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You are building a tiered or terraced wall. Surface water also needs to be accounted for. Check for any gutter downspouts nearby and check where water drains within your property to ensure water is diverted away from your wall. If there is a downspout behind your wall, plan to install an additional pipe to outlet water to the front of the wall. Do not use a perforated pipe to transport water from a downspout behind the retaining wall. Use swales or berms to redirect surface water away from the wall. When possible, place the swale or berm is at least two times the wall height (2H) away from the wall face. If a swale or pipe is impracticable, plan to install a drainage system behind the wall. A drainage system consists of several key components: drainage stone, filter fabric, perforated pipe, and outlets through the wall face. Before we dive into these components, remember NEVER use grout between the blocks on segmental block walls. 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Water pooling in weird places?Grass squishing under your shoes?Plants gasping for air like theyre drowning?Yeah, your backyard is crying for help. The good news: you dont need to rip everything out or call in a bulldozer.Smart, simple fixes can get that water flowing where it shouldwithout draining your wallet dry. From clever grading tricks to quick DIY French drains, there are plenty of ways to rescue your yard and keep it looking sharp.(And trust me, your foundation, your plants, and your sanity will thank you.) Ready to kiss those muddy puddles goodbye?Lets jump into 11 affordable ways to finally dry out your yard and save your weekends from soggy misery. This Old House Consider the charm of a French drain, a classic solution for soggy backyards. This simple system uses a gravel-filled trench and a perforated pipe to redirect water away from trouble spots. As rain pours, the water gracefully finds its path into the pipe, guided by gravity. This elegant method is both affordable and effective, making your yard a haven even after heavy showers. With a bit of elbow grease, installing one can be a satisfying weekend project. Imagine the satisfaction of seeing puddles disappear, replaced by lush, dry grass. Better Homes & Gardens A rain garden is more than just a drainage solution; its a work of art. These gardens capture runoff and allow it to soak into the ground, reducing erosion and improving water quality. Plant native species that thrive in wet conditions, adding beauty and biodiversity to your backyard. Picture the vibrant colors and textures as butterflies and birds visit your garden oasis. This eco-friendly approach not only solves drainage issues but also supports local wildlife, turning your yard into a thriving ecosystem after each rainfall. Better Homes & Gardens Transform your drainage problem into a landscape feature with a dry creek bed. These faux riverbeds channel water naturally, using strategically placed rocks and stones to guide the flow. As rainwater fills the creek, it creates a soothing, natural ambiance. When dry, it becomes a charming decorative element in your garden. This low-cost solution mimics nature and adds a rustic touch to your yard. Its a practical and aesthetic way to manage excess water, ensuring your landscape remains lush and inviting. Minnesota State Horticultural Society Rain barrels are a smart way to manage stormwater while conserving resources. By capturing rain from your roof, you prevent water from pooling in your yard. This sustainable practice not only helps with drainage but provides free water for your garden. Picture the barrel, neatly tucked away, collecting precious droplets during a storm. Its both practical and eco-friendly, reducing your water bill and nurturing your plants. With various sizes and designs, these barrels are an easy addition to any home, making water management a breeze. Cricket Pavers Permeable pavers are paving the way for better drainage solutions. These innovative blocks allow water to seep through, preventing runoff and puddling. Imagine a beautifully crafted patio or driveway that not only looks great but also helps manage water. The spaces between the pavers facilitate drainage, turning your hardscape into a sustainable feature. This modern approach not only reduces water issues but also adds a touch of elegance to your landscape, blending function with style effortlessly. Elite Foundation Repairs Retaining walls are more than just structural elements; they are powerful allies in drainage. By holding back soil, they prevent erosion and control water flow. Picture a sturdy wall, harmonizing with your gardens design, while effectively redirecting water. Built from stone, brick, or timber, these walls offer both durability and aesthetic appeal. With thoughtful placement, they can transform slopes into usable terraced spaces, enhancing your landscapes beauty and functionality. Its a practical solution that supports both your soil and style. Shelterness Living fences, or hedgerows, are natural barriers