



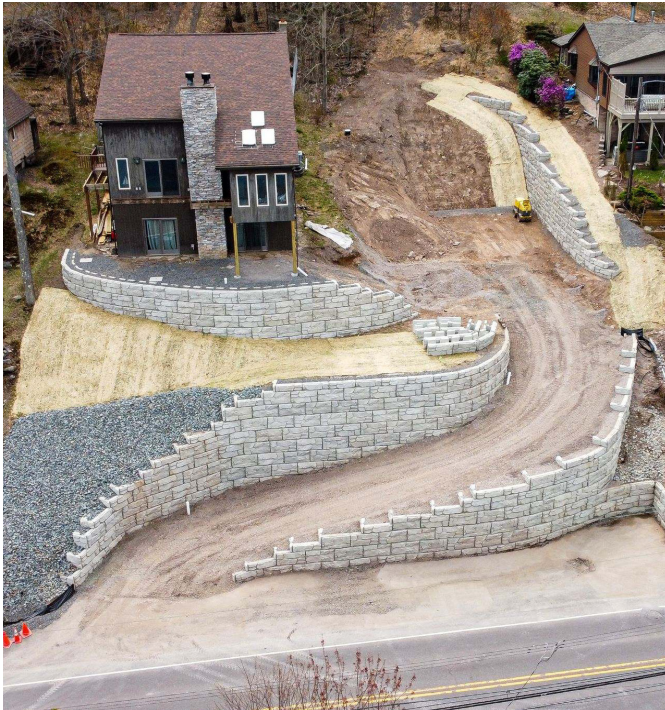
Big Blocks Replace Old Wooden Railroad Tie Walls

Lakeside communities, by nature, are quite spectacular - and driving through the town of Harvey's Lake, Pennsylvania, is no different. Its beautiful hillside properties in Luzerne County dramatically slope towards the water as scenic roadways gently twist along the shoreline below. Here, four MagnumStone retaining walls have transformed a property's terraced, battered wooden railroad tie walls with a stunning restoration. These big block retaining walls successfully replaced the lake property's rotting wall structures and dangerous steps with durable long-term solutions.

Total Block Installed	<u>3,275 sq. ft. (304 sq. m.)</u>
Fabric Used	<u>Geogrid</u>
MagnumStone Manufacturer	<u>Masters Concrete Products</u>
Contractor	<u>Summit Pointe Builders</u>
Installers	<u>Savino Excavation</u>
Wall Design Engineer	<u>Race Engineering Assoc. LLC</u>

BIG BLOCKS REPLACE OLD WOODEN RAILROAD TIE WALLS

Harvey's Lake, Pennsylvania, USA



For 20 years, homeowners of the lakeside property accessed their home by parking roadside and hiking over 50 steps uphill to their door. Aged railroad tie walls stretched across the front of the property, built to support the house and land above. Unfortunately, the quality of these wooden materials rapidly declines over short lifespans, requiring frequent maintenance and costly repairs. Despite challenges encountered throughout this project, MagnumStone's versatile blocks and gravity extenders proved vital to the property's major overhaul.

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■ DANGERS OF WOODEN RETAINING WALLS

Wooden retaining walls are popular among homeowners due to relatively inexpensive materials and installations, despite their short longevity. These days, more designers, developers and homeowners are now investing in long-term solutions like precast concrete big block retaining walls. The kryptonite of wooden retaining walls, including railroad tie walls, has often been withstanding tough weather conditions. Unsurprisingly, rainfalls, snowstorms and seasonal freeze-thaw cycles wreak havoc on wooden retaining walls, causing it to rot over time.

Water damage is globally recognized as the leading cause of most retaining wall failures, especially wooden retaining walls. This is a major safety hazard, frequently exemplified by boards splitting apart, wood becoming disjointed or negative leans appearing. These are obvious warning signs of an

impending wall failure that has serious potential to collapse. Several of these characteristics could visibly be seen at the lakeside property prior to this MagnumStone installation.

MagnumStone's capabilities to withstand severe weather conditions stem from its precast wet cast concrete production process. The precast concrete is far more water-resistant with minimal water absorption for a resilient serving as an excellent earth retention solution. With generational lifespans, MagnumStone can be relied upon to be a long-term upgrade when compared to traditional wooden retaining walls.

Other common issues worth noting for railroad tie walls are fractures or splintering of wood which compromise their strength. These are caused by the railroad ties themselves splitting and damaging the wood. Treated wood preservatives can also contain harmful chemicals for soils, pets and children.

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■ BIG BLOCKS DESIGNED TO EXCEL UNDER PRESSURE

In 2019, general contractor Summit Pointe Builders began searching for retaining wall solutions to fit this complex residential application. With no existing driveway on the property, the homeowners wanted to build a driveway that provides access to their house atop the hillside. This meant replacing the failing terraced wall structures and steps lining the steep hillside. Site conditions were a concern and like most lake properties, space was extremely limited.

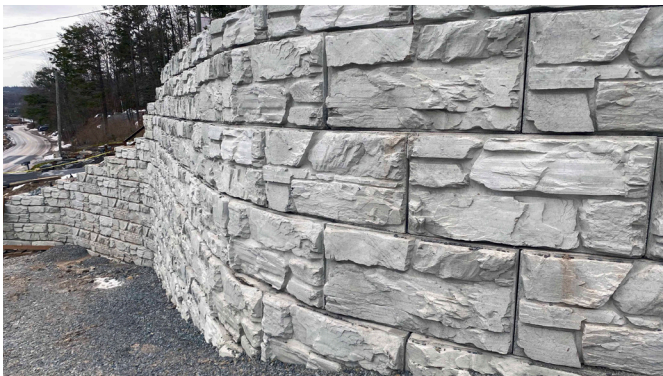
Unfortunately, the existing railroad tie structures were never designed to retain such steep slopes and pressures of the house above. Summit Pointe Builders were skeptical of using a traditional

segmental retaining wall system (SRW) for such a complex project. They contacted the experts at Masters Concrete Products and soon discovered MagnumStone retaining walls were the perfect solution for this property.

