

Case Study: Application of Mainstay ML-72 Mortar to 10,000 SF of Equalization Basin



Contractor: Culy Contracting, Inc.
Location: Longmont, Colorado
Structure: concrete equalization basin
Date: June 2018



Culy Contracting, Inc. completed a project for the City of Longmont in Colorado that utilized over 2,500 bags of Mainstay ML-72 Sprayable Microsilica Restoration Mortar. A crucial concrete equalization basin at the City's wastewater treatment plant had experienced severe corrosion due to high levels of hydrogen sulfide gases. To repair the structure, Culy was contracted to apply 1.5" of Mainstay ML-72 to approximately 10,000 SF of the basin's concrete walls.

Due to the necessary use of the basin for plant operations, a shutdown was required to make the repairs, and the project timeline had to be minimal. 14 days were given to complete the job, with the last seven days allotted for the mortar lining process. The short timeline combined with the large area of work presented a challenge: How do you mix and apply over 2,500 bags of mortar to 10,000 SF of concrete surface in a week's time?



To accommodate the short timeline, Culy coordinated the work in continuous 12-hour shifts. It quickly became obvious that it would not be possible for the mortar mixer operator to lift, break, and mix 65-pound bags of mortar for twelve hours at a time, so Culy utilized the Madewell Mortar Silo to store and dispense super sacks of mortar into the mixer. With this piece of equipment in place, the flip of a hydraulic valve commands an auger to move the mortar from the silo to the mixer. 52 skids of Mainstay ML-72 were delivered to the jobsite in one day to provide a continuous supply of mortar for the project.

Surface preparation was performed by a local contractor prior to mortar application. The deteriorated concrete substrate was removed by water blasting at 5,000 psi. Steps inside of the tank were removed, and the lining process was allowed to begin.

Using a telescopic loader, super sacks of mortar were loaded into the silo, which was mounted on a separate trailer from the mortar mixer. This allowed the auger to move over the mixer and back out of the way and provided easier access for the mixer operator. Mortar was pumped 125 feet through 1.25" hose for 96 hours nonstop using the robust Madewell Mortar Mixer. The rotor and stator were replaced twice during mortar application due to wear and tear.



Mainstay ML-72 mortar was applied in 6-foot-wide sections at 1.5" thick using Madewell shotcrete equipment and scissor lifts. Each section was dampened with water prior to mortar application. The mortar was hand troweled smooth and broom finished to achieve a slightly textured surface. After finishing, a water-based concrete sealer was applied to prevent cracking.

Thanks to the hard work of the crew and the accommodations made to increase the efficiency of the mortar lining process, Culy completed the entire project earlier than anticipated. The City was able to put the equalization basin back into service two days before the scheduled completion date.

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