

**INSTALLATION SPECIFICATIONS ON ON-SITE
WASTEWATER DISPOSAL**

KILLIAN CROSSING

**SEPTIC SYSTEM INSTALLATION AND
LANDSCAPING/ DRAINAGE SPECIFICATIONS**

April 16, 2006

On-Site Wastewater System Management Program

Installation Guidelines

INTRODUCTION

The sewage disposal systems have been master planned to provide safe and effective natural wastewater treatment without compromising any esthetic or environmental issues. Individual on-site systems will be used within the project as the chosen method of waste disposal.

Each lot will have its own septic disposal system that has been thoroughly designed specifically for that site. The Owners Association has gone to great lengths to retain the services of professionals within the different fields to analyze the soils, design the layouts, specify guidelines for the installations, inspect the installations and to provide on-going maintenance for the years to come. All of this through an operation and management program, overseen by the Owners Association, to provide on-site systems as reliable as a centralized sewer system.

DEVELOPMENT ANALYSIS

With extensive planning of the best utilization of the property, a land plan was developed to maximize the esthetics without compromising any of the ecological or environmental concerns. On-site septic systems were chosen as the most viable option for the project. On-site septic systems are less obtrusive to the landscapes and utilize our natural resources very efficiently.

ON-SITE SEPTIC SYSTEMS - HOW THEY WORK

Septic systems meet the wastewater management needs of more than fifty percent of North Carolina's households. Over 50,000 systems annually are permitted, more than any other state in the country per capita. Given appropriate site and soil conditions, septic systems can be the most effective for wastewater management because of their simplicity, treatment, efficiency and stability.

The septic tank's job is to settle solids from wastewater and produce a liquid ready to be treated and disposed of in the drain field. Although the septic tank removes some pollutants from wastewater, further treatment is required after the effluent leaves the tank.

Properly utilized, soil provides excellent treatment and safe disposal. As the wastewater leaves the septic tank it is distributed either by gravity or lifted by an effluent pump to several nitrification lines or ditches. The wastewater is absorbed into the soil and continues its treatment, filtering through the soil it eventually 'recharges' the groundwater or provides base flows in streams. The partially treated wastewater in a septic system should travel through several feet of soil to provide adequate removal of organisms and other pollutants.

The type of systems that release wastewater into soil is determined by the characteristics of the soil, slope, available space, soil depth over water tables or bedrock and other site-specific factors.

With the proper planning, oversight, installation, landscaping and maintenance these systems should give worry free reliable service.

PLANNING, INSTALLATION AND MAINTENANCE

Successful performance of the septic systems is directly related to the proper planning and installation of the systems and the appropriate periodic maintenance. The Owners Association has retained Jim Lanier with Stanley Septic Service (SSS) to formulate guidelines for the proper management of the septic systems. (SSS) will be providing a continued updated list of "Septic Contractors" that have been approved by (SSS) to install within the community. This is not to exclude anyone from installing within the community, but to provide a list for convenience to the owners. The "Septic Contractors" will be those that have read and understand this booklet, is abreast of all aspects of the management program for the community, and has competently installed septic systems in the community.

The following information will give details of the construction requirements that have been developed for the community. If further information is

needed or clarifications of any requirements, please contact Jim Lanier, with Stanley Septic Service at the following numbers:

Jim Lanier, office 704.732.3422
Cell 704.860.5534

GRAVITY FED 25% REDUCTION

INSTALLATION SPECIFICATIONS

SEPTIC TANK

1. 1500 gallon minimum capacity one-piece concrete units are required on all systems. Dellinger's in Denver, NC fabricates this type tank.
2. An access riser shall be installed on the **inlet** end of the tank which will provide for monitoring and pumping services. Access riser is to be Easy Set with stainless steel bolts through the lids.
3. An access riser shall be provided for monitoring, pumping, and servicing the effluent filter on the **exit** end of the tank.
4. At the time of installation, the installer should allow an extra 6" joint of riser over all accesses to allow for finish grade changes. After the final landscaping, adjustments can be made to lower the heights if possible.
5. Do not allow and "bridging" to occur under the gravity supply line within 10 feet of the connection of the exit pipe of the septic tank. When back-filling a pivoting effect can occur resulting in damage to the pipe when back filling is performed.
6. A 4" rubber boot shall be used to seal the penetration point of the exit end of the tank.

