

Finding a buried water line on your Orange County property sounds simple until you put a shovel in the ground and hear that sickening crack. At that point, you are no longer curious about utilities, you are dealing with an emergency, potential flooding, and a repair bill that can climb into the thousands.

Locating underground utilities is a routine part of my work on residential and commercial projects in Southern California. The process looks straightforward from the outside, yet there is quite a bit of judgment involved: soil conditions, older undocumented lines, private irrigation systems, and the mix of public and private utilities that crisscross almost every lot in Orange County.

This guide walks through how utility locating works, what you can do yourself, when to bring in a professional, and how to stay on the right side of California law while you track down that buried water line safely.

Why locating utilities matters before you dig

Orange County yards are busy below the surface. Even a modest suburban lot may have:

Public water and sewer laterals, a gas service line, primary electrical feed, cable or fiber, low-voltage landscape lighting, irrigation circuits, and sometimes abandoned lines no one remembers.

Striking any one of these can mean more than a minor inconvenience. A cut communications line is irritating. A broken gas service is dangerous. A severed water line can erode soil under hardscape or a foundation if it leaks for long enough.

The other reason to take locating seriously is legal. California treats notification before digging as a safety issue, not a courtesy. If you damage a utility without calling 811 and following the rules, the odds that you will be held liable go up quickly.

What is utility locating?

Utility locating is the process of finding and marking underground pipes and cables before excavation. The goal is not just to know that “something” is in the area, but to identify what it is, roughly how deep it runs, and how accurate that information is likely to be.

On a typical Orange County job, utility locating involves three pieces working together:

1. Records: utility maps, as-builts, and any plans from prior construction.
2. Visual clues: meters, risers, valve boxes, cleanouts, transformer pads, and surface features.
3. Detection equipment: electromagnetic (EM) locators, ground penetrating radar (GPR), and sometimes acoustic or tracer systems.

The end product is a series of paint marks or flags on the surface, often with abbreviations and arrows, showing the route of underground facilities.

What does a utility locator do?

A professional utility locator is part detective, part technician. On site, a locator will typically:

**Bess Utility Solutions**2463 Tripaldi Way, Hayward, CA 94545
(408) 988-0101<https://www.bessutilitysolutions.com/underground-locating-detection/>

- Review any available drawings or records.
- Walk the property to spot visible entry points: where water, gas, power, and communications come into the structure.
- Attach a transmitter to accessible metallic lines or use induction to energize them.
- Sweep with an EM receiver to trace signal paths.
- Use GPR where EM signals are weak or when trying to find non-metallic utilities such as plastic water or sewer lines.
- Interpret conflicting signals, signal bleed, and distortions from nearby utilities.
- Mark the ground with standard color codes and notations.

Good locators also explain limitations up front: where the marks are solid, where they are approximate, and where they could not confirm anything at all.

How does utility locating work in practice?

Different lines respond to different methods, so a locator chooses tools based on what is expected in the ground.

Electromagnetic locating

Electromagnetic locating is the workhorse technique. A transmitter induces a signal on a conductive line, and the receiver follows the electromagnetic field generated by that signal along the ground surface.

This works very well on metallic pipes and cables, such as:

- Copper or steel water services

- Gas lines with steel pipe or tracer wire
- Electrical feeders
- Coaxial cable
- Many older sewer laterals (cast iron)

With a good connection and favorable conditions, EM locating can be quite precise. For residential work, I typically see horizontal accuracy within 6 to 12 inches under normal conditions. Depth readings are less reliable and should be treated as an estimate, not an exact measurement.

Ground penetrating radar

Ground penetrating radar is used when there is no good way to put a signal on the utility, or when you are dealing with non-metallic materials such as PVC water lines, plastic gas lines with no tracer wire, or concrete sewer laterals.

GPR sends high-frequency radio waves into the ground and measures their reflections. Changes in material or voids in the soil show up as anomalies. A trained operator interprets those hyperbolas and patterns to infer where a pipe or duct bank likely sits.

