



**CASE STUDY:** UMA was contacted by Sibelco North America when the hopper foundation at its Schoolhouse Quartz Mine in Spruce Pine, North Carolina showed signs of settlement.

## HIGH-DENSITY POLYURETHANE RESIN (HDPR) INJECTION

### THE PROJECT

Sibelco North America's Schoolhouse Quartz mine was experiencing settlement beneath the rock crushing hopper structure. The hopper equipment is made of steel with a bin, crusher, and steel substructure, and weighs roughly 100 tons. Trucks frequently dump 50 tons of material into the hopper at a time, processing nearly 30 truckloads with roughly 1,500 tons of material per day. UMA's HDPR Injection process was required to support the foundation of the crusher that had been experiencing ongoing signs of settlement .

### THE CHALLENGE

In addition to supporting heavy equipment, we found that the slab was roughly three feet thick when drilling to place injection tubing. Materials beneath the slab had characteristics of micaceous rock and debris underlain by a softer layer of material, which made drilling with our typical hammer drill very difficult.

**The Customer**  
Sibelco North  
America, Inc.

**Location**  
Spruce Pine,  
North Carolina

**Type**  
Industrial

**Date of Project  
Completion**  
Winter 2021

**Interesting Fact**  
The Sibelco project presented uncommon challenges since the foundation was built to withstand thousands of tons of weight in a given day.



# CASE STUDY

## THE SOLUTION

We performed UMA Deep Injections (UDI) and treated the soil to a depth of roughly 12 feet beneath the slab to mitigate future settlement. Ultimately, we drilled all locations with a rock drill and immediately placed injection tubing in the hole to prevent soils from caving in. We injected nearly 17,000 pounds of material across a treatment area of 772 square feet.

## THE RESULTS

Once UMA Deep Injections were completed, we recommended performing post soil tests at the site to evaluate future settlement in the area. This was challenging since the testing equipment could not push through the rock fragments. We had to essentially drill pilot holes until we reached the soil below the fill blast rock. Post soil testing results predicted that future settlement will be less than 0.25 inches for the slab beneath the crusher. UMA Deep Injections proved to be an effective solution to an ongoing settlement issue.



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