

If you drive past an excavation site in Orange County and see someone walking slowly with a strange wand, spraying paint on the ground, and planting little colored flags, you are watching one of the most important safety steps in construction: utility locating.

People often think of it as “calling 811 and waiting for paint.” In practice, a professional utility locator’s work is much more deliberate, technical, and judgment-based, especially on busy job sites surrounded by existing infrastructure.

This guide walks through what a utility locator actually does on a typical Orange County project, why it matters, and how the public 811 system fits together with private utility locating.

## What is utility locating, really?

Utility locating is the process of finding, identifying, and marking underground utilities before anyone disturbs the soil with a saw cut, auger, trench, or drill rig.

In the field, that means physically pinpointing buried:

- Electric lines
- Gas lines
- Water pipes
- Sewer lines
- Communication and fiber optic cables

And, when requested or needed, private services like irrigation, fire lines, site lighting, and even septic systems.

The goal is to reduce the risk of striking something you cannot see. A hit gas line can trigger a fire or evacuation. A cut fiber optic cable can shut down internet and card processing across several blocks. A damaged water main can flood an excavation and stall a schedule for days.

Utility locating is the first line of defense against those problems.

## Public vs private utility locating in California

On any Orange County project, you will typically deal with two different pieces of the puzzle: public utility locating and private **Orange County Utility Locating** utility locating.

Public locating is handled through 811. When you call 811 in California, your ticket goes to Underground Service Alert of Southern California. The notification is routed to the public utility owners that have lines in the area - for example:

- Electric utility
- Gas utility
- Water district
- Sewer agency (if they participate)
- Telecom companies

Those owners then send their own locators, or their contracted locators, to mark their lines in the public right of way and up to their demarcation points. In simple terms, they locate up to the meter or service connection,

sometimes to the property line.

This is important: 811 does not locate everything. It does not:

- Locate private lines on the customer's side of the meter
- Locate privately owned systems like irrigation, landscape lighting, on-site fire mains, or private sewer laterals unless the owner has chosen to participate
- Map undocumented lines that are not in any utility owner's system

That is where private utility locating comes in.

A private utility locator is hired directly by the contractor, engineer, facility manager, or homeowner to find utilities that the public companies will not mark. Private locators work on:

- Commercial properties and campuses
- Industrial facilities and plants
- HOA communities and apartment complexes
- Individual homes, especially with pools, additions, or heavy landscaping

This distinction is often the root of confusion. Someone calls 811, sees paint on the street, and assumes everything is marked. Then they hit a private water line to a detached garage, or the power to a sign, or a septic tank line that nobody remembered existed.

The difference between public and private utility locating is simple: public locating covers what the public utilities own and are responsible for. Private locating covers what you, the property owner or project team, are responsible for.

## **Is calling 811 the law in California?**

In California, calling 811 before you dig is not just a suggestion. For most excavation work, it is required by law.

California Government Code 4216 lays out the obligations:

- Excavators must notify 811 at least two working days, but not more than 14 calendar days, before excavation begins, excluding weekends and holidays.
- Utility owners are required to mark their facilities or let you know they have none in the area.
- If you dig without making that notification and damage a line, you can be held liable for repairs and may face fines.

The law does not carve out a special exemption just because you are a homeowner with a shovel instead of a contractor with a backhoe. If you are disturbing the ground, the safe and legally sound path is to call 811.

So if you are wondering, "Who do I call before digging in Orange County?" the answer is 811 for public utilities, then a private utility locator if you are digging on private property where unmarked lines are likely.

## **Is utility locating free in California?**

Public utility locating through 811 is free to the excavator. The cost is borne by the utility owners as part of their operating obligations. When you call 811 in Orange County, you will not receive a bill for those marks.

Private utility locating is a different story. Those services are not covered by 811, and the cost falls on whoever hires the locator - typically the general contractor, subcontractor, facility owner, or sometimes the homeowner.

