUTION
** System*	*415*	*0.39*	*CONV.*	*0.39*	*N/A*	PRESSURE MANIFOLD
Repair	397	0.39	*CONV.*	0.39	N/A	PRESSURE MANIFOLD

Notes:

**TBM is assumed to be 100'
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
** Line #5 (ORNG 150') to be split into two lines (#5A 50', & #5B 100').
**BS, HI, and FS indicate rod readings
**System installation at 36" trench bottom with sand from 24" to 36", gravel from 12" to 24" and Group II or III backfill from 0 to 12"

Lot 4 Lynn Estates
SYSTEM

Line #	Color	Elevation	Length	Hole Size	Flow/Tap	gpd	Trench Area	Flow/Foot
1	BLUE	97	**50**	SCH 80 1/2	**5.48**	64.68	150	**0.11**
2	PINK	96.7	**115**	SCH 80 3/4	**10.1**	119.20	345	**0.09**
3	RED	96.2	**130**	SCH 40 3/4	**12.5**	147.53	390	**0.10**
4	BLUE	96.1	**70**	SCH 40 1/2	**7.11**	83.91	210	**0.10**
5A	ORNG	95.8	**50**	SCH 80 1/2	**5.48**	64.68	150	**0.11**
								0.50
	total	**feet =**	**415**	**gal/min =**	**40.67**			
			Des. Flow	**480**				
			Pump Run=	**11.80**				
			soil LTAR	**0.39**				
						average flow	**per foot =**	**0.10**
						average	**plus 10%**	**0.11**
						average	**minus 10%**	**0.09**

Some lines flagged longer in the field, install lengths shown here (see diagram).
Line 5 (orng 150') shortened to 50', remaining 100' added to repair field total (see diagram).

Lot 4 Lynn Estates
REPAIR

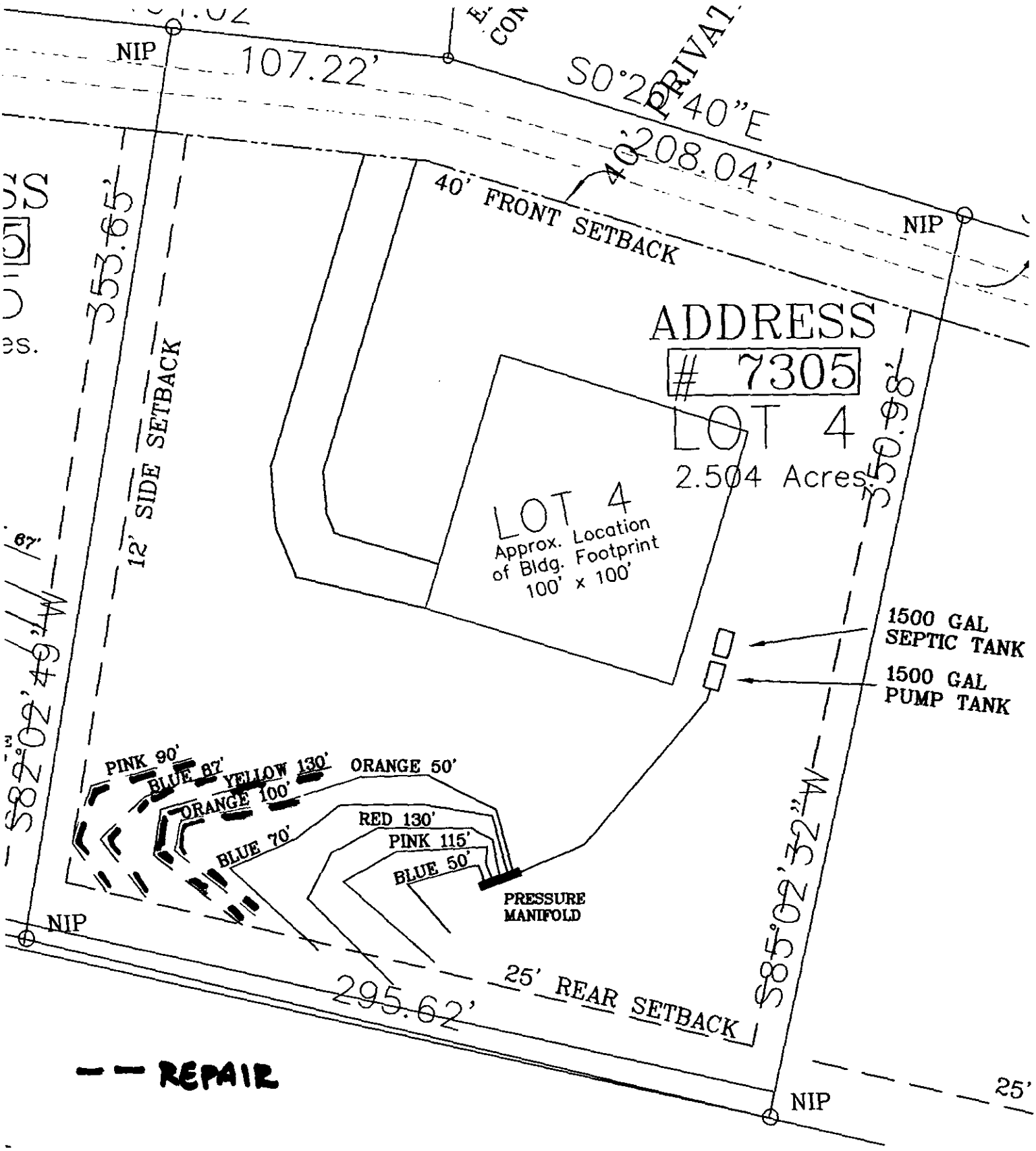
Line #	Color	Elev	Length	Hole Size	Flow/Tap	gpd	Trench Area	Flow/Foot
5B	ORANGE	95.8	**100**	SCH 80 3/4	**10.1**	131.67	300	**0.10**
6	YELLOW	95.6	**130**	SCH 40 3/4	**12.5**	162.95	390	**0.10**
7	BLUE	95.2	**87**	SCH 40 1/2	**7.11**	92.69	261	**0.08**
8	PINK	94.7	**80**	SCH 40 1/2	**7.11**	92.69	240	**0.09**
								0.37
	total	**feet =**	**397**	**gal/min =**	**36.82**			
			Des. Flow	**480**				
			Pump Run=	**13.04**				
			LTAR	**0.39**		**average flow**	**per foot =**	**0.09**
						average	**plus 10%**	**0.10**
						average	**minus 10%**	**0.08**

Some lines flagged longer in the field, install lengths shown here (see diagram).
Line 5 (orng 150') shortened to 50', remaining 100' added to repair field total (see diagram).



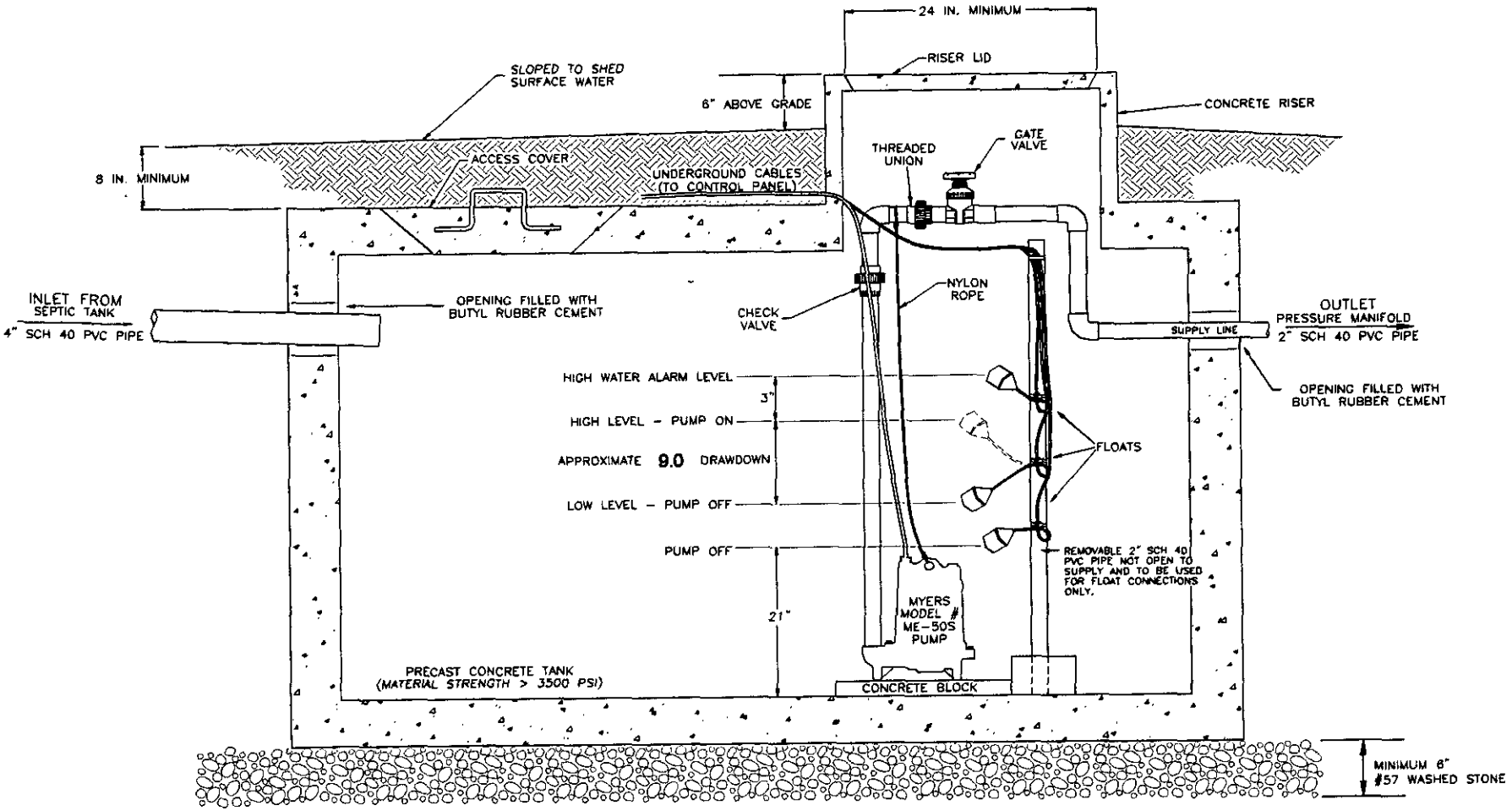
S = SYSTEM LINE

SYSTEM FIELD 1"=50'



