

I-89 Ledge Pushed Back



Weaver Bros. has NHDOT contract to improve safety on southbound barrel in Sutton.

BY PAUL FOURNIER

Maine Drilling & Blasting's Cat 330B hammers large rocks while Weaver Bros.' Cat 345B loads a Cat 735 with blasted rock.

By Thanksgiving, southbound Interstate 89 through Sutton, N.H., will once again carry one-way traffic on two lanes, making the one-lane closure experienced by motorists for several months a distant memory.

And perhaps unnoticed by some travelers, the tall outcrops of ledge that at times seemed to loom over the highway will have been pushed back to a safer distance, thanks to the efforts of the New Hampshire Department of Transportation and contractor Weaver Bros. Inc.

The Bow, N.H., company has a \$3.8-million contract with NHDOT to remove about 25,000 cubic yards of ledge along a 2-1/2-mile section of the Interstate's southbound barrel.

Work began on the project with the clearing of some four acres of trees by

John Brown & Sons of Weare, N.H. Weaver Bros. forces performed the stumping on the cleared land, which encompassed not only the area to be blasted but the site of a relocated power line and that for a temporary traffic detour.

Before the power line could be relocated, subcontractor Maine Drilling & Blasting had to do some preliminary shooting in the southern portion of the job to clear the way for the poles, according to Jeff Bates, project superintendent for Weaver Bros.

Blasting got underway in mid-August, said Bates, noting that they are recycling a considerable amount of the rock on the site, some as shot, some crushed.

"We expect to crush about half of the rock and reduce it to a minus-2-inch material so it can be used as material for road base, while the rest will be used as is in fill areas," said Bates, who

co-owns Weaver Bros. with brothers Mark and Peter Bates.

Maine Drilling & Blasting employed up to four Atlas Copco drills to bore the four-inch production holes for explosives in the ledge, some of the drilling accomplished in cuts up to 38 feet.

According to blasting foreman Mike Curran, the rock was challenging because of its composition.

"Sutton rock changes a lot," he said. "There are many seams and voids, and the ledge can vary between hard and soft rock."

Curran pointed out the deepest bore holes went down about 42 feet. Holes were double capped – two primers per hole – to ensure there were no failures, and loaded with Austin Powder emulsion and ammonium nitrate. There were three production shots – two used a total of about 12,000 pounds



The shot used
 34,000 pounds
 of explosives
 to shatter 16,000
 cubic yards
 of ledge.



Upper Left: Driller operator uses remote controls to position an Atlas Copco ROC D7 for the next bore.
 Above: Marcou Construction Inc. operates a Lippman 30x48 jaw crusher and a Nordberg cone crusher to produce minus-2-inch stone.
 Left: A Cat 735 unloads shot rock for fill in a low spot near Superior Telestacker conveyor.

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Above: As finished crushed stone is deposited in stockpile in background, a Dresser TD15C dozer spreads blasted rock fill. Right: Rock has been blasted to move wall of ledge back to a safe distance from the southbound barrel of I-89.



of explosives to break up an estimated 9000 cubic yards of ledge. The other shot was a massive one, using 34,000 pounds of explosives to shatter 16,000 cubic yards of ledge.

He said the shots went as planned and velocities stayed well within the DOT's seismic limit of 2 inches per second. Blasting was completed ahead of schedule, he added, taking three weeks instead of the five weeks allotted for the job.

At the time of this coverage, Weaver was taking a two-pronged approach to clearing the rock from the site of the largest shot. The contractor positioned a Cat 345B excavator on one end of the site loading shot rock on a Cat 735 off-highway truck, and a Cat 330C excavator on the other end loading a second Cat 735 truck. In addition, Maine Drilling & Blasting had its own Cat 330B excavator on the job, equipped with a hydraulic hammer to break down over-size chunks of blasted rock. The 735s were hauling rock to either fill areas or to crushers.

Crushing subcontractor Marcou Construction Inc. of Dunbarton, N.H.,



Jeff Bates, one of three co-owners of Weaver Bros., runs the \$3.8-million project.

set up a jobsite operation consisting of a Lippman 30x48 jaw crusher in series with a Nordberg full-circuit 1144 cone crusher, with power provided by a Cat 3412 diesel generator. According to Marcou job superintendent Brian Ladd, the battery of crushers is yielding about 300 tons per hour of minus-2-inch crushed stone.

About 200 feet of Superior Telestacker conveyor is carrying the end product to stockpiles for eventual loading on to haul trucks.

Once the ledge has been cleared from the right-of-way, Weaver will take action to put traffic back on the main barrel and restore most of the detour to its original appearance. This will include removing the tubular markers that separated opposing travel lanes, and tearing up much of the temporary bituminous concrete pavement.

According to Ellison Welch, NHDOT contract administrator, a small portion of the detour will be kept to accommodate future highway-related work, while the remainder will be covered with loam and seed.

Welch noted that the job was on schedule for the November deadline for putting traffic back on the road. ■

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