

# A PUMPED SEPTIC TANK IS A HAPPY SEPTIC TANK!!



# Homeowners of Septic Systems

Chatham County Environmental Health  
Pittsboro, North Carolina

March 21 & 22, 2017

# Topics to be reviewed

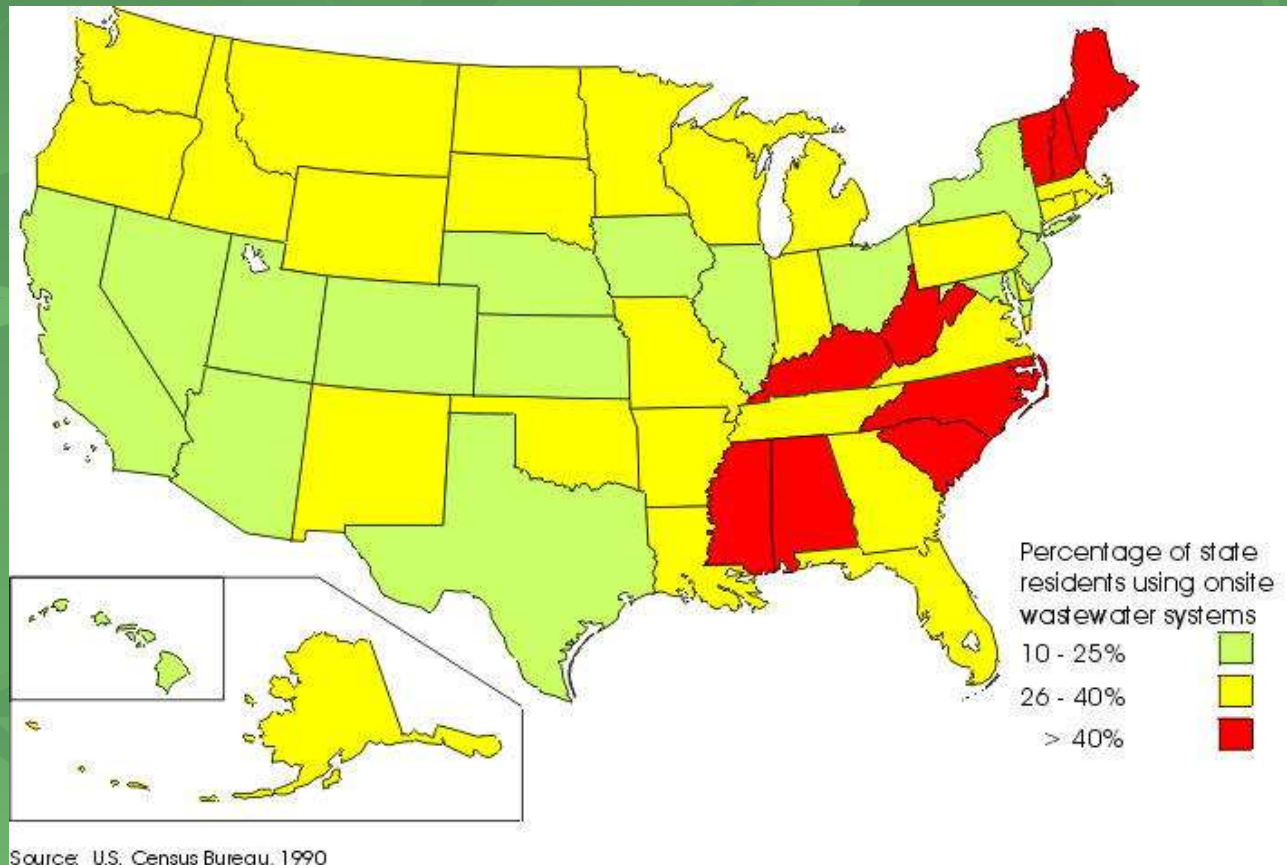
- Why do we use septic systems?
- What are the components of a septic system?
- What types of septic system are installed in Chatham County?
- Why do septic systems fail?
  - And how can failures be prevented?

# Why do we use septic systems?

- Safely TREAT and dispose of sewage
- Protect your family's health
- Protect public health in the community
- Protect ground and surface water
- Help keep housing affordable (city sewer is very expensive to install and maintain)