— — REPAIR

REPAIR FIELD 1"=50'



NOTES

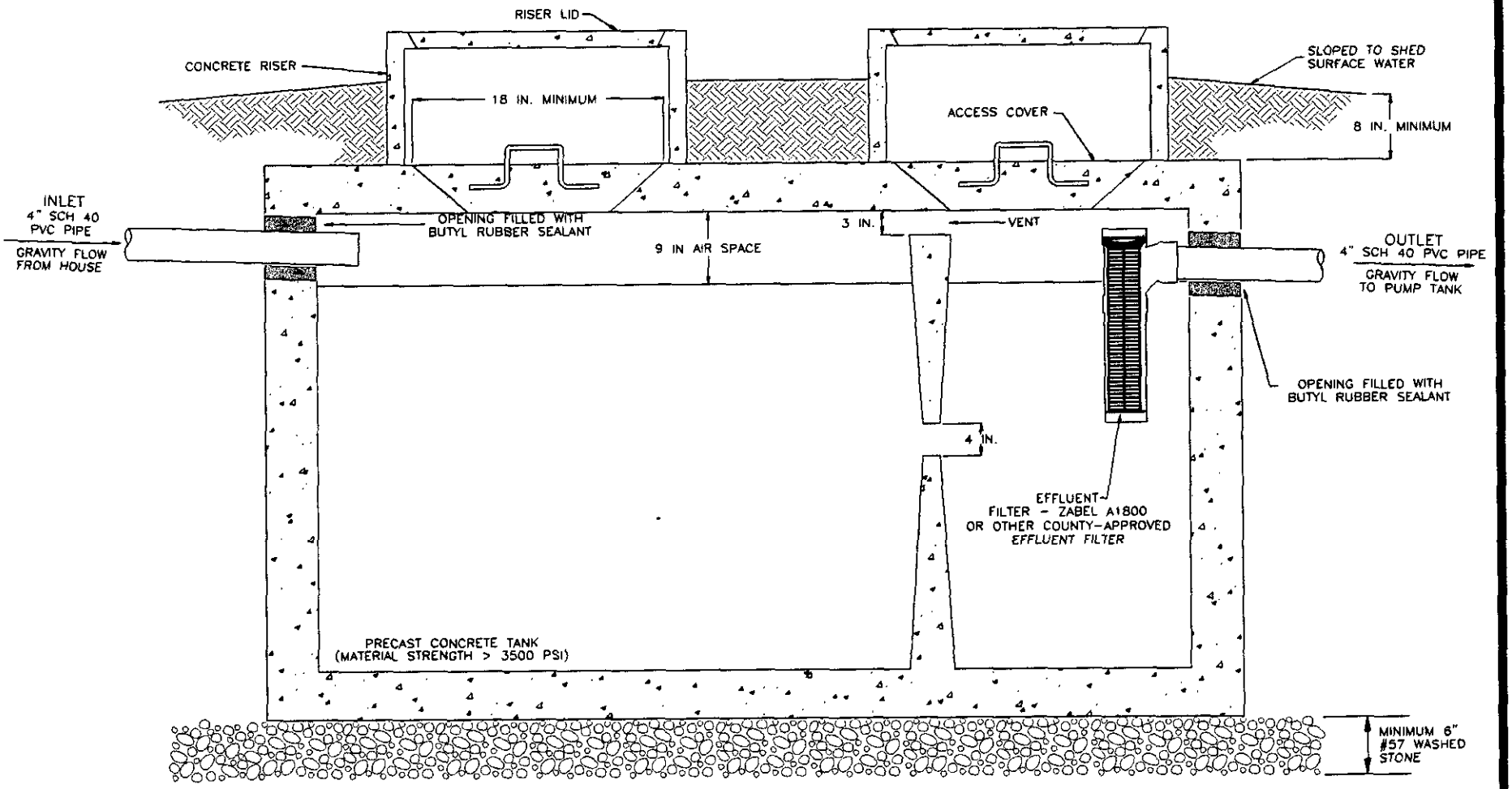
1. TANK DIMENSIONS VARY BY MANUFACTURER.
2. DRAWDOWN WILL VARY WITH TANK DIMENSIONS. DRAWDOWN SHOWN BASED ON 21 GALLONS PER INCH.

1500 GALLON PUMP TANK

PROJECT NO. 5-1385 PROJECT MGR.	PROJECT NAME: lot 4 Beatty Ford Rd	S&EC Soil & Environmental Consultants, Inc. 11010 Raven Ridge Road Raleigh, North Carolina 27614 Phone: (919) 846-5900 Fax: (919) 846-9407 Web Page: www.SandEC.com
SCALE NTS	SHEET TITLE: PUMP TANK DIAGRAM	

PENTAIR PUMP GROUP

Myers (Canada), 269 Trillium Drive, Kitchener, Ontario N2G 4W5
519/748-5470, FAX: 519/748-2553



NOTES

1. TANK DIMENSIONS VARY BY MANUFACTURER.

1500 GALLON SEPTIC TANK

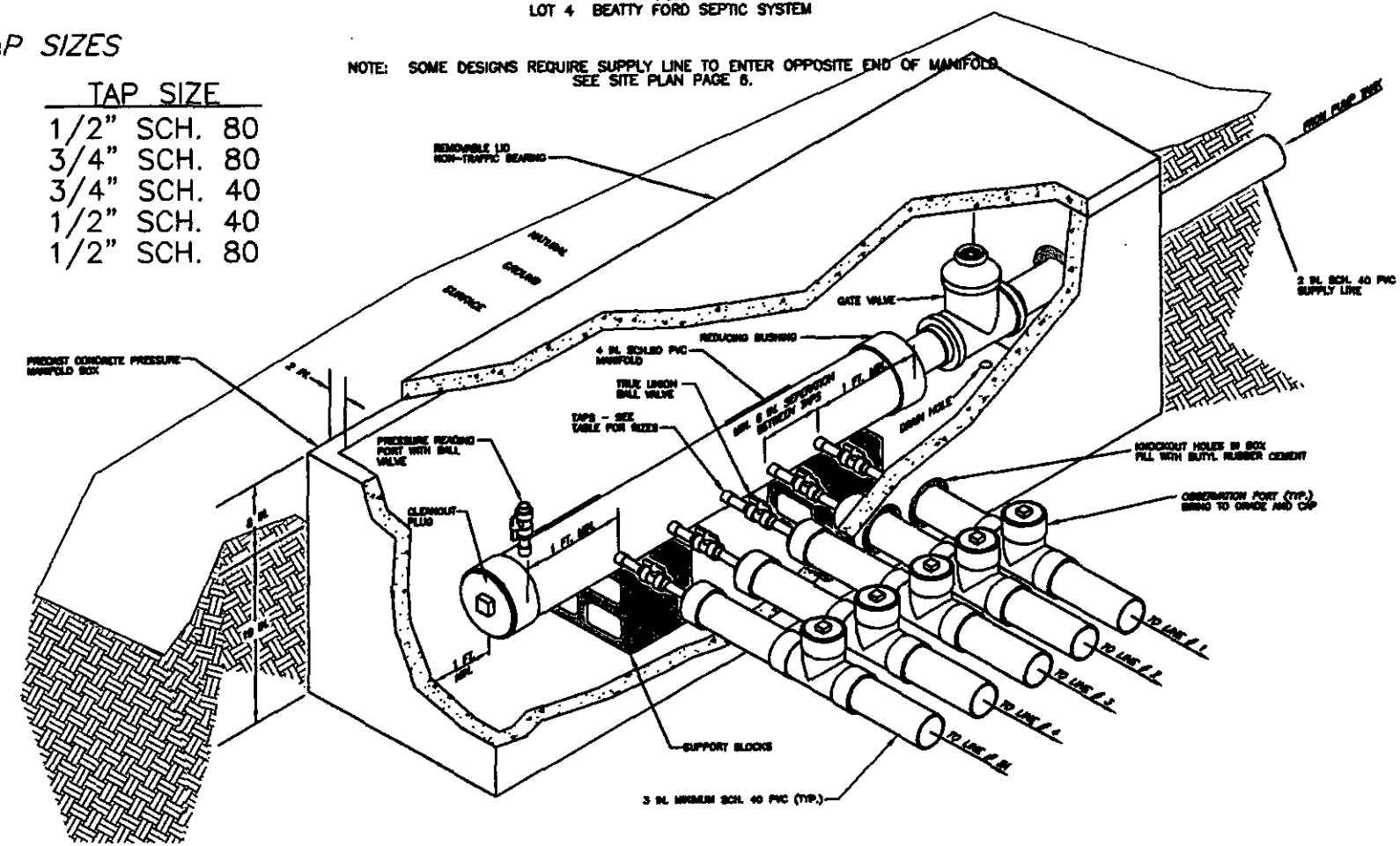
PROJECT NO. 4591	PROJECT NAME: **lot 4 Beatty Ford Rd**	**Soil & Environmental Consultants, Inc.**
PROJECT MGR.		11010 Raven Ridge Road Raleigh, North Carolina 27614 Phone: (919) 846-5908 Fax: (919) 846-9487
SCALE NTS	SHEET TITLE: SEPTIC TANK DIAGRAM	Web Page: www.SandEC.com

PRESSURE MANIFOLD DETAILS
FOR
LOT 4 BEATTY FORD SEPTIC SYSTEM

TAP SIZES

LINE No.	TAP SIZE
1	1/2" SCH. 80
2	3/4" SCH. 80
3	3/4" SCH. 40
4	1/2" SCH. 40
5A	1/2" SCH. 80

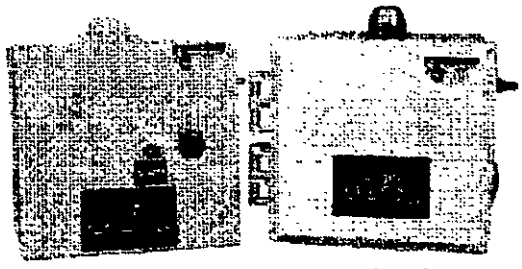
NOTE: SOME DESIGNS REQUIRE SUPPLY LINE TO ENTER OPPOSITE END OF MANIFOLD
SEE SITE PLAN PAGE 6.



