Environmental & Science Engineering MAGAZINE

September/October 2012

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Chatham-Kent upgrades five historic road structures

By David J. Penny

The Municipality of Chatham-Kent in Southwest Ontario has a long history in agriculture and trade. The Chatham dockyards (est.1790) supplied food stocks and implements to the British Navy's Lake Erie fleet and Tecumseh's large tribal confederacy throughout the War of 1812. It was here on Oct 5, 1813 at the Battle of the Thames, that Tecumseh was killed while waiting for reinforcements to come by road from distant Fort Burlington. The road was poor, reinforcements didn't come and our history took a turn.

During the same period, Colonel Thomas Talbot organized the development of the Region. He stipulated that all persons who received land must construct and maintain a road in front of their farm within three and a half years of settlement. By the late 1820s he had linked the roads and organized the completion of a 480 km long, good quality road, the Talbot Trail, running from Lake Ontario to the Detroit River. This helped to make the Talbot Settlement the most prosperous part of Ontario.

Glen A Hubbell with 9.75m long riveted corrugated steel pipe (circa 1949).

Since then the roads have improved. Two hundred years later, Chatham Kent continues to find innovations in road construction and to produce high quality meats, fish, fruits, maple syrup and vegetables, that are shipped by road to markets throughout North America.

As agriculture and roads have modernized, Chatham-Kent industries have not only kept up but have led the way with new developments. In 1878, E.S. Hubbell, a young tin-smith, established a hardware and metal fabricating business in Thamesville. In his time, roads were corduroy and bridges were simple wooden structures. Culverts were typically of wood stave construction.

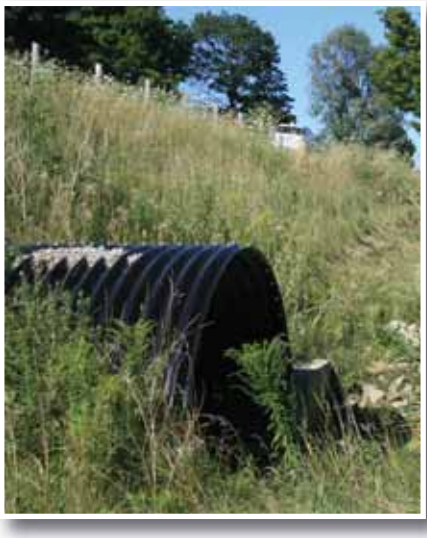
The business thrived and continues to support farming and road-building into the fifth generation of Hubbells. In the early 1930s, his sons embraced the modern technology of corrugated steel pipe (CSP) and established a steel culvert manufacturing facility. Early CSP was made by hand riveting galvanized and corrugated sheets together. Today the company produces high volume, high quality spiral pipe on modern equipment in a variety of corrugations and coatings.

Some of the oldest corrugated steel pipe in Canada was installed in Chatham-Kent as culverts and bridges were re-

placed on the development roads. An extensive network of drainage canals created the need for many crossings, as they allowed farmers to work this flat fertile land early in the season.

Intense farming, fertilizers, flat terrain, standing water, road salt on paved roads and general growth in the Region have all created unique challenges for road designers and builders. Many of the early roads, culverts and bridges are reaching the next phase of their natural service life and must be upgraded or replaced. The replacements, however, must safely handle larger farm equipment, heavier and faster trucks and, because of the significant investment in and complexity of new infrastructure, must be sustainable over a longer period of time.

One of the ways that Chatham-Kent has met the demands is by embracing new technologies in CSP. Deeper corrugations and thicker steels have made it possible to construct economical wide span and low profile box culvert shapes that fit the challenges of flat terrain and heavy loads. Polymer laminates and polymer coatings on steel have dramatically increased the service life of culverts often affected by fertilizers and salt.



Laminates and coatings have increased the service life of culverts.

In the winter of 2009-2010, five structures along a scenic stretch of the Talbot Trail (Hwy 3 from Blenheim to Eatonville) required replacement. The commencement of bridge projects is typically subject to the receipt of approvals from the Department of Fisheries and Oceans (DFO), Coast Guard, Conservation Authority and other agencies, to ensure the overall interests of the community are identified.

All permits and approvals were met for this project and, as DFO required that all "in water work" must be completed by March 15, 2010, a precise and rapid construction plan that could be implemented in winter was necessary. Large diameter polymer laminated corrugated steel pipe and polymer coated structural plate corrugated steel pipe (SPCSP) were selected for the replacement structures, mostly for their installed economy. The contract for the five structures, which was largely funded by the citizens of Chatham-Kent, was in fact awarded at a price 31% lower than the engineers' estimate.

All structures are expected to still be performing when the Talbot Trail celebrates its 300th birthday several more generations from now.

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