

18333 HIDEAWAY RD

21717221

1/9/2008

duponbj

Groundwater and Wastewater Services File Imaging Project
May 2007
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FEE: _____
DATE: _____

AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION

PERMIT NUMBER: 5744B
PARCEL NUMBER: 217-172-21

JOB LOCATION ADDRESS: 18333 Hideaway Rd
PROPERTY OWNER: William A. Hodges
BUILDING CONTRACTOR: ____
SUBDIVISION NAME: ____
AUTHORIZATION ISSUED BY: David Cornelius, RS DATE: 03/22/05

DENR/DEH AUTHORIZED AGENT

AUTHORIZATION CONDITIONS

1. WASTEWATER SYSTEM CONSTRUCTION AND INSTALLATION MUST MEET ALL CONDITIONS AND SPECIFICATIONS AS SET FORTH IN IMPROVEMENT PERMIT NUMBER 5744B, AND THE ATTACHED SITE PLAN WITH SYSTEM DETAILS. CONSTRUCTION AND INSTALLATION MUST ALSO MEET ALL REQUIREMENTS SET FORTH IN THE RULES GOVERNING SANITARY SEWAGE COLLECTION, TREATMENT, AND DISPOSAL AND ANY OTHER APPLICABLE RULES AND LAWS.

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

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

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

5. OTHER CONDITIONS:
   Install according to plans on file submitted by Toney Jacobs and associates.

CONDITIONS OF IMPROVEMENT PERMIT / CONSTRUCTION AUTHORIZATON

Permit Number: **5744B** Tax Number: **217-17-221**

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

Basement: ☒ Yes ☐ No ☐ Partial Basement

Primary Wastewater System

Type: ☐ I ☐ II ☒ III ☐ IV ☐ V ☐ VI

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

0.25 Long-term acceptance rate (GPD/ft^2)	**480** Max gallons/day wastewater flow	**960** Absorption Area (ft^2)	**8** Trench spacing (min. on centers) (ft)
Serviced by private well: ☒ Yes ☐ No	**1500** Gallon septic tank	**330** Total trench length (ft)	**24** Maximum trench depth (in) (At least 12" of provisionally suitable soil must remain between trench bottom and unsuitable soil conditions.)
4 Bedrooms in residence	**1000** Gallon pump tank	**na** Depth of stone (in)	

Any surface water present: **Yes** Type: **Lake Wylie** Minimum separation distance (ft): **50**

Additional conditions: **Install according to plans on file submitted by Toney Jacobs and Associates. 100% repair not required.**

Repair Area System

Type: ☐ I ☐ II ☐ III ☐ IV ☐ V ☐ VI

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

____ Absorption Area (ft^2) ____ Total trench length (ft)	__ Depth of stone (in)	__ Trench spacing (min. on centers) (ft)	__ Maximum trench depth (in)

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

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

*** This Improvement permit is transferable.

DENR Authorized Agent Date 3/22/05

Owner/Agent Signature Date 3/24/05

MECKLENBURG COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
700 N. TRYON ST., SUITE 211
CHARLOTTE, NC 28202
PHONE: (704) 336-5103
FAX: (704) 336-6894

NC DENR
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

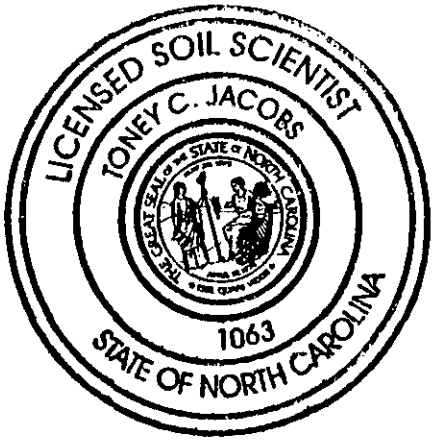
RESIDENTIAL LOW PRESSURE T & J PANEL
SEPTIC SYSTEM
FOR
SUBSURFACE WASTEWATER DISPOSAL
HIDEAWAY ROAD - LOT 36
MECKLENBURG COUNTY, NC

MCHD FILE # 5744B

Prepared for:
William A. Hodges
17224 Due West Drive
Charlotte, North Carolina 28278

Prepared by:
Toney C. Jacobs & Associates, Inc.
168 Broadbill Drive
Mooresville, North Carolina 28117
office (704) 663-6905
fax (704) 662-9845
e-mail jacobs@i-america.net

January 12, 2005



Copy: Mr. David Cornelius, R.S.
Mecklenburg County Health Dept.-IWWS
700 N. Tryon Street
Charlotte, N.C. 28202

Toney C. Jacobs, CPSS, LSS

BACKGROUND

This lot is a pre-1982 plat and does not require 100% repair. The lot has extensive gullies across the front (complex topography) which would affect conventional permitting; however, the soil was evaluated to approximately 8 feet deep with excellent usable saprolite (Attachment 1-soil notes and pictures). This will allow for 2-4 feet of shaping by removal of the surface before system placement. Soil descriptions and photos of pits follow. The LTAR of the soil described by Mr. Bill Marlin, LSS with MCHD ranged from 0.25-0.3, but the saprolite was a loam and 0.3 for all pits. This system is designed with the soil rate of 0.25 as part of the system will be installed in the original soil.

TCJ & Associates designed and planned the proposed system. Due to the limited available space on the lot, a T & J panel block system with 320 feet of line for the primary system. A small amount of repair remains with pretreatment in the 50' buffer could also be used for repair. The proposed system will be a Type IV and require a maintenance contract with a certified operator.

APPLICATION INFORMATION

1. Prepared for:
   Owner:
   William A. Hodges
   17224 Due West Drive
   Charlotte, North Carolina 28278

   Soil Scientists
   and Designer: Toney C. Jacobs, CPSS, LSS
   Toney C. Jacobs & Associates, Inc.
   168 Broadbill Drive
   Mooresville, NC 28117
   (704) 663-6905 (Office)
   (704) 662-9845 (fax)
   E-mail jacobs@i-america.net

2. Water supply is provided by an on-site well (shown on site plan).
3. Facility to be served by the proposed system is a 4-bedroom single family residence.

LOCATION

The property is located off Youngblood-Snug Harbor-Hideaway, at the end of Hideaway.

REFERENCES

Design and Installation of Low Pressure Pipe Waste Treatment Systems by: Craig Cogger, Bobby L. Carlile, Dennis Osborne, Ed Holland; published by UNC Sea Grant College Pub. UNC-SC-82-03, May 1982.

Law and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A, Section .1900, Department of Environment Health and Natural Resources, August 1, 1998.

T & J Design Manual.

PLANS AND SPECIFICATIONS FOR SPECIFIC SYSTEM COMPONENTS

Septic Tank

1. The septic tank receives wastewater directly from the house.
2. A septic tank shall be watertight, structurally sound, and not subject to excessive corrosion or decay.
3. The septic tank must be of two-compartment design for maximum solids retention. The inlet compartment of two-compartment tank shall hold between two-thirds and three-fourths of the total tank capacity.
4. Effluent from the two-compartment septic tank flows by gravity through a State approved effluent filter and a four-inch solid PVC pipe to the pumping tank.
5. Both the septic tank and pumping tank must be provided with above ground approved manhole risers to provide easy access for clean-out and pump service.
6. When prefabricated concrete tanks or tanks of other material are used, they shall be constructed in accordance with the plans which have been approved by the State and shall comply with all requirements of Section .1953 of 15A NCAC 18A.
7. On the outlet tee of the septic tank an effluent filter must be installed. This filter should be equivalent to a Zabel Model A1800 or other State approved unit supplied by the tank manufacturer.

Pumping Tank

1. The pumping tank shall have an access manhole extending at least 6 inches above finished grade.
2. A septic tank effluent pump that will not be corroded by sewage shall be used in the pumping tank.
3. The pump must be placed on two concrete blocks set next to each other on the bottom of the tank. This prevents the pumping of any solid particles that can clog the system.
4. A piece of nylon rope or other non-corrodible material should be attached to the pump and to the outlet pipe for lifting the pump in and out of the chamber.
5. The lower level control or "pump-off" must be positioned above the pump, so that the pump remains submerged at all time.
6. The pump outlet pipe should be connected to the supply manifold with a threaded PVC union to allow quick removal.
7. Pump and Simplex control circuits shall be provided with manual circuit disconnects within a watertight, corrosion-resistant, outside enclosure (NEMA 4X or equivalent) adjacent to the pump tank, securely mounted at least 12 inches above finished grade. Pump control (Simplex) may be mounted on side of house if long cord pump is used. The pump shall be manually operable without requiring the use of special tools or entrance

into the tank for testing purposes. Conductors shall be conveyed to the disconnect enclosure through water proof, gas proof, and corrosion-resistant conduits, with no splices or junction boxes provided inside the tank. Wire grips, duct seal or other suitable material shall be used to seal around wire and wire conduit openings inside the pump tank and disconnect enclosure. There shall be two electric circuits for controls: one for pump power, one for the alarm. These will require 2 circuit breakers.

8. The pump tank shall have a properly functioning high-water alarm. The alarm circuit shall be supplied ahead of any pump overload and short circuit protective devices. It should be on a separate electrical circuit from the pump power line. The alarm shall be audible and visible by system users and included in the pump and control enclosure (Simplex Panel). The alarm is activated if the water level in the pump tank rises above the "pump-on" float control. The tank provides at least one day or more of excess storage capacity (depending on water use in the home) during which time the system must be repaired.
9. Float switch for the high water alarm shall be set no more than 3 inches above the high water level of pump cycle.
10. Float switch tie downs to be made of corrosion resistant material, no tape or metal hose clamps. For maintenance flexibility, tree must be used to set floats.
11. Watertight testing per .1900 rules shall be required on two piece pump tanks.
12. Wiring between the pumping tank and the house should meet State and local code requirements.

Pipe and Fittings

1. All pipes and fitting should be made of SCH 40 PVC.
2. All joints must be sealed with appropriate PVC-solvent cement.
3. There should be a threaded PVC union above the pump to allow easy removal or replacement.
4. A gate valve for final pressure adjustment is installed in the supply line inside the pumping tank.
5. Manifold and valve as shown in specifications.
6. Lateral lines are made of 1 1/4 inch SCH 40 PVC placed in T & J panels. Holes in laterals are drilled on-site.
7. The end of each lateral is equipped with a capped "turn-up" that provides above ground access for clean-out or back flushing of the laterals. Using (2) 45-degree elbows rather than a 90-degree elbow for the turn-ups will make clean-out easier.

CONSTRUCTION INSTALLATION

Site Preparation

1. One of the most important concerns for an on-site system is to protect the site from soil disturbance. This site will have supervised grading and leveling of the field area. No equipment should be back on drainfields until installation of septic system. Arrange site visit with MCHD and/or TCJ & Assoc. (704-663-6905) two days before grading for grading supervision.
2. The absorption field area has been designed. It should be roped off and protected from construction traffic.

3. The site is clear of brush and small trees. No additional site disturbance should be necessary.

Tank Installation

1. The two-compartment septic tank is installed.
2. The pumping tank is installed next to the septic tank.
3. The tanks are connected with an appropriate length of solid, four-inch PVC pipe.

Supply Manifold

1. The supply manifold conveys effluent from the pump to the distribution laterals.
2. Design of the manifold is shown on attached diagrams.
3. After the supply manifold has been placed in its trench and lateral lines connected, it should be backfilled with tightly tamped soil. The supply manifold trench must not be backfilled with gravel, or the trench may become a conduit for downslope flow effluent from the laterals.

T & J Lateral Lines

1. Install T & J Panels per cited reference material and this plan.
2. Trenches shall be 24" wide, and 9' minimum on center. Trenches shall be "level" from end to end.
3. There should be one 5/32 inch hole near the center of each panel, pointed up. (Note this system uses five valves; one on each lateral.)
4. A short turn-up with a capped end is at the end of each lateral. The capped end must be brought up above or flush with the final grade. Using two 45-degree elbows for constructing cleanouts is recommended. A larger diameter sleeve with cap or approved box with lid shall be placed over the turn-up.

PROPER OPERATION CHECK AND PRESSURE HEAD ADJUSTMENT

1. After all connections have been installed and connected, the system should be checked for proper operation. With electrical power turned off, fill the pump tank with a garden hose until the liquid rises to the level of the high-water alarm float.
2. Turn on the electrical power. The alarm light should go off when the liquid level falls below the high-water float. The pump should turn off when the liquid reaches the lowest float control. Be sure the pump is still completely submerged.
3. The pressure head is measured as the height liquid will rise above the turned-up elbow when the pump is running. To set or check the pressure head:

    - Glue a three-foot length of pipe (preferable clear) to a threaded adapter that will screw onto the turn-ups at the end of each lateral.
    - Replace each turn-up cap with the pipe and adapter.
    - Turn the power on to allow liquid to rise in the pipe.
    - Adjust the gate valves until the effluent reaches the desired height in the pipe.

Remember to include the distance below the ground surface to the lateral line when measuring the height.

FINAL LANDSCAPING

1. After the system is installed, the following should be checked to ensure that the system will not be overloaded with excess rainwater and runoff. The distribution field is shaped to shed rainwater and is free of low areas.

2. Finally, the entire area should be planted with grass in order to prevent erosion. The soil should be properly tilled, limed (if necessary) and fertilized before planting. After applying an appropriate grass seed, the area should be heavily mulched with straw or other suitable material.

QUALITY ASSURANCE REQUIREMENTS

The system must be installed by a qualified and competent contractor. Critical stages of the installation, which should be checked, are:

1. System layout and careful cutting of the top to get a consistent slope on the landscape.
2. Septic and pump tank installation prior to backfilling.
3. Manifold and lateral installation prior to backfilling.
4. Final landscaping, operation and pressure head check.

The system design is based on a maximum waste flow of 480 gallons per day. Homeowners should pay particular attention to the section titled Homeowner Suggestions for ways to minimize the burden on the system.

OPERATION AND MAINTENANCE PROCEDURE

The system is classified as **Type IV and DOES require a maintenance contract** with a certified operator. The contract shall be executed between the system owner and a management entity prior to the issuance of an Operation Permit. The contract shall include the specific requirements for maintenance and operation, responsibilities of the owner and system operator, and provisions that the contract shall be in effect for as long as the system in use.

Operating, Maintenance and Inspection procedures shall include, but not be limited to the following:

- Minimum inspection/maintenance frequency shall be 2 times per year, with reporting frequency every 6 months to the local health department.
- Septic system shall be pumped every 4 years or when solids accumulate to 1/3 the volume of the tank.
- At 6-month intervals, inspect the effluent filter. When washing the filter, debris must be

sprayed directly back into the septic tank and not onto the lawn.

- All laterals shall be checked and, if necessary, flushed annually with clean water.
- Pressure head for laterals should be checked and adjusted one month after installation and semi-annually thereafter.
- All piping and fittings shall be checked annually for damage and/or proper operation and corrections made immediately.
- The property should be inspected to insure all surface water is diverted away from the fields and tank. Any ponding of surface water should be corrected.
- Grasses shall be mowed and maintained and any erosion shall be corrected promptly.
- The nitrification field area shall be checked for leakages, blowouts or malfunction, indications of damp or mushy areas compared to surrounding area or evidence of noticeable odor of sewage. Repairs shall be made immediately.
- The pump electrical should be checked to insure tight, clean connections with no corrosion and proper operation.
- Pump switches shall be checked for free operation and proper level set.
- Pump draw down depth and delivery rate shall be checked each year.
- Check septic tank and pump tank for evidence of damage or leakage. Check the quality of effluent including grease and sludge accumulation.

The system operator, in conjunction with the local Health Department shall establish an operation and maintenance program and procedure based on experience obtained from similar installations.

HOMEOWNER SUGGESTION

Most systems do not require much effort to operate and maintain. Even though the effort is small, the system must be maintained properly so that it operates reliably and at a minimum cost. Following are suggestions for the homeowner to minimize the burden on the septic system.

1. Garbage disposals should not be used in on-site systems. The ground garbage adds large amounts of solids to a septic tank, causing sludge to build up at a quicker rate than without. If disposal is installed, use should be limited.
2. Grease, cooking oils and coffee grounds should never be put into a septic tank.
3. Items such as disposable diapers, cigarettes, facial tissues and other solid or paper wastes should not be flushed into the on-site system.
4. Used motor oil and other such oily liquids should not be put into a septic tank.
5. Using less water can reduce the amount of water flowing to the treatment and disposal field.
6. Water-saving fixtures and devices can be installed on sinks, toilets and showers to reduce the rate at which the water flows from the fixture.
7. Dishwashers and washing machines should only be run with full loads.
8. Leaky faucets and toilets can add large volumes of water to the daily flow of water into the on-site system. Repair the leaks to save water and give the treatment and disposal field a rest.
9. Roof drains, basement sump pumps, foundation drains, and other such drains should not

empty into or onto the surface above the on-site system. These drains should be directed to another part of the lot away from the treatment and disposal field.

DESIGN SPECIFICATIONS

(Lot 36 Hideaway Road)

Daily design flow:	480 gpd.
Septic tank size:	1500 gal. (2 compartments)
Pumping tank size:	1000 gal.
Effluent loading rate, Initial system	0.25 gpd/ft^2
Effluent loading rate, Repair system	not required
Total length and diameter of supply pipe:	approx. 190 ft. 2" SCH 40 PVC)
Number and length of laterals:	6 end-fed @55' (1¼ SCH 40 PVC total 330')
Hole size:	5/32"
Hole spacing:	1 per panel
Total number of holes:	72 (one in each T & J Panel near the center with the hole turned up) (approx. 1 panel per 54" of run)
Flow rate through the system:	36 gpm
Elevation head:	Approx. 30' (to be verified by installer)
Pressure head:	3.0'
Friction head:	2.0'
20% contingency	8.0'
Total head:	43'
Pump requirements:	36 gpm at 43.0' of head; use Goulds WEO 7H pump or equivalent with compatible electrical
Dosing volume:	240 gal. – 2.0 doses/day at design flow*
Depth of water pumped per dose:	calculated to specific tank by measure or dealer engineering specifications (1 cubic ft. of water equals 7.48 gal.)
Pump run per dose:	approx. 7.1 min
Check valve:	yes
Siphon break hole:	No

* Before placement of cap block, one panel on each line near the center of the field should be observed filling to make certain that it does not overflow top chamber into air chambers of panel. If overflow occurs, reduce floats by 25 gallons and reset until no overflow is observed.

