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Obviously, a pipe leak inside your home is usually pretty easy to find because you can see water pooling on the floor, dripping from a ceiling, or making walls soggy. But finding a pipe leak in your yard can be something else. Underground pipe leaks are hard to find because they're often buried deep below the surface, underneath driveways, or in similarly difficult situations. Short of hiring a tractor to dig up your yard, what can you do?Here we will look at your options.Determining Whether A Leak ExistsUnderground pipe leaks occur when an underground water supply pipe breaks or leaks—either along its length or where it connects to elbows or other fittings. Leaks and breaks can occur because of invasive roots, shifting ground, or freezing or corroding pipes.If you suspect that water may be leaking from a broken pipe or fitting somewhere underground, the following simple test will let you know for sure.1. Locate your water meter. Most residential water meters are located near the street or curb in front of a house. They are typically in a box that's buried, with a lid that covers the box at ground level. Many of these boxes are concrete, and so are their lids—so the lid can be quite heavy. You can typically lift the lid off of the box by inserting a hook or large screwdriver into a slot in it, and then lifting it away from the box.The meter and the main valve that controls the flow of water to your house should be inside the box, and may be buried in dirt. Wearing work gloves, scoop any dirt away from meter and the valve.Water shutoff valves are typically located in an underground box near the street. © Romarti | Dreamstime.comCheck the water meter's dials. ©Don Vandervort, HomeTips2. Turn off every faucet, fixture, and appliance that uses water—even raise the ball wire on the ice maker to turn it off. Do NOT turn off the main shutoff valve located by the water meter.3. Note the dials on the water meter. As you can see in the drawing below, some water meters have a small dial meant to be a leak detector. If this is moving, water is traveling through the meter. If you meter doesn't have this, use a grease pencil to mark where the needle is pointing (if there are several dials, mark the one that indicates 1-cubic-foot increments).Water Meter Dial Displays © HomeTips4. Leave the water shut off for 30 minutes, and then see if the needle has moved from the mark. If it has, your plumbing is leaking somewhere.5. You can look for signs of a leak, such as sinkholes or mushy areas of ground, but you may have to have a professional find it. See more about this below.How to Find Water WastersOutdoor valves, hoses, sprinkler systems, and water features can waste a lot of water without you knowing there's a problem until you receive your water bill. Please view this video to learn a variety of ways you can reduce wasted water by keeping an eye on your sprinklers, drip systems, hoses, and more.How to Find an Underground LeakOne of the popular methods that professional leak detectors use to find an underground leak involves charging the pipes with nitrogen, an inert gas.When the pressurized gas finds a leak, it comes blowing out, producing a loud hiss. With the help of a probe pushed down into the ground, an amplifier, and headphones, the this hiss can be heard. The leak detection specialist moves along the suspected route with the probe and eventually zeroes-in on the leak. This video shows the process:Find a Reliable Local Plumber Show video transcript Video Transcript Our tradespeople are experts at investigating hard-to-find leaks and sources of water ingress inside a property. They're also equipped for detecting water leaks in pipes underground. In this video, we'll show you the techniques used for detecting water leaks underground. The "trace and access" approach we take means digging to expose the pipework can be highly targeted. The methods we use save time and money. In this example, a homeowner suspects a water leak in underground pipes. Their most recent water bill was unexpectedly high but there's no sign of a leak inside the property. Water Meter Test The investigation began with testing the underground mains water supply pipe. The stop valve inside the property was turned off and a meter reading was taken. Another reading was taken 30 minutes later, indicating there wasn't a leak in the main underground water supply pipe. Pressure Testing The next step was pressure testing the plumbing system inside the property. The central heating system was isolated and could be pressure tested separately if needed. A clear drop in pressure was recorded, indicating a leak somewhere in the cold water system. With no visual signs or smells of damp inside the property, visual checks were made outside. Attention turned to detecting a leak in pipes running underground. Acoustic Survey Specialist acoustic equipment is the most effective way of detecting water leaks underground. When