As the excavation and removal of the original wall structures began, the complicated project met its first obstacles. Loose fill behind the walls began to fall, threatening to undermine the house foundation. Summit Pointe worked diligently with Race Engineering Assoc. LLC on a plan to protect and stabilize the fragile land. This culminated in new retaining wall designs, including a blend of gravity, geogrid and hybrid retaining walls throughout the property.

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■ ADVANTAGES OF SHORT & LONG GRAVITY EXTENDERS

Gravity retaining wall designs were used near the house foundation and property lines because they excel in tight spaces with limited excavation area. They rely on their weight to effectively retain soil and resist load pressures. These gravity walls limit land disturbance and maximize valuable space by enabling construction closer to structures and land perimeters. Gravity retaining walls were therefore installed in these critical areas to minimize the excavation footprint.

MagnumStone's one-of-a-kind short and long gravity retaining wall extenders were vital to strengthening these retaining walls from an engineering standpoint. The units attach behind standard MagnumStone blocks in various increments to provide more flexibility with retaining wall designs. As the only retaining wall system on the market with 2 ft. and 4 ft. length gravity extenders, MagnumStone gravity walls require less intrusive excavation areas. This made reinforcing and strengthening the backfill a much safer, simpler process.

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■ GEOGRID RETAINING WALL REINFORCEMENT

MagnumStone's geogrid retaining walls use their mass and geogrid reinforcement to support active pressures from above and behind the wall. Of the property's four MagnumStone retaining walls, only the wall closest to the road is fully reinforced with geogrid. The retaining wall along the other side of the driveway is only partially reinforced with geogrid. These type of retaining walls require plenty of excavation space and stable soil behind them.

Due to the instability of loose fill behind the railroad tie walls, geogrid retaining walls were deemed unviable for a portion of the retaining wall along the upper side of the driveway. Without ample space to lay geogrid reinforcement behind that upper wall, further digging risked potential damage to the structures above. Luckily, MagnumStone's versatile design opened more creative design options for advanced engineering solutions by Race Engineering Assoc. LLC. To prevent risky earthwork, a hybrid gravity and geogrid retaining wall was planned and

■ BENEFITS OF MAGNUMSTONE'S HYBRID RETAINING WALLS

Given the unstable soils at the curve in the driveway, the hybrid retaining wall allowed for optimal performance. The portion of the upper wall which meets the roadway is reinforced with geogrid. As the driveway creeps further up the slope, it converts to a gravity retaining wall securely fortified by gravity extenders. This allows for structurally sound retaining walls throughout the full length of the upper driveway's wall, albeit with a hybrid twist. MagnumStone's big blocks are the most versatile on the market, which

make customized designs like this easy for project planners.

MagnumStone's angled sides can efficiently incorporate curves into retaining wall designs, while multi-length extenders add extra design flexibility. That versatility is key to sophisticated projects and unforeseen challenges such as the undermining issue encountered at Harvey's Lake. Armed with the capability to seamlessly transition from geogrid to gravity retaining walls, MagnumStone is an elite big block system with a proven track record of success.

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■ SMALL TEAM? NO PROBLEM

Arguably the most remarkable aspect of this project is that it only took a team of two to complete. That's right, Savino Construction accomplished most of this terraced retaining wall masterpiece with just two people and a small excavator and skid steer. A larger excavator was also used for parts of the project that required more height. MagnumStone's lightweight big blocks each cover 8 sq. ft. (0.74 sq. m.) which make installations a breeze for any size retaining wall. While traditional retaining walls typically require several people and large machinery to move the blocks, MagnumStone only requires small teams and small equipment to perform installations.

While one person operates the machinery, the other easily attached blocks to the equipment and guides the blocks into place. This is reflected in project savings, as MagnumStone significantly reduces labor costs and extensive rental expenses for large machinery.

MagnumStone prides itself on simple and efficient installations, which is a primary reason contractors love to work with this system. Designed by contractors, for contractors, MagnumStone delivers easy installation techniques for crews big or small. Check out [MagnumStone's free online step-by-step installation guides](#) to discover how easy big block retaining wall construction can be.

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■ ENHANCE THE BEAUTY OF YOUR PROPERTY

Effective performance is most important for any retaining wall; however, a beautiful property is a point of pride for landowners. That's why MagnumStone offers the most dynamic looking retaining wall facings on the market. The blocks give a professionally landscaped, natural rock appearance to boost property value, while the system provides secure, long-lasting strength.

Wooden retaining walls - including railroad tie walls - look great initially but their looks and durability degrade quickly over time. Disjointed or leaning retaining walls often reflect poorly on property owners and send the wrong message to neighbors and passersby. MagnumStone's low-maintenance, precast concrete walls present a refreshing modern look that blends in perfectly with any landscape.

MagnumStone recognizes the exceptional work of everyone involved in this challenging project. Special thanks to Masters Concrete Products, Summit Pointe Builders, Savino Excavation and Race Engineering Assoc. LLC. Thanks to these fine teams and the power of MagnumStone, this property is now securely reinforced for decades to come.

CONTACT OUR TEAM TODAY

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RETAINING WALL SYSTEM

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Contact our MagnumStone experts for more details.

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