



Locating System Components

Tips to Locate Septic Tanks and Final Treatment
Areas

By: Casey Fiedler



The materials being presented represent the speaker's own opinion and do NOT reflect the opinions of NOWRA

Casey Fiedler – The NEW Guy

Does this guy even know
anything?



Businesses:

Michigan Septic

Michigan Well & Septic Inspections

Shunk / Fiedler ~ R&L (formerly)

Certifications:

NAWT Certified Septic Inspector

ICHD Time of Sale Inspector

Jeff Seipp – The OLD Guy

Does this guy even know
anything?



Businesses:

Columbia Sanitary Service (1959 –
1998)

High Plains Sanitation Service
(2000 – current)

Certifications:

School of Hard Knocks

NAWT Certified Septic Inspector

Goals and Objectives of this Session

- HOW DID WE GET HERE?
 - Why do we care?
 - What we did in the past vs. TODAY
- Locating the pieces and parts of an OWTS
- TOOLS!!!
- Practical applications and scenarios



How did we get here?



- Early systems – pre-1940's –
- NEXT house to CESSPOOL – RAW SEWAGE!!
- NEXT house to TANK to LEACH WELL –
- NOW house to ???? Many potential steps until it gets to it's FINAL TREATMENT

Why do we care?

- Public and Environmental health
- An inspection requires looking at ALL the pieces and parts
- Past vs. Present

WE EITHER MAKE OURSELVES
MISERABLE, OR WE MAKE
OURSELVES STRONG. THE
AMOUNT OF WORK IS THE SAME.

— CARLOS CASTAMEDA

What Types of Final Treatment Areas Go “Missing”?

- Systems installed prior to good record keeping
 - Depends on your county/twp/locale
- Midnight specials
- Houses with no FTA at all...
 - Aged homes, nearby farm field tiles, nearby creek...

Specific Types That Seem to Get Lost

Drywells / Seepage Pits

In-Grade “Conventional” Trench Systems

Types That Don’t Get Lost (Much)

Modern raised systems of any kind

Any systems w/ engineering usually good records or obvious

Bed systems (usually easy to find on probe)

How Do Tanks/Components Go Missing???

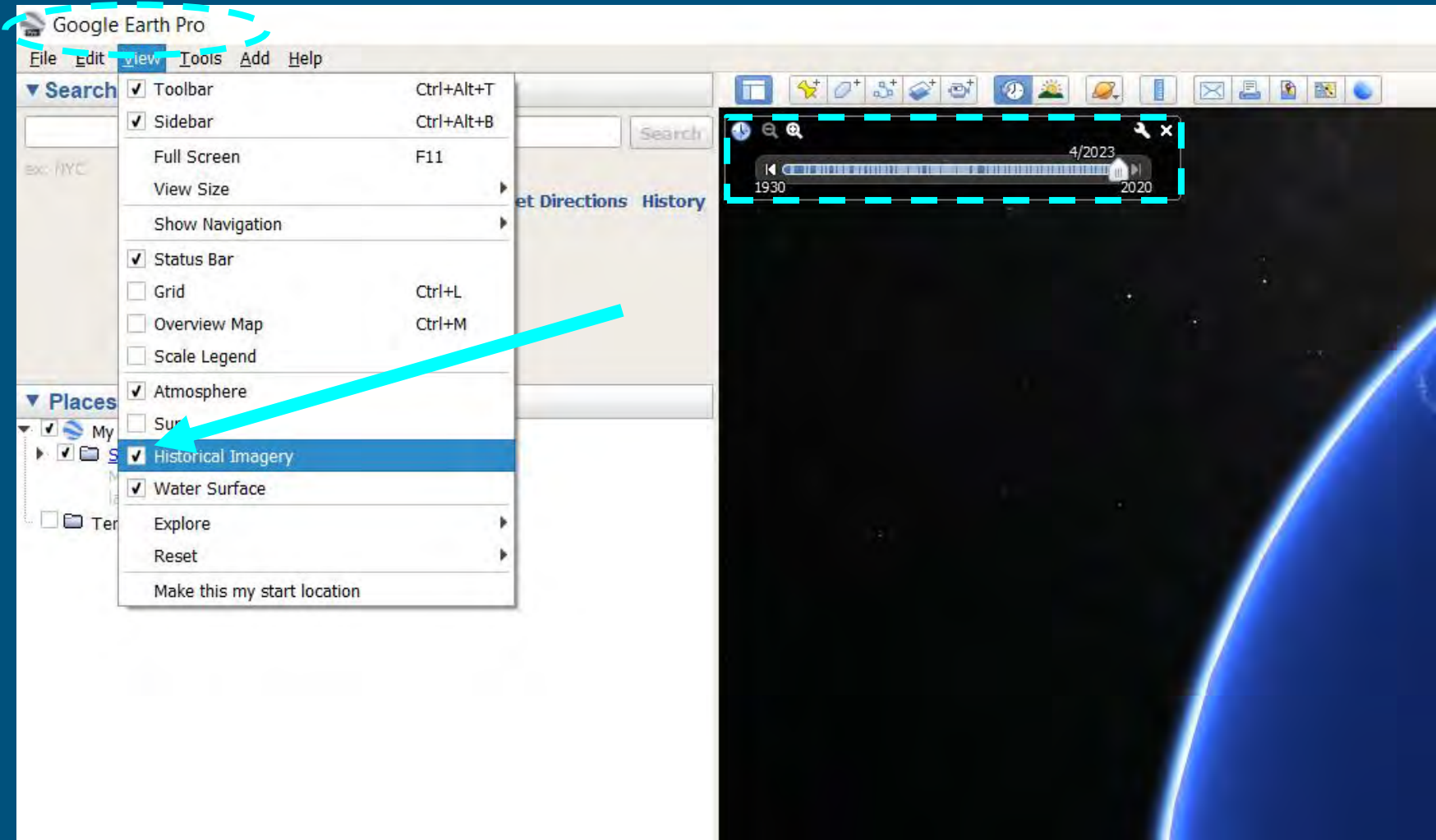
- Homeowner passes away and was the only one who knew the location
- New property owner has never had septic before
- Homemade tanks never permitted, no records on file
- Midnight special installs
- McGuyver's



Before the Inspection

Do Some Office Work

- Pull records first
 - *Cover your bum...* if any legal action were to result you'd want to prove that you looked at the site records
 - Records often will save you a ton of time anyways
 - Records can be wrong, don't trust blindly!
 - **Search “_____ County Department of Environmental Health FOIA”**
- Use satellite imagery
 - **Google Earth Pro (desktop, not web) lets you look back in time**
 - Find clues during dry months (green), or snowy months (melted)
 - Look for open areas from a bird's eye view



Google Earth Pro

File Edit **View** Tools Add Help

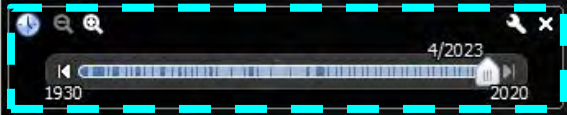
▼ Search

- Toolbar Ctrl+Alt+T
- Sidebar Ctrl+Alt+B
- Full Screen F11
- View Size ▶
- Show Navigation ▶
- Status Bar
- Grid Ctrl+L
- Overview Map Ctrl+M
- Scale Legend
- Atmosphere
- Sun
- Historical Imagery**
- Water Surface
- Explore ▶
- Reset ▶
- Make this my start location