# Who uses septic systems

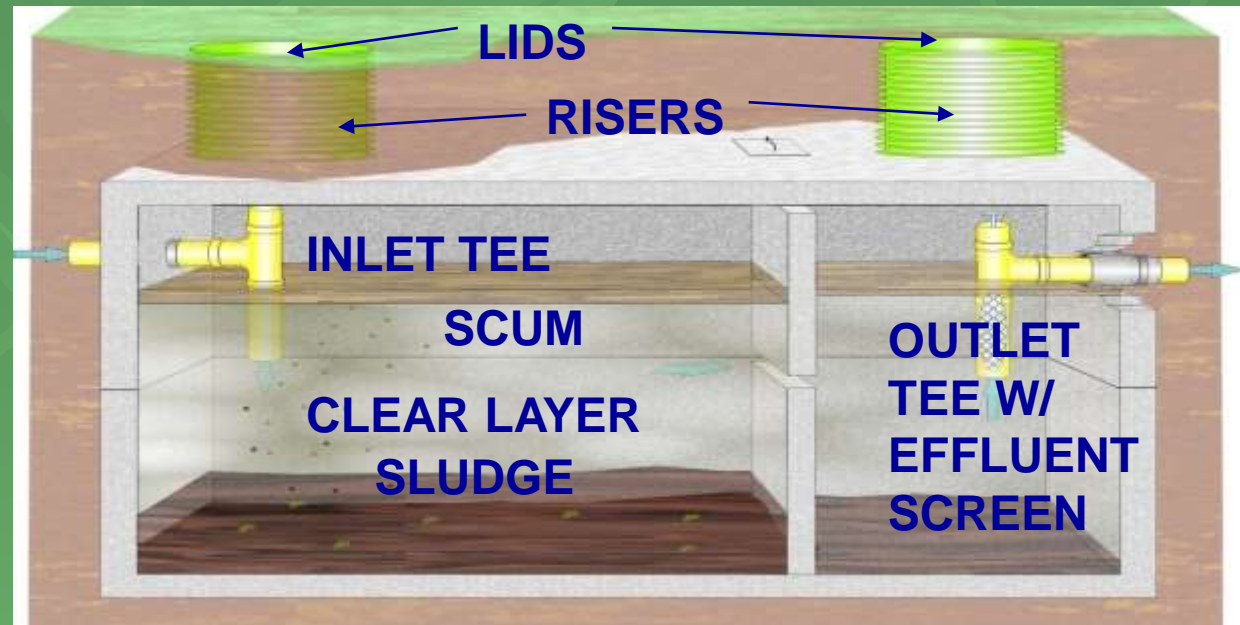


- 25% of the US population
- 50% of North Carolinians
- Use of on site septic systems is increasing

## ■ What is a septic system?



# Typical Septic Tank



## Solids Separate

Heavy solids sink (sludge)

Lighter solids float (scum layer-grease & oil)

## Some pollutant reduction

Weak point of system, cracks in seam or manhole covers may allow water to infiltrate into system

Septic tanks need to be pumped to prevent solids from getting to the drainfield!!!

# Septic Tank and Effluent Filter Maintenance

**Table 1. Estimated Septic Tank Inspection and Pumping Frequency (in Years)**

Tank Size (gallons)	Number of People Using the System				
	1	2	4	6	8
900	11	5	2	1	<1
1,000	12	6	3	2	1
1,250	16	8	3	2	1
1,500	19	9	4	3	2





# Effluent Filters

- Effluent filters
  - Clean with septic tank pumping
  - If drains in house are slow check filter first for clogging
  - Do not throw away the filter this is another way solids are stopped from entering the drainfield and help prevent premature failure



# Cleaning Effluent Filter



**Before**



**After**

# Drainfield

Type of drainfield depends upon:

- Soil depth
- Landscape position

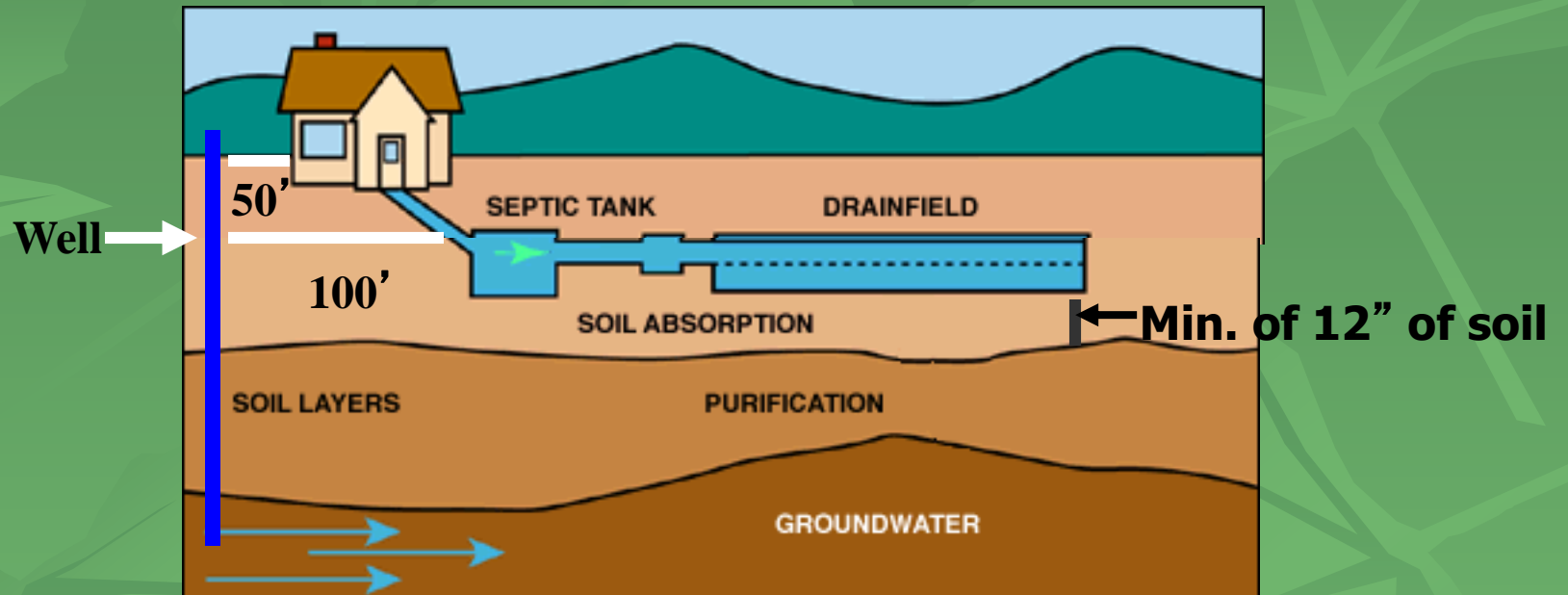
Size of drainfield depends upon:

- # of bedrooms
- Type of Soil

# Why soil depth is important

- 12” of suitable or provisionally suitable soil required below the trench bottom to effectively filter the wastewater to reduce the amount of pathogenic bacteria and nitrogen before water reaches the water table
- The depth of suitable soil in combination with setbacks help protect surface water and groundwater (drinking water wells)





# Types of Systems: Gravel System



# 25% reduction accepted systems

Polystyrene



Chamber





# Low Pressure Pipe





# Fill System



# Drip System





# Pretreatment Options



Gravel Bed



Peat Filter



Fabric Filter



Sandfilter

# Reasons for Pumps

- Location of field uphill from house plumbing
- As part of design to disperse the wastewater over the entire drainfield
  - Pressure Manifold
  - Low Pressure Pipe
  - Pretreatment/Drip



The background of the slide is a solid green color with a faint, stylized pattern of large, overlapping leaves. The leaves are rendered in various shades of green, creating a sense of depth and texture. The central text is white with a subtle drop shadow, making it stand out against the green background.

Questions??

# Why Septic Systems Fail

Chatham County Public Health Department  
Environmental Health Division

# Why septic systems fail

- Hydraulic overloading (too much water)
- Solids migration to drainfield
  - Failure to pump septic tank
- Root intrusion into sewer lines
- Traffic damage to drainfield
- Garbage disposal use



*How to Fix a Leaky Faucet*

# Hydraulic Overload

- Too much water use from inside the house
- Too much surface water entering the drainfield from runoff, roof gutters, etc.



# Conserve Water Inside the Home










## Four Tips to Help Conserve Water Indoors

- Turn off faucet while brushing teeth.
- Take shorter showers.
- Fix leaks in faucets, showerheads and toilets.
- Only wash full loads.



You use about  
**5 gallons of water**  
if you leave the  
water running  
while brushing  
your teeth.

## Water Loss In Gallons

Leak this Size	Loss Per Day	Loss Per Month	Leak this Size	Loss Per Day	Loss Per Month
.	120	3,600		6,640	199,520
•	300	10,800		6,964	209,520
•	693	20,790		8,424	252,720
•	1,200	36,000		9,585	296,640
•	1,920	57,600		11,324	339,720
•	3,095	92,880		12,750	361,600
•	4,295	128,880		14,952	448,560

# HOW TO TEST YOUR TOILET FOR LEAKS

## IN 3 SIMPLE STEPS

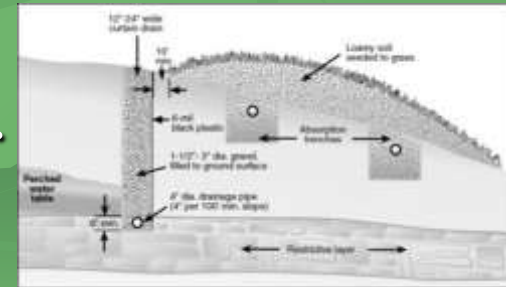
- 1** Remove the tank lid and any in-tank toilet cleaners.
- 2** Put a few drops of food coloring in the tank (not in the bowl).
- 3** Let the toilet be idle for 15 minutes.

Colored water in bowl = leak.



# Hydraulic Overload Outside of Home

- Prevent external hydraulic overload by
  - Diverting all surface water around the septic tank/drainfield
  - Install roof gutters that are directed away from the septic tank
  - Do not create landscape features or conduct grading that encourages surface water to flow over septic tank/drainfield.



