Site Address: 115 Bird Haven Dr - Stat. # Replaces Permit dated 4-22-05 (A)

IREDELL COUNTY HEALTH DEPARTMENT

STATESVILLE 704-878-5305 MOORESVILLE 704-664-5281

IMPROVEMENT PERMIT / AUTHORIZATION TO CONSTRUCT / OPERATION PERMIT / EXISTING SYSTEM INSPECTION

DATE 17 July 07

PERMIT# 125530 PIN# 4725-78-0467.016 4725785271

OWNER OR APPLICANT Terry O'Brian Buildyes PHONE: Business 704-902-4310 Home

ADDRESS 310 Tree Bark Rd. Statesville, N.C.

LOCATION Miller Farm Rd. from Scotts Creek - TL Dove Meadow Ln. - Go to END

SUBDIVISION Dove Meadow BLOCK / SECTION 2 LOT 16 LOT AREA 0.558 ac. SITE CLASS PS DESIGN FLOW 360/gl L.T.A.R. 0.15 gl/ft²/d

Septic Tank: 1000 Gallons: STB 760 Date 2-4-09

Pump Tank: 1000 Gallons: P.T. 363 Date 2-4-09

Pump Make: ZOELLER Model BN-140-T Serial No.

Nitrification Field: No Fields 1 Square Feet 2400 Linear Feet 494

No Lines 5 Trench Width 18" Max Trench Bottom Depth 24"

☑ New System ☐ Repair ☐ Expansion System Type: I II III IV V VI

System Description: LPP

Repair System Description: ~~LPP~~ Drip repair

Maintenance Agreement Required: ☑ Yes ☐ No

Gravel Depth 12" ☐ Gravity ☑ Pressure ☐ Slab ☑ Crawl Space ☐ Basement w/plumbing ☐ Basement wo/plumbing

☑ House/Mod. Home No. Bedrooms 3

☐ Mobile Home No. Persons

☐ Business No. Employees

☐ Other

Water Supply: ☐ Individual ☑ Public ☐ Community

Comments:/Conditions: * Install according to engineer's specs. and plans.

Comments:/Conditions:

INITIAL SITE SKETCH

See Attached Plans & Specifications from Piedmont Design Associates, PA

AS BUILT SKETCH

LINE #	# HOLES	HOLE SPACING	PRESSURE HEAD
(1)	17	60"	24"
(2)	16	66"	26"
(3)	18	60"	24"
(4)	20	72"	27½"
(5)	16	81"	37"

TOTAL: 87 HOLES

SPM: 40.27

Permit can be suspended or revoked if any false information is supplied toward securing the permit/any unauthorized changes are made to the site/any unauthorized changes are made in the installation of the system. Improvement Permit with plat valid without expiration ☐ Improvement Permit with site plan valid for sixty months ☑ Authorization to Construct is valid for a period equal to that of Improvement Permit – not to exceed sixty months.

Signed:

Improvement Permit by: R.S. date 17 July 07

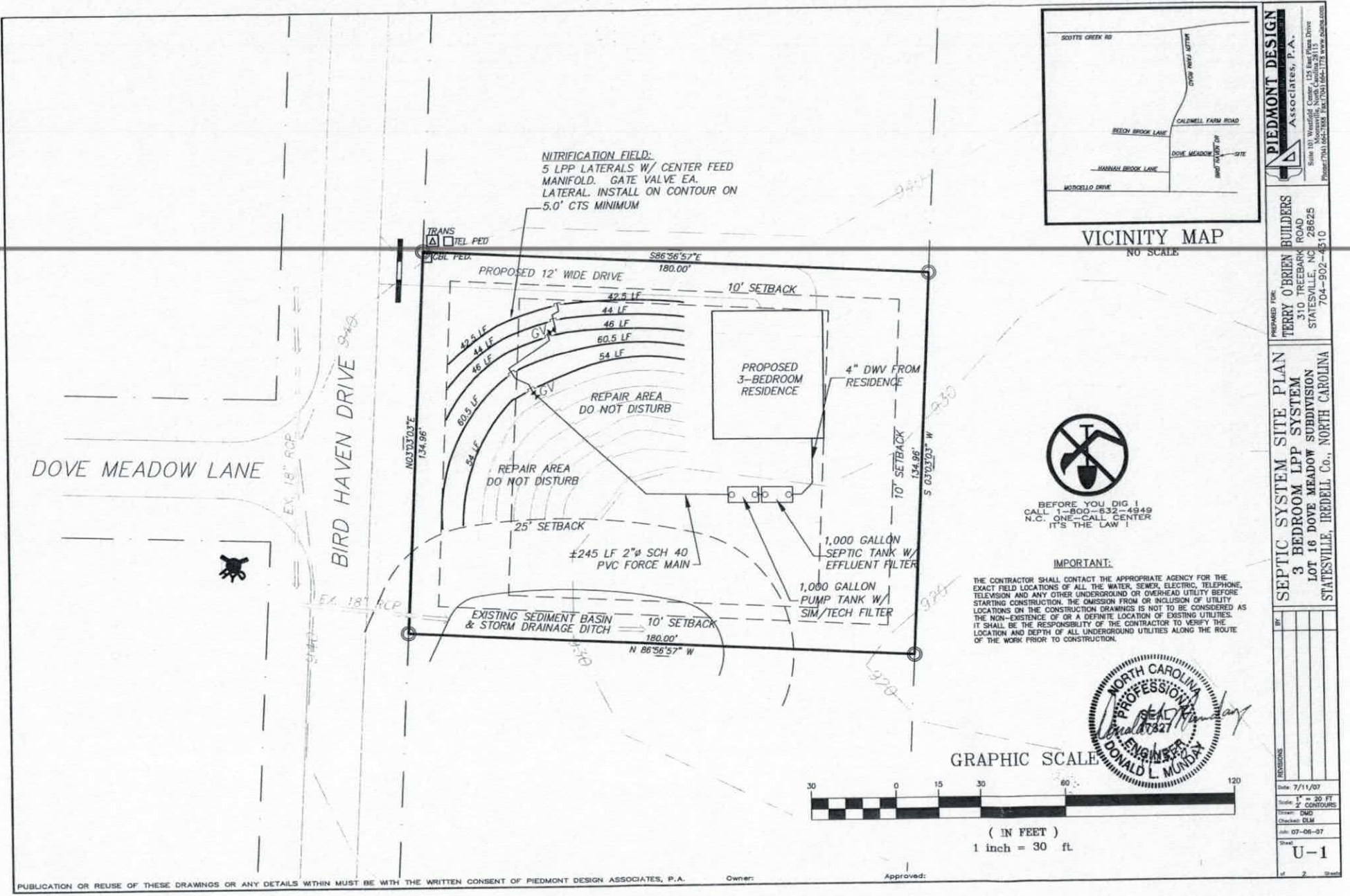
Authorization to Construct by: R.S. date 31 July 07

Installed by: KENNY MADISON

Operation Permit by: STEVE HENRICK date 9-13-2010

Existing System Inspection by: date

HEALTH DEPT. COPY: WHITE OWNER COPY (FINAL): YELLOW OWNER COPY (INITIAL): PINK



VICINITY MAP
NO SCALE

BEFORE YOU DIG !
CALL 1-800-632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW !

IMPORTANT:

THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCY FOR THE EXACT FIELD LOCATIONS OF ALL THE WATER, SEWER, ELECTRIC, TELEPHONE, TELEVISION AND ANY OTHER UNDERGROUND OR OVERHEAD UTILITY BEFORE STARTING CONSTRUCTION. THE OMISSION FROM OR INCLUSION OF UTILITY LOCATIONS ON THE CONSTRUCTION DRAWINGS IS NOT TO BE CONSIDERED AS THE NON-EXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF THE WORK PRIOR TO CONSTRUCTION.

NORTH CAROLINA PROFESSIONAL SEAL 017321 ENGINEER DONALD L MUNDAY

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PUBLICATION OR REUSE OF THESE DRAWINGS OR ANY DETAILS WITHIN MUST BE WITH THE WRITTEN CONSENT OF PIEDMONT DESIGN ASSOCIATES, P.A.