▼ Places

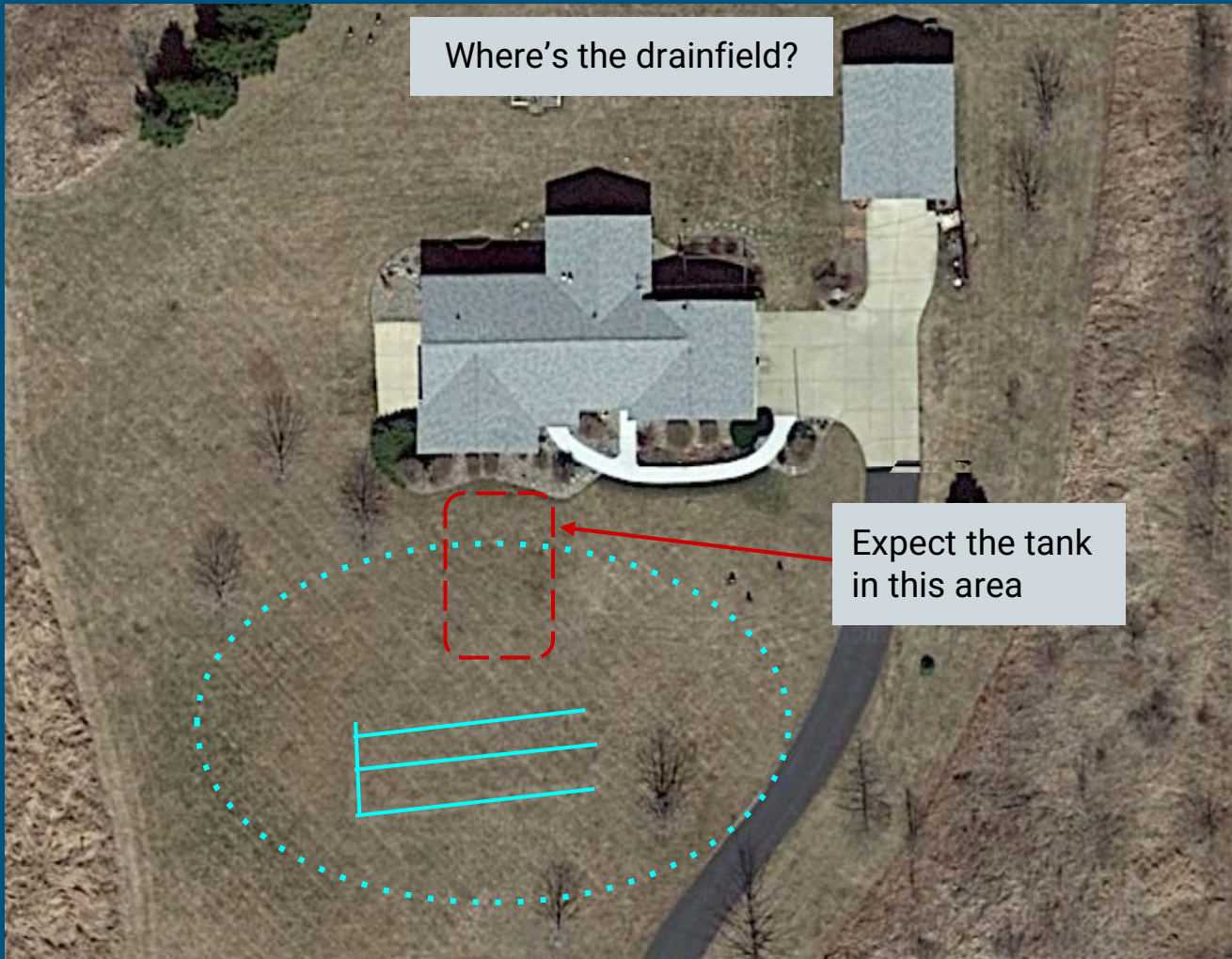
- My Places
- Saved Places
- Temporary Places

Search
Get Directions History



Where's the drainfield?

Expect the tank
in this area





October 2016

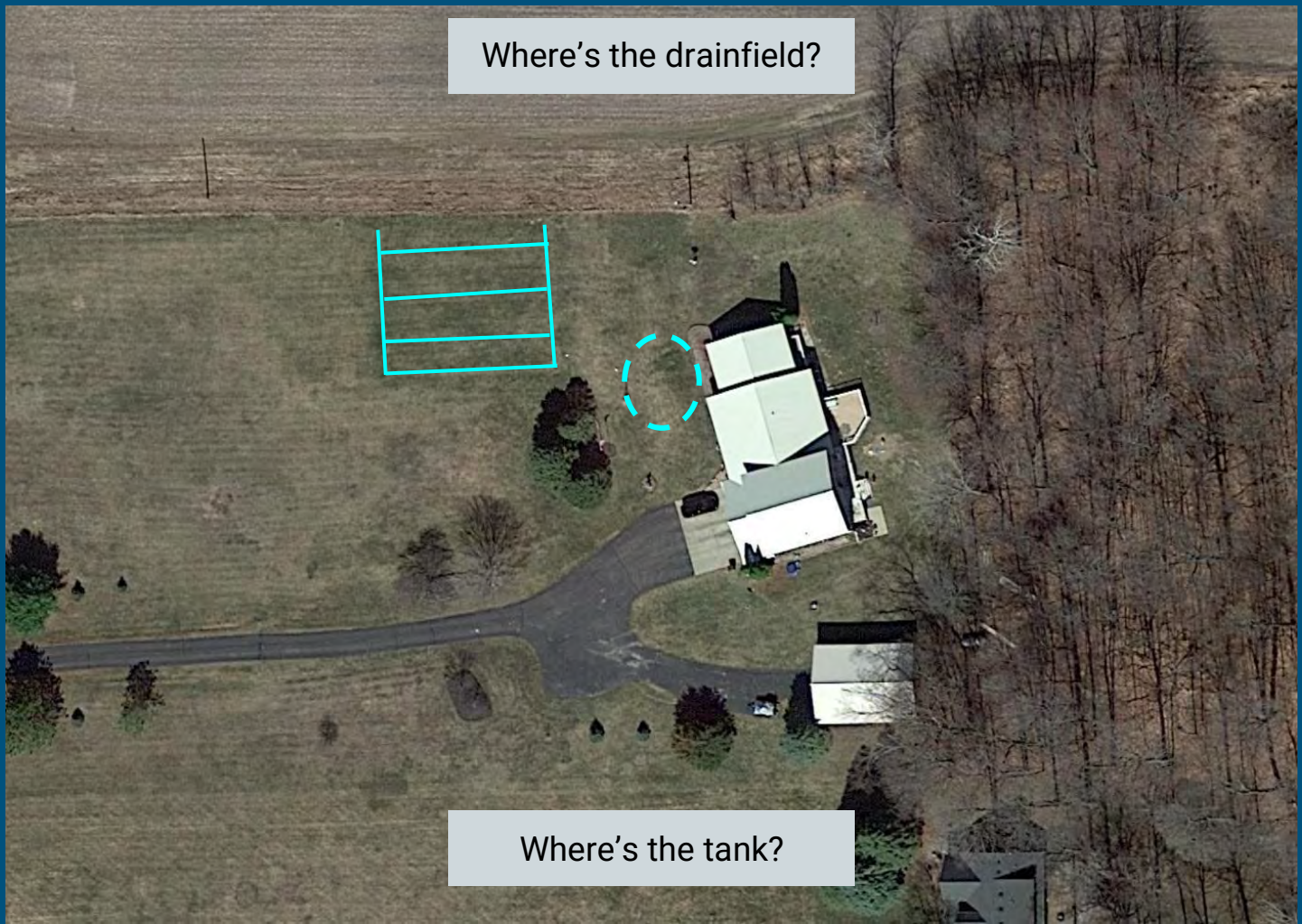
July 2018







Where's the drainfield?



Where's the tank?



Same Location

But...

July 2015

Arriving at the Inspection Site

Before You Grab The Tools...