PRIMARY EFFLUENT FILTER - SEPTIC TANK

1. An effluent filter shall be installed as per manufacturer's instructions at the exit end of the septic tank. All filters are to be Zabel residential effluent filter unit. This is a complete unit ready to install to a 4" SCH 4-0 PVC pipe.

DISTRIBUTION DEVICES

1. Distribution boxes shall be Poly Lock #3017-20 and are to be provided with access risers installed for monitoring and servicing. Use pipe seal #S-40 for watertight connections for SCH 40 PVC pipe or hole plug. For systems requiring less than six (6) leach fields lines, use hole plug #P-10 for any unused holes.
2. Stability is critical to the performance of the distribution device. The device shall set on virgin soil or a leveled concrete pad. Level within 1/16" from corner to corner.
3. Do not allow any 'bridging' under gravity distribution lines or supply lines within 10 feet of the connection of the distribution device. When back filling a pivoting effect can occur as much as 1" within the levels of the distribution of effluent inside the distribution devices because of lines not adequately supported outside of the box. Backfill should be done by hand to prevent any movement caused by large volumes of heavy soil that may come from a backhoe.

25% REDUCTION

1. The inspection ports located on each line and near the end of the "Chamber" type units shall be installed as per manufacturer's recommendation. A 3" PVC pipe extends upwards from the top of the chamber to extend a minimum of 18" beyond the rough grade by the installed. A cleanout assembly (with plug) is to be connected to the open pipe and the assembly shall be made flush with the finish grade, by the landscaper, after final landscaping has been performed. The same 3" PVC pipe is to extend downwards 4" into the chamber cavity through a hole drilled only large enough for the 3" pipe. **Do not** extend pipe to trench bottom. A 3" coupling setting on the top of the chamber where it will not slide through the drilled hole.
2. Inspection ports for the Polystyrene aggregates are to be located one on each lateral near the end of the run. Using a section of 3" PVC drill $\frac{1}{2}$ " holes in several places along the first 12" of the section. Push the section; end with holes first, between two of the bundles and seat on the trench bottom. A clean out assembly (with

- plug) is to be connected to the open pipe and the assembly shall be made flush with the finish grade, by the landscaper, after final landscaping has been performed.
3. Using 6" black corrugated plastic pipe around the turn-up, extend it upwards a minimum of 24" past rough grade. After the landscaper has determined the finish grade, the landscaper is responsible to straighten, cut down, and adjust the specified plastic box to fit flush with finish grade. Careful attention is to be given to the proper height adjustment.
 4. Adequate soil cover over the 25% Reduction is extremely vital to the proper functioning of the system and shall be in accordance to the manufacturer's recommendations.

GENERAL

1. Any gravity distribution or supply line shall have a minimum of 10" of earthen cover. If the installer cannot achieve this cover, he must notify the builder of the need for additional soil to be brought in.
2. Fields shall not be constructed in wet conditions. Installer must call ahead, to the inspector, in questionably or moist conditions, prior to any installation at which time approval will be granted if conditions are appropriate. Requests are to be made directly to Jim Lanier at 704.732.3422. 48-hour notice is required.
3. If during construction, the installer finds that the trench bottoms or sidewalls are 'smearing' from the backhoe bucket, raking shall be performed and lime applied to restore soil characteristics.
4. No galvanized components shall be used on any part of the entire system. They will not give long-term service when exposed to sewer gases or effluent.
5. Any system utilizing flow dividers shall have the flow dividers resting firm and level on a minimum block surface of 8"x16"x2".
6. The temporary fencing that has protected the drain field areas prior to the installation of the system shall be put back into place after the installation is complete by the installer.

NOTE: THESE ARE SPECIFICATIONS FOR ITEMS THAT MAY EXCEED STATE AND LOCAL REGULATIONS. ALL OTHER REQUIREMENTS ARE PER INSTALLER'S INSTALLATION PERMIT AS ISSUED BY THE LOCAL COUNTY ENVIRONMENTAL HEALTH DEPARTMENT AND SHALL MEET THE NORTH CAROLINA LAWS & RULES FOR SEWAGE TREATMENT.