Owner:

Approved:

PIEDMONT DESIGN Associates, P.A.
Suite 101 Westfield Center, 125 East Plaza Drive Mooresville, North Carolina 28115
Phone (704) 664-7868 Fax (704) 664-1778 www.pdanc.com

PREPARED FOR:
TERRY O'BRIEN BUILDERS
310 TREEBARK ROAD
STATESVILLE, NC 28625
704-902-4510

SEPTIC SYSTEM SITE PLAN
3 BEDROOM LPP SYSTEM
LOT 16 DOVE MEADOW SUBDIVISION
STATESVILLE, IREDELL Co., NORTH CAROLINA

BY:
REVISIONS

Date: 7/11/07
Scale: 1" = 20 FT
2' CONTOURS
Drawn: DMD
Checked: DLM
Job: 07-06-07
Sheet: U-1
of 2 Sheets

SPECIFICATIONS & SCOPE OF WORK

For a Three Bedroom Residence

Low Pressure Pipe (LPP)

Ground Absorption, Wastewater Disposal System

For

Lot 16 Dove Meadow Subdivision
Statesville, Iredell County, North Carolina

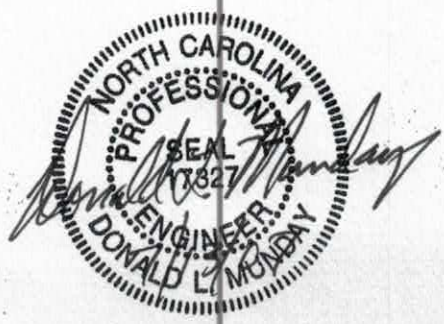
July 11, 2007

OWNER:

Terry O'Brien Builders
310 Tree Bark Road
Statesville, NC 28625
Phone: 704-902-4310
Fax: 704-872-3443

PREPARED BY:

Piedmont Design Associates, PA
125 East Plaza Drive, Suite 101
Mooresville, N. C. 28115
Phone: 704-664-7888
Fax: 704-664-1778



DESIGN CONSIDERATIONS AND RECOMMENDATIONS:

The Owner proposes to construct a 3-bedroom residence which will be served by water from West Iredell Water Corp. Soils investigation by Tim Higgins and Steve Hedrick reveals limited area suitable for a nitrification field.

Due to limited available space with only provisionally suitable soil, a LPP distribution system is proposed. A 100% repair area has been designated and has been shown on the plan. This area is to remain undisturbed.

The design is based on an LTAR if 0.15 G/SF/D.

Location: Take Interstate 77 North to Interstate 40 West. Get off Interstate 40 at Highway 115 Exit and proceed North on Highway 115 toward Wilkesboro. Turn Left on Scotts Creek Road. Go approximately ½ mile and turn left on Miller Farm Road. Go approximately 2 miles and turn left into Dove Meadow Subdivision. Lot is at end of street.

REFERENCE MATERIAL:

(1) DESIGN AND INSTALLATION (Manual) OF LOW PRESSURE PIPE WASTE WATER TREATMENT SYSTEMS, By: Craig Cogger; Bobby L. Carlisle; Dennis Osborne; Ed Holland; Published by: UNC Sea Grant College Pub. UNC-SC-82-03, May, 1982.

(2) LAWS AND RULES FOR GROUND ABSORPTION SEWAGE DISPOSAL SYSTEMS. SECTION .1900 OF THE N.C. Administrative Code: Title 10 Health Services; Environmental Health; Subchapter 10a; Sanitation. Published by: N.C. Dept. of Human Resources; July 1, 1982.

(3) EPA 625/1-80-012 Design Manual - On-site Wastewater Treatment and Disposal System; Oct.,1980; Chapter 7.

RECOMMENDATIONS:

This area shall be barricaded from any vehicular traffic. There shall be no earth disturbing activities within the designated area for the initial and repair areas.

Laterals will be placed at 5' minimum separation or wider as shown on the plan. The area adjacent to the laterals is available for repair and shall be barricaded from any traffic or disturbance.

OWNERSHIP RESPONSIBILITY FOR A LOW PRESSURE PIPING SYSTEM:

The Owner must enter into a contract with a certified operator to provide system reviews and/or maintenance a minimum of 2 times per year. The operator and maintenance procedure shall include the steps outlined herein in the Operation and Maintenance procedure.

The Owner shall have the operating agreement before obtaining an improvement permit or otherwise as agreed by the Local County Health Department.

It must be kept in mind that this system is designed to accept a moderate amount of waste water (which is called the EFFLUENT), in a minimal water absorbing soil.

Conservation measures must be undertaken by all members of the facility to minimize the volume of waste water entering the disposal system, including, but not limited to, the following precautions:

1. Provide water conserving plumbing fixtures within the facility; including toilets with flush volume not exceeding 1.6 gallons/flush.
2. Develop conservative water use habits;
3. Monitor and maintain the system as necessary for proper operation;
4. Check and pump the septic tank sludge on a regular basis or approximately every three years, otherwise as required by the regulations.
5. Make rapid repairs to leaking plumbing fixtures and faucets.
6. Avoid excessive watering of the lawn in the vicinity of the disposal field and prevent the growth of weeds.