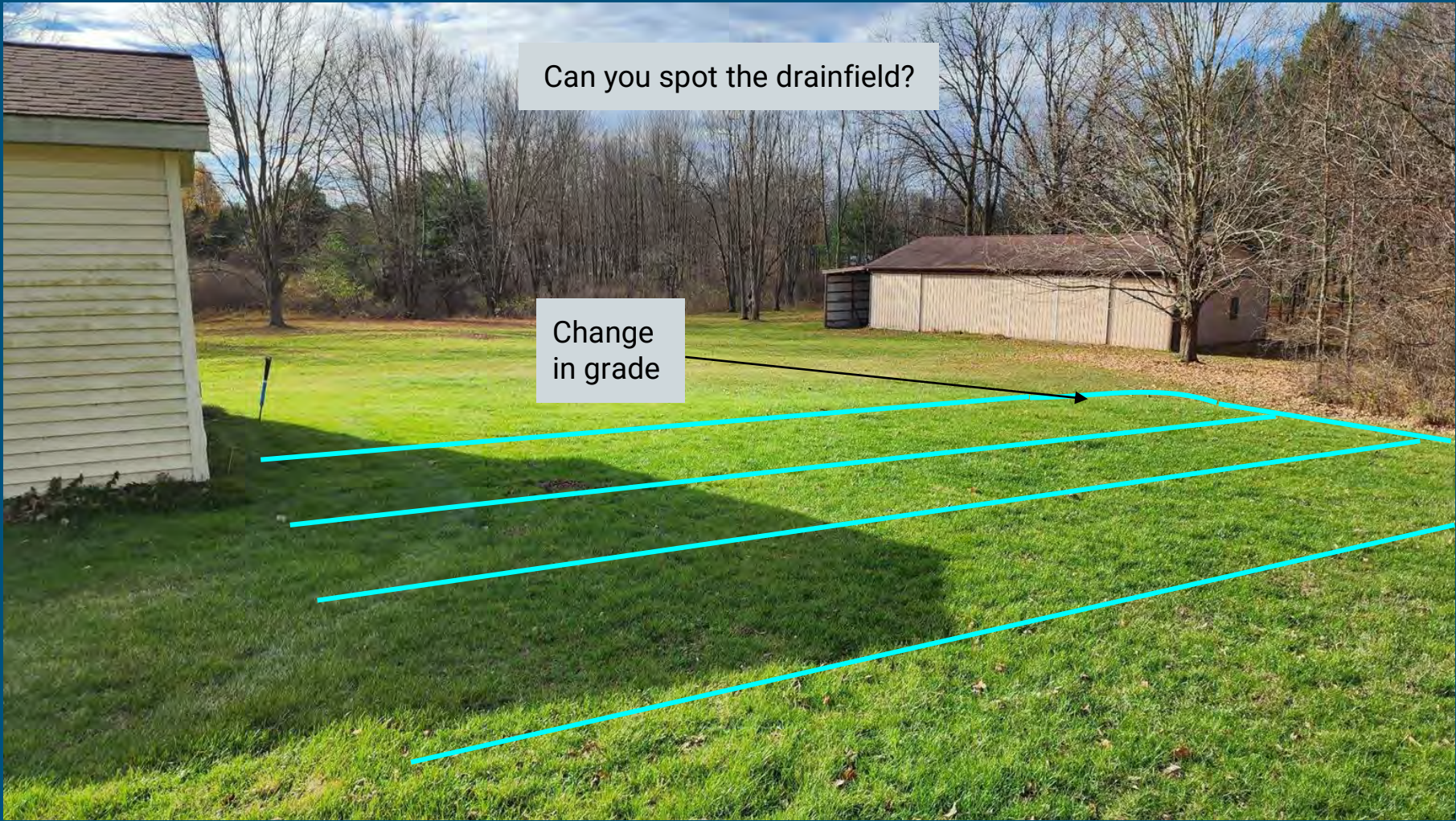
Don't Touch The Probe Yet!!!

- Just walk the property and observe
 - Stink pipes on roof
 - Open areas
 - Topography (if it's gravity it can only go downhill...)
 - Look for changes in topography
 - Flat areas
 - Slopes that change grade abruptly or "stick out"
 - Changes in grasses
 - Not just "lush", sometimes grass types look different and can be observed
 - Melted snow areas
 - Try walking the area from more than one angle
 - Look for trench settling
 - Get down from a low angle and look across the lawn for trench or tank depressions (anything symmetrical or repeated can be a clue)
- Don't forget to ask the homeowner... sometimes they know or can guess



Can you spot the drainfield?

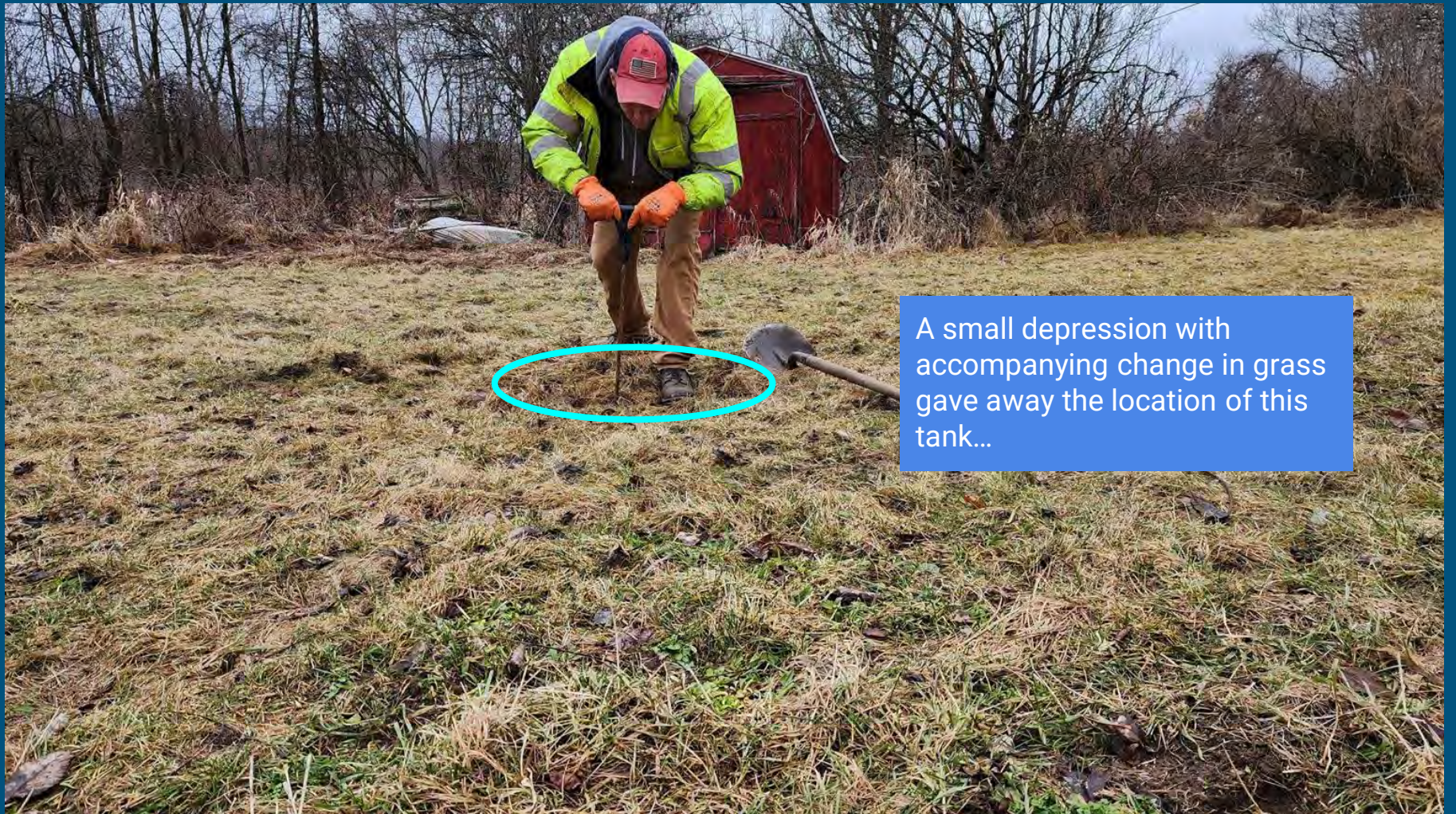
Change
in grade



Septic Tank Giveaways

- Dry grass
- Lush grass
- Spotty grass, or a change in grass type where seed has been used
- Slight depressions where lid(s) have been dug up over the years
- Homemade risers

