

Ask three Sacramento contractors how much a vacuum excavation truck can pull in a day, and you will usually get three different answers, all of them technically true. Productivity on a vac ex rig lives and dies on soil conditions, crew discipline, and how far you are hauling spoils. If you are trying to bid work, schedule crews, or justify buying a truck, you need more than war stories, you need realistic ranges and the context behind them.

What follows is grounded in how vac ex and hydrovac trucks actually perform on Northern California jobs, not in a sales brochure written for ideal conditions somewhere in the Midwest.

## **First, clear definitions: what is vacuum excavation?**

Vacuum excavation is a non-mechanical digging method that uses a high-pressure stream and a powerful vacuum to break up soil and suck it into a debris tank. The goal is the same as with any excavation: remove soil to create a trench, pit, or daylighted utility. The difference is how gently and precisely you can do it.

Two main approaches show up around Sacramento:

### **1. Air or dry vacuum excavation**

A compressed air lance fractures the soil, and the vacuum removes the loosened material. Spoils stay dry and can often be used for backfill. Production slows dramatically in hardpan, dense clay, or rock.

### **2. Hydro excavation**

A high-pressure water jet cuts the soil while a large blower vacuums the slurry. This is what people usually mean when they say hydrovac. It tears through compacted soil better and is less affected by cobbles, but spoils become wet slurry that must be dumped appropriately.

So when someone asks, "What is the difference between hydro excavation and vacuum excavation?" The practical difference on productivity is this: hydro excavation tends to be faster in tough soils but costs more to run and dispose, while air vac is cheaper per hour and leaves you dry spoils, yet can bog down badly in the wrong dirt.

## **How deep can vacuum excavation go?**

On paper, you will see big numbers. Many manufacturers claim you can dig 30 feet deep or more. Physically, yes, most truck vac systems can pull material from that depth. In the field, Sacramento crews run into three real limits long before that:

### **1. Hose configuration and access**

The deeper and more horizontal the reach, the more friction and loss you get in the hose. Production falls off quickly once you stack extensions or snake around obstacles.

### **2. Stability and shoring rules**

OSHA sets requirements for trenches and excavations that kick in as soon as you go beyond a couple of feet. Questions like "How deep can you dig without shoring?" Or "What is the 4 foot rule in excavation?" Come into play. Hydrovac does not exempt you from those.

### **3. Practical productivity**

You can vacuum at 20 feet, but if it takes three times as long and kills the budget, that "capability" is just marketing.

In practice, Sacramento vac ex crews commonly work in the 2 to 12 foot range for utility locating, service laterals, and daylighting. Going to 15 or even 20 feet for a pole hole or a deep utility is possible, but you plan more carefully, shore properly, and accept slower production.

A good rule of thumb for planning: assume fairly normal productivity up to around 8 feet, a modest slowdown from 8 to 12 feet, and a steep slowdown beyond that, especially if access is tight.

## **The question everyone asks: how much can a vac ex excavate in a day?**

You only get meaningful answers if you first ask, “Doing what, in what soil, and with what crew?” Vacuum excavation on a muddy January utility locate along Freeport Boulevard performs nothing like dry daylighting on a fall morning in Roseville.

Still, it helps [Sacramento Vacuum Excavation](#) to anchor your expectations with ranges. These are typical for a competent 2- or 3-person crew on a modern hydrovac truck in Sacramento Valley soils, running a roughly 8- to 10-hour day, including setup, breaks, and disposal runs.

Production rates are very different for potholing versus trenching, so separate them mentally.

### **Daylighting / potholing around utilities**

This is where hydrovac shines: exposing utilities with small test holes, often 12 to 24 inches in diameter.

In soft to moderate soil (sandy or loamy fill, minimal cobbles), a tuned-in crew often averages 15 to 30 test holes per day at 3 to 6 feet deep, sometimes more if the locate tickets are tight and travel is short. Volume wise, that tends to land in the ballpark of 10 to 25 cubic yards per day.

Harder Sacramento clay, dense fill, or heavily compacted road base drags that down. On difficult sites, I have seen days where crews barely cleared 8 to 10 yards, mostly because the water jet had to chew and re-chew every inch, and vac hose clogged with slurry.

### **Trenching and slot trenching**

Cutting a continuous trench tells a different story. Think of shallow utility trenches for fiber, irrigation, or electrical conduit, typically 8 to 12 inches wide.

In forgiving soil with easy access, a hydrovac truck can sometimes carve 100 to 200 linear feet per day at depths around 3 to 4 feet, which equates to roughly 10 to 25 cubic yards, depending on trench width and depth. In tighter corridors, deeper cuts, or heavy clay, it is not uncommon to see production drop to 40 to 80 feet per day.

Clients often ask, “How long does it take to dig a 100 ft trench?” For light utility work at 3 feet deep in average Sacramento soil, a good crew can often knock that out in a single shift, including traffic control and cleanup. That assumes decent access, no nasty surprises, and a clean one-call clearance.

If you want the math behind those yard numbers: trench volume in cubic feet is length × width × depth. Divide by 27 to convert cubic feet to cubic yards. That “why do you divide by 27 for cubic yards” question comes up constantly when teaching new estimators.