How much private utility locating costs in Orange County varies with the scope:

- A straightforward residential locate for a single-family home, like finding buried electrical to a pool and a water line, might range from roughly \$250 to \$600 depending on travel, complexity, and equipment needed.
- A commercial lot with multiple buildings, complex utilities, and a need for detailed mapping might be billed hourly, commonly in the range of \$175 to \$300 per hour for an experienced crew with advanced equipment like ground penetrating radar.
- Subsurface Utility Engineering (SUE) levels that require survey-grade mapping and CAD deliverables are more intensive and can run into the thousands for a full site.

There is no universal rate sheet, but those ranges are typical of what contractors in Orange County see when they ask, "How much does private utility locating cost?"

## A day on a typical Orange County job site

To understand what a utility locator actually does, it helps to walk through a real workflow. Imagine a commercial renovation in Irvine: a contractor is planning to saw cut a slab for new plumbing lines, trench across a parking lot, and install a new sign near the street.

First step, usually days before equipment shows up, is the 811 ticket. Public locators come out and mark public facilities. They spray paint and place flags, then leave a ticket response indicating what they did or did not find.

Next comes the private utility locator, often called in once the GC sees how many unmarked areas remain. The locator meets with the superintendent or project manager to walk the site. This conversation is more valuable than people think. A good locator asks:

- Exactly where will you excavate?
- How deep are you planning to go?
- What do you know about existing utilities from as-builts or past work?
- Any history of hits or surprises on this property?

With that information, the locator sketches a working plan. On a typical job, you might see them:

- Reviewing utility maps, as-built drawings, and 811 tickets.
- Flagging high-risk zones: along building edges, near meters, in landscaped strips where utilities often run.
- Planning which equipment to use in each area.

Then the real locating begins.

## How does utility locating work?

Utility locating generally relies on two families of technology, plus visual and historical clues: electromagnetic locating and ground penetrating radar.

Electromagnetic locating uses a transmitter and receiver to trace conductive utilities. The locator can connect the transmitter directly to an accessible point, such as a tracer wire, valve, cleanout, or metallic pipe, or can apply a signal inductively over a broader area. The signal travels along the conductive path, and the receiver picks up that signal at the surface, allowing the locator to trace the route.

This method is common when you need to find a buried electrical line, a gas line with a tracer wire, or a metallic water or sewer pipe. It is effective and relatively fast, but only works well when there is something conductive to

carry the signal.

Ground penetrating radar, or GPR, is used when the utilities are nonmetallic or where multiple lines are congested. The GPR pushes radar pulses into the ground and reads the reflections from changes in material. A pipe, duct bank, or void shows up as an anomaly on the radargram.

GPR is especially helpful for:

- Locating plastic pipes that do not have tracer wire, like some water and irrigation lines.
- Finding nonmetallic sewer lines and septic tanks.
- Verifying depths and separations where multiple utilities overlap.

So when someone asks, "Can utility locators find plastic pipes?" the answer is yes, often, but usually with GPR and sometimes with additional techniques like sondes or tracing from a connected fixture.

Another common tool is the sonde, a small transmitter inserted into a pipe or conduit via a cleanout or drain. The locator then tracks the sonde from the surface with a receiver. This is a powerful method for answering questions like, "How do you locate a sewer line?" or "Can you locate a septic tank?" especially when there is no tracer wire.

On a typical day, a locator may switch between electromagnetic equipment, GPR, and sondes multiple times, depending on what they encounter. The job is part science, part puzzle-solving.

## **How deep can utility locators detect and how accurate are they?**

On ordinary Orange County soil, electromagnetic locating can usually trace utilities down to several feet, sometimes deeper depending on the strength of the signal and soil conditions. GPR depth depends heavily on soil type. In cleaner, drier sands, useful data may come from depths up to 8 to 10 feet or more. In clayey or wet soils, useful depth might be limited to 2 to 5 feet.

The question "How accurate is utility locating?" has an honest answer: it is never perfect, but with a skilled locator and the right tools, horizontal accuracy is often within a few inches to a foot for many utilities. Depth estimates, when equipment and conditions cooperate, can be reasonably close but are rarely guaranteed. Soil conditions, nearby interference, congested corridors, and unknown splices or repairs can all affect accuracy.