GPR is especially helpful for:

- Locating plastic pipes when no tracer wire is present
- Mapping complex utility congestion before major excavation
- Verifying depths in critical areas, such as under proposed footings

How accurate is ground penetrating radar? It depends heavily on soil conditions and depth. In relatively **Orange County Utility Locating** dry, sandy or decomposed granite soils, which are common in much of Orange County, GPR can deliver very good horizontal accuracy. In clayey or saturated soils, penetration depth drops and the image becomes noisier.

Practical depth for GPR on utility locating work is often in the 3 to 8 foot range for useful detail. Some units can see deeper, but resolution at depth may not be sufficient to clearly distinguish individual utilities.

How deep can utility locators detect?

With EM locating on a strong signal, utilities can often be detected to depths beyond 10 feet. In residential work, services rarely lie that deep, so the main limit is not detection, but interference, congestion, and how many different lines cross each other in a small easement.

For GPR, as above, the practical range for reliable utility interpretation in local soils is typically up to about 8 feet. Locators will be candid about where readings become uncertain.

Public vs private utility locating in California

Understanding who is responsible for what will save you time and money.

What is 811 and is calling 811 the law in California?

In California, the "Call Before You Dig" system uses 811 as the one-call notification number. The service is operated by regional centers, such as DigAlert in Southern California. When you contact 811, they notify participating utility owners who then send their own locators at no direct cost to you.

For most excavations, calling 811 is not optional. **Orange County Utility Potholing** State law requires excavators, including homeowners doing their own digging, to notify the one-call center before digging if they will disturb soil using power equipment or if the work is substantial enough to risk hitting utilities. Even for hand digging, best practice is to notify 811 if there is any real chance of encountering buried lines.

Is it illegal to dig without calling 811 in California? For many types of excavation, yes, failing to notify is a violation of state regulations. That also affects liability if something goes wrong.

What does 811 locate, and what does 811 not locate?

811 coordinates “public” utility locating. That generally covers facilities that are owned and maintained by:

- Water districts and city water departments
- Sewer agencies
- Gas utilities
- Power companies
- Telephone, cable, and fiber providers

However, their responsibility usually ends at the meter, service point, or easement boundary. Everything on the customer side of that point is a “private” utility.

Examples of what 811 does not locate:

- Water service from the meter to your house or to outbuildings (in many jurisdictions)
- Private fire lines inside your property
- Irrigation systems
- Private sewer laterals on your property, septic tanks and leach fields
- Electrical from your main panel to detached garages, pools, landscape lighting, or outbuildings
- Private gas lines to pool heaters, outdoor kitchens, or guest houses

Does 811 locate private lines? In general, no. Some utilities may voluntarily mark certain customer-side facilities, but you cannot rely on that. If you only call 811 and dig based on those marks alone, you are blind to a large portion of what lies under your yard.

What is the difference between public and private utility locating?

Public utility locating is provided by the utility owners in response to the 811 ticket. It is focused on protecting their assets. It is usually free to the excavator, within reasonable limits.

Private utility locating is done by independent contractors who work for property owners, developers, and contractors. Their work focuses on anything the public utilities do not mark: customer-owned water, sewer, gas, electric, communications, and irrigation, as well as structural features such as tanks or old foundations.

So, do you need a private utility locator? If your digging is anywhere near the path where customer-side services are likely to run, and especially if you are doing deeper excavation for a pool, retaining wall, room addition, or large trees, the answer is almost always yes.

Is utility locating free in California, and who pays?

Public utility locating via 811 is free to the excavator in most normal scenarios. There are rare exceptions for very large or complex projects, but for typical residential work in Orange County, the utility companies absorb that cost

because they are protecting their own infrastructure.

Private utility locating is not free. The property owner or contractor hiring the locator pays for that service. Sometimes it is bundled into a larger design or construction contract. On many projects, especially when subsurface utility engineering (SUE) is involved, locating costs are just part of the preconstruction budget.

How much does utility locating cost in Orange County?