6. Prior to installation of PVC, force main, manifold and lateral piping, fabricate 1.5" diameter PR-160 lateral piping with orifices (holes) at scheduled locations along the top of the pipe. (See chart for size and spacing.) LPP lateral shall be 1-1/4" diameter PR 160 PVC pipe encased in 4" diameter corrugated plastic tubing and shall be certified as complying with applicable ASTM standards. The corrugated tubing shall have three rows of holes, each hole between 1/2" and 3/4" in diameter, and spaced longitudinally approximately 4" on centers. The rows of holes may be equally spaced 120 degrees on centers around the periphery, or three rows may be located in the lower portion of the tubing, the outside rows being approximately on 120 degrees centers.

   Nitrification trench shall be constructed as level as possible, but in no case shall the fall in a single trench bottom exceed 1/4" in 10' as determined by an Engineer's level. The nitrification trench shall not exceed a width of 18" and be 24" deep, except as approved by the Local County Health Department.

   Rock used in nitrification trench shall be clean, washed gravel or crushed stone and graded or sized between 3/8" to 1" The rock shall be placed a minimum of 12" deep with at least 6" between the pipe and the trench bottom and 2" over the pipe, and distributed uniformly across the trench bottom and over the pipe. All joints in lateral and the manifold piping shall be water tight connections to ensure that the only source of the water seepage from the system is through the orifices as designed. See layout, details, and data sheet. Carefully install pressure piping and lateral network according to the attached designed layout using care to insure that holes shall be located at required intervals and as shown on the "typical section through the lateral trench." A larger diameter protective sleeve with cap or approved valve box with lid shall be placed over the turned up lateral and positioned level with the ground surface (so as not to be damaged by mowing machine). The lateral shall be positioned for easy removal of the end cap for flushing.

7. Leave absorption area with a raked surface, ready for grassing.

8. Carefully backfill manifold trenches to finish grade with clean debris free earth (no stone).

9. The septic tank shall consist of a 1,000 gallon capacity, reinforced, precast concrete tank with full baffle and shall have easy access to each chamber from ground level for checking and pumping. The first chamber of the septic tank shall consist of 2/3" of the volume of the total tank and the baffle shall contain a horizontal opening across the tank at about midway its height. The outlet of the tank shall have an effluent filter as called for herein. Locate the septic tank at such height as to provide approximately 8" of cover soil over top of the tank. Provide an approved access port over the over all chambers of all tanks.

   The riser shall be furnished by the tank manufacturer and shall be placed as called for on the plans and shall extend a minimum of 6" above finish grade.

   Contractor shall refer to plans and site conditions to address loading of the tank and / or riser by vehicular traffic. If tanks are located in traffic area, access to septic tank shall be through 24" cast iron manhole frame and cover. Ground surface shall be graded to divert surface water away from the access ports.

   Tank and riser shall conform to paragraph .1952 of the regulations.

10. **Effluent Filter**: A Zabel A1800 micro-filter, with 1/32" infiltration shall be installed in lieu of the outlet tee in the septic tank. The filter shall be manufactured by ZABEL or approved equal, Zabel Environmental Technology, 10409 Watterson Trail, Louisville, KY, 40299, 1-800-221-5742, Fax 502-267-8801 Fax.

11. The dosing tank shall consist of a 1,000 gallon capacity, reinforced, precast concrete tank without baffle. Provide access for entry into the tank directly over the pump location, and extending 6" above final grade. The tank shall be supplied by a manufacturer approved by DHS and bear the manufacturer's serial number. Use 30" diameter approved concrete or corrugated plastic, access riser with bolted on or lockable lid extending a minimum of 6" above grade. In addition to the pump, the tank shall have a pressure filter with float controls and alarm floats as detailed.

21. **Proper Operation Check**: After all components have been installed and connected, the system should be checked for proper operation. With electrical power turned off, fill the pumping chamber with water from a garden hose (or allow effluent to accumulate) until the liquid rises to the level of the high-water alarm float. Turn on the electrical power. The alarm light should go on in the facility, and the pump should start operating. 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.

22. **Pressure Head Adjustment:** The pressure head must be adjusted to match that specified in the design. The pressure head is measured as the height liquid will rise above the turn-up elbow when the pump is running. To adjust the head:

    (a) Glue a 4' length of pipe (preferably clear) to a threaded adapter that will screw onto the turn-up adapters. (Call this the "test tube").