GRAVITY 25% REDUCTION

FED BY PRESSURE MANIFOLD

INSTALLATION SPECIFICATIONS

SEPTIC TANK

1. 1500-gallon minimum capacity one-piece concrete units are required on all systems. Dellinger's in Denver, NC fabricates this type of tank.
2. An access riser shall be installed on the **inlet** end of the tank, which will provide for monitoring and pumping services.
3. An access riser shall be provided for monitoring, pumping, and servicing the effluent filter on the **exit** end of the tank. Access riser is to be Easy Set with stainless steel bolts through the lid.
4. At the time of installation, the installer should allow an extra 6" joint of riser over all accesses to allow for finish grade changes. After the final landscaping, adjustments can be made to lower the heights if possible.
5. Do not allow and "bridging" to occur under the gravity supply line within 10 feet of the connection of the exit pipe of the septic tank. When back-filling a pivoting effect can occur resulting in damage to the pipe when back filling is performed.
6. A 4" rubber boot shall be used to seal the penetration point of the exit end of the tank.

PUMP TANK

1. 1000-gallon minimum capacity one-piece concrete units are required on all systems. Dellinger's in Denver, NC fabricates this type of tank.
2. An access riser shall be provided for inspecting and servicing of the pump and controls. Riser shall be Easy Set with stainless steel bolts through the lids.

3. At the time of installation, the installer should allow an extra 6" joint of riser over all accesses to allow for finished grade changes. After the final landscaping, adjustments can be made to lower the heights if possible.
4. Supply line shall be 2" Schedule 40 PVC.
5. If the discharge is penetrated through the riser a sealed bulkhead fitting must be used to give a watertight seal.
6. Do not allow any 'bridging' to occur under the pressure supply line. Pressurized supply lines coming from the effluent pumps shall be adequately supported outside the riser connection with close attention given for at least 10 feet. A pivoting effect happens upon back filling causing the pump to lift up off of the support within the tank and its weight will cause the PVC discharge pipe to crack and break. Support properly where there is no stress or pressure applied to the pipe when backfilling is performed.
7. A Pressure Bell or float tree is an alternative to the 3-float system to be installed within the pump tank. If choosing the Pressure Bell, adjust the bell in the following manner: After attaching the supplied stainless bracket to the inside riser wall lower the bell tree into the tank and affix when the large ring on the bell unit is just below the top of the pump (no more than 2" below). This properly sets the "Zero" point for your settings.
8. All components installed within the pump tank, ball valves and check valves, shall be of PVC material only. The bronze or brass type are not acceptable.
9. The pull rope used for the extraction of the pump shall be of nylon.
10. All effluent pumps shall be either Myers ME series or Gould's WE series 230 volt, single-phase pumps with optional 50' cords.
11. The control panels are to be CSI RKSF 230CB with float or CSI RSSP 230 CB-DDCS Pressure Dose Panel mounted in an accessible manner and adjacent to the pump tank at a location determined by the inspector. Duct seal must be installed in all open conduit ends to prevent moisture and gases into the panel. All wires and tubing are to run back to the control panel without a splice. This is very critical.

PRIMARY EFFLUENT FILTER - SEPTIC TANK

1. An effluent filter shall be Zabel filter, installed as per manufacturer's instructions at the exit end of the septic tank. All filters are to be State approved residential effluent filter unit. This is a complete unit ready to install to a 4" SCH 40 PVC pipe.

PRESSURE MANIFOLD

1. The pressure manifold vault shall be state approved and shall be installed where the lid is slightly above finish grade.
2. When back filling around vault, sprinkle soil loosely and pack by walking. Hand work if necessary to smooth grade.

CONTROL PANEL/ALARM

1. The control panels are to be CSI RKSF 230CB with float or CSI RSSP 230 CB-DDCS Pressure Dose Panel. The control panel must contain breakers within the control panel box.
2. The installer will install the control panel on the side of the dwelling adjacent to the pump tank. He will make all electrical connections within the panel. The builder's electrician will make the connection to the dwelling of the service lines and the pump connections.
3. **Piggy Back connections will not be allowed.**
4. Control panel box must be mounted in an accessible manner and at least 30" in height above the ground.

