

Brain Dead

HOME DRAINAGE Botched Big Time



by
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AAA HOME DRAINAGE



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It can be a real horror show. Worst of all, it's your home. Home drainage botched big time.

During my years as a professional home drainage contractor, it's been my pleasure to meet and work with many wonderful folks. I enjoy helping my customers. It's not unusual that a homeowner's equity is the foundation of their financial security. Unfortunately, water damage *can* quickly steal the value from your home. Therefore, it's absolutely critical that the proper professional solution be applied in every case. Each project starts with one simple goal – to protect the equity in their home by ensuring that home drainage problems are properly diagnosed and immediately rectified.

Unfortunately, not all homeowners receive competent advice and planning. Many end up in a nightmare that accomplishes nothing but draining their cash, patience, and trust.

This ebook is going to discuss many of the most common home drainage scams and suggested methods that I hear about over and over again. Bad ideas that simply don't work.

Most are very transparent in their own right. If you listen to logic and understand a basic amount of geology, you will be able to conclude that they do not make sense. It is vital that the homeowner understand that when it comes to home drainage, "all methods proposed are not equal", and that the motivations of the contractor have a lot to do with what he feels is most profitable, what tools are easiest to work with, and what he is

It is vital that the homeowner understand that when it comes to home drainage, "all methods proposed are not equal"

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used to doing over and over again without too much work at all.

It's also sad to say that unfortunately, lots of these characters are just plain crooks. Often homeowners will encounter someone who is dishonest about professional qualifications. They present themselves as contractors who are licensed, bonded and insured but it's simply not true. The lessons can get very expensive with these fly by night folks.

Homeowners spend an average of 2 hours with me conducting a complete home drainage evaluation on their home. During the evaluation of the home the homeowners describe the home drainage problem in detail. As we discuss the history of the home, there can be many factors to consider. Factors include how it was built, previous sump pump failures, areas of groundwater entry in crawlspaces and basements, the duration of each groundwater event, the times of year and under which conditions the groundwater problem is present, how the neighbors may be affecting the groundwater problem, previous attempts to solve the groundwater problem by other contractors and themselves, and other aspects of their concern with respect to the home.

One of the most time consuming parts of any evaluation of home drainage conditions is the time spent discussing the various other contractors that have seen the property and their opinions, proposals and motivations with respect to efforts by these contractors to convince the homeowners that their solution makes sense and is the correct one.

*It's sad how quickly
a botched home
drainage project can
turn into an
expensive lesson*

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We'll discuss many of the most common home drainage scams and suggested methods that I hear about over and over again. Most are very transparent in their own right. If you listen to logic and understand a basic amount of geology, you will be able to conclude that they do not make sense.

Ready? Let's get started...

Do not vent a french drain to your rain drain discharge

The most common home drainage scam in the book is the flim-flam man who says that he is a drainage contractor and that he will excavate a french drain and vent it into a rain drain discharge that the gutter vents your roof water into.

This is just a lot of bunk. A hand excavated french drain that runs groundwater towards your foundation where the rain drain is installed is not what you want, even if it is a properly hand excavated french drain.

*Remember the
flim-flam man?
He's still cruising
neighborhoods*

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One elderly woman in her late 80's who is a customer of mine recently told me the story of her encounter with such a contractor. This individual may not have even been a contractor either, as she did not bother to check with the contractors' board.

The customer told me that this professed home drainage contractor was pushy, condescending, and told her, "I'll tell you what you need, you don't know what you need".

She contracted with my company to hand excavate french drains to prevent groundwater from entering her crawlspace. Her home is on a hill and groundwater runs quickly down the hill pooling at her exterior foundation wall, which causes saturation of the groundwater and hydrostatic pressure that produces leaking into her crawlspace. The condition had been that way for a long time. Attempts had been made to trench the groundwater within the crawlspace, but it never stopped the groundwater from entering in the first place.

The homeowner has done her homework on french drains. She reads the internet targeting information about hand excavated french drains, and along with her granddaughter, she knows that my web site has a top world wide page ranking on the subject of hand excavated french drains on Google and Yahoo, as well as other search engines.

*The homeowner had
done her homework
on french drains*

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The story is an old one. These types of scam artists, some of whom are actually contractors, love to come behind an actual home drainage contractor that has bid hand excavated french drains.

They bid the work about 2/3 of the price of a properly installed hand excavated french drain, and this person probably does what he says he will do in around 20% of the time with 25% of the labor force, leaving you with absolutely no chance of your home drainage problem being solved. Most often a worse condition follows as a result of the failure of the rain drain discharge system that vents the gutters and roof water. The rain drain discharges get plugged with dirt in no time at all.

This is an act of criminal proportion in my opinion. There should be a special jail for these types of contractors, run by homeowners themselves, who throw rotten eggs at them all day. They do not deserve a contractors license, if they have one at all. Call the CCB in Oregon or your home state contractors board to verify contractor status. Turn these professed contractors in by whatever name they give you if they confront you and if they turn out to be un-licensed.

What these types of contractors are proposing is not a hand excavated french drain folks.

Do the math. If you need a grade for a hand excavated french drain on a hard finished surface, of 2" per 10 lineal feet, and the proposal this guy gives you says the lineal feet that his system will cover is around 50 feet along the foundation, or perhaps even all the way around the exterior

They bid the work at about 2/3 of the price of a properly installed french drain

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foundation, and the rain drain discharge which he intends to use as a vent is under the soil at a depth of approximately 8", how could this guy make groundwater run on a flat surface to a location 50 feet away or more if the system is 8 inches deep the entire length of the so called french drain.

He cannot make this work. It is mathematically impossible. Groundwater does not run on a flat surface or up hill.

The groundwater actually does two things when this scam work is done. It soaks right into the soil along the foundation and still wets everything below grade, and when it is raining very hard, it washes dirt into your rain drain discharge system slowly, and eventually plugs your gutter system and rain drain discharge.

These types of crooks prey on the elderly, who do not understand what a french drain is to begin with, not to mention how they are engineered and what they consist of.

Home drainage is one of the most misunderstood concepts in the world of home construction.

Homeowners get taken to the cleaners on this one because they think this scam contractor is giving them the same groundwater solution for less money, instead of nothing at all of value for a rip off price. Even worse is the fact that this guy is going to mess up your home even more than it originally was.

Common sense can quickly reveal faulty thinking.

Groundwater does not run on a flat surface or uphill

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The main thing that the flim flam man is counting on is that you have heard the words "hand excavated french drain" somewhere, or maybe just french drain, and that you do not understand what one really is. The only thing he knows is the words hand excavated french drain.

Stand up to this bully and throw him out the door folks. Don't be one of his victims. He knows what he is doing, and he makes lots of cash doing it too. He will be self-assured, and probably driving a new rig as well.