LIST OF ATTACHMENTS

1. Deep pit notes and pictures
2. Site plan
3. Pump curve
4. Gate valve box detail
5. Pump tank detail
6. Trench detail

TCJ CONSULTING

SITE / SOIL EVALUATION

JOB: Hodges Lot 36 PHONE: _____ DATE: 12-14-04

LOCATION: _____ PIN: _____ COUNTY: Mark PROPERTY SIZE: _____

PROPOSED FACILITY: _____ WATER SUPPLY: On-Site Well ✓ Community__ Public__ EVALUATION: Auger Boring__ Pit ✓ Cut__

WEATHER: _____ ANTECEDENT MOISTURE: _____ SURFACE WATER: _____

FACTORS	PROFILE 1	PROFILE	PROFILE	PROFILE
LANDSCAPE POSITION-%	SS	25	SS	
HORIZON I DEPTH			A 0-9	
Color - Munsell			DB	
Texture			CL	
Structure				
Consistence				
Boundary				
HORIZON II DEPTH	Bt 9-18	Bt 0-26	BE 9-21	
Color - Munsell	RB change to R at 16	R	R	
Texture	C to CL	C to CL	CL	
Mottles	—	—	—	
Structure	MABK to SBK	MABK to SBK	MABK to SBK	
Consistence	SS, SP, FR	SS, SP, FR	SS, SP, FR	
Boundary				
HORIZON III DEPTH	BC 18-39	BC 26-53	BC 21-57	
Color - Munsell	R	R	R	
Texture	CL	CL	CL	
Mottles	—	—	—	
Structure	WSBK	WSBK + ABK	WSBK + ABK	
Consistence	SS, SP, FR	SS, SP, FR	SS, SP, FR	
	SAP common,	Clay Films, common	clay films, common	
	clay films	SAP	SAP	
Boundary				
HORIZON IV DEPTH	C 39-89	C 53-101	C 57-84	
Color - Munsell	RY to YR	RY to YR	RY to YR	
Texture	L	L	L	
Mottles	—	—	—	
Structure	Massive	Massive	Massive	
Consistence	SS, NP, VFR	SS, NP, VFR	SS, NP, VFR	
	SAP, non-plastic	SAP, non-plastic	SAP, non-plastic	
		Rock	Rock	
Boundary				
SOIL WETNESS				
RESTRICTIVE HORIZON				
SAPROLITE				
LTAR	0.3	0.3	0.3	
CLASSIFICATION	PC	PC	PC	

LEGEND

LANDSCAPE POSITION
R - Ridge Interfluve
S - Shoulder
L - Linear slope
S - Foot slope
N - Nose slope
H - Head slope
Cc - Concave slope
Cv - Convex slope
T - Terrace
P - Flood Plain

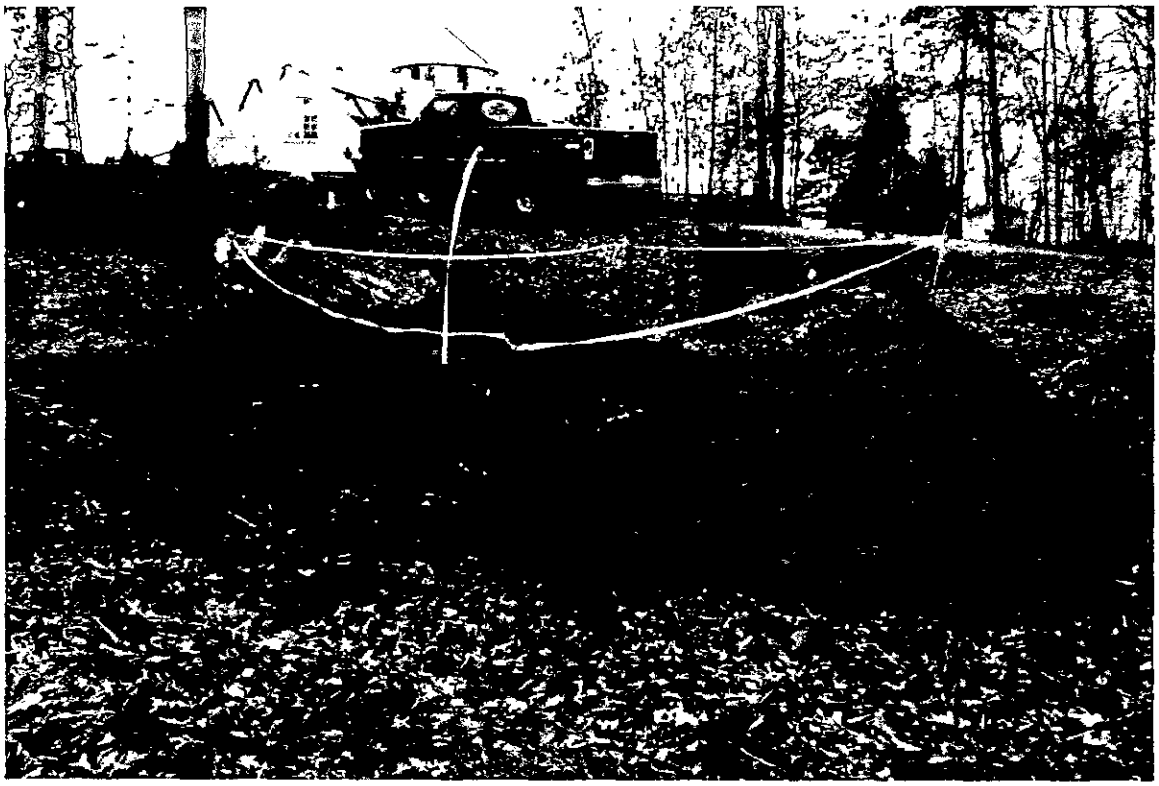
TEXTURE
s - sand
ls - loamy sand
sl - sandy loam
l - loam
si - silt
sil - silt loam
scl - sandy clay loam
cl - clay loam
scl - sandy clay loam
sc - sandy clay
sic - silty clay
c - clay

CONSISTENCE
Moist / Wet
WET
Ns - non-sticky
Ss - slightly sticky
S - sticky
Vs - very sticky

Np - non-plastic
Sp - slightly plastic
P - plastic
Vp - very plastic

MOIST
vfr - very friable
fr - friable
fi - firm
vfi - very firm
efi - extremely firm

STRUCTURE
sg - single grain
m - massive
cr - crumb
gr - granular
sab - subangular blocky
ab - angular blocky
pl - platy
pr - prismatic

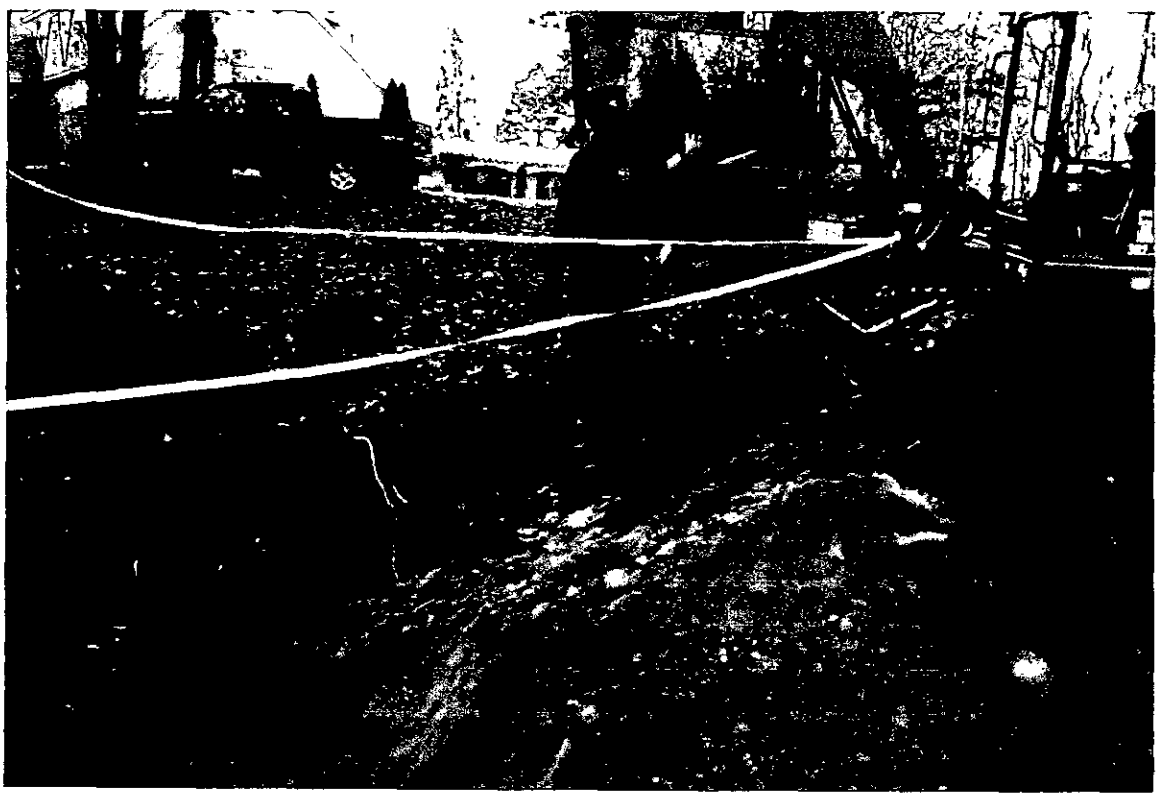








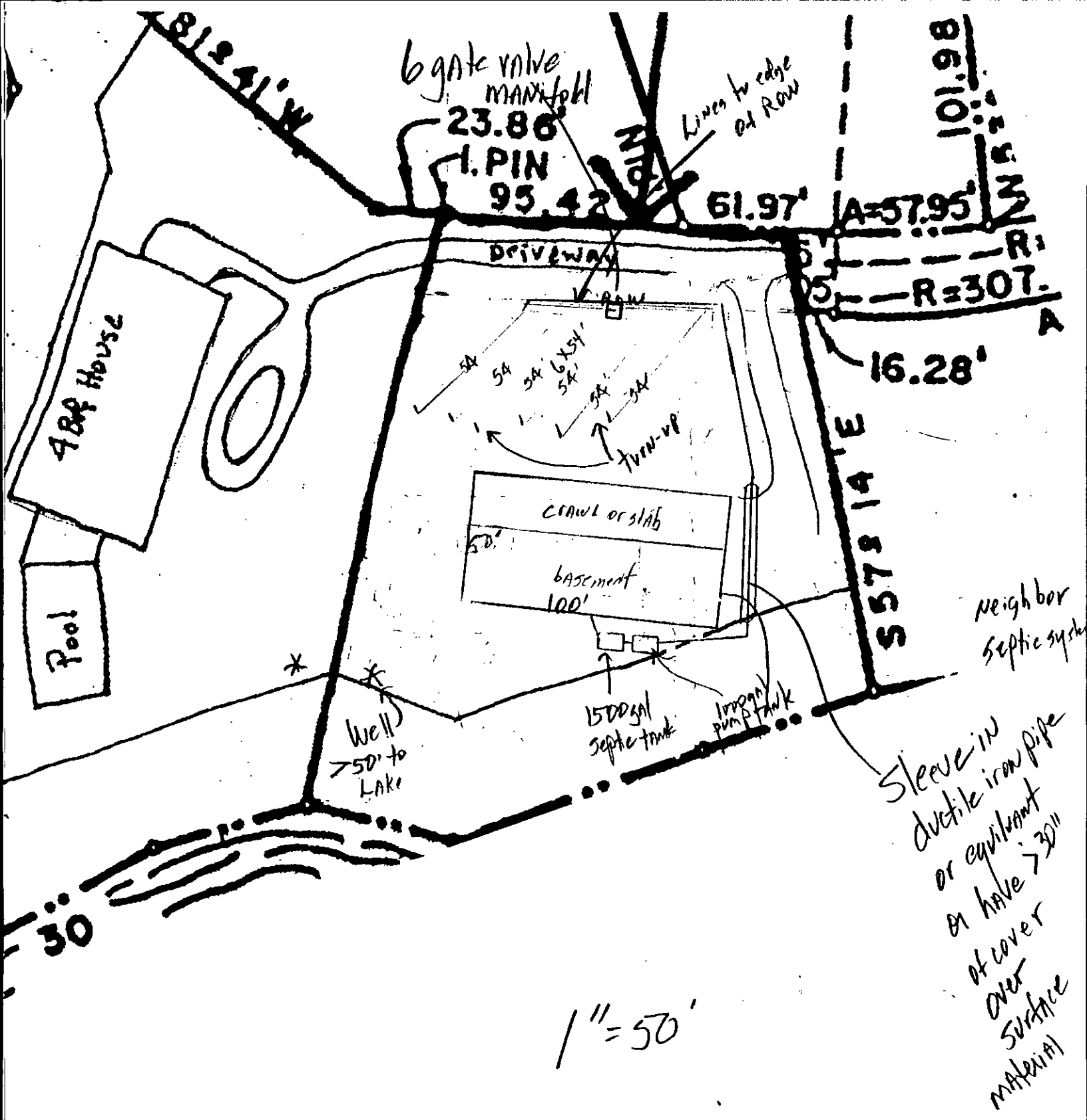











6 gate valve manifold
23.86'
I. PIN
95.42'
Lines to edge of ROW
61.97'
A=57.95'
R=307.
16.28'
Driveway
48' House
Pool
54'
54'
54' 6" x 54'
54'
54'
54'
Turn-up
crawl or slab
50'
basement
100'
S 57° 14' E
Neighbor
Septic syst
Well
>50' to Lake
1500 gal septic tank
Irrigation pump tank
Sleeve in ductile iron pipe or equivalent or have >30" of cover over surface material
30
1" = 50'



Goulds

Submersible Effluent Pump

MODEL

3885

APPLICATIONS

Specifically designed for the following uses:

- Homes
- Farms
- Trailer courts
- Motels
- Schools
- Hospitals
- Industry
- Effluent systems

SPECIFICATIONS

Pump

- Solids handling capabilities: ¾" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 128 GPM.
- Total heads: up to 123 feet TDH.
- Mechanical seal: silicon carbide-rotary seat/silicon carbide-stationary seat, 300 series stainless steel metal parts, BUNA-N elastomers.
- Temperature: 104°F (40°C) continuous 140°F (60°C) intermittent.
- Fasteners: 300 series stainless steel.
- Capable of running dry without damage to components.

Motor

Single phase:

- ⅓ HP, 115 V, 200 V, 230 V, 60 Hz, 1750 RPM; ½ HP, 115 V, 60 Hz, 3500 RPM; ½ HP – 1½ HP, 230 V, 60 Hz, 3500 RPM.
- Built-in overload with automatic reset.
- Class B insulation.

Three phase:

- ½ HP – 1½ HP 200/230/460 V, 60 Hz, 3500 RPM.
- Class B insulation.
- Overload protection must be provided in starter unit.
- Shaft: threaded, 400 series stainless steel.
- Bearings: ball bearings upper and lower.
- Power cord: 20 foot standard length (optional lengths available).

Single phase:

- ⅓ and ½ HP – 16/3 SJTO with 115 V or 230 V three prong plug.
- ¾-1½ HP – 14/3 STO with bare leads.

Three phase:

- ½-1½ HP – 14/4 STO with bare leads. On CSA listed models – 20 foot length SJTW and STW are standard.

FEATURES

■ **Impeller:** Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

■ **Casing:** Cast iron volute type for maximum efficiency. 2" NPT discharge adaptable for slide rail systems.

■ **Mechanical Seal: SILICON CARBIDE VS. SILICON CARBIDE** sealing faces. Stainless steel metal parts, BUNA-N elastomers.

■ **Shaft:** Corrosion-resistant stainless steel. Threaded design. Locknut on three phase models to guard against component damage on accidental reverse rotation.

■ **Motor:** Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.

■ **Designed for Continuous Operation:** Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage.

■ **Bearings:** Upper and lower heavy duty ball bearing construction.

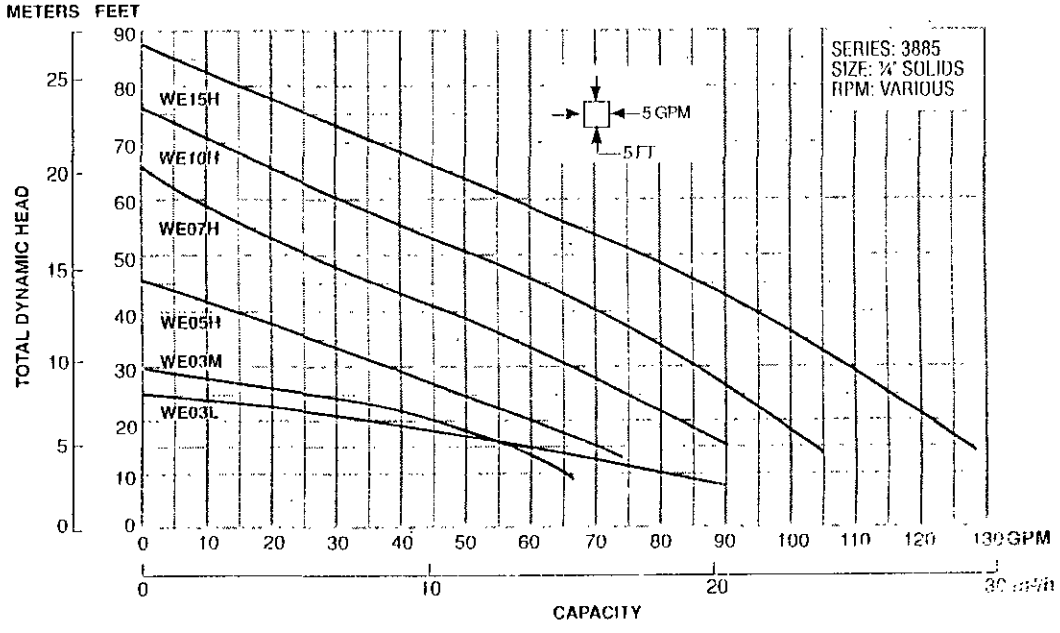
■ **Power Cable:** Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking.