25% REDUCTION

1. The inspection ports located on each line and near the end of the "Chamber" type units shall be installed per manufacturer's

recommendation. A 3" PVC pipe extends upwards from the top of the chamber to extend a minimum of 18" beyond the rough grade by the installer. A clean-out assembly (with plug) is to be connected to the open pipe and the assembly shall be made flush with the finish grade, by the landscaper, after final landscaping has been performed. The same 3" PVC pipe is to extend downwards 4" into the chamber cavity through a hole drilled only large enough for the 3" pipe. **Do not** extend pipe to trench bottom. A 3" coupling will connect the two sections together with a coupling setting on the top of the chamber where it will not slide through the drilled hole.

2. Inspection ports for the Polystyrene aggregates are to be located one on each lateral near the end of the run. Using a section of 3" PVC, drill $\frac{1}{2}$ " holes in several places along the first 12" of the section. Push the section; end with holes first, between two of the bundles and seat on the trench bottom. A clean-out assembly (with plug) is to be connected to the open pipe and the assembly shall be made flush with the finish grade, by the installer, after final landscaping has been performed.
3. Adequate soil cover over the 25% Reduction is extremely vital to the proper functioning of the system and shall be in accordance to the manufacturer's recommendations.

GENERAL

1. Any gravity distribution or supply line shall have a minimum of 10" of earthen cover. If the installer cannot achieve this cover, he must notify the builder of the need for additional soil to be brought in.
2. Fields shall not be constructed in wet or moist conditions. Installer must call ahead, to the inspector, in questionably or moist conditions, prior to any installation at which time approval will be granted if conditions are appropriate.
3. If during construction, the installer finds that the trench bottoms or sidewalls are 'smearing' from the backhoe bucket, raking shall be performed and lime applied to restore soil characteristics.

4. No galvanized components shall be used on any part of the entire system. They will not give long-term service when exposed to sewer gases or effluent.
5. Any system utilizing flow dividers shall have the flow dividers resting firm and level on a minimum block surface of 8"x16"x2".
6. The temporary fencing that has protected the drain field areas prior to the installation of the system shall be put back into place after the installation is complete by the installer.
7. Any pump supply line or force main shall maintain a minimum buried depth of 24" below grade.
8. All PVC connections shall be cleaned and primed using a quality product designed specifically for PVC. Upon making the connection, heavy duty PVC cement shall be used immediately after priming the ends properly.

NOTE: THESE ARE SPECIFICATIONS FOR ITEMS THAT MAY EXCEED STATE AND LOCAL REGULATIONS. ALL OTHER REQUIREMENTS ARE PER INSTALLER'S INSTALLATION PERMIT AS ISSUED BY THE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT AND SHALL MEET THE NORTH CAROLINA LAWS & RULES FOR SEWAGE TREATMENT.

PREFABRICATED PERMEABLE BLOCK PANELS FED BY PRESSURE DISTRIBUTION

INSTALLATION SPECIFICATIONS

SEPTIC TANK

1. 1500-gallon minimum capacity one-piece concrete units are required on all systems. Dellinger's in Denver, NC fabricates this type of tank.
2. An access riser shall be installed on the **inlet** end of the tank, which will provide for monitoring and pumping services. Easy Set with stainless steel bolts through the lids shall be used.
3. An access riser shall be provided for monitoring, pumping, and servicing the effluent filter on the **exit** end of the tank.
4. At the time of installation, the installer should allow an extra 6" joint of riser over all accesses to allow for finish grade changes. After the final landscaping, adjustments can be made to lower the heights if possible.
5. Do not allow and "bridging" to occur under the gravity supply line within 10 feet of the connection of the exit pipe of the septic tank. When back-filling a pivoting effect can occur resulting in damage to the pipe when back filling is performed.
6. A 4" rubber boot cement shall be used to seal the penetration point of the exit end of the tank.

PUMP TANK

1. 1000-gallon minimum capacity one-piece concrete units are required on all systems. Dellinger's in Denver, NC fabricates this type of tank.
2. An access riser shall be provided for inspecting and servicing of the pump and controls. Riser shall be Easy Set with stainless steel bolts through the lid.

