



SEPTIC INSPECTION - 99999

113 Wilson Ave Ext
Swannanoa, NC 28778

Summer Covington

MARCH 8, 2023



Inspector

Taylor S

828.552.5174

lab@wncil.com

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SUMMARY



ITEMS INSPECTED



MAINTENANCE ITEM



NEEDS ATTENTION

- ⊖ 3.2.1 Main Tank - Inlet Lid: Inlet lid was more than 6 inches deep.
- ⊖ 3.3.1 Main Tank - Outlet Lid: Outlet lid was more than 6 inches deep.
- ⊖ 3.7.1 Main Tank - Tank Outlet: Sanitary Tee appears to be deteriorating and should be replaced.
- 🔧 3.7.2 Main Tank - Tank Outlet: Outlet line appears to have incorrect slope and should be repaired.
- ⊖ 3.8.1 Main Tank - Condition & Components: Tank appeared to have root intrusion.
- ⊖ 4.2.1 System Lines - Line Inspected: Main Tank to D. Box: Line appeared to have roots.
- ⊖ 5.3.1 Distribution Box - Condition: D. Box appeared to have root intrusion.

1: INSPECTION INFORMATION

Information

Inspection

Septic systems are subterranean; therefore, it is impossible to determine their overall condition. Also, when no water is being used (i.e., when the house is vacant) a determination as to their status is difficult. No prediction can be made as to if or when a part of the system may fail.

This inspection report comments on the workability of the system on the day of the inspection and is in no way intended to be a warranty. Workability can be altered by factors such as excessive use, faulty plumbing, neglect, environmental influences, and physical damage to the system.

Current Code

The North Carolina General Statutes and the North Carolina Administrative Code lays out the requirements for Sewage Treatment and Disposal Systems (15A NCAC 18A Section .1900). These NCAC codes were enacted in 1977 and have been revised several times since then. Our report is based on current version; however, systems maybe "grandfathered" under older code rules. Current codes represent the best standards and operating procedures at this time.

Reference Section

There is a "Reference" section at the end of this report that has explanations about what various components are and what they do. We hope this will be helpful to consumers who may not know much about septic systems.

Every system is a little different and depends on the age of the system, but the Reference section, as with the rest of the report, is based on current code.

Each "needs action" item will also have some explanation as well.

Maintenance

Septic Systems require regular maintenance. Please see the reference section at the end of the report for more information.

Please contact our office if you have any questions about this report or the system.

We can be reached at
828.552.5174 or lab@wncil.com

NC Licensed Septic Inspector & Contractor

In North Carolina, anyone inspecting a septic system for a "point of sale transaction" is required to be a NC Licensed Septic Inspector, while anyone doing repairs and installs is required to be a NC Licensed Septic Contractor.

Any NC Licensed Septic Contractor can do any recommended repairs.

WNCIL has a Septic Inspector License as well as a Septic Contractor License. We can provide an estimate for any recommended repairs upon request.

Most of the recommendations in this report can be addressed by a NC Septic Contractor/Installer.

If the County Department of Environmental Health (or anyone else) should be contacted, that will be noted on the item.

Pre-Inspection Contract

The client has already received a copy of the Pre-Inspection Contract, signed by the Client and WNCIL's NC Licensed Septic Inspector.

Inspector Name
signed

Certification #
6569I

Inspector Signature
signed

Taylor Sorrells

Tyler Coville

Date
03/08/2023

Client Name
Summer Covington

Client Relationship to Property
Buyer

Weather Conditions During Inspection
Sunny

Ground Conditions During Inspection
Average

In Attendance
WNCIL, Buyer, Seller's Real Estate Agent

Property Info Sources
MLS Sheet available at time of inspection, Property Card available at time of inspection

Current Owner of Record
JARVIS JOYCE, HOLCOMBE VICKIE,
RICE BERNIECE

Status Of Property
Vacant, Per Observation

Number of Bedrooms per MLS
Not stated

Number of Bedrooms per Owner Information Form
Information Unavailable

Number of Bedrooms per Property Card
Not stated

Year Built per Property Card
Not stated

2: SYSTEM INFORMATION

Information

Permits	Date on Permit
Septic Permit(s) not available at time of Inspection	No permit available

Number of Bedrooms on Permit
No permit available

The county health department is the only authority allowed to approve systems and determine the number of bedrooms a system can support. This is based on a variety of things – soil type; lot size, layout, and slope; length of drain lines; etc.

Gallons Per Day per permit
No permit available at time of inspection

Tank Size on Permit
No permit available at time of inspection

- 15A NCAC 18A.1952 (b) Minimum liquid capacities for septic tanks shall be in accordance with the following: (1) Residential Septic Tanks (for each individual residence or dwelling unit):
- 3 or less bedrooms should have at least a 900 gallon tank
 - 4 bedrooms should have at least an 1,000 gallon tank
 - 5 bedrooms should have at least a 1,250 gallon tank
- (See 15A NCAC 18A.1952 for information on larger houses or other structures)

Ownership
Appears to be a private system

WNCIL cannot determine septic ownership. We can only go off what we see or what is provided by property owner (including deeds, maintenance agreements, mls sheet, etc). Please consult with a real estate attorney for more information.

What property are the components on?
Appears all components are on subject property

WNCIL is not a surveyor and therefore cannot identify parcel layouts and so cannot guarantee which parcel a well is on. Recommend consulting a real estate attorney or a NC Surveyor.

How many properties served by this system?	Last Pumped per Owner Information
Appears to be 1	Unknown

Pumping
Client requesting this inspection has been advised on their Pre-Inspection Contract that for a complete inspection to be performed the tank needs to be pumped.
If the tank is not pumped, the system will be inspected by use of probes, cameras, sludge judge, and other tools.
Client selected whether or not to have it pumped on their Pre-Inspection Contract.

Septic Pumping at Inspection Client chose to have septic tank pumped during inspection (see Pre-Inspection Contract)	Pump System No Permit Available, No Pump System Located	Type of System Per Observation, Appears to be Type II (a): Conventional Septic System (single family or 480 GPD or less)
Does system require a licensed operator? No		

3: MAIN TANK

Information

Located? Tank was located	Location methods used Probing	Distance from finished grade (ground level) to top of tank Appears to be 9in
		
Access to tank location Tank Location was accessible		
<u>21 NCAC 39.1004</u> (b) Inspectors shall not be required to: (5) Move excessive vegetation, structures, personal items, panels, furniture, equipment, snow, ice, or debris that obstruct access to or visibility of the system and any related components; <u>21 NCAC 39.1000</u> (13) "Readily accessible" means approachable or enterable for inspection without the risk of damage to any property or alteration of the accessible space, equipment, or opening. (14) "Readily openable access panel" means a panel provided for homeowner or certified operator maintenance and operation that has removable or operable fasteners or latch devices in order to be lifted off, swung open, or otherwise removed for inspection. This definition is limited to those wastewater system components not blocked by stored items, furniture, building components or landscaping.		
Inlet Lid Inlet Lid was removed for inspection	Outlet Lid Outlet Lid was removed for inspection	Cleanout No cleanout located
		Pump Port None located

Location: Tank Location
Appears to be at the end of the lot



Location: Ground Description at main tank
Relatively Flat

Location: Distance from well/spring/water source
Appears to be greater than 100ft

Location: Distance from property line(s)
Property Lines not marked.