■ **O-ring:** Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

CSA Canadian Standards Association

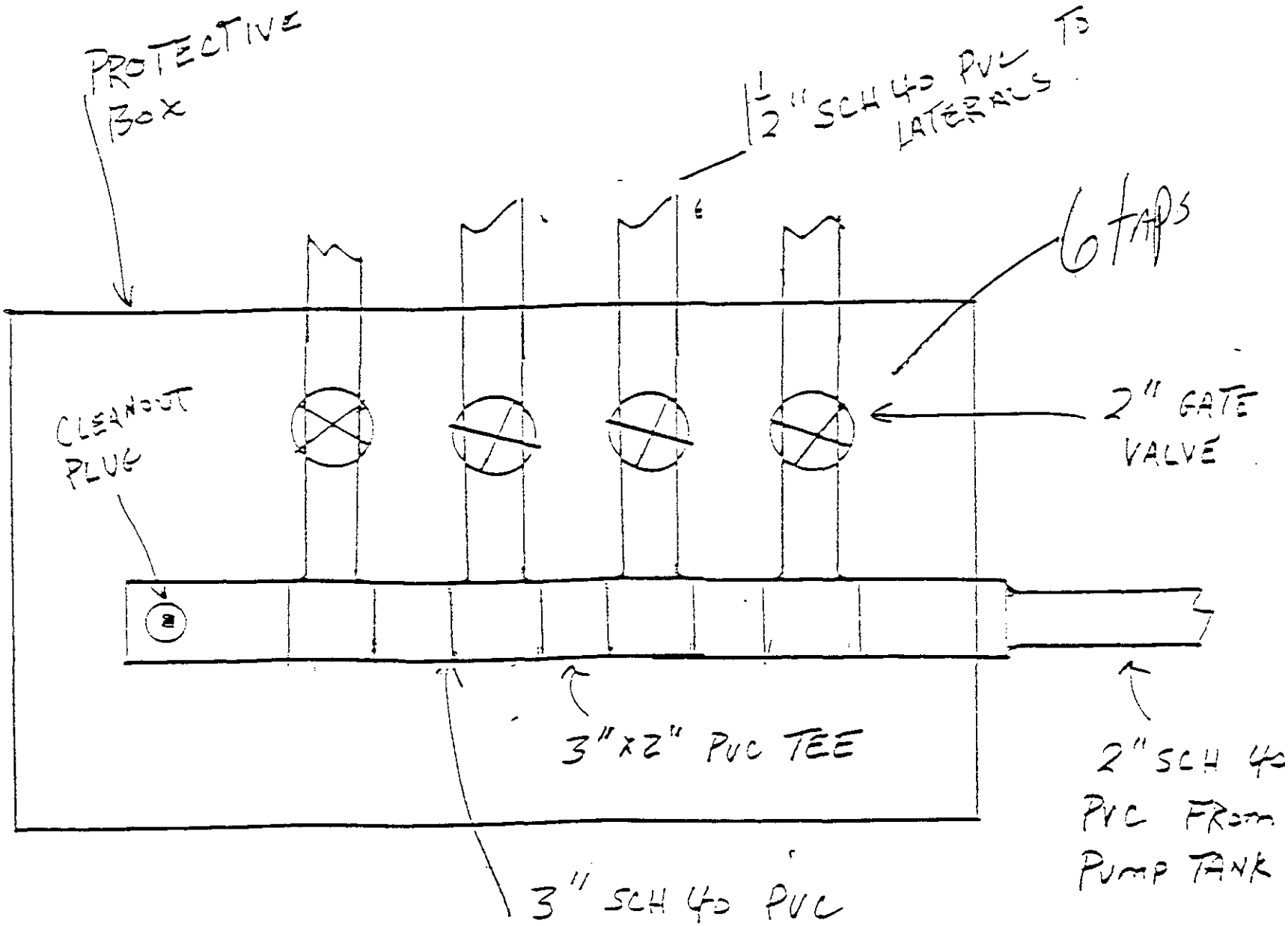
UL Underwriters Laboratories



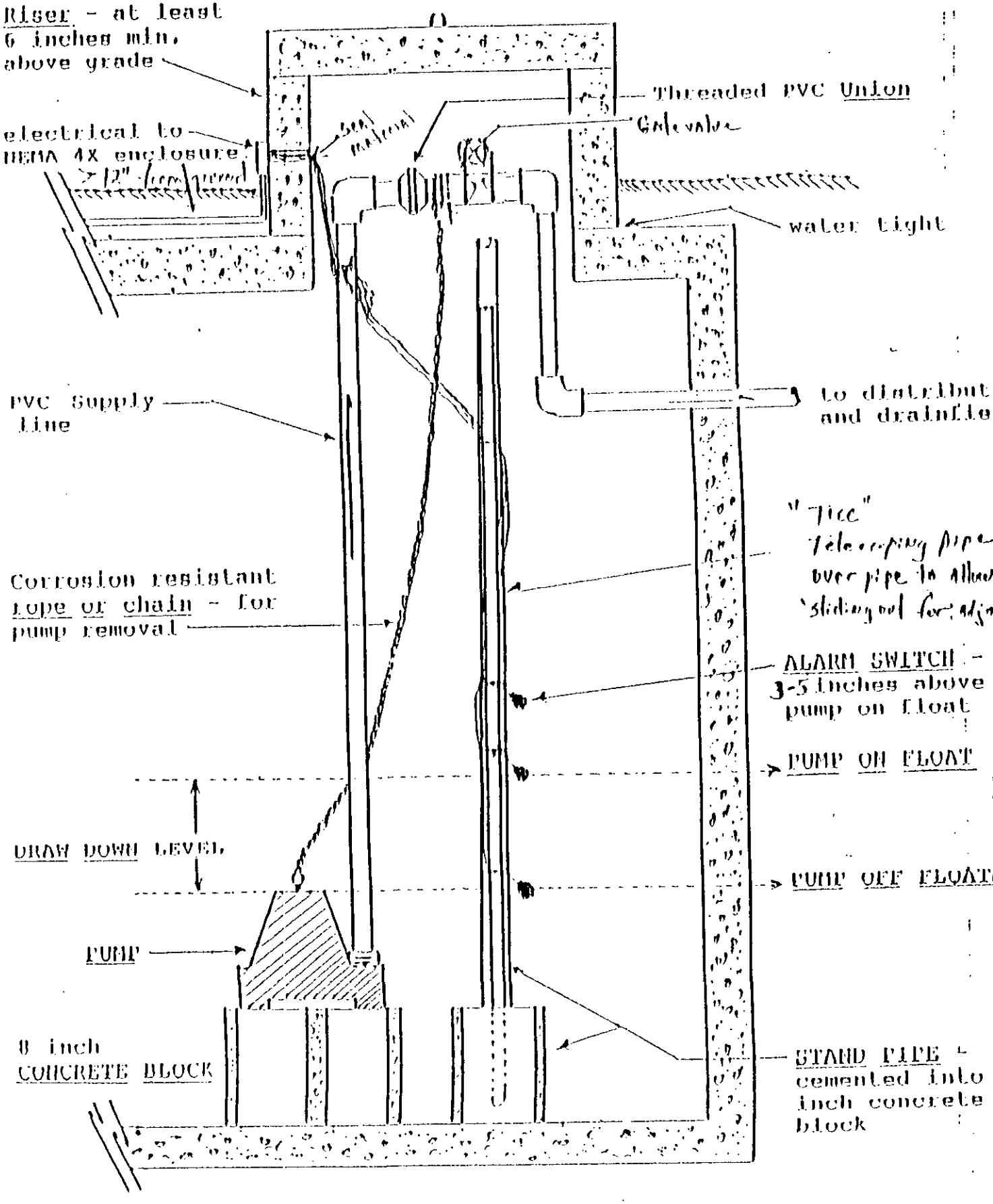
© 1995 Goulds Pumps

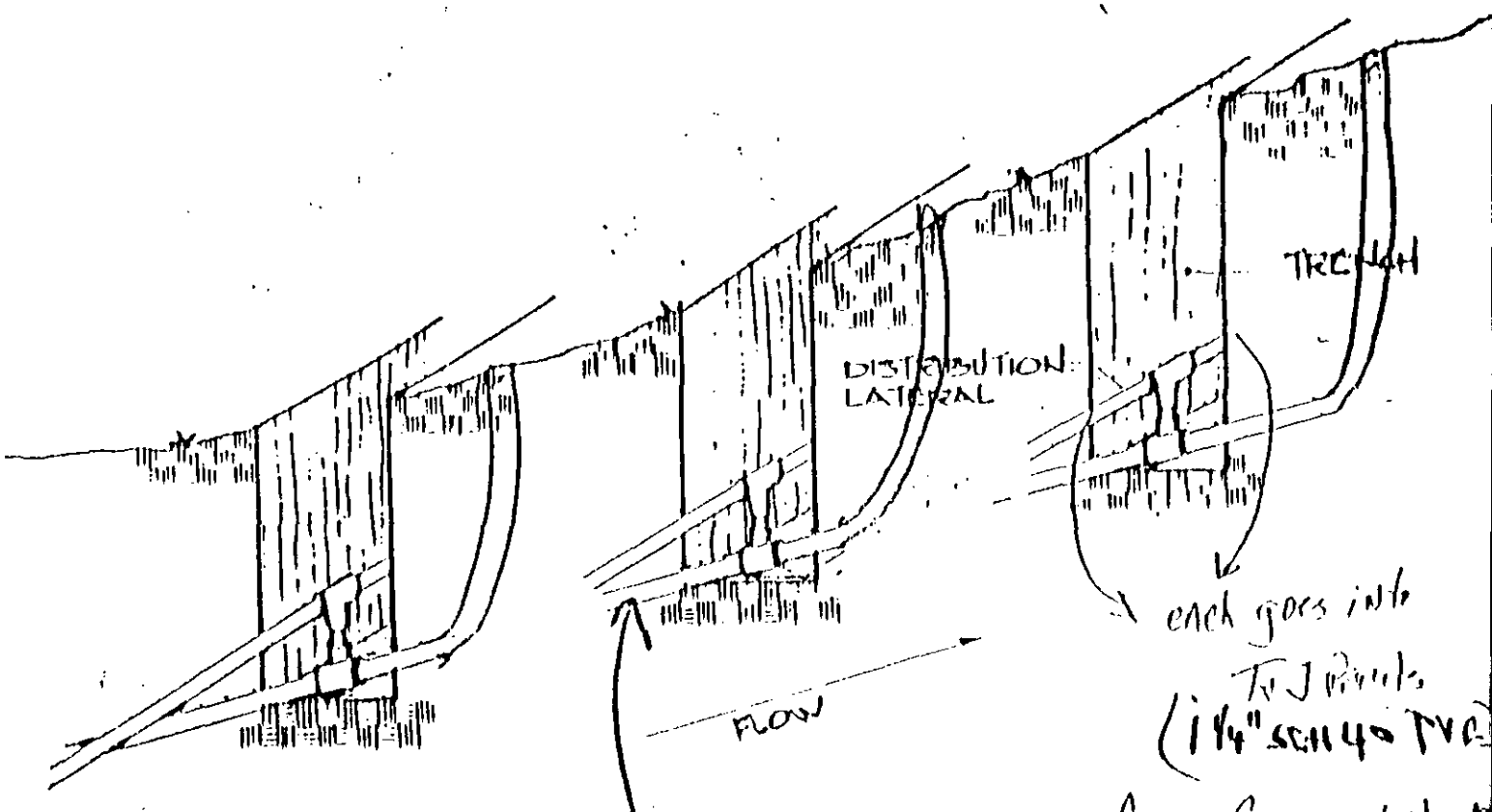
Effective May, 1995
P3885

CENTRAL VALVE BOX DETAIL



PUMP DIAGRAM





A. PUMPING UPHILL

2" sch 40
PVC

each goes into
T or J pipes
(1 1/4" sch 40 PVC

from Cooper et al, M

Design Installation
and
Maintenance
of the
T &J Panel
Wastewater Treatment System

For
Environmental
Health Specialist
And
Septic Tank Installation

Although this manual is sectioned for specific user groups, we at T & J Panel suggest that you familiarize yourself with the complete manual. Seventh Edition.

System Design

In the early days of the T & J Panel system when it was still Considered an experimental system the primary reason for permitting the Panel System was because of insufficient space for a conventional system. Now with inclusion in the Sewage Regulations [10NCAC 10A .1956 (3) (a) (ii)] , the Panel System should be considered when a quality effluent may be needed, space is limited, usable soil is limited, or there are indications that at some future time space may be needed for other development. When there is a trend for added development such as additions to homes, pools, or other special landscaping development the T & J Panel System may prevent insufficient space later. As the environmental health specialist who is designing a system, and you can foresee such a trend of continued development, the Panel System may be an option the home owner would like to utilize.

As noted in the regulations a PPBPS is only permitted where soils are suitable, provisionability suitable, or reclassified provisionability suitable, however only one half of the area needed for a conventional system is required. This is one reason that the Panel System can help you use the best soils available on the lot. The system can be gravity fed, pumped to pressure manifold and gravity fed into the lines, or pumped to Low Pressure Panel lines. Most of the concepts for a Panel System layout are the same as for a conventional system. The biggest difference being the areal area needed and the quality of effluent being introduced into the ground.

The T & J Panel system can be installed as either gravity, pump to gravity, pump to pressure manifold, or low pressure pipe distribution system. When designing a pressure system the principles of low pressure distribution are as described in the LPP manual. There is futher discussion on pressure systems in the installer section of this manual.

Conversion

A three bedroom house with a 0.4 gpd application rate. (The first three steps are the same as for the conventional system.)

1) 120 gallons per bedroom x 3 bedrooms = 360 gallons per day design flow rate.

2) 360 gallons flow rate / 0.4 application rate = 900 sq. ft. of conventional trench bottom.

3) 900 sq. ft. / 3 ft. wide trench = 300 lineal feet of conventional system.

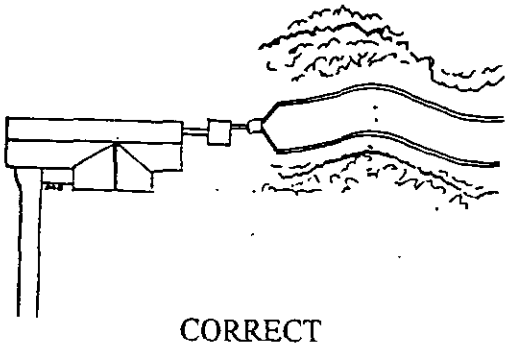
This conventional layout requires 2700 sq. ft. of area on the lot with another equal area of repair space for a total of 5400 sq. ft. of suitable usable area. To calculate the size of the T & J Panel system , the above calculations must be made with an additional fourth step as described in 10NCAC 10A .1956 (3) (a) (ii) (B) for a PPBPS, (the T & J panel system).

4) 300 lineal feet of conventional system x 0.5 for a 16 inch high Pane System = 150 lineal feet of T & J Panel System.

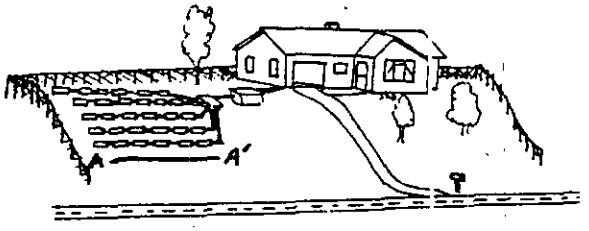
A Panel System requires only a 1200 sq. ft. area on the lot for the system with an equal area for repair, for a total of 2400 sq. ft. . With the panel system the installation and repair can go into the same area as the initial area required for a conventional gravel trench system.

Window Effect

To prevent hydraulic overload in the soil areal space should always be a consideration for any system, however, it is especially notable with the Panel System as with any system that reduces the size of the areal area drainfield. The following is a simplistic example of this concept.



CORRECT

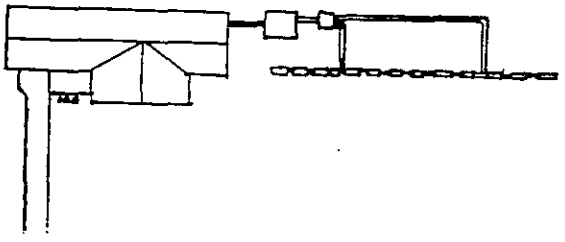


INCORRECT

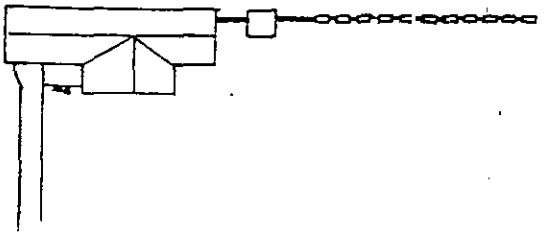
While both systems have the same lineal footage of trench the incorrect diagram is not a desirable design. The effluent must pass through the area A-A' which can cause a strain on that area and even a failure because of hydraulic overloading.

Distribution

Another extreme would be the use of a long single trench fed from only one end. In the first example, below the areal space is good and the chance of hydraulic over loading is greatly reduced. However, downline distribution in the panel line will not give optimum treatment.



CORRECT



INCORRECT

In the lower example we see that the trench has been fed from multiple points. Because the Panel lines are put in as level as possible, never exceeding 1/4 inch of drain line fall in 10 feet of run, they feed both ways equally. T & J recommends that no gravity line exceed 50 feet, unless it is fed from multiple points. In both of these examples, we are specifying the Panel System, but the logic applies to the conventional system as well.

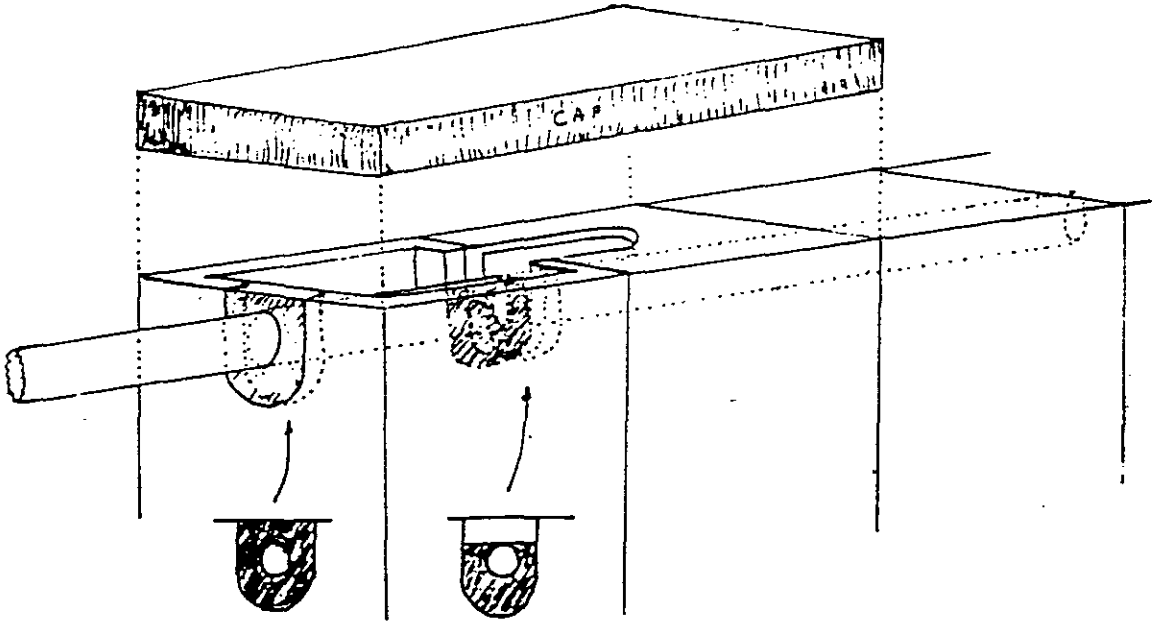
To calculate the number of 16 inch high panels needed for a 150 foot line, multiply 150' x 12" = 1800" then divide by 52" which is 46 inches for the panel and 6 inches for the space between the panels in the trench. 1800" /52" = 34.6 panels, so you would call for 34 panels. (A material order chart is included in the installer section of this manual.) If there is to be more than one trench, the sizing of the lines should be as equal as possible with as close to the same number of panels in each trench as is practical. Environmental Health Specialists should show the panel as small blocks on the line of the trench.