3. At the time of installation, the installer should allow an extra 6" joint of riser over all accesses to allow for finished grade changes. After the final landscaping, adjustments can be made to lower the heights if possible.
4. If the discharge is penetrated through the riser a sealed bulkhead fitting must be used to give a watertight seal.
5. Do not allow any 'bridging' to occur under the pressure supply line. Pressurized supply lines coming from the effluent pumps shall be adequately supported outside the riser connection with close attention given for at least 10 feet. A pivoting effect happens upon back filling causing the pump to lift up off of the support within the tank and its weight will cause the PVC discharge pipe to crack and break. Support properly where there is no stress or pressure applied to the pipe when backfilling is performed.
6. A Pressure Bell or float tree is an alternative to the 3-float system to be installed within the pump tank. If using the Pressure Bell, adjust the bell in the following manner: After attaching the supplied stainless bracket to the inside riser wall lower the bell tree into the tank and affix when the large ring on the bell unit is just below the top of the pump (no more than 2" below). This properly sets the "Zero" point for your settings.
7. All components installed within the pump tank, ball valves and check valves, shall be of PVC material only. The bronze or brass types are not acceptable.
8. The pull rope used for the extraction of the pump shall be nylon.
9. All effluent pumps shall be Myers ME series or Goulds WE series 230 volt, single-phase pumps with optional 50' cords set on 3 - 4" cap blocks.
10. The control panels are to be CSI RKSF 230CB with float or CSI RSSP 230 CB-DDCS Pressure Dose Panel mounted in an accessible manner and adjacent to the pump tank at the location determined by the inspector. Duct seal must be installed in all open conduit ends to prevent moisture and gases into the panel. All wires and tubing are to run back to the control panel without a splice. This is very critical.

PRIMARY EFFLUENT FILTER - SEPTIC TANK

1. An effluent filter shall be a Zabel filter, installed as per manufacturer's instructions at the exit end of the septic tank. All filters are to be state approved residential effluent filter unit. This is a complete unit ready to install to a 4" SCH 4-0 PVC pipe.

SECONDARY EFFLUENT FILTER - PUMP TANK

1. An effluent filter shall be installed as per manufacturers instructions on the pump discharge pipe (*GAG SIM/TECH* Model, field assembled). A 3/16" anti-siphon hole shall be drilled through the filter canister at a 45° angle **downwards** and 15" from the **top** of the canister. The positioning of this hole is critical to the proper performance.

T & J PREFABRICATED PANELS (PPBPS)

1. The installation of the T & J panels are to be in accordance with the specifications outlined in the manufacturers manual titles "Design, Installation and Maintenance of the T & J Panel Wastewater Treatment System" with only the following exceptions.
2. All PPBPS type systems are to be fed by pressure distribution, NO PPBPS systems utilizing gravity distribution are to be used. If the installation permit designated a gravity distributed PPBPS system; consult (SSS) before starting installation. (SSS) will discuss making the change to pressure distribution with local County Environmental Health Department and will make the modification to the permit.
3. All trenches are to be 36" wide, not 24", with the appropriate sand backfill, raked and limed. Do not use track loaders in backfill, shaping fields.
4. Only **ONE** hole measuring 3/16" is to be drilled in the 1 1/4" PVC lateral in each panel and offset slightly from the center of the panel. The pump will be sized according to the flow rate for the

number of holes in the total number of panels. For a 3' TDH, the flow rate per hole 0.72 gpm.

5. Adequate soil cover over the panels is extremely vital to the proper functioning of the system and shall be in accordance to the manufacturer's recommendations.
6. Use approved foam from T & J Panel Company.

CONTROL PANEL/ALARM

1. The control panel shall be a CSI RKSF 230CB with float or CSI RSSP 230 CB-DDCS Pressure Dose Panel control panel. The control panel must contain breakers within the control panel box.
2. The builder's electrician will install the control panel on the side of the dwelling adjacent to the pump tank. He will make all electrical connections within the panel and the dwelling of the service lines and the pump connections.
3. **Piggy Back connections will not be allowed.**
4. Control panel box must be mounted in an accessible manner and at least 30" above the ground.

TURN-UPS

1. The turn-up ends shall be protected within a 7" round plastic box. The turn-up end shall be 7" below the finished grade and fitted with a PVC **male** adapter and a **female** cap. **Do not** use a female adapter and a male plug.
2. Using 6" black corrugated plastic pipe around the turn-up, extend it upwards a minimum of 24" past rough grade. After the landscaper has determined the finish grade, the landscaper is responsible to straighten, cut down, and adjust the specified plastic box to fit flush with finish grade. Careful attention is to be given to the proper height adjustment.