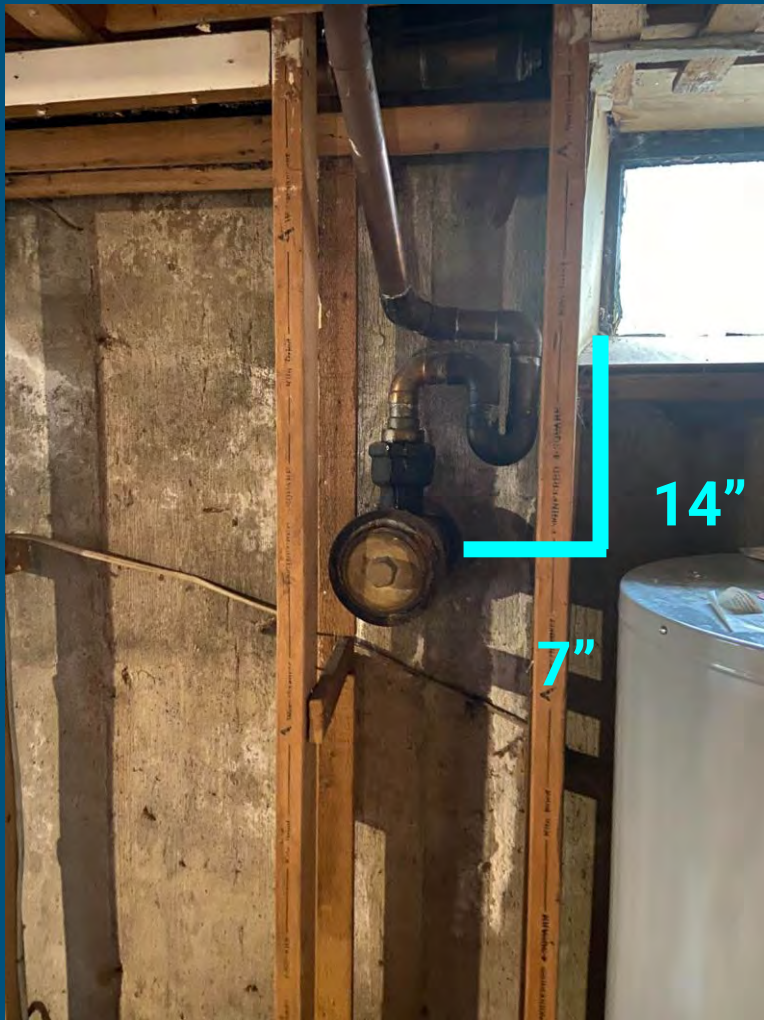




A small depression with accompanying change in grass gave away the location of this tank...

Take a Look Inside

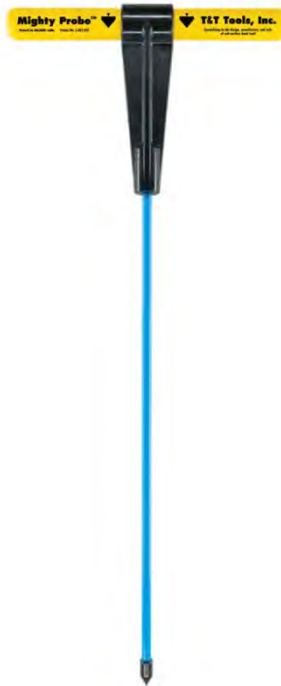
- Find the main septic outlet (hope it's a wall outlet, not sub-floor)
- Measure to something you can see
 - Find a wall corner or a window and measure the distance so you can repeat it outside
- Make note of the outlet depth below grade
- Look for notes!
 - Written distances or maps on the wall / pipe



- Measure down from grade
- Measure to something you can see outside

Tools for Locating

The Probe



Mighty Probe

T&T Tools, Inc.



Rod Type:

3/8" Round 3/8" Hex 7/16" Hex

Length:

36" 42" 48" 54" 60" 66" 72" 78"

Quantity:

- 1 +

Tip Style:

Standard Ball Nose

Part# : MPA36

Available Quantity: 43

ADD TO CART

BUY IT NOW

Ball nose helps but won't eliminate damaging components

Probe Slide Hammer



Slide Adapter - Standard

T&T Tools, Inc.



Quantity:



Part# : SA

Available Quantity: 145

ADD TO CART

BUY IT NOW



☆☆☆☆☆ No reviews

Customer Reviews

No reviews yet

[Write a review](#)

- Pretty much required in dry months
- Be careful not to hammer your probe thru system components or utilities...

Probing in Winter

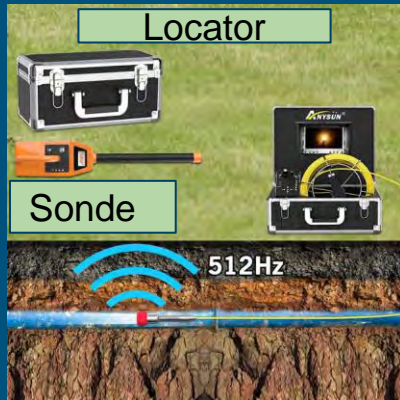
- Frozen soils
- Wood auger bit on impact driver



Camera + Sonde

Pros

- Extremely accurate & verifiable
- Get a good idea of system health while running the camera
- Can be faster than probing for hours



Cons

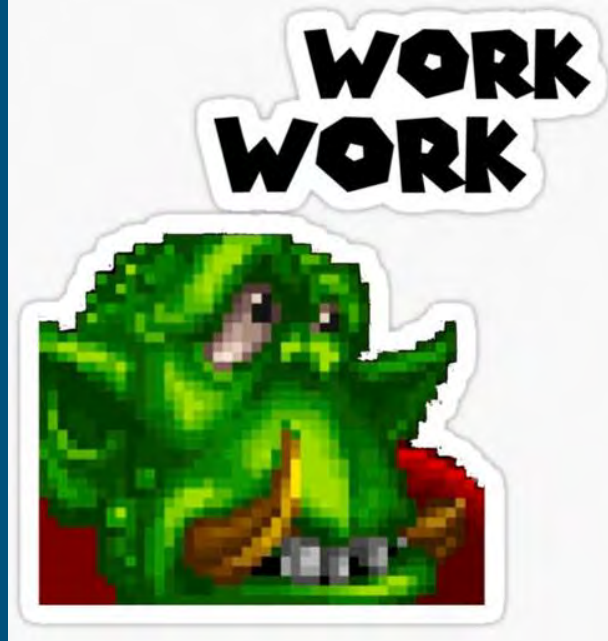
- Expensive to purchase
- Can be time consuming
- Very pricey for customer
- Depending on outlet device, may require cutting, drilling, or digging to access outlet pipe outside of tank
- Only works if you have access to the outlet (FTA) or a cleanout (tank)
- May need to have tank pumped down

Other Locating Alternatives

- Dowsing (witching)
 - Pseudoscientific
 - Use it if it works for you
 - Make sure to confirm your results objectively
- Ground Penetrating Radar
 - Very expensive to purchase
- Other types of soil penetrating electronic tech emerging regularly
- Any cool tools being used by members?



Get to Work Already!



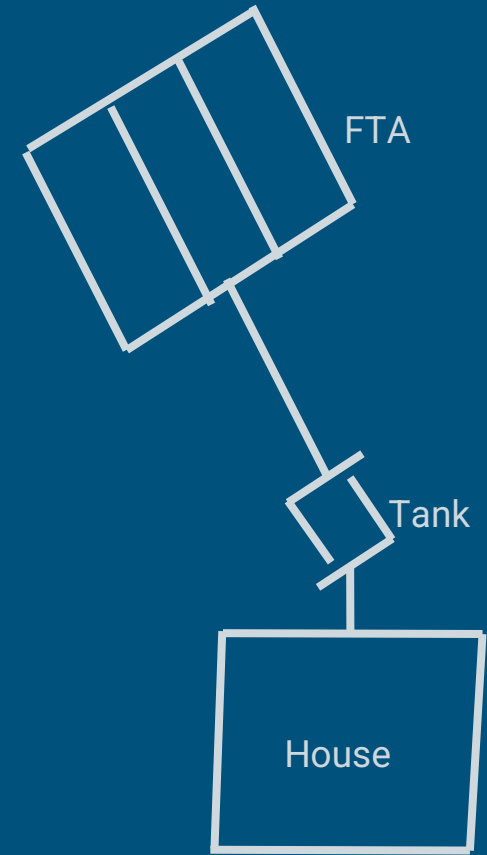
Probing Tips

- Try to make clean pushes when possible
- Using slide hammer will make it so you can't "feel" or hear the gravel crunch
- Once you hit something solid, try dropping your weight on it and listen for the gravel crunch
- If your probe "bounces" **be careful it's probably a pipe, utility line, or a root (Infiltrator maybe too)**
- Don't forget marking paint or flags



Probing Tips (Tanks)

- Listen for a “hollow” sound, especially on shallow tanks
- Once you get a hit, probe nearby
 - More hits same depth
 - More hits in an area “tank size”
- Use flags or marking paint to mark corners of tank if needed
 - Knowing where the corners are can help you figure out where the tank is oriented
 - Not all tanks are set square to the house
 - If tank is on an angle, it may point you toward the final treatment area...