water that's under pressure escapes from a leaking pipe it creates tiny vibrations. Using a highly sensitive microphone that's placed on the ground, these vibrations are amplified as sound. Our tradesman first had to locate the line along where the underground water supply pipes were buried. Radio detection equipment was used for this. An acoustic survey was then carried out along the full length of the underground pipe. Changes in the sounds detected along the survey line allow the position of a buried leak to be located to within a few centimetres. The equipment can be used to detect water escaping from a pipe no matter what type of internal or external solid floor it's buried beneath. Acoustic surveys detect large or small leaks in any type of pipework, including central heating systems. This non-invasive trace & access method means that once the leak has been pinpointed excavation work to expose it can be highly targeted. Eventually a leak was detected in the water supply pipes beneath a driveway that ran to a garage. Repair & Reinstatement Service In addition to leak investigation, we also provide a full repair service. Coring equipment was used to make a small hole in the concrete slab and expose the leak. A scope of work and fixed price quote to fully excavate the pipe for repair and then reinstate the concrete slab to its original state was given to the customer. The homeowner could provide this information along with the detailed leak detection report to his insurance company. The work was scheduled in a few days later and was covered by the insurance policy. Here we've shown you that with the right equipment detecting water leaks underground is usually straightforward. The invasive part of the investigation is only needed to expose and fix the problem once its location has been accurately detected. Thanks for watching. Check out our other videos in this "how to find a water leak" series. Don't forget to subscribe to our YouTube channel to keep up to date with more maintenance advice. Download Article Learn the signs and causes of underground water leaks Download Article If you notice an increase in your water bill without changing your daily routine, you may have a water leak. The leak may be underground if you can't find the source within your home. We're here to help you find out what's going on and avoid further damage. In this article, you'll learn how to detect the underground leak so you can get it fixed right away.This article is based on an interview with our professional plumber, David Balkan. Check out the full interview here. Check for pooling water, sinkholes, or cracks in your pavement to find the leak. A professional can use gas or noise loggers to find the exact location. Shut off your main water supply and watch your water meter. If it still increases, you've got a leak. If there's a sudden increase in your water bill, a moldy/mildewy smell around the property, and/or low water pressure, there's a good chance you might have a leak. 1 Shut off your main water supply and see if the meter increases to confirm a leak. Turn off all faucets and water-using appliances. Locate the main water shut-off, which may be outside near the edge of your house, along the same path as your water meter. Take note of where the sweep hand is on your water meter's register. Turn off the valve and wait for 30 minutes to an hour. Check the new meter reading—if there's an increase, you've got a leak.[1] If your water meter box is constantly filled with water, you might have a leak at your water meter.[2] Newer meters may have leak detectors you can check. Depending on the brand of your water meter, there may be a small white, red, or blue triangle or a small silver wheel that rotates when water flows through the meter. If the leak detector is spinning even when everything in your home is turned off, it's a good chance that you have a leak.[3] The dial face is divided into 100 increments around the outer edge. One complete revolution of the hand equals about 1 cubic foot of water or about 7.5 gallons. 2 Check for disturbances above ground. It's common for underground leaks to cause damage to the ground above them. If underground leaks are surrounded by earth or grass, you may notice sinkholes, damp spots, or increased vegetation in your yard.[4] If there's concrete around the leak, you might notice cracked areas, bulges, or potholes. You might also notice warping or shifting in your sidewalk or walkway.[5] Sinkholes can be dangerous, especially if they grow too big, causing flooding and other damage to your home and property.[6] If the wet spots are near your house, act immediately to avoid damage to your house's foundation that could weaken its structure. Find a certified plumber right away.[7] If you suspect that a water leak is underneath a concrete slab on a building, call a professional to determine exactly where the leak is. It may be necessary for them to repipe the area above the floor and leave the old pipe underneath to avoid breaking the floor.