Location: Evidence of Vegetation or Landscaping that could affect the tank
None observed

Inlet Lid: Type of Inlet Lid
Tank Lid, Square, Appears to be Concrete



Location: Distance from house foundation/basement and any other permanent structures
30ft from the shelf

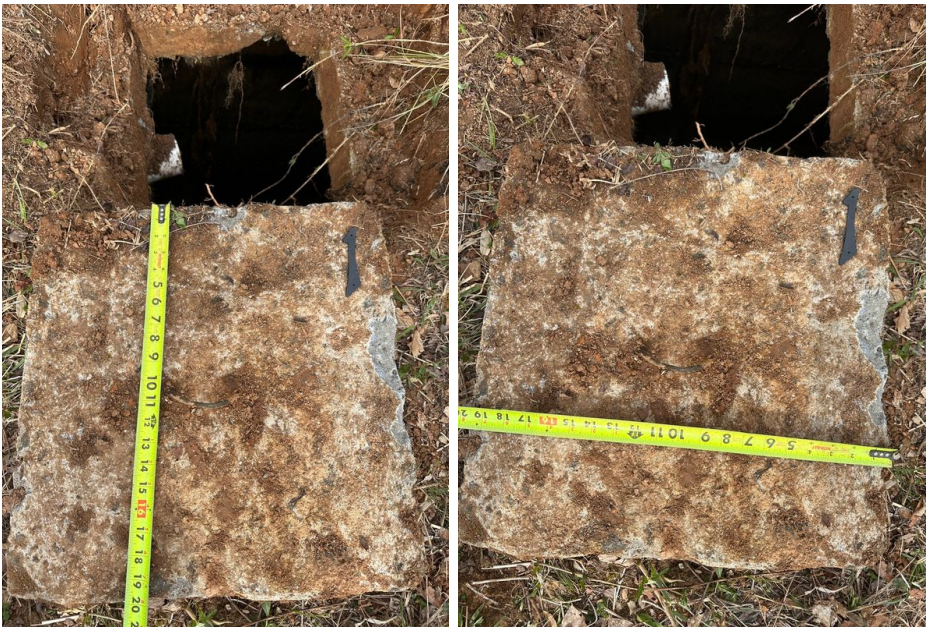
Location: Distance from water line
Lines appear to not be marked

Location: Evidence of Traffic Over the Tank
None observed

Location: Landscaping, Grading, Drainage, or other items that could affect the tank
None Observed

Inlet Lid: Size of Lid

20 inches x 20 inches



Inlet Lid: Condition of Lid

Appears to be in good condition

Inlet Lid: Access Riser Installed

Not Installed but recommended due to depth.

Inlet Lid: Distance from finished grade (ground level) to Inlet Lid

Appears to be 9in



Outlet Lid: Type of Outlet Lid

Tank Lid, Square, Appears to be Concrete



Outlet Lid: Size of Lid

20 inches x 20 inches



Outlet Lid: Condition of Lid

Appears to be in good condition

Outlet Lid: Access Riser Installed

Not Installed but recommended due to depth

Outlet Lid: Distance from finished grade (ground level) to Outlet Lid

Appears to be 9in



Contents: Water Level at time of inspection

Good (at bottom of outlet pipe)

Contents: Percentage of Solids on inlet side

Appears to be 100%

Contents: Are there non-biodegradable items in the tank?

None Observed

Pumping: Water Level after pumping (if applicable)

Low (under outlet pipe)

Contents: Contents were measured

Prior to being pumped

Contents: Percentage of Solids on outlet side

Appears to be 100%

Pumping: Pumping

Tank was pumped during the inspection

Pumping: Was inlet side pumped as part of inspection?

yes - see picture



Pumping: Was outlet pumped as part of inspection?

yes - see picture



Pumping: Was filter cleaned during pump

no filter present

Tank Inlet: Tank Inlet

Appears Good, Appears to be PVC

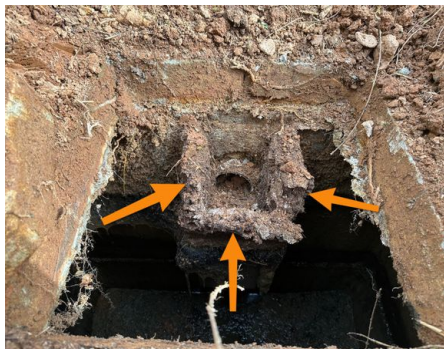


Tank Inlet: Evidence of non-permitted connections

None Observed

Tank Outlet: Outlet/Sanitary Tee

Present, Appears to be Concrete,
Appears to have significant signs
of deterioration/damage

**Tank Outlet: Line from Sanitary Tee**

Angled down (as it leaves tank)

Tank Outlet: Effluent leaves outlet?

Appears effluent is leaving the
tank

Condition & Components: Tank Condition

Appears to be in good condition

Tank Outlet: Outlet/Sanitary Tee Filter

N/A for Concrete Tees

Condition & Components: Type of Tank

Appears to be Concrete

Condition & Components: Is Tank Level

Appears to be

Condition & Components: Baffle Wall

Present, Appears to be in good
condition

**Condition & Components: Evidence of Roots Present in the Tank**

Roots observed

**Condition & Components: Evidence of Tank Leakage**

None Observed

Observations

3.2.1 Inlet Lid



Needs Attention

INLET LID WAS MORE THAN 6 INCHES DEEP.

Both lids need to be accessed regularly for maintenance. The current code says lids should be within 6 inches of ground level (older systems may be "grandfathered").

Recommend installing an access riser to bring the lid (closer) to ground level. Even if the tank is "grandfathered", it still needs to be accessed for regular maintenance and a riser will make such service easier and less expensive.

§ 130A-335.1

(b) The access device required by G.S. 130A-335(f) shall provide access to each compartment of a septic tank for inspection and maintenance either by means of an opening in the top of the septic tank or by a riser assembly and shall include an appropriate cover. The access device shall:

(1) Be of sufficient size to facilitate inspection and service.

.....

(4) Come to within six inches of the finished grade.

15A NCAC 18A .1952 (a) Septic tanks installed where the top will be deeper than six inches below the finished grade shall have an access manhole over each compartment with cover, extending to within six inches of the finished grade, ...



3.3.1 Outlet Lid



Needs Attention

OUTLET LID WAS MORE THAN 6 INCHES DEEP.

Both lids need to be accessed regularly for maintenance. The current code says lids should be within 6 inches of ground level (older systems may be "grandfathered").

Recommend installing an access riser to bring the lid (closer) to ground level. Even if the tank is "grandfathered", it still needs to be accessed for regular maintenance and a riser will make such service easier and less expensive.

G.S. 130A-335.1

(b) The access device required by G.S. 130A-335(f) shall provide access to each compartment of a septic tank for inspection and maintenance either by means of an opening in the top of the septic tank or by a riser assembly and shall include an appropriate cover. The access device shall:

(4) Come to within six inches of the finished grade.

15A NCAC 18A .1952 (a) Septic tanks installed where the top will be deeper than six inches below the finished grade shall have an access manhole over each compartment with cover, extending to within six inches of the finished grade, ...

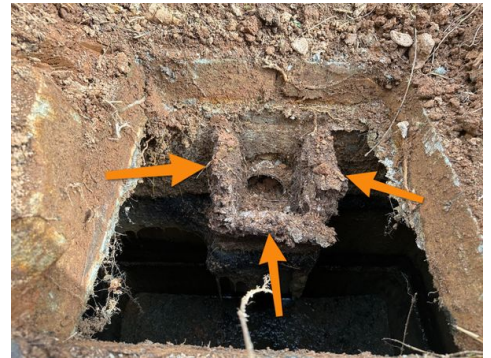


3.7.1 Tank Outlet



Needs Attention

SANITARY TEE APPEARS TO BE DETERIORATING AND SHOULD BE REPLACED.