The one common thing about this type of guy is that your gut will tell you something is just not right, no matter how much he keeps talking. These guys always overplay their hand with intimidation. When confronted with logic and homeowner questions about how and why this system works effectively and why it is a safe procedure, they will likely default to authoritarian pomp and anger, trying to intimidate you in this manner.

Don't be surprised if you meet one of these characters when you go looking for home drainage solutions. Caveat Emptor, "let the buyer beware".

These types of characters do not have the energy or the knowledge to actually design and install a hand excavated french drain, and like the common street thief, they have learned that being a predator means more money for less work.

6 ways to make a home drainage problem worse

*Stand up to this bully
and throw him out
the door*

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When it comes to home groundwater drainage proposals you are likely to meet various contractors that say they specialize in home groundwater drainage and that they have the answer to correct your groundwater drainage problem.

If you are looking for home drainage solutions to a groundwater problem you will encounter many people who will say they are home drainage professionals. Many of these self professed contractor specialists are enamored of a certain method because it is the only thing they do. Other contractors are motivated by profit alone, while still others are just plain crooks trying to make an easy days work into a nice fat paycheck. Many of the proposed methods of groundwater removal that you will be exposed to are not the correct method of groundwater removal to be undertaken, or they are just plain home groundwater drainage scams that can be made to sound feasible. The purpose of this brief article is to touch on subjects within the body of this e-book concerning the most common of these types of methods and why the homeowner must understand the context under which they are proposed and how to deal with those that propose them. I will go into more detail on these subjects within this e-book with regard to why you do not want to have this work done on your property, or in rare cases when it may be appropriate to do.

1. First up in our infamous line up of contractors is the guy I call, "bubba with the backhoe."

Here comes the guy with the backhoe. *Vroom vroom, get out of his way.* Both physically and mentally this guy is like a bulldozer who will not take

Bubba with the
backhoe

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no for an answer. This fellow is the consummate professional machine operator type. He would be digging anything that paid a wage if there was no drainage problem to attack with his machine. He really only knows one thing. The backhoe makes him money, and your home drainage problem gives him the opportunity to use that machine in a huge way. This is his style. Lots of noise, lots of dirt moved, lots of problems in the future for the homeowner at a large price.

He wants to excavate with his backhoe down to the foundation footing, completely destroying your yard and perhaps even cracking your foundation in the process. I have seen some nightmare construction projects employing this program. Lawsuits sometimes follow this construction work as well. A perforated pipe with a sock on it is placed along the outside of the foundation footing after the excavation. The exterior of the foundation is usually backfilled with loose dirt, rock or gravel, which just makes the groundwater run below grade easier. It is hard to imagine that homeowners fall for this one, but they do.

2. Next is the contractor that wants to just install the sump pump, perhaps in conjunction with a crawlspace french drain system or channels cut in the concrete basement floor.

This does not address how to stop the groundwater from coming in, and is wasted money prior to hand excavating french drains and compacting a splash block against the foundation to create a better grade for rainwater runoff which will actually stop the groundwater from coming in to begin with.

*It is hard to imagine
that homeowners fall
for this one, but they
do*

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3. So, next up is the guy that just says you need to dig back the foundation wall many feet below grade and tar the foundation wall.

This is wasted money as well, since the groundwater will not penetrate below grade if the grade is compacted and raised at the foundation and hand excavated french drains are installed with exposed river rock.

4. Another one of my favorite dumb ideas is to place french drains directly on the foundation wall.

This too just makes the groundwater run to the foundation and right down the wall. Usually this ploy is accompanied by a speech about underground rivers and a contention by the contractor that groundwater always exists at that level. If you buy into this, you will indeed prove this individual a sage. It will be a self fulfilling prophesy that there will always be water down at the base of the basement wall or in the crawlspace, which validates his statement that you need a sump pump installed. However it will be the groundwater that runs down the wall that is pumped, not underground springs. This guy usually wants you to do the sump pump right away as well. These two concepts go hand in hand to convince the homeowner that there is no way to stop mother nature. So pump that groundwater for life, and suck it up Mr. and Mrs. Homeowner. This program is always just plain bunk.

5. One of the worst things you can buy into is that using a ditch witch or trencher of some sort can excavate a french drain.

*Usually this ploy is
accompanied by a
speech about
underground rivers*

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A trencher cannot make grade. A ditch witch cannot engineer a slope, carve straight clean sides and a flat bottom. A ditch witch does not feel for utilities and cannot make decisions. A ditch witch does not have eyes or ears. A ditch witch cuts at the same depth and creates just what it says it will. A trench. This tool is fine for the placement of utility lines, but it does not belong on a home drainage job at all. Trenching a ditch will remove some of the standing groundwater off the surface, but it allows the groundwater to saturate deeper against the foundation making the home groundwater problem worse. This one is another pass, thank you.

*A ditch witch cannot
engineer a slope,
carve straight clean
sides and a flat
bottom*

6. Last, but not least, is the foundation footing drain proposal.

This guy also wants you to believe that the groundwater will always be at that level due to underground springs and rivers that run through your area, which was probably approved with the help of the county using geotechnical data to determine that no underground rivers or springs existed in the area prior to the approval of the building site.

This contractor will likely put a perforated pipe with a sock on it along the foundation footing after digging back the foundation and loosening the soil. Like the backhoe guy, this fellow will talk about springs below grade and underground rivers, and put rock or gravel right on the foundation wall. If loose soil is placed against the exterior foundation wall after this footing drain is completed, the soil will soak up groundwater around the foundation area more after this is done, creating a sponge effect and more saturation and hydrostatic pressure.

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If rock, sand, or gravel is placed directly on the foundation wall the groundwater will run directly below grade. The perforated pipe with the sock will be laid flat on the outside of the foundation footing and probably vent nowhere. No grade. No vent. No drainage success. The foundation area will also always be wet at the foundation footing without collection of the groundwater in the top 18" of the soil about 18" away from the foundation wall with a hand excavated french drain.

When you install hand excavated french drains properly and can raise and compact a better grade at the foundation, groundwater does not saturate next to the foundation wall creating hydrostatic pressure and leaking below grade into the crawlspace or basement. Hand excavated french drains upstage all these voodoo drainage tactics. Don't fall for one of these programs when you want results.

Machine excavation down to the foundation footing explored

One of the more common discussions that I have with homeowners concerning their home drainage problems, which almost always is a rainwater, groundwater created groundwater issue, is the foundation footing drain concept, and a contractors desire to machine excavate with a backhoe, or by hand, all the way down to the foundation footing. Seldom is this the right solution to attempt. My opinion is that unless the surrounding strata around the home is all rock that groundwater runs right

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through, and if there is soil at the foundation footing to hand excavate for a french drain with a grade of 2" Per 10 lineal feet to pull the groundwater away from the foundation footing, you are much better off collecting the groundwater in the top 2 feet of the soil around the foundation thereby preventing the saturation and hydrostatic pressure that causes the leaking.

