

## Hydrodemolition: Practical Advantages & Applications

### New Hampshire Good Roads Members Collaborate to Achieve Project Goals

As New Hampshire contractors continue to face labor shortages, rising costs of materials and disposal, employee health and safety concerns, and environmental protection issues, hydrodemolition technology\* is enabling New Hampshire Good Roads members to achieve project goals with less time, money, and labor investment.

#### Good Roads Member Collaborations

General Contractor **Evroks Corporation** teamed with hydrodemolition services provider **AK Industrial Services LLC** (AKIS) to successfully complete these projects:



Sidewalk replacement on the Church Street Bridge in Laconia.

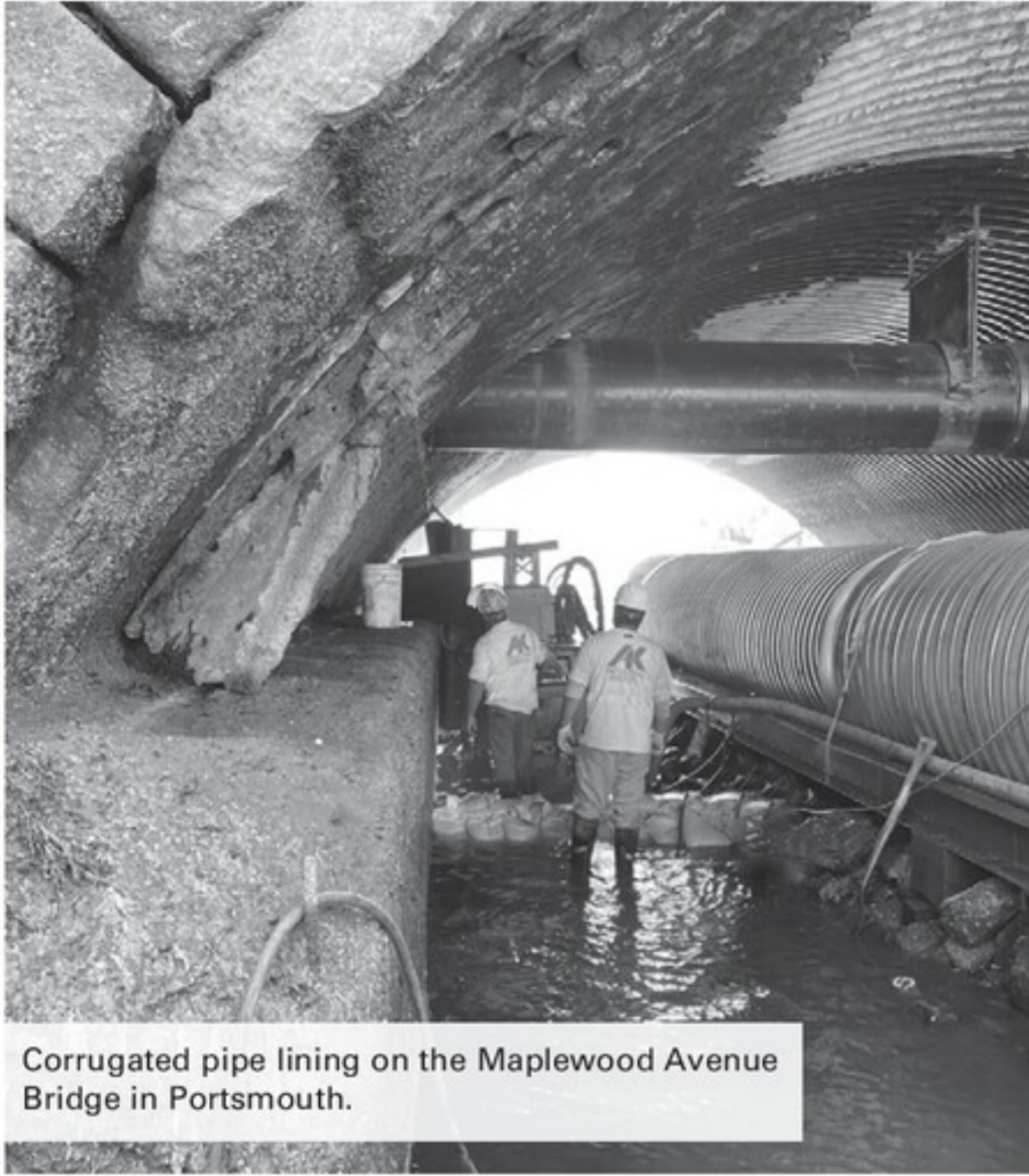
**Church Street Bridge, Laconia, NH** — The City of Laconia contracted **Busby Construction Co., Inc.** / Evroks Corporation to rehabilitate the Church Street Bridge by replacing the 150-ft. long, 6-ft. wide sidewalk, repairing expansion joints and installing new pavement in time for the city to open it for the busy Memorial Day weekend. In a single day, three operators from AK Industrial Services removed 49 sq. yards of concrete to a depth of three to four inches while cleaning and descaling around and below the rebar to create an ideal surface profile for concrete adhesion. AKIS total on-site time was two days, including mobilization and efficient cleanup using vacuum trucks.