    (b) Replace the turn-up cap with the "test tube".

    (c) Turn the power on to allow liquid to rise in the "test tube".

    (d) Adjust the valves at the manifolds and/or in the pumping tank until the effluent reaches the desired height in the "test tube". Remember to include the distance below the ground surface to the lateral line when measuring the height. Refer to the flow calculation chart relative pressure head (h) for each line. This is the height above the lateral liquid should be in the temporary "test tube".

23. **Final Landscaping:** After the LPP is installed, the following should be checked to insure that the system will not be overloaded with excess rain water and run off:

    a. The distribution field is shaped to shed rain water and is free of low area.

    b. Curtain drains, grassy swales or ditches for diverting ground and surface water are properly installed.

    c. Gutter and downspout drains are directed away from the system.

24. Any problems should be corrected before approving the system.

25. Finally, the entire area should be planted with grass according to specifications.

DESIGN SPECIFICATIONS - LOW PRESSURE PIPING SYSTEM

Terry O'Brien Builders

Lot 16 Dove Meadow Subdivision

Statesville, Iredell County, NC

July 13, 2007

Daily design waste flow: (2-bedroom)	360 gpd
Septic tank size:	1,000 gal. (2 compartment)
Pumping tank size:	1,000 gal.
Effluent Filters (2):	Effluent Filter Zabel A1800 w/ 1/32" openings in septic tank and GAG Sim/Tech Filter at dosing pump.
Effluent loading rate:	0.15 GPD/SF
Total absorption areas:	2,400 sf active; 2,400 sf repair
Number and length of laterals:	5 laterals @ Various Lengths = 494 LF
Lateral Size:	1.25" dia. PR160 PVC Inside 4" corrugated perforated pipe
Force Main	2" diameter SCH 40 - 145'
Diameter of supply manifold:	2" dia. SCH 40 PVC
Manifold placement:	Middle of Drainfield
Hole size:	5/32"
Hole spacing:	Varies, see chart
Total number of holes:	83
Flow rate through the system:	42.9 gpm
Elevation head (pump to end of manifold):	12.0'
Pressure head:	2.0'
Friction head:	6.2'
Total head:	20.2'
Pump requirements:	42.9 gpm @ at 20.2', use Zoeller 140, 1 hp, 230v/1ph
Dosing volume:	180 gal.
Depth of water pumped per dose:	7.1"
Pump run per dose:	4.2 min.
Check valve:	yes
Siphon break hole:	yes

Job No:
Project: Lot 16 Dove Meadow Subdivision, Statesville, NC - LPP Design Calculations

5 Lines at Various LF each - Manifold Placement : Center

LATERAL	LENGTH	ELEV.	REL. PRES. HEAD	ORIFICE DIA. (FEET)	GPM/ ORIFICE	TOTAL NO. OF HOLES	ORIFICE SPACING (INCHES)	DISTANCE FROM MANIFOLD TO FIRST ORIFICE LEFT	DISTANCE FROM MANIFOLD TO FIRST ORIFICE RIGHT	NUMBER OF HOLES LEFT	NUMBER OF HOLES RIGHT	DISTANCE FROM LAST HOLE TO END OF LATERAL LEFT	DISTANCE FROM LAST HOLE TO END OF LATERAL RIGHT	GPM/ LINE	GPM/ FOOT OF LINE
A1	85	937.0	2.0	0.0130208	0.41	~~16~~ 17	~~60.0~~ 60"	45.0	45.0	~~8~~	~~8~~	~~45.0~~	~~45.0~~	6.51	~~0.0766~~ 0.0820
A2	88	936.5	2.5	0.0130208	0.45	16	~~60.0~~ 66"	54.0	54.0	~~8~~	~~8~~	~~54.0~~	~~54.0~~	7.28	0.0827
B1	92	936.0	2.0	0.0130208	0.41	~~17~~ 18	~~60.0~~	36.0	36.0	~~8~~	~~9~~	~~96.0~~	~~36.0~~	~~6.82~~	~~0.0752~~ 0.08022
B2	121	935.0	3.0	0.0130208	0.50	~~23~~ 20	~~60.0~~ 72"	60.0	20.0	~~11~~	~~12~~	~~66.0~~	~~46.0~~	~~11.46~~ 10	0.0947 0.0826
B3	108	934.5	3.5	0.0130208	0.54	~~20~~ 16	~~60.0~~ 81"	78.0	30.0	~~10~~	~~10~~	~~30.0~~	~~78.0~~	~~10.77~~ 8.64	0.0997 0.0800