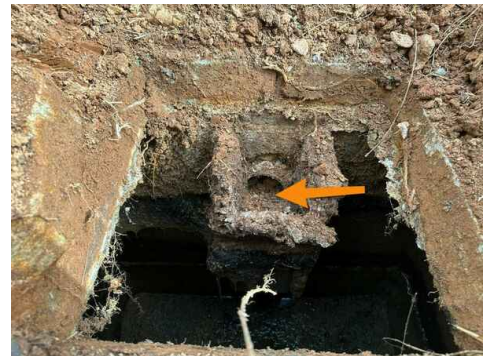


3.7.2 Tank Outlet



Maintenance Item

OUTLET LINE APPEARS TO HAVE INCORRECT SLOPE AND SHOULD BE REPAIRED.



3.8.1 Condition & Components



Needs Attention

TANK APPEARED TO HAVE ROOT INTRUSION.

Roots should be removed, any damage repaired, and steps taken to prevent future intrusion. If roots can get in, then the tank is not water tight and roots can cause structural damage to a tank.

15A NCAC 18A .1952

(a) A septic tank or dosing tank shall be watertight, structurally sound, and not subject to excessive corrosion or decay.



4: SYSTEM LINES

Information

Lines Present in the system House to Main Tank, Main Tank out to D. Box	Line Inspected: House to Main Tank: Videoscoped Yes	Line Inspected: House to Main Tank: Link to Video https://youtu.be/9eL5KOy1KdY
Line Inspected: House to Main Tank: Condition Appeared to be Good	Line Inspected: Main Tank to D. Box: Videoscoped Yes	Line Inspected: Main Tank to D. Box: Link to Video https://youtu.be/zqVy4pdOBNU
Line Inspected: Main Tank to D. Box: Condition Appeared to be Good, Appeared to have roots in the line		

Observations

4.2.1 Line Inspected: Main Tank to D. Box

LINE APPEARED TO HAVE ROOTS.

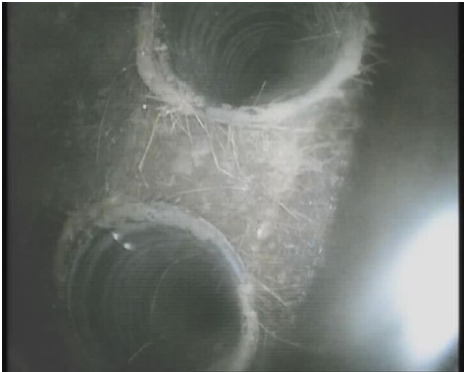
The roots should be removed, any damage repaired, and steps taken to prevent further root intrusion. Roots can cause damage and can block flow.

Needs Attention



5: DISTRIBUTION BOX

Information

D. Box D. Box inspected via video scope only	D. Box Access Inspected via videoscope only	Location: D. Box Location Appears to be at the end of the lot
		
Location: Distance from house foundation/basement and any other permanent structures Appears to be 15ft	Location: Distance from well/spring/water source Appears to be greater than 100ft	Location: Distance from property line(s) Property Lines not marked
	Location: Evidence of Traffic Over the D. Box None Observed	Location: Evidence of Vegetation or Landscaping that could affect the D. Box None Observed
Location: Evidence of Landscaping, Grading, or Drainage that Could Affect the D. Box None Observed	Lid: Lid Lid inspected	Lid: Type of Lid Tank lid, Square lid, Appears to be concrete
		

Lid: Distance from finished grade (ground level) to D. Box Lid Inspected via video scope only	Lid: Lid Size Unable to determine	Lid: Distance from property line(s) Property Lines not marked
Lid: Lid Condition Appeared to be in good condition	Condition: Type Appeared to be concrete	Condition: D. Box Condition Appeared in good condition



Observations

5.3.1 Condition

D. BOX APPEARED TO HAVE ROOT INTRUSION.

Roots should be removed, any damage repaired, and steps taken to prevent future intrusion.

 Needs Attention



6: DRAINFIELD

Information

Drainfield Inspection Inspected via probing	Drainfield Type Appeared to be Gravity, Appeared to be gravel, Conventional	Drainfield Material Traditional Gravel per probing/observation Location: Drainfield Location Appears to be at the end of the lot
		
Location: Distance from well/spring/water source Appears to be greater than 100ft	Location: Distance from Main Tank (& Pump Tank) 'Appears to be 5ft	Location: Distance from property line(s) Property Lines not marked.
Location: Evidence of traffic or structures over the drainfield None Observed	Location: Evidence of vegetation, landscaping, drainage, etc that could affect drainfield None Observed	Details & Condition: Number of Lines/Sections 2 observed during inspection Details & Condition: Length of Lines/Sections 80ft each observed during inspection
Details & Condition: Total Line Length 160ft observed during inspection	Details & Condition: Is effluent reaching field Appeared to be reaching field	Details & Condition: Evidence of past or current surfacing at time of inspection None Observed

Repair Area: Repair Area Location

No permit available

Newer systems should have a repair area noted on the permit. This area needs to remain "undisturbed" for future drainfield use. This includes not building on it (no sheds, patios, decks, pools, etc), no grading or placing "fill dirt" in the repair area, no driveway/parking spaces, recommend restricting traffic/parking, etc.

Repair area should only be utilized as a last resort.

Repair Area: Bull valve	Repair Area: Bull Valve Location
Not Located	N/A

Repair Area: Valves placed below ground level shall be provided with a valve box and suitable valve stem so that they may be operated from the ground surface.

N/A

15A NCAC 18A.1955 (p)

The diversion valve shall be constructed to resist 500 pounds crushing strength, structurally sound, and shall be resistant to corrosion. Valves placed below ground level shall be provided with a valve box and suitable valve stem so that they may be operated from the ground surface.

7: REFERENCE

Information

About this report

This information, and the information provided throughout the report, is provided for general information purposes. Specific systems may vary. For information about a specific system or more information or questions in general, please contact our office, consult a NC Licensed Septic Contractor, or the county environmental health department.

Code

Our report uses current code. Older systems may not meet these standards and maybe "grandfathered in".

These are provided for your information. Please check with the county health department or other resource for more information.

- NC General Statute (NCGS): Chapter 130A Article 11
- NC Administrative Code (NCAC): 15A NCAC Chapter 18A Section .1900
- 21 NCAC Chapter 39

Below are some excerpts relating to issues commonly found during inspections. Please contact our office for more information.

Know where your system is!

It is important to know where the system components are.

- Components, especially the two main tank lids, need to be accessed on a regular basis. Components should not be under the house, decks, sheds, patios, sidewalk, fences, retaining walls, deck supports, gardens, etc. We recommend that all such items be at least 5 ft from system components to allow safe access.
- Tank and components should not be driven over or under driveways or parking spaces
- Plants, shrubs, and trees should not be on top of or too close to tank. Roots can damage the tank, the extra weight can damage the tank, and such vegetation can hinder access to the tank and lids.
- Water, including gutter drains, French drains, etc should be directed away from all system components, especially the drain field.

Tanks need to be pumped regularly.