Backfill

Backfill sand shall be a clean, washed, medium sand that is naturally occurring and falls within the gradation of ASTM C-33 specification. This specification is one that is used in the ready mix industry and is readily available in all areas. The second type of sand that you will need is a clean particle sand to coat the bottom of each panel's top chamber with a bed of sand one inch thick. This sand is a medium grade of sand blasting sand. Each one hundred pound bag should cover eight panels. Backfill sand calculations should be taken from the material sheet.

Tar Seals

The two drawings below illustrate the inner and outer seal. Note that while the outer seal is a complete seal, the inner seal is only up to the top of the connecting pipe. This is to allow for over flow of the effluent at peak use periods into the lower air chambers. At this point the air chamber become additional storage chambers for the effluent. These seals can be inspected by lifting the caps at the ends of the panels while inspecting the system installation



INNER and OUTER SEALS

Trench Preparation

Trench grade should be established so that backfill cover will be four to six inches over the tops of the panels. (Note on several slopes system depth should be adjusted to protect against brakeout of effluent) In clay type soils the trench side walls should be raked to bring slicked over areas back as near to original structure as possible. A light dusting of lime on the side walls will help the system to continue the brake down of solids.

Final Inspection

The following list of points are things that an inspector should look for when issuing a completion permit.

1) Is depth of the panels within guidelines?

2) Are drain lines level or less than 1/4 inch fall in ten feet?

3) Have seals been properly constructed?

4) Was the proper sand used in the trench backfill?

5) If in clay type soils were the side walls raked and limed?

(For Pumped Systems)

6) Have pump size, head pressure, and dose cycle been properly sized and set?

7) Record field data on operations permit.

(Set dose cycle for 3.6 gallons per 16 inch high panel.)

Installer

The Panel Block System

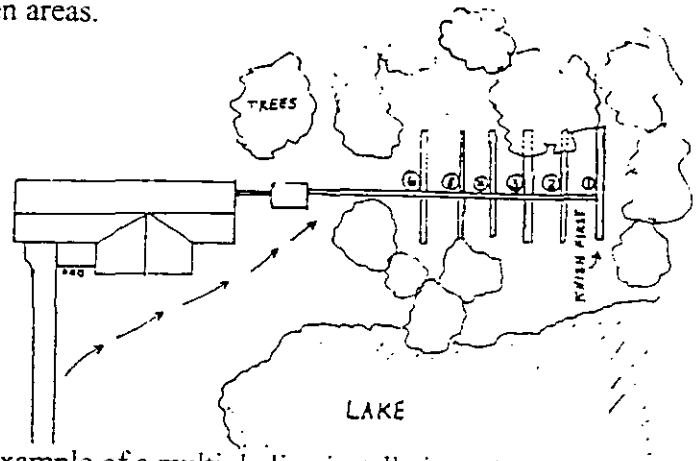
Generally, on level open land, a Panel System can be installed in about the same time as a conventional system; however traditionally, Panel Systems have been installed where space and topography have restricted use of a conventional system. For this reason Panel System installations have required more time. Many installers enjoy the change of working with panels, not handling gravel, and the satisfaction of knowing a system being installed where previously a conventional system was not possible.

Ordering Materials

Inclosed on following two pages you will find an order sheet for the T & J Panel System and a materials chart for 16 inch high Panel System. The distributor in your area will lead you through these sheets when ordering or pricing the system. For information on the distributor located closest to you call 704-924-8600/ fax 704-924-8681. After ordering, your panels will be shipped to the job site banded together on pallets.

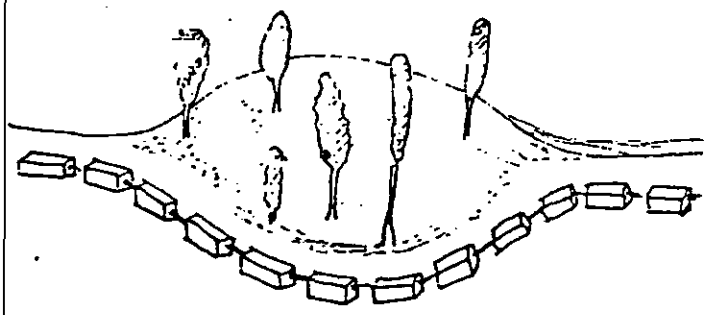
Installation Tips

Installation for multiple line systems should begin in the most confiding area and be worked to the more open areas.

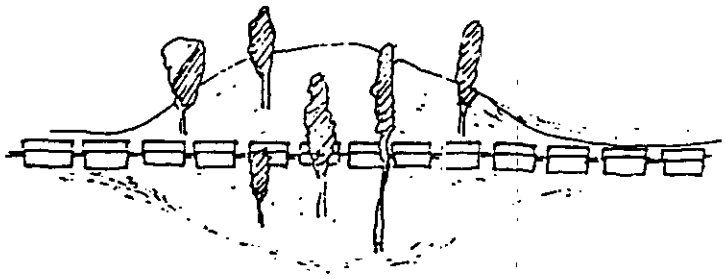


Above is an example of a multiple line installation. As you can see the installation should begin with the line marked 1 and proceed to 2, 3, then 4. This procedure will greatly ease material handling and backfilling. (Note sections of the drainlines should be left uncovered to allow for inspection of lines when area is confined and return access to lines is limited.)

On the following page are two examples of drain lines on sloping lots. The first drawing shows the drainline going through a slope making the center of the line deeper in the ground. This is not a desirable situation. The second drawing shows the drainline going around the slope keeping around the slope keeping the trench depth and cover uniform for the entire length o the line. On slopes, care should be given to avoid cutting away valuable top soil in an effort to make straight lines. The Panel line should be installed on grade with the contour of the natural slope. Panel lines can be curved to almost any degree.



CORRECT



INCORRECT

Digging The Trench

Start by shooting the grade and marking the contour. Then for a 16 inch panel add 28 inches to the shallowest or lowest grade that the trench must cross to obtain the trench bottom grade. Now dig the trench at the elevation derived, checking the grade frequently. The trench should be a minimum of two feet wide. With the trench open all side walls shall be raked to bring smeared areas back to their original structure before a light dusting of lime is applied. Now place a 6 inch layer of backfill sand in the trench and level to grade, then place a 1 x 4 or 6 inch board flat on its side on top of the 6 inch layer of sand. Once more check the grade of the trench by shooting the top of the board. Once the grade boards have been set, the panels may be set into the ditch by hand or using the backhoe. Each panel weighs about 155 pounds and placement by hand goes quickly. The panels should be place about 6 inches apart in the trench to obtain equal spacing. Now place 10 to 12 pounds of clean particle sand (medium sand blasting sand) in the top chamber of each panel to form a bed of sand about one inch thick. Tar seal rope should be placed in the U outs to form seals as shown in earlier drawings. Once the tar rope is in place, a 24 inch section of two inch PR160 pipe is cut to span from the upper middle top chamber of the first panel to the upper middle chamber of the next panel. The tar seal rope that is used should be of tar or butyl that is soft and pliable to obtain a water tight seal. Now that the connection and sealing is complete a block cap is placed on each end of the panel covering all openings. (These will be delivered with the panels.) The cap block may well serve as an inspection port at some future date. The trench is ready to be backfilled to the top so the panel with the same backfill sand used in the trench bottom. With the sand to the top of the panel, trenches should be left for the sanitarian to inspect. Soil cover should be added after the final inspection.

Most Panel Systems are currently used due to space considerations and caution should be taken to preserve suitable soil structure and site conditions.

Materials Chart For 16 Inch Panels

Materials needed per panel:

- Three feet of half inch tar seal rope per panel

- Two feet of two inch PR160 pipe per panel or same linear feet as line layout of pressure system of one and a quarter inch pipe. Add pipe for tie in of lines to tank and house.

- One hundred pounds of particle sand (sand blasting sand fine texture) per eight panels.

- Same linear feet of one by six boards as line length.

- Bag powder lime when in clay soils.

Panel and C-33 Sand fill

50 LF - 11 panels
8 1/4 tons sand

60 LF - 14 panels
10 tons sand

70 LF - 16 panels
11 1/2 tons sand

80 LF - 18 panels
13 1/4 tons sand

90 LF - 21 panels
15 tons sand

100 LF - 23 panels
16 1/2 tons sand

110 LF - 25 panels
18 1/4 tons sand

120 LF - 27 panels
20 tons sand

130 LF - 30 panels
21 1/2 tons sand

140 LF - 32 panels
23 tons sand

150 LF - 34 panels
25 tons sand

160 LF - 37 panels
26 1/2 tons sand

170 LF - 39 panels
28 tons sand

180 LF - 41 panels
30 tons sand

190 LF - 43 panels
31 1/2 tons sand

200 LF - 46 panels
33 tons sand

T & J Panel Material Worksheet

Homeowner _____ County _____

Address _____

_____

Description of System _____

_____

_____

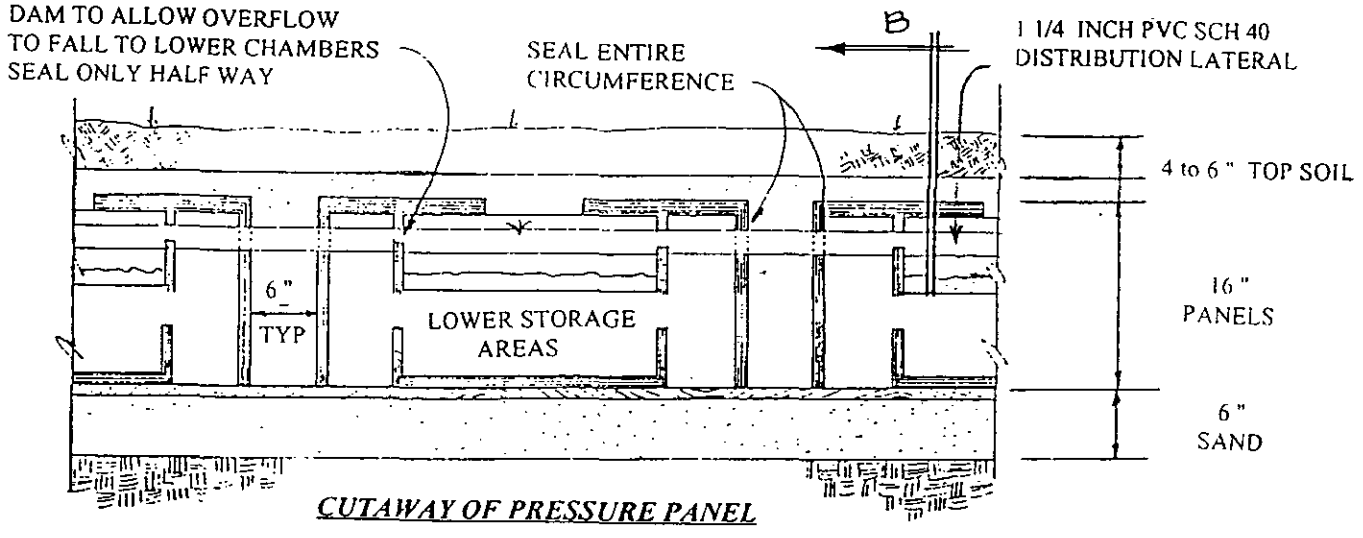
_____	T & J Panels _____ Inch (caps N/C)	_____
_____	2" Pipe	_____
_____	1 1/4" Pipe	_____
_____	Fittings for Pipe	_____
_____	Tar Seal Rope (3' per Panel)	_____
_____	Bag Partial Sand (100 lbs per 8 panels)	_____
_____	Pallets No Return	_____
_____	Screened Creek Sand (FM 2.3 to 3.0)	_____
_____	1x4 or 1x6 Boards	_____
_____	Power Lime	_____
_____	Sep. Tank _____ Gallon	_____
_____	Tar Seal for Tank	_____
_____	4" PVC Pipe Schedule 40	_____
_____	Distribution Box	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
	Sub-total	_____
	Delivery Charge	_____
	tax	_____
	Total	_____

Panels With Pressure Distribution

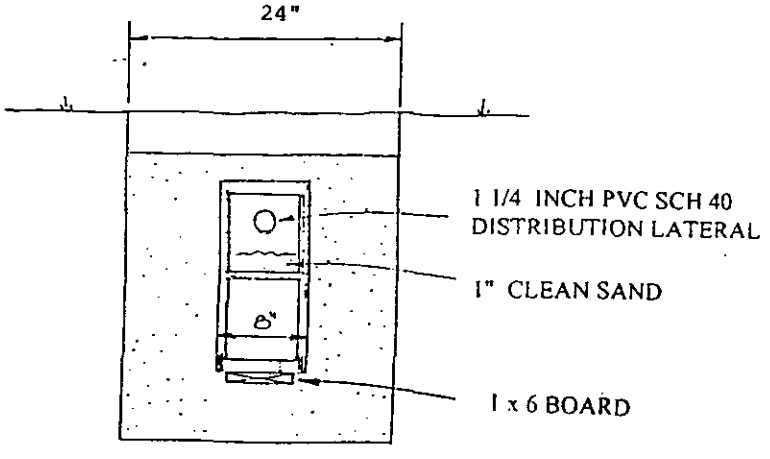
The LP Panel uses Technology similar to that of Low Pressure Pipe (LPP) System. The tables and distribution design described in the LPP manual is applicable to the pressure Panel System. The system should be used with two to four feet of head. In many respects a LP Panel is similar to a LPP with the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



Pressure Panels Continued

Below you will find a pressure head table to help in flow design of your LP Panel. These numbers are a guide to help in selecting the right flow in your system. We have found that in most systems the 5/32" and 3/16" hole at 2 to 4 feet of head work the best in giving a pump cycle of more than five minutes and keep the same maximum top chamber flow load as sited on the prior page.

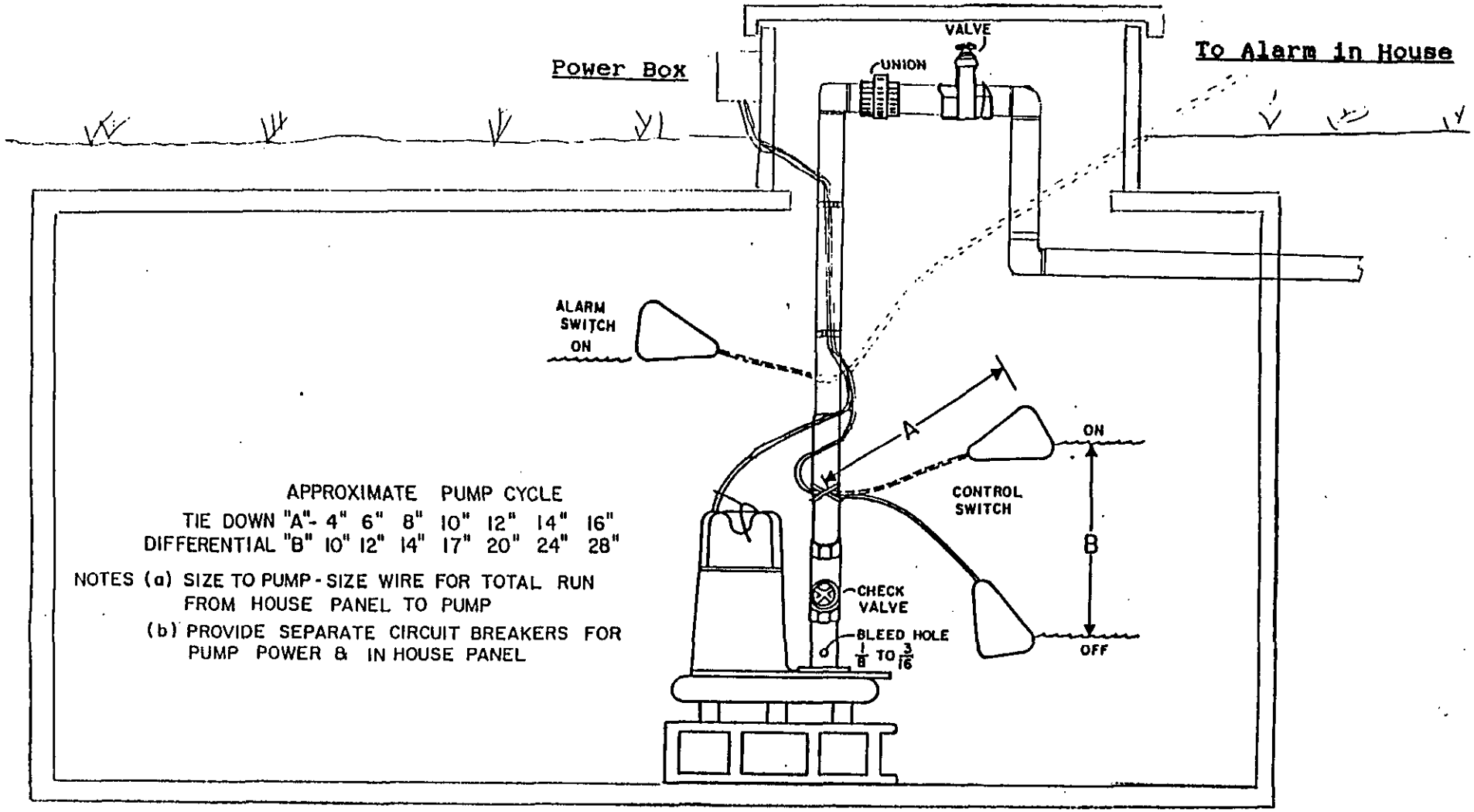
Flow Chart of Various Orifices and Pressure Heads

Orifice Size	3/32" 0.094	1/8" 0.125	5/32" 0.156	3/16" 0.188	7/32" 0.219	1/4" 0.250	9/32" 0.281	5/16" 0.313	11/32" 0.344	3/8" 0.375
Press. Head										
2.0	0.15	0.26	0.41	0.59	0.80	1.04	1.32	1.63	1.97	2.34
2.1	0.15	0.27	0.42	0.60	0.82	1.07	1.35	1.67	2.02	2.40
2.2	0.15	0.27	0.43	0.61	0.84	1.09	1.38	1.71	2.07	2.46
2.3	0.16	0.28	0.44	0.63	0.86	1.12	1.41	1.75	2.11	2.51
2.4	0.16	0.29	0.45	0.64	0.87	1.14	1.44	1.78	2.16	2.57
2.5	0.16	0.29	0.46	0.66	0.89	1.17	1.47	1.82	2.20	2.62
2.6	0.17	0.30	0.46	0.67	0.91	1.19	1.50	1.86	2.25	2.67
2.7	0.17	0.30	0.47	0.68	0.93	1.21	1.53	1.89	2.29	2.72
2.8	0.17	0.31	0.48	0.69	0.94	1.23	1.56	1.93	2.33	2.77
2.9	0.18	0.31	0.49	0.71	0.96	1.25	1.59	1.96	2.37	2.82
3.0	0.18	0.32	0.50	0.72	0.98	1.28	1.62	1.99	2.41	2.87
3.1	0.18	0.32	0.51	0.73	0.99	1.30	1.64	2.03	2.45	2.92
3.2	0.19	0.33	0.51	0.74	1.01	1.32	1.67	2.06	2.49	2.97
3.3	0.19	0.33	0.52	0.75	1.02	1.34	1.69	2.09	2.53	3.01
3.4	0.19	0.34	0.53	0.76	1.04	1.36	1.72	2.12	2.57	3.06
3.5	0.19	0.34	0.54	0.78	1.06	1.38	1.74	2.15	2.61	3.10
3.6	0.20	0.35	0.55	0.79	1.07	1.40	1.77	2.18	2.64	3.15
3.7	0.20	0.35	0.55	0.80	1.09	1.42	1.79	2.21	2.68	3.19
3.8	0.20	0.36	0.56	0.81	1.10	1.44	1.82	2.24	2.72	3.23
3.9	0.20	0.36	0.57	0.82	1.11	1.46	1.84	2.27	2.75	3.27
4.0	0.21	0.37	0.58	0.83	1.13	1.47	1.87	2.30	2.79	3.32
4.1	0.21	0.37	0.58	0.84	1.14	1.49	1.89	2.33	2.82	3.36
4.2	0.21	0.38	0.59	0.85	1.16	1.51	1.91	2.36	2.86	3.40
4.3	0.21	0.38	0.60	0.86	1.17	1.53	1.93	2.39	2.89	3.44
4.4	0.22	0.39	0.60	0.87	1.18	1.55	1.96	2.42	2.92	3.48
4.5	0.22	0.39	0.61	0.88	1.20	1.56	1.98	2.44	2.96	3.52
4.6	0.22	0.40	0.62	0.89	1.21	1.58	2.00	2.47	2.99	3.56
4.7	0.22	0.40	0.62	0.90	1.22	1.60	2.02	2.50	3.02	3.59
4.8	0.23	0.40	0.63	0.91	1.24	1.61	2.04	2.52	3.05	3.63
4.9	0.23	0.41	0.64	0.92	1.25	1.63	2.06	2.55	3.08	3.67
5.0	0.23	0.41	0.64	0.93	1.26	1.65	2.09	2.57	3.12	3.71

Pump Sizing

Below is a chart to aid in head selection due to friction loss in PVC pipe. In calculating friction be sure to add 20% for loss in fittings. In the chart below friction loss is per 100 feet of pipe. The head created by friction loss is added to the elevation head of lift form bottem of the pump tank to the top of the highest turnup.

