

120 SADDLE CREEK CT

1/7/2008

duponbj

Groundwater and Wastewater Services File Imaging Project
May 2007
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Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Sheet: 1
Property ID: PO 007-171-11, 12
Lot #: 4
File #: 5065B
Code: 1

A/S
Irrigate

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

Owner: Tim Wahl (Wahl LLC)
Applicant: L. A. Blankenship
Address: 14707 June Washam Road, Davidson, N. C. 28036
Date Evaluated: 09/25/2002
Proposed Facility: Residence
Design Flow (.1949): 600GPD
Property Size: .3a inv.
Location of Site: Off June Washam Road
Property Recorded:
Water Supply: [ ] Public [x] Individual [x] 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, 10	0-11	GR/SCL	FR/SEXP/SS/SP	>45" TO SOIL WETNESS	45	N/A	NONE	PS, IV .3GPD/FT^2
		11-31	SBK/C	FI/SEXP/S/P					
		31-45	SBK/CL	FR/SEXP/SS/SP					
2	"	0-4	GR/SCL	"	>49" TO SOIL WETNESS	49	"	"	"
		4-25	SBK/C	FI/SEXP/S/P					
		25-49	SBK/SCL	FR/SEXP/SS/SP					
3	"	0-16	GR/SCL	"	>44" TO SOIL WETNESS	44	"	"	"
		16-36	SBK/C	FI/SEXP/S/P					
		36-44	SBK/SCL	FR/SEXP/SS/SP					
4	"	0-14	GR/SCL	"	>48 TO SOIL WETNESS	48	"	"	"
		14-42	SBK/C	FI/SEXP/S/P					
		42-48	SBK/SCL	FR/SEXP/SS/SP					
5	"	0-4	GR/SL	FR/SEXP/NS/NP	>43" TO SOIL WETNESS	43	"	"	"
		4-8	GR/SCL	FR/SEXP/SS/SP					
		8-36	SBK/SC	FI/SEXP/S/P					
		36-43	SBK/SCL	FR/SEXP/SS/SP					
6	"	0-9	GR/SL	FR/SEXP/NS/NP	>48" TO SOIL WETNESS	48	"	"	"
		9-48	SBK/ABK/SC	FI/SEXP/S/P					
7	"	0-4	GR/SL	FR/SEXP/NS/NP	"	"	"	"	"
		4-39	SBK/C	FI/SEXP/ S/P					
		39-48	SBK/CL	FR/SEXP/SS/SP					

Description	Initial System	Repair System
Available Space (.1945)	PS	PS
System Type(s)		
Site LTAR	.3GPD/FT^2	.3GPD/FT^2

Other Factors (.1946): _____
Site Classification (.1948): PROVISIONALLY SUITABLE
Evaluated By: W. R. Marlin, LSS, 9/25/02, W. R. Marlin
Others Present: J. Michelone, W. Overby, L. Blankenship, T. Wahl

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

Sheet: 2
Property ID: PO 007-171-11, 12
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SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

Owner: Applicant:
Address: Date Evaluated:
Proposed Facility: Design Flow (.1949): Property Size:
Location of Site: Property Recorded:
Water Supply: [ ] Public [ ] Individual [ ] Well [ ] Spring [ ] Other
Evaluation Method: [ ] Auger Boring [ ] Pit [ ] Cut
Type of Wastewater: [ ] Sewage [ ] Industrial Process [ ] Mixed

PROFILE #	.1940 Landscape *Position/* Slope%	Horizon Depth (IN.)	SOIL MORPHOLOGY .1941 .1941 Structure/ Texture	.1941 Consistence Mineralogy	OTHER PROFILE FACTORS .1942 *Soil* Wetness/ Color	.1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr *Horiz*	Profile Class & LTAR
8	LS, 10	0-6	GR/SCL	FR/SEXP/SS/SP	>48" TO SOIL WETNESS	48	N/A	NONE	PS, IV
		6-22	SBK/SC	FI/SEXP/S/P					.3GPD/FT^2
		22-48	SBK/SCL	FR/SEXP/SS/SP					

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

Other Factors (.1946): _____
Site Classification (.1948):
Evaluated By: W. R. Marlin, LSS, 9/25/02
Others Present:

FILE # 5065 B

COMMENTS 100% Repair, drain field system & Repair will require easements, approx 1/3 of area investigated to be used for OFS Repairs

LANDSCAPE POSITION	GROUP	TEXTURE	.1955 LTAR
R-RIDGE	I	S-SAND	1.2-0.8
S-SHOULDER SLOPE		LS-LOAMY SAND	
L-LINEAR SLOPE			
FS-FOOT SLOPE	II	SL-SANDY LOAM	0.8-0.6
N-NOSE SLOPE		L-LOAM	
H-HEAD SLOPE			
CC-CONCLAVE SLOPE	III	SI-SILT	0.6-0.3
CV-CONVEX SLOPE		SICL-SILTY CLAY LOAM	
T-TERRACE		CL-CLAY LOAM	
FP-FLOOD PLAIN		SCL-SANDY CLAY LOAM	
	IV	SC-SANDY CLAY	0.4-0.1
		SIC-SILTY CLAY	
		O-ORGANIC	

CONSISTENCE MOIST	WET
VFR-VERY FRIABLE	NS-NON-STICKY
FR-FRIABLE	SS-SLIGHTLYSTICKY
FI-FIRM	S-STICKY
VFI-VERY FIRM	VS-VERY STICKY
EFI-EXTREMELY FIRM	NP-NON-PLASTIC
	SP-SLIGHTLYSTICKY
	P-PLASTIC
	VP-VERY PLASTIC

STRUCTURE

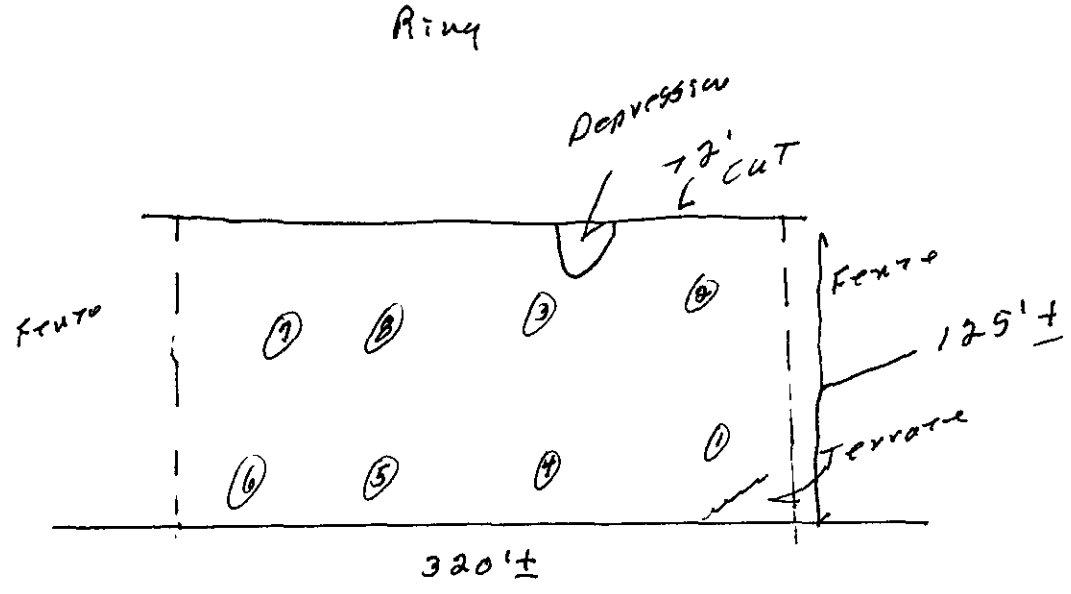
SG-SINGLE GRAIN
M-MASSIVE
CR-CRUMB
GR-GRANULAR
SBK-SUBANGULAR BLOCKY
ABK-ANGULAR BLOCKY
PL-PLATY
PR-PRISMATIC

MINERALOGY

SLIGHTLY EXPANSIVE

EXPANSIVE

N



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

Sheet: 1
Property ID: PO 007-171-11,12
Lot #: 4
File #: 5065B
Code: 3

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

Owner: Tim Wahl (Wahl LLC)
Applicant: Lou Ann Blankenship
Address: 14707 June Washam Road, Davidson, N. C. 28036
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1	LS, 10	0-6	GR/SCL	FR/SEXP/SS/SP	>43" TO SOIL WETNESS	15	US	NONE	US
		6-15	ABK/C	VFI/EXP/VS/VP					
		15-43	M/SL	VFI/SEXP/NS/NP					
2	"	0-10	GR/SL	FR/SEXP/NS/NP	>36" TO SOIL WETNESS	21	"	"	"
		10-21	ABK/SC	VFI/EXP/VS/VP					
		21-36	M/SL	VFI/SEXP/NS/NP					
3	"	0-20	GR/SL	FR/SEXP/NS/NP	>34" TO SOIL WETNESS	20	"	"	"
		20-34	M/SL	VFI/SEXP/NS/NP					
4	"	0-14	GR/SL	FR/SEXP/NS/NP	>40" TO SOIL WETNESS	40	N/A	"	US, IV
		14-40	ABK/C/>1"	FI/SEXP/S/P					
5	"	0-5	GR/SL	FR/SEXP/NS/NP	>48" TO SOIL WETNESS	21	US	"	US
		5-21	ABK/SC	VFI/EXP/VS/VP					
		21-48	M/SCL	FI/SEXP/SS/SP					

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, 9/16/02, W. R. Marlin
Others Present: J. Michelone, L. Blankenship

FILE # 5065B

COMMENTS 100% Repair

LANDSCAPE POSITION	GROUP	TEXTURE	.1955 LTAR
R-RIDGE	I	S-SAND	1.2-0.8
S-SHOULDER SLOPE		LS-LOAMY SAND	
L-LINEAR SLOPE			
FS-FOOT SLOPE	II	SL-SANDY LOAM	0.8-0.6
N-NOSE SLOPE		L-LOAM	
H-HEAD SLOPE			
CC-CONCLAVE SLOPE	III	SI-SILT	0.6-0.3
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CONSISTENCE MOIST	WET
VFR-VERY FRIABLE	NS-NON-STICKY
FR-FRIABLE	SS-SLIGHTLYSTICKY
FI-FIRM	S-STICKY
VFI-VERY FIRM	VS-VERY STICKY
EFI-EXTREMELY FIRM	NP-NON-PLASTIC
	SP-SLIGHTLYSTICKY
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	VP-VERY PLASTIC

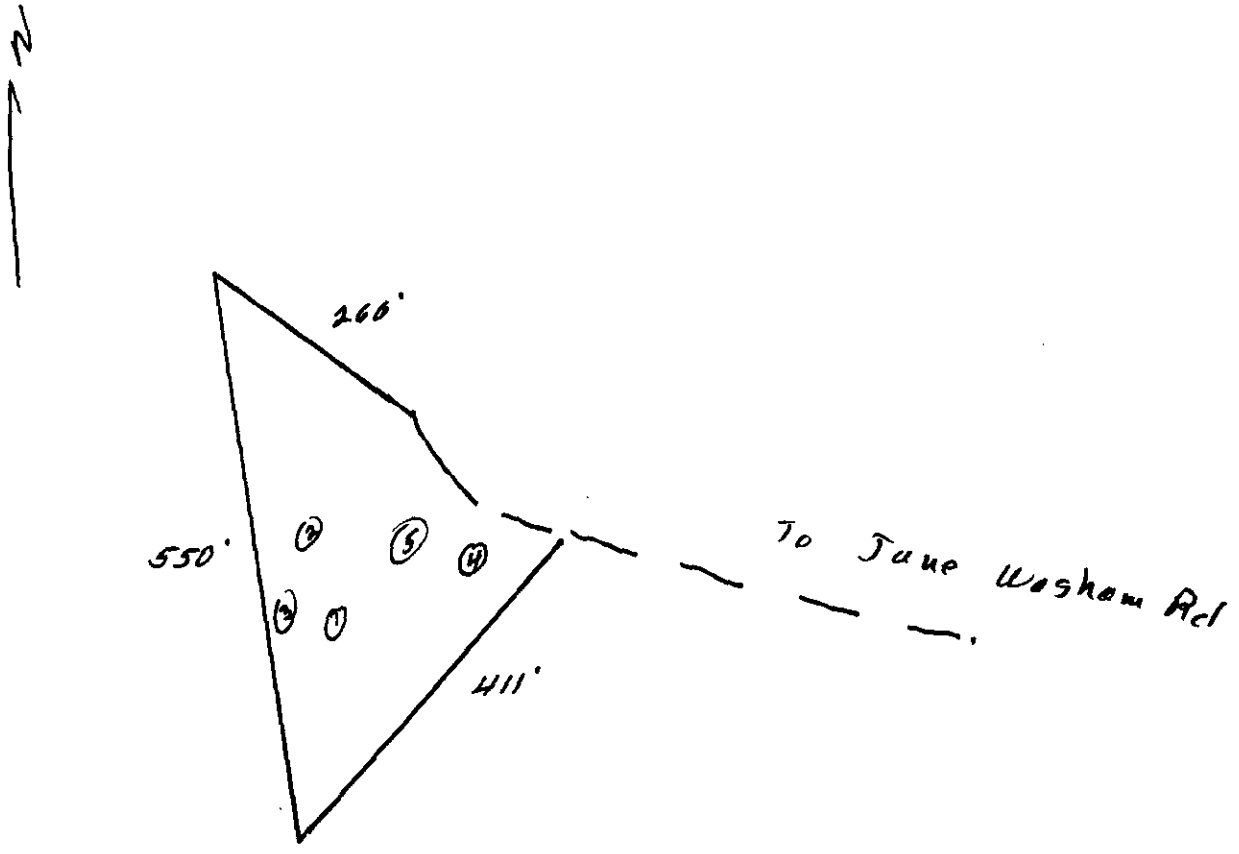
STRUCTURE

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

MINERALOGY

SLIGHTLY EXPANSIVE

EXPANSIVE



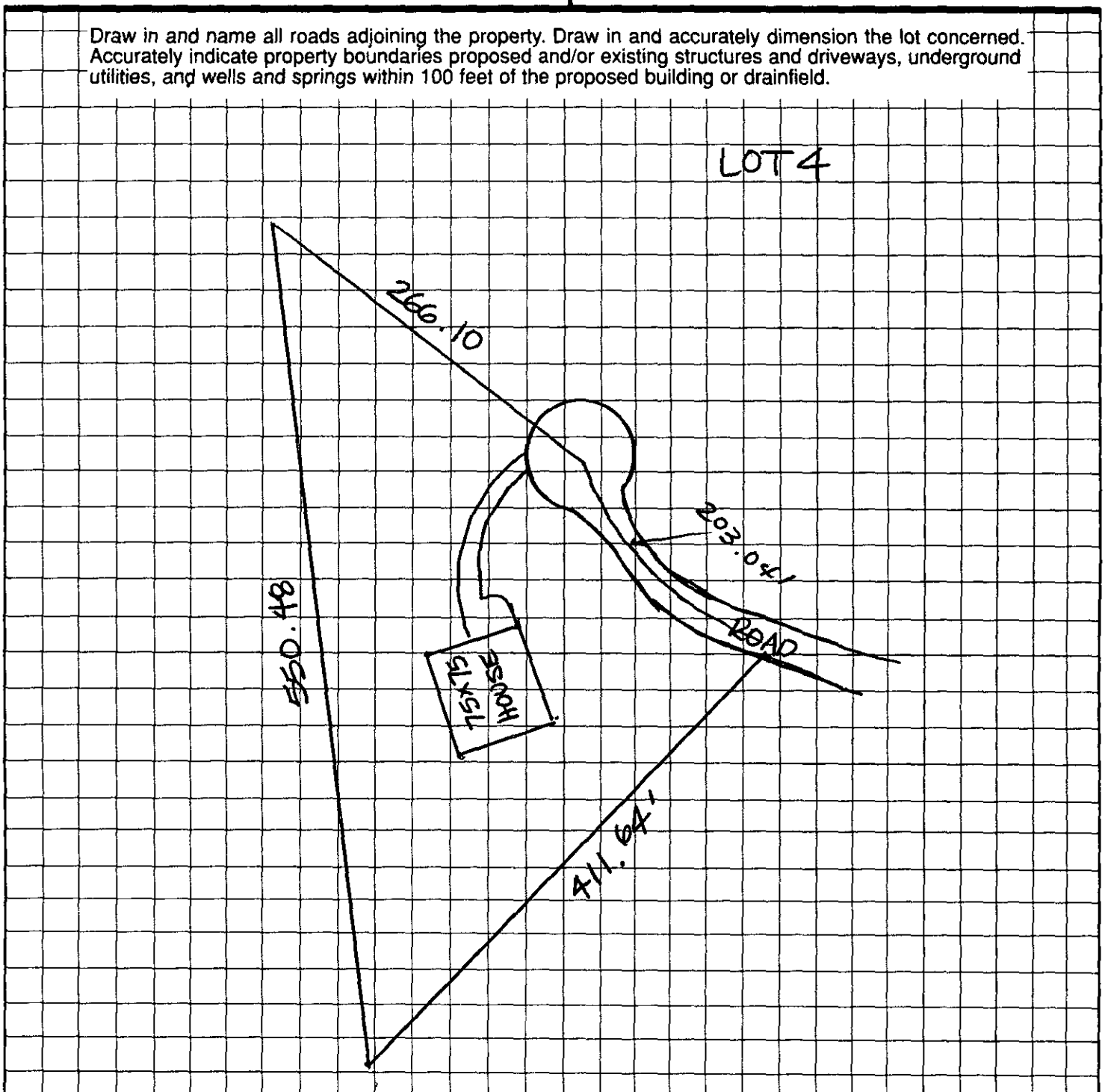
PROPOSED PLOT PLAN

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

FILE: 6065B

TC: 007.171.11 5:12 PU

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.



OWNER/AGENT SIGNATURE

DATE 9/4/02

APPROVAL DATE _____

White - Health Department's Copy

Canary - E.H.S. Copy

Pink - Owner's Copy

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: 10/9/02 Project Number: _____

TO: Name: Jeremy M. CC: _____

Company: MCIC Co. _____

Fax Number: _____ _____

FROM: Wendell Overby SUBJECT: Lot 4 Davidson Farms

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

X For Your Comments/Approval	____ 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	____ No Hard Copy Sent

REMARKS: _____

IF YOU HAVE ANY QUESTIONS OR PROBLEMS WITH THIS TRANSMISSION,

PLEASE CONTACT Wendell AT (704) 720-9405.

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Phone: (336) 540-8234
Fax: (336) 540-8235

Hickory Area Office:
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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

FROM : SOIL&ENVIRONMENTALCONSULTANTS_ FAX NO. : 7047209406 Oct. 09 2002 11:18AM P1

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 5 bedroom Prefabricated Permeable Block Panel System using pressurized distribution for Lot 4 in Davidson Farms Estates, June Washam Road, Mecklenburg County, NC.

Contents: **Page**

Information for the Installer ---------- 1-2

Design Plans and Specifications ---------- 3

Design Calculations ---------- 4-5

Site and Drain field Plans ---------- 6-7

Pressure Panel Drawings ---------- 8

Septic Tank Specifications ---------- 9

Sample Effluent Filter ---------- 10-11

Pump Tank Specifications ---------- 12

Pump Specifications ---------- 13-14

Control Panel Specifications ---------- 15-16

Pump Switch Specification ---------- 17-18

Maintenance of Septic Systems ---------- 19-21

Electric Box Installation ---------- 22

Project #: 5-1184
Date: October 8th, 2002
Designed by: Samuel A. Rollans, L.S.S.

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 pipes shall be schedule 40 PVC.
- 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.

FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:19AM P2

- Turn-ups, as indicated on the drawings, shall be placed in larger diameter pipe and either cut off just below the surface and placed in meter pits or left above grade and highly visible.

- 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.

- Where required by the County Health Department, post installation inspections by the designer must be scheduled 5 week days in advance.

- Backfill 4 – 6" of material (County Approved) over panels.

- Rake trench walls.

- Lime sidewalls of trench.

- Install 1 – 2" gatevalve at start of each lateral.

- 1 hole (5/32") per panel drilled at top of line.

- Trenches shall be 36" wide and have no more than ¼" fall in 10 feet.

- ADD A GATE VALVE (2") ON SUPPLY LINE FOR SOLIDS REMOVAL IN SUPPLY LINE.

FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:20AM P3

PPBPS SYSTEM FOR WASTEWATER TREATMENT

Applicant/Owner's agent's name: John Shryock **Phone:** (704) 483-3415
Mailing address: 104 Knox Ct, Suite 203
P.O. Box 2218
Davidson, NC 28036

System location: Davidson Farms Estates Lot #4, - June Washam Road, Davidson, NC
Tax ID #: 007-171-11 & 007-171-12 **Deed Book:** 12939, pg. 001 & 13799, pg. 340
Township: Deweese **County:** Mecklenburg
Source of Wastewater Flow: 5-bedroom home
Estimated Daily Wastewater Production: 600 gpd
System Flow: 46.27 gpm

DESIGN PARAMETERS

Drainfield size: 398 linear ft. **Loading rate:** 0.25 gpd/ft²
Number of Panels 93
Trench depth: 24" below natural soil surface **Hole size** 5/32"
Trench width: 36" **Hole spacing:** 1 per panel
Septic tank size: 1500 gal **Pump tank size:** 1500 gal
Supply line volume: 730.0 gal **Pump tank dimensions:** Stay Rite 10.5'x5' (or other NCDENR approved 1500 gal pump tank
Supply line length: ~1900' **Approx. pump tank draw down:** Stay Rite is 32.7 gal/in-will vary based on tank dimensions
Supply line diameter: 3" **Combined lateral line volume:** 21.4 gal
Supply line pressure rating: SCH 40 **Dosing volume:** 335gal
Supply manifold: 3"sch40
Supply manifold length: Total Length ~55'
Supply manifold volume: 21.12 gal **Elevation head:** 20.0'
Recommended float controls: SJE Pumpmaster **Pressure head:** 2.0'
Threaded union: in tank **Friction head:** 23.0'
Gate valves: 1 per lateral in protective box, 1 in tank & 1 in supply line for cleanout **Total dynamic head:** 45.0'
Check valves: 1 in tank,
Anti-siphon hole: Yes
Recommended high water alarm: SJE Rhombus panel and floats
Recommended Pump: Myers, effluent pump, series ME50, 1/2hp or approved equal
Additional Comments: Soil suitability performed by Soil and Environmental Consultants, PA and Mecklenburg County Health Department.

3

Davidson Farms

FIELD 2

JOB #: 5-1184

LAYOUT FOR 5 BEDROOM HOME

September-02

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	LINE LENGTH
TBM		3.5			100.0	
INSTR. 1			103.5			
			SYSTEM			
1	PINK			3.70	99.8	68
2	YELLOW			4.20	99.3	86
3	RED			4.70	98.8	85
4	PINK			5.10	98.4	82
5	BLUE			5.70	97.8	77
			REPAIR			
6	ORANGE			6.00	97.5	77
7	RED			6.50	97.0	73
8	YELLOW			6.70	96.8	73
9	PINK			7.20	96.3	73
10	BLUE			7.50	96.0	56
					Total	**750**

	LINE LENGTH	SYSTEM TYPE	PROPOSED LTAR GPD/FT^2	DISTRIBUTION
SYSTEM	398'	PANEL BLK	0.30	PRESSURIZED
REPAIR	352'	PANEL BLK	0.30	PRESSURIZED

Notes:

** TBM located on top of fence
**TBM is assumed to be 100'
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags
**BS and FS indicate rod readings
**Lines flagged in field may be longer than lengths shown.
Install at lengths shown on this sheet.