# Solids Migration to the Drainfield

- Solids must be retained in the septic tank

**PUMP THE SEPTIC TANK!!!**

- Baffles should be inspected when tank is inspected or pumped
- Use of additives that “liquefy” sludge and scum can lead to drainfield failure

# Septic System Additives

- Biological additives are harmless but of little use
- Chemical additives can damage the septic system and contaminate ground water
- Don't use if active ingredients are unspecified
- Annualized cost of additives is about the same as for tank pumping on recommended schedule



# Other items not to put down the drain

Paints

Coffee grounds

Dental floss

Disposable diapers

Kitty litter

Sanitary napkins

Applicators

Cigarette Butts

Condoms

Paper towels

Plastics

Varnishes

Thinners

Waste oils

Photographic solutions

Pesticides





# Root Intrusion into Sewer Lines



- Do not plant trees or shrubs near sewer lines



# Traffic Damage

- No vehicle parking over drain field
- No vehicle traffic except lawn mowers
- No traffic at all if ground is saturated



# Garbage Disposals NOT RECOMMENDED FOR SEPTIC SYSTEMS

- Add to hydraulic load (running water)
  - If you have garbage disposal, recommend adding another septic tank to system
- Add to solids
  - If you have garbage disposal, recommend pumping tank more frequently
- COMPOSTING is a good alternative to using the garbage disposal!!





# Water Softeners & Septic Systems



- Salt does not affect septic tank functioning

However

- Added hydraulic load (regeneration water)
  - Use water meter or sensor controlled regeneration rather than time clock alone
- Added sodium can affect marginal drain fields (dispersal of clay slows perc rate)





The background of the slide is a solid green color with a faint, stylized pattern of large, overlapping leaves. The leaves have prominent veins and are arranged in a way that creates a sense of depth and texture. The word "Questions?" is centered on the slide in a yellow, serif font with a subtle drop shadow.

Questions?

The background of the slide features a pattern of stylized green leaves, possibly maple leaves, in various shades of green, creating a natural and environmental theme.

# **Environmental Health Permits Required for Future Development on the Property**

# System Repair vs. System Maintenance

Permits are required to repair your system

Repair Permits are FREE!!

# Repair Activities Requiring A Permit

- Replacing line to repair failing septic system
- Replacing septic tank
- Replacing pre-treatment system
- Alteration of pre-treatment system from one process to another



# Maintenance Activities That Do NOT Require A Permit

- Pumping the septic tank
- Replacing a pump with exact same pump model
- Repairing broken cleanout or turn-up for LPP
- Routine maintenance on Type IIIb, IV, V, and VI systems

The background of the slide is a solid green color with a faint, stylized pattern of large, overlapping leaves. The leaves are rendered in various shades of green, creating a textured, organic feel.

If you are unsure if you need  
maintenance or a repair permit call  
Environmental Health

# Choosing a Septic Contractor

- All septic contractors are required to be certified by the NCOWCICB. Verify contractor certification by visiting [www.ncowcicb.info](http://www.ncowcicb.info)
- Ask for at least 3-5 references
- Contractor should be able to furnish proof of liability insurance and workmen's compensation

# Setback Compliance Approval

Changing foot print of house without adding bedrooms  
i.e. Decks, Porches other rooms besides bedrooms

Adding garage or outbuilding

Adding a swimming pool



# Improvement Permit/ Construction Authorization for Expansion

- If adding bedrooms to house
- If adding full bathroom to garage; this is considered a bedroom
- Adding any activity that creates wastewater other than domestic sewage (toilets, sink, laundry)
  - Art studios (pottery, metal work etc.)
  - Film developing
  - X-Rays

# Operation Permit Revision

- If changing lot lines
- If changing the use of a septic system
  - Changing system from home use to business use
  - As long as water usage is not increasing and remains domestic (toilet, sink, laundry)

# Finding your septic system permit

- 1. Permit may have been uploaded to County GIS website.
- 2. Email request to:  
[ehrequest@chathamnc.org](mailto:ehrequest@chathamnc.org)
- 3. Call our office at 919-542-8208