This type of contractor usually has a backhoe and finds the days work with his butt parked on the backhoe much more profitable than getting that same posterior out of the seat and into the hand excavated french drain with a shovel.

Let's discuss the common logic given to the homeowner in this case.

Usually it starts with the conclusion advanced to the homeowner by the contractor that an underground spring exists. No talk of rainwater/groundwater saturation and hydrostatic pressure causing the leaking. This contractor will use the word "spring" over and over with the fervor of a preacher at the Sunday sermon.

His whole concept hinges on the homeowners acceptance of the premise that there is a spring that runs year round and that it is located way down where only a guy with a backhoe can get to it.

*Unless the
surrounding strata
around the home is
all rock, that
groundwater runs
right through*

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This is journey to the center of earth folks. He is likely to damage your foundation in the process too. This is just plain terrible home drainage. Here is why.

If the site was one of those extremely rare home sites that contain rock backfilled around the exterior foundation for many feet away from the foundation, the correct method would not be to dig the foundation to the foundation footing with a backhoe or by hand and put a perforated pipe at or below the foundation footing with no grade and no drywell. The correct thing to do from my perspective would be to dig out the rock around the foundation and replace it with dirt and clay, compacting it in lifts of about 6 inches up to the desired foundation grade needed. After the rock was replaced with dirt and clay for many feet away from the foundation, at least 15-20 feet, install hand excavated french drains to collect rainwater that turns into groundwater on the surface layers of dirt around the foundation footing and gravity flow it away from the home to a daylighted vent or drywell. That will prevent the saturation, hydrostatic pressure and leaking.

The proposal mentioned above comes up all the time. The proposal consists of a plan to machine excavate down to the foundation footing or below and place gravel, sand or river rock on the foundation wall, with a perforated pipe laid at the foundation footing, or below.

These contractors use the term footing drain. It may include placing a layer of tar on the foundation as well. Sealing a foundation wall with tar

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has its benefits, but I usually do not advise this without the installation of hand excavated french drains. In addition I almost never advise this unless there is sufficient foundation concrete repairs that need to be completed. Digging the soil around a foundation will not produce the best surface on which to run groundwater even if the soil is compacted when it is backfilled. It disturbs the bearing soil that makes a hand excavated french drain work most effectively.

Machine excavation with the foundation backfilled with rock is a method favored by some. I do not like the method because it removes too much soil and replaces it with rock that makes groundwater run directly down the foundation. Not a coincidence that the same type of contractor who said there were springs down there and that you needed to do this, also probably is ready with the proposal for the sump pump installation as part of this sell as well. After all, this guy is starting to look pretty good to a homeowner, like a deer, caught in the headlights of home drainage hysteria. He said there would be groundwater there and as part of his prediction, there is indeed the groundwater that he promised. So add more for another layer of failed home drainage science that does not address how to stop the groundwater entry in the first place. This type of groundwater proposal conveys the groundwater below grade from then on because they replace the soil which can run lots of water away from the home with a splash block and hand excavated french drain, with river rock.

This stores water against the foundation wall and foundation footing

*Digging the soil
around a foundation
will not produce the
best surface*

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causing worse groundwater drainage problems and foundation damage, as well as crawlspace and basement moisture and groundwater forever.

In other words, the footing drain must continue deeper than 8 feet from the base of the foundation footing, and get 2" deeper per 10 feet and still vent to a place where the groundwater can spill out on the ground surface below the home, or you need a huge drywell that the groundwater can vent into while maintaining the suggested grade. OSHA will not let you put a man in a hole over 4 feet deep without supporting sides for worker protection from cave ins. A machine cannot make straight clean sides and an engineered flat clean bottom grade. Checkmate. This is most often just not even possible to accomplish even for the best of the best. Some contractors may be able to get it done, but they are "quality contractors" all the way.

Did you get all that? Not an easy thing to do.

And even tougher to do with a machine, except the huge drywell, that is. This is a loser idea most of the time. It doesn't remove any groundwater at the grade level, like hand excavated french drains do, and therefore conveys water to the foundation footing forever because the groundwater doesn't run away from the exterior foundation walls, within the top layers of the soil, in depths of 8"-18", thereby cutting off the groundwater to the below grade areas.

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As a consequence of this type of construction done wrong, the groundwater just runs down the foundation wall to the below grade areas at the foundation footing and lays there. This happens whether you tar the foundation wall or not.

If there actually is an underground spring, which is very uncommon, a footing drain may be the answer, but even then you need a clean slope for the hand or machine excavated footing drain, and a clean down hill vent for groundwater removal and flow of the groundwater. Perhaps even a silt collection box installed as well.

As I have said, this is very rarely needed. Hand excavated french drains within the top layers of the earth around the exterior foundation wall collect more groundwater quicker, and cut off the drainage problem where it begins.

Subdivisions are created with geotechnical surveys that along with geology reports identify and exclude problem groundwater spring areas that become common area to the subdivision and are not granted lot status.

It is very unlikely you own a lot with groundwater problems caused by springs, or the home would never have been built there. Sure, maybe your lot slipped through the cracks of county due diligence, but that is on the rare and not common side of reality.

You want to collect that rainwater/groundwater at the surface when it is raining. Hand excavated french drains reduce the hydrostatic pressure and

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leaking. Your groundwater never gets below grade as a result, and therefore the footing drain is seldom needed unless a true underground source of water is always actually present, year round. Ask yourself this question. Do I see the groundwater entering year round, or when it has rained hard for many days? If you cannot answer the question with a yes to year round constant groundwater to some degree, you do not have a spring. Rains do accelerate springs through saturation, and that is why a problem area leaks when heavy rains are happening.

When the rains slow down or stop, the so-called spring also slows down and stops. Remove the groundwater from the surface layers of the soil around the exterior foundation wall and reduce the weight of the groundwater on the soil that becomes the hydrostatic pressure.

Compacting a good slope away from the foundation wall is necessary as well for proper groundwater removal against the foundation. Foundation footing drains on hillside homes make sense if they are installed and vented properly.

Many contractors just own a backhoe, and all they do is advise these types of machine excavations of the exterior foundation on every home. It is their bread and butter deal.

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Avoid placing plastic on basement walls, on the ground around foundations, or on exterior foundation walls

When the objective is to protect your homes foundation from groundwater damage, install hand excavated french drains in the proper areas and with the proper expertise. Hire a professional home drainage contractor/mason that is licensed, bonded, and insured for best results.