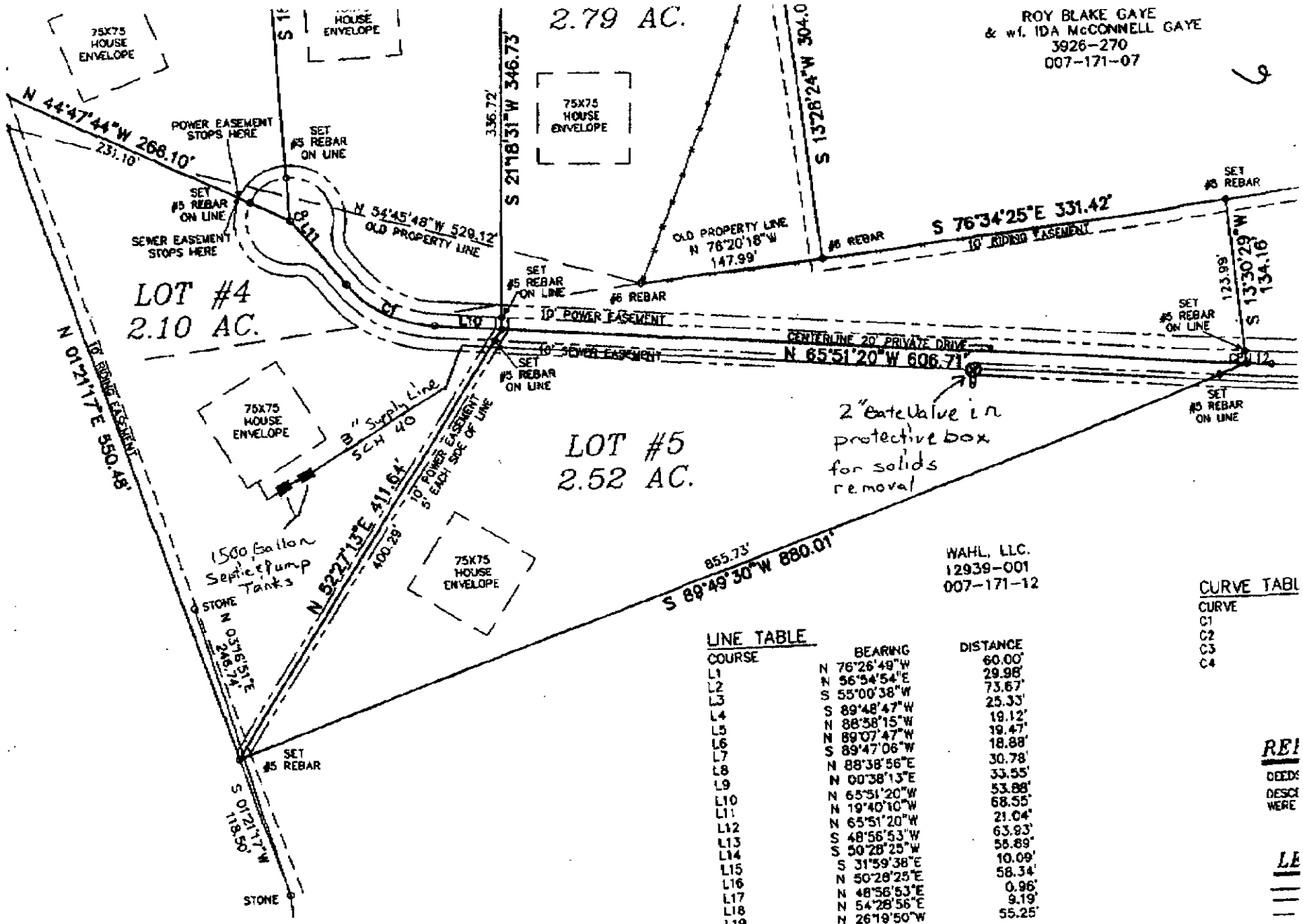
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FROM : SOILSENVIRONMENTALCONSULTANTS_ FAX NO. : 7047209406 Oct. 09 2002 11:21AM P5

DESIGN SPECIFICATIONS

LINE	# PANELS	#HOLES/ PANEL	HOLE SIZE	LINE HEAD	LINE LENGTH	LINE FLOW
1	16	1	5/32"	2.00	68	6.56
2	20	1	5/32"	2.50	86	9.20
3	20	1	5/32"	3.00	85	10.00
4	19	1	5/32"	3.40	82	10.07
5	18	1	5/32"	4.00	77	10.44
TOTALS	93				398	46.27

FROM : SOILSENVIRONMENTALCONSULTANTS_ FAX NO. : 7047209406 Oct. 09 2002 11:22AM P6



LINE TABLE

COURSE	BEARING	DISTANCE
L1	N 76°26'49"W	60.00'
L2	N 56°54'54"E	29.98'
L3	S 55°00'38"W	73.67'
L4	S 89°48'47"W	25.33'
L5	N 88°38'15"W	19.12'
L6	N 89°07'47"W	19.47'
L7	S 89°47'06"W	18.88'
L8	N 88°38'56"E	30.78'
L9	N 00°38'13"E	33.55'
L10	N 65°51'20"W	53.88'
L11	N 19°40'10"W	68.55'
L12	N 65°51'20"W	21.04'
L13	S 48°56'53"W	63.93'
L14	S 50°28'25"W	56.89'
L15	S 31°59'38"E	10.09'
L16	N 50°28'25"E	58.34'
L17	N 48°56'53"E	0.96'
L18	N 54°28'56"E	9.19'
L19	N 26°19'50"W	55.25'

CURVE TABL
CURVE
C1
C2
C3
C4

Certificate of Approval for Recording
I certify that this plat is not within a designated Public Water Supply watershed.
4/8/2002 [signature] Administrator, Davidson, North Carolina

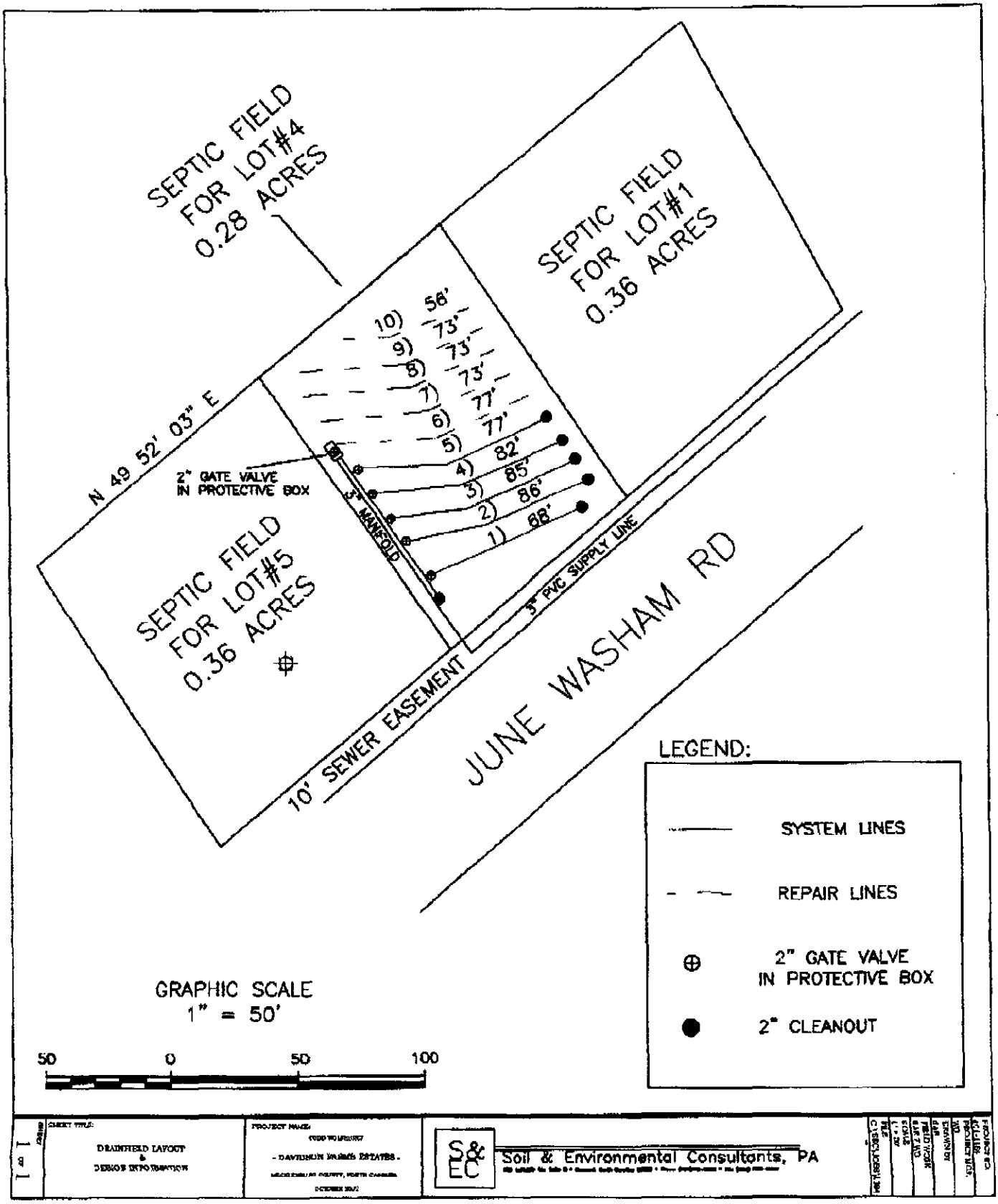
Certificate of Approval for Recording
I hereby certify that the subdivision plat shown hereon has been found to comply with the Planning Ordinance for Davidson, North Carolina, and that this plat has been approved by the Town of Davidson for

REI
DEEDS
DESCR
WERE

LE

NC

FROM : SOIL&ENVIRONMENTALCONSULTANTS_ FAX NO. : 7047209405 Oct. 09 2002 11:22AM P7



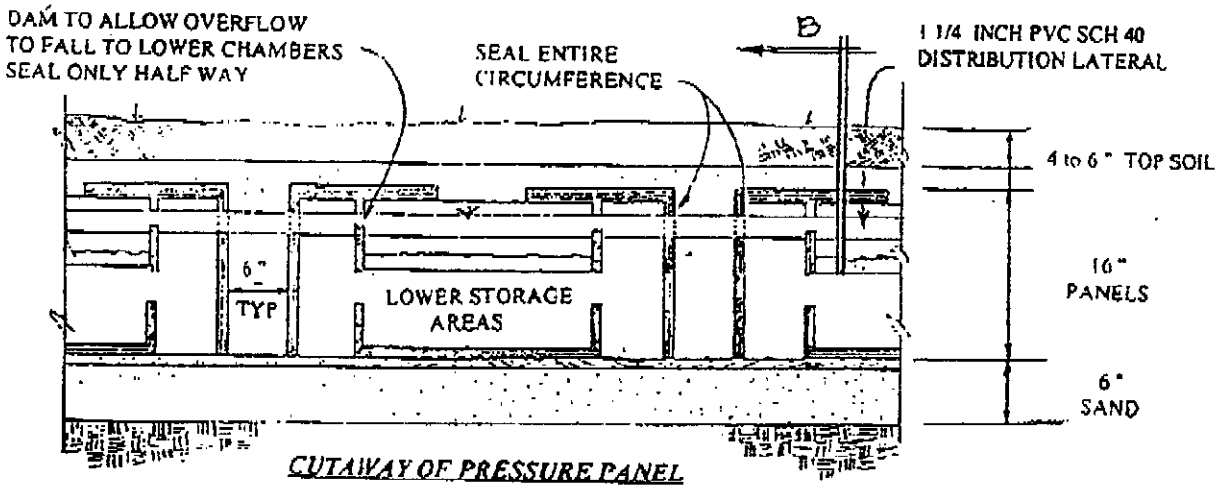
FROM : SOILSENVIRONMENTALCONSULTANTS_ FAX NO. : 7047209406 Oct. 09 2002 11:23AM P8

Panels With Pressure Distribution

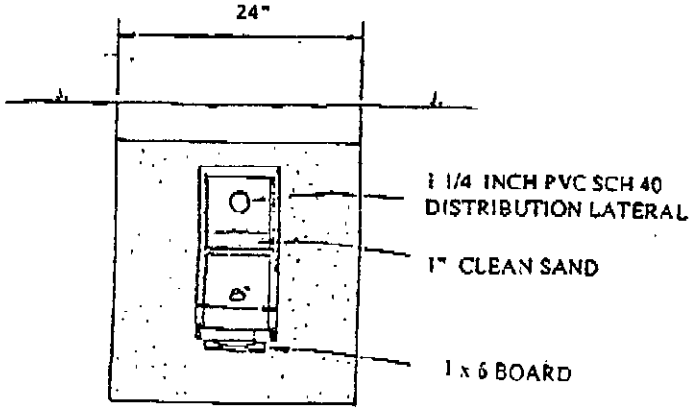
The LP Panel uses Technology similar to that of Low Pressure Pipe (LPP) System. The tables and distribution design described in the LPP manual is applicable to the pressure Panel System. The system should be used with two to four feet of head. In many respects a LP Panel is similar to a LPP with the holes discharging into the panels.

The dosing cycle for the Panel System is designed to pump enough effluent to fill the top chambers of all the panels in the system. The top chamber of a 16 inch panel hold 3.6 gallons. When the system has 34 panels and all holes are the same size, then you would multiply 34 x 3.6 to get 122 gallon per dose cycle. The holes are drilled in the distribution pipe at the 10 and the 2 o'clock position. These are then placed so that the effluent is pumped into the top chamber of the panel. If the hole sizing changes in the system the pump cycle is set by the hole that is discharging the fastest.

All valves and turnups should be neatly capped, covered and labeled for future service. Pump tanks should be constructed as shown in the drawing as to allow for service and repairs.



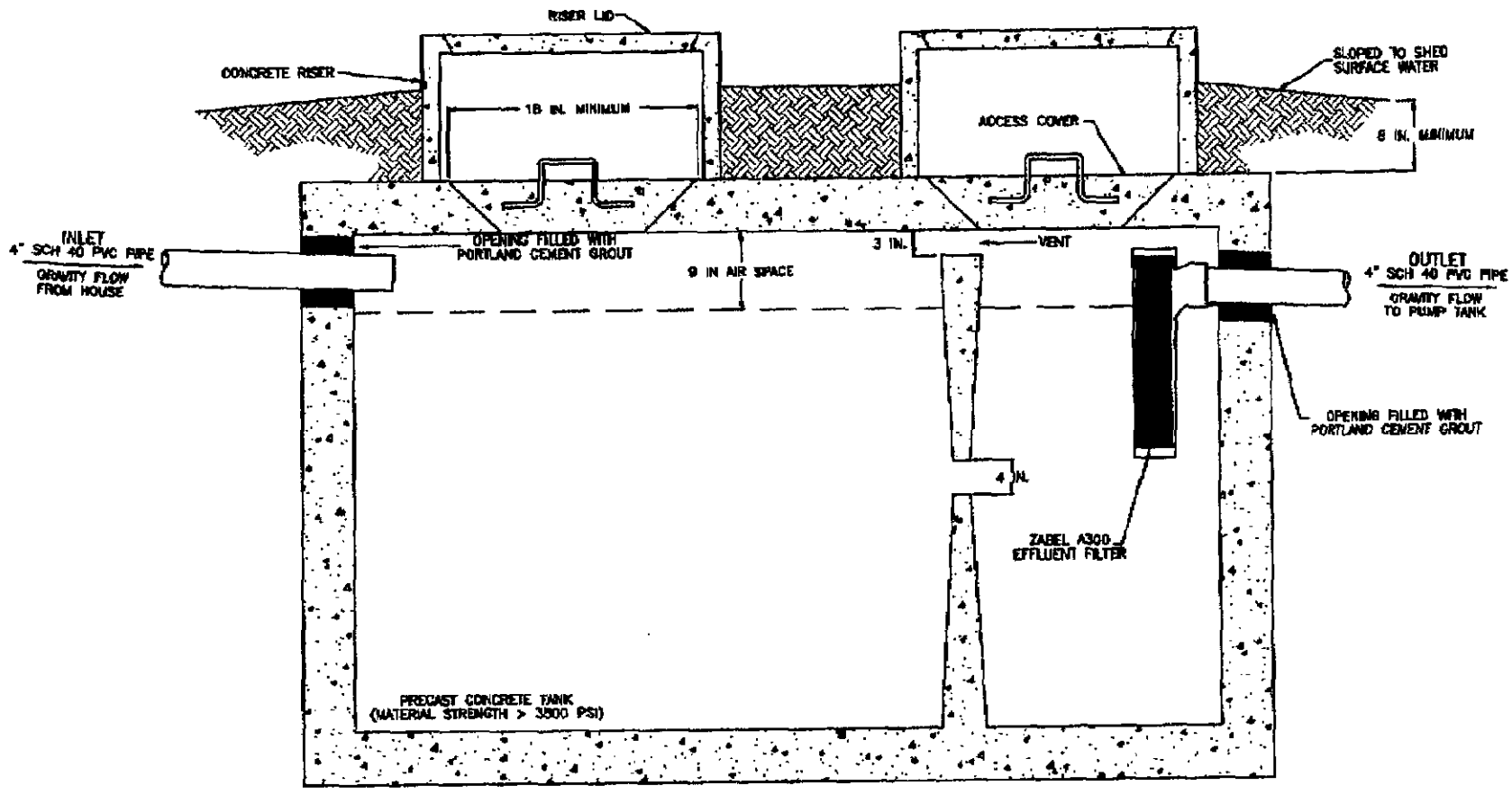
CUTAWAY OF PRESSURE PANEL



8

FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209405 Oct. 09 2002 11:23AM P9

FROM : SOIL&ENVIRONMENTALCONSULTANTS_ FAX NO. : 7047209406 Oct. 09 2002 11:24AM P10



1500 GALLON SEPTIC TANK

SHEET 1 of 1

JOB NO. 02-1184	PROJECT NAME: TODD WULFHURST/DAVIDSON FARMS LOT 4
PROJECT MGR. WG	SHEET TITLE: SEPTIC TANK DIAGRAM
SCALE NTS	

S&E C

Soil & Environmental Consultants, Inc.

[illegible] West Millbrook Road Raleigh, North Carolina 27609 (919) 848-8888 Fax (919) 848-8881

5

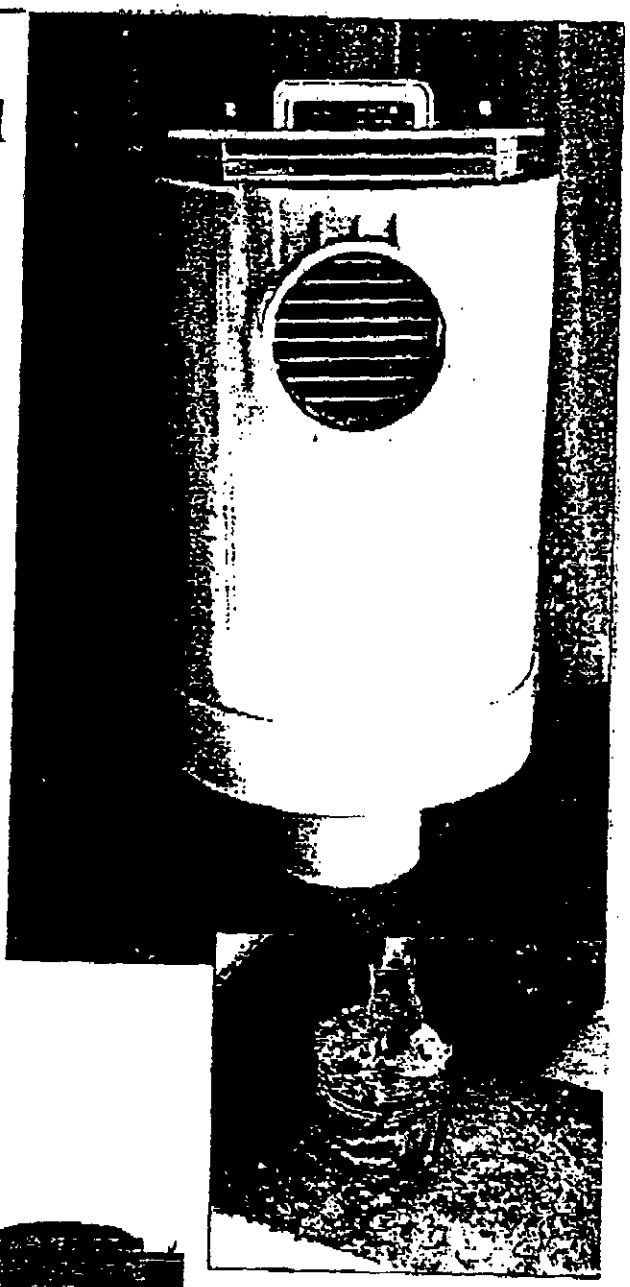
Zabel A300 Series High Strength
Industrial & Commercial Effluent Filter
Product Specification

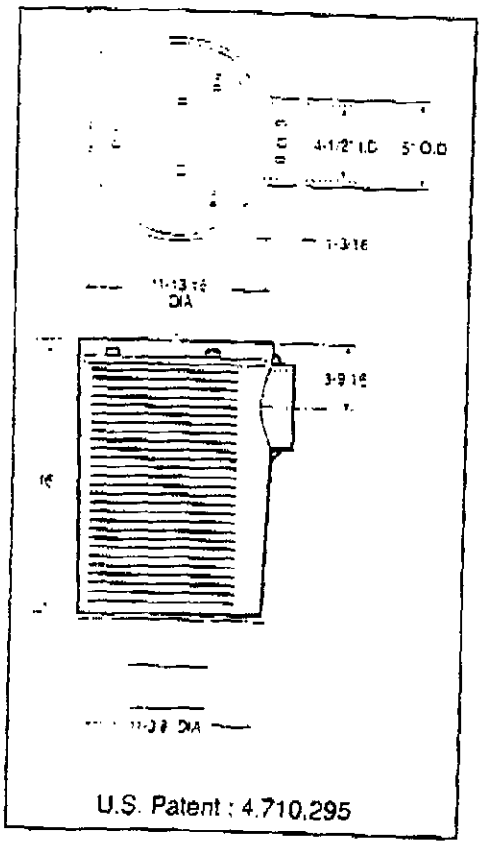
1. Product Name: Zabel A300 Industrial & Commercial Wastewater Filter. U.S. Patent: 4,710,295
2. Model Numbers: A300 Case & Cartridge & Reducer; A301 Cartridge Only; A300-HIP Case & Cartridge & Reducer; A301-HIP Cartridge Only
3. Applications: Grease: restaurants; Hair: dog kennels, beauty shops, zoo facilities; Lint: Laundromats: Food processing: wineries, bakeries; Animal wastes: poultry, hog & cattle farms; Apartments, trailer parks, schools, churches, shopping centers, and offices; Septic dump stations and community treatment plants; Single and Multi-family homes
4. Performance Specification
   4.1. Model A300: Maximum daily flow - 3,500 gpd, 7.5 gpm
   4.2. Model A300-HIP: Maximum daily flow - 4,500 gpd, 11.25 gpm
   4.3. Multiple Filters may be installed in manifolds to handle larger flows than those shown above. A Zabel Flow Control Plate Model FC100 is available to set the effluent flow of a single filter to pre-determined limits.
   4.4. TSS: Reductions in TSS within six months of installation - 50 to 90 percent. The higher the unfiltered TSS, the greater the percentage of reduction.
   4.5. BOD_5: Reduction in BOD_5 within six months of installation - 20 to 45 percent is dependent on the make up of the wastewater.
5. Materials: All materials are non-corrosive.
   5.1. Case & Lid - PVC; Filter discs - Polystyrene; Rods - Polyethylene; Nuts - Nylon
6. New System Installation: Center the top of the 12 inch Filter Case under an Outlet Access Lid opening at least 16 inches in diameter. PVC solvent weld the bell coupling connection to the 4 inch Schedule 40 PVC pipe of the tank as required by local code. Add 4 inch Schedule 40 pipe to the bottom of the reducer as needed. The PVC outlet pipe should extend at least 18 inches beyond the outside face of the tank wall. A riser to grade is recommended for all commercial and industrial installations. All filters installed in grease interceptor tanks will require additional support.
7. Existing System Installation: The filter may be installed in an existing tank if an Outlet Access Lid opening already exists and the filter can be installed without damaging the existing tank. The filter can also be installed utilizing a Zabel Filter Installation Adapter Ring Model FAR-RNG. If the existing tank cannot be used, the filter can be installed in existing systems using a Zabel Container Assembly Model CA100.
8. Service: A professional onsite service company should perform all onsite system service.
9. Service Method: Grasp the filter handle and pull the filter cartridge upward. A Zabel 36" T-Handle is available if required to reach filters below grade. The filter may be cleaned with a steam wand, chemical degreaser or disassembled for further cleaning.
10. Service Frequency: The A300 is designed to be installed in high strength waste applications. Each application will have to be monitored to determine proper service cycles. See article on "Restaurant Applications for Zabel Filters" for recommended guidelines.
11. Warranty: The A300 is warranted to be free from defects in material and workmanship for the life of the original purchaser. Zabel's liability is limited to repair or replacement of the part and in no event shall Zabel be liable for any consequential damages of any kind.
10. Dimensions:

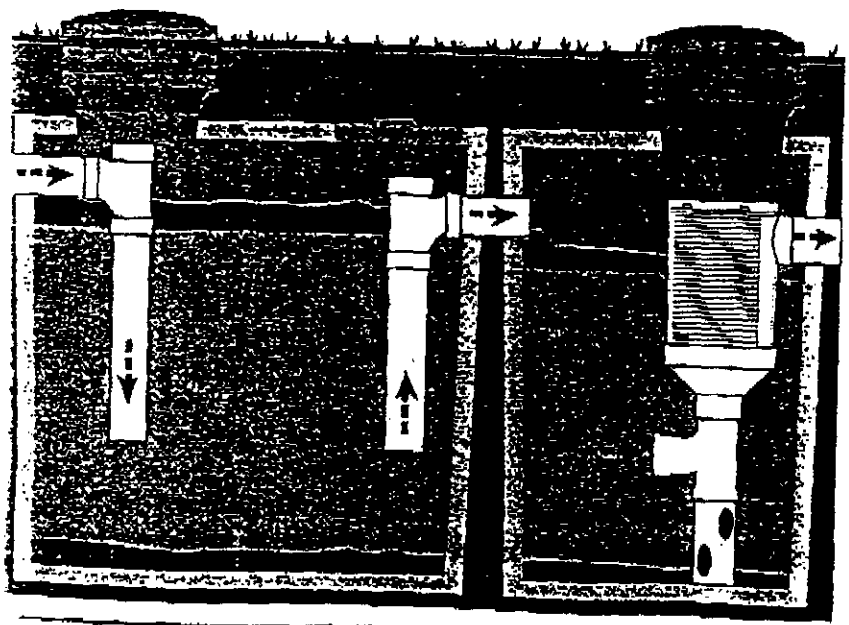
	Diameter	Height	Filtration	Settling Area	Total Filter Surface	Total Flow Area
A300	12"	18"	1/32"	624.69 in²	1,857.6 in²	206
A300-HIP	12"	28"	1/32"	1,067.04 in²	2,908.8 in²	312

10

A300
Commercial&Residential Wastewater Filter







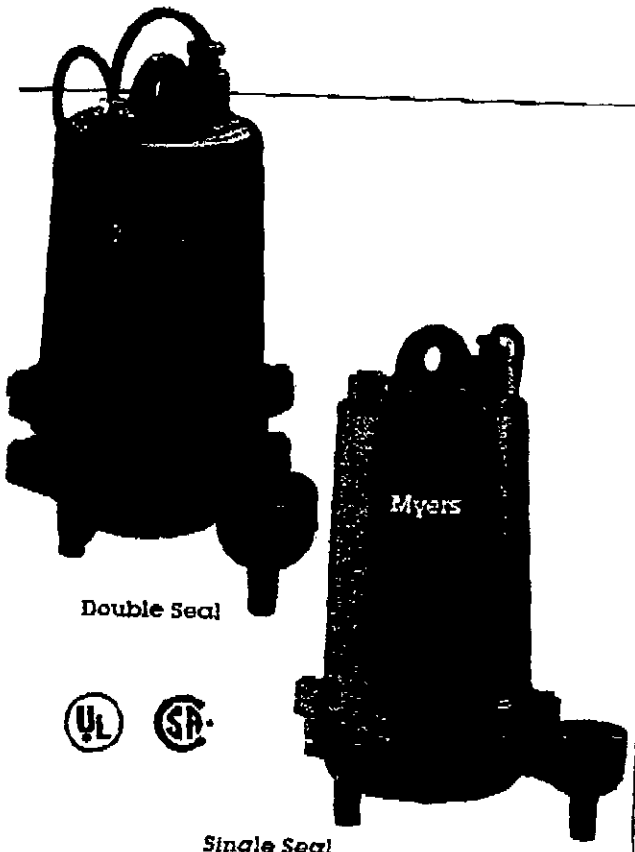
A-300 PRICES ON PAGE 60

11

FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:25AM P12

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 an 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 12

Myers
ISO 9001 Certified Company

FROM : SOIL&ENVIRONMENTALCONSULTANTS_ FAX NO. : 7047209406 Oct. 09 2002 11:25AM P13

ME SERIES

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

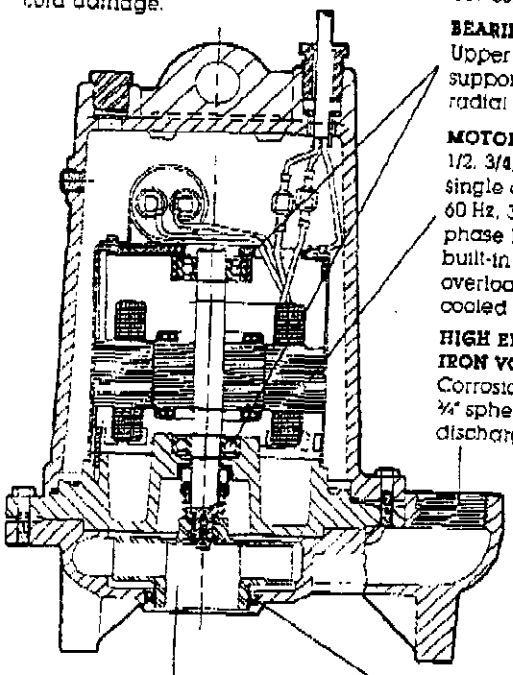
POWER CORD
Jacket sealed with compression fittings. Individual wires potted with epoxy to prevent wicking in case of cord damage.

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

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

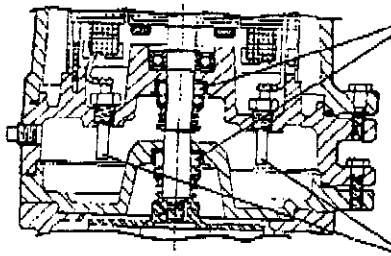
MOTOR
1/2, 3/4, 1 and 1-1/2 HP single or three phase, 60 Hz, 3450 RPM. Single phase PSC motors have built-in on winding overload protection, oil-cooled and lubricated.

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.

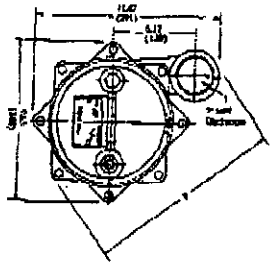
VOLUTE/IMPELLER SEAL RING
Maintains high efficiency and reduces recirculation. Replaceable.

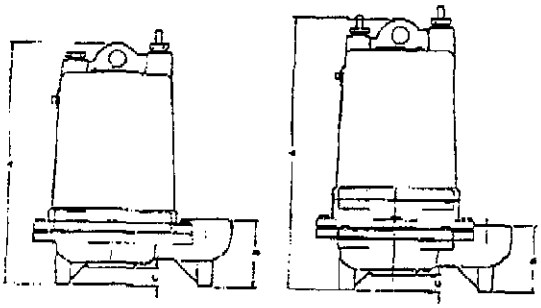


SHAFT SEAL(S)
Carbon and ceramic faces. Optional dual tandem seals. Extends motor life.

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

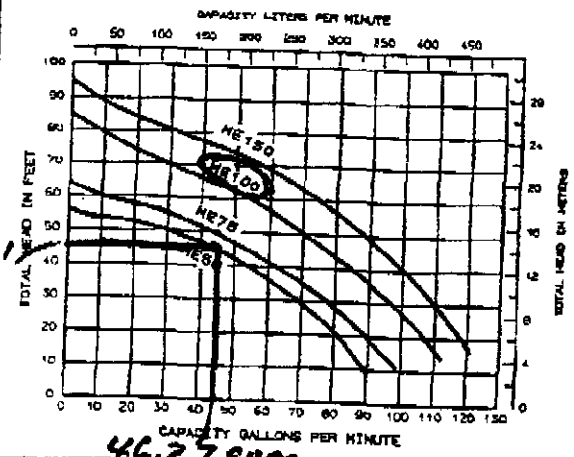
DIMENSIONS





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



45.0

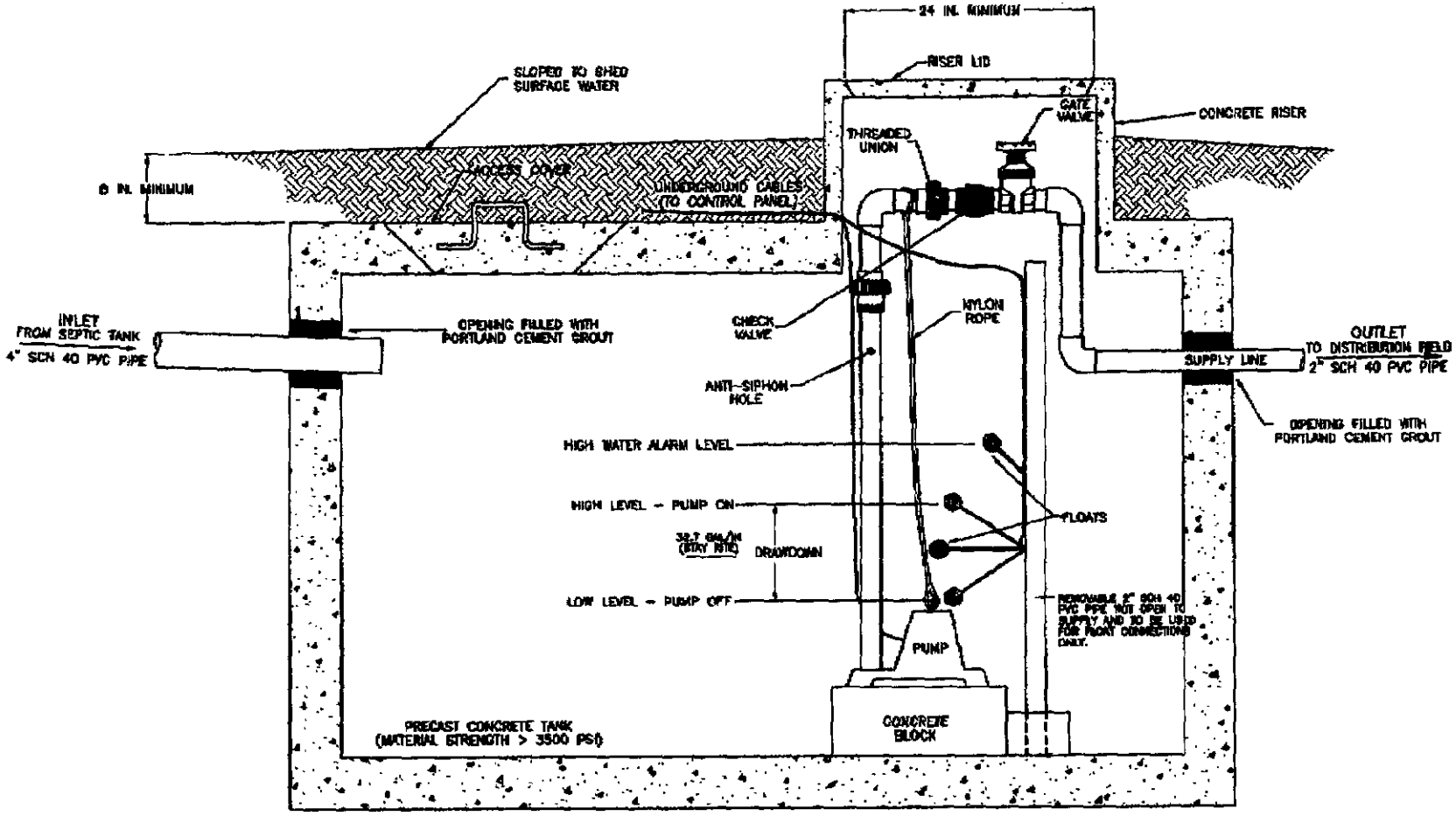
46.27 gpm

K3320 1/98
Printed in U.S.A.

Myers
F. E. Myers, 1101 Myers Parkway, Ashland, Ohio 44805-1969
419/289-1144, FAX: 419/289-6658, www.femyers.com
Myers (Canada), 269 Trillium Drive, Kitchener, Ontario N2G 4W5
519/748-5470, FAX: 519/748-2553

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FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:27AM P14



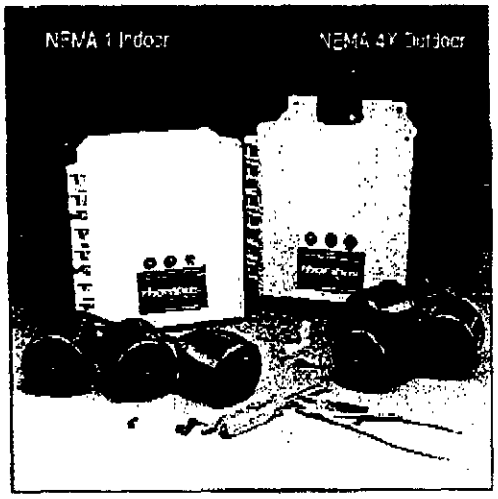
1500 GALLON PUMP TANK

SHEET 1 of 1

JOB NO. 02-1194	PROJECT NAME: TODD WULFHURST/DAVIDSON FARMS LOT 4
PROJECT MGR. WG	SHEET TITLE: PUMP TANK DIAGRAM
SCALE NTS	S&EC Soil & Environmental Consultants, Inc.

rhombus™ TECHNOLOGY

SINGLE-PHASE SIMPLEX
Motor Contactor Control
TYPE 112

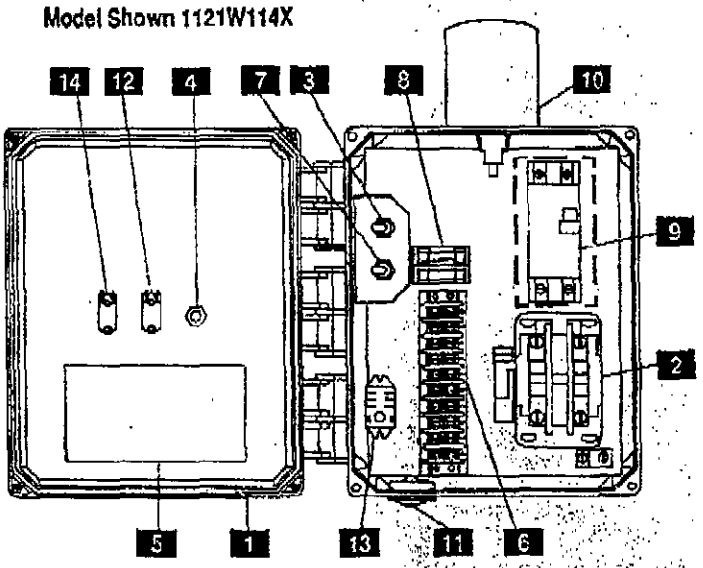


Type 112 control panels are single-phase, simplex pump control systems.

The Rhombus Type 112 control panel provides residential and commercial customers with a reliable means of controlling one 120V, 208V, or 230V single-phase pump in water and sewage installations. 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. Common applications include pump chambers, sump pump basins, irrigation systems, and lift stations.

Type 112 control panels have a dual safety certification for the United States and Canada.

Model Shown 1121W114X



TYPE 112 FEATURES

Float Switches (optional) - complete package assures quality of entire control/alarm system.
UL Labeled - ENTIRE control system (panel and switches) meets and/or exceeds industry standards for safety.
Installation Instructions - complete step-by-step instructions are included for easy installation.
2 YEAR LIMITED WARRANTY - ensures commitment to customer satisfaction.

1 **Enclosure** - comes with removable mounting flanges. Choice of Nema 1 - engineered thermoplastic for indoor use, or Nema 4X - weathertight engineered thermoplastic for outdoor use.

2 **Magnetic Motor Contactor** - controls the pump by switching both electrical lines.

3 **HOA Switch** - offers manual control of the pump.

4 **Green Pump Run Indicator Light**

5 **Schematic/Wiring Diagram**

6 **Terminal Block**

7 **Control ON/OFF Switch**

8 **Control and Alarm Fuses**

9 **Circuit Breaker (optional)** - provides pump disconnect.

ALARM PACKAGE (OPTIONAL)

10 **Alarm Beacon** - large red light provides 360° visual check of alarm condition.

11 **Alarm Horn** - loud horn provides audio warning of alarm condition.

12 **Horn Silence Switch** - exterior switch allows alarm horn to be silenced.

13 **Horn Silence Relay** - automatically resets alarm after alarm condition has been resolved.

14 **Test Switch** - exterior switch allows testing of horn and light to assure proper operation of alarm system.

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TYPE 112 FEATURES
All Type 112 control panels include a 10" x 8" enclosure, 120V control circuit, 120/208/230V pump circuit, magnetic motor contactor, pump run light, HOA switch, terminal block, fuses, and control on/off switch.

MODEL NUMBER ORDERING INFORMATION
See sample at bottom of page to help complete your model number.

OPTIONS AVAILABLE - Select the options your application requires, then refer to the option pages. The option pages will provide details and specific numbers needed to complete your model number. Panels ordered with an option or multiple options may require larger enclosure sizes.

Please call the factory if you need help building your model number.

112 ☐ ☐ 1 ☐ ☐ ☐ ☐

TYPE 112

ALARM PACKAGE
0 - selected options or no alarm package
1 - alarm package-includes silence & test switches, red light, horn, and alarm float

ENCLOSURE RATING
I - Indoor (NEMA 1)
W - Weatherproof (NEMA 4X)

STARTING DEVICE
1 - magnetic motor contactor

PUMP FULL LOAD AMPS
If pumps do not have integral overload protection, you must specify overloads as an option.
0 - 0-15 FLA
1 - 15-20 FLA
2 - 20-25 FLA
3 - 25-30 FLA
4 - 30-40 FLA
5 - 40-50 FLA

PUMP DISCONNECT
0 - no pump disconnect
1 - pull-out with safety deadfront
2 - through door fused (fuses not included)
3 - through door non-fused
4 - circuit breaker

FLOAT SWITCH APPLICATION
Two 20' pipe clamp floats are standard. For alternate float switches see the option pages. Designate H or L for all floats ordered.
H - high level pump down/normally open
L - low level pump up/normally closed
X - no alarm or control floats

OPTIONS
SEE OPTION PAGES FOR MODEL NUMBERS

- ☐ Alarm Beacon
- ☐ Alarm Bell
- ☐ Alarm Horn
- ☐ Alternate Beacon Color
- ☐ Red Beacon With Guard
- ☐ Flasher
- ☐ Manual Alarm Reset
- ☐ High and Low Alarm Indicators
- ☐ Auxiliary Contacts
- ☐ Low Level Cutout (redundant off)
- ☐ Pump Failure Indicator
- ☐ Seal Failure Indicator
- ☐ Thermal Cutout
- ☐ Thermal Cutout Indicator
- ☐ Power-On Indicator
- ☐ Anti-Condensation Heater
- ☐ Elapsed Time Meter
- ☐ Event (Cycle) Counter
- ☐ Remote Devices
- ☐ Pump Control Timer
- ☐ Delay Timer
- ☐ Deadfront
- ☐ Lockable Latch
- ☐ Pilot Breaker
- ☐ Lightning Arrestor
- ☐ Surge Protection
- ☐ Overload Protection
- ☐ Overload Reset Through Door
- ☐ GFI Convenience Receptacle
- ☐ Main Disconnect
- ☐ Alternate Float Switches

Subject to change without notice.

rhombus™ TECHNOLOGY

RHOMBUS TECHNOLOGY
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Detroit Lakes MN 56502 USA
218-847-4786 • Fax 218-847-4801
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1003345B • Printed in USA

SAMPLE: MODEL #1121W114H3B15CE

112 1 W 1 1 4 H 3B 15CE

TYPE
ALARM PACKAGE
ENCLOSURE RATING
STARTING DEVICE
PUMP FULL LOAD AMPS
PUMP DISCONNECT
FLOAT SWITCH APPLICATION

PILOT BREAKERS
Control Breaker
Alarm Breaker

ALARM ACCESSORIES
Manual Alarm Reset

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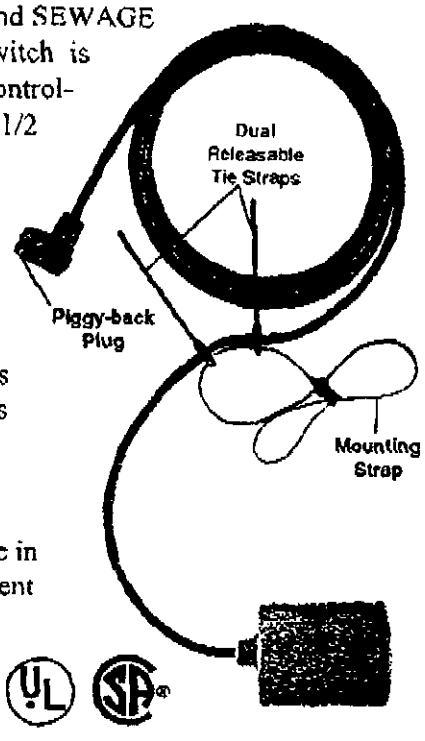
FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:29AM P17

SJE PUMPMASTER® Pump Switch

A wide angle mechanical pump switch designed for dependability and performance.

APPLICATIONS

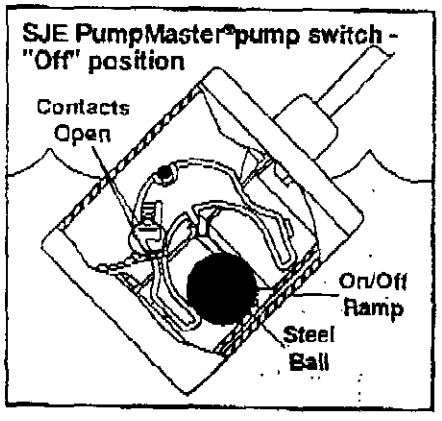
The **mechanically activated** SJE PumpMaster® pump switch provides automatic control of pumps in WATER and SEWAGE applications. This switch is capable of directly controlling pumps of up to 1/2 HP 120V and 1 HP 230V. The SJE PumpMaster® pump switch is designed to efficiently operate in applications with limited space, such as small sump chambers and laundry trays, as well as in large tank applications, and is recommended for use in both calm and turbulent conditions.

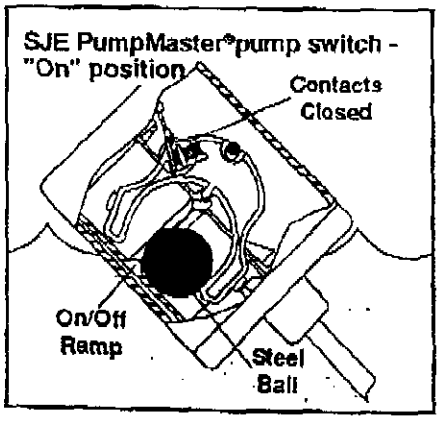


ADVANTAGES

- Mechanically activated
- UL Listed for use in water and sewage
- CSA Certified
- Heavy duty contacts
- Not sensitive to rotation
- Not sensitive to turbulence
- Adjustable pumping range from 5.5 inches to 36 inches
- UL & CSA horsepower rated
- Two year limited warranty

U.S. PATENT Nos. 5,087,801 & 5,142,108
CANADIAN PATENT Pending





SPECIFICATIONS

CORD: Flexible 16 gauge, 2 conductor SJOW-A (UL), SJOW (CSA) water-resistant, (CPE) Neoprene.
FLOAT: 3.05 inch (7.75cm) diameter x 3.56 inch (9.07cm) long, impact resistant, non-corrosive PVC plastic for use in liquids up to 140°F (60°C).