# Finding Permits on GIS website

Visit :  
<http://chathamgis.com>

Click on:  
**Tax & Land Records**

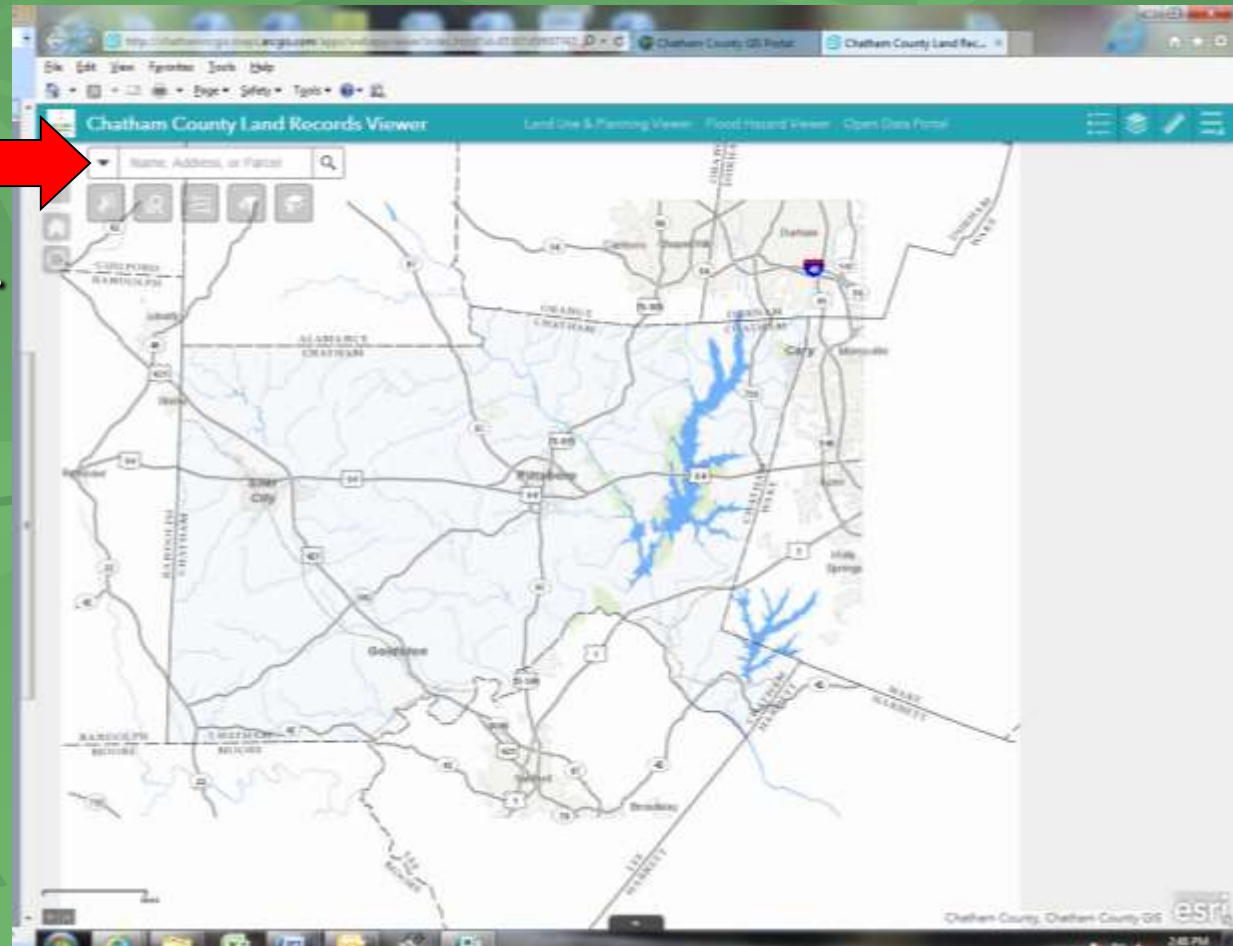




# Finding Permits on GIS website