A common mistake is to think that placing plastic sheeting on the foundation wall, with or without tar, or on the ground around the foundation, will protect the foundation from groundwater damage, and keep groundwater from saturating below grade. This will not be the case, as groundwater actually is trapped behind the foundation wall and on the ground around the foundation. This causes the area to not dry out well and keeps the foundation wall or ground wet all the time. When the next rain comes, it does not take much groundwater to start the whole leaking and wetness problem again. The objective when installing exterior foundation french drains is to dry out the foundation wall all the way down to the foundation footing by starving this area of groundwater from saturating the outside of your foundation. A hand excavated french drain removes groundwater faster than it can soak in.

Moisture from groundwater will be retained in areas that contain plastic. These areas would have otherwise dried up when warm weather arrived. The addition of plastic sheeting traps moisture below grade, or behind the

A common mistake is to think plastic sheeting will protect the foundation from groundwater damage

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plastic sheeting, and causes mold and mildew to grow throughout the summer, subsequently continuing into the next cycle when the fall, winter, and spring rains return. The crawlspace or basement never dries out.

If hand excavated french drains are properly installed, the foundation will dry out all the way down to the foundation footing, which is the base of the foundation wall. Warm weather and air movement through the soil is needed to accomplish this.

The time required for this drying out to happen will depend on the severity of the groundwater saturation and the time of year.

Open the foundation vents during the warm summer months and open the basement windows at times throughout the summer as well for maximum ventilation. Close the foundation vents in the fall before the rains come. This practice allows air circulation and healthy drying out periods to evaporate accumulated moisture that causes mold, dry rot, and bad air.

Replace wet insulation that may have fallen down to the crawlspace floor. Replace wet moisture barrier, which is 6 mil. black plastic, and remove any wet items if groundwater enters your basement. Any wet carpet usually has to go. You will not be able to dry it out without professional heating devices made for that purpose, and even then you may not get it all dried out. This causes mold spores to thrive under the

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carpet. This is the worst thing you can do to your air quality within the home.

Stick to these basic items of due diligence, as well as making sure your downspouts are vented properly and that the home has a compacted splash block grade sloping away from the home for a least 18" from the foundation wall to the inside of your hand excavated french drain, and you will prevent foul air, mold and groundwater problems and dryrot in your home.

Inspect often, with the eyes of an informed homeowner. Better yet, call your professional home drainage contractor for a free periodic review of your property. Read this website course on home drainage problems and solutions and use knowledge as your best defense for groundwater problems.

Backhoe drainage ploy examined

I mentioned this backhoe excavation concept in the beginning of this e-book, but further examination is needed on this subject.

I recently had a discussion with a homeowner who said, "quite honestly, I am talking to many contractors about my home drainage problem, and one particular fellow wants to dig the entire foundation down to the foundation footing right against the wall with his backhoe, for many feet away from the foundation, what is your opinion of that method?"

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This was my response.

I do not believe in that method of groundwater drainage for the following reasons. When I asked the question of the homeowner, "do you experience groundwater entry throughout the year, even when it is not raining", he replied, "no I do not see any groundwater except when it rains hard". The answer from the homeowner that the groundwater problem is only evident when it rains hard for a couple of days, tells me that his problem is rainwater caused.

In cases where the homeowners contend that this backhoe solution worked for them, I would remind them that although they do not experience groundwater in their basement as a result, the reason is most likely due to the fact that the soil at the foundation footing is perking the groundwater through the dirt below the foundation footing. This may be enough success for this type of homeowner, but for me it is not success. It is the beginning of a greater problem in the future perhaps, depending on how well the groundwater perks. I would rather pull the groundwater away from the foundation with hand excavated french drains within the surface levels of the soil around the foundation and let the groundwater perk into the soil well away from the home.

I especially do not want groundwater perking under the foundation of my home. This process of perking under the foundation footing or basement floor will sink the foundation stem wall and spot footings if it has a crawlspace, and sometimes crack the basement floor.

*This may be enough
success for this type
of homeowner, but
for me it is not
success*

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It is very possible that worse structural damage from this type of construction is in the future for the homeowner. Sometimes it takes awhile, sometimes not.

The guy with the backhoe wants you to believe that the groundwater is coming in below grade all the time due to year round springs and rivers, and that it cannot be collected on the surface around the foundation. Groundwater is actually rainwater that saturates to that depth. This is because no hand excavated french drains are on the surface levels. Keep in mind, french drains vent the groundwater. This prevents the saturation that causes the groundwater problem below grade to occur in the basement or crawlspace.

According to this fellow, if you dig a huge ditch next to the foundation with no grade or vent, and put a large perforated pipe with a sock around the pipe, the problem will be solved. He will usually backfill the foundation area with dirt, gravel, sand or rock the entire depth to the foundation footing, and about 2-3 feet away from the foundation to the foundation wall. The ditch will not be a french drain or footing drain as he says because it lacks a hard finished clean bottom, straight sides and a grade that will carry the groundwater to a drywell or day lighted vent, which also will not usually be part of his grand plan. He cannot get a man in a ditch 8 feet deep as per OSHA standards without supporting the entire excavation, therefore he cannot make a grade or a clean hard bottom finished with a shovel. He is digging a big fat sloppy ditch.

*He is digging a big
fat sloppy ditch*

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He wants you to buy into the logic that by letting the groundwater run down along your foundation wall, with or without tar on the foundation wall, the groundwater will soak below grade at the footing and not pool up entering your basement or crawlspace. Sometimes the backhoe guy will not even explain where the groundwater is going because he knows it is not a good idea to perk it under the home unless the footing drain is installed by a professional and all other options to collect the groundwater on the surface layers have been ruled out due to rock around the foundation for many feet and where the homeowner does not want to pay for the excavation of that rock against the foundation and the replacement with dirt that is compacted prior to the installation of hand excavated french drains. If the backhoe deal is done, the groundwater will perk below grade only where the soil content perks well.

If it does not perk well, the groundwater will still back up into the basement or crawlspace. If the ground under the footing does perk the groundwater down, as I have said, you are perking groundwater under your foundation footing or basement floor. Not good.

The backhoe guy will destroy the ability for the groundwater to run off a splash block along the exterior foundation wall to be collected in a french drain that is properly installed.

He will disturb the dirt so badly against the exterior foundation that it will most likely prevent the installation of a hand excavated french drain with optimum performance.

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When you do the backhoe deal to your foundation area you will likely also need him to install a sump pump because you will indeed have more groundwater to deal with at or under the foundation or basement floor.

If the groundwater does soak in and you experience less, to no groundwater in your basement or crawlspace, this is both good and bad at the same time, as the groundwater coming off the surface around the foundation during hard rains is actually soaking below the foundation footings or basement floor.