ELECTRICAL:

Voltage 60Hz, Single Phase	Maximum Pump Running Current	Locked Rotor* Amps	Recommended Pump HP
120 VAC	13 amps	85	1/2 HP or less
230 VAC	13 amps	85	1 HP or less

* Tested per UL 508 Industrial Control Equipment
NOTE: This pump switch must be used only with pumps equipped with integral thermal overload protection.

NOTES: Model WOP (for direct wiring) may be used in either 120V or 230V applications within specified amp ratings. Pump Down is a Normally Open switch, Pump Up is a Normally Closed switch.

FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:30AM P18

SJE PumpMaster™ Pump Switch Installation Instructions

Figure A

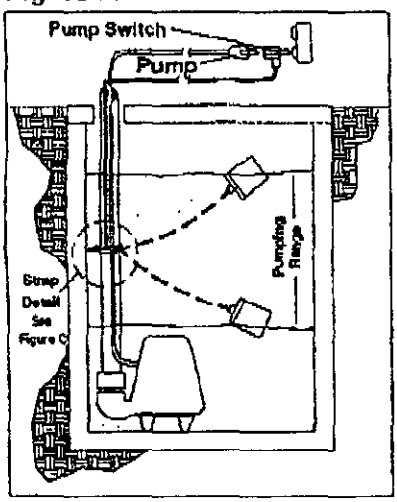
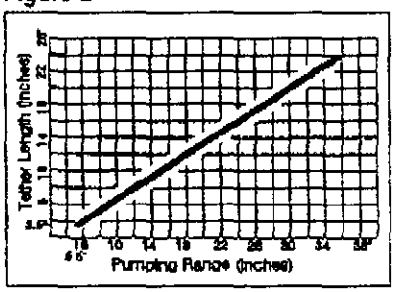


Figure B



The graph above is based on testing in non-turbulent conditions. USE ONLY AS A GUIDE. The solid black line represents average values; the gray area represents variance. For applications requiring a tether length other than shown on the chart, consult the factory.

Figure C

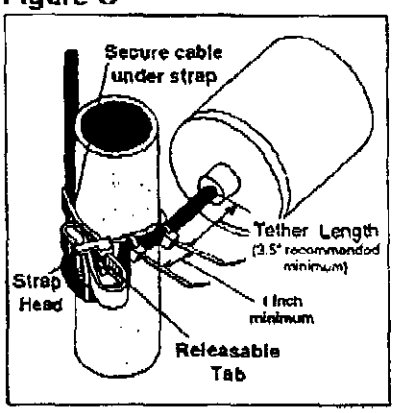
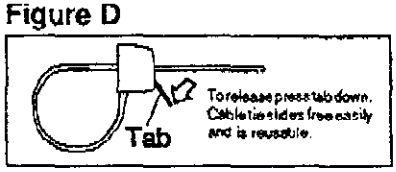


Figure D



WARNING: Turn off power source before installing or adjusting this device. Failure to turn off power could result in serious or fatal electrical shock.

- Read these instructions carefully.
- Check your local codes before installing. We recommend this product be installed in accordance with national and local electrical codes.
- Do not connect this product while you are standing on a wet or damp surface.
- Do not remove cord label from switch unit.
- Retain these instructions with warranty card when installation is complete.

MOUNTING FLOAT

1. Determine the pumping range for your installation. See Figure A. Pumping range is controlled by the tether length. See Figure B.
2. Tighten the mounting strap around the discharge pipe keeping the float cable between the strap and pipe to help prevent slippage. Space the small ties approximately one inch apart. See Figure C.
3. Lock the releasable tab of the mounting strap by running the remaining strap between the releasable tab and head, pulling tightly. Tuck the strap back through the head to complete installation. See Figure C.
4. Ties are releasable to permit readjustment. See Figure D.

PIGGY-BACK PLUG INSTALLATION

To avoid electrical hazards, follow these precautions:

- Electrical outlet must not be located in pump chamber.
- Electrical outlet voltage, piggy-back plug voltage, and pump plug voltage must match. (All 120V or 230V)

1. Plug piggy-back plug into outlet.
2. Plug pump into piggy-back plug.

DIRECT WIRE INSTALLATION

NOTE: Piggy-back plug may be removed for direct wire option. See Figure E.

Check your installation. Allow pump to cycle several times to insure proper pumping range.

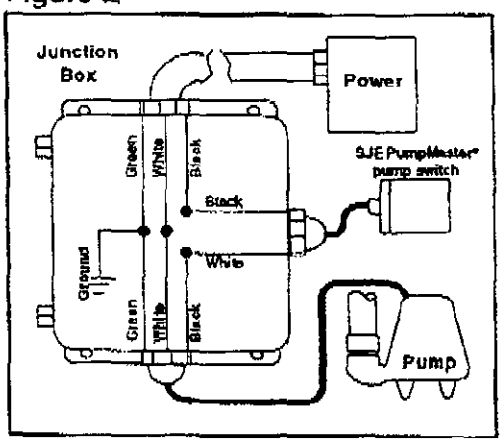
CAUTION

In a 230V pump installation, one side of the line going to the pump is always "hot". This condition exists regardless of whether the float switch is on or off.

WP (with plug) INSTALLATIONS - Remove piggy-back plug from receptacle BEFORE installing or servicing pump and/or switch.

WOP (without plug) INSTALLATIONS - To avoid hazards when installing or servicing, install a double pole disconnect near pump installation.

Figure E



S.J. ELECTRO SYSTEMS, INC.

Built with Pride - Employee Owned

PO Box 1619 County Rd 6 Detroit Lakes, MN 56502

Telephone: 218-847-1317 FAX: 218-847-4617

SSPMA Member

© S J ELECTRO SYSTEMS, INC

Installation Inst. 1002027F

Printed in USA

FROM : SOIL&ENVIRONMENTALCONSULTANTS_ FAX NO. : 7047209406 Oct. 09 2002 11:30AM P19

Maintenance of Sewage Systems

15A NCAC 18A .1961 (b) states:

(b) System management in accordance with Tables V(a) and V(b) of this Rule shall be required for all systems installed or repaired after July 1, 1992. After July 1, 1992 system management in accordance with Tables V(a) and V(b) shall be required for all existing Type V and Type VI systems.

(1) After July 1, 1992, no Improvement Permit shall be issued for Type IV, Type V, or Type VI systems, unless a management entity of the type specified in Table V(b) is specifically authorized, funded, and operational to carry out this management program in the service area where the proposed system is to be located.

(2) A local health department may be a public management entity for systems classified Type IV, V(a) and V(b) only when specifically authorized by resolution of the local board of health.

(3) A contract shall be executed between the system owner and a management entity prior to the issuance of an Operation Permit for a system required to be maintained by a public or private management entity . The contract shall include the specific requirements for maintenance and operation, responsibilities of the owner and system operator, provisions that the contract shall be in effect for as long as the system is in use, and other requirements for the continued proper performance of the system. It shall also be a condition of the Operation Permit that subsequent owners of the system execute such a contract.

(4) Inspections of the system shall be performed by a management entity at the frequency specified in Table V(b). The management entity shall report the results of their inspections to the local health department at the specified reporting frequency. However, where inspections indicate the need for system repairs, the management entity shall notify the local health department within 48 hours in order to obtain an Improvement Permit for the repairs.

(5) The management entity shall be responsible for assuring routine maintenance procedures in accordance with the conditions of the Operation Permit and the contract.

(6) Sewage systems with multiple components shall be classified by their highest or most complex system type in accordance with Table V to determine local health department and management entity responsibilities.

(7) Sewage systems not identified in this Rule shall be classified by the Division of Environmental Health after consultation with the appropriate commission governing operators of pollution control facilities.

(8) The local health department shall routinely review the performance and operation reports submitted in accordance with Table V(b) of this Rule and shall perform an on-site inspection of the systems as required in Table V(a).

(9) Nothing in this Section shall preclude any requirements for system operators imposed in accordance with Article 3 of G.S. 90A.

19

FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:31AM P20

Maintenance Responsibilities of Management Entity

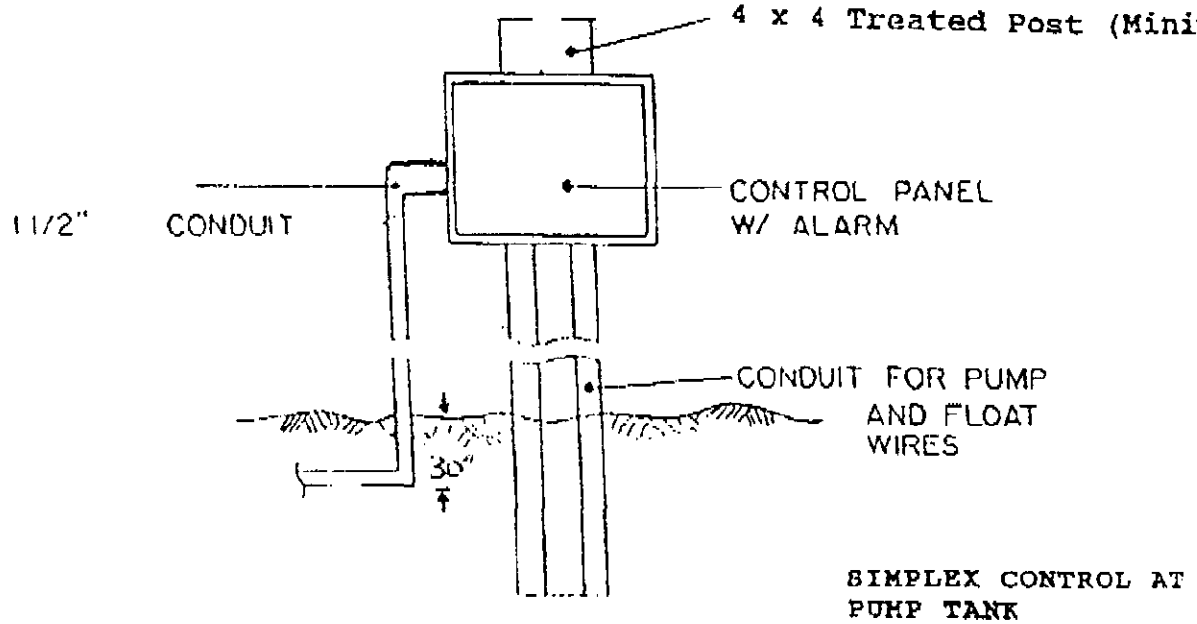
System maintenance for Type IV and Type V a. (0-1500 GPD) systems as defined in 15A NCAC 18A .1961, Table V shall be performed in accordance with the following (Note: Results of inspections are to be reported to the Wake County Department of Health once per year and twice per year for Type IV and Type V a. systems, respectively):

System Component	Frequency	Maintenance
1. Septic Tank and Grease Trap (If so equipped)	6 months	Check riser condition (must be accessible from ground surface), excess in/exfiltration, entry of water at riser, and solids accumulation. Pump grease trap as needed.
	1-3 years	Pump septage (septage is to be pumped when 1/4 to 1/3 of liquid capacity is occupied by solids).
2. Pump or Dosing Tank	6 months	Check riser condition (must be accessible from ground surface), excess in/exfiltration , entry of water at riser, and solids accumulation. Pump sludge accumulation as required and when septic tank is pumped. Check pump(s), controls, floats, electrical connections, and alarm for proper operation. Measure delivery rate to disposal field. Wash (hose) sludge accumulation from pump housing. If so equipped, verify proper siphon function.
3. Sand Filter Pretreatment (If so equipped)	6 months	Any appropriate maintenance in item 2 above. Verify discharge and effluent quality from sand filter.
4. Supply lines (Manifold)	6 months	Check for settling, pipe exposure and leakage.
5. Distribution Devices	6 months	Check distribution boxes, valves, solenoids, etc. for proper function, leakage, and infiltration of surface or ground water into enclosures. Desludge and reset pressure head on pressure manifold. Remove sludge accumulation from all devices as required.
6. Ground Absorption field	1-4 weeks	Maintain vegetative cover (mow grass and remove weeds and brush, most grasses should be maintained at a height of 2-4 inches).
	6 months	Check for settling, erosion and surfacing of effluent. Repair any broken lateral turnups and make certain they are accessible from ground surface and are fitted with screw-on type caps. Lateral turn-ups must be sleeved for systems permitted after 1/1/90. For pressure distribution systems, check and reset pressure head and flush sludge from lateral lines (any discharge of sludge and effluent is to be treated with

FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:32AM P21

		lime or chlorine solution). Check site drainage, eliminate low or scrted areas and divert surface or shallow groundwater movement around fields.
7. General	At all times	Prohibit vehicular or equipment traffic on ground absorption field. Prohibit tillage (gardening) or other soil disturbance over ground absorption field. Practice water conservation to reduce waste water load on system. Do not permit entry of grease and non-domestic waste to system. Use of a garbage disposal is prohibited unless specifically permitted. Addition of chemical or biological additives has not been demonstrated to be necessary to maintain proper system function. Prevention of root intervention on lateral lines and trenches may be necessary on certain sites. Surface and groundwater diversion structures must be maintained.

FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:32AM P22



ELECTRIC BOX

NOTE: ELECTRICAL SYSTEM COMPONENTS SHALL BE INSTALLED TO MEET OR EXCEED MINIMUM REQUIREMENTS SPECIFIED IN THE ELECTRICAL CODE. ALL WIRING SHALL BE #12 MINIMUM, RATED FOR DIRECT BURY. PROVIDE GROUNDING AS REQUIRED AND, PROVIDE 30" MINIMUM BURY ON CABLES. PROVIDE ONE 20 AMP, 2 POLE, 230 V CIRCUIT BREAKER (FOR PUMP) AND, ONE 20 AMP ONE POLE, 115 V CIRCUIT BREAKER (FOR ALARM) IN MAIN PANEL.

FROM : SOILSENVIRONMENTALCONSULTANTS FAX NO. : 7047209406 Oct. 09 2002 11:33AM P23

FEE: _____ **AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION**
DATE: _____ **VOID SIXTY (60) MONTHS FROM DATE OF ISSUANCE**

DATE: _____ PERMIT NO: 5065B

PARCEL NO: 007-171-11,12 PO

JOB LOCATION ADDRESS: Lot #4 Davidson Farms Road

PROPERTY OWNER: Tim Wahl

BUILDING CONTRACTOR: Artisan Custom Homes

SUBDIVISION NAME: Davidson Farms Estates

AUTHORIZATION ISSUED BY: Jerry Thickle R.S. DATE: 10/10/02

DEHNR AUTHORIZED AGENT

AUTHORIZATION CONDITIONS

1. WASTEWATER SYSTEM CONSTRUCTION AND INSTALLATION MUST MEET ALL CONDITIONS AND SPECIFICATIONS AS SET FORTH IN IMPROVEMENT PERMIT NO. 5065B, 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 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 AUTHORIZATION AND ASSOCIATED PERMIT(S) TO REVOCATION.

4. OTHER CONDITIONS: Agreement forms before CA
Easement Agreement before CA
Maintenance Contract Agreement before O.P.

OWNER CERTIFICATION

I CERTIFY THAT THERE HAVE BEEN NO ALTERATIONS IN SITE OR SOIL CONDITIONS OR MODIFICATIONS TO FACILITY, WASTEWATER FLOW, OR WASTEWATER CHARACTERISTICS FROM THOSE SPECIFIED IN THE ORIGINAL APPLICATION OR ASSOCIATED IMPROVEMENT PERMIT UNLESS AUTHORIZED IN WRITING BY THE MECKLENBURG COUNTY HEALTH DEPARTMENT. I ALSO UNDERSTAND THAT ANY SUCH ALTERATIONS, MODIFICATIONS, OR FALSE INFORMATION ARE GROUNDS FOR REVOCATION OF PERMITS AND AUTHORIZATION TO CONSTRUCT.

SIGNATURE OF OWNER/OWNER'S REPRESENTATIVE DATE

① Need

② Agreement forms before C.A.
Fees
~~Easement forms before C.A.~~

③ Maintenance Contract before O.P.

CONDITIONS OF IMPROVEMENT PERMIT

Permit Number: 50655

Tax Number: 007-171-11, 12, 20

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	
Type Primary Wastewater System Type (circle one): 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: ___ IWWS-93-1 ___ IWWS-93-2 ___ IWWS-94-1	
0.3 Long-term acceptance rate	600 Max gallons/day wastewater flow	1197 Absorption Area (sq ft)	9' Trench spacing (min. on centers)	
Yes Serviced by private well	1500 Gallon septic tank	398' Total trench length (ft)	30" Maximum trench depth (At least 12" of provisionally suitable soil must remain between trench bottom and unsuitable soil conditions)	
5 Bedrooms in residence	1000 Gallon pump tank	N/A Depth of stone		

Any surface waters present: NO Type: Minimum separation distance:

Site modifications required:

Additional Conditions: Agreement forms before CA
Easement Agreement before CA
Maintenance Contract Agreement before C.O.

Repair Area System Type Type (circle one): 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: ___ IWWS-93-1 ___ IWWS-93-2 ___ IWWS-94-1	
1056 Absorption Area (Sq ft) 352' Total Trench Length (Ft)	N/A Depth of Stone Trench	9' Trench spacing (min. on centers)	30" Maximum Trench Depth	

For existing system, enter the year originally installed:

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department has approved the Request for t Job Location contained in this document. This approval is granted in accordance with the provisions of Laws and Rules For Sewage, Treatment and Disposal in eff 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 Departm
- This Improvement permit is transferable.

Tommy Medlin R.S. 10/10/02

DEHNR Authorized Agent Date

Owner/Agent Signature Date

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

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

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 5 bedroom Prefabricated Permeable Block Panel System using pressurized distribution for Lot 4 in Davidson Farms Estates, June Washam Road, Mecklenburg County, NC.

Contents: **Page**

Information for the Installer ---------- 1-2

Design Plans and Specifications ---------- 3

Design Calculations ---------- 4-5

Site and Drain field Plans ---------- 6-7

Pressure Panel Drawings ---------- 8

Septic Tank Specifications ---------- 9

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Pump Tank Specifications ---------- 12

Pump Specifications ---------- 13-14

Control Panel Specifications ---------- 15-16

Pump Switch Specification ---------- 17-18

Maintenance of Septic Systems ---------- 19-21

Electric Box Installation ---------- 22

Project #: 5-1184
Date: October 8th, 2002
Designed by: Samuel A. Rollans, L.S.S.

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 pipes shall be schedule 40 PVC.

- 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.

/

- Turn-ups, as indicated on the drawings, shall be placed in larger diameter pipe and either cut off just below the surface and placed in meter pits or left above grade and highly visible.

- 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.

- Where required by the County Health Department, post installation inspections by the designer must be scheduled 5 week days in advance.

- Backfill 4 – 6" of material (County Approved) over panels.

- Rake trench walls.

- Lime sidewalls of trench.

- Install 1 – 2" gatevalve at start of each lateral.

- 1 hole (5/32") per panel drilled at top of line.

- Trenches shall be 36" wide and have no more than ¼" fall in 10 feet.

- ADD A GATE VALVE (2") ON SUPPLY LINE FOR SOLIDS REMOVAL IN SUPPLY LINE.

PPBPS SYSTEM FOR WASTEWATER TREATMENT

Applicant/Owner's agent's name: John Shryock **Phone:** (704) 483-3415
Mailing address: 104 Knox Ct, Suite 203
P.O. Box 2218
Davidson, NC 28036

System location: Davidson Farms Estates Lot #4, - June Washam Road, Davidson, NC
Tax ID #: 007-171-11 & 007-171-12 **Deed Book:** 12939, pg. 001 & 13799, pg. 340
Township: Deweese **County:** Mecklenburg
Source of Wastewater Flow: 5-bedroom home
Estimated Daily Wastewater Production: 600 gpd
System Flow: 46.27 gpm

DESIGN PARAMETERS

Drainfield size: 398 linear ft. **Loading rate:** 0.25 gpd/ft²
Number of Panels 93
Trench depth: 24" below natural soil surface **Hole size** 5/32"
Trench width: 36" **Hole spacing:** 1 per panel
Septic tank size: 1500 gal **Pump tank size:** 1500 gal
Supply line volume: 730.0 gal **Pump tank dimensions:**Stay Rite 10.5'x5' (or other NCDENR approved 1500 gal pump tank
Supply line length: ~1900' **Approx. pump tank draw down:** Stay Rite is 32.7 gal/in-will vary based on tank dimensions
Supply line diameter: 3" **Combined lateral line volume:** 21.4 gal
Supply line pressure rating: SCH 40 **Dosing volume:** 335gal
Supply manifold: 3"sch40
Supply manifold length: Total Length ~55'
Supply manifold volume: 21.12 gal **Elevation head:** 20.0'
Recommended float controls: SJE Pumpmaster **Pressure head:** 2.0'
Threaded union: in tank **Friction head:** 23.0'
Gate valves: 1 per lateral in protective box, 1 in tank & 1 in supply line for cleanout **Total dynamic head:** 45.0'
Check valves: 1 in tank,
Anti-siphon hole: Yes
Recommended high water alarm: SJE Rhombus panel and floats
Recommended Pump: Myers, effluent pump, series ME50, 1/2hp or approved equal
Additional Comments: Soil suitability performed by Soil and Environmental Consultants, PA and Mecklenburg County Health Department.

Davidson Farms

FIELD 2

JOB #: 5-1184

LAYOUT FOR 5 BEDROOM HOME

September-02

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	LINE LENGTH
TBM		3.5			100.0	
INSTR. 1			103.5			
			SYSTEM			
1	PINK			3.70	99.8	68
2	YELLOW			4.20	99.3	86
3	RED			4.70	98.8	85
4	PINK			5.10	98.4	82
5	BLUE			5.70	97.8	77
			REPAIR			
6	ORANGE			6.00	97.5	77
7	RED			6.50	97.0	73
8	YELLOW			6.70	96.8	73
9	PINK			7.20	96.3	73
10	BLUE			7.50	96.0	56
					Total	**750**

	LINE LENGTH	SYSTEM TYPE	PROPOSED LTAR GPD/FT^2	DISTRIBUTION
SYSTEM	398'	PANEL BLK	0.30	PRESSURIZED
REPAIR	352'	PANEL BLK	0.30	PRESSURIZED

Notes:

** TBM located on top of fence

**TBM is assumed to be 100'

**All measures in feet

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

**BS and FS indicate rod readings

****Lines flagged in field may be longer than lengths shown.**

Install at lengths shown on this sheet.

DESIGN SPECIFICATIONS

LINE	# PANELS	#HOLES/ PANEL	HOLE SIZE	LINE HEAD	LINE LENGTH	LINE FLOW
1	16	1	5/32"	2.00	68	6.56
2	20	1	5/32"	2.50	86	9.20
3	20	1	5/32"	3.00	85	10.00
4	19	1	5/32"	3.40	82	10.07
5	18	1	5/32"	4.00	77	10.44
TOTALS	93				398	46.27

& wf. PATRICIA G.
4040-225
007-171-08

10' RIDING EASEMENT
282.91'

#5 REBAR

S 13°29'49"W 259

LOT #1
2.02 AC.

LOT #2
2.25 AC.

LOT #3
2.79 AC.

LOT #4
2.10 AC.

LOT #5
2.52 AC.