that can significantly improve drainage. By absorbing water and reducing surface runoff, they keep your yard dry and vibrant. Imagine a thick, green hedge that not only offers privacy but also supports soil health. These living fences are composed of shrubs and small trees, creating a lush, sustainable border. As the plants thrive, they intercept rainwater, allowing it to slowly seep into the ground. Its a delightful way to combine function and beauty in your garden. The Spruce Mulching is a gardeners secret weapon against poor drainage. A thick layer of organic material keeps soil loose, improving water absorption and reducing runoff. Picture your garden beds, blanketed in rich, earthy mulch, protecting roots and retaining moisture. This affordable technique not only enhances soil quality but also adds visual appeal. As the mulch breaks down, it enriches the soil, promoting healthy plant growth. Its a simple yet effective way to manage water and nurture your garden, all while enhancing its natural beauty. Permaculture Design Course Handbook Swales are natures drainage ditches, cleverly designed to redirect water. These shallow, grass-lined channels follow the contour of your land, guiding rainwater away from problem areas. Visualize a gentle slope, adorned with grasses and wildflowers, seamlessly blending into your landscape. As rain falls, the swale springs into action, channeling water to where its needed most. This natural solution is both functional and beautiful, enhancing your yards aesthetic while effectively managing drainage. Its an innovative way to keep your property dry and thriving. High Country Gardens Groundcovers are versatile plants that excel in solving drainage issues. They spread across the soil, preventing erosion and aiding in water absorption. Imagine a lush carpet of green, dotted with flowers, covering your gardens bare spots. These hardy plants thrive in challenging conditions, reducing runoff and adding beauty to your landscape. With diverse textures and colors, groundcovers are a gardeners ally, offering a low-maintenance solution to water woes. They transform your yard into a vibrant tapestry, ensuring your garden remains resilient and attractive. Landscaping Network Gravel pathways offer a charming solution to drainage problems. These rustic paths allow water to filter through, reducing surface runoff. Picture a winding path of gravel, meandering through your garden, offering both function and charm. As rain falls, the gravel absorbs the water, preventing pooling and erosion. This simple addition enhances your yards accessibility and aesthetic appeal. Its a cost-effective way to manage drainage while creating inviting walkways that connect different areas of your landscape with grace. Retaining walls commonly face structural integrity issues, including bulging, leaning, cracking, and drainage system failures. Improper soil compaction, inadequate wall construction, and insufficient drainage often lead to these problems. Soil erosion, subsidence, and weather-related deterioration can exacerbate structural weaknesses. Solutions involve improving drainage systems, reinforcing wall structures, and addressing soil stabilization. Regular inspections and prompt remediation are indispensable to prevent wall collapse. Proper construction techniques, appropriate material selection, and effective water management are essential for long-term wall stability. Understanding these issues and their remedies is pivotal for maintaining the functionality and safety of retaining walls in various landscapes and property settings. Walls Contractor HighlightsStructural integrity issues like bulging or leaning can be fixed with additional support structures or wall reconstruction.Drainage problems, including clogged systems, can be resolved by cleaning or installing new drainage pipes and weep holes.Soil erosion and subsidence issues require proper vegetation, soil stabilization techniques, and addressing underground water sources.Cracking and deterioration can be prevented by using quality materials, adding expansion joints, and protecting against freeze-thaw cycles.Improper soil compaction and wall construction problems may necessitate partial rebuilding or reinforcement of the wall and foundation.Structural Integrity of Retaining WallsThe structural integrity of retaining walls is essential for their long-term performance and safety, with several key indicators signaling potential issues. Wall bulging or leaning, cracks and fractures, and drainage system failures are among the most common problems that can compromise a retaining wall's stability and effectiveness. Implementing landscape design expertise during construction can mitigate these risks and enhance both the functional and visual purposes of the wall.These issues, if left unaddressed, can lead to significant structural damage, soil erosion, and even complete wall collapse, highlighting the importance of regular inspections and prompt remediation efforts.Wall Bulging or LeaningBulging or leaning retaining walls signal serious structural