Michael Ferrari of Evroks Corporation explained, “The quality and speed of hydrodemolition greatly improved this project’s schedule. Concrete was removed quickly, thoroughly, and with much less impact to our team than traditional mechanical methods would have inflicted.”

**Maplewood Avenue Bridge, Portsmouth, NH** — The Maplewood Avenue Bridge is a 128-year-old structure that evolved, in 1976, from a stone arch to include a grouted corrugated metal plate arch liner. In 2024, the City of Portsmouth contracted Evroks Corporation to clean and remove deteriorated sections of the metal culvert and install a four inch geopolymer lining to extend its longevity. Since the proposed lining could impact pond drainage by reducing the cross-sectional area of ocean waterway below the culvert, engineers specified selective demolition of the culvert’s existing non-structural concrete footings to make up for the area displaced by the liner.

Low vibration hydrodemolition was the practical solution for removing the concrete footings, as traditional demolition using an excavator with hoe ram would produce intense vibration and compromise the historic arch. Hydrodemolition also produced smaller concrete debris for efficient and effective recovery via vacuum trucks.

To support the footings-removal, the Evroks team built a dam to divert the water on both sides of the corrugated pipe/culvert, and tidal water flowed through a bypass pipe while the AKIS team removed the concrete footings below it.



Corrugated pipe lining on the Maplewood Avenue Bridge in Portsmouth.

Over the course of four to five days, waterjet operators removed approximately twenty-six cubic yards of concrete at both horizontal and vertical angles allowed by the 360-degree rotation versatility of the waterjet shroud and nozzle. The process water was collected and treated onsite while the concrete rubble was recovered using a vacuum truck and hauled off site for disposal. Michael Ferrari of Evroks Corporation noted, "What would have taken three weeks with traditional chipping took just one week with hydrodemolition. The water diversion alone is a major cost per day, so two weeks represents substantial savings."

Hydrodemolition was also the practical solution when Evroks and AKIS teamed to rehabilitate a 140-ft. long bridge deck in Dover, NH, as well as a rigid frame bridge in Chester, NH by efficiently removing deteriorated concrete to a 4-inch depth while cleaning corroded rebar in preparation for new concrete.

For more information: Contact AK Industrial Services at 617.884.9252.

\*Hydrodemolition is concrete removal technology that uses high-pressure water (15,000 – 40,000 psi) to erode the cement, sand, and aggregate from concrete surfaces while also penetrating existing cracks, voids or delaminations to remove compromised concrete to prescribed depths. A skilled operator directs the robotically-controlled process (also called water blasting, water jetting, or hydro milling) to selectively remove only damaged concrete from any part of a structure – without the adverse effects of mechanical removal – as it simultaneously cleans and descales rebar, resulting in a clean, textured surface profile that promotes a superior concrete bond.



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