Costs vary with scope, access, and the mix of methods required, but typical ranges I see for residential or light commercial work in Orange County are:

- Simple residential private utility locating: often in the range of a few hundred dollars when it involves a straightforward yard, limited area, and accessible connection points.
- Larger or more complex properties, or work that requires extensive GPR scanning and mapping: can run into the high hundreds to low thousands, depending on how much documentation and CAD work you request.

If you ask, “How much does private utility locating cost?” for your specific property, the honest answer is: it depends where you are, how large the area is, and how detailed you want the deliverables. A quick locate with spray paint around a future trench is cheaper than a full utility survey with drawings.

Who pays for utility locating? Typically, the property owner, developer, or general contractor pays for private locating. Public locating through 811 is paid by the utility owners and covered in their operating costs and rate structures.

Decoding utility marking colors in your yard

Those paint streaks and flags have a standardized meaning across the United States, following the American Public Works Association (APWA) color code. When a locator finishes marking, you might see several colors at once.

Here is a concise guide to what those colors usually mean:

Color Typical meaning	-----	Red Electric power lines, cables, conduit
Orange Communications, cable TV, fiber optic	Yellow Gas, oil, steam, petroleum products	Blue Potable (drinking) water
Green Sewer, drain lines	Purple Reclaimed water, irrigation, slurry lines	Pink Temporary survey markings
White Proposed excavation limits		

What does red paint mean on the ground? Typically electric. What do orange utility flags mean? Communications or fiber optic cable in most cases. Blue is water, so if you are literally focused on “How do you locate a buried water line?” those blue marks deserve your full attention.

What is the white paint on the ground for? White usually outlines where the excavator intends to dig. In California, pre-marking the area of proposed excavation in white is often required before utilities arrive to mark, because it lets them focus on the zone you will actually disturb.

Step by step: how to locate a buried water line on your Orange County property safely

Finding a buried water line on your property is part process, part patience. Here is a practical sequence that balances what you can do yourself with where professional help pays for itself.

First, use the free tools that exist. Second, bring in expertise where your risk and budget justify it.

A simple but effective checklist before you dig:

- Contact 811 and obtain a ticket well before your planned start date.
- Mark the proposed excavation area in white paint or flags.
- Gather any site plans, old permits, or inspection cards you have.
- Walk the property and note meters, hose bibs, valves, and cleanouts.
- Decide whether to hire a private locator based on depth, proximity to utilities, and project size.

Filing the 811 ticket and timing

Who do you call before digging in Orange County? You start with 811, which will route you to the appropriate one-call center, such as DigAlert. You can also submit online through their website, which many contractors prefer.

How far in advance do you need to call before digging? In Southern California, you must generally contact 811 at least two working days before you dig, not counting the day you call. Utilities then have a set time window to respond and mark. Many homeowners call a week in advance to give some buffer.

How long does utility locating take? Public utility locators often spend anywhere from 30 minutes to a few hours on a typical residential ticket, depending on how many facilities are present. Private locators might be on site for a similar duration or much longer if you have a complex property and full GPR mapping requested.

Using records and visual clues

Once your 811 marks are down, compare them to what you can see:

Water meter: Typically near the street at the front of the property. The most direct path from the meter to your main shutoff is the first candidate for your buried water service route.

Main shutoff valve: Often just outside the home where water enters, sometimes near a hose bib or above-grade copper riser.

Irrigation valves and manifolds: Clusters of valves often indicate where multiple irrigation lines branch off from your main service or a dedicated irrigation tap.

If your home is older, bear in mind that the water line may not run in a straight line. Additions, tree planting, and hardscape changes sometimes forced installers to snake around obstacles.

Bringing in a private utility locator for the water line

At this point, if your project is minor and far from any suspected utility routes, you may feel comfortable hand digging cautiously. If you are planning anything deeper than a foot or two or anywhere near the main utility corridors, it is time to involve a private locator.

Locators have several ways to find a water line:

Tracer wire or conductive line: If your buried water line is metallic or has a tracer wire, the locator can clamp or connect a transmitter near the meter or an exposed section and trace it with an EM receiver.