6.97
7.86

TOTALS: 494.0 LF

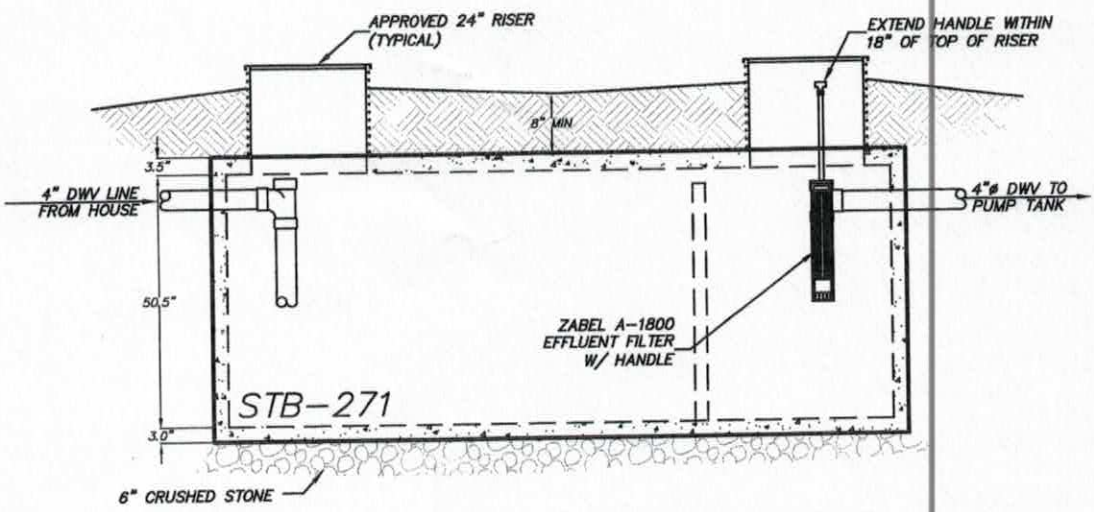
~~92.0~~ 87 HOLES

~~42.0~~ 40.27 GPM

FORCE MAIN AND PUMP SIZING DATA:

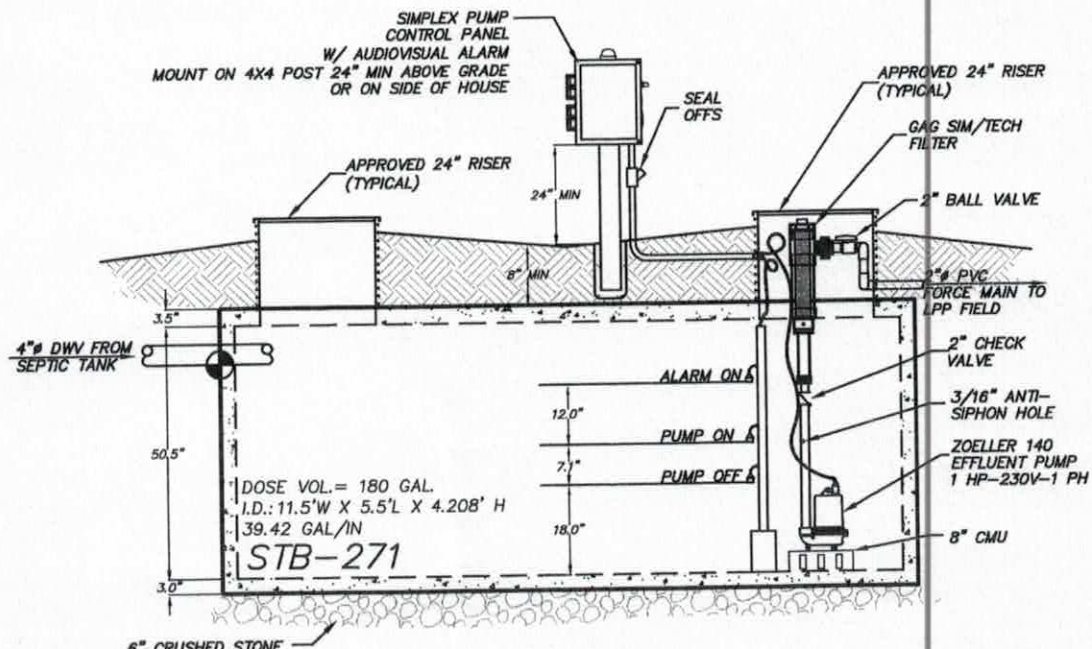
PUMP TANK INVERT:	925.0	
HIGH POINT IN SUPPLY LINE:	937.0	
SYSTEM HEAD @ HIGH POINT:	2.0	
TOTAL STATIC HEAD:	14.0	FEET
DESIGN FLOW:	42.9	GPM
FORCE MAIN LENGTH:	145.0	FEET
FORCE MAIN SUPPLY SIZE:	2.0	INCH SCH 40 PVC
ACTUAL ID OF FORCE MAIN:	2.067	INCHES
FRICTION LOSSES:	6.2	FEET (Including minor losses)
FORCE MAIN VELOCITY:	4.11	FEET PER SECOND
MINIMUM PUMP REQUIREMENTS:	42.9 GPM AT	20.2 FEET TDH
DOSE VOLUME:	242.6	GALLONS
TRY USING A DOSE OF:	180.0	GALLONS
RESULTING PUMP RUN TIME:	4.2	MINUTES
DOSING DEPTH:	7.1	INCHES