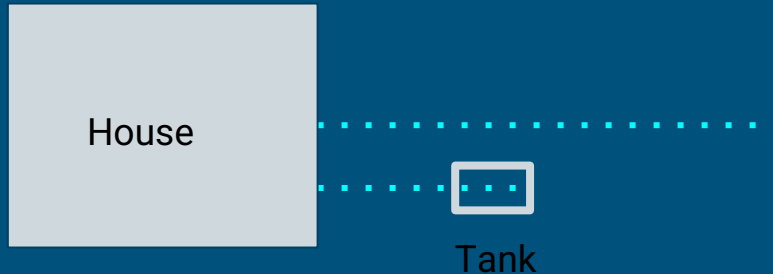


Where to Start (no known tank location)

- Most installers will take the quickest / easiest route (no offense! 🤖)
 - Straight lines, short runs, etc.
 - Unless there's reason not to...
- Most locales require tanks >10' from foundation
- Start about 10' from house **inline with the main septic outlet you found**
- Probe every couple feet in a straight line until you hit a tank
 - Watch out for tanks under decks, etc.
- Keep an eye out for signs of tanks noted earlier

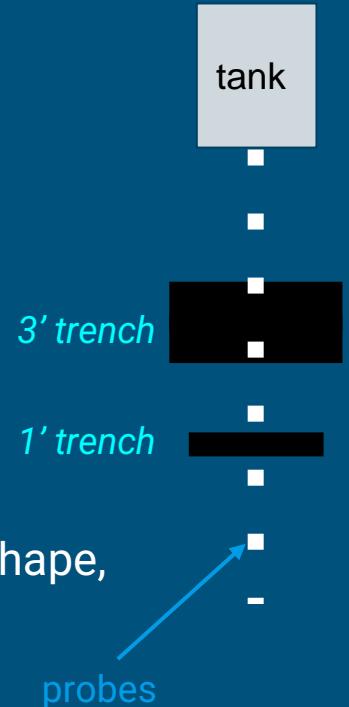
No Tank Found on First Pass?

- Pause and think through options
 - Be certain you haven't fooled yourself into looking in the wrong area!
- Move a few feet left or right of your first probe line and try again
- Try leaving a marking flag in each probe hole as you go
 - You'll be able to see what areas you've covered and avoid re-probing the same areas later when you're confused
- *Reach for the flushable locator or the sonde locator / camera*



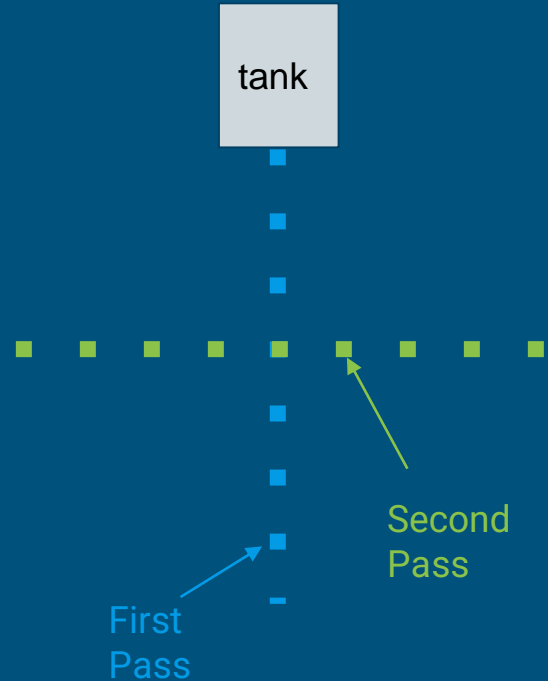
Looking for the Drainfield (Tank Found)

- Probe out the end of the tank
- Start probing about 2' off end of tank
- Probe every 1' or 1.5' in a straight line away from the tank
 - Modern trench systems usually call for 3' wide trenches... older ones may be as narrow as 1' so don't miss them by probing too far apart
 - Use a boot spacing, or run a tape to probe every 1'
- Listen & feel for the gravel header
 - Beware irregularly shaped systems
- Remember, midnight specials could be absolutely anything, any shape, any spacing, etc.



Made it Across the Entire Yard... Now What?

- Go back to the centerline of the tank
 - Walk out a reasonable distance
 - Probe every 1' perpendicular to the direction you started for several yards
-
- Sometimes trying to find laterals is easier than finding the header...
 - More of them to accidentally run into

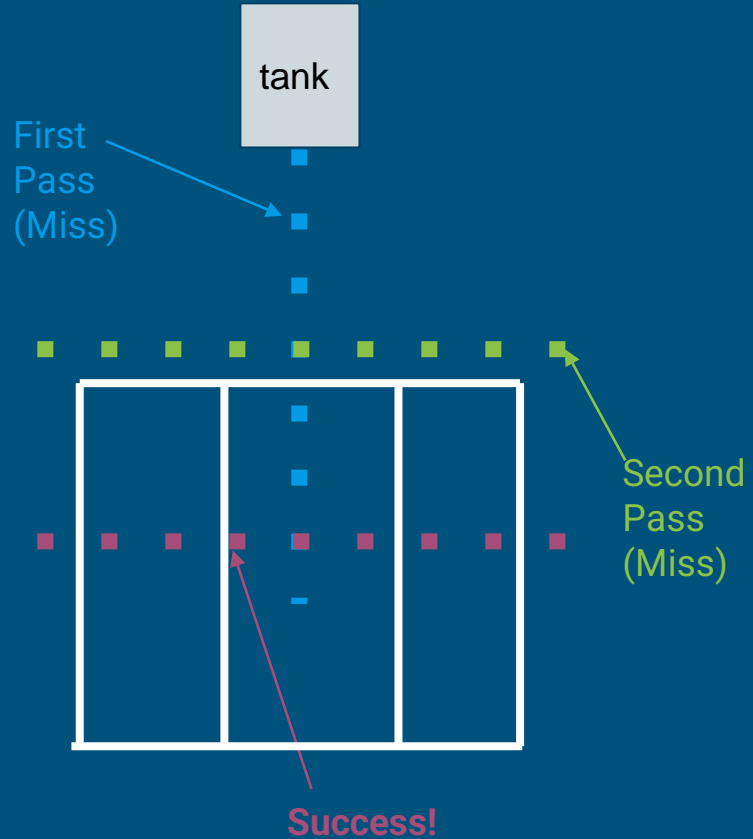


Still Nothing?

Think About Shape....

