

## Allegheny Mineral - Mine 24 Crushing Station Slippery Rock, Pennsylvania

A new primary crushing station has been constructed at Allegheny Mineral Corp.'s Mine 24 in Slippery Rock, Pennsylvania. Construction of the station involved installation of a Keystone Compac III segmental retaining wall system to create the concrete dump pad at the top of the retaining wall. From the pad, 200-ton off-highway trucks capable of hauling 116-165 cubic yards of rock dump their loads into the hopper of the crushing tower situated at the base of the 47-foot-high wall.

Allegheny Mineral Corp. is a U.S. aggregate producer operating eight crushed stone plants in western Pennsylvania. The company's Mine 24 project recently built the crushing station and an overland conveyor for primary processing and transporting crushed limestone rock from the quarry to an existing conveyor destined for the Slippery Rock plant.

The primary crushing tower retaining wall was manufactured by The Bauer Company, Inc. and Kevcon, Inc. Installation was performed by Proscap Landscape Supply of New Stanton, Pennsylvania. The Keystone wall length is 194 feet, with a total area of 6,848 square feet and a maximum height of 47 feet. Due to the wall height and off-highway truck loading, crushed limestone was used as reinforced fill material behind it.

**Owner:** Allegheny Mineral Corp.

**Engineer:** Keystone Retaining Wall Systems

**Contractor:** Proscap Landscape Supply

**Keystone Producer:** The Bauer Company, Inc. /Kevcon, Inc

**Technical Description:**

- Keystone Compac® III - Straight Split
- Total Wall Area: 6,848 s.f.
- Total Length: 194 ft.
- Maximum Height: 47 ft.

**Installation:** Fall 2016





Building the wall at the Mine 24 quarry using the Keystone Compac III system afforded many advantages:

- The wall system's design capacity supports the extremely heavy loading of the off-highway trucks and payloads.
- With its dual pin hole configuration, the wall system is capable of the near-vertical (1H:32V) batter necessary for proper placement of the dump platform so that material can be safely offloaded into the crushing tower.
- The Compac system accommodated the two-foot-thick concrete dump slab and barrier poured at the top of the wall and backfill area.
- Keystone engineer Pat Stiemke, P.E., was able to adjust the wall design and layout to accommodate unanticipated site changes resulting from rock blasting and excavation. Site modifications required the wall to be extended and a portion constructed on a rock ledge.

Site work for the station involved soil and rock excavation on steep terrain. To make adjustments for actual site conditions, the Keystone engineering department worked closely with the site engineer, EADS Group, as the site was excavated. Excavation was required not only for the crusher tower, but also to install the geosynthetic soil reinforcement required for the wall design.

Jonathan Kolbe, vice president of production at Allegheny Mineral Corp., noted that they had priced several different wall styles, including T-Wall and cast-in-place. "Keystone was by far the most economical, and our experience with a Keystone wall at our Murrinsville facility gave us confidence in the product."

Robert Cammarata of Proscapa felt that all the right elements were in place to make this project a prime example of how to build a 50-foot-tall retaining wall. "You have success when you have engineering that designs for site conditions and end use, you use stone backfill, and the contractor understands what it takes to construct a wall of this magnitude."