MODEL 112 Control Panel

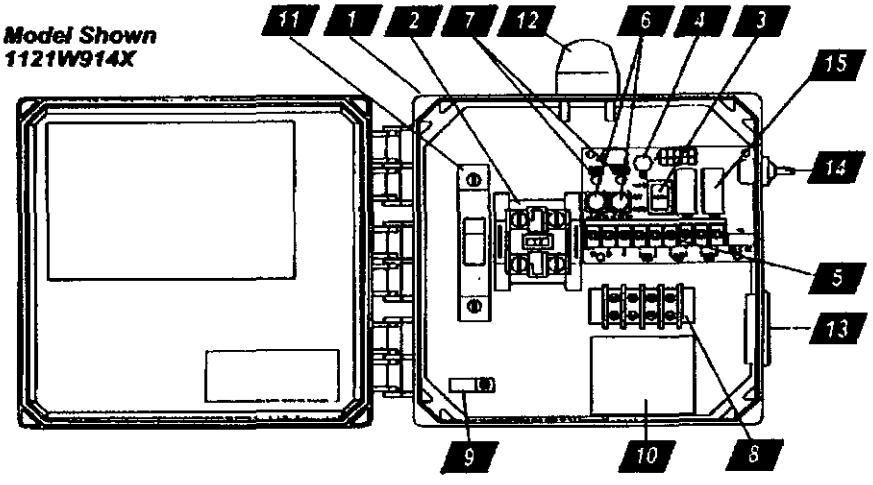
Single phase, simplex motor contactor control.

The Model 112 control panel provides a reliable means of controlling one 120, 208, or 240 VAC single-phase pump in pump chambers, sump pump basins, irrigation systems and lift stations. Two control switches activate a magnetic motor contactor to turn the pump on and off. If an alarm condition occurs, an additional alarm switch activates the audio/visual alarm system.



Indoor *Indoor/outdoor*

Model Shown
1121W914X



1. **Enclosure** measures 8 x 8 x 4 inches (20.32 X 20.32 X 10.16 cm). Choice of NEMA 1 (steel for indoor use), or NEMA 4X (ultraviolet stabilized thermoplastic with removable flanges for outdoor or indoor use).

   * Options selected may increase enclosure size and change component layout.

2. **Magnetic Motor Contactor** controls pump by switching hot electrical lines.
3. **HOA Switch** for manual pump control (mounted on circuit board).
4. **Green Pump Run Indicator Light** (mounted on circuit board).
5. **Float Switch Terminal Block** (mounted on circuit board).
6. **Alarm and Control Fuses** (mounted on circuit board).
7. **Alarm and Control Power Indicators** (mounted on circuit board).
8. **Pump Input Power and Pump Connection Terminal Block**
9. **Ground Lug**
10. **Terminal Block Installation Label**
11. **Circuit Breaker** (optional) provides pump disconnect and branch circuit protection.

STANDARD ALARM PACKAGE (other options available)

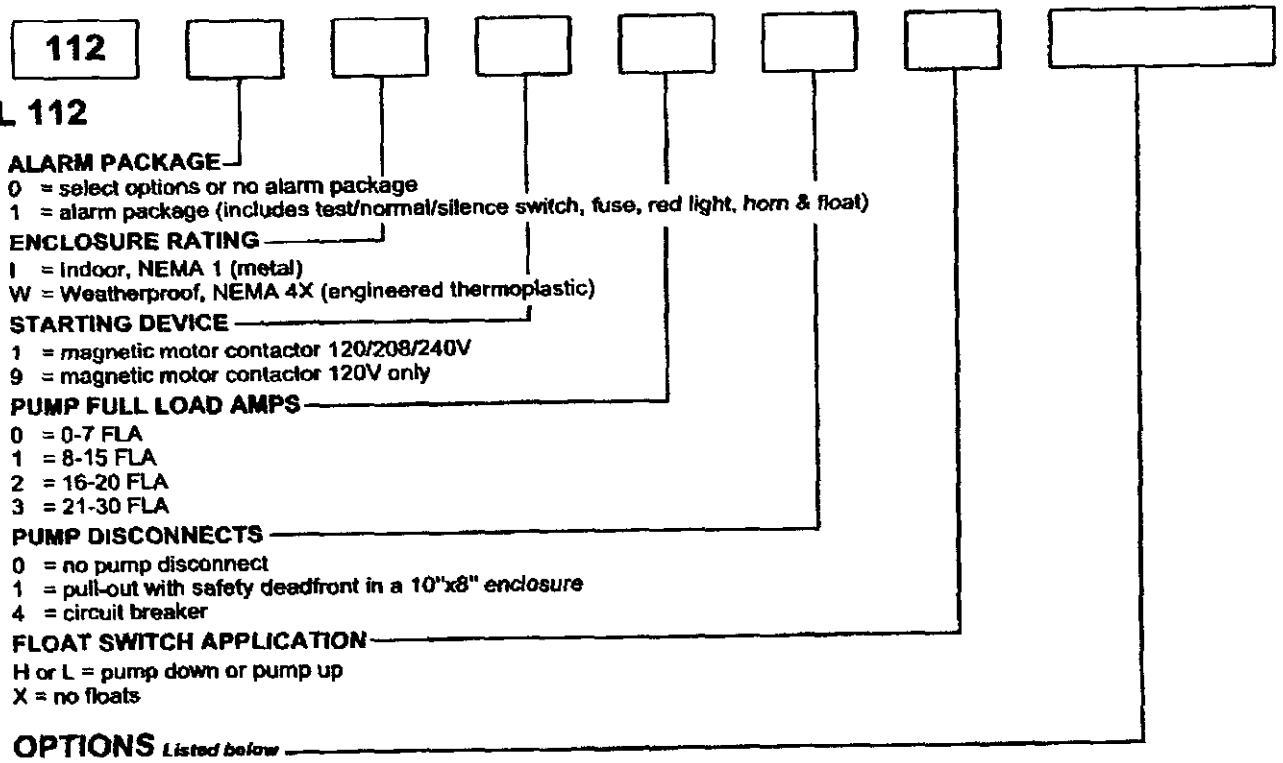
12. **Red Alarm Beacon** provides 360° visual check of alarm condition. **Note:** NEMA 1 style utilizes a door mounted indicator in lieu of a beacon.
13. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating). **Note:** NEMA 1 style utilizes an internally mounted buzzer (83 to 85 decibel) in lieu of horn.
14. **Exterior Horn Test/Normal/Silence Switch** allows alarm horn to be silenced and testing of horn and light to ensure proper operation of alarm system.
15. **Horn Silence Relay** automatically resets alarm after alarm condition has been resolved (mounted on circuit board).

FEATURES

- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes three 20' Sensor Float® control switches
- Complete with step-by-step installation instructions
- Three-year limited warranty

c UL us
LISTED

SJ ELECTRO SYSTEMS, INC.
PO Box 1708, Detroit Lakes, MN 56502
1-888-DIAL-SJE ..1-218-847-1317
1-218-847-4617 Fax
email: sje@sjerhombus.com
www.sjerhombus.com



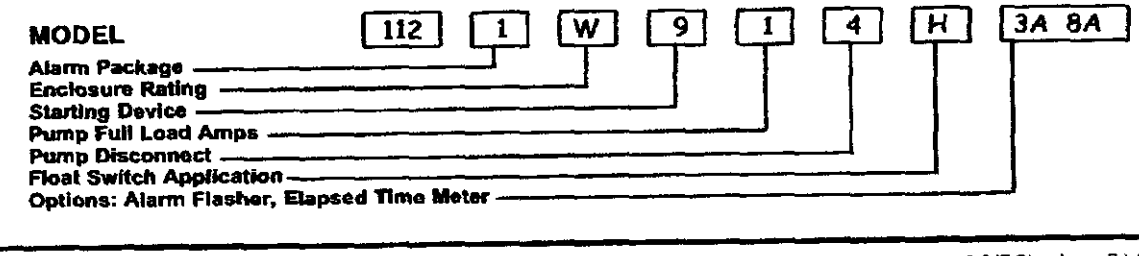
If additional features are required, call the factory for a quote on either a Pro-Line or Engineered Custom control panel system.

	CODE	DESCRIPTION
☐	1A	Red beacon only / no audio *must select 1E if floats included*
☐	1C	Horn only / no visual *must select 1E if floats included*
☐	1E	Alarm float
☐	3A	Alarm flasher
☐ ★	4A	Low level cutout *select option 4D if floats included*
☐ ★	4B	Red low-level indicator & alarm *must select 4A also*
☐	4D	Low-level float
☐	6A	Auxiliary alarm contact, form C type
☐ ★	8A	Elapsed time meter
☐ ★	8C	Event (cycle) counter
☐	10E	Lockable latch - NEMA 4X
☐	10E	Lockable latch - NEMA 1
☐ ★	10F	Lightning arrester
☐ ★	10K	Anti-condensation heater

	CODE	DESCRIPTION
☐	11C	NEMA 1 alarm panel *must select option 6A*
☐	11D	NEMA 4X alarm panel *must select option 6A*
☐	16A	Control / alarm circuit breaker *Does not include the circuit board as in standard.*
☐	16A	10' cord in lieu of 20'
☐	16B	15' cord in lieu of 20'
☐	16C	30' cord in lieu of 20'
☐	16D	40' cord in lieu of 20'
☐	17A	SJE SignalMaster® / mounting strap ●
☐	17B	SJE SignalMaster® / oxtornally weighted ●
☐	17C	Sensor Float® / internally weighted ▲
☐	17D	Sensor Float® / externally weighted ▲
☐	17E	Sensor Float® Mini / pipe clamp ▲
☐	17F	Sensor Float® Mini / externally weighted ▲
☐	19X	Door mounted pump run indicator
☐	21A	Pumpmaster® In lieu of on/off switches ●
☐	21B	PumpMaster® Plus in lieu of on/off switches ●
☐	21C	Super Single® in lieu of on/off switches ▲
☐	21D	Double Float™ in lieu of on/off switches ▲