CENTRAL VALVE BOX

1. All control valving shall be housed within a central valve box.

2. Having the benefit of a lift station, the valve box can be placed at an esthetically pleasing location and hidden in most cases from direct view. The box is to be placed on the high side of the drain field, consideration should be taken when the dosing amount is calculated because of the additional **drain down** from the supply manifold pipes to the disposal trenches. It is preferred to locate on the high side of the drain field.
3. The valve box shall be installed as close to "flush with finish grade" as the installer can estimate at the time of installation. You do, however, do not want it too low causing a depression around it where surface water will collect.
4. All components within the valve box shall be PVC. No bronze, brass, or galvanized fittings or valves are allowed.
5. The valves within the control box are to be **gate** type.
6. All gate valves used in the control box are to be Spears 1 $\frac{1}{4}$ " in size. Using the 1 $\frac{1}{4}$ " valve, less clogging occurs at the orifice of the valve because of the wider opening that is needed to achieve the proper head pressure. If the system design designates a larger diameter **lateral** pipe, consult (SSS) for the proper sizing of the control valve desired.

GENERAL

1. Any gravity distribution or supply line shall have a minimum of 10" of earthen cover. If the installer cannot achieve this cover, he must notify the builder of the need for additional soil to be brought in.
2. Fields shall not be constructed in wet conditions. Installer must call ahead, to the inspector, in questionable or moist conditions, prior to any installation at which time approval will be granted if conditions are appropriate.
3. If during construction, the installer finds that the trench bottoms or sidewalls are 'smearing' from the backhoe bucket, raking shall be performed and lime applied to restore soil characteristics.
4. No galvanized components shall be used on any part of the entire system. They will not give long-term service when exposed to sewer gases or effluent.

5. Any system utilizing flow dividers shall have the flow dividers resting firm and level on a minimum block surface of 8"x16"x2".
6. The temporary fencing that has protected the drain field areas prior to the installation of the system shall be put back into place after the installation is complete by the installer.
7. Any pump supply line or force main shall maintain a minimum buried depth of 24" below grade.
8. All PVC connections shall be cleaned and primed using a quality product designed specifically for PVC. Upon making the connection, heavy duty PVC cement shall be used immediately after priming the ends properly.

NOTE: THESE ARE SPECIFICATIONS FOR ITEMS THAT MAY EXCEED STATE AND LOCAL REGULATIONS. ALL OTHER REQUIREMENTS ARE PER INSTALLER'S INSTALLATION PERMIT AS ISSUED BY THE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT AND SHALL MEET THE NORTH CAROLINA LAWS & RULES FOR SEWAGE TREATMENT.

SEPTIC SYSTEM INSPECTIONS

1: Pre-Installation

A pre-installation call is to be made to Jim Lanier of Stanley Septic Service to establish timing and inspections of the septic system. All inspections shall be performed by Jim Lanier with the proper notification. **This is in addition to any county or state required inspection.** At this stage, soil conditions are examined to ensure favorable conditions for the installation of the system. The septic installer **cannot dig** in moist or wet soil. It will be the discretion of Jim Lanier, the inspector, to determine if it is appropriate or not to begin work. This is a frequent problem during the winter months and sufficient time should be allowed for scheduling the installation of the system. If digging is done in wet conditions, the system will most likely fail. This pre-installation request is to be made by either the builder or the septic installer. Requests are to be made directly to Jim Lanier at 704.732.3422. On-site visits may be required at the discretion of the inspector. 48-hour notice is requested.

2: Mid-Inspection

A mid inspection of the system is to be performed by (SSS), with proper notification, while the system is being installed and prior to cover. **This is in addition to the required county or state required inspection.** At this time (SSS) will take photos of the system at this stage of construction as well as tie the first line to a building corner. It is at this time that as-builts will be done. This information will be sent to the ACC office as part of the construction process. At this inspection, the

adherence of the design specifications will be verified by (SSS). Requests are to be made directly to Jim Lanier at 704.732.3422.

