



Mixing Strength With Satisfaction

## HUDSON-BERGEN LIGHT RAIL, HOBOKEN / WEEHAWKEN, NJ

### MS-D1 STEEL FIBRE SHOTCRETE

<b>PROJECT:</b>	Hudson-Bergen Light Rail Project King's Bluff Slope Stabilization Hoboken / Weehawken, NJ
<b>SPECIFIER:</b>	Golder Associates Inc.
<b>CONTRACTOR(S):</b>	Janod Inc, Swanton, VT Atlantic Underground Services Limited, Riverview, NB
<b>PRODUCT:</b>	MS-D1 Steel Fiber Shotcrete
<b>QUANTITY:</b>	181 m <sup>3</sup> (236 yd <sup>3</sup> )
<b>COMPLETION:</b>	Fall 2003

During the construction of the Hudson-Bergen Light Rail Transit Line in Hoboken/Weehawken, NJ it was determined that significant stabilization would be required for a section of slope called The Palisades. The original design called for pattern bolting and wire rope nets, however, this design did not take into consideration historic and aesthetic concerns of local residents.

With the support of Weehawken Mayor, Richard Turner, a committee of residents was able to halt construction of the line until an acceptable solution to the problem could be found. The services of a team made up of Golder Associates Inc. and Janod Inc. were enlisted and they proposed a system to stabilize the slopes which included rock bolts, steel fiber reinforced shotcrete and a colored, sculpting shotcrete mix to ensure the work would blend into the surrounding rock slope.

After the design-build project was awarded, Janod's experienced rock remediation technicians worked closely with engineering geologists from Golder to begin the installation of the rock bolts. To ensure the best possible results, Janod sub-contracted the application of the dry mix shotcrete to Atlantic Underground Services Limited of Riverview, NB. In addition, they contacted materials experts from King Packaged Materials Company to develop a pre-packaged, steel fiber reinforced shotcrete mix that would exceed the minimum performance requirements and provide the required aesthetic qualities.

The shotcrete was applied by experienced nozzlemen who performed the difficult application while being suspended from ropes. This system had been perfected by Janod and AUS personnel on several previous projects. The successful completion of the project was attributed to a combination of innovation and cooperation. The contractors and designers were able to

work closely with King Packaged Materials Company to come up with a unique solution to a very difficult problem.