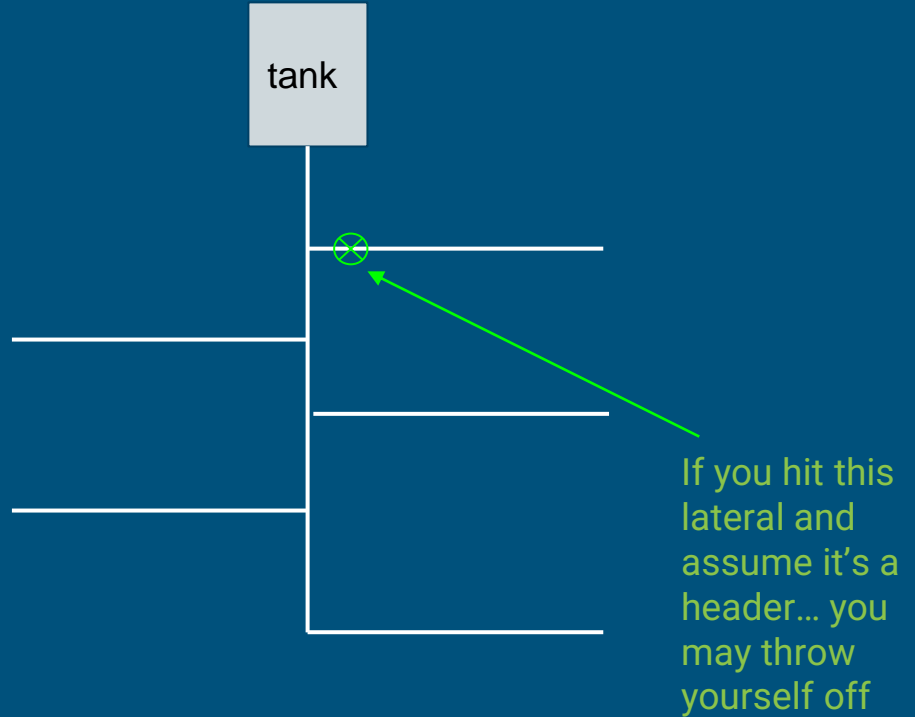
- Square shapes with headers and footers are common in much of Michigan but different areas may use very different shapes or layouts...

Would Another Pass With The Probe Help?



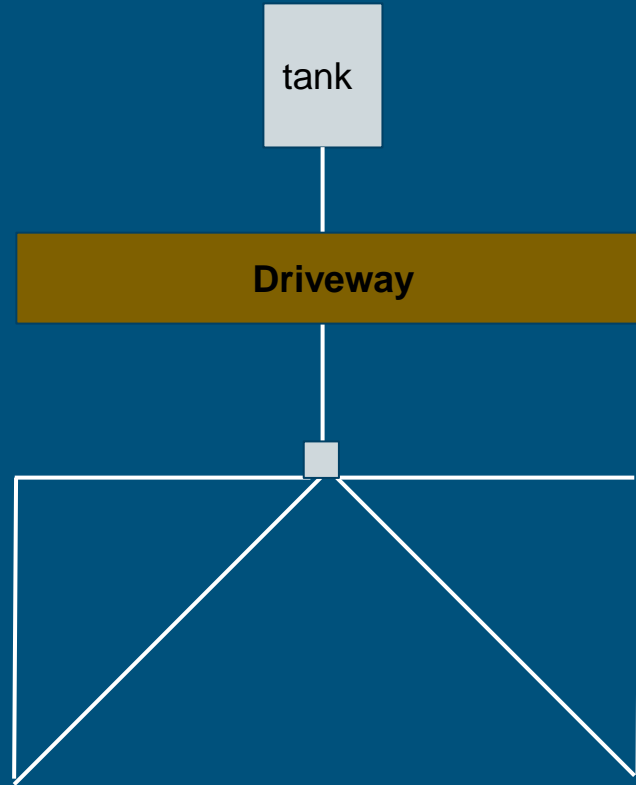
Think Outside the Box

- If you can't figure it out... consider the field may be asymmetrical



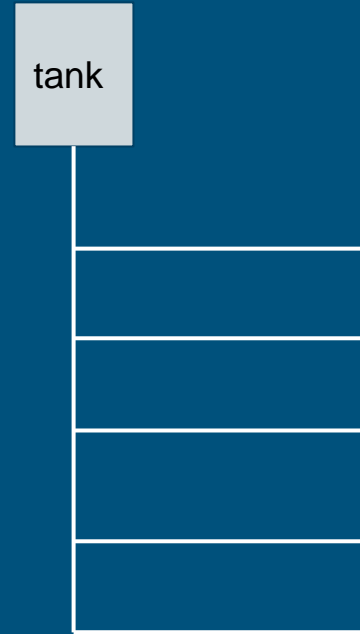
Think Outside the Box

- There's always room for new surprises...
- This is an actual system layout I had to inspect



Parallel Layouts

- Don't let a parallel layout fool you...



Can you find the signs?

Wet leaves will settle into otherwise unnoticeable depressions and give clues.