Ground penetrating radar has similar caveats. "How accurate is ground penetrating radar?" depends on antenna frequency, soil, and the skill of the operator reading the scans. It is powerful for seeing what is otherwise invisible, but GPR alone does not give you a certified survey. That is why it is often used as part of a broader Subsurface Utility Engineering program, where findings are tied to survey control and classified by confidence level.

A good locator will explain those limits clearly, especially before critical excavation.

## **Utility marking colors: what do they mean?**

Once utilities are found, they need to be communicated clearly. That is when paint and flags show up.

On Orange County job sites, locators follow the American Public Works Association color code. It answers common questions like, "What do the colors mean for utility marking?" or "What does red paint mean on the ground?" or "What do orange utility flags mean?"

Typical colors are:

- White: proposed excavation or survey marks. If you see white paint on the ground, it usually shows where someone plans to dig or cut.

- Red: electric power lines, lighting cables, and sometimes signal lines. Red paint or red flags are a warning that energized facilities may be in that area.
- Yellow: gas, oil, steam, and other flammables.
- Orange: communication, fiber optic, and alarm or signal lines. Orange utility flags often indicate buried fiber optic cable or telecom lines.
- Blue: potable (drinking) water.
- Green: sewers and drain lines.
- Purple: reclaimed water, irrigation with reclaimed, or slurry.
- Pink: temporary survey markings.
- Brown: often used for other or unknown, depending on local practice.

Markings typically show the approximate location and sometimes the depth or size. Arrows, abbreviations, and notes can indicate direction of flow or changes in alignment.

## How long does utility locating take on a typical job?

The time needed for utility locating depends on site size, congestion, and the requested scope.

On a standard residential property in Orange County, assuming no major complications, a private locator might be on site for one to three hours. That can **Orange County Utility Locating** cover locating a buried water line to a detached structure, finding electrical feeding a pool equipment pad, and marking the main sewer line.

On a commercial project with parking lots, multiple buildings, and a planned deep excavation, the locator could easily spend a full day or more. If the work includes detailed mapping, coordination with survey, and SUE-level deliverables, the field portion alone may stretch over several days.

This is why contractors often ask, "How far in advance do you need to call before digging?" The legal minimum with 811 is two working days before you dig, but from a practical standpoint in Orange County, you want to start the process at least a week ahead, sometimes longer during busy construction seasons. That gives:

- Time for 811 marks.
- Time to schedule and complete private utility locating.
- Time to clarify any conflicts discovered before the excavator is idling on site.

## Homeowners and small projects: do you need a private locator?

Homeowners frequently ask, "Can I locate my own underground utilities?" or "How do I find underground utilities on my property?" You can certainly do some basic sleuthing. For example, you might:

- Call 811 to get public marks.
- Look at where meters, hose bibs, and electrical panels sit on the house and try to infer straight runs.
- Use inexpensive DIY locators for very simple metal detection.

But those approaches have serious limits. They do not reliably show you plastic water lines, private electric runs to sheds or patio covers, or older repairs. They also do not satisfy any legal duty of care if you are hiring a contractor.

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For many homeowners, the decision comes down to risk. If you are planting shallow shrubs away from any known utilities, 811 marks may be enough. If you are digging post holes for a new deck, installing a pool, or trenching for new electrical lines, hiring a private utility locator is a small cost compared with the risk of hitting something critical.

Questions like "Should homeowners hire a utility locator?" and "Do I need a private utility locator?" have context-based answers. When excavation is deeper, closer to structures, or near visible meters and boxes, bringing in a professional usually pays for itself in peace of mind and avoided headaches.

## What happens if you cut a utility line?

The moment a line is damaged, the priorities are safety, containment, and reporting.

If you hit a gas line, evacuate the immediate area, avoid creating any ignition sources, and contact the gas utility and 911. Do not try to stop a pressurized gas leak with your hands.

If you cut an electric line, stay clear. Even if power seems off, treat everything as energized. Contact the electric utility immediately.