Acoustic methods: In some cases, especially with pressurized water lines, locators can use acoustic leak detection tools or pulse equipment to listen for signal responses along the line.

GPR: For plastic water lines without tracer wire, GPR can sometimes identify the line based on contrasting material and disturbed soil, especially if the backfill is different from native soil.

Can utility locators find plastic pipes? Yes, but not as easily as metallic lines. Without tracer wire, they often rely on GPR and context clues. That is why the locator's notes about confidence level and potential error are important to read carefully.

Once the locator has traced the line, they mark it in blue on the surface, often with short notes like "W" or "WTR" and arrows showing direction.

At that point, you have a working map of where the water line is likely to be, within a known tolerance. You still dig with care, but you are no longer guessing blindly.

Locating other buried utilities on your property

Water is rarely the only line near your work area. Being aware of others can keep your project on schedule and you out of trouble.

How do you locate a buried gas line?

Gas lines are usually marked in yellow. Public gas utilities will mark their portion up to the meter in response to an 811 ticket. Private gas lines, such as those running from the meter to a pool heater, outdoor kitchen, or detached accessory dwelling unit, are your responsibility.

These lines are often steel or polyethylene with tracer wire, which makes them good candidates for EM locating. Because a damaged gas line can lead to fire or explosion, many professionals treat any excavation near known or suspected gas routes as a non-negotiable reason to bring in a private locator.

How do you locate a sewer line or septic tank?

Public sewer mains and, in many cases, laterals up to the property line are marked in green after an 811 ticket. Private laterals, branches under your yard, and septic systems are not.

Sewer locating often uses different tools:

- Camera and sonde: A sewer camera with a transmitting sonde at its head can be pushed down the line, while a receiver tracks the sonde's position from aboveground.
- GPR: Larger concrete or PVC pipes and septic tanks can sometimes be identified by their signatures in radar profiles.

Can you locate a septic tank? Usually, yes. Septic tanks are large targets and often give a clear GPR response. Depth and surrounding soil conditions influence how clean that picture looks.

How do you find a buried electrical line or fiber optic cable?

Red markings typically indicate primary or secondary electrical lines. Orange indicates communications or fiber optic.

EM locating works well on electrical cables and fiber if a metallic sheath or tracer wire exists. Many fiber optic cables have tracer wires specifically to enable locating. Plastic electrical conduits often contain metallic conductors that can be energized for tracing.

"How do you locate a fiber optic cable?" is a question that makes locators cautious, because fiber is fragile and expensive to repair. Locators use EM where tracer wire exists and GPR and visual context where it does not, while maintaining generous safety buffers during excavation around known routes.

Accuracy, margins, and safe digging practices

How accurate is utility locating overall? Very good relative to the alternative of guessing, but never perfect.

**ORANGE COUNTY
UTILITY
POTHOLING**

BESS
UTILITY SOLUTIONS

Bess Utility Solutions
2463 Tripaldi Way, Hayward, CA 94545
(408) 988-0101
<https://www.bessutilitysolutions.com/vacuum-excavation-potholing/>





Several factors affect accuracy:

- Depth: deeper utilities are harder to locate precisely.
- Congestion: multiple parallel or crossing lines can cause signal distortion.
- Material: non-metallic pipes without tracer wire are less distinct.
- Age and records: undocumented repairs and abandoned lines can confuse the picture.

For most residential projects in Orange County, a capable locator will be within roughly 6 to 18 inches horizontally under typical conditions. That is why careful hand exposing is still required in the immediate vicinity of marks.

Safe practice is to:

Use power equipment to approach the marked zone, then hand dig or use a vacuum excavator within a tolerance band around the marks. That tolerance is described in state regulations and in the 811 documentation, and it reflects the expected limits of locating accuracy.

Legal and financial consequences of hitting a utility

Who is liable if you hit a utility line? Responsibility usually depends on:

- Whether you called 811 and respected the marks and timelines.
- Whether you used reasonable care, such as hand digging within the tolerance zone.
- Whether the utility was properly marked and documented.