The main tank needs to be checked and pumped regularly. NC Administrative Code says: "Ground absorption sewage treatment and disposal systems shall be checked, and the contents of the septic tank removed, periodically from all compartment, to ensure proper operation of the system. The contents shall be pumped whenever the solids level is found to be more than 1/3 of the liquid depth in any compartment."

Often the permit will have "Pump every 3-5 years" written on it. Every 3-5 years is the accepted "rule of thumb" for checking/pumping a system that is working properly and being used as intended. The outlet filter should be cleaned annually until a new homeowner is familiar with their system.

Yes, tanks need to be pumped even if you use "x" product, or are only there part time, or

Protect the system!

There are many things homeowner can do to help protect the system.

- **Having it pumped and inspected on a regular basis, as well as cleaning the filter**
- **Making sure the system is not over used:**
 - Systems are rated for number of bedrooms, based on two people per bedroom. Having more people than that using it on a regular basis can harm the system
 - Spread your water use out throughout the day (try to avoid using the shower, washer, and dishwasher at the same time) and try to limit the water usage over time (try not to do laundry back to back all day)
- **Avoid using items that can harm the system:**
 - Septic systems are designed to handle biodegradable waste. Avoid putting nonbiodegradable waste down the drains (feminine products, baby wipes, excessive toilet paper, etc).
 - Avoid/limit garbage disposal use
 - Grease can clog up your septic system – limit the amount you put down your drains.
 - Septic systems use bacteria to help break down waste. Avoid (over) using cleaners made with bleach
 - Look for cleaning products, toilet paper, etc labelled as “septic safe”
 - Avoid putting milk, orange juice, and garbage disposal waste down the drains

Do not ignore alarms.

If there is a pump system, there should be an audible and visual alarm (ie a noise and a light). The control panel should be set to "automatic" or "on" so that when the level in the tank reaches a certain point the alarm will go off. Typically after the alarm goes off, the tank can continue excepting effluent for about 24 hours before it starts backing up.

If the alarms go off, you need to call a septic contractor immediately. You may turn off the alarm after you call the septic contractor but don't just turn it off and ignore it - if you do, you will probably wind up with septage in your house.

Pump Tanks don't usually need pumped.

In most systems, septage leaves the house, enters the main tank, goes into the pump tank, and the into the d.box or drainfield.

A pump tank is called a that because it has a pump the pushes effluent out.

The main tank is the the tank that should be pumped by a pump truck every 3 to 5 yrs if the system is working properly.

A pump tank that is working properly should not need to be pumped by a pump truck! If the pump system is malfunctioning (floats, control panels, pump, etc) the pump tank may need to be pumped out by a pump truck to be able to take a look and diagnose and/or fix the problem.

Tanks need to be pumped regularly.

The main tank needs to be checked and pumped regularly. NC Administrative Code says: “Ground absorption sewage treatment and disposal systems shall be checked, and the contents of the septic tank removed, periodically from all compartment, to ensure proper operation of the system. The contents shall be pumped whenever the solids level is found to be more than 1/3 of the liquid depth in any compartment.”

Often the permit will have “Pump every 3-5 years” written on it. Every 3-5 years is the accepted “rule of thumb” for checking/pumping a system that is working properly and being used as intended. The outlet filter should be cleaned annually until a new homeowner is familiar with their system.

Usually, both lids should be removed from the main tank for pumping.

Newer tanks have a baffle wall, which separates the inlet side (2/3 of the tank) from the outlet side (2/3 of the tank).

If the tank has a baffle wall, the inlet side is the most important to pump as it should have the most solids. However, the outlet lid should also be removed to pump any solids on that side and to clean out the outlet filter (which should be checked/cleaned at least once a year).

If its an older tank without a baffle wall (or if baffle wall has collapsed) it can be pumped from either side.

Pumping through a pump port.

At one point, "pump ports" were very popular. These were pipes about 8 in across (usually) with a slide on cap) that would be installed directly through the lid or tank roof so that the tank could be pumped without removing the lids.

However there are a couple of issues with doing this and they are no longer installed:

- putting them through the tank/lid could cause damage and could be a point of water/root intrusion
- typically only one was installed so there is only access to one side of the tank
- it gives the pumper no visibility of what is being sucked up or missed
- it limits the pumper's access to all areas (esp corners) of the tanks, making a thorough pump pretty much impossible

We strongly recommend removing both lids when pumping a tank, even if it has a pump port on it (though we will pump through a pump port if requested). If a tank is too deep to uncover everytime it needs pumped, access risers should be installed.

Pumping through a cleanout (99% of the time this is not possible)

A cleanout is a pipe about 4 in across, usually with a screw on cap and it is placed somewhere between the house and the tank.

This provides access to the line to clean out blockages and such. We can usually use it to help us locate a tank (with a locator and/or camera).

However, a tank cannot be pumped from the cleanout! Even if the hose will go into the clean out pipe, the most you are going to get is what is in the pipe (so it will temporarily stop it from coming up in the house).

The pipe enters the tank about 5 to 7 inches below the top of the tank, leaving about 4 and a half feet of tank (and solids) below the pipe. A vacuum is not going to pull it up into the pipe.

Pumping does not fix all problems!

If there is septage/water coming up in only one drain or one bathroom:

- It could be a clog in that specific line (which would be a plumber issue)
- If its the lowest one or the closest to the septage out line, it could be that the tank is full and is beginning to back up

If there is septage/water coming up in multiple locations in the house:

- More likely to be a full tank, but could be a blockage between the house and the tank (which would be a plumber issue)

If there is a wet spot in the yard when it hasn't rained and/or the spot smells awful:

- If its over the tank, it probably mean the tank is leaking and needs to be pumped (and possibly further evaluated). It could also mean there is a problem after the tank that is preventing the effluent from leaving the tank.
- If its over the drainfield there is probably a problem with the drainfield, the tank will probably need to be pumped to stop it from coming up in the house and to further evaluate the drainfield, but pumping alone will not solve the drainfield issue.

If you have the tank pumped from both lids, and are using it normally and it backs up again before 24 months, you probably have a bigger problem that needs to be evaluated. (Rule of thumb: pump every 3-5 years)

Signs that the tank might need pumped.

Some signs that the tank might need to be pumped:

- **Gurgling and/or stench in multiple drains** (could also be a clog between house and tank; its its only happening in one drain or room more likely to be a clog in that specific line)
- **Slow draining and/or backing up in multiple drains/location** (could also be a clog between house and tank; its its only happening in one drain or room more likely to be a clog in that specific line)
- **Standing water in the yard**

Permits

Permits were not required until the 1970's.

State law currently requires 3 permits before a system can be put in use. These are issued by the county environmental health department.

The Improvement Permit and Construction Authorization Permit have to be issued prior to installing the system (and building a home). Once the system is constructed, the county inspects it and issues an Operations Permit. When a system needs repairs, they will issue a repair permit. Generally, these are only for large repairs like replacing the drain field or the tank. Smaller repairs like replacing lids or filters, or replacing outlet tee typically do not need permits.

Depending on the county and time period, different styles of permits were issued: they may not have been issuing Improvement permits at the time, or they may have Improvement and Authorization on the same page, etc

System and Tank Maintenance: 15A NCAC 18A.1961

15A NCAC 18A.1961

(a) Any person owning or controlling the property upon which a ground absorption sewage treatment and disposal system is installed shall be responsible for the following items regarding the maintenance of the system:

(1) Ground absorption sewage treatment and disposal systems shall be operated and maintained to prevent the following conditions:

(A) a discharge of sewage or effluent to the surface of the ground, the surface waters, or directly into the groundwater at any time; or

(B) a back-up of sewage or effluent into the facility, building drains, collection system, or freeboard volume of the tanks; or

(C) a free liquid surface within three inches of finished grade over the nitrification trench for two or more observations made not less than 24 hours apart.

