

WHY GPR CAN STRUGGLE IN THE CAROLINAS

SOIL CONDITIONS CAN SIGNIFICANTLY REDUCE GROUND PENETRATING RADAR PERFORMANCE.



IDEAL CONDITIONS FOR GPR

DRY, SANDY, LOW CONDUCTIVITY SOILS



LOW CONDUCTIVITY SOIL
Allows radar waves to travel deeper.



MINIMAL SIGNAL LOSS
Stronger signal returns with less attenuation.



CLEAR UTILITY IDENTIFICATION
Stronger, sharper reflections from underground utilities.



STRONG, CLEAR REFLECTION



TYPICAL CAROLINA CONDITIONS

DENSE CLAY SOILS WITH HIGH MOISTURE

ROCKS & STONES
Create strong reflections that can be mistaken for utilities.

ROOTS
Roots can reflect radar signals, causing false anomalies.

CLAY & SILT
High clay content absorbs radar energy and reduces penetration.



WEAK, UNCLEAR REFLECTION



DENSE CLAY
High mineral content increases soil conductivity.



HIGHER MOISTURE RETENTION
Moisture in clay absorbs radar energy.



SIGNAL ATTENUATION & SCATTERING
Radar energy weakens quickly and scatters, reducing depth and clarity.



REDUCED DEPTH & CLARITY
Utilities are harder to detect and interpret accurately.

THE DIFFERENCE IT MAKES

	IDEAL CONDITIONS (SANDY SOILS)	CAROLINA CLAY CONDITIONS
↓	Greater depth penetration ✓	Reduced depth penetration ✗
≡	Clear utility signatures ✓	Weaker utility signatures ✗
🎯	Better target separation ✓	Increased interference ✗
🕒	Faster interpretation ✓	More challenging interpretation ✗



GPR IS A VALUABLE TOOL, BUT SOIL CONDITIONS MATTER.

In the Carolinas, dense clay soils and moisture can limit radar performance, making electromagnetic locating, utility records, test holes, and vacuum excavation important components of a complete utility investigation.

GPR MAY MISTAKE THESE ANOMALIES AS UTILITIES



VACUUM EXCAVATION CONFIRMS WHAT GPR MAY MISS



✓
Exposing utilities verifies their location, depth, and condition—the most reliable way to protect your project.



THE BEST UTILITY LOCATING STRATEGY ISN'T RELYING ON ONE TECHNOLOGY—IT'S KNOWING WHICH TECHNOLOGY TO USE FOR THE CONDITIONS.



PROTECT
Protect infrastructure and reduce risk.



SAVE TIME & MONEY
Avoid delays, damage, and costly repairs.



MAKE INFORMED DECISIONS
Get accurate data to keep projects moving forward.

CENTER LINE LOCATING

Why We Don't Sell GPR—We Use It

FROM THE FIELD • DEREK HOYLE • FEBRUARY 22, 2026

Ground Penetrating Radar is a powerful tool, but it's not a solution in itself. Here's why we focus on outcomes rather than equipment.

I've been in this industry long enough to see trends come and go. One that frustrates me is the marketing of Ground Penetrating Radar (GPR) as a standalone solution to underground utility challenges.

The Tool vs. The Solution

GPR is a remarkable technology. It can detect utilities, voids, and anomalies that other methods miss. But here's what the marketing often leaves out: GPR has significant limitations. It doesn't work well in certain soil conditions. It can't definitively identify what a utility is made of. And it requires skilled interpretation to be useful.

At Center Line Locating, we use GPR when it's the right tool for the situation. But we also use electromagnetic locating, CCTV inspection, soft dig verification, and sometimes just good old-fashioned research and experience.

Outcomes Over Equipment

When a client comes to us, they don't need GPR—they need accurate utility data. They need to know what's below their property, where it runs, and how deep it is. The method we use to get that information is secondary to the quality of the results.

This is why we don't list GPR as a primary service. It's a tool in our toolkit, not a product we sell. When you hire Center Line, you're hiring expertise in solving underground utility problems, not renting equipment.

The Right Approach for Your Project

Every site is different. Soil conditions vary. Utility materials differ. Site access and project constraints create unique challenges. A responsible utility locating company evaluates each situation and applies the appropriate methods.

Sometimes that's GPR. Sometimes it's electromagnetic locating. Often it's a combination. And sometimes the right answer is soft dig verification to physically confirm what's there.

> The goal isn't to use fancy equipment—it's to deliver accurate, verified utility data that you can trust.

That's what we're here for. That's what we've built this company around. And that's what I expect from every project we take on.

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