integrity issues that require immediate attention. These deformations often result from excessive soil pressure, inadequate drainage, or poor construction techniques. As homeowners and property managers, we must recognize the importance of addressing these issues promptly to prevent catastrophic failure and guarantee the safety of our communities.To rectify a bulging or leaning retaining wall, a thorough assessment is necessary. This evaluation typically involves soil testing, structural analysis, and examination of drainage systems. Based on the findings, solutions may include installing additional support structures, such as anchors or tiebacks, to counteract soil pressure. Improving drainage through the implementation of weep holes or French drains can alleviate hydrostatic pressure, which often contributes to wall deformation. In severe cases, partial or complete reconstruction of the wall may be required, incorporating proper engineering principles and high-quality materials to ensure long-term stability. By addressing these issues proactively, we not only protect our investments but also contribute to the overall safety and aesthetic appeal of our neighborhoods.Cracks and FracturesBeneath the surface of a seemingly stable retaining wall, cracks and fractures can silently compromise its structural integrity. These defects, often imperceptible to the untrained eye, can develop due to various factors including soil pressure, water infiltration, and inadequate construction techniques. As members of a community invested in the longevity of our infrastructure, it's indispensable to recognize the signs and implications of these structural issues.Cracks may manifest as hairline fissures or more substantial separations, typically running vertically or diagonally across the wall face. Horizontal cracks are particularly concerning, as they may indicate imminent failure. Fractures can occur at weak points such as corners or joints, potentially leading to sections of the wall separating entirely. To address these problems, a thorough assessment by a qualified engineer is essential.Solutions may involve injecting epoxy into smaller cracks, applying carbon fiber reinforcement for larger fissures, or in severe cases, partial or complete reconstruction of the affected areas. By proactively identifying and remedying cracks and fractures, we guarantee the continued stability and safety of our retaining walls, preserving both property value and community well-being.Drainage System FailuresWhile cracks and fractures pose considerable risks to retaining walls, another critical issue that can compromise their structural integrity is drainage system failure. Proper drainage is essential for maintaining the stability and longevity of retaining walls, as it prevents the buildup of hydrostatic pressure behind the structure.When drainage systems malfunction, water accumulates in the soil, leading to increased lateral pressure and potential wall failure.Common causes of drainage system failures include clogged weep holes, damaged or incorrectly installed drainage pipes, and inadequate grading around the wall. These issues can result in soil erosion, settlement, and ultimately, wall collapse.To address drainage problems, homeowners and contractors should regularly inspect and clean weep holes, ensuring they remain unobstructed. Additionally, implementing an extensive drainage solution, such as installing a perforated pipe system wrapped in geotextile fabric, can effectively channel water away from the wall's foundation. Proper grading techniques, including creating a slight slope away from the wall, further enhance drainage efficiency.BenefitsRetaining walls offer numerous advantages that extend beyond their primary function of soil retention. These structures can vastly increase property value by creating visually appealing landscapes and maximizing usable outdoor space, while simultaneously providing essential soil stabilization and erosion control.Additionally, they can be constructed from various materials such as limestone, which enhances the aesthetic appeal and provides durability and weather resistance. Moreover, well-designed retaining walls play a pivotal role in water management, effectively redirecting surface runoff and preventing water-related damage to foundations and surrounding areas.Increased Property ValueAlthough often overlooked, a well-constructed retaining wall can considerably boost a property's value. These structures not only serve practical purposes but also contribute to the overall aesthetic appeal and functionality of a landscape. By effectively managing soil erosion and creating usable space on sloped terrain, retaining walls enhance the property's potential for landscaping and outdoor living areas. This increased usability translates directly into higher property valuations, as potential buyers recognize the added benefits and versatility of the land.Furthermore, a professionally designed and installed retaining wall demonstrates a commitment to property maintenance and improvement. This can instill