Observations shall be made greater than 24 hours after a rainfall event. The system shall be considered malfunctioning when it fails to meet one or more of these requirements, either continuously or intermittently, or if it is necessary to remove the contents of the tank(s) at a frequency greater than once per month in order to satisfy the conditions of Parts (A), (B), or (C) of this Paragraph....

Finding the Permits

Some homeowners have copies of their permits. Otherwise, we have to request them from the county health department, which we do as part of our preparations. Unfortunately, some counties take more than 1 or 2 weeks to respond.

Additionally, permits can not always be located. Depending on the time frame and the county, permits were filed by owner names, builder or septic installer name, PIN number or address (either of which may have changed), etc – information that is not always available to us. Systems installed during or prior to the 1970's often do not have permits available.

Capacity of System

System capacity is measured by the number of bedrooms and/or something called gallons per day or flow rate. One or both of these should be written on the permit.

The capacity of the system can only be determined by the county environmental health department. They determine this for a system prior to installation based on a number of factors:

- the soil type and its absorption rate
 - the slope of the land
 - size of drainfield
 - type of drainfield material to be used
 - the number of bedrooms the owners hope to put in the house
- and other factors

They assume 2 people per bedroom. Gallons per day is 120 gallons per bedroom. The county environmental health department is the only one authorized to approve a number of bedrooms.

System Capacity: 15A NCAC 18A.1949

The county health department is the only authority allowed to approve systems and determine the number of bedrooms a system can support. This is based on a variety of things – soil type; lot size, layout, and slope; length of drain lines; etc.

15A NCAC 18A.1949 (a) **In determining the volume of sewage from dwelling units, the flowrate shall be 120 gallons per day per bedroom.** The minimum volume of sewage from each dwelling unit shall be 240 gallons per day and each additional bedroom above two bedrooms shall increase the volume of sewage by 120 gallons per day. In determining the number of bedrooms in a dwelling unit, each bedroom and any other room or addition that can reasonably be expected to function as a bedroom shall be considered a bedroom for design purposes. (See 15A NCAC 18A.1949 for more details.)

System Operator

For most of the systems in this area, the homeowner is responsible for the maintenance of their system. For certain, more advanced, types of systems, the homeowner is required to contract with a certified operator to maintain their system.

House to Main Tank

All the drains in the house should feed into the septic line out. This line should include a “clean out” point – sometimes in the lowest level or crawl space of the house, sometimes just outside the house. This allows the line to be cleaned if there is a back up. It can sometimes be used to help locate a septic tank as well.

The line from the house to the tank should slope slightly downwards from the house. If that is not possible, sometimes a pump or pump tank is installed under or near the house to push the sewage to the tank. The line should be underground the whole way to prevent freezing. These lines need to be checked regularly to ensure they stay clear of obstacles, such as grease, toilet paper, or other buildup, root intrusion, crushing, etc.

Line from Main Tank to Next Component

Depending on the system, the effluent leaving the main tank may go directly to the drain field or may go through a pump tank and/or distribution box. Just like the line leading into the tank, this line should have a slight slope along the length and should be checked periodically for blockages, root intrusion, crushing, etc.

Every system should have a main tank.

The features of the main tank will depend on some different factors, such as when the tank was installed, what kind of system it is, how many rooms, etc.

The purpose of the main tank is to give the septage time to settle during which the fats, oils, greases, and other buoyant waste rise to the top (becoming "scum"), heavier waste sinks to the bottom (becoming "sludge"), and the clearer water (called effluent) moves to the next component.

Tank styles

Tanks used to be made of cinderblock, then concrete.

1,000 gallon Concrete Tanks are probably the most common in this area, though plastic tanks are gaining popularity. Concrete tanks are usually about 4 ft wide, 8 ft long, and 5 ft deep. Current tanks have a lid over the inlet pipe and one over the outlet pipe that are roughly 2 ft square.

The most common plastic 1,000 gallon tank in this area has similar dimensions and a round lid over the inlet pipe and one over the outlet pipe.

Locating the tank

Locating the tank is traditionally done with a probe rod and the permit (if available). Probing will not work in all situations: land with lots of roots and rocks; tanks under decks, patios, sheds, etc; tanks that are deeper than 3 ft; excessive vegetation; etc

E-Locating

We can use an electronic locator to attempt to locate the tank, but this doesn't always locate the tank. We probe and/or dig in the area where the the locator stops to confirm that the tank is there.

Some circumstances will prevent us from being able to confirm the tank location:

- tank is deeper than 3 ft
- locator appears to have stopped under a structure (patio, shed, driveway, etc)
- locator appears to have stopped under a tree/bush, in a garden, or in an overgrown area

The locator also doesn't always make it to the tank:

- If there is water in the pipe between the house and the tank, the locator will stop at this point. This can be due to tank backing up or improper slope in the pipe - either of which should be fixed.
- If the pipe is crushed, has separated, has improper slope, has unusual turn, or if the sections are not joined smoothly, the locator can get stuck. Again, these are all items that if found, should be fixed.

Cleanout

A cleanout is a pipe that allows access to the line, usually the line between the house and the tank, closer to the house. These are not always installed or accessible.

Pump ports

Pump ports used to be installed to allow access for pumping without having to uncover the lids. However, industry practice has moved away from these as they do not provide full access to the tank for pumping, inspections, and maintenance. Pump port covers are often unable to be secured and represent a potential safety hazard.

Lids

Tanks should have two lids – one over the inlet side and one over the outlet side. The outlet tee should be under the lid, so that the outlet filter can be cleaned on a regular basis to prevent it from blocking the outlet. Both lids should be removed for pumping or inspections to access both sides of the tank. Currently lids for pre-cast concrete tanks are usually about 20 in x 20 in, made of concrete, with a metal or plastic handle installed. Older tanks may have other sizes or styles of lid. Since the lids do need to be removed on a regular basis, sometimes access risers are installed. Access risers can also vary but they are usually a round plastic tube and each one is about 6 inches high. The tank lids are removed, the access riser put over the hole and stacked to the necessary height to bring the lid closer or to ground level. The lids on the top of the risers are usually round plastic and if they are above ground they should be secured to prevent accidental entry. Tank lids or access riser lids need to be in good condition to keep things from getting in (or out) of the tank as well as for safety reasons.

Septic Component setbacks

Current code says that septic components should be at least:

- 100 ft from any private water supply source (though some older systems maybe "grandfathered" at 50 ft);
- 5 ft from any building foundation;
- 15 ft from any basement; 10 ft from any property line;
- 10 ft from any water line; 15 ft from any swimming pool;
- 20 ft from any other nitrification field (except repair area).

Tank Depth

Standard pre-cast concrete tanks should not be more than 3 ft deep. They are designed to support a maximum of 3 ft of dirt. Additionally, both lids need to be accessed on a regular basis for pumping, inspections, maintenance, and repairs.

Traffic

Standard tanks should not be driven over, or under driveways, parking spots, etc. The additional weight can damage the tank.

Vegetation

Plants, shrubs, and trees should not be on top of or too close to tank. Roots can damage the tank, the extra weight can damage the tank, and such vegetation can hinder access to the tank and lids.