If you ignored 811 or excavated recklessly, expect to be held responsible. If the utility failed to mark or mis-marked their facilities, liability may rest with them or be shared. These disputes are fact-specific, and insurance companies and attorneys get involved quickly on larger losses.

What happens if you cut a utility line? Aside from immediate service disruption, you can face:

- Emergency response costs, especially for gas or electric incidents.
- Repair bills from the utility or private owners.
- Potential civil penalties or fines in serious or repeat cases.

How much does it cost to repair a damaged utility line? Small residential-scale hits can run from a few hundred to several thousand dollars. Cut fiber serving multiple customers or a high-pressure gas main and the figures rise sharply, sometimes into five or six-figure territory when lost business and emergency mobilization are included.

**ORANGE COUNTY
UNDERGROUND
UTILITY LOCATING**

BESS
UTILITY SOLUTIONS

Bess Utility Solutions
2463 Tripaldi Way, Hayward, CA 94545
(408) 988-0101
<https://www.bessutilitysolutions.com/underground-locating-detection/>



What happens if you dig without calling 811? Beyond the increased safety risk, you may lose the protection of any presumption that you acted reasonably. It becomes much harder to argue that the damage was an accident rather than negligence.

Permits, excavation, and local practice in Orange County

Do you need a permit to dig in Orange County? For shallow landscape work on private property, usually not. For deeper work, such as pools, retaining walls, major grading, or work near property lines or public right of way, permits are common and often mandatory.

Each city within Orange County has its own thresholds and processes. Huntington Beach, Irvine, Anaheim, Costa Mesa, and others all publish guidelines, and your contractor or engineer should confirm which permits apply to

your project.

Utility locating ties into this because building departments and inspectors expect you to have protected underground utilities as part of safe construction practice. On engineered projects, subsurface utility engineering, or SUE, may be written into the design requirements. That can include records research, field locating, and test holes to verify both horizontal and vertical positions of critical utilities.

Should homeowners hire a private utility locator?

For small, shallow work such as planting shrubs away from known corridors, most homeowners manage with 811 and common sense. As the depth, proximity to the house, or cost of the project increases, the case for a private locator becomes stronger.

You should seriously consider hiring a private locator when:

- You will be digging deeper than about 12 to 18 inches near likely routes of water, gas, sewer, or power.
- The property has been remodeled several times and you suspect undocumented lines.
- You are adding a pool, ADU, or significant hardscape such as a large patio or retaining wall.
- You know or suspect there are private gas lines, septic components, or electrical feeds on site that 811 will not mark.

"How do I find underground utilities on my property?" is precisely the problem private locators solve. Their work is cheap insurance relative to the cost of a utility strike or redesign when a line is discovered too late.

If you are asking, "Can I locate my own underground utilities?" you can certainly learn some basics, and for very minor work that is often enough. But without professional equipment and experience, your accuracy and confidence level will not match what a seasoned locator can provide.

When comparing firms and trying to decide what is the best utility locating company in Orange County for your project, prioritize experience with properties similar to yours, clear explanations of their methods and limitations, and responsiveness. Effective communication matters as much as fancy equipment.

A practical set of questions to ask potential private locators:

- What equipment do you use for water, gas, sewer, and electrical locating?
- Can you work with both EM locating and ground penetrating radar, and when do you use each?
- How do you document your findings (paint only, sketches, digital maps)?
- How accurate is your locating in typical residential conditions, and how do you describe uncertainty?
- What is your experience with local soil conditions and older Orange County neighborhoods?

Locating a buried water line on your Orange County property safely is not about buying a gadget and waving it around the yard. It is about following a smart sequence: respect the law by calling 811, understand what public utilities do and do not mark, read and interpret the colors at your feet, and bring in private locating expertise where the risk and complexity justify it.

Handled that way, your new trench, footing, or landscape project becomes a lot less stressful. The water stays where it belongs, the gas stays contained, the lights stay on, and the only thing you disturb is the soil you intended to move.