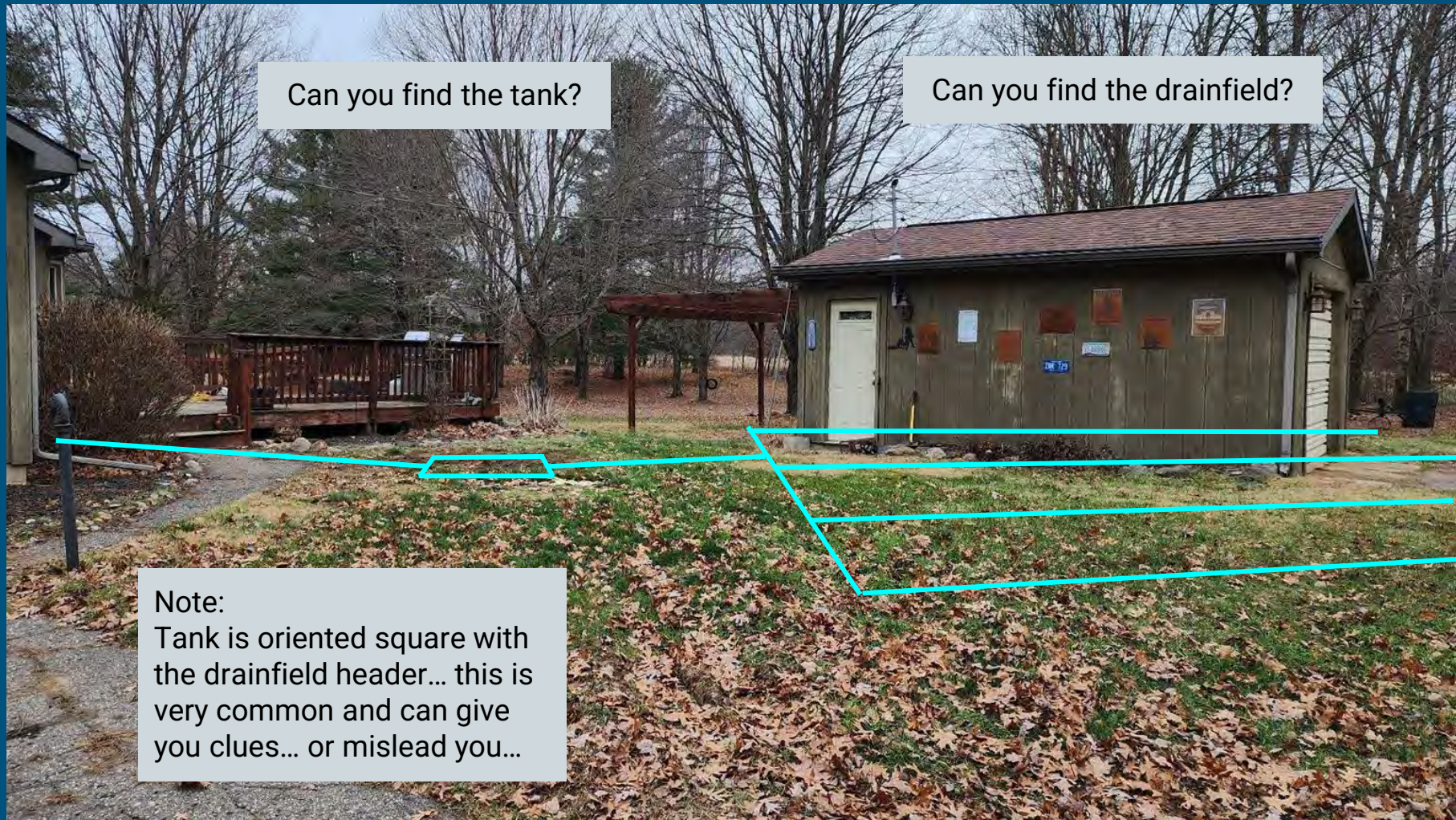


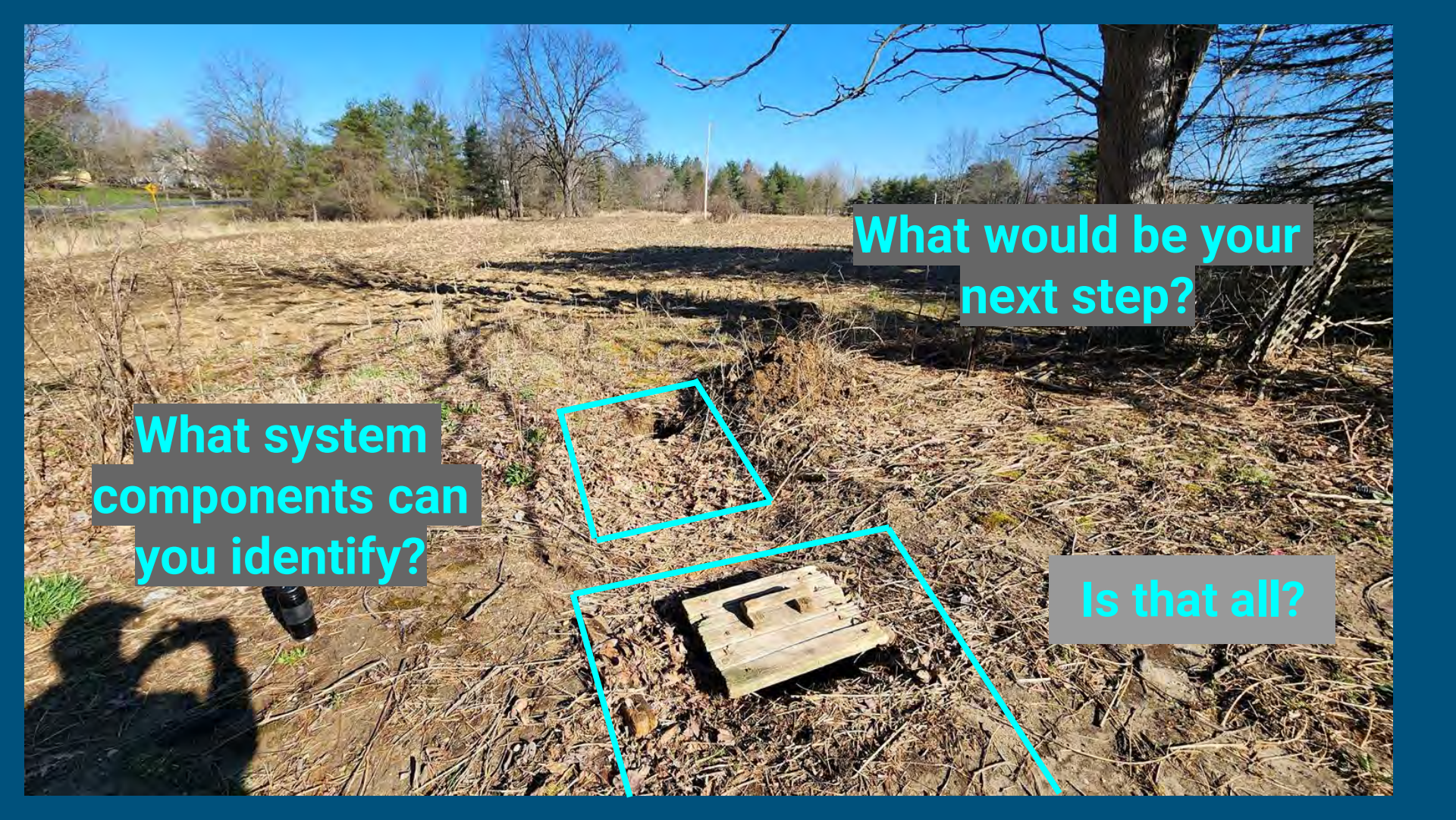
Can you find the tank?

Can you find the drainfield?

Note:

Tank is oriented square with the drainfield header... this is very common and can give you clues... or mislead you...



A photograph of a field with a wooden pallet and a cyan box highlighting a hole in the ground. The field is covered in dry grass and brush. In the background, there are trees and a clear blue sky. A shadow of the person taking the photo is visible in the bottom left corner.

What would be your next step?

What system components can you identify?

Is that all?

Septic Tank
(From Last Slide)



Non-Permitted Infiltrator



Surface breakout...



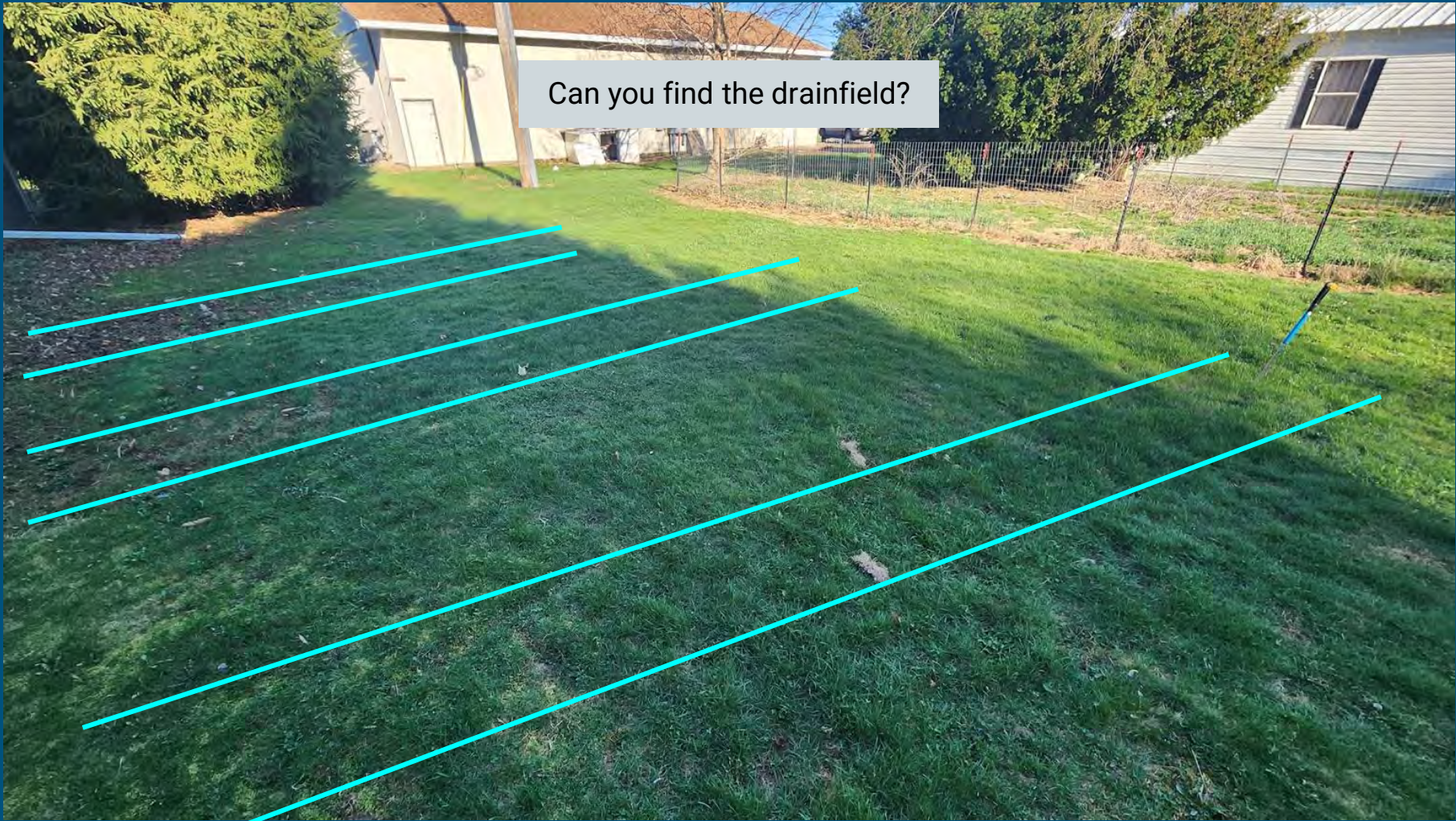
Non-permitted tank and FTA...
would you look here??