Landscaping & Grading

Landscaping on top of or near tank should be done carefully. Avoid putting extra weight over the tank or anything on or near the tank that would prevent the removal of both lids (including, but not limited to, flower beds, retaining walls, patios/sidewalks/decks, sheds, etc). Avoid driving vehicles or heavy equipment over the system. Additionally, water should be directed away from tank, drainfield, and other system components.

Baffle Wall

Tanks should have two lids – one over the inlet side and one over the outlet side. The outlet tee should be under the lid, so that the outlet filter can be cleaned on a regular basis to prevent it from blocking the outlet. Both lids should be removed for pumping or inspections to access both sides of the tank. Currently lids for pre-cast concrete tanks are usually about 20 in x 20 in, made of concrete, with a metal or plastic handle installed. Older tanks may have other sizes or styles of lid. Since the lids do need to be removed on a regular basis, sometimes access risers are installed. Access risers can also vary but they are usually a round plastic tube and each one is about 6 inches high. The tank lids are removed, the access riser put over the hole and stacked to the necessary height to bring the lid closer or to ground level. The lids on the top of the risers are usually round plastic and if they are above ground they should be secured to prevent accidental entry. Tank lids or access riser lids need to be in good condition to keep things from getting in (or out) of the tank as well as for safety reasons.

Roots

Roots can cause damage to the tank if left unchecked. If there are roots observed in the tank, it is recommended that they be removed, any damage repaired, and steps taken to prevent future root intrusion (for example, remove bushes/shrubs/trees from on/near tank).

Tank Leakage

Tanks should be water tight - solids and effluent should not be able to get out and water should not be able to get in.

Tank Inlet

The tank inlet is the pipe that enters the tank. It should be level entering the tank.

Outlet Tee

The Outlet Tee controls the flow of effluent out of the tank and helps keep the solids in the tank.

Since 1998, tanks should have a plastic outlet tee with a filter. The filter should be cleaned at least yearly. Older plastic tees may not have a filter. Older tanks may have a concrete tee which do not have filters.

Tank Contents

There are two different things that should be measured in you tank: water/effluent and solids.

Water Level

Having water in your tank is good for your tank. The recommended water level is the bottom of the outlet pipe. Water level over the outlet pipe might be a sign that there is a problem preventing the water from leaving the tank.

Solids

The solids are in two categories: scum (fats, oils, and greases that rise to the top of your tank) and sludge (heavier solids that sink to the bottom of your tank) with the effluent (clear-ish liquid) in between them.

Non-biodegradable Items

Non-biodegradable should not be in the tank. This includes (but not limited to) feminine hygiene products, wipes, condoms, paper towels, cigarette butts, gum, grease, etc.

When to Pump

NC Admin Code (15A NCAC 18A.1961) says that property owners are responsible for maintaining their system on a regular basis, including having it pumped when the either chamber of the main tank is 33% or more full of solids. For most systems, if they are functioning and being used properly, this should be every 3-5 years. Often times the permit from the county will say on it to pump it every 3-5 years.

Pump System: Pump System

A Pump Tank, Lift Tank, Pump Station, and Lift Station are all names for the same component. These are used when part of the system has to be at higher elevation than the structure so the effluent has to be pumped (or lifted) up to the next component. Most often they come after the main tank and pump up to a higher drainfield.

Pump System: Pump Tank

There is a tank that has a system of floats that triggers the pump or the alarm (visual and/or audio).

Tank lid should be above ground level per cod.

Pump tanks have most of the same concerns as a main tank - traffic, roots, leakage, etc. Most pump tanks are made of concrete but only have one lid (as opposed to the two lids of a main tank).

Pump System: Control Panel

The control panel is where the electricity enters and where the signals are received from the floats and sent to the pump.

Most commonly, it is installed on a post at the pump tank but it can be installed next to the house or even in the garage or house.

The control panel usually has an audible alarm as well as a visible alarm (a light), though again, if the alarms are not very noticeable from the house, they can be installed next to the house or in the garage or house.

Pump System: Pump Floats (Float Tree)

The pump and alarms are controlled by the control panel which gets signals from the float tree. There are two or three floats - these hang down until the water level in the tank reaches them and floats them up; when they float up to a certain height the control panel activates the correct device.

The lowest float is the "Pump off float" (on a two float system this is combined with the next float).

The second float is the "Pump on float" - this float tells the control panel "hey the water has risen, turn on the pump to empty the tank" and the pump should kick on until the water level & float lower down to the off position.

The highest float is the "Alarm float". If this float rises, the control panel should set off the audible & visual alarms because it means the pump is not lowering the level (whether because the float, control panel, or pump has malfunctioned, or whether the drainfield isn't accepting effluent, or whatever).

Usually, once the alarm goes off there is about 24 hrs before the pump tank will back up into the previous components, so it is important to call a septic contractor when the alarm goes off.

Distribution Box

A multi-line drain field should have one or more D. boxes. Some older systems may not have one. Serial Systems do not need a D. box, though they will occasionally have one.

A D. box is a small box, usually concrete or the same material as the main tank and should be deeper than the tank making them more difficult to located.

It is always after the main tank. It has a line coming in from the main tank. Then it will have lines going out. The lines out are set at the same height around the box so that the effluent leaves them equally. It is important that the effluent leaves equally.

Drainfield

The drain field (also called the nitrification field or dispersal field) is where the effluent leaves the system.

There are two types or layouts of systems in this area: serial systems and multi-line systems.

In a serial system, the line out of the tank enters a drain line which runs a certain distance, enters another, short regular line, which connects it to another drain line. There can be two or more sections of drain line, and it usually snakes back and forth so that the drain lines are parallel to each other but connected to each other via a regular line at each end.

Serial Distribution

Some Drainfields are Serial Distribution. In a serial system, the line out of the tank enters a drain line which runs a certain distance, enters another, short regular line, which connects it to another drain line. There can be two or more sections of drain line, and it usually snakes back and forth so that the drain lines are parallel to each other but connected to each other via a regular line at each end.

Equal Distribution

Some drainfields are multiline or equal distribution. This type of drainfield should have a d.box. The tank empties in the d.box. Each drainfield line is connected to the d.box. Each of these connections should be level with the others, so that when the effluent in the d.box gets to a certain level, effluent enters all the lines equally at the same time.

Gravity vs Pressure

Most systems in this area are "gravity fed" - effluent flows through the drain lines via gravity. There are some "pressure fed" systems where a pressure manifold creates pressure to push the effluent through the drainlines.

Gravity vs Pressure

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Most systems in this area are "gravity fed" - effluent flows through the drain lines via gravity. There are some "pressure fed" systems where a pressure manifold creates pressure to push the effluent through the drainlines.

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Gravel Drain Lines

The "traditional" drainline is a pipe set in a gravel filled trench. The pipe is similar to the pipe for a french drain - usually black corrugated pipe with small holes to allow water to drip out.

There is a related style where the pipe is packed in "packing peanut" type material held together with a mesh wrap and a cylinder of "packing peanut" wrap in mesh is put on either side of the pipe and then covered with dirt or gravel.

Chamber Drainlines

These are becoming more common and require a little less length than a gravel system.

"Chambers" are basically large plastic half circles. They are set with the open side down in a trench and then covered over with dirt.

Other Types

Those are the most common types of drainlines in this area, but there are other types, including:

- large diameter pipe (similar to gravel but with a larger pipe)
- LPP Sysems (Low-pressure pipe)
- Prefabricated Panel Block System (PPBS)

If the system is one of these, feel free to call our office for more information.

Inspecting Drainfield

There are other kinds of drain lines but they are as not commonly seen in this area.