S 16°47'36"W 445.14'
410.14'

S 71°49'48"E 218.34'

3/4" PIPE

#4 REBAR

S 13°28'24"W 304.07'

S 21°18'31"W 346.73'
336.72'

75X75 HOUSE ENVELOPE

ROY BLAKE GAYE
& wf. IDA McCONNELL GAYE
3926-270
007-171-07

N 14°47'44"W 266.10'
231.10'

POWER EASEMENT STOPS HERE

SET #5 REBAR ON LINE

SEWER EASEMENT STOPS HERE

N 54°45'48"W 529.12'
OLD PROPERTY LINE

OLD PROPERTY LINE
N 76°20'18"W
147.99'

#6 REBAR

S 76°34'25"E 331.42'

10' RIDING EASEMENT

SET #5 REBAR ON LINE

N 76°34'25"W 526.40'

10' POWER EASEMENT

10' SEWER EASEMENT

CENTERLINE 20' PRIVATE DRIVE
N 65°51'20"W 606.71'

S 13°30'29"W
134.16'
123.99'

2" Gate Valve in protective box for solids removal

CENTERLINE
20' EASEMENT
PRIVATE DRIVE

N 01°21'17"E 550.48'

10' RIDING EASEMENT

3" Supply Line SCH 40

10' POWER EASEMENT 5' EACH SIDE OF LINE

N 52°27'13"E 411.64'
400.29'

1500 Gallon Septic Pump Tanks

75X75 HOUSE ENVELOPE

855.73'
S 89°49'30"W 880.01'

STONE

N 03°16'51"E
246.74'

SET #5 REBAR

S 01°21'17"W
118.50'

STONE

WAHL, LLC.
12939-001
007-171-12

BENT #4 REBAR

N 33°00'21"W 168.93'

N 33°00'21"W 171.47'

BENT 1/2" PIPE

#5 REBAR

PP

OVERHEAD POWER

N 37°47'40"W 293.74'

N 37°47'40"W 269.52'

#4 REBARS

BENT #5 REBAR

#4 REBAR

L7 L6 L5 L4

DANIEL E. McCONNELL's DEED INCLUDES PART OF THE ACCESS EASEMENT SEE DEED 4015-128

#5 REBARS

SEE DEED 4015-128 FOR COMMON ROAD ACCESS AGREEMENT FOR ACCESS TO PROPERTY

S 61°56'00" W 40.66'

97.97'

S 76°20'34"E 199.96'

BENT #4 REBAR

N 76°21'05"W 219.15'

#5 REBAR

C3

CENTERLINE N.G. NATURAL GAS PIPELINE

ENERGY UNITED TO DECIDE ROAD CROSSINGS AT TIME OF INSTALLATION FOR POWER AT THE RIDING ARENA

HORSE RIDING ARENA

SEPTIC FIELD FOR LOT 1 0.36 ACRES

SEPTIC FIELD FOR LOT 4 0.28 ACRES

SEPTIC FIELD FOR LOT 5 0.36 ACRES

S 25°06'50"E 131.61'
126.33'

N 33°33'33"W 131.63'
94.30'

S 49°56'53"E 113.22'

N 49°32'03"E 337.37'

S 34°28'33"E 133.01'
116.75'

S 49°56'53"E 83.27'

SEWER EASEMENT

N 49°56'53"E 278.26'

N 32°43'55"W 133.90'

L13 L14 L15 L16

JUNE WASH ROAD

60' R/W FOR

CURVE TABLE

CURVE	RADIUS	LENGTH	CHORD	CH.BEARING
C1	100.00'	80.61'	78.45'	N 42°45'45"W
C2	500.00'	398.18'	387.74'	N 88°40'11"W
C3	200.00'	345.40'	304.05'	N 62°00'33"W
C4	160.00'	38.53'	38.43'	N 19°25'57"W

LINE TABLE

COURSE	BEARING	DISTANCE
L1	N 76°26'49"W	60.00'
L2	N 56°54'54"E	29.98'
L3	S 55°00'38"W	73.67'
L4	S 89°48'47"W	25.33'
L5	N 88°58'15"W	19.12'
L6	N 89°07'47"W	19.47'
L7	S 89°47'06"W	18.88'
L8	N 88°38'56"E	30.78'
L9	N 00°38'13"E	33.55'
L10	N 65°51'20"W	53.88'
L11	N 19°40'10"W	68.55'
L12	N 65°51'20"W	21.04'
L13	S 48°56'53"W	63.93'
L14	S 50°28'25"W	56.89'
L15	S 31°59'38"E	10.09'
L16	N 50°28'25"E	58.34'
L17	N 48°56'53"E	0.96'
L18	N 54°28'56"E	9.19'
L19	N 26°19'50"W	55.25'

REFERENCES:

DEEDS AND MAPS AS SHOWN.
DESCENDANTS OF THE WALTER P. ARCHER ESTATE WERE NOT ABLE TO PROVIDE A MAP. (SEE DB 110=274)

LEGEND:

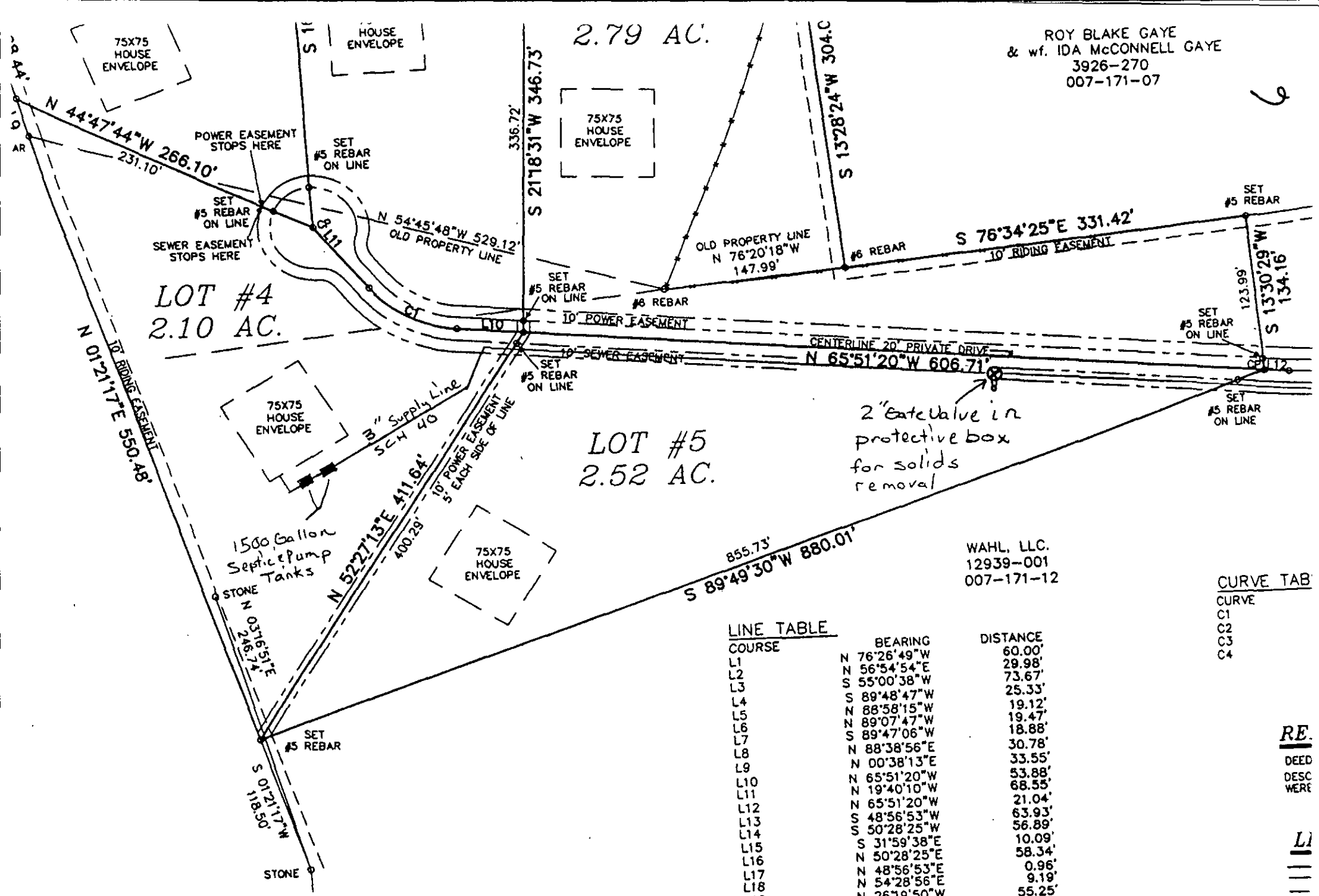
PROPERTY LINE
TIE LINE
UNSURVEYED LINE
BACK OF CURB
SETBACK LINE
CP COMPUTED POINT

of Approval for Recording
t this plat is not within a designated Public Water Supply

Certificate of Approval for Recording
I hereby certify that the subdivision plat shown hereon has been found

REVISION OF SUBDIVIS
DAVIDSON FARMS E
PHASE I

PROPERTY OF
WAHL, LLC. &
MONMON LAND INVESTM



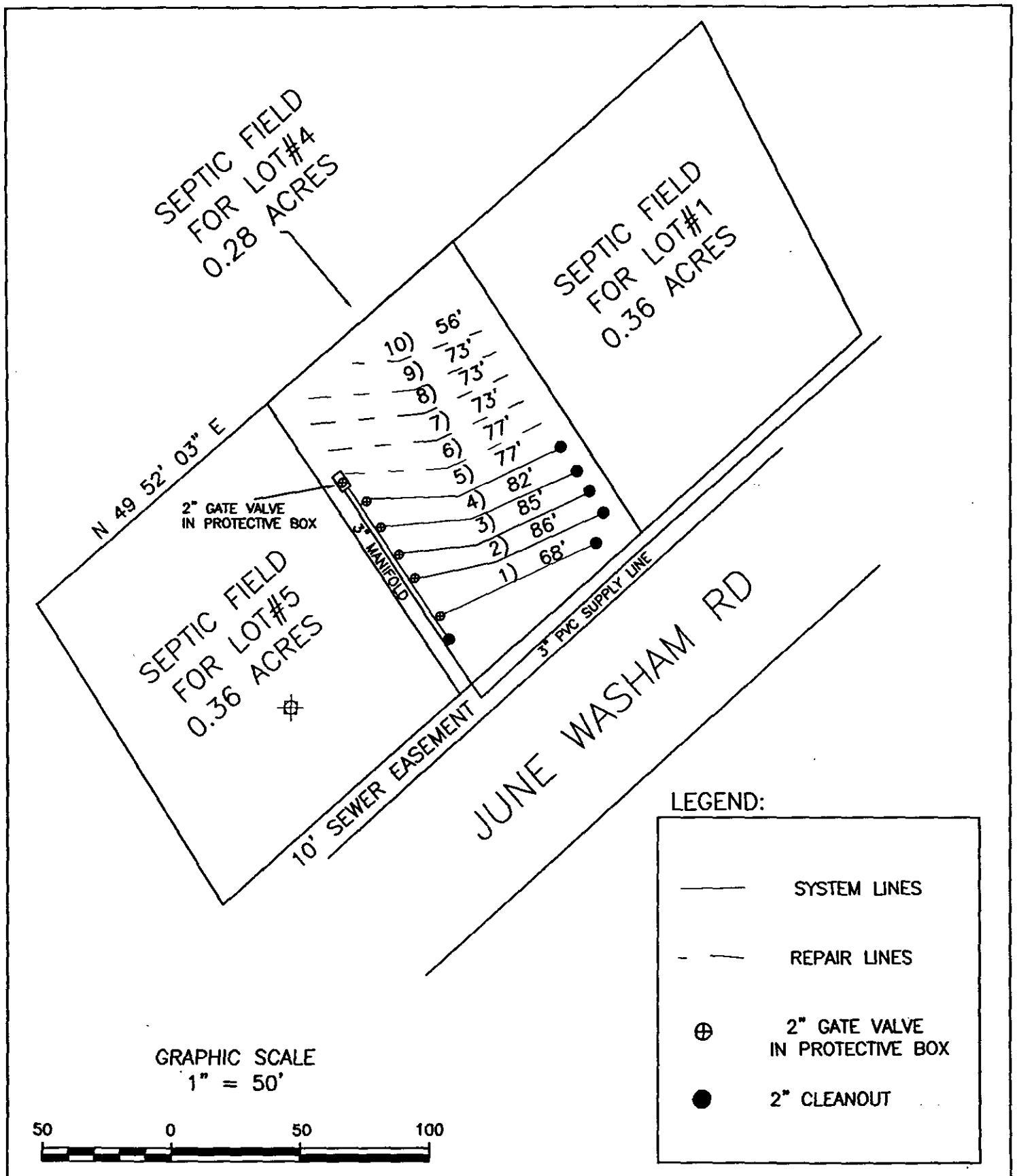
LINE TABLE		
COURSE	BEARING	DISTANCE
L1	N 76°26'49"W	60.00'
L2	N 56°54'54"E	29.98'
L3	S 55°00'38"W	73.67'
L4	S 89°48'47"W	25.33'
L5	N 88°58'15"W	19.12'
L6	N 89°07'47"W	19.47'
L7	S 89°47'06"W	18.88'
L8	N 88°38'56"E	30.78'
L9	N 00°38'13"E	33.55'
L10	N 65°51'20"W	53.88'
L11	N 19°40'10"W	68.55'
L12	N 65°51'20"W	21.04'
L13	S 48°56'53"W	63.93'
L14	S 50°28'25"W	56.89'
L15	S 31°59'38"E	10.09'
L16	N 50°28'25"E	58.34'
L17	N 48°56'53"E	0.96'
L18	N 54°28'56"E	9.19'
L19	N 26°19'50"W	55.25'

CURVE TAB
CURVE
C1
C2
C3
C4

RE
DEED
DESC
WERE

Certificate of Approval for Recording
I certify that this plat is not within a designated Public Water Supply Watershed.
10/8/2002 Lindsey Hobbs
Administrator, Davidson, North Carolina

Certificate of Approval for Recording
I hereby certify that the subdivision plat shown hereon has been found to comply with the Planning Ordinance for Davidson, North Carolina, and that this plat has been approved by the Town of Davidson for



SHEET 1 of 1

SHEET TITLE: DRAINFIELD LAYOUT & DESIGN INFORMATION

PROJECT NAME: TODD WOLFHURST - DAVIDSON FARMS ESTATES - MECKLENBURG COUNTY, NORTH CAROLINA OCTOBER 2008

S&EC Soil & Environmental Consultants, PA

FILE C:\SEC\JOBS\1104

SCALE 1" = 50'

FIELD WORK BAR 7 WO

DRAWN BY BAR

PROJECT MGR. WO

PROJECT NO. WO-1104

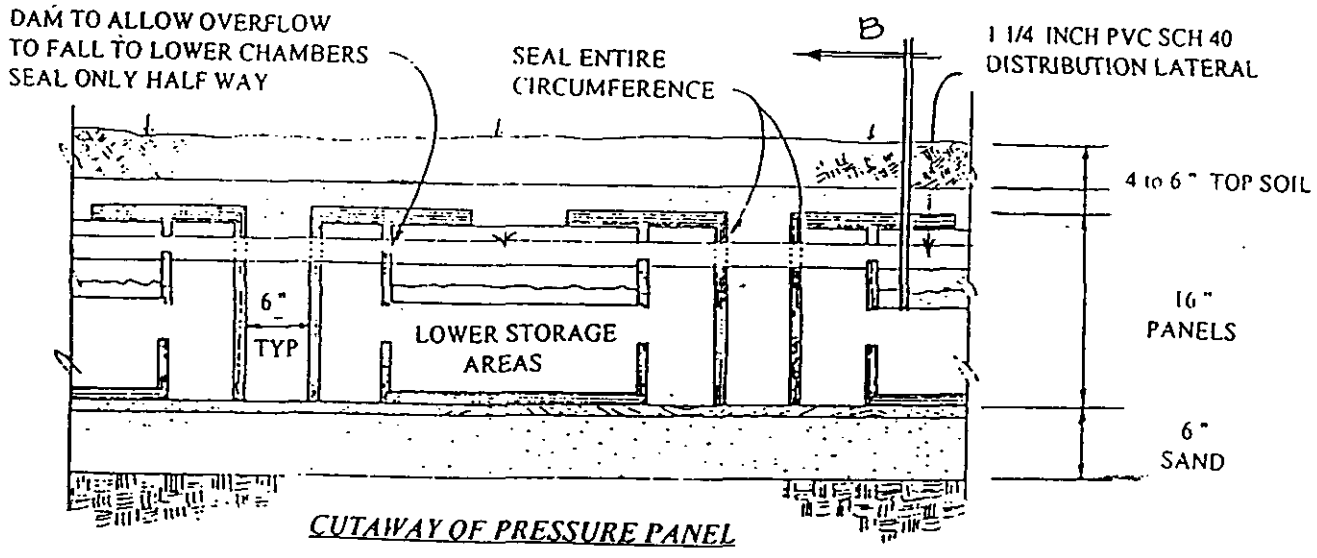
7

Panels With Pressure Distribution

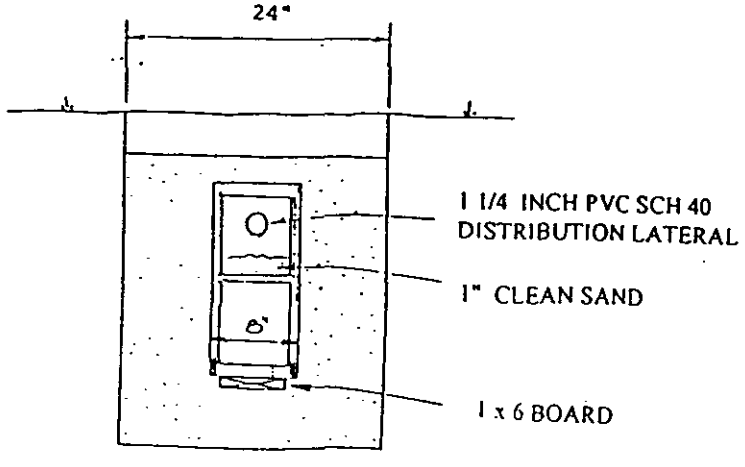
The LP Panel uses Technology similar to that of Low Pressure Pipe (LPP) System. The tables and distribution design described in the LPP manual is applicable to the pressure Panel System. The system should be used with two to four feet of head. In many respects a LP Panel is similar to a LPP with the holes discharging into the panels.

The dosing cycle for the Panel System is designed to pump enough effluent to fill the top chambers of all the panels in the system. The top chamber of a 16 inch panel hold 3.6 gallons. When the system has 34 panels and all holes are the same size, then you would multiply 34 x 3.6 to get 122 gallon per dose cycle. The holes are drilled in the distribution pipe at the 10 and the 2 o'clock position. These are then placed so that the effluent is pumped into the top chamber of the panel. If the hole sizing changes in the system the pump cycle is set by the hole that is discharging the fastest.

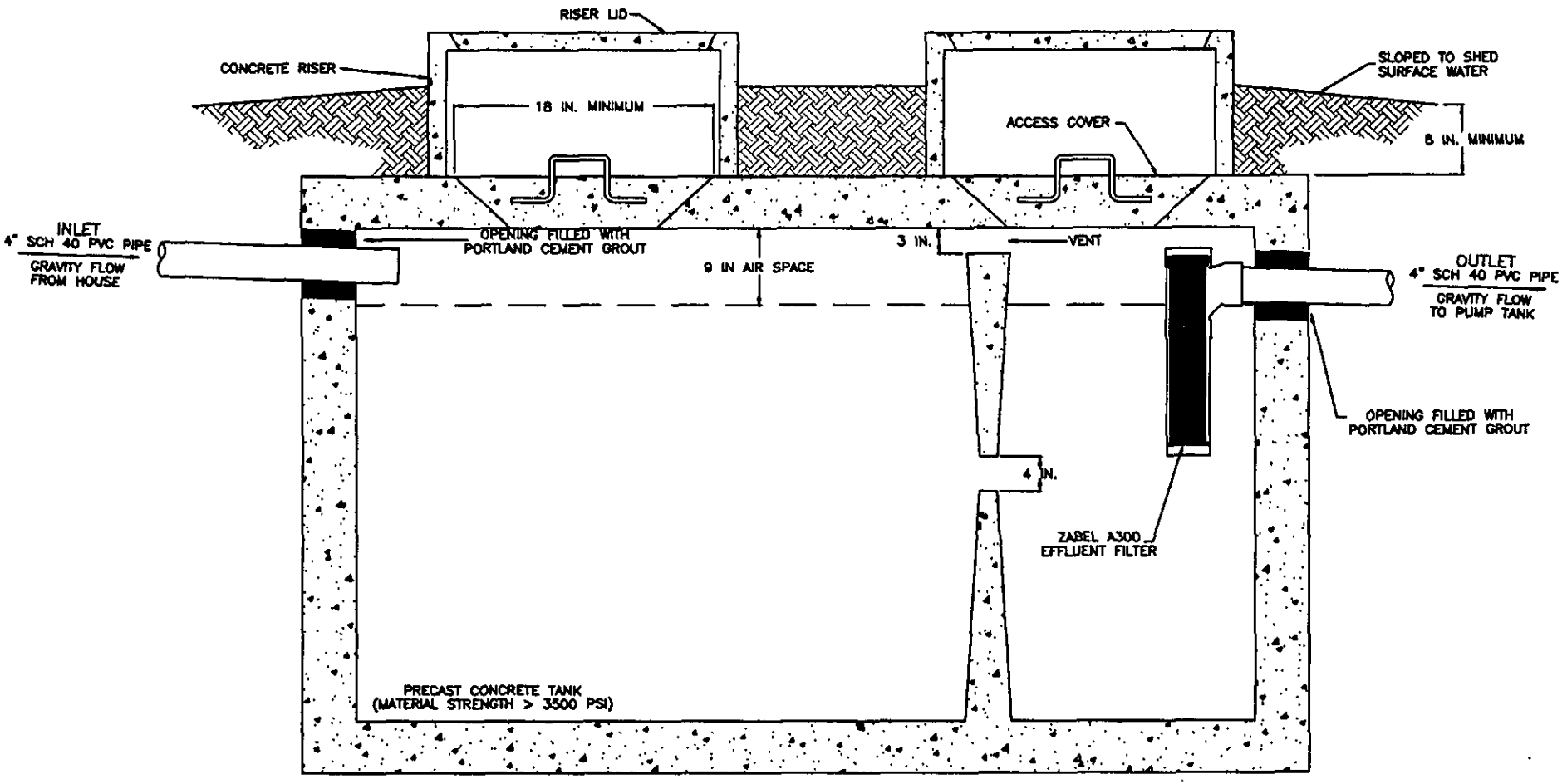
All valves and turnups should be neatly capped, covered and labeled for future service. Pump tanks should be constructed as shown in the drawing as to allow for service and repairs.



CUTAWAY OF PRESSURE PANEL



8



1500 GALLON SEPTIC TANK

SHEET 1 OF 1

JOB NO. 05-1164	PROJECT NAME: TODD WULFHURST/DAVIDSON FARMS LOT 4	S&EC Soil & Environmental Consultants, Inc.
PROJECT MGR.		
W.O.	SHEET TITLE: SEPTIC TANK DIAGRAM	
SCALE NTS		

244 West Millbrook Road ■ Raleigh, North Carolina 27609 ■ (919) 846-5900 ■ Fax (919) 846-9467

Zabel A300 Series High Strength
Industrial & Commercial Effluent Filter
Product Specification

1. Product Name: Zabel A300 Industrial & Commercial Wastewater Filter, U.S. Patent: 4,710,295
2. Model Numbers: A300 Case & Cartridge & Reducer; A301 Cartridge Only; A300-HIP Case & Cartridge & Reducer; A301-HIP Cartridge Only
3. Applications: Grease: restaurants; Hair: dog kennels, beauty shops, zoo facilities; Lint: Laundromats: Food processing: wineries, bakeries; Animal wastes: poultry, hog & cattle farms; Apartments, trailer parks, schools, churches, shopping centers, and offices; Septic dump stations and community treatment plants; Single and Multi-family homes
4. Performance Specification
   - 4.1. Model A300: Maximum daily flow - 3,500 gpd, 7.5 gpm
   - 4.2. Model A300-HIP: Maximum daily flow - 4,500 gpd, 11.25 gpm
   - 4.3. Multiple Filters may be installed in manifolds to handle larger flows than those shown above. A Zabel Flow Control Plate Model FC100 is available to set the effluent flow of a single filter to pre-determined limits.
   - 4.4. TSS: Reductions in TSS within six months of installation - 50 to 90 percent. The higher the unfiltered TSS, the greater the percentage of reduction.
   - 4.5. BOD_5: Reduction in BOD_5 within six months of installation - 20 to 45 percent is dependent on the make up of the wastewater.
5. Materials: All materials are non-corrosive.
   - 5.1. Case & Lid - PVC; Filter discs - Polystyrene; Rods - Polyethylene; Nuts - Nylon
6. New System Installation: Center the top of the 12 inch Filter Case under an Outlet Access Lid opening at least 16 inches in diameter. PVC solvent weld the bell coupling connection to the 4 inch Schedule 40 PVC pipe of the tank as required by local code. Add 4 inch Schedule 40 pipe to the bottom of the reducer as needed. The PVC outlet pipe should extend at least 18 inches beyond the outside face of the tank wall. A riser to grade is recommended for all commercial and industrial installations. All filters installed in grease interceptor tanks will require additional support.
7. Existing System Installation: The filter may be installed in an existing tank if an Outlet Access Lid opening already exists and the filter can be installed without damaging the existing tank. The filter can also be installed utilizing a Zabel Filter Installation Adapter Ring Model FAR-RNG. If the existing tank cannot be used, the filter can be installed in existing systems using a Zabel Container Assembly Model CA100.
8. Service: A professional onsite service company should perform all onsite system service.
9. Service Method: Grasp the filter handle and pull the filter cartridge upward. A Zabel 36" T-Handle is available if required to reach filters below grade. The filter may be cleaned with a steam wand, chemical degreaser or disassembled for further cleaning.
10. Service Frequency: The A300 is designed to be installed in high strength waste applications. Each application will have to be monitored to determine proper service cycles. See article on "Restaurant Applications for Zabel Filters" for recommended guidelines.
11. Warranty: The A300 is warranted to be free from defects in material and workmanship for the life of the original purchaser. Zabel's liability is limited to repair or replacement of the part and in no event shall Zabel be liable for any consequential damages of any kind.