[8] Advertisement 3 Use thermal imaging to find leaky pipes. Use an infrared camera to look for moisture underneath the surface of your property, which can indicate a leak underground. An infrared camera can detect changes in temperature, which can help pinpoint exactly where the leaks are to minimize unnecessary digging on your property.[9] Look for areas underneath your house or land that are colder or hotter than the rest of the surrounding area—this could be where your leak is. 4 Call a professional to locate and fix the leak if needed. In some cases, it might be necessary to call a plumber or engineer to find the exact location of the leak.[10] A professional might use the following techniques to find where the leak is underground: They might use acoustic leak detection. Plumbers or engineers can use an acoustic listening stick to try and determine where a leak may be.[11] They might also use noise loggers, which attach magnetically to key junctions, main valves, or hydrants. Using ultra-sensitive microphones, loggers use sound waves to help locate leaks in water distribution systems.[12] They may use trace gas to find the leak. Using trace gas is a non-toxic method that doesn't cause harm to the pipework or the surrounding environment. It works by pressurizing the gas through pipes, which forces it through to the surface, where it escapes and can be detected using a gas detector.[13] Advertisement 1 There's a sudden increase in your water bill. A surge in your water usage could be a sign that there's a leak somewhere on your property. Has your bill changed drastically in the past few weeks or months? Have you been paying more without a significant change in your daily routine? If so, you may have a leak in your pipework.[14] 2 There's an unpleasant smell around your property. If undetected leaks are left for a long enough period, the water can cause mildew or mold, which can result in an unpleasant smell in the area. If you smell an odor around your kitchen sink or toilet, it may be a sign that you have a cracked pipe underneath your home.[15] 3 Your water pressure is low. If you notice that the pressure of your faucets is lower than usual, you may have a water leak somewhere on your property. If this is the case, you can do a quick leak check by turning off all of the fixtures in the house and turning one on. If the pressure is higher than it was, you might have a leak.[16] Pipes that are clogged, eroded, or ruptured can also cause low pressure in your water supply. Make sure to check your water meter and check for other signs of underground leaks to make sure that that is the problem. 4 You hear sounds from the pipes. Although sounds from a water leak aren't usually used to find underground water leaks, they may help you narrow down the location of the leak.[17] Focus on the area with the loudest sound, and listen for any of the following: Hissing sounds can mean that there's been a decrease in the pipes' water pressure. Splashing can be a sign of water flowing around the pipe. Clinking can be from pebbles, stones, or other sediment flowing and banging into the pipes. 5 There's rust, dirt, or air in the water supply. Underground leaks can suck sediments from the surrounding environment, making the water from your faucets appear dirty, rusty, or bubbly.[18] This can also be a sign of other plumbing issues. If you see rust, dirt, or air combined with one of the other above signs, then you may have an underground water leak. Advertisement Water leaks can be caused by chemicals, pipe erosion, or natural changes. Most of the time, leaks in underground pipes are caused by aging, general wear and tear, or changes in the environment. Here are some of the most common causes of plumbing leakage: [19] Over a large amount of time, chemicals from the water or the soil can cause underground pipes to erode, leading to cracks or holes. Natural disasters can also cause water leaks. Earthquakes and tremors in the ground can put pressure on pipework that can cause them to move and crack. General wear and tear can also damage your pipes. Older buildings and homes might have older pipework, which over time can rust and crack, leading to leaks. Above ground, rapid temperature changes can cause pipes to expand and contract, which can crack the pipework. Construction or overgrowth might also unintentionally damage your pipes. Sometimes when trees grow close enough to the pipes, it can damage them and result in leakages. Ask a Question Advertisement This article was written by David Balkan and by wikiHow staff writer, Cheyenne Main. David Balkan is a Professional Plumber, CEO of Balkan Sewer and Water Main Service, and President of Balkan Sewer and Drain Cleaning. As a hands-on owner of these companies for over 40 years, David is knowledgeable about water service lines, sewers, and drain line issues. David is a Committee Chairman of the Master Plumbers Council and has sat on the Executive