

Hydro-Technologies, Inc.

presents

Hydrodemolition Technology Advancements

2015 SEBPP Conference
Montgomery, AL

History of Hydrodemolition

- Italy 1975
- Sweden 1977
- US - 1979
- Developed as a process to reduce jackhammers on structures, to selectively remove deteriorated concrete and to cut labor costs
- 1985 – Used in conjunction with Latex Modified Concrete Overlay to repair bridge decks
- 1997 – First used in Pennsylvania – I79 over Rt 51 – Bridgeville
- Present – Used by DOT's throughout the United States

Hydrodemolition use in the United States

North Carolina 2012,2013 – 41 Projects = 400,000 sy

Pennsylvania = 850,000 sy in last 7 years

Ohio – over 1,000,000 sy of concrete overlays since 2000

TN, AR, LA, TX ,VA, WV, IL, TX, MO, MT, MA, MD,
IN,MI, KY , AL, GA, OK + many other agencies

Hydrodemolition Definition

- Hydrodemolition is a mechanical process by which deteriorated concrete is selectively removed utilizing a high pressure water jet and a computerized robot.
- By rapid erosion with the high pressure water, the cement matrix and fine aggregates between the coarse aggregate is essentially washed away.
- By properly calibrating the hydrodemolition robot movements, concrete of uniform strength can be removed to a specified depth + unsound deteriorated concrete with one pass of the robot = Selective Removal.

Hydrodemolition Applications

- Surface preparation of the total area of bridge decks prior to placement of overlays.
- Surface preparation for patches in bridge decks.
- Full Depth Removals
- Selective portions of structures removed – bridges, shipping piers, factory's, parking garages, nuclear power plants, tunnels.



































Hydrodemolition Applications

- Liberty Tunnel
- Work in 2013
- 200,000 sf of Vertical Hydrodemolition used to selectively remove deteriorated concrete from tunnel walls and to provide a rough & bondable surface
- Shotcrete concrete repairs made after surface preparation





Hydrodemolition Applications

- West Carson Street Viaduct Repair
- Work began in 2014 – Will resume in 2015
- 86,700 sf of Vertical Hydrodemolition used to selectively remove deteriorated concrete from retaining walls and to provide a rough & bondable surface
- Shotcrete concrete repairs made after surface preparation









Hydrodemolition Applications

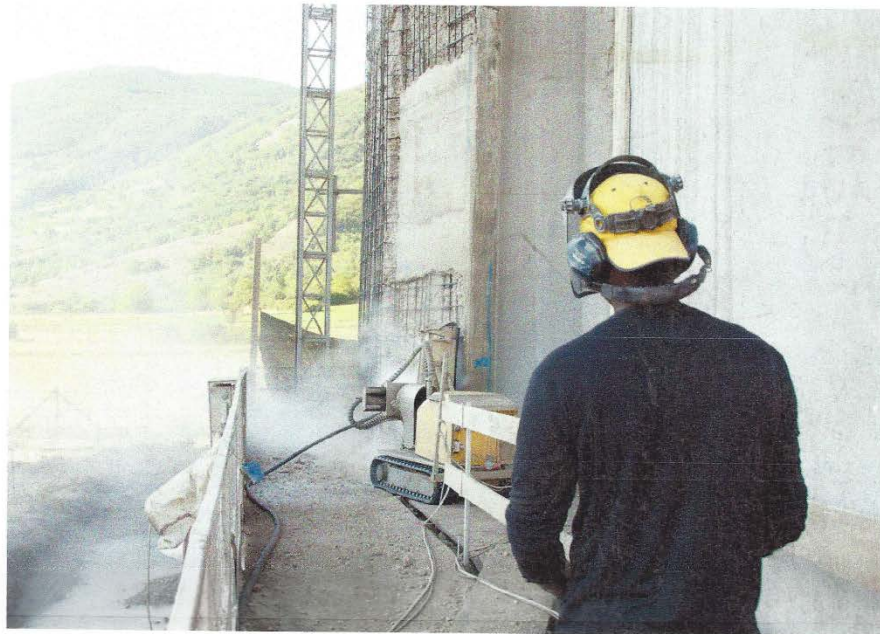
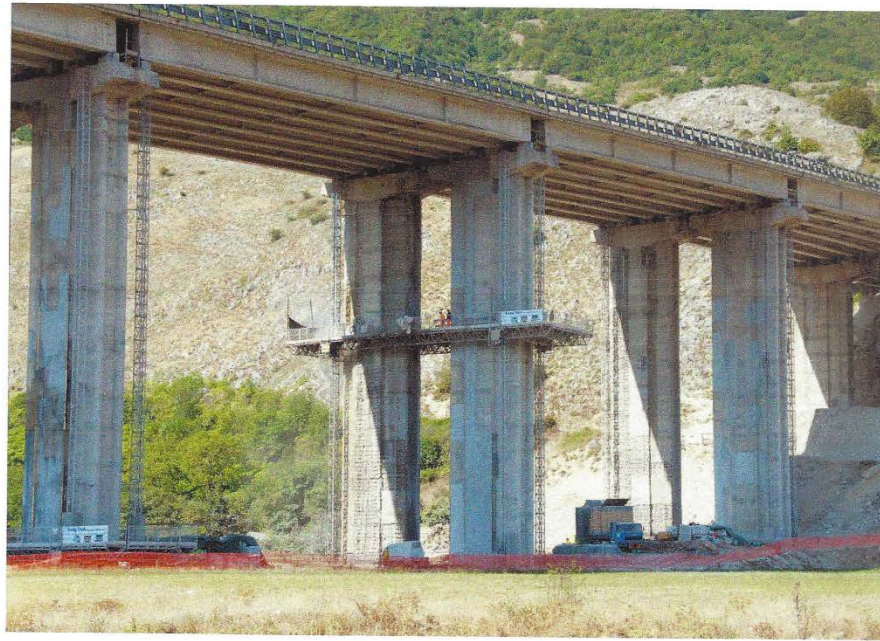
- Jet Frames
- Working off Platforms