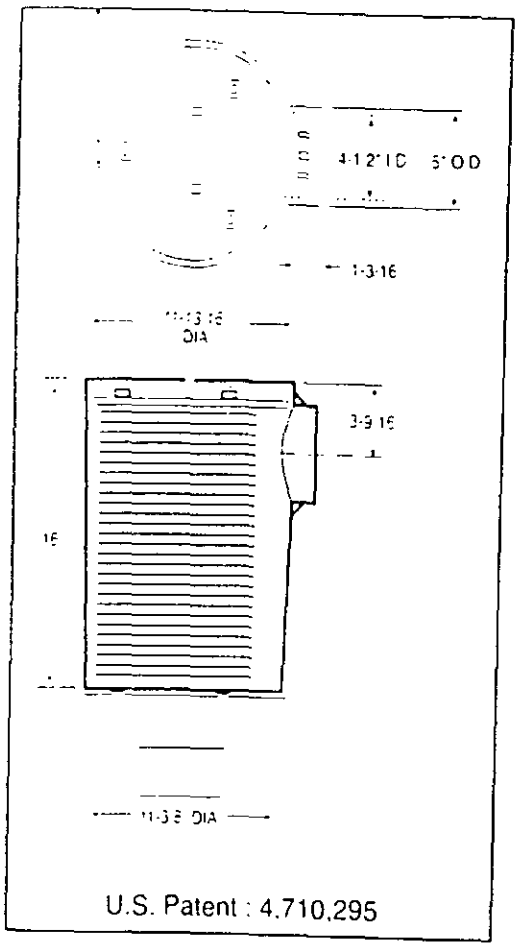
10. Dimensions:

	Diameter	Height	Filtration	Settling Area	Total Filter Surface	Total Flow Area
A300	12"	18"	1/32"	624.69 in²	1,857.6 in²	206
A300-HIP	12"	28"	1/32"	1,067.04 in²	2,908.8 in²	312

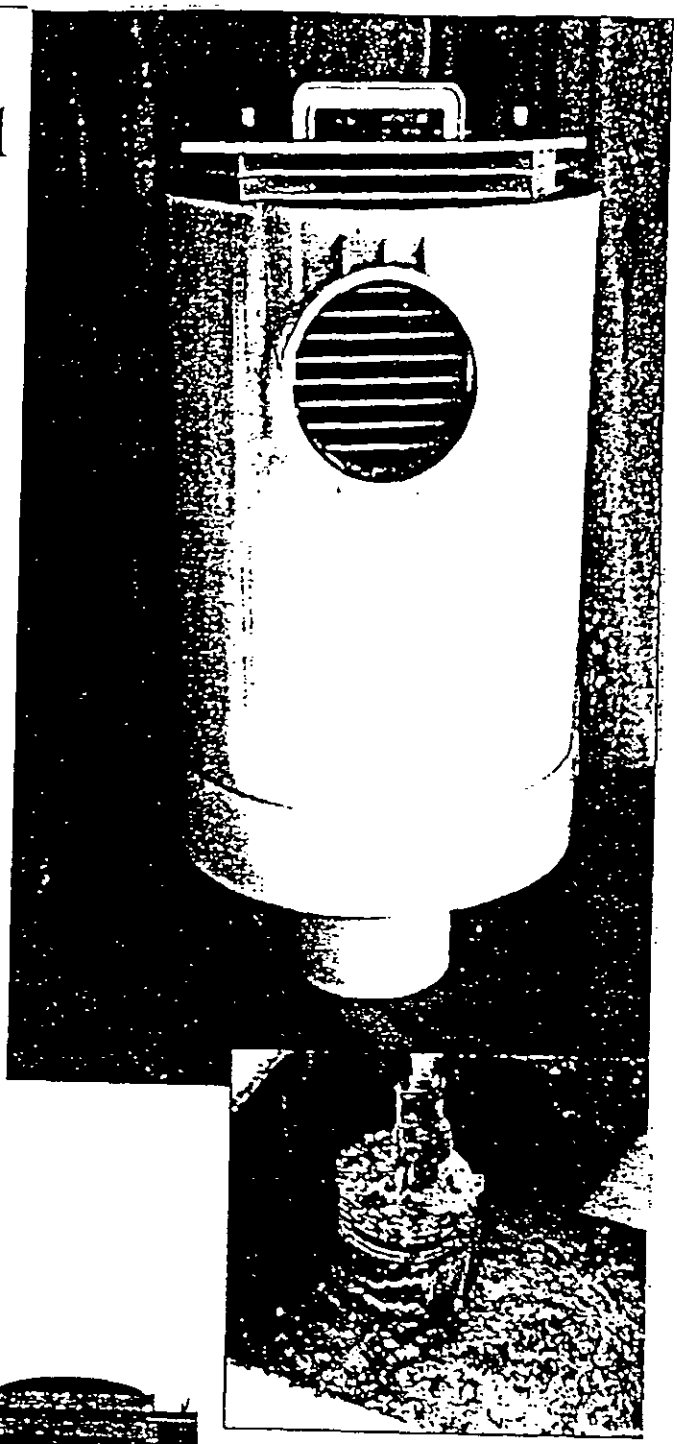
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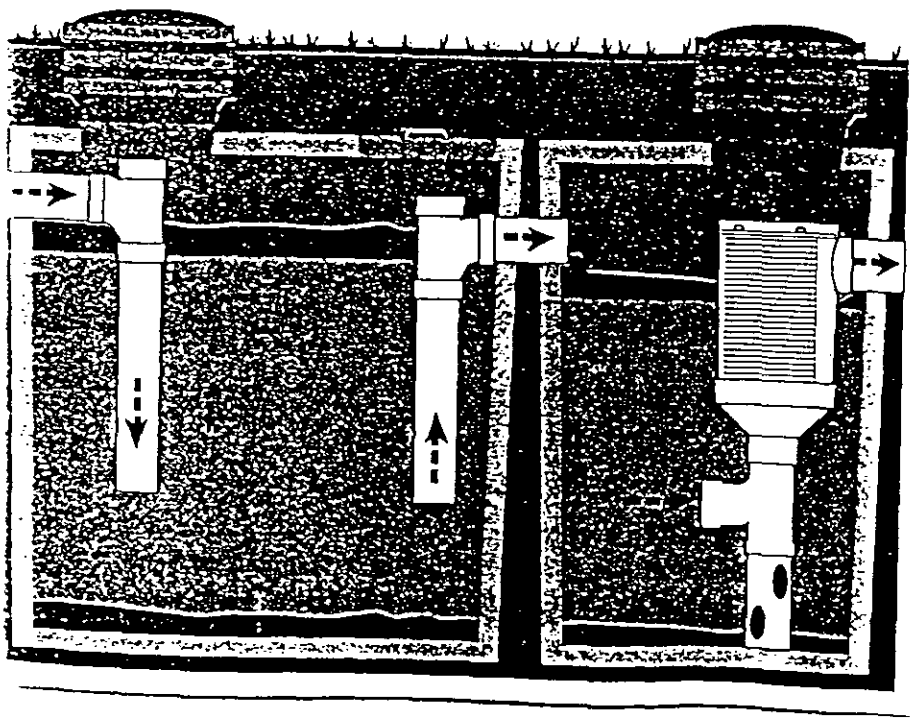
A300

Commercial&Residential Wastewater Filter



U.S. Patent : 4,710,295



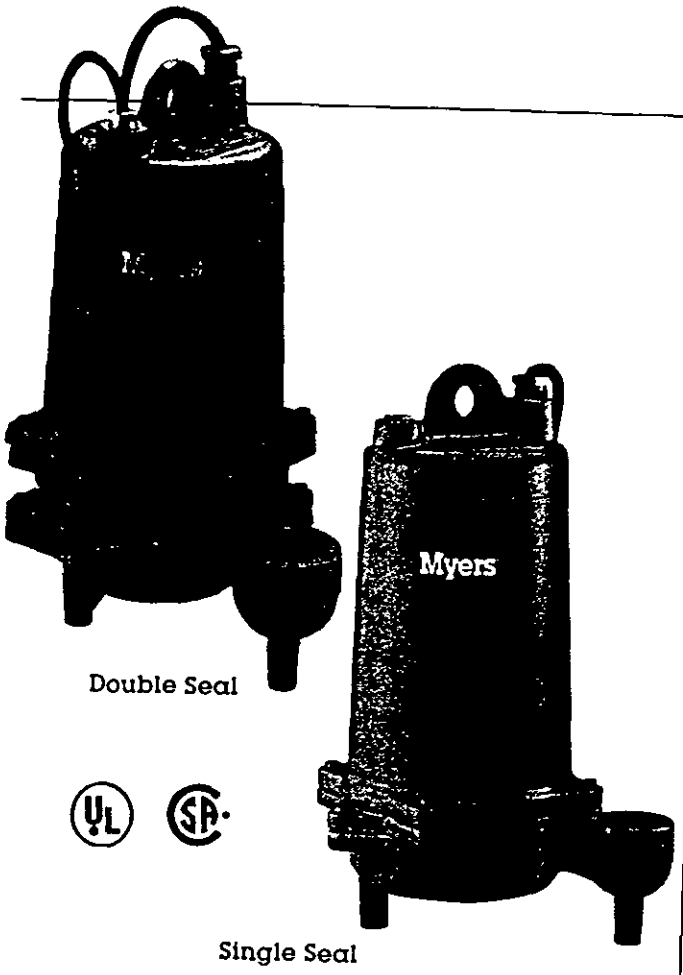


A-300 PRICES ON PAGE 60

11

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 Optional	engineered thermoplastic bronze
Impeller Wear Ring	304 SST
Volute Sealing Ring	Buna-N
Shaft	416 SST
Power Cord 1/2 HP 1 Ph 3/4 - 1-1/2 HP 1 Ph All 3 Ph	 20 ft. 16/3 SJOW/SJOW-A 20 ft. 14/3 SJOW/SJOW-A 20 ft. 14/4 SOW/SOW-A
Shaft Seals Standard Optional Opt. Lower	single carbon & ceramic tandem carbon & ceramic tungsten carbide
Fasteners	300 Series SST

Myers

ISO 9001 Certified Company

ME SERIES

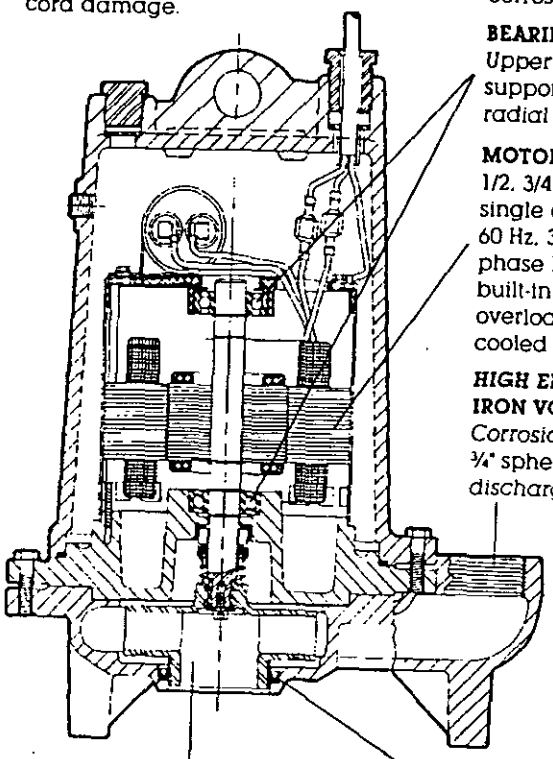
1/2 through 1-1/2 HP
Effluent Pumps

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.

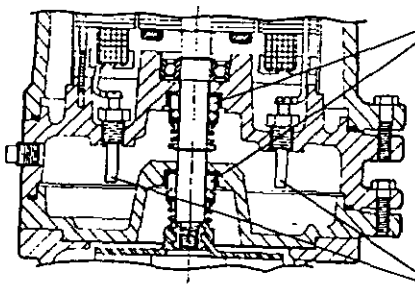
MOTOR
1/2, 3/4, 1 and 1-1/2 HP single or three phase. 60 Hz, 3450 RPM. Single phase PSC motors have built-in on winding overload protection, oil-cooled and lubricated.



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.

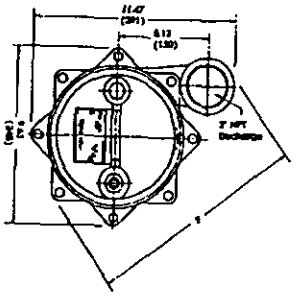
VOLUTE/IMPELLER SEAL RING
Maintains high efficiency and reduces recirculation. Replaceable.

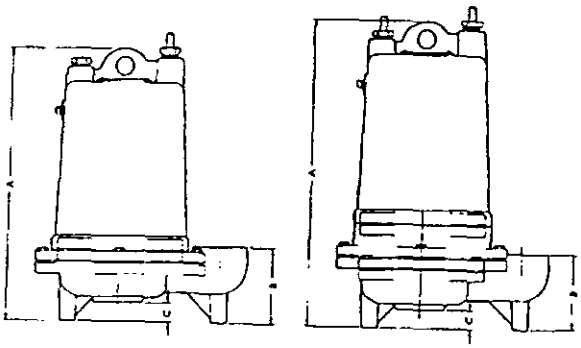


SHAFT SEAL(S)
Carbon and ceramic faces. Optional dual tandem seals. Extends motor life.

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

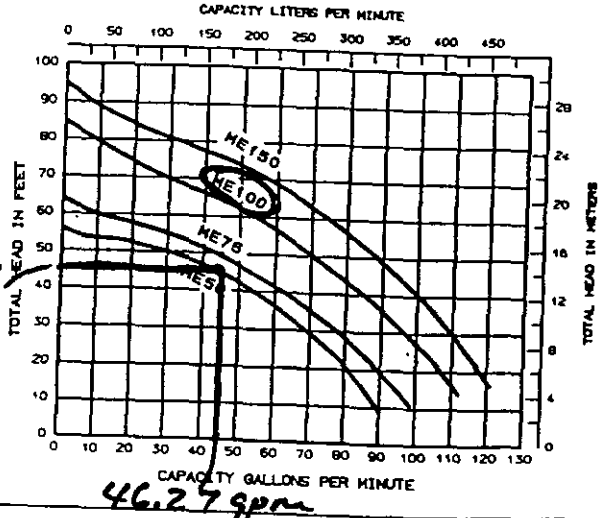
DIMENSIONS





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

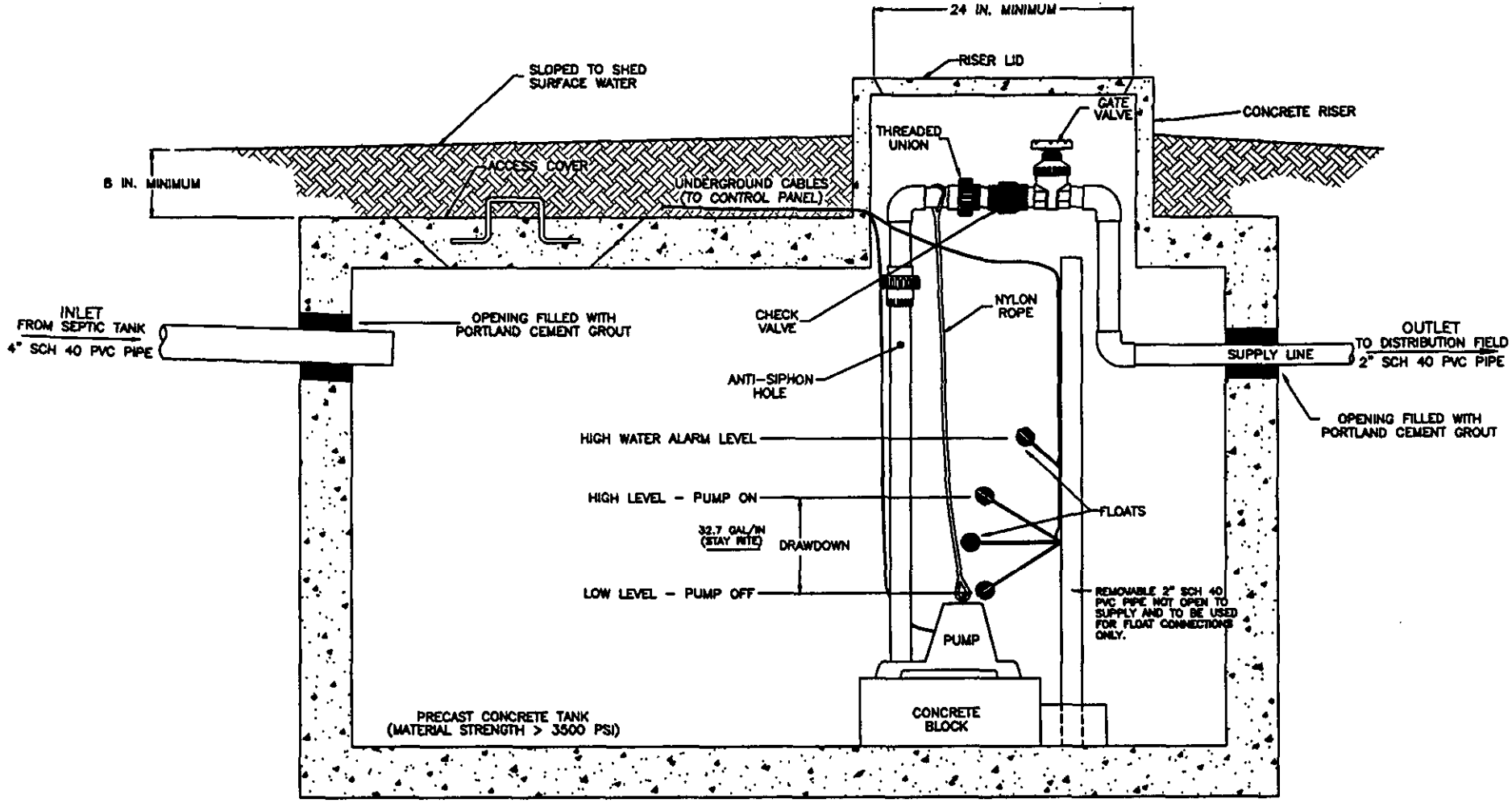


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Myers (Canada), 269 Trillium Drive, Kitchener, Ontario N2G 4W5
519/748-5470, FAX: 519/748-2553



1500 GALLON PUMP TANK

SHEET 1 OF 1

JOB NO. 05-1184	PROJECT NAME: TODD WULFHURST/DAVIDSON FARMS LOT 4	S&EC Soil & Environmental Consultants, Inc.
PROJECT MGR.	SHEET TITLE: PUMP TANK DIAGRAM	244 West Millbrook Road ■ Raleigh, North Carolina 27609 ■ (919) 846-5900 ■ Fax (919) 846-9467
W.O.		
SCALE NTS		

121

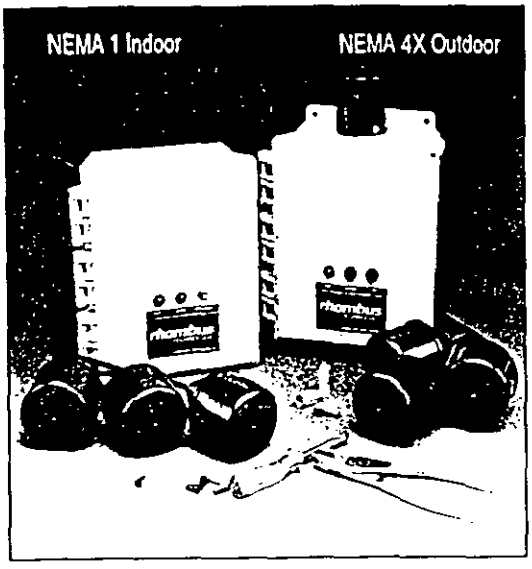
rhombus™ TECHNOLOGY

SINGLE-PHASE SIMPLEX
Motor Contactor Control
TYPE 112

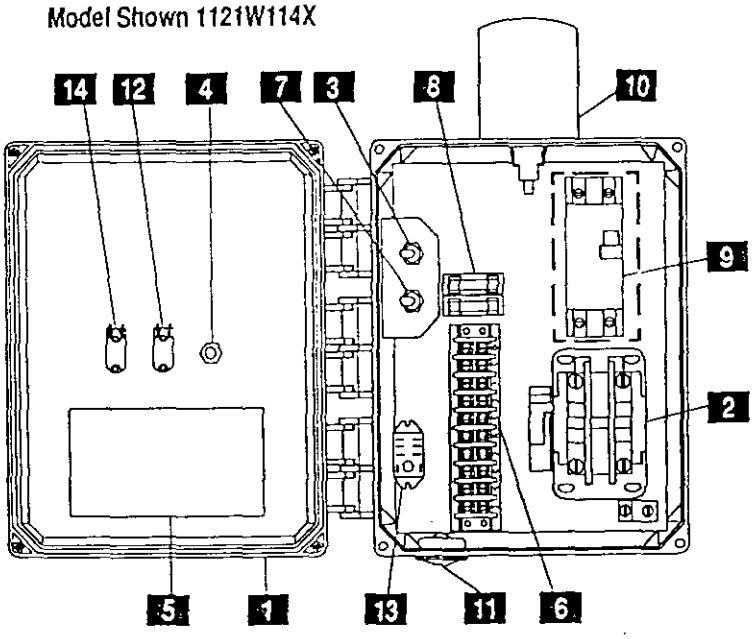
Type 112 control panels are single-phase, simplex pump control systems.

The Rhombus Type 112 control panel provides residential and commercial customers with a reliable means of controlling one 120V, 208V, or 230V single-phase pump in water and sewage installations. 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. Common applications include pump chambers, sump pump basins, irrigation systems, and lift stations.

Type 112 control panels have a dual safety certification for the United States and Canada.



Model Shown 1121W114X



TYPE 112 FEATURES

Float Switches (optional) - complete package assures quality of entire control/alarm system.
UL Labeled - ENTIRE control system (panel and switches) meets and/or exceeds industry standards for safety.
Installation Instructions - complete step-by-step instructions are included for easy installation.
2 YEAR LIMITED WARRANTY - ensures commitment to customer satisfaction.

1 **Enclosure** - comes with removable mounting flanges. Choice of Nema 1 - engineered thermoplastic for indoor use, or Nema 4X - weathertight engineered thermoplastic for outdoor use.

2 **Magnetic Motor Contactor** - controls the pump by switching both electrical lines.

3 **HOA Switch** - offers manual control of the pump.

4 **Green Pump Run Indicator Light**

5 **Schematic/Wiring Diagram**

6 **Terminal Block**

7 **Control ON/OFF Switch**

8 **Control and Alarm Fuses**

9 **Circuit Breaker** (optional) - provides pump disconnect.