Flow	Pipe diameter (in.)					
	1	1¼	1½	2	3	4
gpm	*Friction loss (ft)*					
1	0.07					
2	0.28	0.07				
3	0.60	0.16	0.07			
4	1.01	0.25	0.12			
5	1.52	0.39	0.18			
6	2.14	0.55	0.25	0.07		
7	2.89	0.76	0.36	0.10		
8	3.63	0.97	0.46	0.14		
9	4.57	1.21	0.58	0.17		
10	5.50	1.46	0.70	0.21		
11		1.77	0.84	0.25		
12		2.09	1.01	0.30		
13		2.42	1.17	0.35		
14		2.74	1.33	0.39		
15		3.06	1.45	0.44	0.07	
16		3.49	1.65	0.50	0.08	
17		3.93	1.86	0.56	0.09	
18		4.37	2.07	0.62	0.10	
19		4.81	2.28	0.68	0.11	
20		5.23	2.46	0.74	0.12	
25			3.75	1.10	0.16	
30			5.22	1.54	0.23	
35				2.05	0.30	0.07
40				2.62	0.39	0.09
45				3.27	0.48	0.12
50				3.98	0.58	0.16
60					0.81	0.21
70					1.08	0.28
80					1.38	0.37
90					1.73	0.46
100					2.09	0.55



APPROXIMATE PUMP CYCLE

TIE DOWN "A"- 4" 6" 8" 10" 12" 14" 16"
DIFFERENTIAL "B" 10" 12" 14" 17" 20" 24" 28"

NOTES (a) SIZE TO PUMP - SIZE WIRE FOR TOTAL RUN FROM HOUSE PANEL TO PUMP

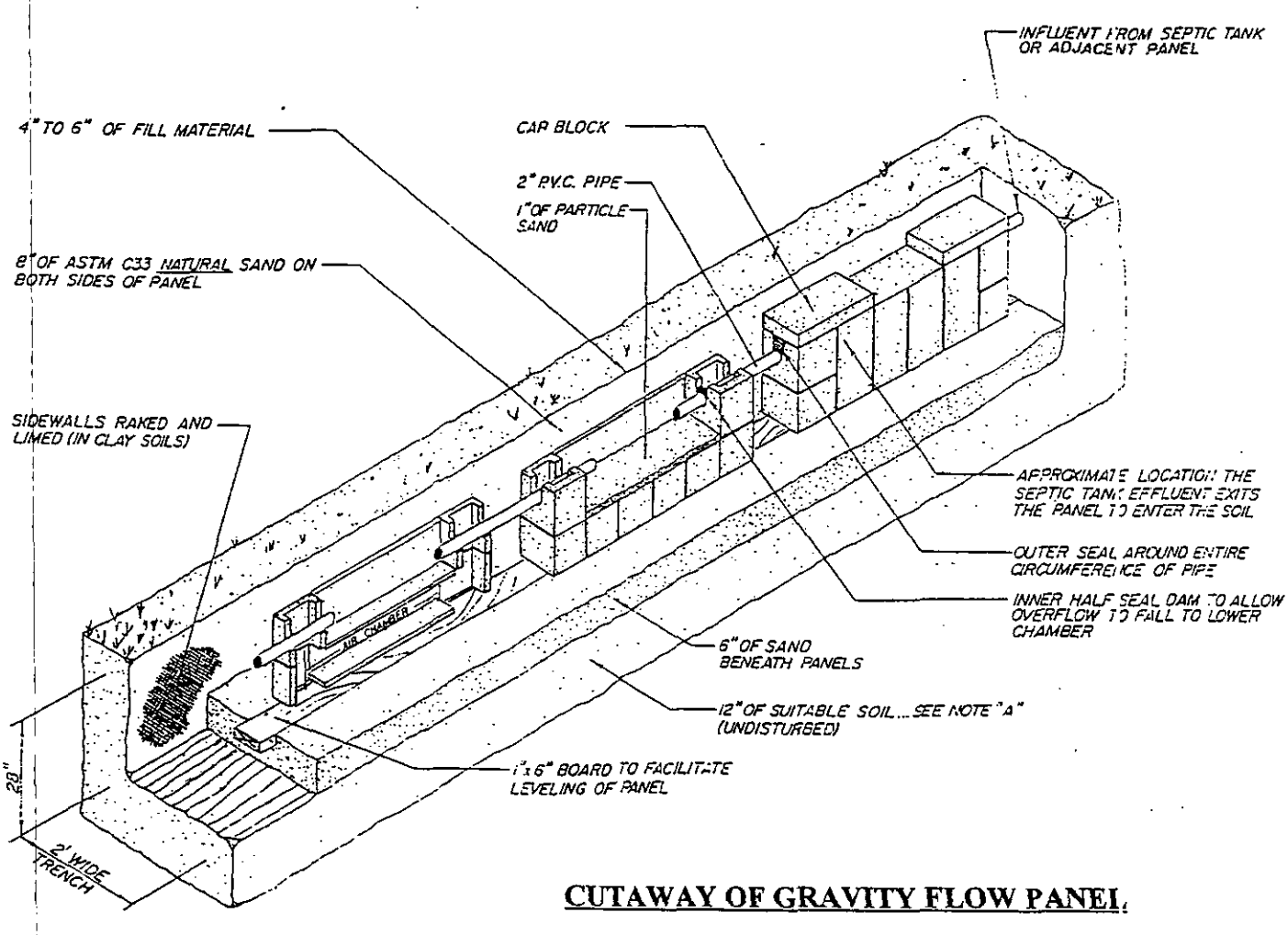
(b) PROVIDE SEPARATE CIRCUIT BREAKERS FOR PUMP POWER & IN HOUSE PANEL

The T & J Panel
Wastewater Treatment System

Patent # 4013559

269 Marble Road
Statesville, N.C. 28625
704-924-8600

ISOMETRIC DRAWING OF A SEGMENT OF 16" T & J PANEL SYSTEM DRAINFIELD



CUTAWAY OF GRAVITY FLOW PANEL

FEE: 200.00 + 10

DATE: 10/22/04

CHECK 2519 JKA

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

[ ] CRT

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

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

FILE #: 5r446

PROPERTY INFORMATION (FROM ENGINEERING FORM) FOR JOB LOCATION:

TAX/PARCEL NUMBER: 21717221

STREET ADDRESS: Hideaway Rd.

SUBDIVISION OR MOBILE HOME PARK NAME:

LOT NUMBER: Lot #36

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: ≈ 4,500

NUMBER OF BEDROOMS: 4 NUMBER OF OCCUPANTS: 4

CLOSING DATE_____

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

~~PROPERTY OWNER~~: Buyer

NAME: Hodges, William A.
(LAST) (FIRST) (MI)

ADDRESS: 17224 Due West Dr.

CITY: Charlotte STATE: NC ZIP: 28278

DAYTIME PHONE: (704) 388 – 5235

~~LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:~~

NAME: Crescent Resources LLC
(LAST) (FIRST) (MI)

DAYTIME PHONE: 704 373 – 5448

Box 1003

Charlotte NC 28201

WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? March 1, 1976

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: William A. Hodges DATE: 10/21/04

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

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

Sheet: 1 of 2
Property ID: 217-172-21, ACS
Lot #: 36
File #: 5744B
Code: 2

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

Owner: Crescent Resources
Applicant: Wm. A. Hodges
Address: Box 1003, Charlotte, N. C. 28201
Date Evaluated: 11/8/2004
Proposed Facility: Residence
Design Flow (.1949): 480gpd
Property Size: .74a
Location of Site: Hideaway 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	0-6	GR/SCL	FR/SEXP/SS/SP	>49" TO SOIL WETNESS	49+	N/A	NONE	PS, IV .25GPD/FT^2
		6-36	SBK/C	FI/SEXP/S/P					
		36-49	SBK/SCL	FR/SEXP/SS/SP					
2	"	0-4	GR/SCL	FR/SEXP/SS/SP	>48" TO SOIL WETNESS	48	"	"	PS, IV .275GPD/FT
		4-48	SBK/C	FI/SEXP/S/P					
3	"	0-3	GR/SCL	FR/SEXP/SS/SP	"	"	"	"	PS, IV .3GPD/FT^2
		3-40	SBK/C	FI/SEXP/S/P					
		40-48	SBK/.SCL	FR/SEXP/SS/SP					

Description	Initial System	Repair System
Available Space (.1945)	US	US
System Type(s)		
Site LTAR	.275GPD/FT^2	.275GPD/FT^2

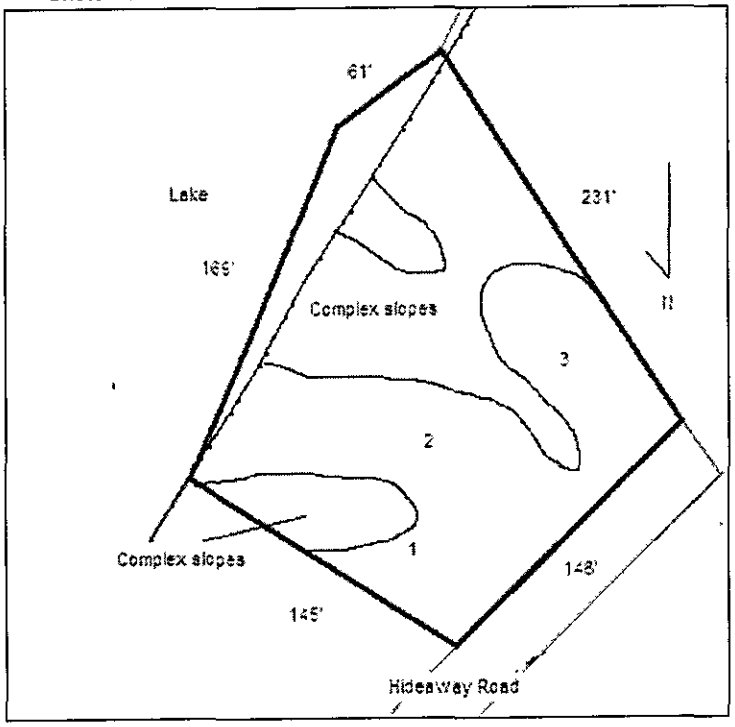
Other Factors (.1946):
Site Classification (.1948): UNSUITABLE
Evaluated By: W. R. Marlin, LSS, W. R. Marlin
Others Present: W. Hodges

COMMENTS:
Does not require 100% repair

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

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

Sketch of Soil Evaluation Locations



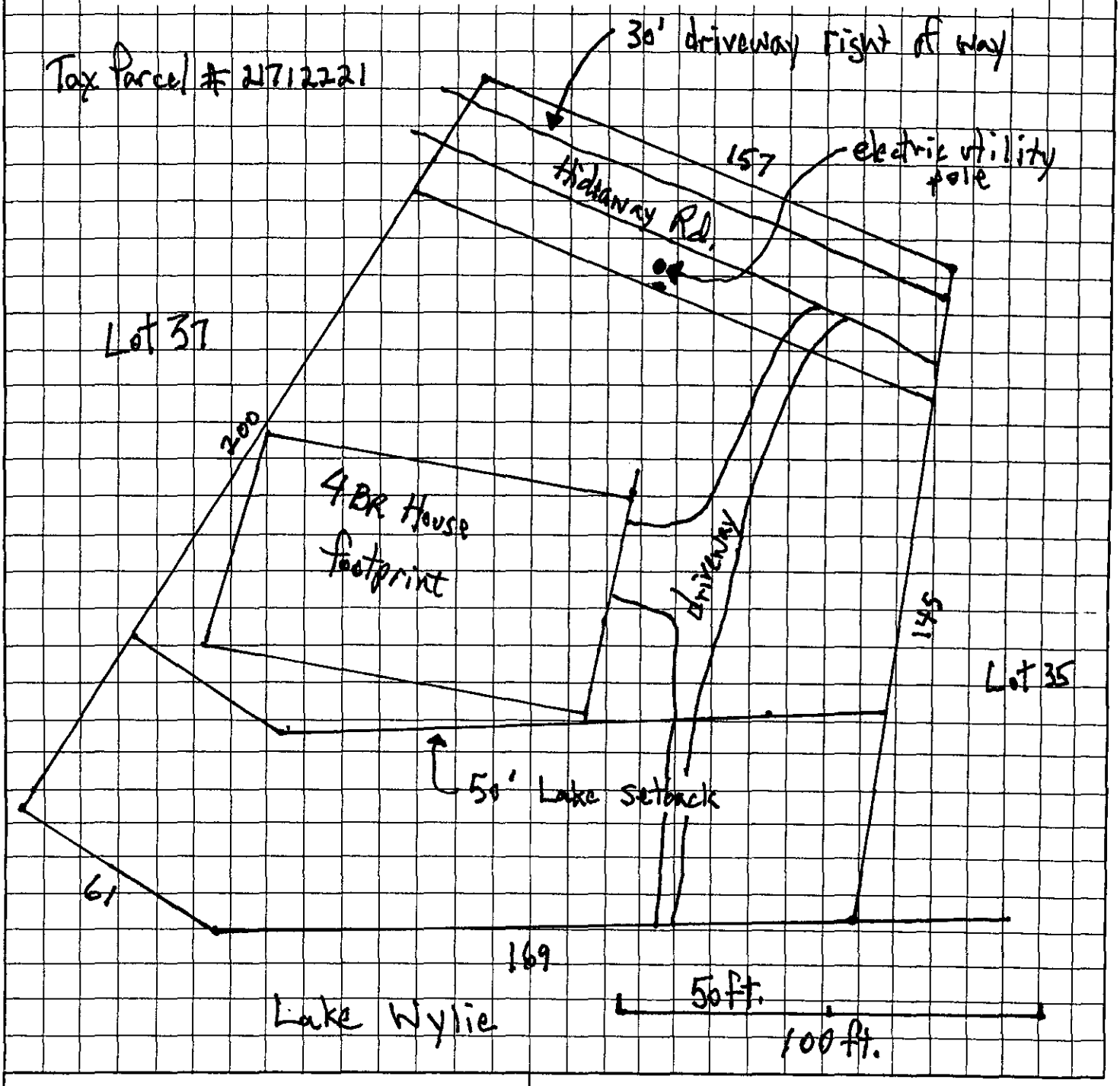
PROPOSED PLOT PLAN

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

FILE: 59446

TC: 217-172-21

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



APPROVAL DATE _____

OWNER/AGENT SIGNATURE

DATE

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

BEARINGS AND DISTANCES FOR LOTS ON CONTOUR ELEV. 570

LOT 31

2.	S21°42'E	-71.81'
3.	S13°36'E	-60.21'
4.	S 5°29'W	-84.95'

LOT 32

5.	S 5°38'E	-47.10'
6.	S68°01'E	- 9.85'
7.	S 4°41'W	-70.84'
8.	S15°17'W	-69.03'
9.	S24°04'W	-48.30'

LOT 33

10.	S17°19'W	-51.16'
11.	S 4°09'E	-50.96'
12.	S24°43'W	-61.18'
13.	S38°06'W	-49.66'

LOT 34

14.	S 4°02'E	-54.00'
15.	S24°19'E	-49.04'
16.	S 4°48'W	-45.61'
17.	S 8°51'W	-102.47'
18.	S11°49'W	-66.03'
19.	S36°17'W	-13.87'

LOT 35

20.	S 1°20'W	-70.06'
21.	S 8°11'W	-39.12'
22.	S17°09'W	-67.76'
23.	S 6°13'W	-21.93'
24.	S26°48'W	-53.13'
25.	S33°57'W	-65.26'

LOT 36

26.	S24°19'W	-66.69'
27.	S23°19'W	-101.98'
28.	S53°44'W	-61.13'

LOT 37

29.	S26°39'W	-60.03'
30.	S15°21'W	-100.66'
31.	S80°10'W	-38.53'
32.	N25°11'W	-30.46'
33.	N61°02'W	-91.22'
34.	N29°28'W	-42.52'
35.	N25°15'W	-165.98'
36.	N66°28'W	-24.41'
37.	N11°52'W	-41.72'

LOT 38

38.	N 7°40'W	-42.58'
39.	N25°58'W	-45.54'
40.	N 0°16'W	-34.48'
41.	N40°56'W	-24.77'
42.	N17°27'W	-44.64'
43.	N 9°23'E	-61.59'

LOT 38-A

44.	N14°14'E	-56.73'
45.	N61°32'E	-52.35'
46.	N77°58'E	-56.58'
47.	N88°32'E	-31.95'
48.	S72°58'E	-70.03'
49.	S54°37'E	-97.29'