confidence in prospective buyers or appraisers, potentially leading to higher offers or valuations. The added curb appeal created by an attractive retaining wall can also make a property stand out in a competitive real estate market. Additionally, by mitigating potential soil stability issues, these structures can reduce long-term maintenance costs and liabilities associated with erosion or landslides. This enhanced safety profile and reduced risk factor can be particularly appealing to insurance companies and mortgage lenders, potentially resulting in more favorable terms for property owners.Enhanced Outdoor Living SpaceBeyond the financial benefits, retaining walls offer significant improvements to outdoor living spaces. These structures create level areas in sloped terrain, expanding usable land for various outdoor activities. Homeowners can transform previously unusable slopes into functional patios, gardens, or seating areas, enhancing the overall enjoyment of their property.Retaining walls also provide opportunities for creative landscaping designs. By incorporating built-in planters or terraced gardens, they add visual interest and depth to outdoor spaces. These features can be customized to complement the home's architecture and personal style preferences, creating a cohesive and attractive outdoor environment.Additionally, retaining walls can be utilized to define separate areas within a yard, such as delineating a play area from a dining space or creating intimate nooks for relaxation. The added structure and organization contribute to a more inviting and versatile outdoor living area. Consequently, by maximizing the usable space on a property, retaining walls allow homeowners to fully leverage their outdoor areas, potentially reducing the need for interior additions and encouraging a stronger connection with nature.Improved Soil StabilizationSoil erosion poses a significant threat to property integrity, but retaining walls offer an effective solution for improved soil stabilization. These structures provide a robust defense against the relentless forces of nature, preventing soil displacement and maintaining the structural integrity of landscapes. By implementing a well-designed retaining wall, property owners can substantially reduce the risk of landslides, soil subsidence, and other erosion-related issues that may compromise the safety and value of their land.Retaining walls accomplish soil stabilization through various mechanisms. They redistribute the lateral earth pressure, effectively holding back soil masses and preventing downslope movement. This is particularly pivotal in areas with steep gradients or unstable soil compositions. Additionally, these structures facilitate proper drainage, directing water away from vulnerable soil areas and minimizing the potential for water-induced erosion. The enhanced stability provided by retaining walls also allows for the cultivation of vegetation on otherwise precarious slopes, further reinforcing soil cohesion through root systems. Ultimately, the implementation of retaining walls as a soil stabilization measure not only protects property but also contributes to the overall ecological balance of the landscape.Better Water ManagementEffective water management stands as a paramount benefit of well-designed retaining walls. These structures play a pivotal role in mitigating soil erosion, preventing water accumulation, and safeguarding property integrity. By implementing superior drainage systems, retaining walls efficiently channel water away from vulnerable areas, reducing the risk of soil saturation and subsequent instability. This proactive approach not only extends the lifespan of the wall itself but also protects surrounding landscapes and structures from potential water damage.Incorporating proper water management techniques into retaining wall design involves the strategic placement of weep holes, the installation of perforated drain pipes, and the use of granular backfill materials. These elements work in concert to facilitate the controlled movement of water, preventing hydrostatic pressure buildup behind the wall. Additionally, the integration of swales or catch basins at the base of the wall can further enhance water diversion capabilities, ensuring that excess runoff is directed to appropriate drainage outlets. By embracing these advanced water management solutions, property owners can drastically reduce maintenance requirements, minimize the risk of structural failure, and create a more resilient and sustainable landscape environment.Proper Drainage System InstallationA proper drainage system is essential for the longevity and stability of retaining walls. To achieve optimal drainage, it is vital to install drainage pipes, use appropriate backfill material, and incorporate weep holes into the wall's design. The following table outlines key considerations for each of these critical drainage components:ComponentPurposeBest PracticesCommon MaterialsMaintenanceDrainage PipesRedirect water away from wallInstall behind wall at regular intervalsPerforated