ALARM PACKAGE (OPTIONAL)

10 **Alarm Beacon** - large red light provides 360° visual check of alarm condition.

11 **Alarm Horn** - loud horn provides audio warning of alarm condition.

12 **Horn Silence Switch** - exterior switch allows alarm horn to be silenced.

13 **Horn Silence Relay** - automatically resets alarm after alarm condition has been resolved.

14 **Test Switch** - exterior switch allows testing of horn and light to assure proper operation of alarm system.

15

TYPE 112 FEATURES
All Type 112 control panels include a 10" x 8" enclosure, 120V control circuit, 120/208/230V pump circuit, magnetic motor contactor, pump run light, HOA switch, terminal block, fuses, and control on/off switch.

OPTIONS AVAILABLE - Select the options your application requires, then refer to the option pages. The option pages will provide details and specific numbers needed to complete your model number. Panels ordered with an option or multiple options may require larger enclosure sizes.

MODEL NUMBER ORDERING INFORMATION
See sample at bottom of page to help complete your model number.

Please call the factory if you need help building your model number.

112			1				

TYPE 112

ALARM PACKAGE
- 0 - selected options or no alarm package
- 1 - alarm package-includes silence & test switches, red light, horn, and alarm float

ENCLOSURE RATING
- I - Indoor (NEMA 1)
- W - Weatherproof (NEMA 4X)

STARTING DEVICE
- 1 - magnetic motor contactor

PUMP FULL LOAD AMPS
If pumps do not have integral overload protection, you must specify overloads as an option.
- 0 - 0-15 FLA
- 1 - 15-20 FLA
- 2 - 20-25 FLA
- 3 - 25-30 FLA
- 4 - 30-40 FLA
- 5 - 40-50 FLA

PUMP DISCONNECT
- 0 - no pump disconnect
- 1 - pull-out with safety deadfront
- 2 - through door fused (fuses not included)
- 3 - through door non-fused
- 4 - circuit breaker

FLOAT SWITCH APPLICATION
Two 20' pipe clamp floats are standard. For alternate float switches see the option pages. Designate H or L for all floats ordered.
- H - high level pump down/normally open
- L - low level pump up/normally closed
- X - no alarm or control floats

OPTIONS
SEE OPTION PAGES FOR MODEL NUMBERS

- ☐ Alarm Beacon
- ☐ Alarm Bell
- ☐ Alarm Horn
- ☐ Alternate Beacon Color
- ☐ Red Beacon With Guard
- ☐ Flasher
- ☐ Manual Alarm Reset
- ☐ High and Low Alarm Indicators
- ☐ Auxiliary Contacts
- ☐ Low Level Cutout (redundant off)
- ☐ Pump Failure Indicator
- ☐ Seal Failure Indicator
- ☐ Thermal Cutout
- ☐ Thermal Cutout Indicator
- ☐ Power-On Indicator
- ☐ Anti-Condensation Heater
- ☐ Elapsed Time Meter
- ☐ Event (Cycle) Counter
- ☐ Remote Devices
- ☐ Pump Control Timer
- ☐ Delay Timer
- ☐ Deadfront
- ☐ Lockable Latch
- ☐ Pilot Breaker
- ☐ Lightning Arrestor
- ☐ Surge Protection
- ☐ Overload Protection
- ☐ Overload Reset Through Door
- ☐ GFI Convenience Receptacle
- ☐ Main Disconnect
- ☐ Alternate Float Switches

Subject to change without notice.

rhombus™ TECHNOLOGY

RHOMBUS TECHNOLOGY
P.O. Box 1619 • County Rd 6
Detroit Lakes MN 56502 USA
218-847-4786 • Fax 218-847-4801
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SAMPLE: MODEL #1121W114H3B15CE

112	1	W	1	1	4	H	3B 15CE

TYPE
ALARM PACKAGE
ENCLOSURE RATING
STARTING DEVICE
PUMP FULL LOAD AMPS
PUMP DISCONNECT
FLOAT SWITCH APPLICATION

PILOT BREAKERS
Control Breaker
Alarm Breaker

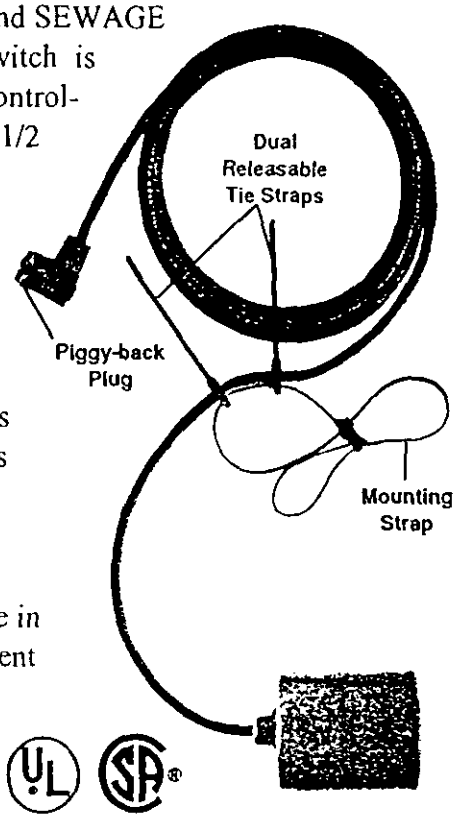
ALARM ACCESSORIES
Manual Alarm Reset

SJE PUMPMASTER® Pump Switch

A wide angle mechanical pump switch designed for dependability and performance.

APPLICATIONS

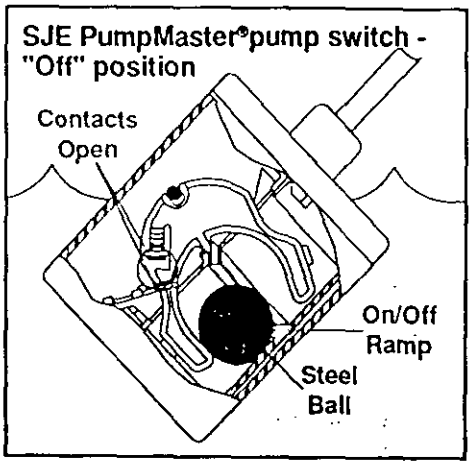
The **mechanically activated** SJE PumpMaster® pump switch provides automatic control of pumps in WATER and SEWAGE applications. This switch is capable of directly controlling pumps of up to 1/2 HP 120V and 1 HP 230V. The SJE PumpMaster® pump switch is designed to efficiently operate in applications with limited space, such as small sump chambers and laundry trays, as well as in large tank applications, and is recommended for use in both calm and turbulent conditions.

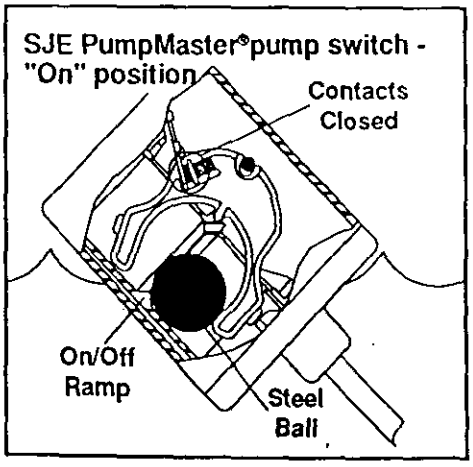


ADVANTAGES

- Mechanically activated
- UL Listed for use in water and sewage
- CSA Certified
- Heavy duty contacts
- Not sensitive to rotation
- Not sensitive to turbulence
- Adjustable pumping range from 5.5 inches to 36 inches
- UL & CSA horsepower rated
- Two year limited warranty

U.S. PATENT Nos. 5,087,801 & 5,142,108
CANADIAN PATENT Pending





SPECIFICATIONS

CORD: Flexible 16 gauge, 2 conductor SJOW-A (UL), SJOW (CSA) water-resistant, (CPE) Neoprene.
FLOAT: 3.05 inch (7.75cm) diameter x 3.56 inch (9.07cm) long, impact resistant, non-corrosive PVC plastic for use in liquids up to 140°F (60°C).

ELECTRICAL:

Voltage 60Hz, Single Phase	Maximum Pump Running Current	Locked Rotor* Amps	Recommended Pump HP
120 VAC	13 amps	85	1/2 HP or less
230 VAC	13 amps	85	1 HP or less

* Tested per UL 508 Industrial Control Equipment
NOTE: This pump switch must be used only with pumps equipped with integral thermal overload protection.

NOTES: Model WOP (for direct wiring) may be used in either 120V or 230V applications within specified amp ratings. Pump Down is a Normally Open switch, Pump Up is a Normally Closed switch.

SJE PumpMaster® Pump Switch Installation Instructions

Figure A

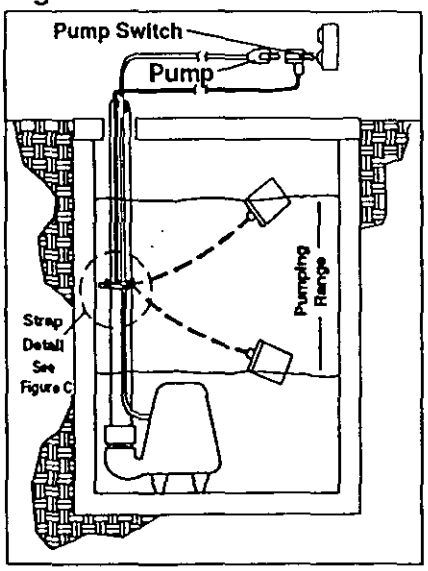
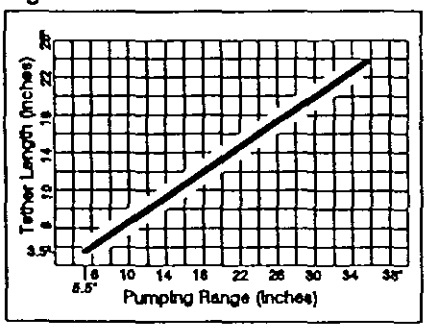


Figure B



The graph above is based on testing in non-turbulent conditions. USE ONLY AS A GUIDE. The solid black line represents average values; the gray area represents variance. For applications requiring a tether length other than shown on the chart, consult the factory.

Figure C

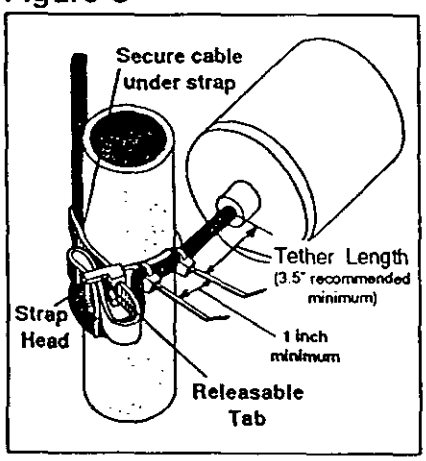
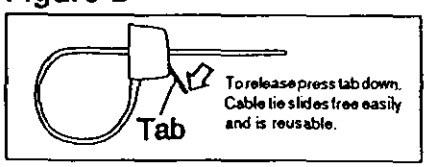


Figure D



WARNING: Turn off power source before installing or adjusting this device. Failure to turn off power could result in serious or fatal electrical shock.

- Read these instructions carefully.
- Check your local codes before installing. We recommend this product be installed in accordance with national and local electrical codes.
- Do not connect this product while you are standing on a wet or damp surface.
- Do not remove cord label from switch unit.
- Retain these instructions with warranty card when installation is complete.

MOUNTING FLOAT

1. Determine the pumping range for your installation. See Figure A. Pumping range is controlled by the tether length. See Figure B.
2. Tighten the mounting strap around the discharge pipe keeping the float cable between the strap and pipe to help prevent slippage. Space the small ties approximately one inch apart. See Figure C.
3. Lock the releasable tab of the mounting strap by running the remaining strap between the releasable tab and head, pulling tightly. Tuck the strap back through the head to complete installation. See Figure C.
4. Ties are releasable to permit readjustment. See Figure D.

PIGGY-BACK PLUG INSTALLATION

To avoid electrical hazards, follow these precautions:

- Electrical outlet must not be located in pump chamber.
- Electrical outlet voltage, piggy-back plug voltage, and pump plug voltage must match. (All 120V or 230V)

1. Plug piggy-back plug into outlet.
2. Plug pump into piggy-back plug.

DIRECT WIRE INSTALLATION

NOTE: Piggy-back plug may be removed for direct wire option. See Figure E.

Check your installation. Allow pump to cycle several times to insure proper pumping range.

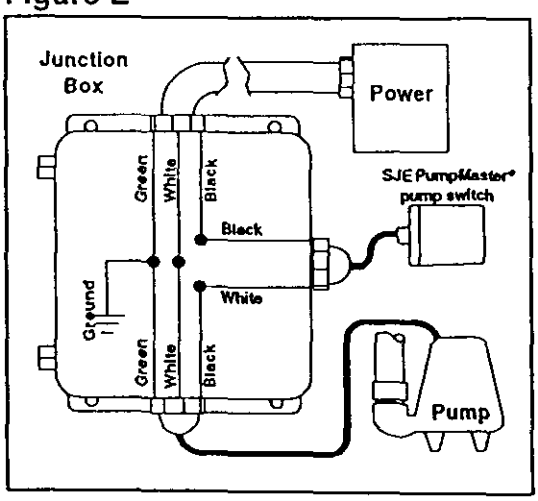
CAUTION

In a 230V pump installation, one side of the line going to the pump is always "hot". This condition exists regardless of whether the float switch is on or off.

WP (with plug) INSTALLATIONS - Remove piggy-back plug from receptacle BEFORE installing or servicing pump and/or switch.

WOP (without plug) INSTALLATIONS - To avoid hazards when installing or servicing, install a double pole disconnect near pump installation.

Figure E



SJE™ **S.J. ELECTRO SYSTEMS, INC.**

Built with Pride - Employee Owned

PO Box 1619 County Rd 6 Detroit Lakes, MN 56502

Telephone: 218-847-1317 FAX: 218-847-4617

SSPMA MEMBER

© S.J. ELECTRO SYSTEMS, INC.

Installation Inst. 1002627F

Printed in USA

18

Maintenance of Sewage Systems

15A NCAC 18A .1961 (b) states:

(b) System management in accordance with Tables V(a) and V(b) of this Rule shall be required for all systems installed or repaired after July 1, 1992. After July 1, 1992 system management in accordance with Tables V(a) and V(b) shall be required for all existing Type V and Type VI systems.

(1) After July 1, 1992, no Improvement Permit shall be issued for Type IV, Type V, or Type VI systems, unless a management entity of the type specified in Table V(b) is specifically authorized, funded, and operational to carry out this management program in the service area where the proposed system is to be located.

(2) A local health department may be a public management entity for systems classified Type IV, V(a) and V(b) only when specifically authorized by resolution of the local board of health.

(3) A contract shall be executed between the system owner and a management entity prior to the issuance of an Operation Permit for a system required to be maintained by a public or private management entity . The contract shall include the specific requirements for maintenance and operation, responsibilities of the owner and system operator, provisions that the contract shall be in effect for as long as the system is in use, and other requirements for the continued proper performance of the system. It shall also be a condition of the Operation Permit that subsequent owners of the system execute such a contract.

(4) Inspections of the system shall be performed by a management entity at the frequency specified in Table V(b). The management entity shall report the results of their inspections to the local health department at the specified reporting frequency. However, where inspections indicate the need for system repairs, the management entity shall notify the local health department within 48 hours in order to obtain an Improvement Permit for the repairs.

(5) The management entity shall be responsible for assuring routine maintenance procedures in accordance with the conditions of the Operation Permit and the contract.

(6) Sewage systems with multiple components shall be classified by their highest or most complex system type in accordance with Table V to determine local health department and management entity responsibilities.

(7) Sewage systems not identified in this Rule shall be classified by the Division of Environmental Health after consultation with the appropriate commission governing operators of pollution control facilities.

(8) The local health department shall routinely review the performance and operation reports submitted in accordance with Table V(b) of this Rule and shall perform an on-site inspection of the systems as required in Table V(a).

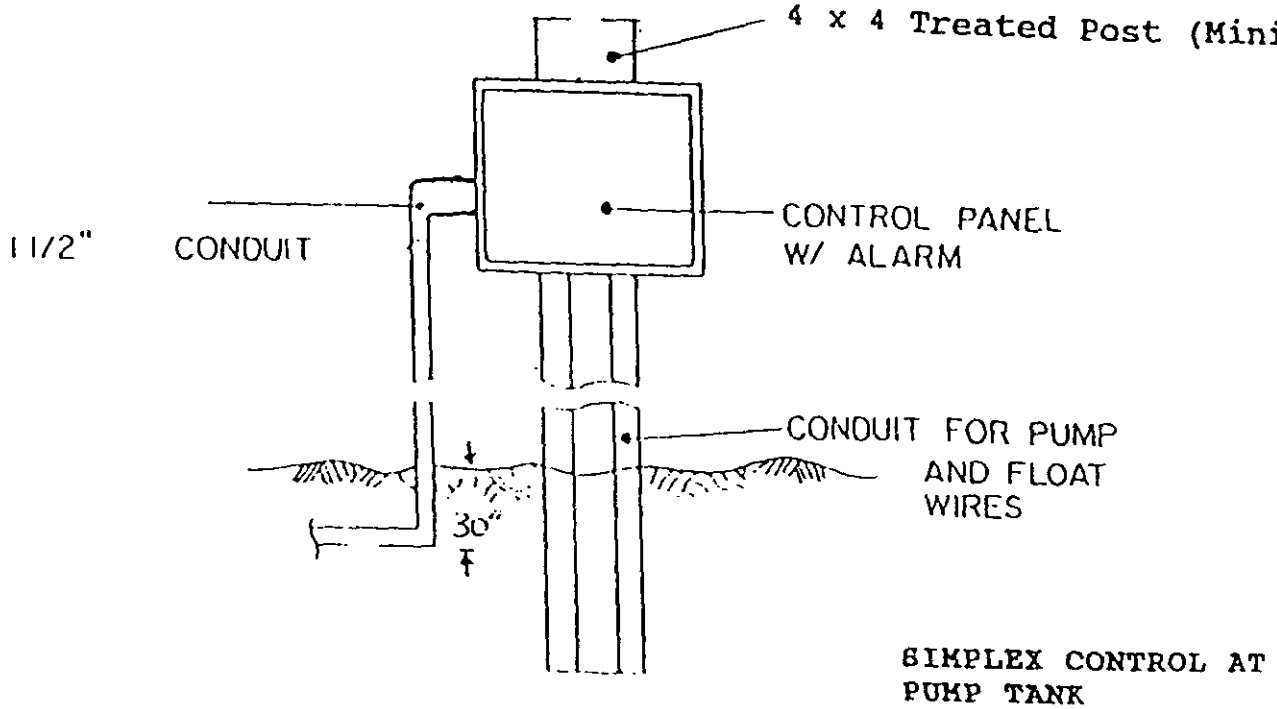
(9) Nothing in this Section shall preclude any requirements for system operators imposed in accordance with Article 3 of G.S. 90A.

Maintenance Responsibilities of Management Entity

System maintenance for Type IV and Type V a. (0-1500 GPD) systems as defined in 15A NCAC 18A .1961, Table V shall be performed in accordance with the following (Note: Results of inspections are to be reported to the Wake County Department of Health once per year and twice per year for Type IV and Type V a. systems, respectively):

System Component	Frequency	Maintenance
1. Septic Tank and Grease Trap (If so equipped)	6 months	Check riser condition (must be accessible from ground surface), excess in/exfiltration, entry of water at riser, and solids accumulation. Pump grease trap as needed.
	1-3 years	Pump septage (septage is to be pumped when 1/4 to 1/3 of liquid capacity is occupied by solids).
2. Pump or Dosing Tank	6 months	Check riser condition (must be accessible from ground surface), excess in/exfiltration , entry of water at riser, and solids accumulation. Pump sludge accumulation as required and when septic tank is pumped. Check pump(s), controls, floats, electrical connections, and alarm for proper operation. Measure delivery rate to disposal field. Wash (hose) sludge accumulation from pump housing. If so equipped, verify proper siphon function.
3. Sand Filter Pretreatment (If so equipped)	6 months	Any appropriate maintenance in item 2 above. Verify discharge and effluent quality from sand filter.
4. Supply lines (Manifold)	6 months	Check for settling, pipe exposure and leakage.
5. Distribution Devices	6 months	Check distribution boxes, valves, solenoids, etc. for proper function, leakage, and infiltration of surface or ground water into enclosures. Desludge and reset pressure head on pressure manifold. Remove sludge accumulation from all devices as required.
6. Ground Absorption field	1-4 weeks	Maintain vegetative cover (mow grass and remove weeds and brush, most grasses should be maintained at a height of 2-4 inches).
	6 months	Check for settling, erosion and surfacing of effluent. Repair any broken lateral turnups and make certain they are accessible from ground surface and are fitted with screw-on type caps. Lateral turn-ups must be sleeved for systems permitted after 1/1/90. For pressure distribution systems, check and reset pressure head and flush sludge from lateral lines (any discharge of sludge and effluent is to be treated with

		lime or chlorine solution). Check site drainage, eliminate low or settled areas and divert surface or shallow groundwater movement around fields.
7. General	At all times	Prohibit vehicular or equipment traffic on ground absorption field. Prohibit tillage (gardening) or other soil disturbance over ground absorption field. Practice water conservation to reduce waste water load on system. Do not permit entry of grease and non-domestic waste to system. Use of a garbage disposal is prohibited unless specifically permitted. Addition of chemical or biological additives has not been demonstrated to be necessary to maintain proper system function. Prevention of root intervention on lateral lines and trenches may be necessary on certain sites. Surface and groundwater diversion structures must be maintained.



ELECTRIC BOX

NOTE: ELECTRICAL SYSTEM COMPONENTS SHALL BE INSTALLED TO MEET OR EXCEED MINIMUM REQUIREMENTS SPECIFIED IN THE ELECTRICAL CODE. ALL WIRING SHALL BE #12 MINIMUM, RATED FOR DIRECT BURY. PROVIDE GROUNDING AS REQUIRED AND, PROVIDE 30" MINIMUM BURY ON CABLES. PROVIDE ONE 20 AMP, 2 POLE, 230 V CIRCUIT BREAKER (FOR PUMP) AND, ONE 20 AMP ONE POLE, 115 V CIRCUIT BREAKER (FOR ALARM) IN MAIN PANEL.

STATE OF NORTH CAROLINA

COUNTY OF MECKLENBURG

SEPTIC TANK DRAIN FIELD EASEMENT DECLARATION AND AGREEMENT

This DECLARATION AND EASEMENT made this 16 day of October, 2002, by and between Johnstone, Remmey & Shryock, LLC, ("Declarant"), and any and all persons, firms or corporations hereafter acquiring any of the lots referred to herein.

WITNESSETH:

WHEREAS, Declarant is the owner of the Easement Parcel and the Benefitted parcel, as described herein; and

WHEREAS, Declarant wishes to create a Septic Tank drain Field Easement to control the development and the use of the Easement Parcel and the Benefitted Parcel for the protection of the owner of the Benefitted Parcel and the future owners thereof.

NOW, THEREFORE, Declarant hereby declares that the Easement Parcel and the Benefitted Parcel, as hereinafter defined, shall be held, sold and conveyed subject to the following Easement, which shall run with such parcels and be binding on all parties having any right, title or interest in such parcels, their heirs, successors and assigns, and shall be binding upon each owner thereof.

Declarant hereby creates an Easement as hereinafter described, to run with the land, upon that certain lot or parcel of land owned by Declarant, referred to herein as the "Easement Parcel", and located in the City of _____, Deweese Township, Mecklenburg County, North Carolina, and more particularly described as follows:

This instrument was prepared by: _____
Mail after recording to: Thomas, Godley & Childers, P.A.
514 Williamson Rd., Ste 421
Mooresville, NC 28117

Mecklenburg Tax Parcel No. out of 007-171-12, 11, as shown ~~on a page of the County Tax Map attached hereto as Exhibit A, Lot~~ as Septic Field for Lot 4 Block _____ of Davidson Farms Estate recorded in Map Book 38, Page 373 (if applicable)

See the plat attached hereto as Exhibit B for the legal description of the parcel labeled thereon as the "Easement Parcel" and of the septic Tank Drain Field Easement Area located thereon.