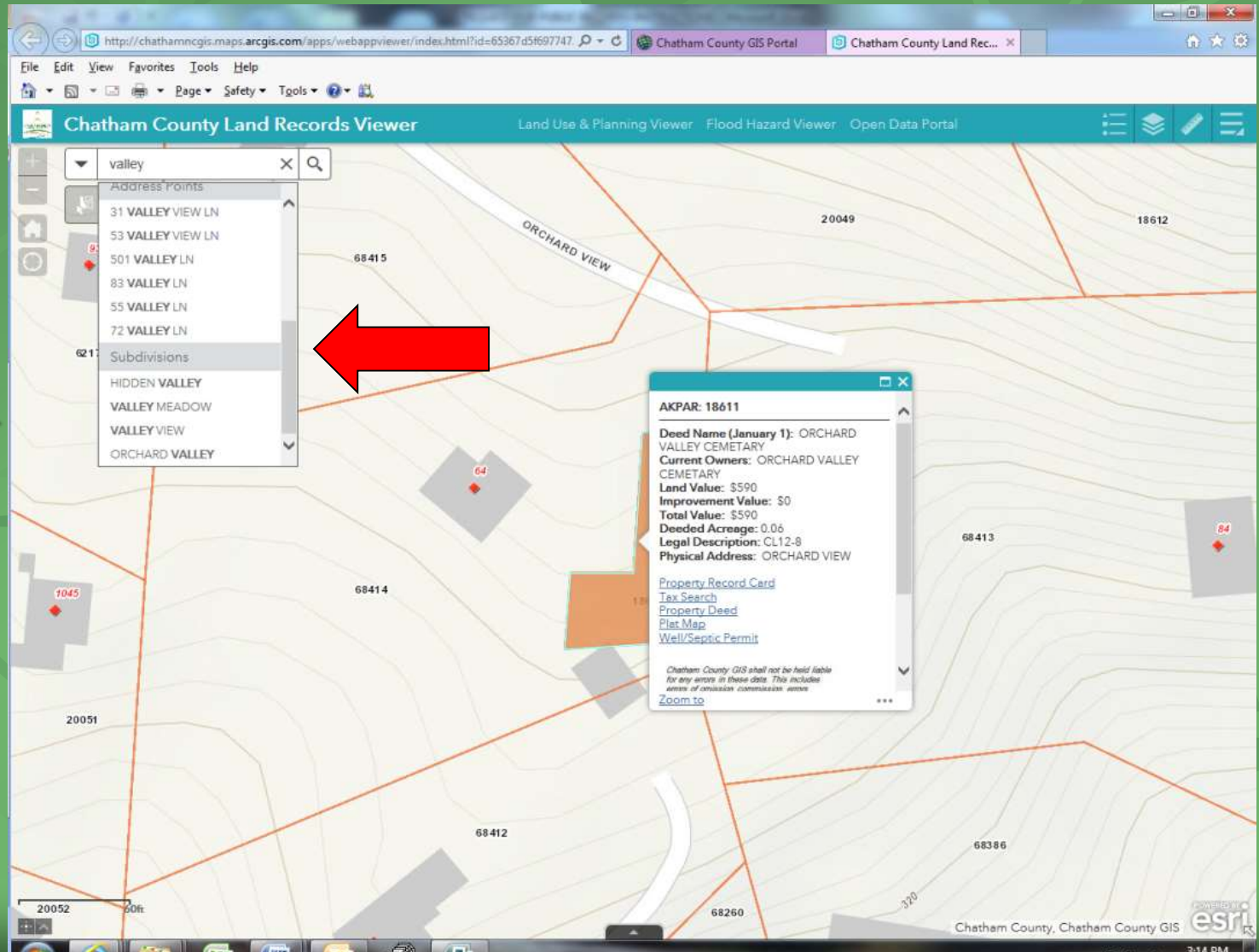
Search for property by

1. Address
2. Owner
3. Parcel Number
4. Subdivision



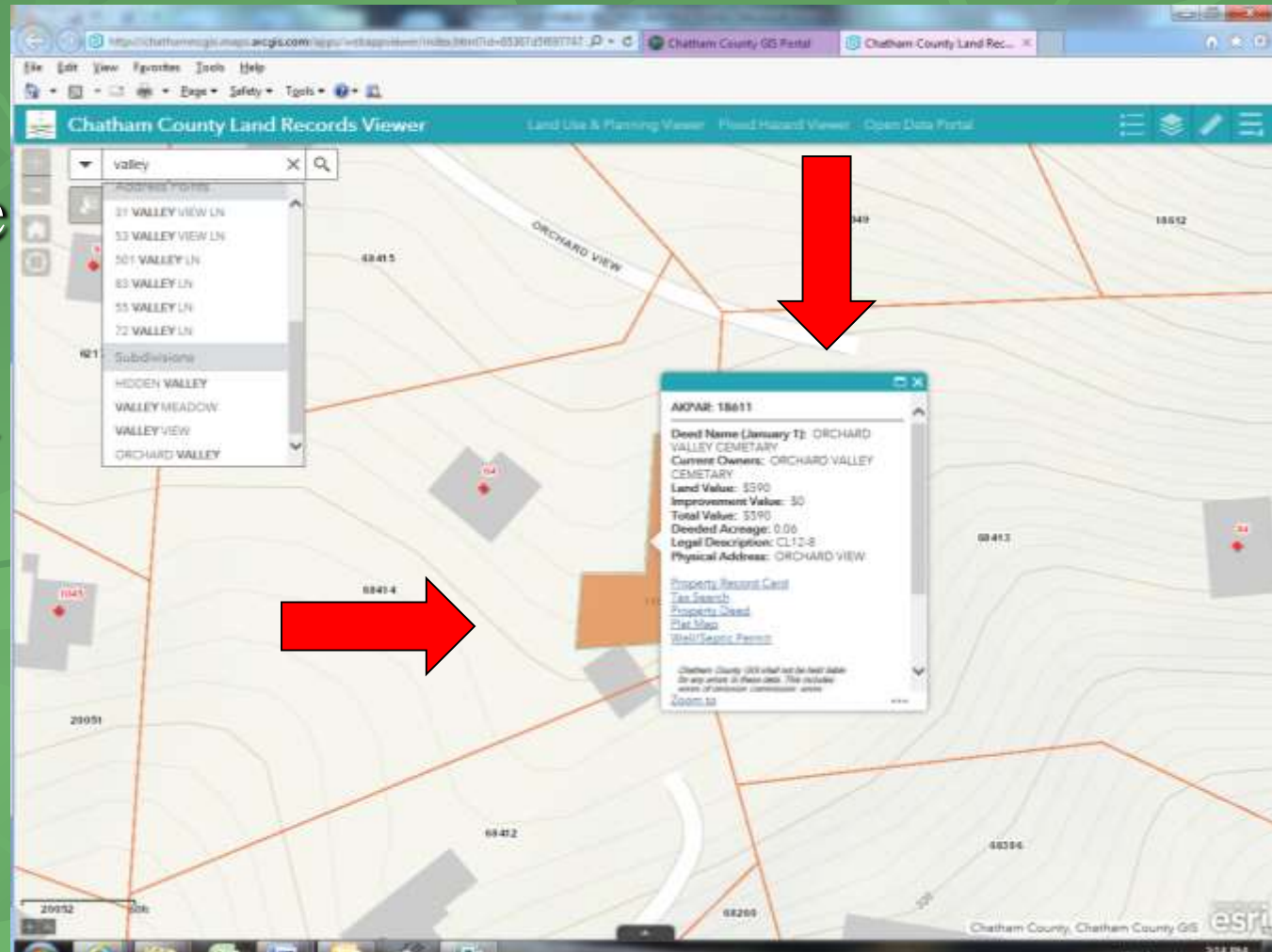
# Finding Permits on GIS website

