Instant Bridge – Ontario Highway 28 at Bow Lake

May 29th, 2004 was a picture perfect Saturday morning at Bow Lake near Bancroft Ontario. As I walked down the embankment from Highway 28 I startled a school of small mouth bass that had been resting in the shade of the culvert. I watched for several seconds as they darted out of the culvert and into the crystal clear depths of the lake. Except for some newly germinated grass seed and a silt fence, the scene was not unlike thousands of highway crossings throughout Northern and Eastern Ontario. What made this place special was what had happened here just twenty three days earlier.

CORRUGATED STEEL PIPE ARCH
3650MM X 2280MM, 3.5MM ALUMINIZED TYPE 2 STEEL

On the night of Wednesday May 5th the MTO was advised of a settlement in the pavement at the Bow Lake crossing. The old structure, which MTO had been monitoring and had scheduled to replace, was beginning to wash out with the spring runoff. Immediate action was taken to ensure public safety while an action plan could be formulated and put in place.

Several options were considered. A Corrugated Steel Pipe Arch (CSPA) 3650 mm wide x 2280mm high was determined to meet the requirements of the site as well as provide a solution in the shortest possible construction time.

A number of CSPI suppliers were contacted and several creative proposals were made. A CSPA with a 125 x 25 corrugation in 3.5 thick steel to be supplied as five individual pipes, each 7 and 8 metres long and coupled together was selected. Despite needing to modify some manufacturing equipment for this very large pipe and arranging for day light transportation of the oversize loads, the material could be on site in two days.

Bow Lake has a unique history. It was the site of a uranium mine for many years. The mine tailing ponds are still visible in the woods beside the highway where the Bentley Creek flows into the lake. As a mine site, Bow Lake is of

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particular interest for the Ontario Ministry of the Environment (MOE) who monitors surface water throughout the province. Several years of MOE detailed water data, the condition of the old structure and related work by CSPI indicated the Aluminized Type 2 or Polymer-Coated Steel would perform well at this site. As the Aluminized Type 2 material was immediately available, it was selected and the pipe was ordered by 2:00 PM Thursday.

By Friday afternoon three trucks were loaded. They started the four hundred, kilometer journey at first light Saturday and were on site by 10:00 AM as promised.

The project ran with military precision under the direction of MTO. All of the details were covered including signage and traffic control, demolition and removal of the old structure, environmental protection, installation and back filling of the new CSPA, rip wrap placement, site rehabilitation, guardrails and paving. By Wednesday May 12th one week after MTO received the call, traffic was moving over the new Corrugated Steel Pipe Arch and all work was completed a few days later. By the time of my visit, all had returned to normal both over and under the Bow Lake Crossing.

For product details and specifications refer to CSA-G401and The Handbook of Steel Drainage and Highway Construction Products.

ON SITE READY FOR INSTALLATION WHILE MAINTENANCE PIPES WERE NESTED INSIDE AND TOOK A FREE RIDE

BOW LAKE CULVERT TWENTY THREE DAYS OLD