Committee of the Sub Surface Plumbers Association of New York for over 30 years. His knowledge and solution-oriented approach contributed to Balkan Sewer and Water Main Service being the largest and most trusted service in New York City and the recipient of the 2017 Angie's List Super Service Award. This article has been viewed 10,980 times. Co-authors: 5 Updated: August 6, 2024 Views: 10,980 Categories: Home Repairs Print Send fan mail to authors Thanks to all authors for creating a page that has been read 10,980 times. by in Homeowner / Plumbing Posted on 15/06/2024 17:07 Tips, tricks & ideas for a better home and yard, delivered to your inbox daily. When a homeowner identifies signs of a water leak on their property, one of the first things they'll do is try to figure out where it's coming from. Occasionally, they will discover an underground water pipe leakage. However, because these leaks are hidden beneath the surface, homeowners wouldn't have any reason to investigate them until there's a problem. For those wondering how to find a water leak underground, there are plenty of ways to do so without excavating. Once the problem is identified, the best plumbing services like Mr. Rooter or Roto-Rooter can be relied upon to confirm the source of the leak and make any necessary repairs. Suspect a water leak underground? To be sure, talk to a pro. Get no-commitment estimates from top-rated pros near you. + Bobvila.com may earn a commission from purchases made through these links. Common culprits of underground water leaks include pipe corrosion, soil shifts, tree root intrusion, and fluctuating temperatures. All of these issues can lead to pipe expansion and contraction, causing a leak to occur Underground water lines typically last anywhere from 50 to 100 years depending on the material used. For instance, clay pipes might have a lifespan at the lower end of this range, while materials such as copper, ductile iron, and new PVC models can last much longer. However, unexpected factors can cause a leak at any point in a pipe's life, making regular monitoring and maintenance essential for early water leak detection and repair. An underground water leak can go undetected for weeks, months, or even years depending on the size and location. According to Mehdi Khachani, CEO and founder of Miami-based JMK Plumbing, there are several telltale signs that an underground water pipe is broken, including an unexpected increase in water bills, a sudden drop in water pressure, and pools of water or soggy spots in the landscape, especially when it hasn't been rainy. Homeowners may also hear a faint sound of running water when all taps are off or notice lush patches of green grass in very warm areas of the property. If left unaddressed, these leaks can cause severe property damage and potential health risks from growing mold and mildew. Photo: istock.com Water pipe leak detection can be simple enough, but the subsequent repairs typically require specialized equipment and plumbing expertise. The average homeowner is advised not to attempt to repair a water leak issue on their own. It's a good idea to have a plumber confirm the cause and location of any leaks that are identified to ensure that the problem is handled properly. If a homeowner is adamant about finding underground water leaks on their own before hiring a plumber, it's important to verify the location of all utility lines before digging to avoid disrupting services or causing accidents. Homeowners will also want to be aware of local regulations or permits required before attempting water main leak detection and repair. Excavating near electrical, gas, or other hazardous lines can be dangerous and will need to be handled by a plumber. Water damage from plumbing leaks can lead to mold growth, which can cause adverse health effects in sensitive individuals. It's generally best to leave mold cleanup to a professional remediation company. The first critical step when detecting a water leak is to turn off the property's main water supply valve. This will halt the flow of water throughout the property, allowing for a more precise assessment of the situation. The next move is to observe the water meter closely. If the meter shows movement or usage despite all water being turned off, this is a telltale sign of a leak within the plumbing system. The water meter will also inform the homeowner of the severity of the leak based on the speed of change observed. Water levels in the home's toilets and water heater can provide clues in detecting hidden leaks. A toilet, for instance, can be a common source of leaks within a home. Homeowners can check for leaks in their toilets by adding a few drops of food coloring to the tank and waiting to see if the color appears in the bowl without flushing. This simple test can reveal small leaks that might otherwise go unnoticed. Similarly, leaks in the plumbing connected to a water heater are common and can be identified by monitoring the water levels