Declarant hereby imposes said Easement for the benefit of itself as the present owner and for the benefit of future owners of the following lot or parcel of land, referred to herein as the "Benefitted Parcel", situated in the City of _____, Dewberry Township, Mecklenburg County, North Carolina, and more particularly described as follows:

Mecklenburg Tax Parcel No. 007-171-17, as shown ~~on a page of the County Tax Map attached hereto as Exhibit A,~~ as Lot 4, Block _____ of Davidson Farms Estate recorded in Map Book 38, Page 373 (if applicable)

See the plat attached hereto as Exhibit B for the legal description of the parcel labeled thereon as the "Benefitted Parcel".

Said Easement shall enable the owner of the Benefitted Parcel to place, if, as and when needed, such need to be determined by the owner of the Benefitted Parcel in his sole discretion, a septic tank and drain field or portions thereof, upon the Septic Tank Drain Field Easement Area on the Easement Parcel and to inspect, maintain, repair and replace the components of said septic tank and drain field at any time and from time to time. If the Easement Area also includes a connector strip for ingress and egress, the owner of the Benefitted Parcel shall have the right to use said connector strip for access as needed. **This Easement may not be altered, amended or cancelled without the written permission of the Mecklenburg County Health Department, which written permission must be part of any document recorded to alter, amend or cancel this Easement.** This Easement shall automatically expire, however, should the owner of the Benefitted Parcel ever hook up the structure located or to be located on the Benefitted Parcel to a public or community sanitary sewage system but shall otherwise be perpetual.

Declarant as the owner of the Easement Parcel acknowledges that the Septic Tank Drain Field Easement Area cannot be used and will not be used for any of the following activities or in any of the following ways:

-- Grading or filling
-- Parking or driving heavy equipment in the area or in any other way compacting the soil in the Area

-- Excavating soil from the Area
-- Placing footings or foundations or engaging in any other construction activity in the Area
-- Placing in-ground or above-ground swimming pools in the Area
-- Placing irrigation systems in the Area
-- Placing underground utility lines or cables in the Area
-- Planting trees or gardens in the Area
-- Removing any large trees in the Area unless dead or diseased
-- Using the area for the burial of stumps, trash, or any other type of construction material
-- Using the Area for gravesites
-- Diverting the natural flow of water onto the Area by way of drainage ditches or diversion ditches or using the Area to receive water from any gutter or downspout discharges

IN WITNESS WHEREOF, the Declarant has hereunto set his/her/their hand(s) and seal(s), 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 the authority of its Board of Directors, the day and year first above written.

DECLARANT

_____ JOHN EDWARD SHAW III MANAGER (SEAL)
(Corporate Name)

By: _____ _____ (SEAL)
_____ President

_____ (SEAL)

ATTEST:

_____ _____ (SEAL)
_____ Secretary (Corporate Seal)

STATE OF NORTH CAROLINA

COUNTY OF Mecklenburg

I, Ben S. Thomas , a Notary Public for said County and State, do hereby certify that John Edward Shryock III, (manager) of Johnstone, Remmey & Shryock, L.L.C., a limited-liability company, personally appeared before me this day and acknowledged the due execution of the foregoing instrument on behalf of the company.

WITNESS my hand and official seal, this 16th day of October 2002

Notary Public

OFFICIAL SEAL
NOTARY PUBLIC - NORTH CAROLINA
IREDELL COUNTY
BEN S. THOMAS
My Commission Expires 03-02-2007

My Commission Expires: 3-2-2007

This Document is not to be recorded until approved by the Mecklenburg County Health Department.

APPROVED AS TO THE SEPTIC REPAIR AREA REQUIREMENTS:

MECKLENBURG COUNTY HEALTH DEPARTMENT

By: Jeremy Mickelson R.S. DATE: 10/21/02

Jeremy Mickelson R.S.

(print Name)

Approval by the Mecklenburg County Health Department does not certify or extend to matters of title. The purchaser of property subject to or affected by this easement is responsible for ascertaining all matters affecting the validity and enforceability of this instrument .

DATE: 8 and 200 pl

FOR RESIDENTIAL SITE
INDIVIDUAL WATER AND WASTEWATER
SYSTEMS PROGRAM Part 1 of 2

1 1 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 #: 50658

PROPERTY INFORMATION (FROM ENGINEERING FORM) FOR JOB LOCATION: 007-171-11 & 12 pt

TAX/PARCEL NUMBER: Not assigned yet.

STREET ADDRESS: N/A Off June Washam

SUBDIVISION OR MOBILE HOME PARK NAME: Davidson Farms Estates

LOT NUMBER: 4

TYPE OF BUILDING (CHECK ONE):

___ SINGLE MOBILE HOME(S)
___ DOUBLE WIDE (D)
✓ 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
___ 6 HUNTERSVILLE
___ 7 MINT HILL

HEATED SQUARE FOOTAGE: 4000 ±

NUMBER OF BEDROOMS: 5

NUMBER OF OCCUPANTS:

CLOSING DATE 9/16/02

FOUNDATION FOR RESIDENCE:

___ WITHOUT BASEMENT
___ ON SLAB
___ CRAWL SPACE
✓ 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 ✓ NO TYPE: _____

WATER SUPPLY (CHECK ONE):

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

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

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

PROPERTY OWNER:

NAME: Tim Wahl (Wahl LLC)
(LAST) (FIRST) (MI)

ADDRESS: 14707 June Washam Rd.

CITY: Davidson STATE: NC ZIP: 28036

DAYTIME PHONE: 704 655 - 9200

LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:

NAME: Lou Ann Blankenship
(LAST) (FIRST) (MI)

DAYTIME PHONE: 704 634- 9981

Issue Permit to:
Artisan Custom Homes

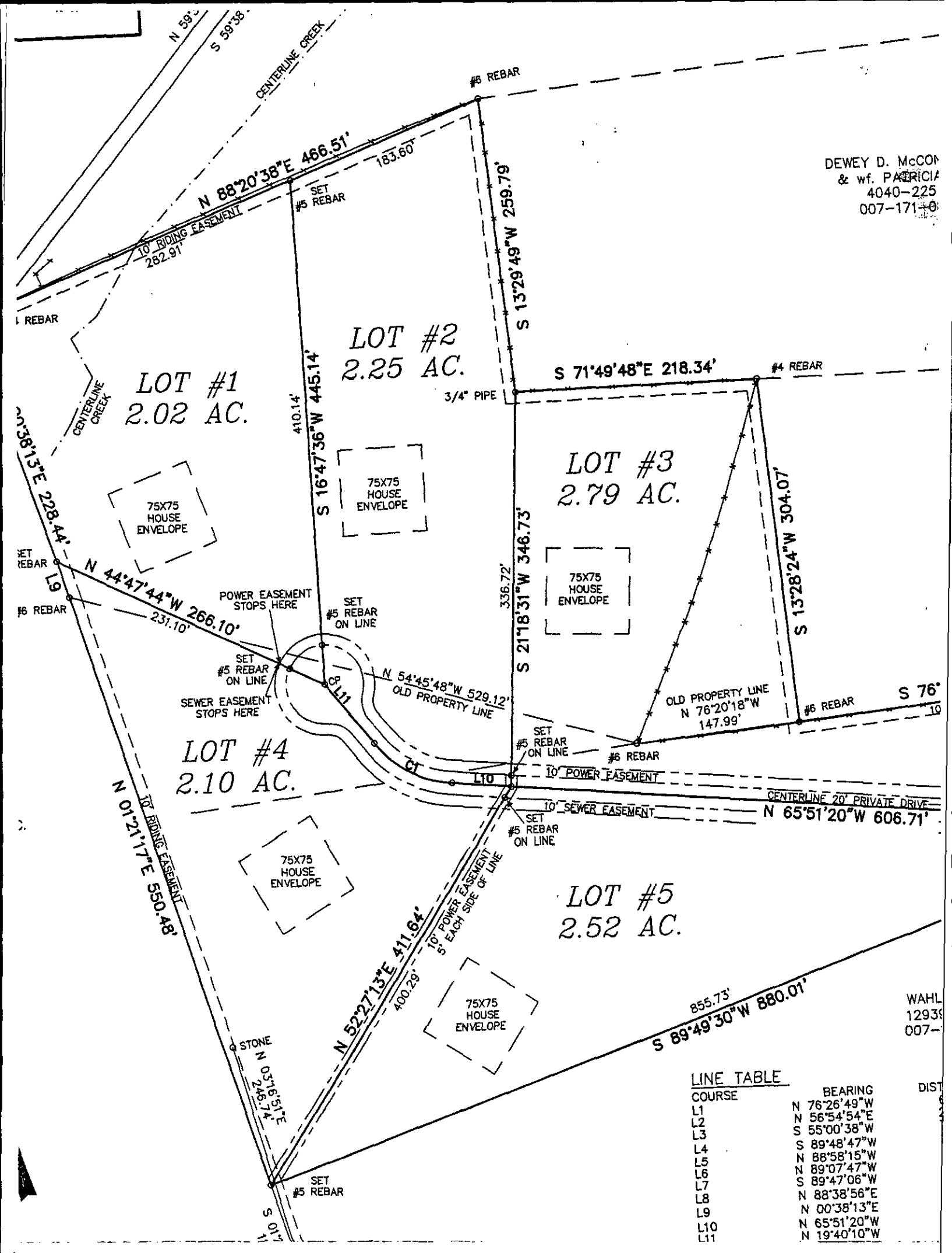
WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? 8-8-02

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: [signature] DATE: 9/4/02

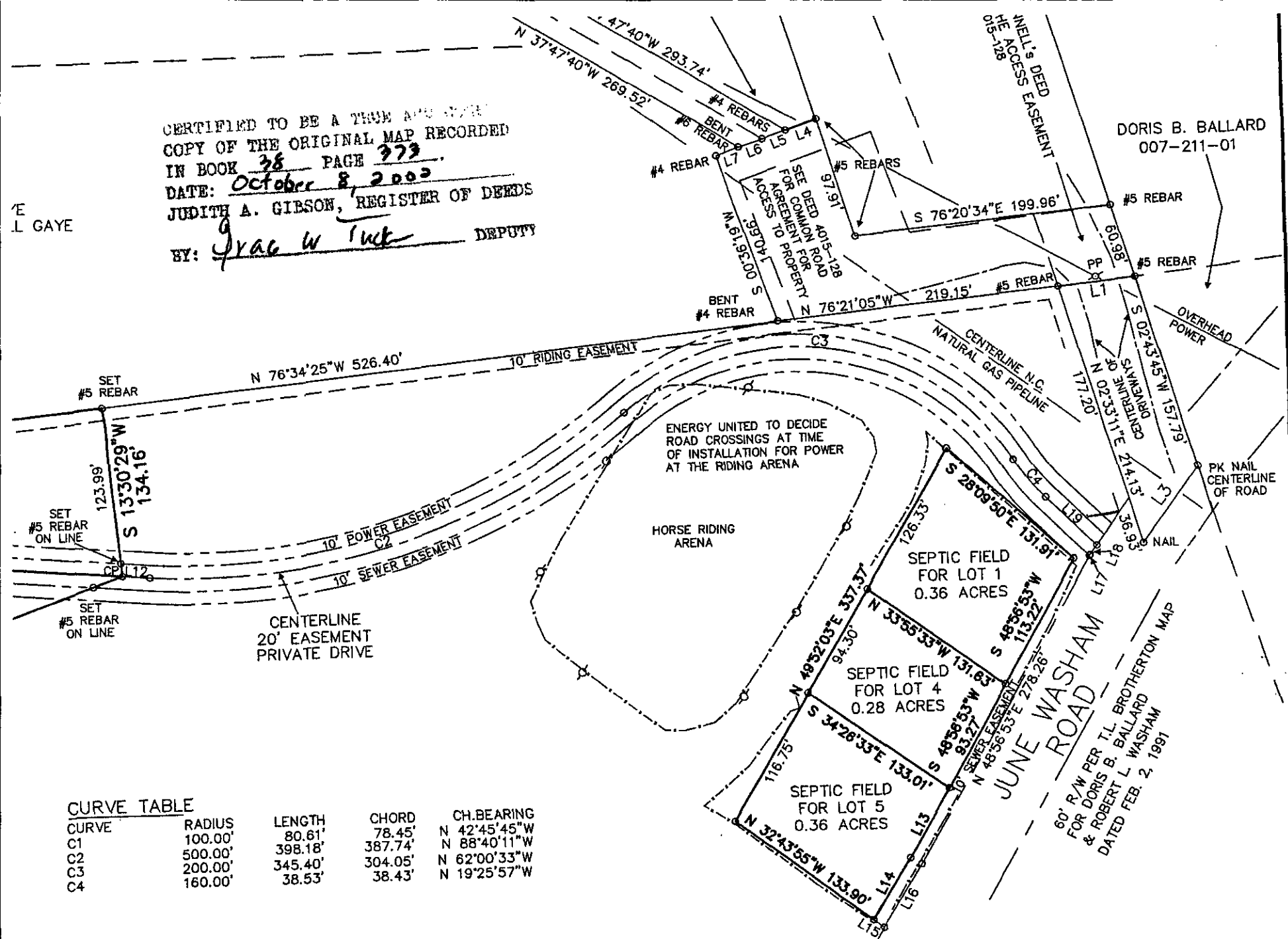
MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
c/o HAL MARSHALL CTR., SUITE 211, 700 N. TRYON ST., CHARLOTTE, N.C. 28202., (704) 336-5102

9/5 Called info Bldg Insp. is not



LINE TABLE

COURSE	BEARING	DIST
L1	N 76°26'49"W	
L2	N 56°54'54"E	
L3	S 55°00'38"W	
L4	S 89°48'47"W	
L5	N 88°58'15"W	
L6	N 89°07'47"W	
L7	S 89°47'06"W	
L8	N 88°38'56"E	
L9	N 00°38'13"E	
L10	N 65°51'20"W	
L11	N 19°40'10"W	



CURVE TABLE

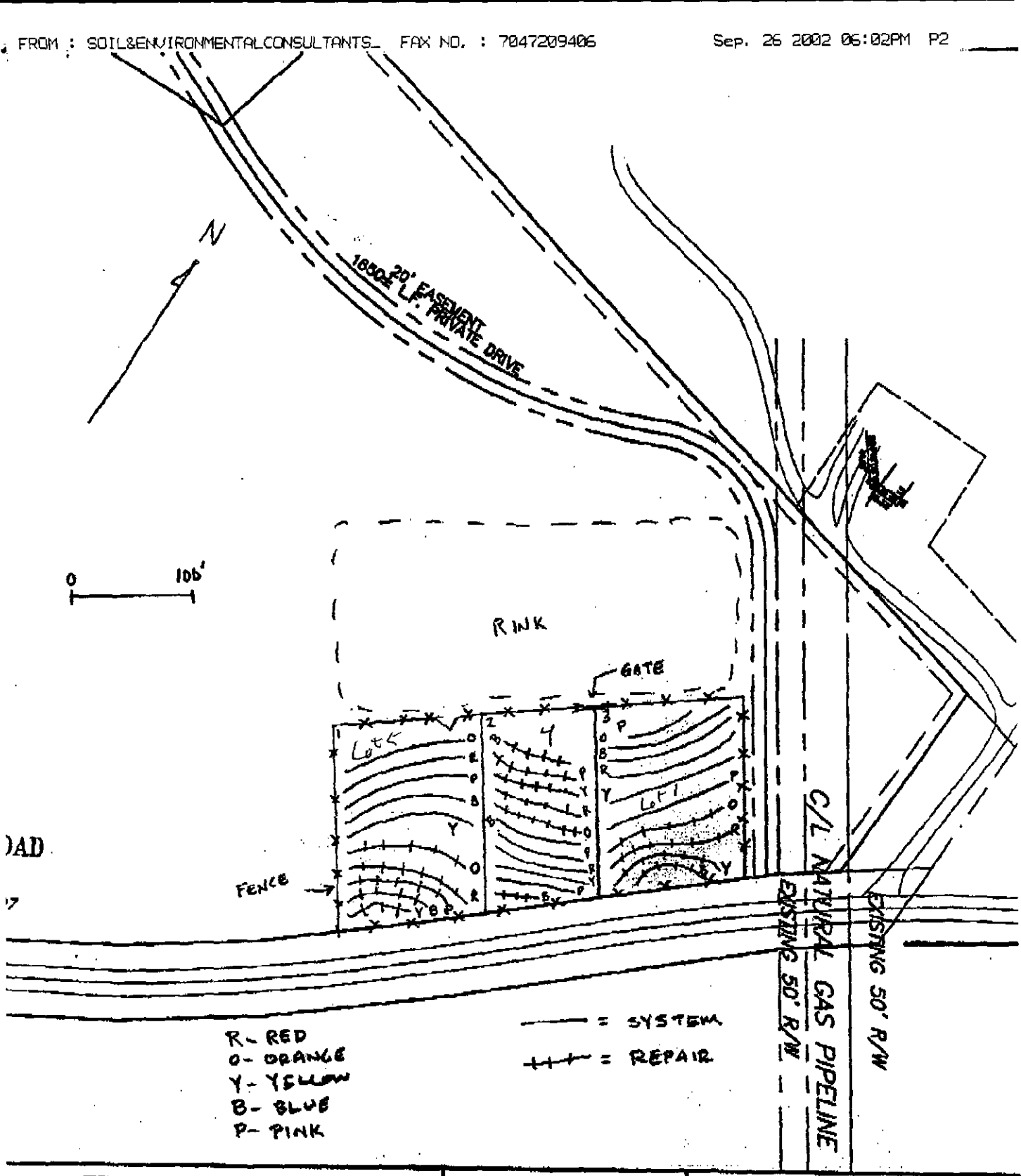
CURVE	RADIUS	LENGTH	CHORD	CH.BEARING
C1	100.00'	80.61'	78.45'	N 42°45'45"W
C2	500.00'	398.18'	387.74'	N 88°40'11"W
C3	200.00'	345.40'	304.05'	N 62°00'33"W
C4	160.00'	38.53'	38.43'	N 19°25'57"W

REFERENCES:

DEEDS AND MAPS AS SHOWN.

DESCENDANTS OF THE WALTER P. ARCHER ESTATE WERE NOT ABLE TO PROVIDE A MAP. (SEE DB 110-274)

REVISION OF SUBDIVISION PLAT DAVIDSON FARMS ESTATES PHASE I



LWE

AM-WALTERS ENGINEERING, INC.

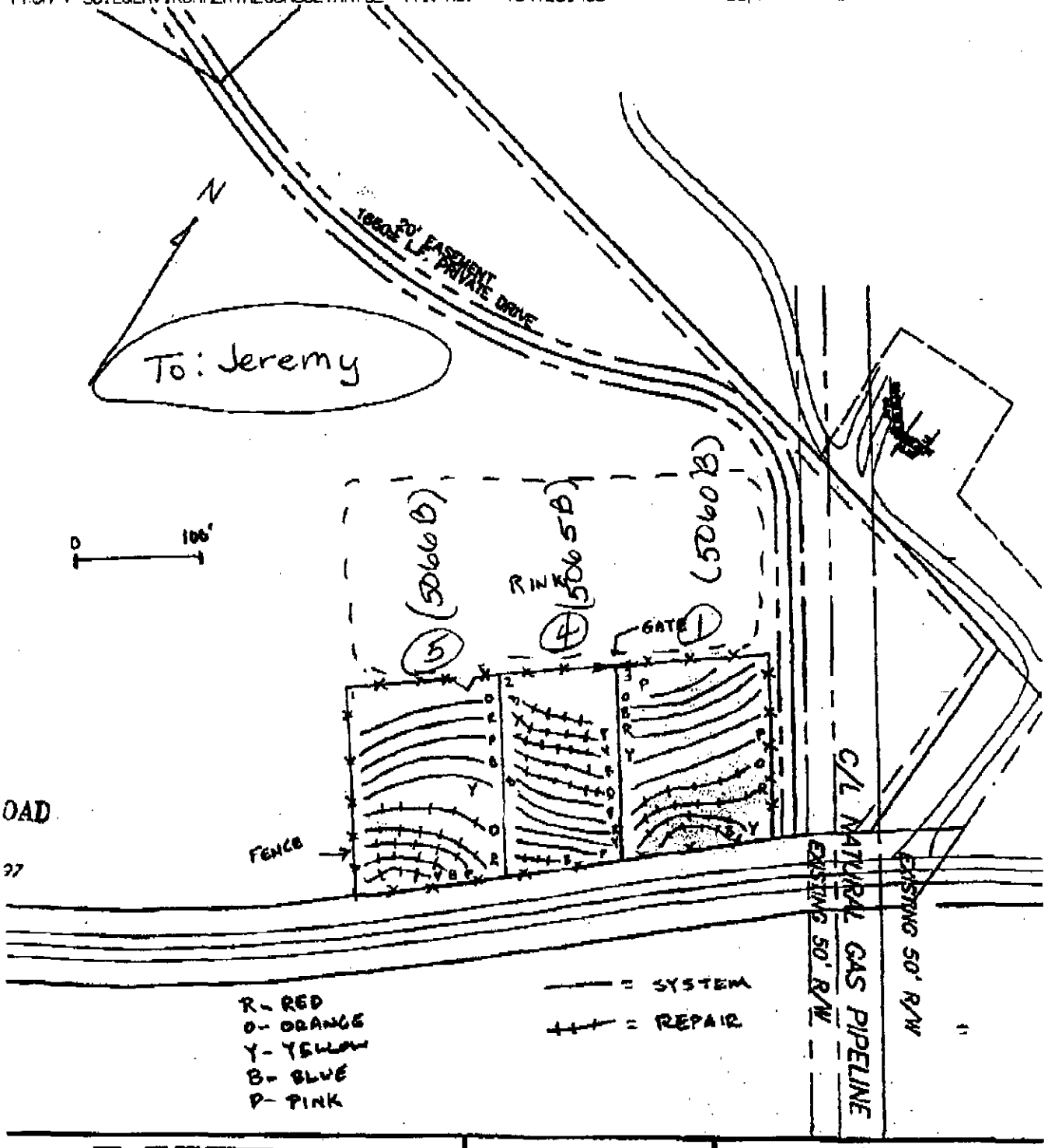
17718-B KINGS POINT DRIVE
ORNELIUS, NORTH CAROLINA 28031
895-8484 FAX (704) 895-8485

NORTH CAROLINA PROFESSIONAL SEAL 17646 ENGINEER MITCHELL LATHAM 6-5-02

OWNER/DEVELOPERS:

TIM WAHL PR(

14707 JUNE WASH
DAVIDSON, NORTH CAR(



LWE

AM-WALTERS ENGINEERING, INC.

17710-B KINGS POINT DRIVE
CORNELIUS, NORTH CAROLINA 28031
) 895-8484 FAX (704) 895-8485

NORTH CAROLINA PROFESSIONAL SEAL 17646 6-5-02 ENGINEER MITCHELL C. LATHAM

OWNER/DEVELOPERS:

TIM WAHL PR

14707 JUNE WAS
DAVIDSON, NORTH CA
(704) 896-9

Davidson Farms Estates

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: 9/26/02 Project Number: 5-1184

TO: Name: Jeremy M.; John S.; Lou Ann; CC: _____

Company: Jamie _____

Fax Number: _____ _____

FROM: Wendell Overby SUBJECT: 3 offsite layouts-Davidson Farms

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

_____ 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: Dear All: I have demonstrated placement of 3-5 bedroom system and repair areas in the area evaluated yesterday. I have termed the fields 1, 2, and 3. Field 1 is closest to the barns. Field 1 and 3 can support EZ Flow initials and panel repairs. Field 2 (in the middle) can support block panel system and repair. I've included a crude sketch map and specs for Jeremy & Jamie. I discovered what appears to be an electrical line in Field 1 running from a transformer to a light pole along the rink. Call with questions or comments. Wendell

IF YOU HAVE ANY QUESTIONS OR PROBLEMS WITH THIS TRANSMISSION,

PLEASE CONTACT Wendell AT (704) 720-9405.

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