## **Conditions that make or break productivity**

The spread between a 10 yard day and a 40 yard day often has less to do with the truck model and more to do with the realities of the site. For a sense of how touchy vac ex productivity can be, pay attention to these five

factors:

1. Soil and backfill type
2. Water availability and spoil disposal
3. Hose distance and access
4. Crew experience and communication
5. Project type and risk tolerance around utilities

Those five, more than anything in the spec sheet, decide how much you really get in a day.

Sacramento is notorious for alternating bands of sandy loam, stubborn clay, and cement-treated base. A street that was easy going on Monday can turn punishing by Wednesday as you cross a different backfill or hit native hardpan. Experienced operators read the spoil coming up the hose and adjust pressure and technique quickly. That kind of responsiveness is what separates a 15-yard day from a 30-yard day.

## **How deep can you dig without shoring, and how does that affect vac ex work?**

Vac ex does not eliminate the need to follow excavation safety rules. OSHA's excavation standards still apply, even if you are digging with water and a hose instead of a steel bucket.

Contractors frequently bring up the "4 foot rule in excavation" or ask "How deep can you excavate without shoring?" The short version, for planning purposes in typical trenches:

- Once a trench gets deeper than 4 feet, OSHA expects means of egress within 25 feet of workers, and you must evaluate for atmospheric hazards and cave-in potential.
- Beyond 5 feet deep in most soil types, a protective system such as sloping, benching, shoring, or shielding is usually required, unless the excavation is cut into stable rock.

Vac ex tends to produce more vertical cuts with fewer undercuts than a bucket excavator, but that verticality can give a false sense of security. Utility owners may be comfortable with narrow, nearly straight-sided potholes, yet you still need a competent person evaluating whether those walls are stable, especially in wet or layered soils.

The practical impact on production is significant. Shoring or shielding adds time for setup, relocation, and inspection. If you price a full day of deep hydrovac without acknowledging that, you are betting your profit on perfect soil and zero surprises.

## **How much to excavate 200 cubic yards with a vac ex?**

Contractors often frame work in round volumes when they first explore vac ex: "How much to excavate 200 cubic yards?" For vac ex, volume alone is a poor predictor. You must convert that volume into where it lives in the ground.

As a reality check, take a middle-of-the-road production rate of 20 cubic yards per day for mixed potholing and short trenches on a Sacramento street job. At that pace, 200 yards is roughly 10 truck-days on one rig. In practice, you might spread that across multiple trucks or hit higher rates if you are mostly daylighting in soft fill.

Pricing those 200 yards involves:

- Truck and crew hourly or daily rate
- Expected production rate under your specific soil and risk conditions

- Dump fees and water costs
- Travel time, mobilization, and standby

Commercial hydrovac work around Sacramento often ends up somewhere around 275 to 450 dollars per truck hour, all in, depending on scope, traffic control, and crew size. That means if you clear 20 yards in an 8-hour production day at 325 dollars per hour, you are roughly at 130 dollars per cubic yard. But that is just arithmetic on one example. Your actual cost per yard can swing wildly with productivity and downtime.

When you build a bid, you do not price "200 yards of hydrovac." You price "X days of truck time under Y conditions with Z risk", then back-check what that implies per yard or per foot of trench.

## **What does excavation cost per hour with vac ex compared to traditional methods?**

Traditional excavation often prices by machine and operator per hour. A 20-ton excavator like a Cat 320 (yes, a Cat 320 is roughly in the 20 metric ton class) might run 175 to 250 dollars per hour with operator on a local civil project, depending on market and scope. That machine can excavate far more than a vac ex truck in open, greenfield conditions, sometimes in the realm of 80 to 150 cubic yards per hour in loose digging.

Hydrovac looks terrible on that simple volume metric. You might pay 300 to 400 dollars per hour and only get 2 to 5 yards per hour in tough conditions. Yet the comparison is misleading. Hydrovac and vac ex usually step in where a steel bucket is too risky: congested utilities, high-value assets, tight downtown streets, environmental sensitivities, or strict permit conditions.

So when a client asks "What does excavation cost per hour?" the honest answer is: mechanical excavation is cheaper per yard in open work, but vac ex is cheaper per incident avoided around live gas, fiber, or high-voltage. You are trading volume for control.

## **How to price out excavating jobs with vac ex in Sacramento**

Bidding vac ex work should feel more like planning a small operation than just filling out a spreadsheet. The estimators who come closest to reality usually follow a simple, repeatable process.

Here is a short checklist that mirrors how experienced firms around Sacramento approach it:

1. Walk the site and identify soil types, surface cover, and access constraints, not just from Google Maps.
2. Segment the scope into logical work types such as roadway potholing, off-road trenching, and deep structures, each with its own production assumption.
3. Assign conservative production ranges per segment using your own historical data, not manufacturer charts, and stress-test best and worst cases.
4. Layer in non-digging time: traffic control, water fill, dump trips, utility coordination, and client-driven delays.
5. Decide your pricing unit for the client (per hour, per day, per hole, or per foot), but always sanity-check it back to hours of truck time.