LOT 39

50.	N46°38'E	-91.41'
51.	N20°10'E	-50.76'
52.	N32°28'W	-134.31'

LOT 40

53.	N30°37'W	-42.00'
54.	N77°35'W	-20.52'
55.	N29°19'W	-44.01'
56.	N 7°33'E	-22.66'
57.	N16°19'E	-247.26'

LOT 41

58.	N64°06'W	-51.87'
59.	S35°07'W	-28.64'
60.	S54°11'W	-30.15'
61.	S40°45'W	-70.15'
62.	S43°13'W	-90.87'
63.	S49°24'W	-53.63'
64.	S67°45'W	-66.10'
65.	N66°32'W	-42.45'
66.	N59°56'W	-79.00'
67.	N44°28'W	-48.76'
68.	N34°55'W	-41.59'
69.	N 6°02'W	-100.45'
70.	N19°32'E	-88.20'
71.	N13°37'E	-54.25'
72.	N26°24'E	-38.33'
73.	N36°35'E	-51.25'
74.	N59°17'E	-120.04'
75.	N78°43'E	-22.47'
76.	N42°40'E	-49.61'
77.	N36°04'E	-39.23'
78.	N 4°09'W	-36.50'
79.	N64°17'W	-61.55'
80.	S59°58'W	-36.43'
81.	S63°00'W	-101.44'

LOT 43

82.	S84°02'W	-65.90'
83.	S60°43'W	-185.73'
84.	N40°35'W	-114.05'
85.	N 1°07'W	-30.53'
86.	N32°44'W	-24.96'

LOT 44

87.	N39°35'W	-50.00'
88.	N19°56'W	-29.73'
89.	N58°36'W	-30.68'
90.	N62°25'W	-41.23'
91.	N23°51'W	-59.04'

LOT 45

92.	N54°07'W	-93.66'
93.	N15°45'W	-68.68'
94.	N13°56'E	-49.29'
95.	N48°24'E	-34.44'
96.	S89°58'E	-111.40'
97.	N86°45'E	-46.10'
98.	N55°15'E	-27.95'

LOT 46

99.	N32°15'E	-41.23'
100.	N 5°59'E	-50.09'
101.	N34°46'E	-31.93'
102.	N28°59'E	-58.64'
103.	N46°03'E	-46.59'
104.	S69°39'E	-16.27'
105.	S51°43'E	-75.51'
106.	S84°52'E	-40.56'

LOT 47

107.	N 7°53'W	-45.31'
108.	N16°16'E	-54.04'
109.	N35°03'E	-46.09'
110.	N65°58'E	-24.35'
111.	N87°30'E	-75.06'
112.	S74°11'E	-27.52'
113.	S28°24'E	-127.98'

LOT 48

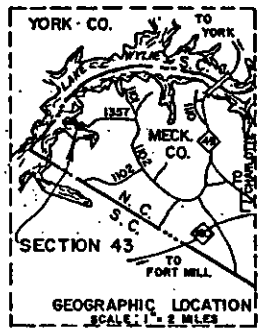
114.	N 7°27'E	-64.56'
115.	N17°12'E	-71.45'
116.	N51°19'E	-42.08'
117.	S86°23'E	-42.19'
118.	S74°50'E	-37.64'
119.	S71°50'E	-58.52'
120.	N37°15'E	-25.76'

LOT 49

121.	N53°56'E	-81.47'
122.	N65°10'E	-27.42'
123.	N62°26'E	-89.56'

LOT 50

124.	N78°08'E	-46.24'
125.	S58°43'E	-46.24'
126.	S42°43'E	-32.80'
127.	S88°25'E	-49.50'
128.	N83°07'E	-45.53'



NOTE: DUKE POWER COMPANY TO CRESCENT LAND & TIMBER CORP. DEED BOOK 3148, PAGE 169. DATED MAY 1, 1969.

BUILDING SETBACK LINES ARE 30 FEET FROM ROAD RIGHT OF WAY LIMIT, 50 FEET FROM CONTOUR ELEV. 570 U.S.G.S. SEA LEVEL DATUM, AND 10 FEET FROM SIDE LOT LINE.

ALL STREET CORNER RADII ARE 20 FEET. PROPERTY LINE DISTANCES ARE COMPUTED TO POINT OF INTERSECTION AT STREET CORNERS.

LOT 45 0.92 ACRE HARRY E. GODFREY 9-30-76

LOT 44 0.83 ACRE WILLIAM H. JAMISON 8-10-76

LOT 46 1.19 ACRES

LOT 47 1.29 ACRES ROBERT M. ALEXANDER 4-28-76

LOT 43 1.75 ACRES JESSE G. HELMS 8-24-76

LOT 48 1.31 ACRES FLOYD H. SPENCER 4-22-76

LOT 49 0.80 ACRE CHARLES M. WILLIAMS 9-2-76

LOT 50 0.74 ACRE C. RAY PARKER 12-6-80

LOT 41 3.82 ACRES DAVID C. REITZ ROGER B. PARKER 12-31-76

LOT 40 1.38 ACRES MARY McMILLIAN SELDER 9-28-76

LOT 38 0.92 ACRE J. D. ELLIOT 10-12-76

LOT 38-A 1.06 ACRES FRANCES C. JONES 2-8-80

LOT 39 0.56 ACRE GLORIA E. MOLNAR 2-7-77

LOT 37 1.32 ACRES

LOT 36 0.76 ACRE

LOT 35 0.86 ACRE DAVID C. LOCKWOOD 9-28-76

LOT 34 0.91 ACRE HENRY J. STOKES 9-29-76

LOT 33 0.64 ACRE HERBERT B. LOCKWOOD III 9-19-76

LOT 32 0.62 ACRE BEN B. HOFFMEYER 8-14-76

LOT 31 0.76 ACRE

LOT 30

N. 483,280.23
E. 1,386,727.40

LEASED TO GEORGE A. HRIBERGER REF. CAT. DWG. NO. 541

CRESCENT LAND & TIMBER CORP. (W. GILL WYLIE & C.I. CAPPS) CAT. 331 & 340

Lot 41 GEORGE HRIBERGER

"RIGHT OF WAY PROPERTY"

HARBOR ROAD

HIDEAWAY ROAD

ROAD 1357 ENDS

EXISTING ROAD R/W LIMIT TO ROAD NO. 1102

REF. CAT. DWG. NO. 536

CONT. ON DWG. NO. L.W. 43-E

CONT. ON DWG. NO. L.W. 43-C

LAKE WYLIE

U.S.G.S. SEA LEVEL DATUM) CONTOUR ELEV. 570 (U.S.G.S. SEA LEVEL DATUM) FOLLOWS CONTOUR ELEV. 570

CRESCENT LAND & TIMBER CORP.
LAKE WYLIE
MAP OF
RECREATION LOTS
SECTION 43
LOTS 31 - 41 & 43 - 50
STEELE CREEK TOWNSHIP
MECKLENBURG COUNTY, N.C.

SCALE: 1" = 100'
MISC. BOOK NO. 274

JULY 10, 1975
DWG. NO. L.W. 43-D

0 100 200 300 400

RECORDED: PLAT BOOK 17, PAGE 512, MARCH 1, 1976.

LAKE WYLIE
30
35
40
45
So Setback
Pool
4 BR House
4 BR House
Driveway
LOT 38
0.92 ACRE
J.D. ELLIOT
10-12-76
LOT 38-A
1.08 ACRES
FRANCES C. JONES
2-8-80
S 81° 41' W
23.89'
I.P IN
I.P IN
N 65° 39' W - 322.25'
S 57° 14' E
619.97'
16.28'
101.98'
I.P IN
N 53° 12'

STATE OF NORTH CAROLINA
COUNTY OF MECKLENBURG
TRACT NO. S-3268 and 3269

CONTRACT FOR EXCHANGE OF PROPERTY AND ASSIGNMENT AGREEMENT

DEFINED TERMS:

CRESCENT: **MAILING ADDRESS:** [See Paragraph 16(b)]	Crescent Resources, LLC, a Georgia limited liability company P.O. Box 1003 Charlotte, North Carolina 28201-1003 (street address: 400 South Tryon Street, Suite 1300, Charlotte, NC 28202) Attention: Susan Higginson (704) 373-5448
QUALIFIED INTERMEDIARY:	Investment Property Exchange Services, Inc., a California corporation, as Qualified Intermediary under Exchange No. EX-_____, for Crescent Resources, LLC
MAILING ADDRESS: [See Paragraph 16(b)]	c/o Fidelity National Title P.O. Box 36386 Charlotte, North Carolina 28236 Attention: L. Hunter Meacham, Jr. (704) 373-0371
ACQUIRING PARTY: [Name to Appear on Deed]	LKW Development LLC, a North Carolina limited liability company
MAILING ADDRESS: [See Paragraph 16(b)]	*17224 Due West Drive* Charlotte, NC 28278 Attention: Bill Hodges Telephone Number: (704) 583-0668
CRESCENT PROPERTY: [See Paragraph 2]	Lots 36 and 37, Section 43, Lake Wylie Recreation Lots (each a "**Lot**", collectively, the "**Lots**"), together with an approximately thirty (30) foot wide right of way ("**Right of Way Property**") located in Mecklenburg County, North Carolina, all as shown on **Exhibit A** attached hereto and incorporated herein, along with all rights, privileges and easements appurtenant thereto.
AGREED VALUE OF CRESCENT PROPERTY: [See Paragraph 3]	Seven Hundred Fifty Thousand Dollars ($750,000.00)
CLOSING DATE: [See Paragraph 4]	January 15, 2005
BROKER: [See Paragraph 10]	None
PARTY PAYING BROKER: [See Paragraph 10]	N/A

BINDER: [See Paragraph 12]	Fifty Thousand Dollars ($50,0000.00) to be made payable to and held by Investment Property Exchange Services, Inc.
SPECIAL STIPULATIONS: [See Paragraph 14]	The Special Stipulations attached hereto as **Exhibit B** are incorporated herein.

ADDITIONAL PROVISIONS:

The Additional Provisions set forth below modify and are incorporated by reference into the attached Contract. To the extent any provision set forth below is inconsistent with the terms of the Contract, the provisions set forth below shall govern. The Additional Provisions, if any, are as follows:

1. **Execution of Contract** This Contract shall, at Crescent's option, be null and void if Acquiring Party fails to execute and return three executed original copies of this Contract along with the Binder to Crescent by August 27, 2004.

2. **Approval of Contract**. This Contract shall be contingent upon the approval of Crescent's Board of Managers. Crescent shall give Acquiring Party written notice of any decision made by its Board of Managers rejecting this Contract within 15 days of such decision.

3. **Inspection Period**. Acquiring Party shall have from the Effective Date until 5:00 p.m. on the date that is sixty (60) days after the Effective Date ("**Inspection Period**") to conduct inspections in accordance with **Paragraph 6** of this Contract. If Acquiring Party determines that the Crescent Property is not suitable for its intended use, then Acquiring Party shall so notify Crescent, in writing, prior to the end of the Inspection Period, whereupon this Contract shall terminate and Acquiring Party shall receive a refund of the Binder. Following the end of the Inspection Period, the Binder shall not be refundable to Acquiring Party except following default by Crescent in accordance with **Paragraph 13** of this Contract, or as provided in **Paragraphs 5(d), 9, 11** and **16(i)** of this Contract, as applicable.

4. **Deeds; Restrictions**. The Property shall be conveyed by two (2) separate deeds as follows: (1) a deed for Lot 36 and Lot 37; and (iii) a deed for the Right of Way Property. The deed conveying Lot 36 and Lot 37 shall include the deed restrictions attached hereto as **Exhibit C**. The deed conveying the Right of Way Property shall include the deed restrictions set forth in **Paragraph 7** of the these Additional Provisions.

5. **Lake Management**. Duke Energy regulates activities within its reservoirs to ensure activities are consistent with established company policies and license requirements. Duke Energy's Lake Management Group may be contacted at 1-800-443-5193 or 1-704-382-8086. Lake Management's Lake Wylie representative, Kelvin Reagan, may be contacted at 701-382-9386.

6. **Right-of-Way Property**. Buyer acknowledges that all of the Right of Way Property is subject to the road right-of-way shown on **Exhibit A** and that the Right of Way Property shall be conveyed subject to such right-of-way and all other matters set forth in **Paragraph 5(a)** of this Contract. In addition, the deed conveying the Right of Way Property shall contain the following provision (for the purposes of the following provision, "Property" shall mean the Right of Way Property):

The Property is conveyed subject to a non-exclusive easement reserved by Crescent over and across the Property for the benefit of Crescent, its successors and assigns, and for the benefit of the owners of all current or future lots or parcels served by such easement ("**Easement**"). The Easement shall be for (i) pedestrian and vehicular ingress, egress, regress and access, (ii) the installation, maintenance and repair of sanitary sewer, water, gas, power, storm sewer, telephone and any other utilities, (iii) the installation, maintenance and repair of drainage facilities, slopes, lines and pipes commonly associated with and constructed in or under street and road rights of way, and (iv) the installation, maintenance, repair and improvement of roadway facilities, including, but not limited to, paving, installation of storm drains, culverts, signage, lighting, landscaping and all other roadway improvements.

7. **Right of Way Use Restriction.** The deed conveying the Right of Way Property shall contain the following use restriction (for the purposes of the following provision, "Property" shall mean the Right of Way Property):

The Property shall be used as an access and utility right-of-way and not for any other purpose.

8. **Document Preparation Fee**. Acquiring Party acknowledges that Crescent, or Crescent's attorneys, shall prepare the deed, owner's affidavit, non-foreign affidavit, settlement statement, and such other documents as are required for Crescent to convey the Crescent Property to Acquiring Party. At Closing, in addition to the Agreed Value of the Crescent Property (which shall be disbursed to Qualified Intermediary in accordance with **Paragraph 3** of this Contract), Acquiring Party shall pay directly to Crescent (by a certified check made payable to Crescent) the sum of four hundred twenty-five and No/100 Dollars ($425.00) as a document preparation fee to offset Crescent's expenses for such documentation. Acquiring Party acknowledges that Crescent's attorneys do not represent, and shall not be liable to, Acquiring Party in connection with this Contract and/or Closing.

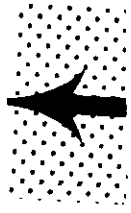
This three (3) page cover page (the "**Contract Cover Page**") is hereby incorporated into and made a part of this Contract for Exchange of Property and Assignment Agreement.

CRESCENT

By: _____
(Initial)

ACQUIRING PARTY

By: _____
(Initial)



THIS CONTRACT FOR EXCHANGE OF PROPERTY AND ASSIGNMENT AGREEMENT (this "**Contract**") is made and entered into by and between Crescent and Acquiring Party, effective as of the date of acceptance of this Contract by Crescent (the "**Effective Date**") as hereinafter set forth. All of the terms and conditions set forth on the Contract Cover Page are hereby incorporated into and made a part of this Contract by this reference.

STATEMENT OF PURPOSE

Crescent is the owner of, or will be acquiring prior to Closing from Carolina Centers LLC, the Crescent Property and desires to exchange the Crescent Property for certain real property to be acquired by Qualified Intermediary, as described below, in a manner intended to qualify such exchange with respect to Crescent for the nonrecognition provisions of Section 1031 of the Internal Revenue Code of 1986 as amended and the regulations proposed or promulgated thereunder as of the Effective Date of this Contract (collectively, the "**Code**").

NOW, THEREFORE, subject to the terms and conditions of this Contract, and in consideration of the premises, the respective agreements herein set forth and other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Crescent and Acquiring Party hereby agree as follows:

1. **Exchange of Property.**

(a) **Acquiring Party's Cooperation.** Crescent shall convey the Crescent Property to Acquiring Party in exchange for replacement property, to be acquired by Qualified Intermediary and conveyed to Crescent all as hereinafter set forth. A material inducement to Crescent's entry into this Contract is Crescent's right to structure this transaction so as to qualify the same as an exchange of property in compliance with the provisions of the Code, and Acquiring Party agrees that this Contract shall be interpreted and construed in such a manner as to qualify the transactions contemplated herein as an exchange of property in compliance with the provisions of the Code. Acquiring Party shall fully cooperate with Crescent and take all reasonable actions requested by Crescent to assist Crescent in satisfying the provisions of the Code, whether Crescent completes the exchange using the services of a qualified intermediary as contemplated herein, or otherwise; provided, however, that Acquiring Party makes no representations and gives no warranties with respect to the tax effects of the proposed exchange transactions and in no event shall Acquiring Party be required to take legal title to any replacement property.

(b) **Assignment to Qualified Intermediary.** Crescent hereby assigns this Contract to Qualified Intermediary who shall act as qualified intermediary as that term is defined in Treasury Regulations §1.1031(k)-1 or successor provisions. Acquiring Party hereby consents to the assignment of this Contract to Qualified Intermediary and shall fully cooperate with Crescent and with Qualified Intermediary and shall take all reasonable actions requested by Qualified Intermediary or by Crescent to assist Crescent and Qualified Intermediary in satisfying the requirements of the Code, including satisfying any of Acquiring Party's obligations under this Contract directly to Qualified Intermediary. Acquiring Party shall accept the performance of obligations under this Contract by Qualified Intermediary which shall be deemed by Acquiring

Party to be the performance of Crescent. All costs or expenses charged by Qualified Intermediary for its performance of actions contemplated by this **Paragraph 1** shall be borne by Crescent.

(c) **Closing on Crescent Property.** Qualified Intermediary shall direct Crescent to deed the Crescent Property to Acquiring Party on the Closing Date in accordance with the terms of this Contract. Acquiring Party shall accept the deed from Crescent at Closing and shall simultaneously pay the Agreed Value to Qualified Intermediary. Crescent and Acquiring Party hereby acknowledge that Acquiring Party's obligation to pay the Agreed Value to Qualified Intermediary is wholly contingent upon and contemporaneous with the conveyance of the Crescent Property to Acquiring Party.

2. **Description of the Crescent Property.** The property that is the subject of this Contract is that certain parcel of real property identified as the Crescent Property on the Contract Cover Page. The exact boundaries of the Crescent Property shall be set forth in the Survey (as defined in **Paragraph 5(c)** below).

3. **Agreed Value of Crescent Property - Wiring of Closing Proceeds.** The Agreed Value of the Crescent Property for purposes of the exchange transaction contemplated herein shall be as set forth on the Contract Cover Page. At Closing, Acquiring Party hereby agrees to wire (a check shall not be acceptable), at its expense, the net proceeds due Crescent hereunder directly to Qualified Intermediary pursuant to the wiring instructions to be delivered to Acquiring Party prior to Closing.

4. **Closing Date.** The closing of the transfer of the Crescent Property to Acquiring Party shall occur on the Closing Date specified on the Contract Cover Page or such earlier closing date as Crescent and Acquiring Party shall mutually agree upon in writing and shall take place at a mutually agreeable time on the Closing Date in the offices of Crescent or Crescent's counsel in Charlotte, North Carolina, or at such other location as is approved by Crescent ("**Closing**").