PVC or corrugated pipeRegular cleaning and inspectionBackfill MaterialAllow water to flow freelyUse clean, granular materialGravel or crushed stonePeriodic compaction checkWeep HolesAllow water to exit wall faceSpace evenly along wall basePVC pipe or preformed insertsClear debris regularlyFilter FabricPrevent soil erosionPlace between soil and backfillGeotextile fabricReplace if damagedSlope GradingDirect surface water awayCreate positive slope from wallN/AMaintain proper grade over timeInstall Drainage PipesProper installation of drainage pipes is paramount to the longevity and effectiveness of any retaining wall system. These pipes serve as indispensable conduits for redirecting water away from the wall's foundation, preventing hydrostatic pressure buildup that can lead to structural instability.When installing drainage pipes, it is essential to use perforated pipes with a minimum diameter of 4 inches, positioned at the base of the wall and surrounded by a layer of gravel or crushed stone. The pipes should be laid with a slight downward slope, typically 1/4 inch per foot, to guarantee proper water flow. It is advisable to wrap the pipes in a geotextile fabric to prevent soil particles from clogging the perforations.The drainage system should extend beyond the ends of the wall and discharge water at a safe distance from the structure. Regular maintenance, including periodic inspection and cleaning of the pipes, is indispensable to maintain ideal performance. By implementing a well-designed drainage pipe system, property owners can considerably reduce the risk of water-related damage to their retaining walls, ensuring the longevity and stability of these essential landscape features.Use Proper Backfill MaterialSelecting appropriate backfill material is essential for guaranteeing the stability and longevity of retaining walls. The choice of backfill can drastically impact the wall's performance, drainage capabilities, and overall structural integrity.Ideal backfill materials include well-graded, granular soils such as crushed stone, gravel, or sand. These materials provide excellent drainage properties and reduce the hydrostatic pressure behind the wall.When selecting backfill, it's indispensable to avoid clay-rich soils, organic matter, or any materials that retain excessive moisture. These unsuitable materials can lead to increased lateral pressure, compromising the wall's stability over time.Additionally, proper compaction of the backfill is paramount. Each layer should be compacted to the appropriate density, typically 95% of the maximum dry density, to prevent settlement and ensure uniform load distribution.Homeowners and contractors alike should be aware that using the correct backfill material not only enhances the wall's performance but also contributes to its longevity, potentially saving considerable costs in future repairs or replacements. By adhering to these backfill guidelines, property owners can protect their investment and maintain a safe, functional retaining wall for years to come.Incorporate Weep HolesIncorporating weep holes and a proper drainage system is essential for maintaining the structural integrity of retaining walls. Without adequate drainage, hydrostatic pressure can build up behind the wall, leading to potential failure. Weep holes allow water to exit, reducing this pressure and preventing moisture-related issues such as erosion and frost heave.A well-designed drainage system typically includes a perforated pipe at the base of the wall, surrounded by gravel or crushed stone, which directs water away from the structure.To guarantee effective drainage, consider the following steps:Install weep holes at regular intervals along the base of the wallPlace a layer of gravel or crushed stone behind the wall to facilitate water movementIncorporate a perforated drain pipe at the base, sloped to direct water away from the wallUse a geotextile fabric to prevent soil from clogging the drainage systemWalls Contractor FAQHow Often Should Retaining Walls Be Inspected for Potential Issues?Retaining walls should be inspected annually by homeowners and every 2-3 years by professionals. Regular checks help identify issues early, ensuring the safety and longevity of your property. Join the community of proactive homeowners by scheduling inspections today.Can Plants or Trees Be Safely Planted Near Retaining Walls?Planting near retaining walls can be done safely with careful consideration. Choose shallow-rooted plants and maintain a proper distance to avoid root damage. Consult a landscaper for guidance on suitable species and placement to enhance your outdoor space.What Materials Are Best for Constructing Long-Lasting Retaining Walls?Durable materials for retaining walls include:Reinforced concreteNatural stoneInterlocking concrete blocksPressure-treated timberThese options offer strength and longevity, ensuring your wall remains sturdy for years. Choose based on your budget and aesthetic preferences.Are Permits Required for Building or Repairing Retaining Walls?Permits for retaining walls are