For water or sewer, you are dealing more with flooding, contamination, and property damage. Isolate the area and notify the utility or property owner.

From a liability standpoint, the question "Who is liable if I hit a utility line?" or "What happens if I dig without calling 811?" is serious. If you dug without making the required 811 notification, or you ignored markings and reasonable procedures, you can be held financially responsible for the full cost of repairs, plus potential regulatory penalties. Repairing a damaged utility line can cost anywhere from a few hundred dollars for a small service to tens of thousands for a major main or fiber backbone, not including project delays and claims from affected businesses.

If the utility failed to respond to a valid 811 ticket or mismarked their lines, liability can shift. That is why accurate documentation and compliance with the call-before-you-dig process matter.

## Permits, rules, and digging in Orange County

People often conflate permits with utility locating. They are related but separate.

“Do I need a permit to dig in Orange County?” depends on what you are doing and where. Simple, shallow landscaping on your own property may not require a permit, but installing retaining walls, doing significant grading, trenching for utilities, or working in the public right of way usually does. The relevant building department or public works agency sets those rules.



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Regardless of permit requirements, the 811 call and proper utility locating are still necessary for safety and legal compliance.

“Is it illegal to dig without calling 811 in California?” is essentially answered in the state code: if you are doing covered excavation and skip the 811 process, you are in violation. For both legal and practical reasons, you should assume you must notify 811 before any significant excavation.

## Subsurface Utility Engineering: when locating becomes design data

On larger Orange County projects, especially road widenings, campus redevelopments, and public works, utility locating is wrapped into Subsurface Utility Engineering, or SUE.

SUE is a formal process that classifies utility information by quality level, from QL-D (records only) to QL-A (utilities exposed and surveyed). In this framework:

- Utility locators might use electromagnetic tools and GPR to produce QL-B data, where utilities are designated and mapped horizontally with good confidence.
- Vacuum excavation and survey then give QL-A data, with precise horizontal and vertical positions.

This information feeds into design, clash detection, and construction planning. It reduces surprises and change orders, because the underground utilities are treated with the same seriousness as above-ground features.

When someone asks, "Why is utility locating important before excavation?" SUE is the more comprehensive answer: it is how buried infrastructure is identified, classified, and incorporated into the project from the very beginning, rather than discovered at the last minute by an excavator bucket.

## **Choosing the right utility locating partner in Orange County**

Contractors often ask, "What is the best utility locating company in Orange County?" There is no single name that fits every project, but there are traits you want to see:

- Solid experience in the specific type of work you are doing: residential infill, hospital campuses, industrial plants, or public works.
- A full toolkit: electromagnetic locators, multiple GPR antennas, sondes, and access to vacuum excavation if needed.
- Clear communication about limitations, expected accuracy, and what they can and cannot confidently locate.
- References and a track record of work with reputable contractors, engineers, or agencies.

The "best" utility locating company for one job may not be right for another. A firm that excels at high-volume 811 work may not be the optimal fit for detailed SUE on a sensitive campus. Asking good questions upfront usually matters more than the name on the truck.

## **How a locator ties it all together on site**

On a well-run Orange County job site, utility locating weaves into the life of the project.

Before digging, the locator has already walked the site, studied the drawings, coordinated with 811 responses, and marked the visible and detectable utilities. They have explained to the superintendent which areas are cleared to a reasonable confidence and which areas still carry unknowns.

As excavation starts, the locator may return to spot check, extend marks as work progresses, and verify depth expectations. If a trench exposes something unmarked, the locator is often the first one called to help identify what it is and how live it might be. If GPR shows an anomaly under a planned footing, the project team will decide whether to redesign, pothole, or adjust.

Where homeowners, contractors, engineers, and utility locators work together early, many of the worst outcomes never happen. The gas line is avoided, not repaired. The fiber optic cable keeps carrying data for thousands of customers. The schedule stays intact. The only visible reminder is a set of colored lines that eventually wears away under new pavement or landscaping.

Utility locating may look simple from the street, but on a typical Orange County job site, it is the quiet, technical step that gives everyone else the confidence to break ground.