It can be difficult or impossible to locate the drainfield, to definitively tell which kind of drainfield it is, or other details, especially without a permit.

The depth of the the drainfield, age of drainfield, ground conditions (rocks, roots, excessive vegetation, etc) can make locating and inspecting drainfield more difficult or impossible.

Repair Area

Newer systems will have a repair area designated on the permit.

This area needs to remain "undisturbed" for future drainfield use. This includes not building on it (no sheds, patios, decks, pools, etc), no grading or placing "fill dirt" in the repair area, no driveway/parking spaces, recommend restricting traffic/parking, etc.

Repair area should only be utilized as a last resort.

15A NCAC 18A.1935 (43) Repair area means an area, either in its natural state or which is capable of being modified, consistent with the rules in this Section, which is reserved for the installation of additional nitrification fields and is not covered with structures or impervious materials.

Bull Valve

Sometimes when the repair area is used a "bull valve" is installed to allow the homeowner to switch between the original drainfield and the new drainfield. The frequency at which it should be switched should be written on the repair permit.

15A NCAC 18A.1955 (p)

Alternating dual field nitrification systems may be utilized where soils are limited by high clogging potentials (Soil Groups III and IV) and where the potential for malfunction and need for immediate repair is required. Alternating dual nitrification fields shall be designed with two complete nitrification fields, each sized a minimum of 75 percent of the total area required for a single field and separated by an effluent flow diversion valve. The diversion valve shall be constructed to resist 500 pounds crushing strength, structurally sound, and shall be resistant to corrosion. Valves placed below ground level shall be provided with a valve box and suitable valve stem so that they may be operated from the ground surface.

System and Tank Maintenance: 15A NCAC 18A.1961

15A NCAC 18A.1961

(a) Any person owning or controlling the property upon which a ground absorption sewage treatment and disposal system is installed shall be responsible for the following items regarding the maintenance of the system:

(1) Ground absorption sewage treatment and disposal systems shall be operated and maintained to prevent the following conditions:

(A) a discharge of sewage or effluent to the surface of the ground, the surface waters, or directly into the groundwater at any time; or

(B) a back-up of sewage or effluent into the facility, building drains, collection system, or freeboard volume of the tanks; or

(C) a free liquid surface within three inches of finished grade over the nitrification trench for two or more observations made not less than 24 hours apart.

Observations shall be made greater than 24 hours after a rainfall event. The system shall be considered malfunctioning when it fails to meet one or more of these requirements, either continuously or intermittently, or if it is necessary to remove the contents of the tank(s) at a frequency greater than once per month in order to satisfy the conditions of Parts (A), (B), or (C) of this Paragraph....

Setbacks: 15A NCAC 18A.1950

See 15A NCAC 18A.1950 for more information.

Some of the more common ones:

(a) Every sanitary sewage treatment and disposal system shall be located at least the minimum horizontal distance from the following:

- (1) Any private water supply source, including any well or spring – 100 ft
- (10) Any building foundation – 5 ft
- (11) Any basement -15 ft
- (12) Any property line – 10 ft
-

Also see 15A NCA 18A.1950 and 1951.

Tank Access: NC GS 130A-335 (f2), NC GS 130A-335.1, 15A NCAC 18A.1952(a), 15A NCAC 18A.1954 (10)

NC GS 130A-335 (f2) For each septic tank system that is designed to treat 3,000 gallons per day or less of sewage, rules adopted pursuant to subsection (f) of this section shall require....the use of an access device for each compartment of the septic tank to provide access to the compartment in order to facilitate maintenance of the septic tank.

NC GS 130A-335.1 (b) the access device required by 130A-335(f) shall provide access to each compartment of a septic tank for inspection and maintenance either by means of an opening in the top of the septic tank or by a riser assembly and shall include an appropriate cover. The access device shall: (1) Be of sufficient size to facilitate inspection and service. (3) Prevent water entry. **(4) Come to within six inches of the finished grade. (5) Be visibly marked so that the access device can be readily located.**

15A NCAC 18A.1952(a) Septic tanks installed where the top will be deeper than six inches below the finished grade shall have an access manhole over each compartment with cover, extending to within six inches of the finished grade, having a minimum opening adequate to accommodate the installation or removal of the septic tank lid, septage removal, and maintenance of the effluent filter. When the top of the septic tank or access manhole is below the finished grade, the location of each manhole shall be visibly marked at finished grade.

15A NCAC 18A.1954 (10) Adequate access openings must be provided in the tank top. Access shall be provided for cleaning or rodding out of the inlet pipe, for cleaning or clearing the air or gas passage space above the partition, for pumping of each compartment, and for the maintenance of the effluent filter. This shall be accomplished by properly locating two manholes or access openings with each having a minimum opening of 15 inches by 15 inches or 17 inches in diameter...Manhole covers, tank lids, access opening cover, or slabs shall have a handle of steel or other rot-resistant material equivalent in strength to a No.3 reinforcing rod (rebar).

System Capacity: 15A NCAC 18A.1949

The county health department is the only authority allowed to approve systems and determine the number of bedrooms a system can support. This is based on a variety of things – soil type; lot size, layout, and slope; length of drain lines; etc.

15A NCAC 18A.1949 (a) In determining the volume of sewage from dwelling units, the flowrate shall be 120 gallons per day per bedroom. The minimum volume of sewage from each dwelling unit shall be 240 gallons per day and each additional bedroom above two bedrooms shall increase the volume of sewage by 120 gallons per day. In determining the number of bedrooms in a dwelling unit, each bedroom and any other room or addition that can reasonably be expected to function as a bedroom shall be considered a bedroom for design purposes. (See 15A NCAC 18A.1949 for more details.)

15A NCAC 18A.1952: Tank Size

15A NCAC 18A.1952 (b) Minimum liquid capacities for septic tanks shall be in accordance with the following: (1) Residential Septic Tanks (for each individual residence or dwelling unit):

Number of Bedrooms / Minimum Liquid Capacity / Equivalent Capacity per Bedroom

- 3 or less / 900 Gallons / 300 Gallons;
- 4 / 1,000 Gallons / 250 Gallons;
- 5 / 1,250 Gallons / 250 Gallons;

(See 15A NCAC 18A.1952 for information on larger houses or other structures)

Precast Concrete Tank Standards: 15A NCAC 18A.1952, 15A NCAC 18A.1954

15A NCAC 18A.1952 (a) **A septic tank or dosing tank shall be watertight, structurally sound, and not subject to excessive corrosion or decay.** Septic tanks shall be of two-compartment design. The inlet compartment of a two-compartment tank shall hold between two-thirds and three-fourths of the total tank capacity. Septic tanks shall have an approved effluent filter and access devices.

15A NCAC 18A.1954

(a) The following are minimum standards of design and construction of precast reinforced concrete septic tanks:

(1) The minimum requirement for the liquid depth is 36 inches.

(2) a minimum of nine inches freeboard is required, the freeboard being the air space between the top of the liquid and the bottom side of the lid or cap of the tank.

(5) The inlet pipe in the tank shall be a straight pipe.

(6) The outlet shall be through an approved effluent filter secured in place in an effluent filter support case. The effluent filter support case shall serve as a functioning sanitary tee with the bottom inlet extending down between 25 and 40 percent of the liquid depth. The approved effluent filter and support case shall be furnished by the septic tank manufacturer. The invert of the outlet shall be at least two inches lower in elevation than the invert of the inlet.