3: Final Inspection and Landscaping

A final septic system inspection shall be performed by (SSS) with the proper notification. **This is in addition to any county or state required inspection.** At this inspection, the adherence of the design specifications shall be verified by (SSS) and the landscaping will be checked for proper drainage and plantings relative to the septic system. Strict adherence to these specifications is necessary for uniformity, serviceability and long-term performance. Requests are to be made directly to Jim Lanier at 704.732.3422.

Should additional inspections be necessary due to incompleteness by installer, those inspections shall be billed in addition to the builder/owner/installer as necessary at a rate of \$125.00 per inspection.

4: Maintenance

Maintenance shall include an inspection on a yearly basis, starting with the date of certificate or occupancy and will occur bi-annually.

5: Fees

The installation inspection fees shall be \$250.00, payable to the ACC at time of ACC approval. This includes the Pre-installation call, Mid-Inspection and Final Inspection and Landscaping.

If additional inspections are deemed necessary, they will be billed at \$125.00 per inspection.

The annual inspection will commence one year from the original date of occupancy of the home and shall be \$300.00 per year for bi-annual inspections.

LANDSCAPING/DRAINAGE GUIDELINES

The following guidelines are established by the Architectural Control Committee (ACC). Amendments to the provisions defined herein will only be made by the ACC with Jim Lanier being consulted as necessary.

These guidelines address concerns pertaining to the integrity of the on-site septic systems. They are in addition to the specific requirements set forth by the ACC in the Declaration and Architectural Guidelines.

These guidelines shall apply to all lot owners, builders and their respective subcontractors. They are applicable for both new construction and future improvements.

1. Turf grass is allowed and a 1-2" maximum depth of pine needles is also allowed. Mulch is not an acceptable ground cover over the septic drain field and will not be allowed.
2. All dwelling downspouts shall be piped underground away from the dwelling and 'day lighted' on the down slope of any septic system component. The piping shall not come within 24" vertically and 10' horizontally of any system component during a run. The pipe used cannot be of a perforated type.
3. Swales for storm water drainage shall be used when applicable to protect excessive water runoff moving over the drain field areas. Water runoff is not allowed to encroach on the drain field 'envelope' on any individual lot or from adjacent lots. If the natural slope drains the storm water across multiple lots, swales shall be cut to intercept and redirect the water away from any 'drain field envelopes'. In addition, if on any individual lot, water runoff from any area greater than 4000 sq. ft. drains onto or over the 'drain field envelope', a swale will be cut to direct the runoff away from

the envelope of the drain field. Swales shall NOT be cut within the 'drain field envelope'.

4. Berms for the purpose of redirecting water runoff can be used as long as they do not 'hold' the water as a dam resulting in subsurface saturation and possible horizontal flows that would encroach on the 'drain field envelope'. This effect could cause premature septic failures from overloading of the drain lines. Berms can be used where complex topography situations occur in order to redirect a section of runoff to avoid the 'drain field envelope'.
5. The final grade over all system components is to have slight mounding or sloping to properly shed rainwater. Ponding can occur with 'flat' topography or depressed areas. If septic components are too low to grade, ask the builder to have the septic contractor raise the component properly to meet the requirements.
6. Having accessibility to the system components is necessary for scheduled preventative maintenance and regular service. The planting of shrubbery and decorative landscaping items shall not be placed within 3' of any system component that extends out of the ground.
7. The septic system electrical control panels associated with certain system types will be attached to the side of the dwelling. No landscaping items will be allowed within 3' from the box to allow for service without obstruction.
8. French drains shall be installed using standard practices. Outlets shall not drain to or over the fields.
9. The placement of any permanent covering over any system component, such as driveways, or walkways, is generally prohibited by the ACC and/or the state sewage rules. Plans must be submitted to the ACC for review of the system impact if the covering is intended to be placed less than 5' from any system component.
10. **Absolutely no utility lines are to be installed within the 'drain field envelope' or over tankage.** All utility contractors should be made aware of the system locations and must locate their services outside the perimeter of ALL system components. **ALL utilities are to be located at least 10ft from all designated boundaries of the system.**