5. **Transfer of Title to the Crescent Property.**

(a) **Title.** On the Closing Date, Crescent shall deliver to Acquiring Party exclusive possession (unless otherwise noted on the Contract Cover Page) of the Crescent Property and a special warranty deed conveying fee simple title thereto to Acquiring Party free and clear of all liens, encumbrances, claims, rights-of-way, easements and restrictive covenants, except that the Crescent Property may be conveyed subject to the following permitted exceptions ("**Permitted Exceptions**"):

(i) Flood easements in favor of Duke Energy Corporation (formerly known as Duke Power Company), if any, and riparian rights of others;

(ii) Transmission line and retail electric line rights-of-way, if any, reserved by or granted to Duke Energy Corporation (formerly known as Duke Power Company);

(iii) Ad valorem taxes for the year of Closing;

(iv) Any "rollback" or other deferred ad valorem property taxes;

(v) Matters affecting title to the Crescent Property as shown on the Survey (defined below) or which would be shown on a current and accurate survey of the Crescent Property;

(vi) Easements, covenants, restrictions and conditions of record, and rights-of-way of public and private streets and roads;

(vii) All easements, restrictions and rights-of-way as may be apparent from an inspection of the Crescent Property;

(viii) Any easements and restrictions agreed to by the parties (if any); and

(ix) All zoning, subdivision, land use and other laws, regulations or ordinances applicable to the Crescent Property.

(b) **Transmission Lines.** If there are any transmission lines and/or other facilities located on the Crescent Property as of the Effective Date, then Crescent may at any time prior to the Closing Date record easements in favor of Duke Energy Corporation (or any affiliate of Duke Energy Corporation) for such transmission lines and/or other facilities, and any such easements shall constitute Permitted Exceptions.

(c) **Survey.** Either together with the acceptance of this Contract by Crescent or within forty-five (45) days from the Effective Date of this Contract, Crescent shall deliver to Acquiring Party at Crescent's sole cost and expense a copy of Crescent's latest survey or recorded plat of the Crescent Property prepared by a registered land surveyor (the "**Survey**"). The Survey shall be used to prepare the deed to the Crescent Property described in **Paragraph 5(a)** above. Acquiring Party may, at its sole expense, commission an update to such Survey and obtain any additional certifications to such Survey required for Acquiring Party to obtain title insurance coverage.

(d) **Title Defects.** If any title or survey defect (other than a Permitted Exception) which renders title to the Crescent Property uninsurable (hereinafter, a "**Defect**") arises prior to Closing, Acquiring Party shall provide Crescent written notice within ten (10) business days of discovering such defect. Provided, however, that any Defect which exists on the Effective Date shall be deemed a Permitted Exception if not objected to on or before the earlier of the tenth (10th) day following discovery of the same by Acquiring Party or the thirtieth (30th) day from and including the Effective Date. Crescent shall have until the Closing Date or such longer period (in which case the Closing will be automatically extended) as reasonably required to cure any Defect at Crescent's sole cost and expense. If Crescent elects not to cure or fails to cure any such Defect within a reasonable time (but not more than thirty (30) days after the original Closing Date unless otherwise agreed by the parties), Acquiring Party may, as its sole and exclusive remedy, either take title to the Crescent Property "as is" and consummate the Closing without any credit or offset for such Defect, or in the alternative, terminate this Contract and receive an immediate refund of the Binder.

6. **Inspection.** During the term of this Contract, Acquiring Party may conduct inspections of the Crescent Property; provided, however, that in no event shall Acquiring Party or its agents or contractors conduct any soil or water sampling or other intrusive inspections or testing of the Crescent Property or alter the Crescent Property without Crescent's prior written approval. Acquiring Party agrees to keep all documents, reports, correspondence and other information relating to its inspections of the Crescent Property confidential. Provided, however, that Acquiring Party agrees to provide Crescent a copy of any such reports, but only if Crescent requests a copy of the same. Acquiring Party shall indemnify, defend and hold Crescent, its officers, agents, managers, members, directors and employees harmless from any and all loss, cost (including without limitation reasonable attorneys' and consultants' fees and costs of remediation), damage (including without limitation consequential, punitive and multiple damages), obligations, claims or liabilities (collectively "**Losses**"), arising out of injury to persons, including death, and/or any and all physical damage to the Crescent Property or any other property directly or indirectly caused by Acquiring Party, its agents, employees or contractors or otherwise arising directly or indirectly out of or related to their activities upon the Crescent Property. Acquiring Party's obligations under this paragraph shall survive Closing or the termination of this Contract.

7. **Crescent Property Conveyed "AS IS".** Acquiring Party hereby acknowledges that except for the special warranty to be contained in the deed, Crescent has not made and specifically disclaims any other representation, warranty or guaranty (whether express or implied by law) regarding the suitability, condition of or title to the Crescent Property or its past, current or future compliance with any applicable law, regulation or ordinance. Specifically, and without limiting the foregoing, Acquiring Party hereby acknowledges that **CRESCENT MAKES NO REPRESENTATION OR WARRANTY REGARDING THE HABITABILITY, MERCHANTABILITY, ZONING, FITNESS FOR A PARTICULAR PURPOSE OR ENVIRONMENTAL CONDITION OF THE CRESCENT PROPERTY, IT BEING UNDERSTOOD BY THE PARTIES THAT ACQUIRING PARTY SHALL ACQUIRE THE CRESCENT PROPERTY "AS IS" WITH ALL FAULTS.**

8. **Closing Costs.** Crescent shall prepare the deed to the Crescent Property and shall pay the excise tax stamps to be affixed thereto. Acquiring Party shall pay for all reasonable and customary closing costs, including, without limitation, any title search fee, title insurance premium, Survey update, wiring costs, the cost of recording the deed and any other instruments to be recorded under the terms of this Contract with respect to the Crescent Property. Acquiring Party's expenses shall not be credited toward the Agreed Value of the Crescent Property. Each party hereto shall be responsible for its own expenses, including legal and advisory fees and any such expenses shall not be deducted from or credited to the Agreed Value of the Crescent Property. Ad valorem real property taxes for the Crescent Property shall be prorated between the parties on a calendar year basis as of the Closing Date. If the current year's ad valorem property taxes have not been determined as of the Closing Date, then each party's pro rata share shall be estimated based upon the previous year's ad valorem taxes; provided, however that upon the determination of the actual amount of ad valorem taxes due for the year in which the Closing occurs, the parties agree to adjust the prorations accordingly upon the request of either party. At Closing, Crescent shall receive a credit from Acquiring Party for Acquiring Party's share of the ad valorem real property taxes from and after the Closing Date and Crescent shall pay the ad valorem real property taxes for the year in which Closing occurs. Acquiring Party shall be

responsible for the payment of any "rollback" or other deferred ad valorem property taxes. The obligations of the parties under this **Paragraph 8** shall survive Closing.

9. **Risk of Loss.** Prior to the Closing Date, risk of loss with respect to the Crescent Property shall be upon Crescent. If, prior to the Closing Date, any significant portion or all of the Crescent Property is damaged or destroyed by fire or any other cause, except where such event is occasioned by a willful or negligent act of Acquiring Party or its employees, agents or contractors, then Crescent shall immediately notify Acquiring Party. Upon receipt of any such notice, Acquiring Party may elect by written notice delivered to Crescent on or before the Closing Date to either: (i) terminate this Contract in which case the Binder shall be returned to Acquiring Party, and thereafter this Contract shall become null and void and shall be of no further force or effect; or (ii) take title to the Crescent Property "as is" without any credit or offset for such damage or destruction.

10. **Brokerage Commission.** Crescent and Acquiring Party represent and warrant to the other that no real estate agent or broker has been involved in this transaction except for the Broker specified on the Contract Cover Page. The Party Paying Broker specified on the Contract Cover Page shall, contingent upon the completion of the Closing of the Crescent Property, pay all commissions due Broker with respect to the Crescent Property. Crescent and Acquiring Party each agree to indemnify and hold the other harmless from and against any and all claims, demands and the cost and expense thereof arising out of any alleged brokerage commission, fee or other compensation with respect to the Crescent Property based upon an agreement alleged to have been made or other action alleged to have been taken by the indemnifying party.

11. **Eminent Domain.** If prior to the Closing Date all or any material part of the Crescent Property is taken by eminent domain or if condemnation proceedings are commenced against any material part of the Crescent Property, then Acquiring Party, within thirty (30) days after its receipt of notice of such taking or proceeding (but, in any event, prior to the Closing Date), shall have the option by written notice delivered to Crescent on or before the Closing Date to either: (i) terminate this Contract in which case the Binder shall be returned to Acquiring Party, and thereafter this Contract shall become null and void and shall be of no further force or effect; or (ii) take title to the Crescent Property "as is" without any credit or offset for such taking.

12. **Binder.** Simultaneously with the execution and delivery of this Contract by Acquiring Party, Acquiring Party shall deliver to Qualified Intermediary the Binder set forth on the Contract Cover Page as a good faith binder and earnest money deposit. At the Closing, the Binder shall be credited to the Agreed Value of the Crescent Property. Any interest accruing on the Binder shall belong to Crescent and shall not be refunded or credited to Acquiring Party unless the Binder is refunded to Acquiring Party pursuant to **Paragraph 13** below.

13. **Default.** If Acquiring Party defaults in the performance of any of the provisions herein, resulting in Acquiring Party's failure, refusal or inability to close this transaction, then the Binder shall be forfeited to Crescent immediately (but such forfeiture shall not affect any other remedies at law or at equity which may be available for such breach) and Acquiring Party shall deliver to Crescent all surveys, appraisals, site plans, reports, title information, studies and any other due diligence information pertaining to the Crescent Property within five (5) days

following such default. If Crescent or Qualified Intermediary defaults in the performance of its obligations hereunder and fails to cure such default within ten (10) business days after receipt of written notice thereof from Acquiring Party, then Acquiring Party may, as its sole and exclusive remedy, either: (i) terminate this Contract and receive a refund of the Binder and all provisions of this Contract shall be null, void and of no further force or effect; (ii) seek specific performance of this Contract; or (iii) permanently waive the default and close the transaction contemplated by this Contract and acquire the Crescent Property "as is".

14. **Special Stipulations.** The Special Stipulations executed by Acquiring Party and attached hereto are incorporated by reference herein.

15. **Rights to Use of Lakes.** Acquiring Party hereby acknowledges that Crescent has made no promises, covenants, warranties or guarantees relative to the following matters and Acquiring Party hereby agrees that neither Crescent nor Qualified Intermediary shall have any liability with respect to: (i) the continued existence of any lake on or near the Crescent Property; (ii) the purity or any other characteristic of the water in any lake on or near the Crescent Property; (iii) the maintenance of any particular water level at any time or season in any lake on or near the Crescent Property; (iv) any right to use for any purpose or any right to access the water of any lake (if any) on or near the Crescent Property; (v) any right to construct piers, docks, boathouses or any other improvements of any sort on the Crescent Property or on any lake on or near the Crescent Property unless the same shall be constructed in accordance with the restrictions, easements, conditions and reservations affecting any such lake and the Crescent Property; and (vi) the Crescent Property being, or continuing to be, "lakefront" or abutting or being contiguous to any lake. Acquiring Party further acknowledges that the right to use or access the water of any lake on or near the Crescent Property and the right to construct piers, docks, boathouses, or other improvements of any sort on any such lake is regulated and governed by the rules, regulations, laws and ordinances of all applicable authorities including, but not limited to, Duke Energy's lake management policies, rules and regulations and Acquiring Party hereby agrees that neither Crescent nor the Qualified Intermediary shall have any liability with respect thereto.

16. **Miscellaneous.**

(a) **Survival of Provisions.** All the terms, conditions, representations and agreements contained herein shall, as applicable, survive termination of the Contract or the Closing Date for such period of time as shall be deemed necessary for the full performance of this Contract.

(b) **Notices.** Any notice required or permitted to be given under this Contract shall be in writing and shall be deemed to have been given when delivered by hand or deposited in the United States mail, registered or certified mail, postage prepaid, return receipt required, and addressed to the party receiving such notice at the address for such party set forth on the Contract Cover Page. Either party may, from time to time, by notice as herein provided, designate a different address to which notice to it shall be sent.

(c) **Applicable Law.** This Contract shall be governed by and construed in accordance with the laws of the State in which the Crescent Property is located.

(d) **Entire Agreement.** This Contract and the exhibits and Special Stipulations attached hereto contain the entire understanding and agreement by and between the parties, and all prior or contemporaneous oral or written agreements or instruments are merged herein, and no amendment to this Contract shall be effective unless the same is in writing and signed by the parties hereto.

(e) **Binding Effect.** This Contract shall be binding upon and shall inure to the benefit of the parties hereto and their respective permitted successors and assigns.

(f) **Captions and Headings.** The captions and headings throughout this Contract are for convenience and reference only and the words contained therein shall in no way be held to define or add to the interpretation, construction or meaning of any provision of this Contract.

(g) **Roads, Utilities and Amenities.** Acquiring Party hereby warrants and represents that neither Crescent nor its agents have represented, either verbally or in writing, that roads, sewers, water, gas, electrical service or recreational amenities will be provided or completed by Crescent other than as specifically set forth in this Contract.

(h) **Assignment.** This Contract may not be assigned by Acquiring Party without the written consent of Crescent. This Contract may be assigned by Crescent without the consent of Acquiring Party, and Acquiring Party agrees to accept and recognize any such assignment and to cooperate with such assignee in accordance with this Contract. Upon any such assignment by Crescent (excluding the assignment contemplated in **Section 1(b)** of this Contract), Crescent shall be released from any and all liabilities and obligations to Acquiring Party, its successors and assigns, in connection with this Contract.

(i) **Subdivision/Development Ordinance Compliance.** The parties have entered into this transaction under the presumption that no subdivision approval or similar governmental or regulatory approval will be necessary for Crescent to complete the transfer of the Crescent Property to Acquiring Party. If, however, any governmental or regulatory approval is required for the legal transfer of the Crescent Property to Acquiring Party, Crescent may at its option either: (i) terminate this Contract, in which case Acquiring Party would receive a refund of the Binder; or (ii) attempt to obtain such approval(s) at its sole cost and expense, in which case the Closing Date will be extended for such time, not to exceed sixty (60) days, as is necessary to obtain such approval(s). If Crescent elects to pursue such approvals but is either unable to obtain them or later elects to discontinue the pursuit of such approvals, then Crescent may terminate this Contract and Acquiring Party will receive a refund of the Binder.

(j) **Time of the Essence.** Time is of the essence with respect to all time periods and dates for performance of this Contract.

(k) **Counterparts.** This Contract may be executed one or more counterparts.

[SIGNATURES ON FOLLOWING PAGE(S)]

IN WITNESS WHEREOF, the parties have caused this Contract to be executed effective as of the Effective Date.

DATE OF OFFER:

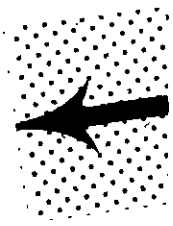
August 26, 2004

ACQUIRING PARTY:

LKW DEVELOPMENT LLC, a North Carolina limited liability company

By: William G. Hodges

Its: Manager



DATE OF ACCEPTANCE:

_____

CRESCENT:

CRESCENT RESOURCES, LLC,
a Georgia limited liability company

By: _____

James M. Short, Jr.
Senior Vice President

IN WITNESS WHEREOF, Qualified Intermediary has executed this Contract effective as of the Effective Date for the purpose of accepting the assignment contained herein pursuant to the terms of that certain Exchange Agreement entered into between Crescent and Qualified Intermediary. Qualified Intermediary hereby directs Crescent to deed the Crescent Property directly to Acquiring Party at Closing.

QUALIFIED INTERMEDIARY:

INVESTMENT PROPERTY EXCHANGE SERVICES, INC., a California Corporation, as Qualified Intermediary under Exchange No. EX-11-_____ for Crescent Resources, LLC

By: _____
L. Hunter Meacham, Jr.
Vice President

EXHIBIT B

SPECIAL STIPULATIONS

To Contract for Exchange of Property and Assignment Agreement Between Crescent Resources, LLC ("Crescent"), and LKW Development LLC ("Acquiring Party").

MUNICIPAL SUBDIVISION (SINGLE-FAMILY RESIDENCE) EXEMPTION

Acquiring Party hereby acknowledges that Crescent has structured this transaction so as to comply with the Single Family Residence Exemption to the registration requirements prescribed by the Interstate Land Sales Full Disclosure Act (15 U.S.C. 1701 et seq.) and the regulations promulgated thereunder. In order to comply with the requirements of the exemption, Acquiring Party and Crescent hereby supplement and amend the Contract as more particularly set forth below.

1. Utilities Availability

a. **Water.** Prior to Closing, Acquiring Party must receive appropriate assurance of year round potable water supply to the Crescent Property, which assurance consists of an opinion from a qualified hydrologist or the local health department or other governmental entity that the Crescent Property will have an adequate, year-round supply of potable water. In no event shall the purchase and sale of the Crescent Property close before Acquiring Party has received appropriate assurance of year round potable water supply to the Crescent Property and if such assurance is not received and the Crescent Property is not sold to Acquiring Party within one hundred eighty (180) days of the Effective Date of this Contract, then this Contract shall automatically terminate whereupon Acquiring Party shall receive a full refund of the Binder as Acquiring Party's sole remedy for such termination.

b. **Septic.** Prior to Closing, Acquiring Party must receive appropriate assurance under applicable law that the Crescent Property is approved for a septic tank sufficient to serve a three bedroom house. In some instances, Crescent may have provided Acquiring Party with a preliminary septic approval letter ("Preliminary Approval Letter") prior to, or simultaneously with the execution of this Contract. A Preliminary Approval Letter does not guaranty that you will be able to install a septic system upon the Crescent Property. If Acquiring Party is not provided with an individual septic permit (as opposed to a Preliminary Approval Letter) permitting the installation of a septic sewer system on the Crescent Property (a "Septic Permit") prior to the acceptance of this Contract, Acquiring Party shall, at its sole cost and expense, within ten (10) days from the Effective Date of this Contract or such longer period as Crescent shall agree to in writing, seek a Septic Permit from the appropriate governmental authority having jurisdiction over the Crescent Property. If such approval is expressly denied within thirty (30) days

from the Effective Date of this Contract or such longer period as Crescent shall agree to in writing, Acquiring Party and Crescent shall each have the right to terminate this Contract whereupon Acquiring Party shall receive a full refund of the Binder as Acquiring Party's sole remedy for such termination. In no event shall the purchase and sale of the Crescent Property close before Acquiring Party has received a Septic Permit and if a Septic Permit is not received and the Crescent Property is not sold to Acquiring Party within one hundred eighty (180) days of the Effective Date of this Contract, then this Contract shall automatically terminate whereupon Acquiring Party shall receive a full refund of the Binder as Acquiring Party's sole remedy for such termination.

c. **Electricity.** The Crescent Property shall have electricity extended to it as of Closing. However Acquiring Party shall be responsible for the payment of any hook up or connection fees which may be charged by the local utility company.

