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'Foamstab' process rehabilitates Montreal residential thoroughfares

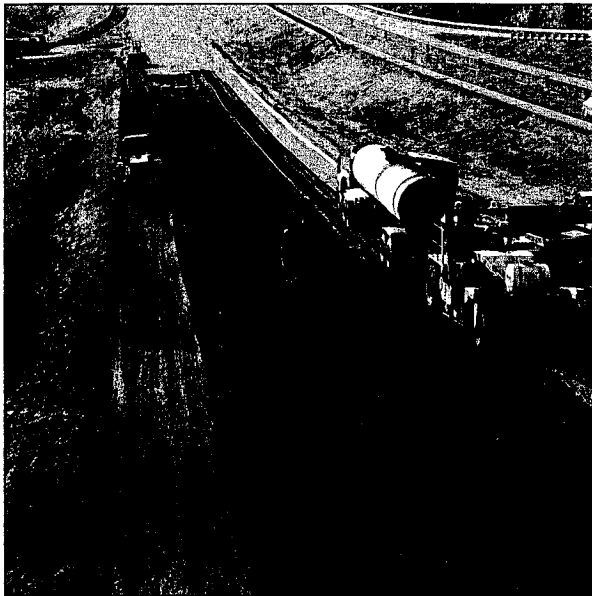
Innovative full-depth pulverization/foam bitumen stabilization process developed by Montreal contractor uses existing pavement, bitumen in production of in-situ cold mix to restore integrity of pavement, save time

by Larry Flynn

Residential streets in and around Montreal, Quebec, were rehabbed last fall using an innovative in-situ full-depth pulverization/foam bitumen stabilization process developed and performed by a Montreal-based civil engineering construction company.

The process, known as foam stabilization or "Foamstab" (foamed asphalt full-depth reclaiming), is designed to recycle and combine a pavement's asphalt wearing and granular base courses, quickly restore structural integrity to the road pavement. The result is a saving of time, energy and costs in comparison to hauling and reconstruction operations.

The origins of foam bitumen date back to a process developed at Iowa State College in 1959. Prof. L.H. Csanyi used a water vapor at low pressure injected in hot bitumen, thus producing a foam. In an effort to simplify its use in the field, the process was modified in 1970 by Mobil Oil Co. Montreal's Soter International developed its advanced process using a combination of air, water, hot bitumen and special additives to provide a more consistent



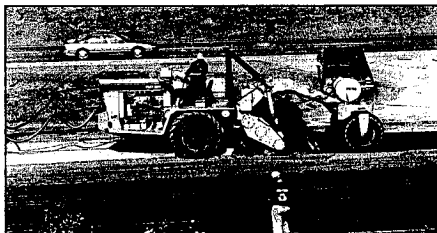
Connected by hoses, a modified RR-250 follows behind its bitumen tanker supply truck during a Quebec Foamstab operation

and better performing mix.

According to Yves Thériault, who provides technical support for Soter, the company has performed \$30 million-40 million (Canadian) worth of in-situ foam stabilization projects in Canada. Thériault said that the process is popular in the city of Montreal because the city emphasizes that recycled materials be used on all its rehabilitation projects.

A modified Caterpillar RR-250 stabilizer/mixer connected to a 40,000-

liter bitumen tanker is used to perform the Foamstab process, which Soter is using in Canada, Mexico and Australia. In the process, air and cold, atomized water are injected in controlled quantities (1-2% by weight of bitumen) into hot penetration-grade bitumen (350 deg F) in a specially designed expansion chamber affixed to the RR-250. The special additives in the bitumen and the water provide a consistency in the foam characteristics. The bitumen, when foamed, expands 10 to 15 times its original volume and stays in this state for 30-60 seconds. The foam is then sprayed, via special nozzles and spray bar, onto cold, moist aggregate and mixed, producing a type of cold mix.



Soter uses a modified Cat RR-250 stabilizer/mixer to perform foam stabilization on a highway in Quebec, Canada

Special thanks to Soter's Yves Thériault for his assistance with this article



Neighborhood residents turned out to witness the pulverization process



A pneumatic roller and motor grader are used to compact and reshape the pavement during a pulverization/Foamstab project



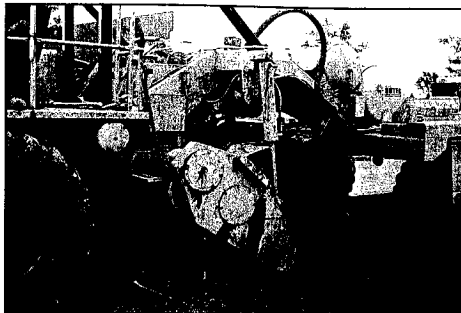
Soter's Yves Thériault examines pavement material following the pulverization phase of the pulverization/foam stabilization project on Montreal's 14th Ave.

In October, Soter used the technique to rehab a section of Montreal's 14th Ave. The road was first pulverized to a uniform, consistent mix using the RR-250. It was then graded using a Cat 140G motor grader and compacted to a proper profile using a combination of pneumatic and vibratory rollers.

Before the stabilization process begins, Soter performs a variety of tests to determine the optimum bitumen content to assure the most desirable results for the road. Following the tests, the Foamstab process is conducted and the new mix produced. The mix is once again graded and compacted using the pneumatic and vibratory roller combination.

According to Soter, once compacted, the foam stabilized material will reach, in a matter of days, strengths comparable to hot mix asphalt materials. Usually, as in the case of the 14th Ave. project, a final wearing course is then added. Other surface treatments also can be performed on the Foamstab mix. □

Soter has modified the Cat RR-250s to enable them to spray the foamed bitumen onto the aggregate as it is mixed by the stabilizer's rotar action. The combination of the bitumen and aggregate produces a new cold mix material



More information on products and/or services mentioned is available by circling the appropriate number on the reader service card found in this issue.

Foamstab
Soter International—
RR-250 stabilizer/mixer
Caterpillar—
Model 140G motor grader
Caterpillar—

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