Where did the objective of preventing the groundwater from coming in below grade go? It was already determined that rainwater saturation was causing the groundwater leaking, as the problem did not exist except when it was raining.

I have seen million dollar homes damaged in this fashion. Hand excavated french drains remove huge amounts of weight and groundwater from the top layers of the dirt and prevent the creation of hydrostatic pressure that causes the leaking.

If you are not treating the groundwater by removing it within the top layers of the dirt when it rains, you have no chance to reduce the hydrostatic pressure and you will always have groundwater below grade, even if it appears to be gone and has actually saturated below the foundation footing, as in the case of the backhoe method.

*I have seen million
dollar homes
damaged in this
fashion*

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The business of always having groundwater below grade feeds the backhoe guys original contention, because that is what he originally told you, that is the concept he wanted you to buy into from the start. His original contention usually is that there are springs and underground rivers always running groundwater below grade. Protect your budget, your homes infrastructure and your equity from this type of drainage concept.

When you do the backhoe deal, you do not get the benefit of taking soil and clay from the excavation of the drywell and french drain lines to be used in raising and compacting a better grade for run off at the foundation. In fact the grade is destroyed and allows the groundwater to run down the foundation wall through gravel, sand or rock in most cases without any soil to soak up groundwater at all next to the foundation during moderate to light rains.

The reason hand excavated french drains are excavated approximately 18" from the foundation wall is to allow the creation of the compacted splash block first that I described, against the foundation wall. The objective is to dry out the border of dirt under the splash block from the foundation wall to the inside of the hand excavated french drain all the way down to the foundation footing. When hand excavated french drains are installed, the border between the french drain and the foundation wall will dry out after starving it of groundwater due to the installation of the foundation splash block and the hand excavated french drain.

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Hand excavated french drains are your first defense, and in a huge majority of cases, the only groundwater defense needed to prevent groundwater entry below grade.

Bamboo planted near foundations cause drainage problems

If you have planted bamboo near your foundation, you are very likely going to have a case of the home drainage groundwater blues. Once bamboo is established, you are in for bad home drainage problems. Even neighbors can affect neighbors by planting bamboo. This is one of the worst things you can do to the health of your home and your foundation. The roots of the bamboo plant are extremely invasive.

I looked at a home yesterday that is the poster child for this home drainage problem. The bamboo plants were put in by a former homeowner just about 1 year before the home was sold to the present owner.

The basement has never had a history of leaking, although the slope of the land away from the home is not adequate, and two large window wells have no coverings. The groundwater problem is on the side of the home where the gable roof runs roof water right off the roof because the design has no gutters in that area.

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Never the less, the home is now in need of grading, hand excavated french drains, window well coverings, and killing the bamboo. The bamboo has penetrated the foundation border and is now a mass of roots running everywhere against the foundation. In time these roots will also crack the foundation wall itself and will be next to impossible to remove or kill.

This is a bad condition to come behind for the home drainage professional needing to install hand excavated french drains.

This also creates a problem for the homeowner unless all the bamboo and roots are successfully sprayed and killed. The soil that is excavated during the installation of the hand excavated french drains will have bamboo root pieces everywhere in the soil and therefore these pieces will start new bamboo plants everywhere the soil is used in the existing landscape. Bad ju ju folks.

Don't plant bamboo unless you contain it in something that will not crack, like concrete tubs that have no holes for the roots to penetrate. There are other plants that are poor choices for foundation plantings as well, but bamboo is at the top of my list.

For the best foundation health to prevent groundwater entry below grade, do not dig up the soil within 2 feet of the foundation area if you'll be planting anything. Compact a splash block away from the foundation to run groundwater from heavy rains to the hand excavated french drains placed approximately 18" from the foundation wall. Do not plant bamboo

*The bamboo had
penetrated the
foundation border*

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unless you want a bad case of the groundwater entry blues. Additionally bamboo can get you in serious hot water with your neighbors as the roots of bamboo will travel over 30 feet to affect neighboring home sites.

Don't leave drainage to home builders

When you are building a new home, contract directly with a licensed, bonded and insured home drainage contractor/mason for the installation of hand excavated french drains and grade work.

You should have the rain drain discharges installed in solid pipe, on the bottom of the hand excavated french drain, with a minimum grade of 2" per 10 lineal foot, rather than letting your builder just lay them flat around the outside of your foundation footing.

This difference is more than cosmetic. It makes all the difference with respect to how the rain drain discharges function. When the rain drain discharges are plumbed at the grade suggested above they are not likely to clog with average amounts of roof debris and overflow your gutters or rain drain discharges at the foundation where they are plumbed. Gutters should be cleaned often to prevent clogging your rain drain discharges with debris.

Cities and counties are obviously ignorant of this operational distinction as well, as they serve to support the status quo model for homebuilders allowing them to lay rain drain discharges, which is usually 3" abs pipe, flat along the outside of the foundation footing.

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Planners also seldom mandate the installation of hand excavated french drains although they sometimes recommend french drains by name without creating a distinction between ditches done with a machine, and a true hand excavated french drain.

The fact has been proven to me many times, city planners do not understand the significant difference in effectiveness and trouble free operation between a crude machine dug ditch called a french drain and a true hand excavated french drain.

As a practical matter and an environmental necessity, the roofwater flowing into the rain drain discharges from your gutters should be vented into drywells, stormwater retention ponds, or daylighted vents, so the groundwater can soak into the earth.

If you vent rainwater from your roof into a storm sewer system you are starving the ground of water storage around and under your home. If the home had not been built there, there would be no roof, consequently the rainwater would naturally water everything soaking below grade to replenish the water storage areas we pump from to get well water. The rainwater hitting your roof would not run off into a storm sewer.

It is for this reason that cities mandate the discharge of roofwater into stormwater retention ponds instead of storm

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sewers whenever possible. Times have brought city planners into some significant changes with respect to storm water retention ponds, and many of the subdivisions that I sold to developers were platted with storm water retention ponds as a condition of approval for the development.

Green science groundwater removal and storage is the name of the game for the 21st century. When putting roof water into storm sewers, you may also be back flowing sanitary sewers, which send contaminants to the Willamette River or other discharge bodies of water in your area.

Home builders most often do not take the time to install rain drain discharge systems correctly by creating hand excavated french drains with a proper grade and plumbing the rain drain discharges within the slope of the hand excavated french drain. Most builders are ignorant of the distinction, or it is simply not cost effective for them in their minds. Never the less, home builders as a group refuse to install them properly because they are not made to do so.

The home builder will flex, puff his chest out, buck, and snort spouting expletives about how he can do this work, but he likely will not know “diddley” about the installation of hand excavated french drains, which should only be installed by a home drainage professional who knows what they are doing.

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I am not attempting to be proprietary in that comment. The advice is for your own good.