LINE #	# HOLES	START FROM END	HOLE SPACING
1	17	30"	60"
2	16	33"	66"
3	18	42"	60"
4	20	36"	72"
5	16	40"	81"



SECTION VIEW - 1000 GAL SEPTIC TANK

N.T.S.



SECTION VIEW - 1000 GAL PUMP TANK

N.T.S.

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Owner:

Approved:

Sheet DET-1 of 2 Sheets

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Drawn: DMD
Checked: DLM
Scale: AS SHOWN
Date: 7/11/07

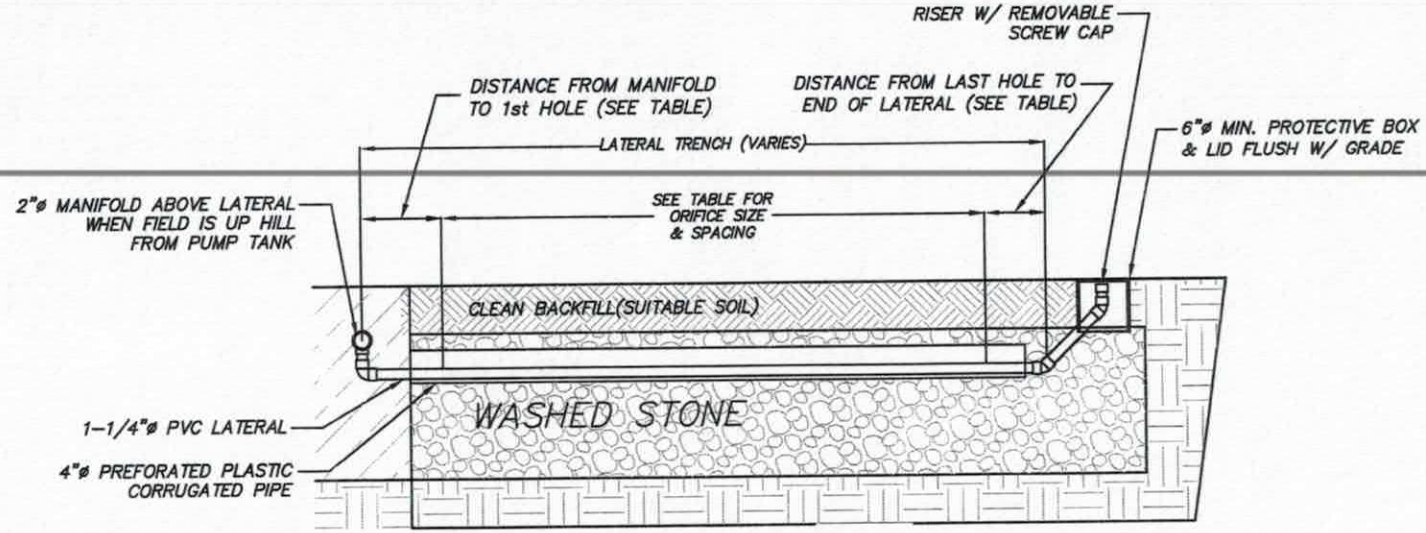
REVISIONS	BY

TANK DETAILS

2 BEDROOM RESIDENCE
LOT 16 DOVE MEADOW SUBDIVISION
STATESVILLE, IREDELL Co., NORTH CAROLINA

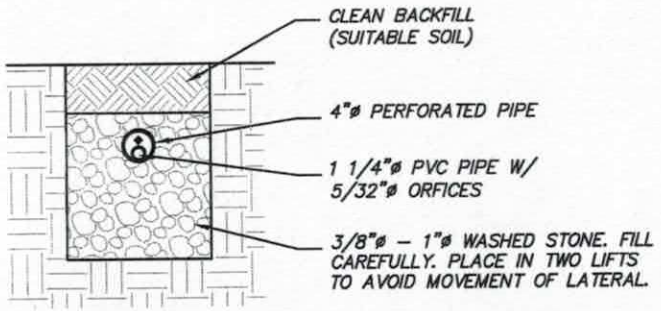
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TERRY O'BRIEN BUILDERS
310 TREEBARK DRIVE
STATESVILLE, NC 28625
704-902-4310

PIEDMONT DESIGN
Associates, P.A.
Suite 101 Westfield Center, 125 East Plaza Drive
Mooresville, North Carolina 28115
Phone:(704) 664-7888 Fax:(704) 664-1778 www.pdapa.com