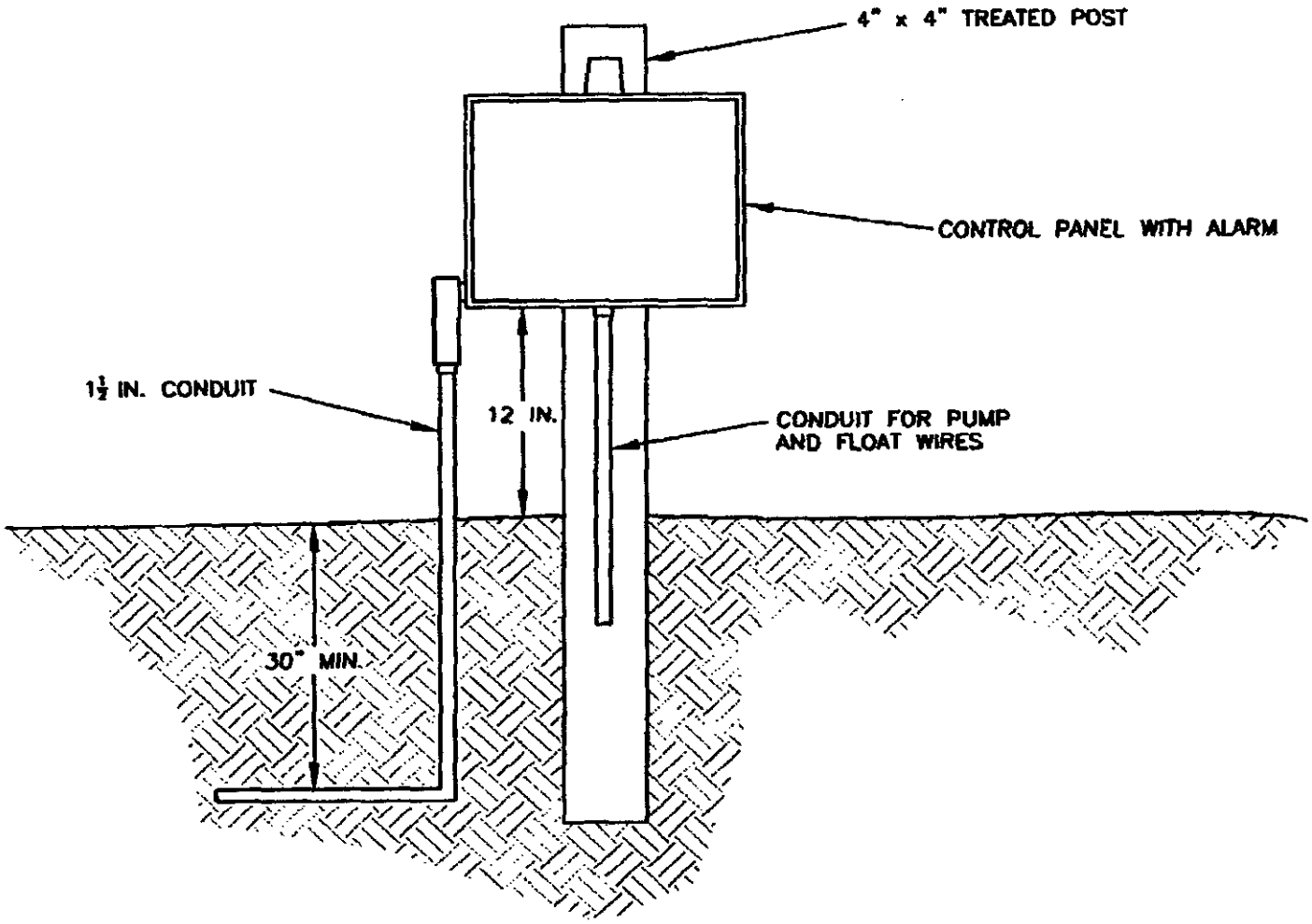
● Mechanically-activated ▲ Mercury-activated

SAMPLE



© SJF-Rhombus Printed in USA 01/00

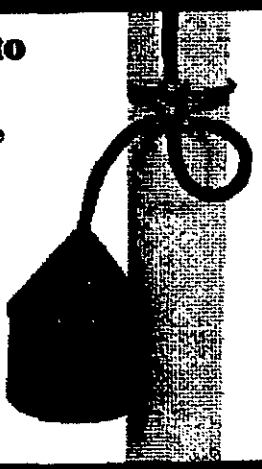
ELECTRIC BOX



NOTES: ELECTRICAL SYSTEM COMPONENTS SHALL BE INSTALLED TO MEET OR EXCEED MINIMUM REQUIREMENTS SPECIFIED IN THE ELECTRICAL CODE. ALL WIRING SHALL BE #12 MINIMUM, AND RATED FOR DIRECT BURY. PROVIDE GROUNDING AS REQUIRED, AND PROVIDE 30" MINIMUM BURY ON CABLES. PROVIDE ONE 20 AMP, DOUBLE POLE, 230 VOLT CIRCUIT BREAKER (FOR PUMP), AND ONE 20 AMP, SINGLE POLE, 115 VOLT CIRCUIT BREAKER (FOR ALARM) IN MAIN PANEL.

SENSOR FLOAT® control switch

Mercury-activated, narrow-angle float switch designed to activate pump control panels and alarms.



This narrow-angle sensing device is used to accurately monitor liquid levels in sewage and non-potable water applications. The Sensor Float® control switch is not sensitive to rotation and is suitable for use with intrinsically safe circuits. Contact SJE-Rhombus regarding specific intrinsically safe applications.

Normally Open Model (high level)
The control switch turns on (closes) when the float tips slightly above horizontal signaling a high level, and turns off (opens) when the float drops slightly below horizontal.

Normally Closed Model (low level)
The control switch turns on (closes) when the float drops slightly below horizontal signaling a low level, and turns off (opens) when the float tips slightly above horizontal.

FEATURES

- Suitable for use with intrinsically safe circuits.
- Not sensitive to rotation.
- Control differential of .5 inches (1 cm) above or below horizontal.
- UL Listed for use in non-potable water and sewage.
- CSA Certified.
- Three-year limited warranty.

LR54245 LISTED

Hydraulic

OPTIONS

This switch is available:

- for normally open (high level) applications or normally closed (low level) applications.
- in standard cable lengths of 10, 15, 20, or 30 feet and 3, 5, 6, or 10 meters.
- with three mounting options that allow for flexibility in installation:

  Mounting Clamp: for applications where the switch can be attached to a discharge pipe or similar mounting device.

  Internally Weighted: for applications where the switch can be suspended from above.

  Externally Weighted: for applications where the switch can be suspended from above.

SPECIFICATIONS

CABLE: flexible 18 gauge, 2 conductor (UL,CSA) SJOW, water-resistant (CPE) jacket

FLOAT: 3.38 inch diameter x 4.55 inch long (8.58 cm x 11.56 cm), high-impact, corrosion resistant, PVC housing for use in sewage and non-potable water up to 140°F (60°C)

MAXIMUM WATER DEPTH: 30 feet (9 meters), 13 psi

MERCURY TILT SWITCH: single pole, single throw, mercury-to-mercury contacts, hermetically sealed in a steel capsule and epoxy sealed in the float housing

ELECTRICAL: 5 amp, 120/230 VAC, 50/60 Hz

CONTROLS SJE Rhombus SJ ELECTRO SYSTEMS, INC.
PO Box 1708, Detroit Lakes, MN 56502

Sensor Float® control switch installation instructions

⚠WARNING **ELECTRICAL SHOCK HAZARD**
Disconnect power before installing or servicing this product. A qualified service person must install and service this product according to applicable electrical and plumbing codes.

⚠WARNING **EXPLOSION OR FIRE HAZARD**
Do not use this product with flammable liquids. Do not install in hazardous locations as defined by National Electrical Code, ANSI/NFPA 70.

Failure to follow these precautions could result in serious injury or death. Replace product immediately if switch cable becomes damaged or severed. Keep these instructions with warranty after installation. This product must be installed in accordance with National Electric Code, ANSI/NFPA 70 so as to prevent moisture from entering or accumulating within boxes, conduit bodies, fittings, float housing, or cable.

MOUNTING THE SWITCH

1. Place the cord into the clamp as shown in Figure B.
2. Locate clamp at desired activation level and secure the clamp to the discharge pipe as shown in Figures A and B. **Note:** Do not install cord under hose clamp.
3. Tighten the hose clamp using a screwdriver. Over tightening may result in damage to the plastic clamp. Make sure the float cable is not allowed to touch the excess hose clamp band during operation.
4. Bring cable leads back to control device and wire according to Figure C.
5. Check installation. Allow system to cycle to insure proper operation.

Note: All hose clamp components are made of 18-8 stainless steel material. See your SJE-Rhombus supplier for replacements.

Figure A

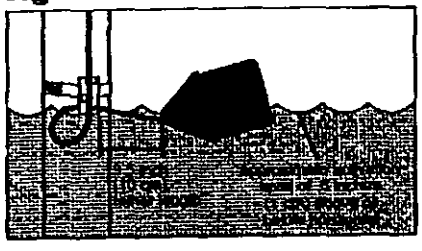
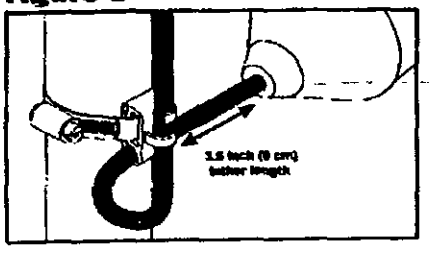


Figure B



INTERNAL WEIGHT

1. Determine desired activation level.
2. Suspend switch 7 inches (18 cm) below desired activation level as shown in Figure D. Switch remains partially submerged during the "on" tipping action. Switch can be totally submerged and still continue to operate properly.
3. Wire cable leads directly into control device as shown in Figure C.
4. Check installation. Allow system to cycle to insure proper operation.

Figure C - Wiring Diagram

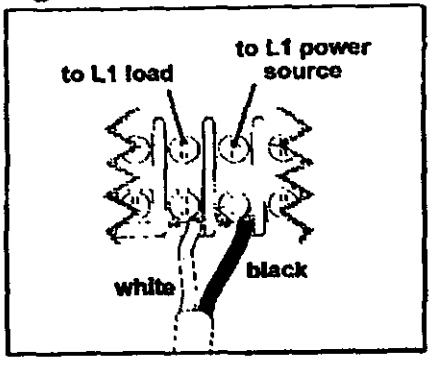
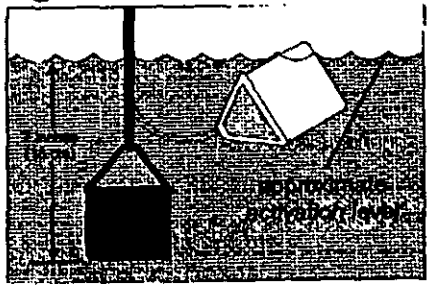


Figure D



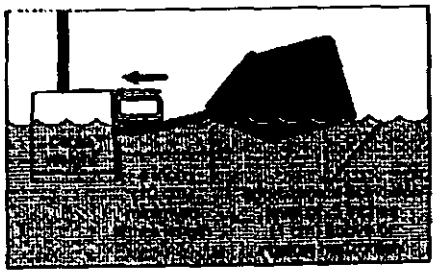
CABLE WEIGHT

1. Determine desired activation level.
2. Suspend switch and cable weight at desired activation level as shown in Figure E.
3. Wire cable leads directly into control device as shown in Figure C.
4. Check installation. Allow system to cycle to insure proper operation.