Perimeter foundation hand excavated french drain and grade work around your home is the largest messed up area of construction within the home builders arsenal of tricks.

In 2007 the Oregon state legislature mandated that all homeowners are to receive a "home maintenance disclosure" from the builder when the home is completed if they are the first owner occupant of the home. The disclosure is discussed in detail within this website, but to paraphrase it in short form, the home maintenance consists of the builders acknowledgment that the homeowner will have additional costs to protect the home from groundwater drainage problems even when the home is brand new.

The home maintenance disclosure puts home drainage at the top of the list of items that home builders must now disclose as items they do not do well enough to prevent future problems.

The homebuilder lobby was lead kicking and screaming into this after a long fight in the state legislature to protect homeowners from bad home builder drainage attempts. Read more on this by entering 2007 or 2008 legislative summary.

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The new law went into effect actually in June of 2008, although it was passed into law in 2007.

There would already be 5 lifetimes of this home drainage work out there, even if I did not mention this.

If you want home drainage done properly, don't leave it to a homebuilder.

After 37 years of watching them mess it up, and make a career for me out of the necessity to solve home drainage problems caused by them, I know what I am talking about, folks.

If you do not elect to have a drainage professional install the hand excavated french drains and rain drain discharges when the home is built, be prepared to budget more cash in the future to do it right and solve the home drainage problems and the damage that the original poor attempt creates.

Why do you think that the Oregon state legislature drafted new drainage disclosure rules mandating that home builder contractors give an information disclosure, and an additional home drainage options report to the first occupant owner/buyers of all new construction in the state or Oregon.

This is long overdue.

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I sold land to developers for 25 years prior to starting this company. This has been a problem for decades. This disclosure is now mandated on new home construction only. Imagine how many old homes are affected by poor drainage and sold without sellers acknowledging home drainage problems.

Don't let home builders and their crews of 20 cheap labor guys do your home drainage if you want it done right. Pure and simple. Just reduce the amount that you would have paid them by the bid amount from a home drainage professional to do it right, and you will be better served. Amend your build agreement to reflect this prior to signing any contract for the builder to construct the home, or it will be too late.

Like I said, be prepared to be told by your builder that this is a lot of bunk. He will be obligated by ego to attempt to convince you otherwise. The builder industry has done such a poor job of installing home drainage, that the state legislature finally found the necessity to mandate that the homebuilders at least tell the homebuyers to be prepared for additional home drainage construction costs in the future, above and beyond the price of the home, and the maintenance disclosure lists some possible options for solving the problems that are created by them.

Don't let home builders and their crews of 20 cheap labor guys do your home drainage if you want it done right

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Tar coating foundation walls

A question that I am asked often concerns tar coating foundations. Is this process recommended? Will it keep the groundwater out of the basement?

Many contractors make a business out of this simple treatment, but does it really do any good? Let's examine this subject. I have a few opinions from my experience, and I will share them with you in hopes that you will make an informed decision when confronted by this technique as a possible way to keep groundwater out of the basement or crawlspace.

The coating of exterior foundation walls with tar is not required if the foundation grade can be raised with compacted dirt and clay, and hand excavated french drains are installed and vented in the correct areas around the exterior foundation walls in the proper way.

I am a mason as well as a home drainage contractor, although I do not bid standard masonry jobs, and only work on foundations that have suffered groundwater damage. I occasionally will do a post beam foundation reconstruction or a basement concrete wall reconstruction.

The coating of exterior foundation walls with tar is not required if the foundation grade can be raised with compacted dirt and clay

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If I am working on a foundation that has significant concrete foundation cracks in the wall that needs to be chiseled out and filled with an expandable concrete made for this purpose, I will tar the exterior foundation wall after the masonry work is completed, but I do not advocate tar placed on the foundation unless crack repair is needed and has been completed first.

I would not dig a foundation back just to tar the wall. The soil will never get compacted as tight as it was prior to the area being excavated, and subsequently groundwater saturates the soil on the foundation wall easier even if hand excavated french drains are installed after the area is compacted. Hand excavated french drains will work to prevent groundwater saturation if the foundation area is well compacted in lifts of about 6 inches when the soil is backfilled against the foundation wall, but it is not necessary to achieve results and therefore I do not charge homeowners for this procedure as I believe they do not need to spend the money on it unless the foundation needs to be repaired, in which case they have already paid for the foundation excavation. The only additional cost to them at that point is the tar.

The exterior foundation wall must be cleaned with a wire brush prior to the chisel work and the crack sealing. After this is accomplished, the exterior foundation wall should be tar coated, back filled with dirt and hand compacted in lifts of about 6 inches to the dirt grade, with the tar below the grade dirt level to the depth that the work was done or a bit lower.

*I would not dig a
foundation back just
to tar the wall*

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Tar coating by itself will most often not solve a groundwater drainage problem without crack repair work being completed if the structure has significant foundation cracks.

Hand excavated french drains are installed after the grade is raised and compacted as a splash block against and away from the foundation. Once completed, and in a huge majority of cases, this stops the groundwater without adding tar at all.

Another lesson to remember is that the painting of interior basement walls white with dry lock paint may look nice, but from a home groundwater drainage perspective that alone will not prevent groundwater from entering a basement without removing the groundwater on the outside of the foundation with a compacted splash block and hand excavated french drains.

In addition when you paint the interior basement walls with dry lock paint you will never be able to completely finish and skim coat the basement walls to reconditioned like new standard without the costly removal of this paint by chipping it off with a roto-hammer waffle bit, also removing lots of concrete chips with the paint.

This procedure must be done prior to the chiseling of cracks, patching and sealing of cracks, and stripping of the soft exterior of the bare concrete itself.

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The new concrete skim coating with a masonry adhesive will not stick to the dry lock paint. You must start with bare concrete to do this work. The process of getting basement walls ready for reconditioning is time consuming and expensive, so don't paint that rotten basement wall and expect a bid to restore the basement to be cheap. The cost is not cheap to begin with. Putting a new coat of lipstick on that pig will cost you in the end even more.

Underground sprinklers near foundation walls cause problems

If you live in the Northern hemisphere, it is summer, and the living is easy. Fish are jumpin, you know the rest of the song! As happy homeowners we water our lawns and bask in the sun in our backyards. Lemonade and puffy clouds are on our minds. Birds chirp, and butterflies flutter. We forget about home drainage problems and those nasty winter rains out of a need for a rest from the tiring thoughts of eventually having to deal with those home drainage issues before the rains and snow comes.

Take in this food for thought concerning your sprinkler systems. Most in-ground sprinkler systems are designed and installed by contractors that do not consider the homes' need for foundation drainage. Many of these installers place sprinkler pop-up heads inches from the foundation wall. In addition, landscapers cover the sprinkler heads with barkdust or dirt, making them a soggy below grade drainage problem.