in the water heater tank. If the levels seem to be decreasing, the leak is probably located somewhere in a nearby part of the system. It may be a good idea to install one of the best water leak detectors on the ground next to the water heater so that if the appliance does spring a leak, it won't go unnoticed. Unusual wet areas inside the home, such as those that appear on floors without any apparent spills or sources, can indicate water is seeping inside from a leak beneath the foundation. In addition to dampness, some signs of water damage under the floor are mold growth, cupping or warping in hardwood floors, or unpleasant musty odors. In the yard, areas that remain damp and soggy even when it hasn't rained indicate that water is escaping from a broken line and saturating the soil. Over time, these areas may also become unusually green or mossy. Photo: istock.com Water leaks under concrete can cause a buildup of pressure in the ground that causes the concrete on the surface to crack. Most critical are cracks that develop in a concrete foundation. Slab leak repair costs \$2,290 on average, and this issue needs to be addressed quickly to minimize further damage to the home and foundation. Homeowners noticing signs of cracking and shifting will want to consider consulting with professionals who can confirm the presence of a leak and assess its severity. Professionals use underground water leak detectors, such as acoustic or electromagnetic sensors. These special detectors can be used to pinpoint the location of the leak without immediate and extensive excavation on a homeowner's driveway, sidewalk, and patio. A thermal imaging device is an effective way to pinpoint the precise location of an underground leak without resorting to invasive digging. Underground water leak detection equipment can detect temperature variations or the presence of water around pipes to locate the problem. Some homeowners may wonder if they can use a smartphone to detect underground water leaks. There are specialized apps that can help gather data relevant to detecting leaks when used in conjunction with other devices, such as moisture meters or sophisticated acoustic detectors and thermal imaging cameras. However, these apps are not advanced enough to detect leaks on their own. Once the leak is located, a plumber can inspect the property to confirm the location and diagnose the cause of the leak. A plumbing inspection costs \$200 on average. While waiting for professional assistance, a homeowner can document anything they've noticed in their search for the leak and communicate it to the plumber upon arrival. "Take note of any observable signs or unusual water behavior, and share this information with the plumber," Khachani says. "It can assist them in diagnosing the issue more efficiently." He also advises reducing water usage as much as possible until the plumber arrives to prevent additional stress on the system. Suspect a water leak underground? To be sure, talk to a pro. Get no-commitment estimates from top-rated pros near you. + Locating a water leak underground is only the first step in dealing with this problem. It's important to let experts take over from here to restore the plumbing to working order and make any necessary repairs to the home. To fix a leaky tube or pipe underground, professionals must dig a trench to access the pipe, cut out the section that is damaged, and then replace it with new piping. Attempting to fix water leaks without the proper skills, experience, or tools can lead to further damage, increased costs, and potential safety hazards. Therefore, while homeowners can take proactive steps to detect leaks, the repair work will need to be performed by a plumber to ensure safety, efficiency, and effectiveness. The cost to hire a plumber ranges from \$180 to \$489 on average. "It's crucial to enlist the services of a professional plumber promptly," says Khachani. "Repairing underground water leaks requires specialized knowledge and equipment to ensure a thorough and lasting fix." If water damage has affected any part of the home due to the water leak, homeowners will want to consider hiring one of the best water damage restoration companies (like ServiceMaster Restore or ServPro) to address any resultant issues. According to the Environmental Protection Agency (EPA), mold growth can begin to develop in as little as 24 hours following water damage. Restoration services can ensure that the home is thoroughly dried out, cleaned, and restored to prevent mold, mildew and structural damage. The cost of water damage restoration ranges between \$1,305 and \$5,707. With prompt and informed action upon noticing the signs of a leak, homeowners can mitigate the damage and preserve their property's value with the help of the right professionals. Whether you're selling or staying, everyone can get something out of a kitchen update. Learn why we consider this renovation the Most Valuable Project of 2025 and how to stay on budget.