Make a selection from the dropdown box



# Finding Permits on GIS Website

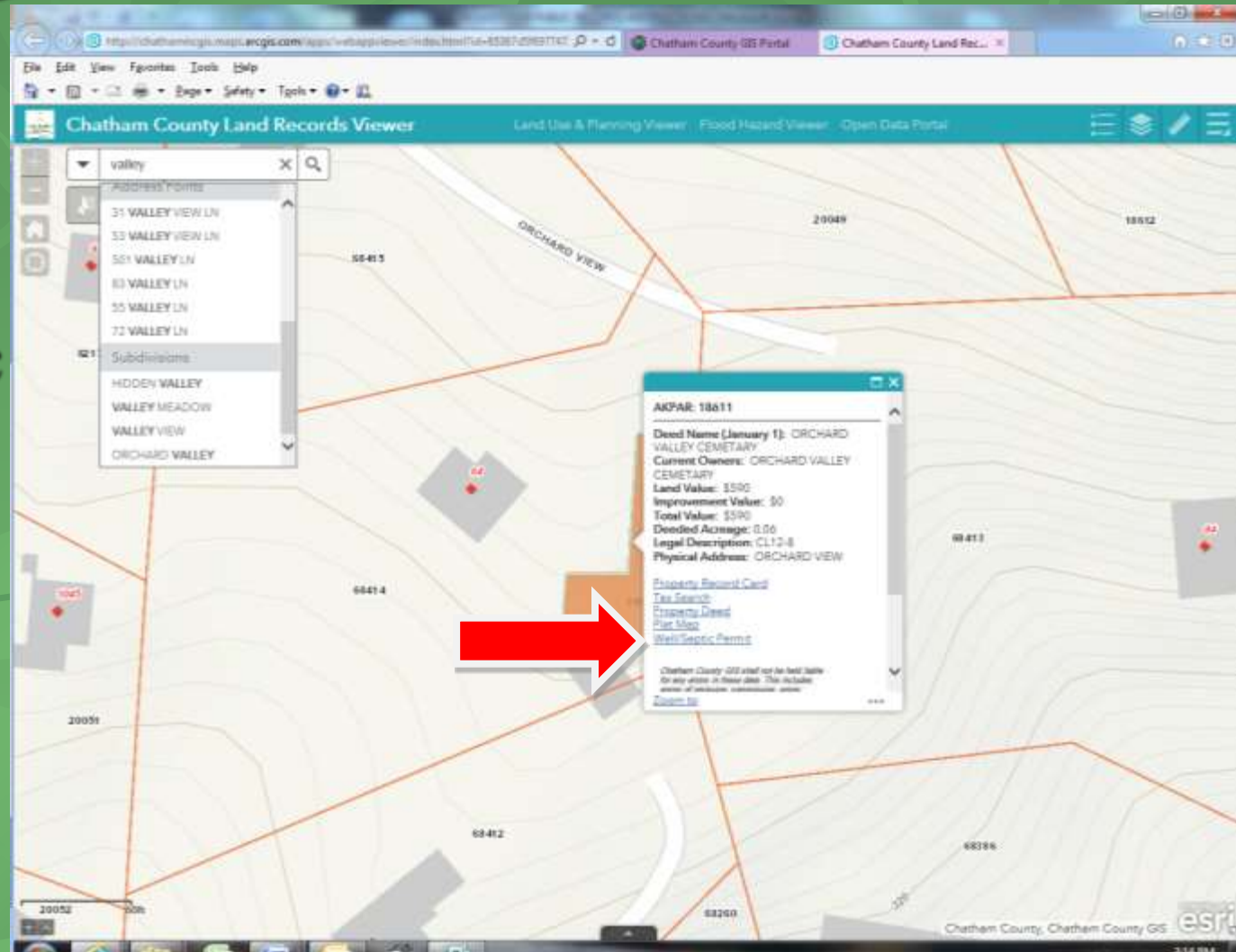
Click on the Parcel you are researching and a window will open