Cable weight is attached to switch cable at the factory. To adjust:

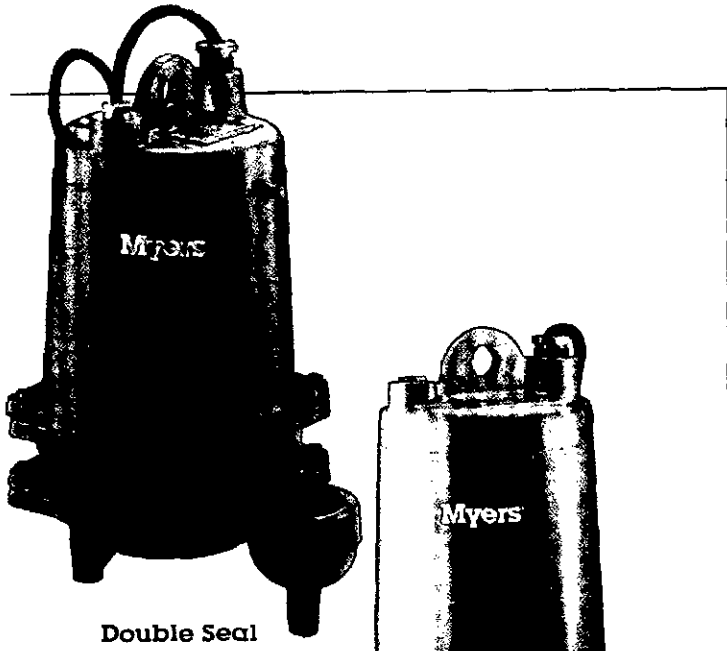
1. Release clip.
2. Adjust cable weight to desired position.
3. Lay switch cable in weight channel.
4. Align clip with weight channel and slide towards switch cable as shown in Figure E.
5. Snap clip snugly up to cable, moving clip to tightest possible position.

Figure E



ME SERIES

1/2 through 1-1/2 HP
Effluent Pumps



Double Seal

Single Seal

THE MYERS ME SERIES EFFLUENT PUMPS ARE DESIGNED SPECIFICALLY FOR TODAY'S EFFLUENT PRESSURE DISTRIBUTION MOUNDS, TRENCHES AND HIGH FLOW DRAINAGE APPLICATIONS. The ME Series effluent pumps with their efficient two vane, enclosed impellers, provide the ideal performance for optimum dosing. ME Series pumps are constructed of only corrosion resistant materials like cast iron, stainless steel and thermoplastics to assure that they will perform for years to come in the harsh effluent environment and drainage applications. For more information, call your Myers distributor today or the Myers Ashland, Ohio sales office at 419/289-1144.

ADVANTAGES BY DESIGN

IDEAL FOR USE IN MOUND AND TRENCH PRESSURE DISTRIBUTION SYSTEMS

- High efficiency, two vane, enclosed impeller provides ideal performance for most efficient dosing.
- Impeller passes full ¾ inch solids.
- Enclosed impeller design eliminates possibility of jamming or corrosion between impeller and volute.

DURABLE MOTOR WILL DELIVER MANY YEARS OF RELIABLE SERVICE

- Oil-filled motor for maximum heat dissipation and constant bearing lubrication.
- High torque, permanent split capacitor (PSC), single phase motors. No starting switches or relays to wear out.
- Optional seal leak probe warns of seal leak condition. (Dual seal motors only.) Helps prevent costly motor damage.
- Motors have on winding current and temperature sensitive overload. (Single phase only.)

THE ME SERIES EFFLUENT PUMPS ARE DESIGNED FOR YEARS OF MAINTENANCE FREE OPERATION

- Volute seal ring is replaceable. Restores pump to original performance if wear should occur.
- Motor is held in place by 4 screws. Easily removed if service is ever needed.

PRODUCT CAPAILITIES

Capacities To	120 GPM	454 LPM
Heads To	95 ft.	28.9 m
Max. Spherical Solids	¾ in.	19 mm
Liquids Handling	domestic effluent & drain water	
Intermittent Liquid Temp.	up to 140° F	up to 60° C
Motor Electrical Data	1/2 HP 115 volts, 1 ph 1/2 to 1-1/2 HP 230 volts, 1 ph 208, 230, 460, 575 volts, 3 ph oil-filled, permanent split capacitor type, 1 ph, 3450 rpm, 60 Hz	
Motor Insulation	Class B (130° C)	
Third Party Approvals	UL, CSA	
Acceptable pH Range	6-9	
Specific Gravity	.9-1.1	
Viscosity	28-35 SSU	
Discharge, NPT	2 in.	50.8 mm
Min. Sump Dia. Simplex	24 in.	61 cm
Duplex	36 in.	91.4 cm

Construction Materials	
Motor Housing, Volute	cast iron, Class 30, ASTM A48-76
Enclosed Two Vane Impeller Standard	engineered thermoplastic
Optional	bronze
Impeller Wear Ring	304 SST
Volute Sealing Ring	Buna-N
Shaft	416 SST
Power Cord	
1/2 HP 1 Ph	20 ft. 16/3 SJOW/SJOW-A
3/4 - 1-1/2 HP 1 Ph	20 ft. 14/3 SJOW/SJOW-A
All 3 Ph	20 ft. 14/4 SOW/SOW-A
Shaft Seals Standard	single carbon & ceramic
Optional	tandem carbon & ceramic
Opt. Lower	tungsten carbide
Fasteners	300 Series SST

WHERE INNOVATION MEETS TRADITION

ISO 9001 Certified Company

Myers
PENTAIR PUMP GROUP

ME SERIES

1/2 through 1-1/2 HP Effluent Pumps

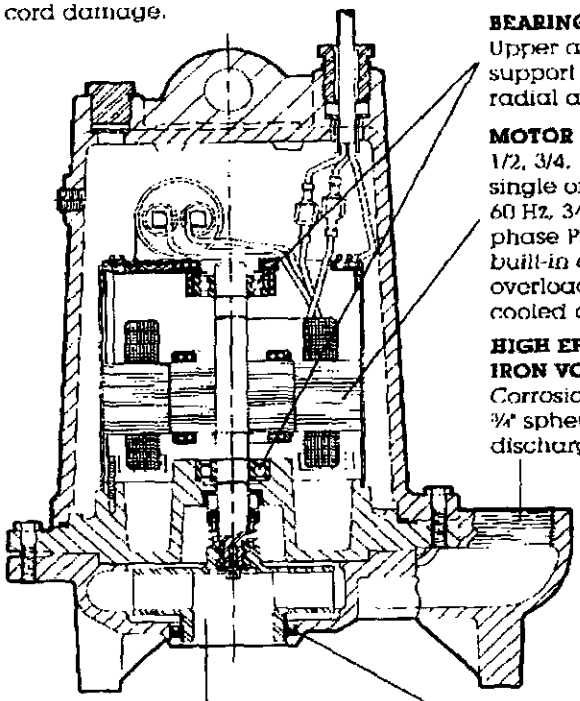
POWER CORD
Jacket sealed with compression fittings. Individual wires potted with epoxy to prevent wicking in case of cord damage.

MOTOR HOUSING
Cast iron for efficient heat transfer and corrosion resistance.

BEARINGS
Upper and lower ball support rotor. Take radial and thrust loads.

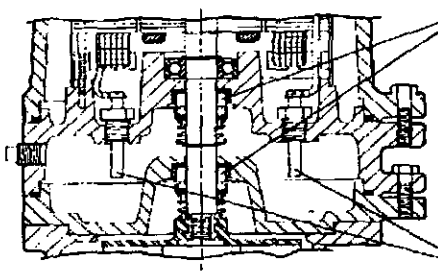
MOTOR
1/2, 3/4, 1 and 1-1/2 HP single or three phase. 60 Hz, 3450 RPM. Single phase PSC motors have built-in on winding overload protection, oil-cooled and lubricated.

HIGH EFFICIENCY CAST IRON VOLUTE
Corrosion resistant. Passes ¾" spherical solids. 2" NPT discharge.



ENCLOSED TWO VANE IMPELLER
high efficiency. Passes ¾" spherical solids with stainless steel wear ring. Optional bronze construction available.

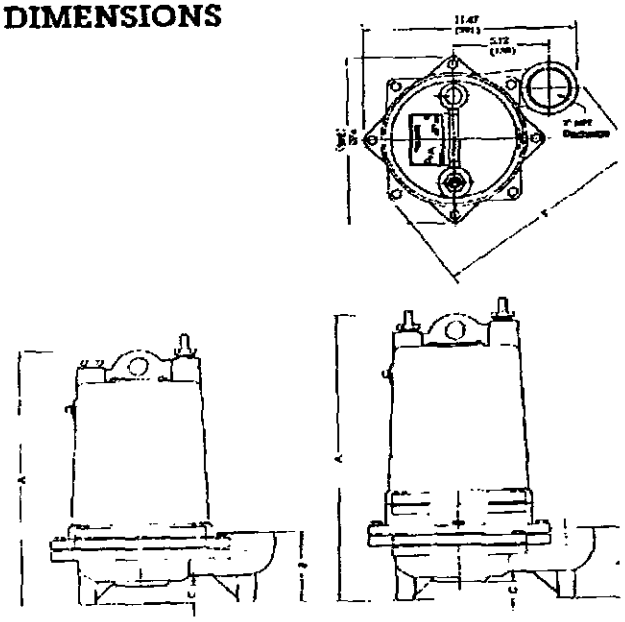
VOLUTE/IMPELLER SEAL RING
Maintains high efficiency and reduces recirculation. Replaceable.



SHAFT SEAL(S)
Carbon and ceramic faces. Optional dual tandem seals. Extends motor life.

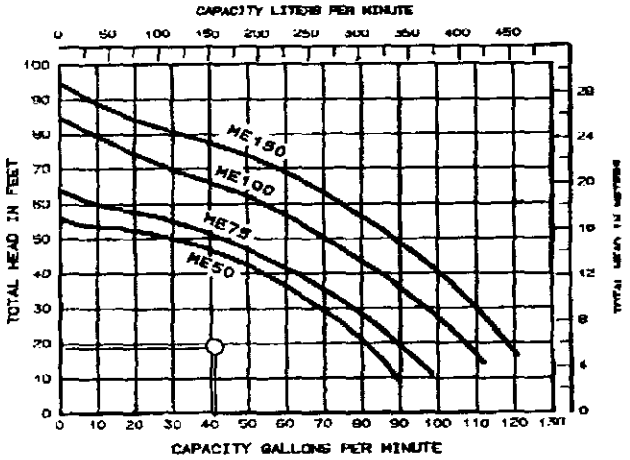
SEAL LEAK PROBES
Optional probes (dual seal only) detect water leakage in seal housing. Activates warning light.