often required, depending on local regulations and wall height. It's best to consult your city's building department to guarantee compliance. This step demonstrates responsible homeownership and community-mindedness.How Do Freeze-Thaw Cycles Affect Retaining Wall Stability and Maintenance?Freeze-thaw cycles can greatly impact retaining wall stability by causing soil expansion and contraction. This process may lead to cracking, shifting, or bulging in the wall structure. Regular inspections and proper drainage are essential for maintaining wall integrity. Water is the major cause of retaining wall failures. Below is a stone wall that failed due to improper drainage behind the wall. The combination of the ground sloping toward the wall, no drainage stone behind the wall, and no clear weep holes or drainage outlets lead to this wall failure. Due to the height of this wall, the pressure that built up behind the wall due to water sitting behind the stones caused this blow out. Every retaining wall should include drainage stone behind the wall. Though it is a good idea to install a drainage pipe on all walls, there are certain situations where a perforated drain pipe is absolutely necessary. Below are several scenarios that require a drainage pipe behind the wall: Walls with a height greater or equal to 4-ft as measured from the foundation to the top of the wall. The segmental blocks cannot hold the weight of that much water by themselves. Also, walls greater than 4-ft can cause catastrophic damage if the wall fails. All poured concrete or cinder block retaining walls. These walls do not have natural joints for water to drain through like segmental blocks and wood walls do. These walls need a drainage system regardless of the wall height. If there are poor draining soils such as clay behind the wall, there needs to be drainage incorporated the wall system. Clay when wet is very weak, so it is essential to provide a way for water to escape from behind the wall. Walls that have buried water sources within 50-ft of the wall site, such as irrigation, water main, or a hose line, requires a drainage system Groundwater is present. This can be a little more difficult to detect. If the area is wet when you excavate for your wall, or you notice water collects near your proposed wall location even in dry conditions, this is a good indicator of groundwater. The ground slopes toward the wall. Water will naturally drain downhill. A drain system will be required to remove that water. You are building a tiered or terraced wall. Surface water also needs to be accounted for. Check for any gutter downspouts nearby and check where water drains within your property to ensure water is diverted away from your wall. If there is a downspout behind your wall, plan to install an additional pipe to outlet water to the front of the wall. Do not use a perforated pipe to transport water from a downspout behind the retaining wall. Use swales or berms to redirect surface water away from the wall. When possible, place the swale or berm is at least two times the wall height (2H) away from the wall face. If a swale or pipe is impracticable, plan to install a drainage system behind the wall. A drainage system consists of several key components: drainage stone, filter fabric, perforated pipe, and outlets through the wall face. Before we dive into these components, remember NEVER use grout between the blocks on segmental block walls. Water should drain between the blocks, and grout blocks these gaps that would allow water to drain through the face. Proper segmental retaining wall blocks have a lip or pins to keep the blocks from shifting. Attach the top block and capstone to one another using construction adhesive* which keeps the wall system flexible. All walls should include drainage stone, even if they dont require a drain pipe. Install drainage stone at the back of the retaining wall and extend 12-in behind the blocks. Start the drainage stone near the base of the wall and extend up to within 6-inches of the top of the wall. To estimate the quantity of drainage stone, take the area of the wall in square feet and multiply by 1-ft to get the cubic feet of drainage stone. Divide the cubic feet by 21.6 to convert to tons or divide cubic feet by 27 to covert to cubic yards. #57 stone, the perfect drainage aggregate! The amount of fines (material passing through a No. 200 sieve) should be less than 10%. Do NOT use pea gravel or river rock as drainage stone. The smoothness of this material will make it difficult to retain at the end of the wall or if you ever need to remove a block. In addition, smooth material is difficult to compact and will settle over time. I recommend a well graded compactable aggregate that is angular. The size should be 0.25 1.25 ideally. This includes crushed rock, #57 stone, #67 stone, or Class I or II backfill. Using one of these materials will also allow you to use the same material for the drainage stone, base material and wall rock. Place filter fabric* or landscape fabric above the drainage stone and below the topsoil. This