# Finding Permits on GIS Website

In window  
Click on  
Well/Septic  
Permits





# Finding Permits on GIS Website

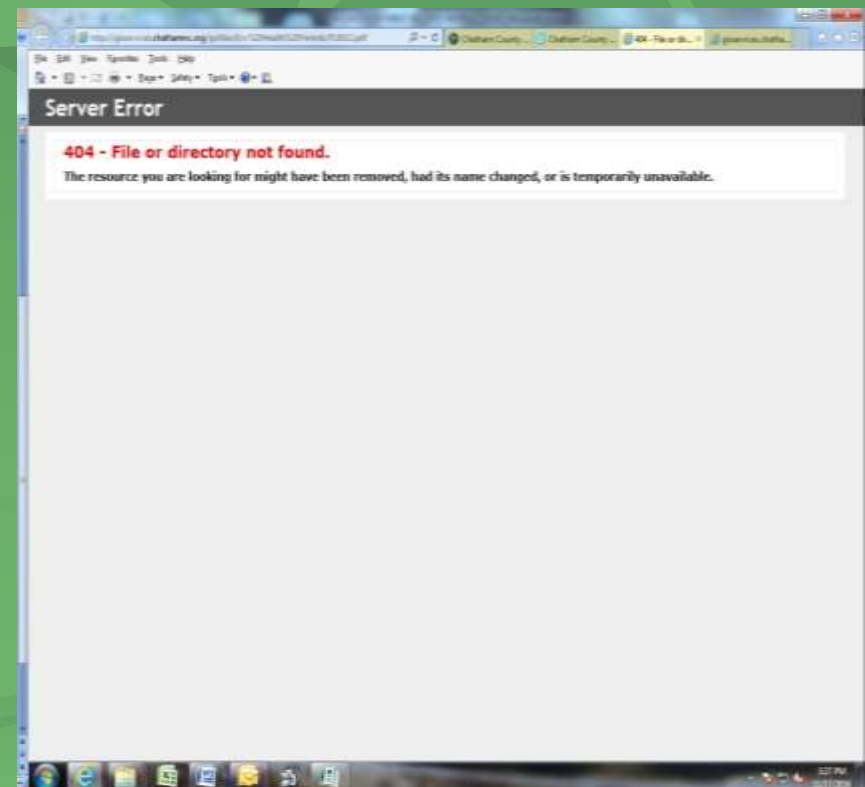
If a well/septic permit is available, it will open in a new window.

If no permit is available at this time, you will get an error page

CHATHAM COUNTY HEALTH DEPARTMENT  
**Water Supply and Sewage Disposal  
IMPROVEMENTS PERMIT**

Map Block Lot 6  
DORLAND VILLAGE  
CONSTRUCTIVE HOME IMPROVEMENTS, INC.

No. TS-1272  
Date August 15, 1992  
Owner: Landree Home Builders, Inc.  
Location: Dorland Village Sub Lot #6  
Along N. Dorland Elementary Lake Rd. (Dorland)  
private drive going down lot built before end.  
Contractor: \_\_\_\_\_  
Water Supply: Private ☒ Public \_\_\_\_\_  
No. Bedrooms: \_\_\_\_\_ Other: \_\_\_\_\_  
Daily Flow Rate: \_\_\_\_\_ Application Rate: \_\_\_\_\_  
maintain well from septic system, use to leave house  
to be from property lines  
Size of tank: \_\_\_\_\_ Nitritification line: \_\_\_\_\_  
concrete well date installed - 12'8" x 9'8" x 1/2' deep  
thick  
Water supply and sewage disposal facilities location, installation and protection must meet state and local regulations.  
Septic tank should be pumped out every 3 to 5 years and shall be maintained by owner in such a manner as not to create a public health hazard. Septic tank and nitritification line **MUST BE INSPECTED AND APPROVED BY A MEMBER OF THE HEALTH DEPARTMENT STAFF BEFORE ANY PORTION OF THE INSTALLATION IS COVERED AND PUT INTO USE.**  
Signed: D. Daniel J. [Signature]  
Sanitarian



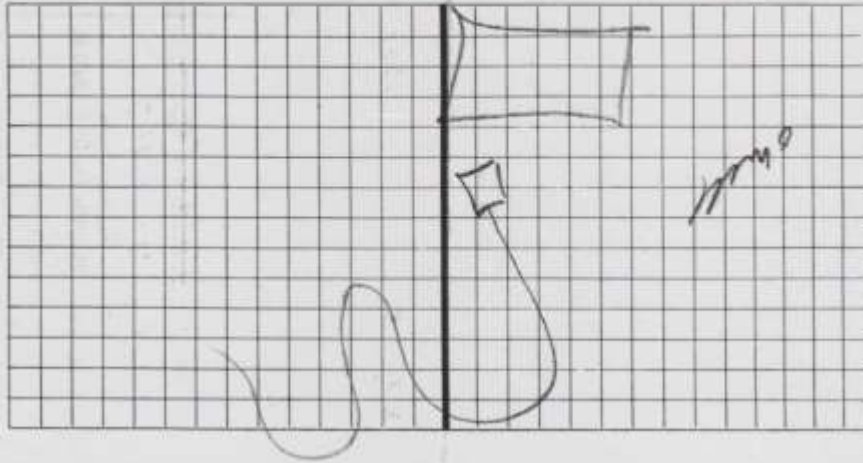


# Old permits

NOTE: Make sketch of installation showing lot size and shape, location of house, septic tanks, privies, water supplies, etc. Note special problems existing on lot. Write in measurements in order that installations may be located at later date. Note location of water supplies on adjacent lots.

(1)

(2)



# If no permit or older permit found

- Check under the house for the wasteline, follow line to 5-15' from house
- In the summer:
  - The grass over the septic tank will be brown
  - The grass of the drainfield will be greener



# Stripes over gravel drainfield





# Vegetative growth over chamber trenches







Vegetative growth over drip emitters  
indicating equal distribution

# ■ Questions?