Can you find the tank?



Can you find the drainfield?





03/07/2018

NW 1/4, SW 1/4, Sec 29, T5 S, Rg 65 W. 6th P.M. Length 87

TRI-COUNTY DISTRICT HEALTH DEPARTMENT

Sewage System Form

2485 Russellville Rd. **REPAIR** Sec 29

ADDRESS Russellville Rd.

PHONE 211-1212

NAME Paul Barnes

MAILING ADDRESS _____

INSTALLED BY Walker Const. Co.

ADDRESS Franktown, Colo.

GENERAL INFORMATION

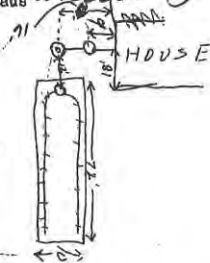
CONSTRUCTION INFORMATION

- | | |
|---|--|
| 1. Units <u>1- 2 bed rooms</u> | 1. Septic Tank Cap <u>750</u> gal. |
| 2. Fixtures: Type & No. <u>1 bath</u> | 2. Width _____ Length _____ Depth _____ |
| 3. Depth of Bldg. Drain <u>24"</u> | 3. Material <u>concrete</u> |
| 4. Lot Size <u>40 acres</u> | 4. Inlet and Outlet-Sanitary T _____ |
| 5. Percolation Test <u>15-40-20 min/in.</u> | 5. Absorption Area <u>700' sq. ft. x</u> |
| 6. Ground Slope _____ | 6. Distribution Box <u>yes</u> |
| 7. Water Supply: Municipal _____ Private <u>x</u> | 7. Distribution No. Of Lines <u>2</u> |
| Well Location <u>100+</u> | 7. Width <u>10'</u> Length <u>70'</u> Depth <u>30"</u> |
| Other Wells Within 200' <u>no</u> | 8. Min. 12" Filler Material _____ |
| | 9. Gravel $\frac{1}{4}$ " Washed Min. <u>or larger</u> |
| | 10. Type and Size of Tile <u>4x12" sq. drain</u> |
| | 11. Remarks _____ |

This system will be constructed in accordance with the above specifications and regulations governing sewage systems within the Tri-County District.

Permit invalid after 6 months Applicant Ray G. Walker
Approved By R. Brinkhaus Date 9/5/67

PLOT PLAN:



1st Tank existing is 18' N x 9' East of SE corner.
2nd Tank 18' W x 11' East of SE corner

Notify this department when system is completed and before backfilling for inspection _____

System inspected and found in compliance R. Brinkhaus Date 9/11/67
(For recommended maintenance, see page 12, Bul. 390-A, Colo. State Health Dept.)

TRI-COUNTY DISTRICT HEALTH DEPARTMENT

Sewage System Form

ADDRESS 544-542-SW 1/4- Sec 29 - T5 S. R65 W. PHONE _____

NAME Tuck Janowitz

MAILING ADDRESS Rt 2 Box 25 Franktown, CO 80116

INSTALLED BY _____

ADDRESS _____

GENERAL INFORMATION

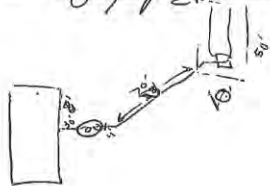
CONSTRUCTION INFORMATION

- | | |
|---|--|
| 1. Units <u>House 2 Bedroom</u> | 1. Septic Tank Cap <u>750</u> gal. |
| 2. Fixtures: Type & No. <u>1 Bath</u> | 2. Width _____ Length _____ Depth _____ |
| 3. Depth of Bldg. Drain <u>7 ft</u> | 3. Material <u>concrete</u> |
| 4. Lot Size <u>320 acres</u> | 4. Inlet and Outlet-Sanitary T _____ |
| 5. Percolation Test <u>10 min</u> | 5. Absorption Area <u>Bed 500 sq ft</u> |
| 6. Ground Slope _____ | 6. Distribution Box <u>✓</u> |
| 7. Water Supply: Municipal _____ Private <u>x</u> | 7. Distribution No. Of Lines <u>2</u> |
| Well Location <u>100' Plus</u> | 7. Width <u>10'</u> Length <u>50'</u> Depth <u>36"</u> |
| Other Wells Within 200' <u>none</u> | 8. Min. 12" Filler Material <u>✓</u> |
| | 9. Gravel $\frac{1}{4}$ " Washed Min. <u>✓</u> |
| | 10. Type and Size of Tile <u>4x12"</u> |
| | 11. Remarks _____ |

This system will be constructed in accordance with the above specifications and regulations governing sewage systems within the Tri-County District.

Permit invalid after _____ Applicant Jack Janowitz
Approved By Ray G. Walker Date 10-11-67

PLOT PLAN:



Notify this department when system is completed and before backfilling for inspection _____

System inspected and found in compliance R. Brinkhaus Date 10/2/67
(For recommended maintenance, see page 12, Bul. 390-A, Colo. State Health Dept.)

E of Census will be



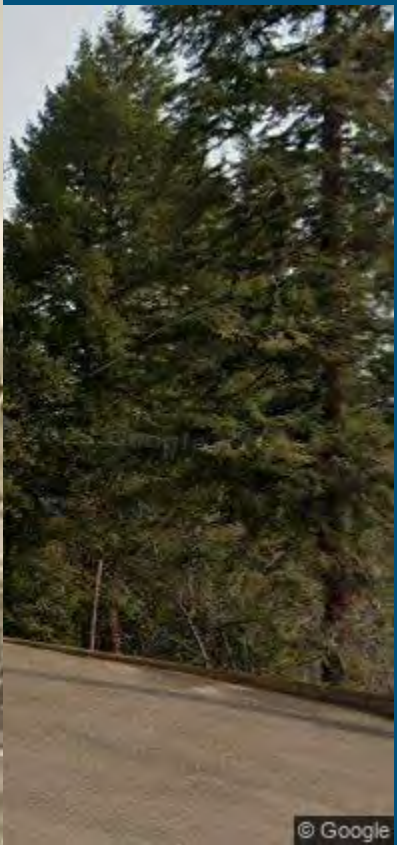


Google



 eagleview © 2021

05/14/2021



© Google

INDIVIDUAL SEWAGE DISPOSAL SYSTEM PERMIT NO. 6222

Site Address: City View^{DR} 9730

Issued to: D. Greist

Legal Description: Lot 27 Flg 1 Hilldale Pines

System Designed for 3 Bedroom Single Family Dwelling

Tank Size: 1000 gal (min)

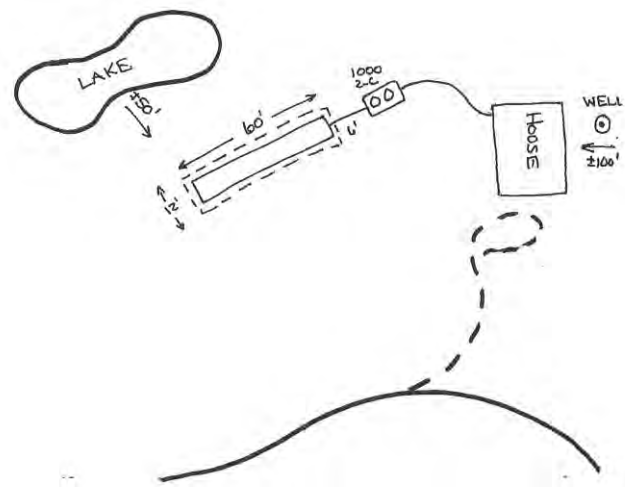
Absorption Bed Size: 780 sq. ft. (min)

INSPECTOR _____ DATE 3-27-78

SYSTEM AS INSTALLED

SCANNED

NORTH











summary

Did we help you think outside the box?



Casey Fiedler – The NEW Guy

Jeff Seipp – The OLD Guy

- CONTACT INFORMATION
- Casey Fiedler –
- Jeff Seipp –
 - 303-909-6883
 - highplainssan@gmail.com

Do these guys even
know anything?
YES!! They do!