prevents fine material and organic matter from clogging up the drainage stone and staining the face of the wall. Filter fabric* being installed above the drainage stone. The filter fabric needs to be a minimum of 3-ft wide and non-woven. Provide 6-in of fabric up the back face of the retaining wall. Use construction adhesive* to attach the filter fabric to the back of the retaining wall. Install 6-in minimum of overhang past the end of the drainage stone. Overlap the ends of the fabric 4-in minimum along the length. For estimating the quantity needed, the length of fabric is simply the length of the wall plus 5% for waste and overlap. You may purchase 6-ft wide rolls and cut them in half. Note if the drainage stone is wider than 12-in, which is common when filling the entire excavation area with drainage stone, plan to supply a wider section of fabric to fully cover your drainage stone. You do not need filter fabric behind the drainage aggregate when a full 12-in of aggregate is installed behind the wall. If your site has clay or dark backfill, you may place filter fabric along the back of the retaining wall blocks to prevent the fine material from seeping through the blocks and staining your wall face. Slotted perforated pipe* The perforated pipe* should be slotted all around the pipe. Some corrugated pipes have holes on only one side, and you want to avoid this. The pipe will run the full length of your wall (L) and should be 3-in or 4-in in diameter. In all cases, the drain pipe needs to have positive drainage of at least 2%, meaning it slopes toward an outlet location. A good rule of thumb, if your outlet locations are spaced 30-ft apart, the pipe should slope 7-in from the high side to the outlet at the low side. There are three different options that I will go over to outlet your drainage pipe, with the third one being my favorite. No matter how you choose to outlet the drain pipe, place an outlet a minimum of every 30-ft to 50-ft along the wall. If your wall retains clay, or if there is ground water present, place outlets at 30-ft along the wall. Cut out for pipe through the wall. 1. Outlet a pipe through the wall face. This is ideal when the ground line in front of the wall is flat. Place impermeable material (soil that does not easily allow water to pass through) in front of the blocks, behind the blocks, and within the hollow core of the block (if applicable) up to the ground line at the front face. The impermeable material may be onsite fill that was excavated for the trench or fine grained sand, silt, or clay. Do not use any soft or organic matter. Lightly water then compact all the impermeable material with two passes of the plate compactor. Cut a hole in a block using a concrete saw just big enough for the pipe to extend through the wall. The hole in the wall may be in the second course of blocks. Place the pipe on top of the compacted impermeable material. Place filter fabric at the interface between the back of the block and the pipe to prevent backfill from migrating through the opening. You can also grout around the pipe at the front face of the block. Outlet the pipe through the wall face. You will need a tee connector* to connect the perforated drain pipe to the outlet pipe. I also recommend installing a grate* over the pipe outlet. This prevents rodents from getting into your drain pipe and building a nest. Optional end cap* for an outlet on a slope. 2. Outlet the pipe underneath the wall. This is ideal when there is a toe slope in front of the wall. This avoids cutting the blocks and allows the pipe to be placed lower on the wall. In this case, extend drainage stone all the way to the bottom of the wall. Where the pipe daylights, or exits the slope, you can install a sloped end cap* like the one to the left to help avoid a tripping hazard. Outlet the pipe at the ground line in front of the wall. Universal Wall Drain* 3. Use a Universal Wall Drain*. This is an innovative product that is not as widely known. Place the Universal Wall Drain vertically between segmental blocks so you avoid the need to cut the blocks. It then connects directly to the tee connector in the perforated drain pipe. The universal wall drain is an aesthetically pleasing option that avoids rough cut marks typical in pipe outlets. It also has a built in grate to keep rodents from crawling into your drain and building a nest. This outlet option helps reduce labor time and reduce the number of materials needed. Drainage is a critical part of any retaining wall system. It cannot be overstated how important managing water is for the long term performance of your wall. If you have questions about drainage design, or anything else related to your retaining wall project, leave a comment below or hit the email icon at the bottom of the page. *Amazon Affiliate If you use these links and make a purchase, I may be compensated.

How to fix a retaining wall. How to drain a retaining wall. Retaining wall drainage. Retaining wall drainage systems. How to build a retaining wall with drainage. Do retaining walls help with drainage.