2. **Public Road.** The Crescent Property is served by a paved (concrete or asphalt) public street or highway which has been accepted for maintenance by local governmental authorities.

3. **Title.** Prior to Closing, Crescent shall deliver to Acquiring Party a specimen title insurance binder relative to the Crescent Property which indicates that Crescent is vested with title to the Crescent Property subject only to the exceptions referenced in said binder. Any cost of title insurance to be procured by Acquiring Party shall be paid for by Acquiring Party. By acceptance of the title insurance binder and by proceeding with Closing, Acquiring Party acknowledges that he has been made familiar with the exceptions referenced in the binder and accepts the same. At Closing, Crescent shall deliver to Acquiring Party a General Warranty Deed.

4. **Closing.** Under no circumstances shall Closing occur later than 180 days following the mutual execution of this Contract.

5. **Buyer's Representations.**

Buyer hereby represents that:

a. _____ (Buyer's Initials) Acquiring Party or Acquiring Party's spouse has made a personal, on-the-lot inspection of the Crescent Property prior to signing this Contract.

b. _____ (Buyer's Initials) Crescent has not offered Acquiring Party any gifts, trips, dinners or other inducements in order to encourage Acquiring Party to visit the subdivision and purchase a lot.

c. _____ (Buyer's Initials) Crescent has made no other representations regarding Crescent's obligation to provide or complete roads, sewer, water, electric or other utility services or recreational amenities except as are set forth in this Contract.

6. **Escrow.** Notwithstanding anything contained in the Contract, $50,000.00 in earnest money paid by Acquiring Party (cash, bank, or certified check) with the delivery of this Contract, shall be held in an escrow account by Bank of America, N.A., as escrow agent ("Escrow Agent") until the sale is closed, at which time it will be transferred to Crescent or its assigns and credited to Acquiring Party, or until this Contract is otherwise terminated and it is disbursed in accordance with the provisions hereof.

ACQUIRING PARTY:

LKW DEVELOPMENT LLC,
a North Carolina limited liability company

By: William A. Hodges
Name: William A. Hodges
Its: Manager

DATE: August 26, 2004

CRESCENT:

CRESCENT RESOURCES, LLC,
a Georgia limited liability company

By: _____
James M. Short, Jr.
Senior Vice President

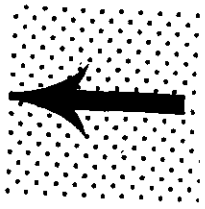


EXHIBIT C

RESTRICTIONS

1. The Lots shall be used only for single family recreation and/or single family residential purposes.

2. Not more than one private single family residential dwelling, together with accessory buildings and facilities normally incident to a private single family residential home site shall be constructed upon each Lot.

3. The Lots shall not be used for business, commercial, industrial, condominium, apartment or other multi-family residential purposes.

4. Subdivision of each Lot is expressly prohibited; provided, however, that portions of either Lot may be combined with the adjoining Lot for the sole purpose of adjusting the common boundary line between the Lots so long as after any such combination, the Property conveyed by this deed consists of no more than two (2) lots.

5. No part of any building shall be constructed nearer than ten (10') feet from any lot line or nearer than fifty (50') feet from the contour shown on the Plat; provided, however, existing buildings located on each Lot may remain where they are.

6. No trucks, trailers, other vehicles, or mobile home or structure having the characteristics or appearance of a mobile home, shall be placed upon the Lots and used as a dwelling or accessory building.

7. No refuse, garbage, rubbish or waste of any kind shall be placed upon other lands, roadways, or waters adjoining the Lots nor shall any refuse, garbage, rubbish or waste of any kind be placed upon or allowed to remain upon the Lots.

8. No illegal, offensive or obnoxious use shall be made of the Lots nor shall a nuisance be maintained thereon.

9. Grantee will construct and maintain on each Lot, in accordance with the requirements of local Health Departments and the State Board of Health, either an outside toilet or an inside sewage system and septic tank or an inside sewage system connected to a utility system meeting the aforesaid governmental requirements.

10. Grantee will not permit any use of the Lots and buildings thereon by the general public for compensation or otherwise, provided that this provision shall not preclude normal visiting by and entertainment of Grantee's nonpaying guests, and provided further, that this provision shall not preclude Grantee's leasing its single family residential building to a third party for use in compliance with the restrictions herein contained.

11. Any water system used to supply the Lots shall comply with the regulations of local Health Departments and the State Board of Health.

12. Grantor reserves for the benefit of itself, Duke Energy Corporation, and its and their successors and assigns (i) an easement over and across a ten (10') foot wide strip of Lot 36, the western margin of which strip runs along and is contiguous with the eastern margin of the right-of-way of Hideaway Road, an approximately thirty (30') foot wide right-of-way; and (ii) an easement over and across a ten (10') foot wide strip of Lot 37, the northern margin of which strip runs along and is contiguous with the southern

margin of the right-of-way of Hideaway Road, as such the right-of-way of Hideaway Road is shown on the Plat, each for the installation, maintenance and operation of utilities, including electric, telephone, radio and television transmission cables, and other service facilities, together with the accessory right to locate guy wires, braces or anchors, and to cut, trim or remove trees and plantings wherever necessary upon the Lots in connection with such installation, maintenance and operation.

13. Grantor reserves for the benefit of Duke Energy Corporation, its successors and assigns, an easement for the maintenance and operation of any existing electric distribution lines that may be located upon the Lots and not located within the ten-foot (10') easement described in **Paragraph 12** above, together with the right to cut, trim or remove any trees and plantings wherever necessary in connection with such maintenance and operation.

14. Grantor reserves for itself, its successors and assigns, an easement over a ten-foot (10') wide strip of each Lot running along the inside of all side lot lines together with the right to, but not the obligation to, construct and maintain drainage ditches, slopes or storm sewers; provided, however, that if no drainage ditches, slopes, storm sewers or other utilities have been constructed within the easement area along the common boundary of the Lots, and if such common boundary line is adjusted by subdivision, recombination or otherwise in accordance with **Paragraph 4** above, then, upon the recordation of the subdivision, recombination or other plat reflecting such adjustment, the foregoing easement shall no longer burden the ten-foot (10') wide strip on each Lot along the former common boundary line, but shall burden the ten-foot (10') wide strip on each lot along the common boundary line as adjusted by such plat. In the event that Grantee has now a presently existing structure on said strip, then the strip shall detour around said structure (keeping within the aforesaid lot lines and having a ten-foot (10') width from the edge of the structure) and except for said detour, run along the lot lines with said ten-foot (10') width.

15. Grantor reserves for the benefit of Duke Energy Corporation, its successors and assigns, the right to deposit by air upon the Lots any emissions arising from or associated with the operation of the electric power plant or plants now constructed or to be constructed on the Catawba River or its tributaries by the said Corporation.

16. No owner of a Lot shall have any claim or cause of action against Grantor, its affiliates or its licensees arising out of the exercise or non-exercise of any easement or other right reserved hereunder or referred to herein except in cases of willful or wanton misconduct.

17. No delay or failure on the part of any aggrieved party to invoke an available remedy in respect to a violation of any provision contained herein or referred to herein shall be held to be a waiver by that party of any right available to it upon the recurrence or continuance of said violation or the occurrence of a different violation.

18. In the event Duke Energy Corporation, its successors or assigns, hereinafter acquires title to either Lot, none of the restrictions, easements, conditions, or reservations herein contained shall preclude or be construed to preclude said Corporation from using such Lot for any of the following purposes: (1) electric generating plant(s) including ancillary facilities for construction and operation of the electric generating plant(s); (2) electric substation(s) and transmission lines, together with necessary rights of way for the construction of substation(s) and lines and ingress and egress thereto; (3) "Exclusion Area(s)" as now or hereinafter defined in 10 CFR Section 100.3, as amended; (4) sewer line(s); and (5) water supply line(s).

19. Every restriction, easement, condition and reservation set out herein or referred to herein is hereby declared to be independent of and severable from each other, and if any of same shall be held by a court of competent jurisdiction to be invalid or unenforceable, all the remainder of said easements, conditions, reservations and restrictions shall continue unimpaired and in full force and effect.

20. If an existing access road crosses a Lot, the right of ingress and egress over said road is reserved for the purchasers of recreational lots served by said road, their heirs, successors and assigns, and for Grantor, its successors and assigns, until such time as roadways are constructed within the road rights of way designated as access roads on the recorded maps of Grantor for the section and lot herein conveyed.

21. As part of the consideration for this conveyance, Grantee does hereby give and grant unto the Grantor, its successors and assigns, the right, privilege and option to purchase for the sum of Ten ($10.00) Dollars any right(s) of way for ingress and egress which may be acquired by Grantee, whether by operation of law or otherwise, over any lands of Grantor and any lands formerly of Grantor heretofore conveyed to others, except those rights of way for access shown upon the recorded maps of Grantor for the section and lot herein conveyed.

22. As part of the consideration for this conveyance, Grantee hereby releases and forever quitclaims unto Grantor all Grantee's right, title and interest in and to any adjoining or nearby lands, the record title to which is in Grantor, except such interest in said adjoining or nearby lands as Grantee holds pursuant to a written instrument between Grantor and Grantee which instrument is still valid after the recording of this deed.

23. By accepting this deed, Grantee signifies his understanding that Grantor specifically makes no promises, covenants, warranties or guarantees relative to:

a. The continued existence of any lake;

b. The purity or any other characteristic of the water in any lake;

c. The maintenance of any particular water level at any time or season in any lake;

d. Any right to use for any purpose or any right to access to the water of any lake; and

e. Any right to construct piers, docks, boathouses, or any other improvements of any sort except upon the Lots in keeping with the aforesaid restrictions, easements, conditions and reservations.

24. By accepting this deed Grantee signifies his understanding that Duke Energy Corporation (formerly Duke Power Company) has certain privileges and easements affecting the Lots, which include the right, privilege and easement of backing, ponding, raising, flooding or diverting the waters of the Catawba River and its tributaries upon and over the Lots, as more specifically described in the deed from Duke Energy Corporation (formerly Duke Power Company) to Grantor recorded in the offices of the Register of Deeds for the aforesaid County.

IN WITNESS WHEREOF, the parties have caused this Contract to be executed effective as of the Effective Date.

DATE OF OFFER:

August 26, 2004

ACQUIRING PARTY:

LKW DEVELOPMENT LLC, a North Carolina limited liability company

By: William A. Anderson

Its: Manager

DATE OF ACCEPTANCE:

10/01/04

CRESCENT:

CRESCENT RESOURCES, LLC,
a Georgia limited liability company

By: _____
James M. Short, Jr.
Senior Vice President

David #59

GWS – RES. APP 12/04

SEPTIC FEE: _____
DATE: _____
CRT [ ]

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

FILE # 5744B

WELL FEE 400 ~~250~~
DATE: 5/20/05
CRT [ ] 1012 Check # JKA

SEPTIC / TYPE APPLICATION: ☐ NONE ☐ NEW SYSTEM EXISTING SYSTEM: ☐ EXPANSION/ALTERATION ☐ REPAIR

WELL / TYPE APPLICATION: ☐ NONE ☒ NEW WELL ☐ MAJOR REPAIR ☐ ABANDONMENT

JOB LOCATION INFORMATION:

TAX/PARCEL #: 21717221
STREET ADDRESS: 18333 Hideaway Road
CITY: Charlotte
STATE: NC ZIP: 28278
SUBDIVISION OR MOBILE HOME PARK NAME:
LOT #: 36
TOWNSHIP:

☒ 0-MECKLENBURG ☐ 4-PINEVILLE
☐ 1-CHARLOTTE ☐ 5-MATTHEWS
☐ 2-DAVIDSON ☐ 6-HUNTERSVILLE
☐ 3-CORNELIUS ☐ 7-MINT HILL

BUILDING INFORMATION:

TYPE OF BUILDING:

☐ SINGLE MOBILE HOME (S) ☐ MODULAR HOME (M)
☐ DOUBLE WIDE (D) ☐ MULTIPLE FAMILY (U)
☒ HOUSE (H) ☐ OTHER

HEATED SQUARE FOOTAGE: 5,000
NUMBER OF BEDROOMS: 4
NUMBER OF OCCUPANTS: 4

FOUNDATION FOR RESIDENCE:

☒ CONCRETE SLAB ☐ BASEMENT WITH PLUMBING
☐ CRAWLSPACE ☐ BASEMENT WITH NO PLUMBING

IF PLANNING TO EXPAND/ALTER THE EXISTING SYSTEM INDICATE THE FOLLOWING CHANGES:

NUMBER OF BEDROOMS TO BE ADDED: NUMBER OF ADDITIONAL OCCUPANTS IN THE RESIDENCE: 0

WILL THERE BE A HOME BUSINESS IN THE RESIDENCE? ☐ YES ☒ NO TYPE:

WATER SUPPLY:

☐ MUNICIPAL (M) ☐ PUBLIC (C) ☒ PRIVATE WELL (P) ☐ SHARED WELL (S) ☐ OTHER 'SPRINGS' (O)

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

ARE ANY OF THE FOLLOWING LOCATED ON THE PROPERTY? IF SO, PLEASE SHOW LOCATION ON SITE PLAN/PLAT.

BURIED CABLES, LANDFILLS, STUMPHOLES	☐ YES	☒ NO	WELLS, SPRINGS, OR WATER LINES	☐ YES	☒ NO
EXISTING WASTEWATER SYSTEMS	☐ YES	☒ NO	DESIGNATED WETLANDS	☐ YES	☒ NO
EASEMENTS OR RIGHT-OF-WAYS	☐ YES	☒ NO	GRADING/SOIL REMOVAL PERFORMED	☐ YES	☒ NO

PROPERTY OWNER:

NAME: LKW Development LLC
ADDRESS: 17224 Due West Drive
CITY: Charlotte
STATE: NC ZIP: 28278
HOME PHONE: 704-583-0668 WORK PHONE: 704-388-5235
MOBILE PHONE: 704-562-1279 FAX: 704-583-8337

LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:

NAME:
ADDRESS:
CITY:
STATE: ZIP:
HOME PHONE: WORK PHONE:
MOBILE PHONE: FAX:

WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? Before 1982
WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY? Property closed on 1-14-05

*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 the Mecklenburg County Health Department to enter onto the property for the purpose of processing this request.

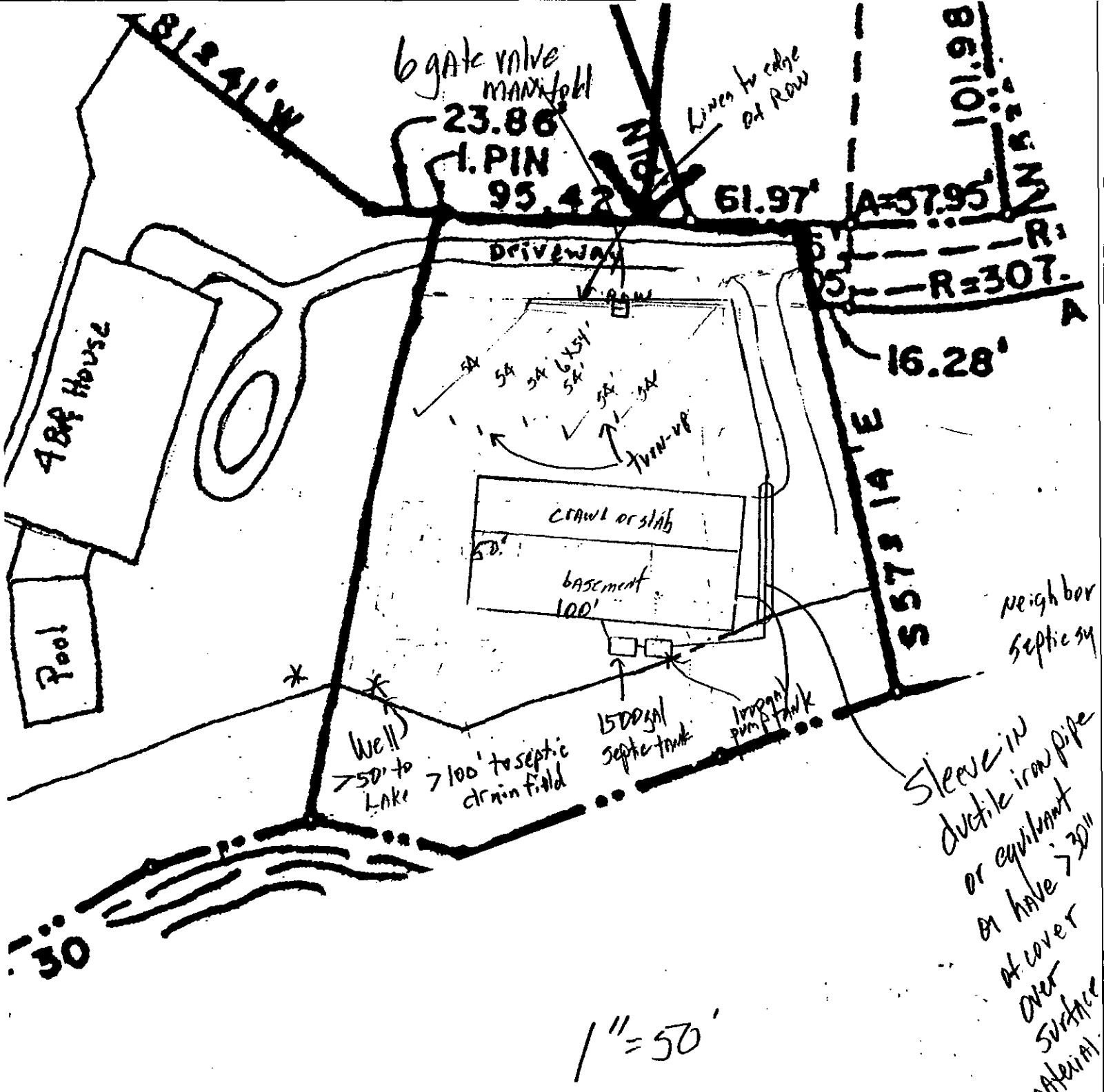
LKW Development LLC
William A. Harbison 5-20-05
Owner's/Agent's Signature Date
President

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

*A Well 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 the Mecklenburg County Health Department to enter onto the property for the purpose of processing this request.

William A. Harbison 5-20-05
Owner's/Agent's Signature Date

MECKLENBURG COUNTY HEALTH DEPARTMENT
GROUNDWATER & WASTEWATER SERVICES
700 N. TRYON ST., SUITE 211
CHARLOTTE, NC 28202
704-336-5103 / FAX: 704-336-6894



file # 5744B

This Site Map is taken from Application for Improvement Permit for Residential Site Wastewater Disposal which was approved by MCHD on 3/22/05, Permit No. 5744B