The mistake I see most often in Sacramento bids is underestimating downtime. Waiting on power company stand-by, sitting through a surprise city inspector visit, or relocating for a late utility mark can erase the margin on an entire day.

# How much does vacuum excavation cost compared to buying a vac ex truck?

If you are running vac ex occasionally, renting or subcontracting is usually smarter. If you are spending most weeks calling in a hydrovac, ownership starts to pencil out.

So, how much is a vac ex to buy? For a full-size, truck-mounted hydrovac rig with a large debris tank and decent blower, purchase prices often run from 450,000 to 700,000 dollars new, sometimes higher with high-end options or off-road packages. Smaller trailer vac units can be far cheaper, but also have lower production and limited capacity.

When clients ask, "How much is a vacuum excavation truck?" I usually walk them through three realities:

- Purchase is only the first hit. Fuel, maintenance on blowers and pumps, hose wear, insurance, and regulatory compliance add up quickly.
- You must factor in a CDL driver, and very likely a requirement for a tanker endorsement, depending on how the truck and tanks are configured.
- Utilization is king: a vac ex that rolls two days a week will struggle to earn its keep.

Hydrovac rental or subcontracting in Sacramento commonly runs on either a daily minimum or an hourly rate with a minimum. When your annual spend on rentals and subcontracted hydrovac consistently rivals the payment on a truck, you run the numbers on ownership, but you also commit to running that truck like a business unit, not a side toy.

## Licensing, endorsements, and training for vac ex crews

Operating a hydrovac truck is half trucking, half excavation. You sit under both sets of rules.

On the trucking side, you almost always need a CDL to drive a fully loaded hydrovac. The question "Is a CDL required for hydrovac jobs?" in practice, yes, in nearly every case, because a loaded hydrovac truck exceeds 26,001 pounds gross vehicle weight rating. Then another question comes: "Do you need a tanker endorsement for a hydrovac truck?" Often, yes, because you are transporting significant quantities of water and slurry in tanks. Local interpretations and unit configurations matter, so Sacramento contractors check with DMV and CHP guidelines, but planning for a tanker-endorsed CDL driver is the safe baseline.

On the excavation side, people ask "What certifications do you need to run an excavator?" or, by extension, a vac ex unit. Federal OSHA does not require an operator certification card for excavators the way it does for cranes, but many owners and public agencies in California expect documented training. For hydrovac, that usually means:

- Formal training on truck operation, lockout procedures, and confined space awareness
- Instruction on locator use and utility marking interpretation
- Excavation safety training, including soil types, sloping rules, and daily inspections

The real training gap with vac ex is not "which button does what" but situational awareness: reading the locate flags, adapting jet pressure near unknown lines, and knowing when to stop and re-verify. **bessutilitysolutions.com Sacramento Vacuum Excavation** Those judgement calls keep you out of trouble.

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## **Practical limitations of vacuum excavation**

Vac ex is not magic. It solves some problems exceptionally well and performs poorly in others. For Sacramento conditions, some of the key limitations look like this:

In pure hardpan or cement-treated base, hydrovac can be painfully slow, and water use spikes. Productivity may fall to a yard or two an hour. Air vac can be even worse, sometimes almost ineffective without prior mechanical scarification.

Spoil management has outsized impact on both cost and schedule. Hydrovac slurry is heavier and harder to dump than dry spoils. If the nearest dump site that accepts slurry is across town or has limited hours, you will burn a good chunk of your day on the road.

Long hose runs and tight urban access strip away vacuum efficiency. You will see this on downtown Sacramento sidewalks or behind buildings where the truck stays in the alley and hoses run around corners. The operator might need more passes at each spot, and clogs become a recurring battle.

Finally, regulations and client rules can constrain you. Noise ordinances at night, water use restrictions, and environmental sensitivity near waterways can all limit how aggressively you can run a hydrovac truck, even when the soil invites it.

Knowing these limitations ahead of time lets you decide when traditional excavation is better or when a blended approach makes sense, such as using a mini excavator to bulk out material and hydrovac only near critical utilities.

## **Putting daily production benchmarks to work**

If you want one single number for “How much can a vac ex excavate in a day?”, you will not get one that holds across Sacramento. What you can carry into planning and bidding are working ranges anchored in local reality:

- For general potholing and daylighting in average soil, expect roughly 10 to 25 cubic yards per day per truck, with 15 to 30 test holes as a common outcome.
- For shallow trenching in fair conditions, 10 to 25 cubic yards per day corresponds to about 100 to 200 linear feet of narrow utility trench at modest depth.
- In tough clay, cobble, or constrained sites, be prepared for 5 to 15 yards per day, and build that conservatism into your pricing and schedule.

You refine those ranges by logging your own production data: yards per day by soil type, depth, weather, and crew. Within a few months of disciplined tracking, you will have Sacramento-specific benchmarks that beat any generic chart.

Vac ex is a specialty tool. Used where it belongs, it earns its keep by protecting people and infrastructure, not by out-digging a bulldozer or a 20-ton excavator on bulk earthwork. Once you calibrate your expectations against real production, it becomes far easier to decide when to call the truck, how to price the work, and whether owning your own rig makes sense for your operation.