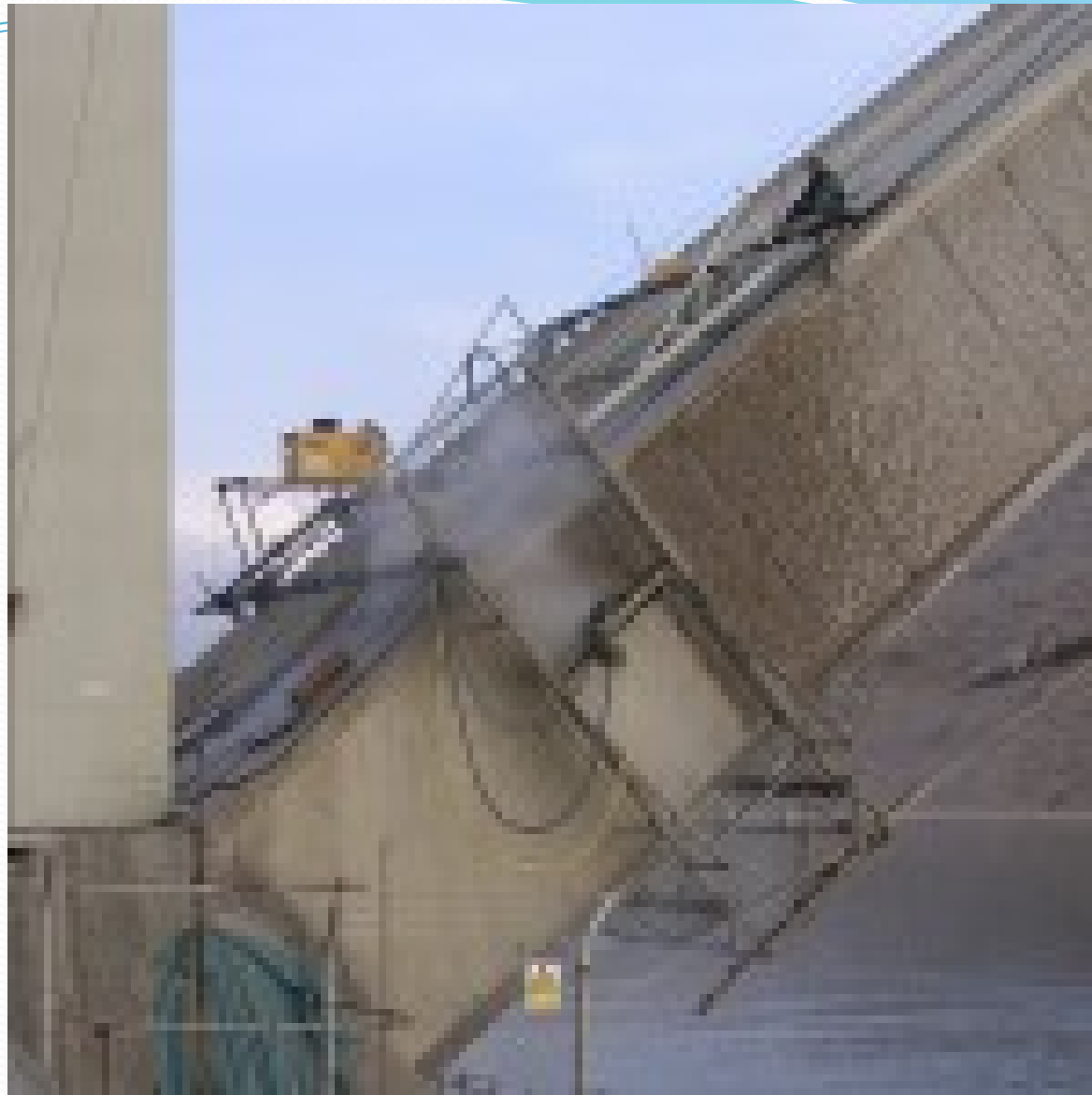












Fast Track Hydrodemolition Advantages

- **Speed** – A fast, productive and economical way to prepare a bridge deck for a Modified Concrete Overlay.
- **Quality** - Selectively removes delaminated concrete and avoids the unnecessary removal of sound concrete.
- **Removes** chloride contaminated concrete.
- **Will not damage** existing reinforcing steel. Actually cleans the steel.
- **Surface** has 300 % to 400 % more bondable area than a mechanical milled surface.
- **Cost Savings** - Long term service life and maintenance cost savings. Immediate traffic control and road user cost savings.
- **Construction** - Replaces jackhammers. Lower Noise Levels. No fugitive dust. No micro-cracking of deck concrete.

Questions / Contact Info

Edward M. Liberati, PE
Hydro-Technologies, Inc.
Modified Concrete Suppliers, LLC

- **Cell – (502)693-3253**
- **eliberati@hughesgrp.com**
- **We offer technical presentations, field demonstrations, simple plans, specification development and Professional Engineering Services.**