DIMENSIONS



Model Series	Inches (millimeters) A	B	C	F
ME50S	16.8 (427)	4.09 (104)	1.03 (26)	12.13 (308)
ME50D	18.6 (472)	4.09 (104)	1.03 (26)	12.13 (308)
ME75S, ME100S, ME150S	16.8 (427)	4.0 (102)	1.06 (27)	12.5 (318)
ME75D, ME100D, ME150D	18.6 (472)	4.0 (102)	1.06 (27)	12.5 (318)

PERFORMANCE CURVE



K3320 9/98
Printed in U.S.A.

Myers
PENTAIR PUMP GROUP

F. E. Myers, 1101 Myers Parkway, Ashland, Ohio 44805-1969
419/289-1144, FAX: 419/289-6658, www.femyers.com
Myers (Canada), 268 Trillium Drive, Kitchener, Ontario N2G 4W5
519/748-5470, FAX: 519/748-2553

CALCULATIONS

Location Lynn Estates

Project Number 5-1385

Lot No: lot 4

No. of Bedrooms	4	
Design Flow	480 $^{gal}/_{day}$	nop
LTAR	0.39 $^{gal}/_{ft^2\,day}$	
EZ-Lay? (YES OR NO)	no	
Supply Line Length	105 ft.	
Supply Line Volume	18.27 gal.	
Required Feet of Line	410 ft.	
Amount of Line from Layout	415 ft.	
Gallons per Minute	40.67 $^{gal}/_{min}$	
Required Septic Tank Capacity	1500 gal.	
Minimum Standard Tank Size	1500	
Lateral Line Volume	270.995 gal.	
Dosing Volume	189.70 gal.	
	Note: Dosing Volume based on 70% of the lateral line volume.	
Tank Draw Down	9.0 *Generic Draw Down of 21 gal.per in.*	
Pump Run Time	4.66 minutes	
Estimated Elevation Head	10 ft.	
Pressure Head	2 ft.	
Friction Factor	3.13 ft./100 ft. *(From the interpolater.)*	
Friction Head	3.29 ft.	
Total Dynamic Head (+15%)	17.58 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
40.67	3.13
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42

CALCULATIONS

Location Lynn Estates

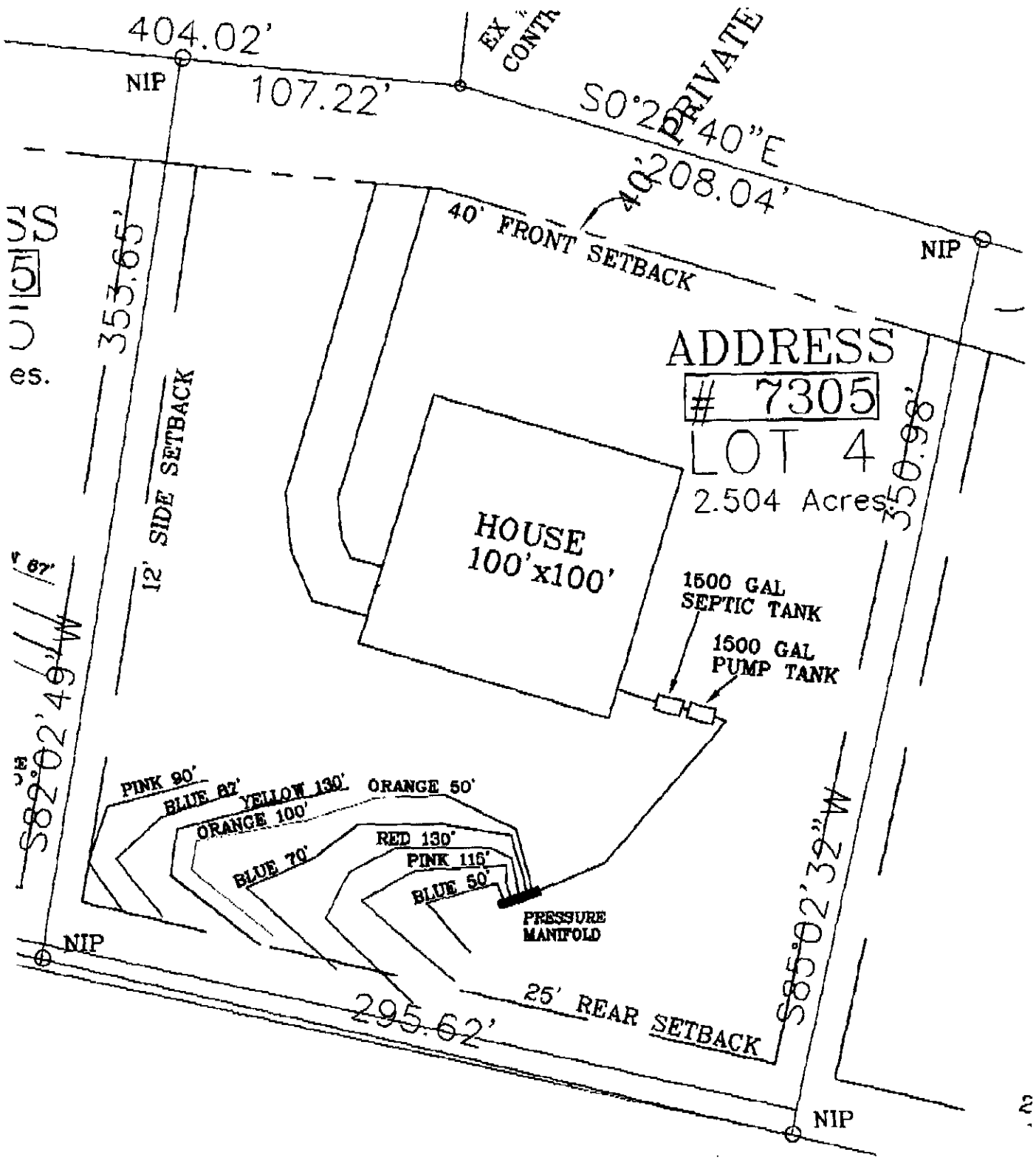
Project Number 5-1385

Lot No: lot 4

No. of Bedrooms	4	
Design Flow	480 $^{gal}/_{day}$	nop
LTAR	0.39 $^{gal}/_{ft^2\,day}$	
EZ-Lay? (YES OR NO)	no	
Supply Line Length	105 ft.	
Supply Line Volume	18.27 gal.	
Required Feet of Line	410 ft.	
Amount of Line from Layout	415 ft.	
Gallons per Minute	40.67 $^{gal}/_{min}$	
Required Septic Tank Capacity	1500 gal.	
Minimum Standard Tank Size	1500	
Lateral Line Volume	270.995 gal.	
Dosing Volume	189.70 gal.	
	Note: Dosing Volume based on 70% of the lateral line volume.	
Tank Draw Down	9.0 *Generic Draw Down of 21 gal.per in.*	
Pump Run Time	4.66 minutes	
Estimated Elevation Head	10 ft.	
Pressure Head	2 ft.	
Friction Factor	3.13 ft./100 ft. *(From the interpolater.)*	
Friction Head	3.29 ft.	
Total Dynamic Head (+15%)	17.58 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
40.67	3.13
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42


404.02'
NIP
107.22'
EX. CONTR.
PRIVATE
S0°2 40"E
40'208.04'
40' FRONT SETBACK
NIP
353.65'
12' SIDE SETBACK
ADDRESS
7305
LOT 4
2.504 Acres
350.98'
HOUSE
100'x100'
1500 GAL
SEPTIC TANK
1500 GAL
PUMP TANK
PINK 90'
BLUE 87'
YELLOW 130'
ORANGE 50'
ORANGE 100'
BLUE 70'
RED 130'
PINK 115'
BLUE 50'
PRESSURE
MANIFOLD
S82°02'49"W
NIP
25' REAR SETBACK
295.62'
S85°02'32"W
NIP

Terrance Atkinson-Beatty Ford Road-Lot 4

JOB #: 5-1385

March-04

LAYOUT FOR 4 BEDROOM HOME

LINE #	FLAG COLOR	BS	HI	FS	LINE LENGTH
TBM					
INSTR. 1					
			SYSTEM		
1	BLUE			3.00	50
2	PINK			3.30	115
3	RED			3.80	130
4	BLUE			3.90	70
5A	ORANGE			4.20	50
			REPAIR		415
5B	ORANGE			4.20	100
6	YELLOW			4.40	130
7	BLUE			4.80	87
8	PINK			5.30	90
					407
				Total	822

	LINE LENGTH	LTAR GPD/FT²	SYSTEM TYPE	PROPOSED LTAR GPD/FT²	INNOVATIVE SYSTEM	DISTRIBUTION
System		*0.38*	*SAPROLITE*	*0.40*	*N/A*	PRESSURE MANIFOLD
REPAIR		0.39	SAPROLITE	0.40	N/A	PRESSURE MANIFOLD

Notes:

**All measures in feet

**Nitrification lines are demonstrated on contour via colored pin flags

** House and driveway location illustrated on the attached map

**BS and FS indicate rod readings

**Lines flagged in field may be longer than lengths shown. Install at lengths shown on this sheet.

S&EC

Soil & Environmental Consultants, PA

236 LePhillip Court, Suite C • Concord, North Carolina 28025 • Phone: (704) 720-9405 • Fax: (704) 720-9406
www.SandEC.com

FACSIMILE SHEET

FAX NO. (704) 720-9406

DATE: 11/3/04 Project Number: _____

TO: Name: Jeremy Mikelone CC: _____

Company: Mecklenburg County _____

Fax Number: (704) 336-6894 _____

FROM: Wendell Overby SUBJECT: Lynn Estates-Lot 4

The following items are being faxed. Number of pages including transmittal sheet: 7

x For Your Comments/Approval	x For Your Information
_____ Per Our Conversation	_____ Per Your Request
_____ Please Advise	_____ Please Call
_____ Would Like To Discuss	_____ Please Handle

HARD COPY SENT:

_____ US Regular Mail	_____ Hand Delivery
_____ Overnight	x No Hard Copy Sent

REMARKS: _____

IF YOU HAVE ANY QUESTIONS OR PROBLEMS WITH THIS TRANSMISSION,

PLEASE CONTACT Wendell AT (704) 720-9405.