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The logic from the sprinkler installers' point of view is sound. The sprinkler pop-up heads direct the sprayed water away from the foundation wall, and are designed to be directional, spraying away from the foundation. It's o.k. what's the problem Mr. Drainage Guy? In practice however, the sprinkler heads, many times, water only barkdust areas or dirt next to the foundation that soaks up water.

If sprinklers do water planted areas, many of these planted areas contain trees and shrubs that have roots making pathways along the foundation, and those roots provide pathways for rain and sprinkler water to run right down the roots to the foundation wall.

Sprinkler heads are likely to bleed out water after they are shut off as well. The water draining out of the sprinkler heads, especially sprinkler heads at the low end of the system, will keep those areas wet nearly all the time. When winter rains come, and the need to water goes away, the wet areas become areas prone to saturation and hydrostatic pressure during the rains or snow.

As a result, groundwater entry into crawlspaces and basements is greatly increased.

I love to see areas of flowers and plants adorning the areas near the foundation. I admit, they look great. It is great curb appeal. The caveat however is that there is a price to pay in terms of a dry foundation wall.

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Plants like bamboo are really bad for the foundation area. Large trees and other heavy rooting plants can lift, crack and destroy your foundation.

Cap the sprinkler heads that are very near or on the foundation wall and water the plants in that area with the hose. This will produce a drier crawlspace or basement. I like to see homeowners install hand excavated french drain groundwater removal systems approximately 18"-24" from the foundation wall, and create a compacted splash block of soil or clay from the foundation wall to the inside of the french drain.

I advise you and your landscapers not to excavate into the sides of your french drains while planting. Counsel your landscapers to not dig into the sides of your hand excavated french drains. Make it a point that they understand and acknowledge this . This practice can cause the hand excavated french drains to silt in places, and work less effectively over time.

Use exposed rock for maximum groundwater collection. It still becomes groundwater just like rain when over watered areas saturate and produce hydrostatic pressure against the exterior foundation walls. subordinate some of the need to have foundation plantings to your home drainage requirements for a healthy home and more monetary and structural value in your home as a result of proper management of sprinkler systems near your foundation.

Plants like bamboo are really bad for the foundation area

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We call the planted areas on our foundation curb appeal, but many times they can be part of a destructive process for your foundation, crawlspace and basement if not done well and treated right.

Backfilling foundations with rock, gravel, or sand is often bad drainage

A rare but occasionally present home drainage problem for homeowners in areas of persistent hard rainfall is the building site and foundation that has been backfilled against the foundation, and around the home or apartment building, with rock, sand, or gravel to very deep depths. In other words, the entire building site consists of native or added rock to a deep depth. If the entire homesite was supported with rock for stability during the foundation construction of the home, this can be a major detriment to the success of any hand excavated french drain.

Most often this is done during the original construction of the home. Hillside locations are often ruined from a home drainage perspective in this manner.

Placing gravel, sand, river rock, or crushed rock right on the foundation is not advised from a home drainage perspective, as this makes groundwater run right down the foundation wall below grade into the crawlspace or basement.

If the entire homesite was supported with rock for stability during the foundation construction of the home, this can be a major detriment to the success of any hand excavated french drain.

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When it is advised it is done in conjunction with a foundation footing drain that is professionally installed in conjunction with a hand excavated french drain to vent the groundwater away from the foundation footing once the groundwater runs to that depth.

The foundation footing drain is a last resort, when there is no way to install hand excavated french drains to remove groundwater on the surface levels. When groundwater cannot be held on the bottom of the hand excavated french drain, this may be the only solution unless the homeowner really wants to do it right and machine excavate all the rock out, replace and compact the foundation area with dirt that replaces the rock, and then install the hand excavated french drains to prevent the saturation and hydrostatic pressure of rainwater that turns to groundwater next to the foundation.

Finding homes or apartment buildings with river rock placed directly on the foundation as part of a poorly constructed french drain, and not the entire building site around the home is not so rare. Contractors unfamiliar with home groundwater drainage have done this for years, and even if the rock goes all the way to the foundation footing, it can be excavated out and replaced with dirt or clay that will run the rainwater on the surface on a newly constructed splash block away from the foundation into a newly installed hand excavated french drain. This is expensive and time consuming.

The installation of hand excavated french drains with a bottom layer of bentonite clay powder will do much to remove groundwater while sealing

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off the bottom of the hand excavated french drain to saturation below grade in areas that cannot be excavated below grade to remove all the rock during the hand excavated french drain installation while still keeping a proper groundwater drainage grade to vent the hand excavated french drain into a 4 foot deep by 4 foot in diameter drywell or to a daylighted vent below the home.

When the entire area surrounding the building site has been machine excavated to pour a foundation and the builder has backfilled the entire foundation area, as well as many feet away from it, with rock all the way down to the foundation footing, you have a real large home drainage problem.

Since a hand excavated french drain groundwater removal system starts with the excavation of a drywell and proceeds up grade along the building about 18" from the foundation wall, the problem of the backfilling of the foundation area with crushed basalt, river rock, or 3/4" minus gravel on and away from the foundation is not discovered until the hand excavation has proceeded along the foundation. This may be a day or two into the installation process. Bad news for everyone. This is pick and shovel work at its hardest.

If the rock is deep all the way to the foundation footing, the drainage contractor cannot excavate it out and replace it with dirt and clay which would give the hand excavated french drain a hard bottom on which to flow the groundwater to the drywell or day lighted vent.

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As a result, what works best is to line the bottom of the hand excavated french drain with bentonite which is a product sold by Mason Supply Co. to contractors only. When used sparingly, bentonite soaks up 7 times its weight in groundwater and forms a clay seal on the bottom of the hand excavated french drain where otherwise the groundwater would soak right through the rock and run below grade.

See other articles on this website about the dangers of putting rock around or on your foundation wall, excluding a properly constructed hand excavated french drain with a compacted splash block.

While this bentonite process works in many cases, it is not a silver bullet cure when historically high seasonal rains saturate the area around the building for many feet around the building where this groundwater entry problem exists.

Sometimes developer builders backfill areas to provide structural stability for the hillside, other times the reason is just plain ignorance of groundwater drainage and the geology of groundwater hydro-dynamics.

When groundwater can run right through the rock for many feet, all the way to the foundation footing, the only available alternative that I know of is to have the entire foundation wall and the area away from the foundation wall excavated with a machine until there is no more rock left. A foundation footing drain with a grade, not laid flat on the outside of the

*It is not a silver
bullet cure*

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foundation footing, should be installed as well, if an appropriate place to vent the footing drain can be chosen.

It is also a good idea to have a hand excavated french drain installed again after all the dirt replacement and grading is completed, and after the footing drain work has been accomplished by a home drainage professional.