(9) All tanks shall be manufactured with a cast-in-place partition so that the tank contains two compartments.

(10) Adequate access openings must be provided in the tank top....

Baffle Wall: 15A NCAC 18A.1954

15A NCAC 18A.1954 (a)

(9) All tanks shall be manufactured with a cast-in-place partition so that the tank contains two compartments. The partition shall be located at a point not less than two-thirds nor more than three-fourths the length of the tank from the inlet end. The top of the partition shall terminate two inches below the bottom side of the tank top in order to leave space for air or gas passage between compartments. The top and bottom halves of the partition shall be cast in such manner as to leave a water passage slot four inches high for the full width of the tank. The partition (both halves) shall be reinforced by the placing of six-inch by six-inch No.10 gage welded reinforcing wire.

Pump System: 15A NCAC 18A.1952

15A NCAC 18A.1952

(a) A septic tank or dosing tank shall be water tight, structurally sound, and not subject to excessive corrosion or decay.

(c) The following are minimum standards of design and construction of pump tanks and pump dosing systems:

(1) The liquid capacity of a pump tank shall be considered as the entire internal volume with no additional requirement for freeboard. Pump tanks shall have a minimum liquid capacity in accordance with the following:...

(3) Pump discharge piping shall be of Schedule 40 PVC or stronger material and adequately secured...Valves shall also be readily accessible from the ground surface.

(5) Sealed mercury control floats or similar devices designed for detecting liquid levels in septic tank effluent shall be provided to control pump cycles. A separate level sensing device shall be provided to activate the high-water alarm. Pump-off level shall be set to keep the pump submerged at all times or in accordance with the manufacturer's specifications. A minimum of 12 inches of effluent shall be maintained in the bottom of the pump tank. The high-water alarm float shall be set to activate within six inches of the pump-on level. The lag pump float switch, where provided, shall be located at or above the high-water alarm activation level.

(6) Pump and 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 the finished grade. The pump(s) shall be manually operable without requiring the use of special tools or entrance into the tank for testing purposes.

(9) 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. **The alarm shall be audible and visible by system users and waterproof if installed outdoors in an enclosure (NEM4X or equivalent).**

Traffic/Weight: 15A NCAC 18A.1950

15A NCAC 18A.1950 (c) Nitrification fields and repair areas shall not be located under paved areas or areas subject to vehicular traffic. If effluent is to be conveyed under areas subject to vehicular traffic, ductile iron or its equivalent pipe shall be used. However, pipe specified in Rule .1955(e) may be used if a minimum of 30 inches of compacted cover is provided over the pipe.

15A NCAC 18A.1954 (11) Additional reinforcement shall be required when the loads on a concrete tank, riser, or riser cover are exceeded by subjecting it to vehicular traffic or when the top of the tank is placed deeper than three feet below finished grade.

Effluent Filter, Tee, and Outlet: NC GS 130A-335, 15A NCAC 18A.1952, 15A NCAC 18A.1954

NC GS 130A-335 (f2) For each septic tank system that is designed to treat 3,000 gallons per day or less of sewage, rules adopted pursuant to subsection (f) of this section shall require the use of an effluent filter to reduce the total suspended solids entering the drain field...

15A NCAC 18A.1952 (a) ...Septic tanks shall have an approved effluent filter and access devices....The requirement(s) for an effluent filter and access devices shall apply to septic tanks for which a Construction Authorization is issued on or after January 1, 1999.

15A NCAC 18A.1954 (a) (6) The outlet shall be through an approved effluent filter secured in place in an effluent filter support case. The effluent filter support case shall serve as a functioning sanitary tee with the bottom inlet extending down between 25 and 40 percent of the liquid depth. The approved effluent filter and support case shall be furnished by the septic tank manufacturer. The invert of the outlet shall be at least two inches lower in elevation than the invert of the inlet.

Permits: NC GS 130A-336 , NC GS 130A-337

See NC GS 130A-336 and 337 and 15A NCAC 18A.1937 for more information.

Currently, NC GS 130A-336 requires an Improvement Permit, then an Authorization to Construction Permit, before the system is installed.

NC GS 130A-337 (b) Upon determining that the system is properly installed or repaired and that the system is capable of being operated in accordance with the conditions to of the improvement permit, the rules, this Article and any conditions to be imposed in the operation permit, as applicable, the local health department shall issue an operation permit authorizing the residence, place of business or place of public assembly to be occupied and for the system to be placed into use or reuse.

Inspections - Required Paperwork: 21 NCAC 39.1002

21 NCAC 39.1002 General Requirements Inspectors shall:

(1) Provide a written contract, signed by the client or client's representative, before the on-site wastewater system inspection is performed....

(2) Obtain written permission from the owner or owner's representative to perform the inspection

Inspections - Standards: 21 NCAC 39.1001, 21 NCAC 39.1002, 21 NCAC 39.1004**21 NCAC 39.1001 Definitions**

- (2) "Component" means a readily accessible and observable part of an on-site wastewater system
- (13) "Readily Accessible" means approachable or enterable for inspection without the risk of damage to any property or alteration of the accessible space, equipment, or opening.
- (14) "Readily openable access panel" means a panel provided for homeowner or certified operator maintenance and operation that has removable or operable fasteners or latch devices in order to be lifted off, swung open, or otherwise removed for inspection. This definition is limited to those wastewater system components not blocked by stored items, furniture, building components, or landscaping.
- (15) "Readily visible" means seen by using natural or artificial light without the use of equipment or tools other than a probe, flashlight or mirror

21 NCAC 39.1002 General Requirements

- (3) Inspect readily openable and accessible installed systems and components listed in this Section.
- (4) Submit a written report to the client or client representative within 10 business days of the inspection that:
- (a) Describes those systems and components required to be described in Rules .1005 through .1006 of this Section;
- (b) States which systems and components designated for inspection in this Section have been inspected, and state any systems or components designated for inspection that were not inspected, and the reason for not inspection. Failure to locate the system or components for inspection or "could not locate" shall not be the same as "not visible." If the system or component is not located, the written report shall state the failure to locate the system or component for inspection or "could not locate;"
- (c) States any systems or components inspected that do not function as intended or harm the waste water treatment system

21 NCAC 39.1004 General Exclusions

- (a) Inspectors shall not be required to report on:
- (1) Life expectancy of any component or system;
 - (2) The causes of the need for a repair;
 - (3) The methods, materials, and costs of corrections;
 - (4) The suitability of the property for any specialized use;
 - (5) The market value of the property or its marketability;
 - (6) The advisability or inadvisability of purchase of the property; or
 - (7) Normal wear and tear to the system
- (b) Inspectors shall not be required to:
- (1) Identify property lines;
 - (2) Offer warranties or guarantees of any kind;
 - (3) Calculate the strength, adequacy, or efficiency of an system or component;
 - (4) Operate any system or component that does not respond to normal operating controls;
 - (5) Move excessive vegetation, structures, personal items, panels, furniture, equipment, snow, ice, or debris that obstruct access to or visibility of the system and any related components;
 - (6) Determine the presence or absence of any suspected adverse environmental condition or hazardous substance, including toxins, carcinogens, noise, and contaminants in the building or in the soil, water, and air;
 - (7) Determine the effectiveness of any system installed to control or remove suspected hazardous substances'
 - (8) Predict future condition, including failure of components;
 - (9) Project operating costs of components;
 - (10) Evaluate acoustical characteristics of any system or component; or
 - (11) inspect equipment or accessories that are not listed as components to be inspected in this section.