11. Grading and clearing the area for the placement of the septic system is very critical to its long-term integrity and performance. No equipment will be allowed on the 'drain field envelope' areas under wet conditions, which will cause soil compaction and change the soil properties. Even in dry conditions, limits should be placed on heavy equipment used in removing debris from the drain field areas. The natural topography is also essential to the proper performance of the systems. Artificial fills or cuts should have the approval of the ACC and/or the local County health department to ensure that they are not affecting the integrity of the system. All cuts are to be at least 20 ft outside the boundaries of the drain field envelope. This applies to all reserved repair areas also.
12. The removal of trees should be done selectively within the 'drain field envelope'. Only those with adverse effects should be removed from the area. The area should remain in as natural a state as possible. **DO NOT PULL STUMPS OUT OF THE SOIL; CUT THE STUMPS LOW TO THE GROUND ONLY.** Pulling the stumps will destroy the drain field soil causing 'short circuits' between the drain lines.
13. Structures such as fences, decks, pools, and spas must not be placed within 15' of any component of the septic system. Approvals for the placement of such structures must be obtained from the ACC and/or local County Health Department prior to the construction.
14. All future remodeling and structural additions must be submitted to the ACC and/or the local County Health Department for approval. These plans must consist of accurate location drawings of the entire septic system. Authorization will generally not be granted for placement of a structure within 15' of any septic system component.
15. Condensation drains from HVAC units can dispose considerable water during their operation times. Their drain tubes shall be piped away from any septic system component and 'day lighted' on the down slope of the system.
16. Protective fencing shall be in place around the perimeter of the primary and repair 'drain field envelopes' from the time of clearing the site to the time that final landscaping is performed. Barrier fencing or approved measures will provide protection from possible

damage to the soil or system integrity from erosion or construction traffic.

17. All critical areas such as the septic tank, pump tank (if applicable), distribution devices, valving (if applicable) and turn ups (if applicable)(shall be hand worked to finish grate. They will be properly marked or identifiable by the septic system installer. **NO GRADING OR VEHICUAR LANDSCAPING EQUIPMENT IS PERMITTED TO TRAVEL WITHIN 3' OR ANY OF THE SEPTIC SYSTEM COMPONENTS.** Careful attention is to be given to these areas and it is not intended for any item brought up to grade or above grade to be covered with soil. If any component is unclear to whether or not it can be covered with a material or soil, contact the builder for clarity. If any components are covered with any material through negligence of the landscaper, they will be required to return and make any corrections necessary or pay the cost for the septic installer to correct.
18. No irrigation lines can cross the drain field.

INSTALLER BUILT MANIFOLD UNIT

Material list for pressure manifold unit to comply with State Sewage Rules

NOTE: SKETCH OR DRAWING MUST BE SUBMITTED FOR WRITTEN APPROVAL ON ANY EQUIVALENT ITEMS AND FINAL DESIGN

- 4" SCH 80 PVC for barrel
- 4" SCH 40 PVC pressure 90° elbow for cleanout
- 4" SCH 40 PVC clean out assembly with plug
- 4" SCH 40 PVC pressure coupling at incoming end of barrel.
- 4" by 2" SCH 40 pressure bushing at incoming end of barrel.
- 3" SCH 80 PVC lateral line from manifold to drain field
- 2" SCH 80 PVC Spears only gate valve, 200 psi for incoming end.
- 2" SCH 80 PVC union or cam-lock disconnect for incoming end.
- 2" SCH 40 PVC coupling for incoming connection outside of box.
- 2" SCH 40 PVC pressure couplings for discharge connections outside of box.
- 3" by 1" SCH 40 PVC pressure bushing for discharge connections inside of box.
- $\frac{1}{2}$ " by 12" SCH 80 PVC nipple for discharge pipes (Extend through bushing into coupling from $\frac{1}{2}$ " valve).
- $\frac{1}{2}$ " SCH 80 PVC 'true union', thread by thread, ball valve (a union on each side of valve) for each discharge pipe and head pressure adjustment.
- $\frac{1}{2}$ " by 2" SCH 80 PVC nipple for discharge pipe and head pressure valve connection to manifold pipe.
- $\frac{1}{2}$ " SCH 80 PVC male insert fitting for tubing connection, into $\frac{1}{2}$ " valve, for head pressure adjustment.
- 4' of clear tubing for head pressure adjustment - marked in 1' increments.
- Minimum of 2" drain hole in bottom of box.
- Suspend, support and secure barrel to box bottom using non-corrosive parts such as stainless, anodized, plastic, or galvanized supports.

- A 24" x 24" x 48" approved box with lid to house all items as described above.