This mass machine excavation and rock removal must be done, depending on other considerations of subjacent and lateral support for the hillside and building pad, until no more of this rock exists all the way down to the foundation footing and below without undermining the foundation footing.

River rock is placed in a footing drain excavation just below the foundation footing, but it is placed within a clean graded hand excavated french drain footing drain that slopes deeper than the foundation footing away from the foundation. If gravity can not be achieved, the groundwater from the footing drain must be pumped out.

Gravity flowing from the foundation footing drain usually puts the vent far below grade to the footing, and into a machine excavated drywell or sumpwell in order to get the groundwater vented. Expensive and extensive major foundation surgery.

When completed, the area on and away from the foundation is backfilled with a heavy clay soil that is compacted and graded away from the

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foundation at a grade of at least 6" per 10 lineal feet away from the foundation.

The installation of a hand excavated french drain is advised to remove surface groundwater after the backfilling and compacting with dirt. The hand excavated french drain on the outside of the exterior foundation wall is located about 18" from the foundation wall.

Caution must be taken by the machine operator not to damage the foundation, and this requires a high degree of skill. Much of the excavation against the foundation wall must be done by hand anyway in conjunction with the machine work.

If you know that your building has this condition and you hire a drainage contractor without disclosing this, you are not being legally or ethically fair to the drainage contractor who has to deal with it. The construction of the hand excavated french drain will be much over budget to the contractor as this condition is rare, not bid in, and many times is covered by years of soil accumulation from dirt and washed in leaves which makes it impossible to suspect or ascertain when the property is reviewed.

The contractor may be obligated to bare the additional cost by not raising the bid, but in all good faith, the drainage contractor may not be able to offer you a perfect cure for a condition that is severe with respect to the groundwater drainage of your building site and foundation area with this condition without first removing the rock and replacing it with compacted dirt.

*Caution must be
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From the homeowners perspective this is seldom a condition that is suspected as well, and is really a bad blow for the buyer of this kind of building. Many times homes are roofed over dry rot joists that a seller refused to replace because of cost as well, and homeowners suffer the same kind of abuse when buying into that problem. The pest dryrot and structural inspector will seldom find these types of rot throughout the building site and will not discover the problem while the real estate transaction is in progress.

Crawlspace and basement french drains with sump pumps

Crawlspace french drains and sump pumps are seldom required and are always a last resort and not a first home drainage solution plan. Groundwater that enters below grade into basements and crawlspaces must be collected and vented on the outside of the building with hand excavated french drains in order to stop the groundwater saturation and hydrostatic pressure that causes the leaking.

If you do not have properly installed hand excavated french drains and rain drain discharges on the outside of the home, you are advised to install these systems properly prior to consideration of any crawlspace or basement french drain groundwater collection system, which is usually installed in conjunction with a sump pump to evacuate the groundwater.

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The hand excavated french drain is installed about 18" from the foundation, it is approximately 12" in width, and contains a 3" perforated pipe, weed cloth about 4 inches from the top layer of the rock in the hand excavated french drain, and a completely clean engineered grade of 2" per 10 lineal feet, with a compacted grade splash block away from the exterior foundation wall.

If you are not approaching your groundwater problem from the correct perspective, you will not achieve professional results.

Crawlspace and basement groundwater problem areas with home drainage systems installed are limited in their scope of effectiveness, with respect to the extended length and the shallow depth required for any french drain installed in a basement or crawlspace.

The engineering does not work well. You can get deeper, and collect more groundwater on the outside of the foundation than in any below grade area such as a crawlspace or basement, and that cuts off the groundwater before it can saturate below grade and cause leaking.

In addition, some groundwater is always soaking from sump pump wells into the soil within your crawlspace, or sitting in them as the sump pump never pumps out all the groundwater.

This creates added moisture and mold in your crawlspace. The measured utility value in a crawlspace or basement french drain system is low,

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compared to hand excavated french drains, properly installed and engineered on the outside of the foundation.

Does the contended spring run year round, or does it show up when the rains come hard after a few days?

If you can go in the crawlspace or basement and see the spring running in the hot parts of July and August when we have had no hard rain for sometime, you may indeed have what you could call an underground spring.

That completes the list of the most common home drainage ploys and proposed concepts advanced by contractors or scam artists, that I feel are most often misunderstood, misrepresented, undefined, and often cause homeowners to lose money, home equity, patience, and sleep in their quest for a solution to their home drainage groundwater problem.



Well folks, that is the laundry list of what not to do or buy into with respect to sound home drainage solutions and expectations.

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I hope this will raise your groundwater removal consciousness to the level that you will understand the terminology, scams, eventualities, possibilities, pitfalls, persuasions, and motivations behind every home drainage pitch and proposed technology.

Learn to see a bear behind every tree, and you will be better prepared to ask questions of home drainage contractors and have the ability to undermine their shallow tactics based on greed and the need to make easy money at your expense.

Remember, the important thing is to fix the problems now... *before* the water arrives and damage occurs.

AAA Home Drainage offers onsite worldwide consultation services available to homeowners with home drainage problems.

Design, engineering, and installation of hand excavated french drain groundwater removal systems. Bonded, licensed, and fully insured for your peace of mind.

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Darrel R. Lundeen is a licensed, bonded and insured drainage contractor in the Portland, Oregon greater metro. area USA.

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Mr. Lundeen concluded his career as a commercial-investment and residential real estate broker over a 25-year period while marketing and developing commercial-investment land and structures, residential land and homes, subdivisions and multi-family properties, as well as a golf course. Mr. Lundeen has been a member of the National Association of Realtors, The Oregon Association of Realtors, a CCIM commercial real estate appraisal candidate, and an active member of the Oregon real estate community structuring IRC 1031 Tax Deferred Exchanges for Oregon clients.

His specialty was selling land to developers in the Portland metro area, which he concluded in the late 1990's, because of a desire to serve the home drainage needs of many customers requesting referrals to competent parties. Mr. Lundeen has a foundation for his expertise in the drainage field of over 35 years involved with various aspects of real estate, both

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commercial and residential, water mitigation for residential and commercial development, and home drainage techniques specific to the use of hand excavated french drain groundwater removal systems.

He served the U.S. Air Force during 1967-1971 in the capacity of munitions supervisor, handling and loading explosives for inspection, storage, disposition, and repair; while holding a secret clearance, stationed various places around the United States and southeast Asia.

Mr. Lundeen has represented a wide range of apartment and condominium associations, businesses, residential and commercial developers, governmental agencies, an Oregon governor, as well as homeowners with groundwater removal construction projects, specializing in the installation of hand excavated french drains. Mr. Lundeen continues to be a consulted and respected expert witness by the legal community in Oregon pertaining to home drainage issues.

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