SECTION THROUGH MANIFOLD & ELEVATION OF LATERALS

N.T.S.



SECTION THROUGH LATERAL TRENCH

N.T.S.

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Owner:

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Suite 101 Westfield Center, 125 East Plaza Drive
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PREPARED FOR:
TERRY O'BRIEN BUILDERS
310 TREEBARK DRIVE
STATESVILLE, NC 28625
704-902-4310

LPP LATERAL DETAILS
2 BEDROOM RESIDENCE
LOT 16 DOVE MEADOW SUBDIVISION
STATESVILLE, IREDELL Co., NORTH CAROLINA

BY | REVISIONS

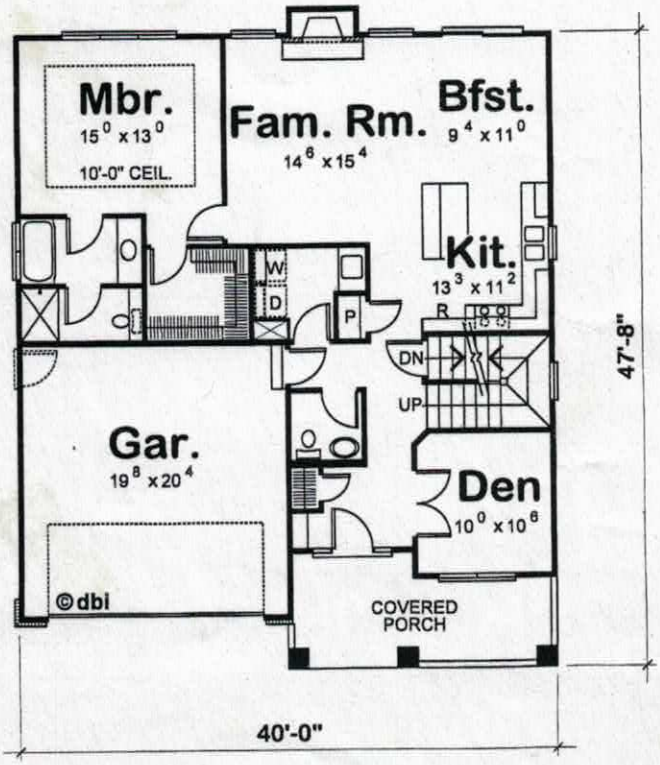
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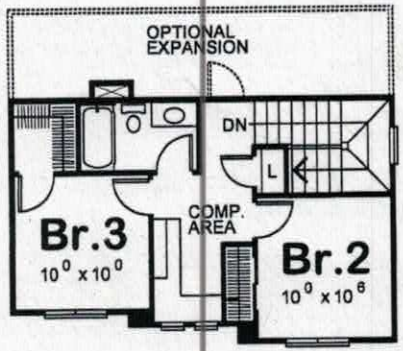
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8538 Watson

Acknowledgement Of
Plans Submittal ONLY!
Date 31.Jul.07
Date 7-31-07



Unfinished Storage
adds 198 Sq. Ft.



Main	1268 Sq. Ft.
Second	431 Sq. Ft.
Total	1699 Sq. Ft.