CONFIDENTIALITY NOTICE

This transmission is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged and confidential. If the reader of this message is not the intended recipient, you are hereby notified that any disclosure, distribution or copying of this information is strictly prohibited. If you have received this transmission in error, please notify us immediately by telephone and return the faxed documents to us at the above address via the United States Postal Service.

Greensboro Office:
3817-E Lawndale Drive
Greensboro, NC 27455
Phone: (336) 540-8234
Fax: (336) 540-8235

Hickory Area Office:
622 Coon Mountain Lane
Taylorsville, NC 28681
Phone: (828) 635-5820
Fax: (828) 635-5820

Raleigh Office:
11010 Raven Ridge Road
Raleigh, NC 27614
Phone (919) 846-5900
Fax: (919) 846-9467

S&EC

Soil & Environmental Consultants, PA

236 LePhillip Court, Suite C • Concord, North Carolina 28025 • Phone: (704) 720-9405 • Fax: (704) 720-9406
www.SandEC.com

November 2, 2004

Mecklenburg County Health Department
Attn: Jeremy Mikelone
700 North Tryon Street
Charlotte, NC 28202
VIA FACSIMILE (704) 336-6894

Jeremy:

Attached please find soil descriptions you requested for Lot 4 of Lynn Estates for Terrance Atkinson. The site is located off Beattys Ford Road. We met Bill on site in March of this year. Due to numerous factors we have just revisited the site to do the soil descriptions. You should have a copy of the previous pressure manifold design for this lot. I noticed a couple of changes and have enclosed them with this fax. In order to placed the trench in usable saprolite we recommend taking the top 12" of unsuitable soil from the initial and repair areas. Let me know if you have questions.

Sincerely,

Wendell Overby
NC Licensed Soil Scientist

Greensboro Office:
3817-E Lawndale Drive
Greensboro, NC 27455
Phone: (336) 540-8234
Fax: (336) 540-8235

Hickory Area Office:
622 Coon Mountain Lane
Taylorsville, NC 28681
Phone: (828) 635-5820
Fax: (828) 635-5820

Raleigh Office:
11010 Raven Ridge Road
Raleigh, NC 27614
Phone (919) 846-5900
Fax: (919) 846-9467

Profile Description
Mecklenburg County
Terrance Atkinson–Lynn Estates Lot 4

Pit 1

Horizon	Depth	Color	Mottles	Texture	Structure
A	0-4″	10YR 4/3		Sandy loam	Granular
Bt	4-20″	7.5YR 4/6		Clay	Angular blocky
C	20-58″	5Y 7/3 multicolor		Loam saprolite	Granular/ structureles

Pit 2

Horizon	Depth	Color	Mottles	Texture	Structure
A	0-3″	10YR 4/3		Sandy loam	Granular
Bt	3-16″	10YR 4/4		Clay	Subangular blocky
BC	16-26″	10YR 4/3 multicolor	2.5Y 7/6	Sandy clay loam sap	Subangular blocky
C	26-52″	5Y 8/4 multicolor		Sandy loam Saprolite	Granular/ structureles

Pit 3

Horizon	Depth	Color	Mottles	Texture	Structure
A	0-7″	10YR 4/3		Sandy loam	Granular
Bt	7-18″	7.5YR 4/6		Clay	Angular blocky
BC	18-31″	7.5YR 5/6		Sandy clay loam sap	Subangular blocky
C	31-56″	2.5Y 7/6 multicolor		Sandy loam Saprolite	Granular/ structureles

lot 4 Beatty Ford Rd

Project No. 5-1385

LAYOUT FOR 4 BEDROOM HOME

April 14, 2002

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM					100.00		
INSTR. 1			100.00				
*1	*BLUE*			*3.00*	*97.00*	*50*	*50*
*2	*PINK*			*3.30*	*96.70*	*115*	*115*
*3	*RED*			*3.80*	*96.20*	*130*	*130*
*4	*BLUE*			*3.90*	*96.10*	*70*	*70*
*5A	*ORANGE*			*4.20*	*95.80*	*50*	*50*
5B	ORANGE			4.20	95.80	100	100
6	YELO			4.40	95.60	130	130
7	BLUE			4.80	95.20	87	87
8	PINK			5.30	94.70	90	90
					Total	**822**	**822**

	LINE LENGTH	LTAR GPD/FT²	SYSTEM TYPE	SOIL LTAR GPD/FT²	INNOVATIVE SYSTEM	DISTRIBUTION
* *System*	*415*	*0.39*	*CONV.*	*0.39*	*N/A*	PRESSURE MANIFOLD
Repair	397	0.39	*CONV.*	0.39	N/A	PRESSURE MANIFOLD

Notes:

**TBM is assumed to be 100'
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
** Line #5 (ORNG 150') to be split into two lines (#5A 50', & #5B 100').
**BS, HI, and FS indicate rod readings

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 DEHNR, 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.
- Design precludes use of foundation drains on the residence.
- System is specified as a conventional installation
- Repair is specified as a conventional installation.
- System will be installed in saprolite. Remove top 12" of soil.

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner: Terrance Atkinson

Address: 9504 Beatties Ford Road
Huntersville,NC 28078
Phone: 704 398-8587
County: Mecklenburg
Location: Beatty Ford Lot 4
Source of Wastewater Flow: 4 Bedroom Single Family Residence
Estimated Daily Wastewater Production: 480 gpd
System Flow: 40.67

Design Specifications

Drainfield Size: 415
Loading Rate: 0.39 gpd/ft.^{2}
Depth of Gravel in Trench: 8 in.
Gravel Size: 3, 4, 5, 57, or 6 ASTM
Trench Depth: 30 in.
Trench Width: 36 in.
Septic Tank Size: 1500
Pump Tank Size: 1500
Estimated Supply Line Length: 105
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 18.27
Dosing Volume: 189.70
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: 3.29
Elevation Head: 10.00
Total Dynamic Head: 17.58
Threaded Union: In Tank
Gate Valves: 1 in Tank
1 at Pressure Manifold
Check Valves: In Tank
Anti-Siphon Hole: NA
Recommended Pump: Myers Model ME50 or County Approved Effluent Rated Pump Capable of Delivering ~20 ft.of Head at ~41 gpm Total Flow

Additional Comments: Soil suitability was performed by the Mecklenburg County Health Department.

BEATTYS FORD LOT 4
PRESSURE MANIFOLD DESIGN

DESIGN FLOW:	480
SOIL APPLICATION RATE:	0.39 gpd/ft.^{2}
TOTAL AREA TRENCH BOTTOM:	1245
TOTAL LATERAL LENGTH:	415
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	410
SUPPLY LINE LENGTH:	105
TOTAL DYNAMIC HEAD:	17.58
MANIFOLD SIZE:	4 in.SCH 80 PVC
DOSING VOLUME:	189.70
PUMP TANK DRAW DOWN*:	9.0
SEPTIC TANK SIZE:	1500
PUMP TANK SIZE:	1500
RECOMMENDED PUMP:	Myers Model ME50 or County Approved Effluent Rated Pump Capable of Delivering ~20 ft.of Head at ~40 gpm Total Flow

**Pump tank draw down based on a volume basis of 21 gallons per inch. Draw down may vary among pump tank manufacturers.*

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

Sheet: 1
Property ID: 015-461-42
Lot #: 4
File #: 5457B
Code: 3

ACS

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Owner: Terrence Atkinson
Applicant:
Address: 9504 Beatties Ford Road, Huntersville, N. C. 28078
Date Evaluated: 02/03/2004
Proposed Facility: Residence
Design Flow (.1949): 480gpd
Property Size: 2.5a
Location of Site: 7305 Howell Ridge Road
Property Recorded:
Water Supply: [x] Public [ ] Individual [ ] Well [ ] Spring [ ] Other
Evaluation Method: [x] Auger Boring [ ] 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	OTHER PROFILE FACTORS .1942 Soil Wetness/ Color	.1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr Horiz	Profile Class & LTAR
1	LS, 8	0-3	GR/SCL	FR/SEXP/SS/SP	>20" TO SOIL WETNESS	20	N/A	NONE	US
		3-20	SBK/SC	VFI/EXP/VS/VP					
2	LS, 10	0-4	GR/SCL	FR/SEXP/SS/SP	>19" TO SOIL WETNESS	19	"	"	"
		4-19	SBK/SC	VFI/EXP/VS/VP					
3	LS, 8	0-4	GR/CL	FR/SEXP/SS/SP	>18" TO SOIL WETNESS	18	"	"	"
		4-18	SBK/SC	VFI/EXP/VS/VP					
4	"	0-4	GR/SCL	FR/SEXP/SS/SP	>11" TO SOIL WETNESS	11	"	"	"
		4-11	SBK/SC	VFI/EXP/VS/VP					
5	LS, 10	0-3	GR/SCL	FR/SEXP/SS/SP	"	"	"	"	"
		3-11	SBK/C	VFI/EXP/VS/VP					

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

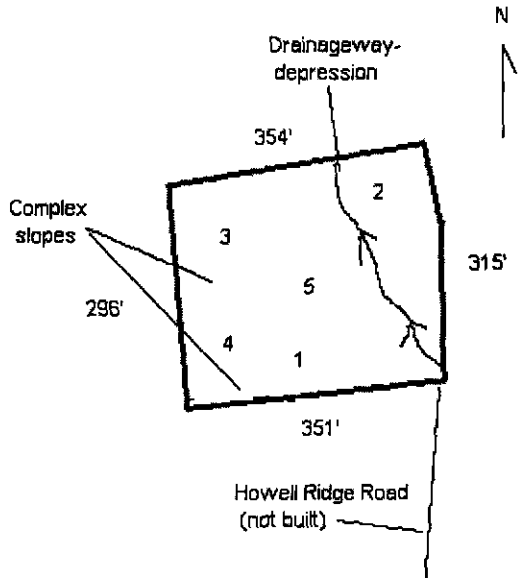
Other Factors (.1946): _____
Site Classification (.1948): UNSUITABLE
Evaluated By: W. R. Marlin, LSS, 2/11/2004
Others Present:

FILE # 5457B

COMMENTS: 100% repair

LANDSCAPE POSITIONS	GROUP	TEXTURES	.1955 LTAR	CONSISTENCE MOIST	WET
R-RIDGE	I	S-SAND	1.2 - 0.8		
S-SHOULDER SLOPE		LS-LOAMY SAND		VFR-VERY FRIABLE	NS-NON-STICKY
L-LINEAR SLOPE				FR-FRIABLE	SS-SLIGHTLY STICKY
FS-FOOT SLOPE	II	SL-SANDY LOAM	0.8 – 0.6	FI-FIRM	S-STICKY
N-NOSE SLOPE		L-LOAM		VFI-VERY FIRM	VS-VERY STICKY
H-HEAD SLOPE				EFI-EXTREMELY FIRM	NP-NON-PLASTIC
CC-CONCLAVE SLOPE	III	SI-SILT-	0.6 – 0.3		SP-SLIGHTLY STICKY
CV-CONVEX SLOPE		SIL-SILT LOAM			P-PLASTIC
T-TERRACE		CL-CLAY LOAM			VP-VERY PLASTIC
FP-FLOOD PLAN		SCL-SANDY CLAY LOAM			
		SICL-SILTY CLAY LOAM			
	IV	SIC-SILTY CLAY	0.4 – 0.1		
		C-CLAY			
		SC-SANDY CLAY			

STRUCTURE	MINERALOGY
SG-SINGLE GRAIN	SLIGHTLY EXPANSIVE
M-MASSIVE	
CR-CRUMB	EXPANSIVE
GR-GRANULAR	
SBK-SUBANGULAR BLOCKY	
ABK-ANGULAR BLOCKY	
PL-PLATY	
PR-PRISMATIC	



S&EC

Soil & Environmental Consultants, PA

236 LePhillip Court, Suite C • Concord, North Carolina 28025 • Phone: (704) 720-9405 • Fax: (704) 720-9400
www.SandEC.com

FACSIMILE SHEET
FAX NO. (704) 720-9406

DATE: 4/13/04 Project Number: 5-1385S1

TO: Name: Jeremy Mikelone CC: _____

Company: Meck Co Health Dept _____

Fax Number: (704) 336-6894 _____

FROM: Wendell Overby SUBJECT: Old Beatty Ford

The following items are being faxed. Number of pages including transmittal sheet: 5

____ For Your Comments/Approval	____ For Your Information
__x__ Per Our Conversation	____ Per Your Request
____ Please Advise	____ Please Call
____ Would Like To Discuss	____ Please Handle

HARD COPY SENT:

____ US Regular Mail	____ Hand Delivery
____ Overnight	__x__ No Hard Copy Sent

REMARKS: Jeremy: After talking with the client I've added the proposed house locations. I am not certain the houses will be this large but we are being conservative on the size. Also we are allowing for the possibility of basements to be used. The saprolite was sandy loam texture and is within the LTAR allowed. If this looks good we can put together pressure manifold designs. Let me know if you have any other choices for distribution.

Wendell

IF YOU HAVE ANY QUESTIONS OR PROBLEMS WITH THIS TRANSMISSION,

PLEASE CONTACT Wendell AT (704) 720-9405.

CONFIDENTIALITY NOTICE

This transmission is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged and confidential. If the reader of this message is not the intended recipient, you are hereby notified that any disclosure, distribution or copying of this information is strictly prohibited. If you have received this transmission in error, please notify us immediately by telephone and return the faxed documents to us at the above address via the United States Postal Service.

MECKLENBURG COUNTY
LAND USE AND ENVIRONMENTAL SERVICES
Payment Receipt

Receipt Information

Date: 12/03/03
Receipt #: 19966
Check / Auth #: VISA 175532
Received By: AIDOOJK

Amount: 1,000.00
Tendered: 0.00
Returned: 0.00

Account Information

Account #: 200000
Contractor: AIKINSON TERRENCE L
Attn:
Address: 9504 BEATTIES FORD ROAD
Address:
City/State/Zip: HUNTERSVILLE, NC 28078

Item	Description	Permit#	Quantity	Unit Price	Total Price
0701	Improvment Permit App-Residen HOWELL RIDGE ROAD LOT 1,3-6		1	1,000.00	1,000.00

Outstanding Balances

Month-To-Date	Prior Month	30 Days	60 Days	90 Days	Balance
50.00					

FEE: 200.00
DATE: 12/3/03
#159 JKA

APPLICATION FOR IMPROVEMENT PERMIT FOR RESIDENTIAL SITE INDIVIDUAL WATER AND WASTEWATER SYSTEMS PROGRAM

[ ] CRT

TYPE APPLICATION: ___ NEW SYSTEM ___ EXPANSION/ ALTERATION OF EXISTING SYSTEM ___ REPAIR OF EXISTING SYSTEM

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

FILE #: ~~5454B~~ 5459B

PROPERTY INFORMATION (FROM ENGINEERING FORM) FOR JOB LOCATION:

TAX/PARCEL NUMBER: 015-461-41

STREET ADDRESS: 7305 Howell Ridge Road

SUBDIVISION OR MOBILE HOME PARK NAME: LYNN ESTATES

LOT NUMBER: Four (4)

TYPE OF BUILDING (CHECK ONE):

___ SINGLE MOBILE HOME(S)
___ DOUBLE WIDE (D)
X HOUSE (H)
___ MODULAR HOME (M)
___ MULTIPLE FAMILY (U)
___ OTHER (O)

TOWNSHIP (CHECK ONE):

___ 0 MECKLENBURG
___ 1 CHARLOTTE
___ 2 DAVIDSON
___ 3 CORNELIUS
___ 4 PINEVILLE
___ 5 MATTHEWS
X 6 HUNTERSVILLE
___ 7 MINT HILL

HEATED SQUARE FOOTAGE: 3,000 - 4,500

NUMBER OF BEDROOMS: NUMBER OF OCCUPANTS:

CLOSING DATE_____

FOUNDATION FOR RESIDENCE:

___ WITHOUT BASEMENT
___ ON SLAB
___ CRAWL SPACE
X WITH BASEMENT /PLUMBING
___ WITH BASEMENT /NO PLUMBING

IF EXPANSION/ALTERATION OF EXISTING SYSTEM, DESCRIBE THE PROPOSED BUILDING ADDITION:

WILL THERE BE A HOME BUSINESS IN THE RESIDENCE: ___ YES X NO TYPE: _____

WATER SUPPLY (CHECK ONE):

___ COMMUNITY (C)
___ SHARED WELL (S)
X MUNICIPAL (M)
___ OTHER 'SPRINGS' (O)
___ PRIVATE WELL (P)

IF ANY OF THE FOLLOWING ARE LOCATED ON THE PROPERTY, PLEASE SHOW LOCATION ON PLAT:

BURIED CABLES, LANDFILLS, STUMPHOLES ___ YES X NO
EXISTING WASTEWATER SYSTEMS ___ YES X NO
EASTMENTS OR RIGHT-OF-WAYS X YES ___ NO
WELL, SPRINGS OR WATERLINES ___ YES X NO
DESIGNATED WETLANDS ___ YES X NO

PROPERTY OWNER:

NAME: ATKINSON (LAST) TERRENCE (FIRST) L (MI)

ADDRESS: 9504 Beatties Ford Rd

CITY: Huntersville STATE: NC ZIP: 28078

DAYTIME PHONE: ( ) 704 - 507-4752

LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:

NAME: (LAST) (FIRST) (MI)

DAYTIME PHONE: ( ) -

WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? 11/11/03

An Improvement Permit is subject to suspension or revocation if site plans or the intended use change or if information submitted in this application is falsified or changed. The undersigned, owner, or legal agent for the owner, of the property described above as the "Job Location" has read the foregoing application, acknowledges that the contents of same are true, and authorizes agents of the Mecklenburg County Health Department to enter onto the property for the purpose of processing this request.

SIGNED: Terrence L. Atkinson DATE: ~~11/11/03~~ 12/02/03

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
c/o HAL MARSHALL CTR., SUITE 211, 700 N. TRYON ST., CHARLOTTE, N.C. 28202., (704) 336-5102

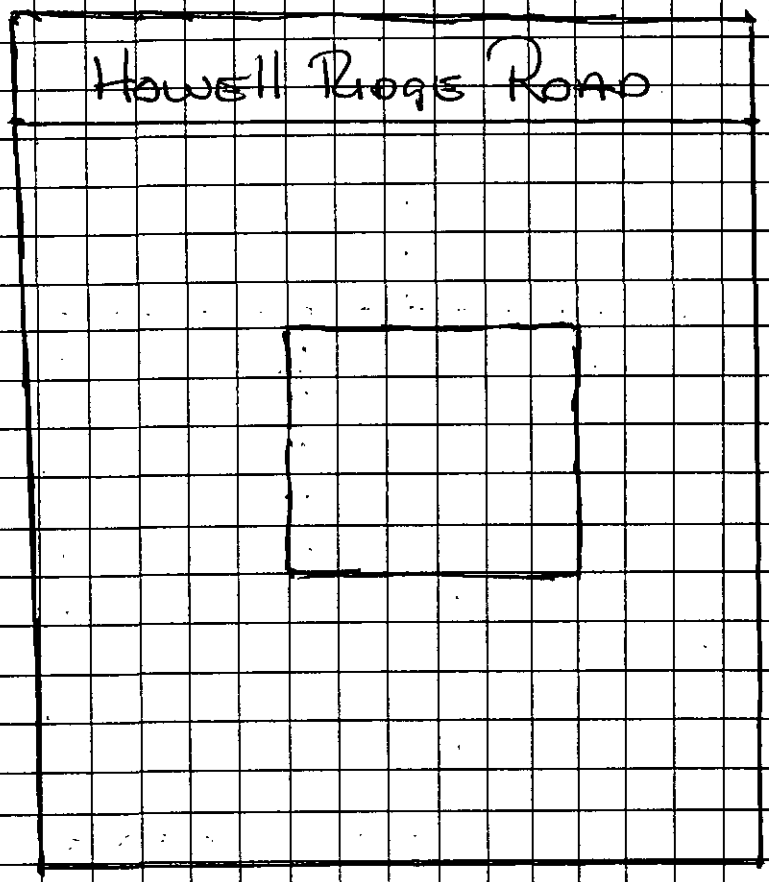
PROPOSED PLOT PLAN

HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
700 NORTH TRYON STREET
CHARLOTTE, NC 28202
PHONE (704) 336-5102

FILE: ~~5454B~~ 5457B

TC: 015-461-41

Draw in and name all roads adjoining the property. Draw in and accurately dimension the lot concerned. Accurately indicate property boundaries proposed and/or existing structures and driveways, underground utilities, and wells and springs within 100 feet of the proposed building or drainfield.



APPROVAL DATE _____

OWNER/AGENT SIGNATURE

DATE

White - Health Department's Copy Canary - E.H.S. Copy Pink - Owner's Copy