

Town of Saugeen Shores Selects RCP over CSP on Stimulus Project

Paul Crow – Con Cast Pipe

On June 5, 2009, the governments of Canada and Ontario announced a joint investment of \$40,877,313 for 19 provincial and community infrastructure projects identified as priorities for the Huron-Bruce area of Ontario that will create jobs and help build a stronger community. Through Canada's Economic Action Plan, the federal government has established a new \$4-billion *Infrastructure Stimulus Fund* that provides funding to provincial, territorial and municipal construction-ready infrastructure rehabilitation projects. Funding to Ontario communities, which will be matched by the government of Ontario as part of its 2009 provincial budget, *Confronting the Challenge: Building our economic Future*, is available for two years for projects that will be built during the 2009 and 2010 construction seasons. The Town of Saugeen Shores 10th *Concession Drainage and Storm Sewer* Installation project qualified for funding from both the Federal and Provincial governments. The Town of Saugeen Shores is located on the beautiful shoreline of Lake Huron in Ontario, Canada. With a permanent population of 11,800 Saugeen Shores includes Port Elgin, Southampton and Saugeen Township.

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The 10th Concession project includes the installation of storm sewers ranging in diameters from 900mm to 1,500mm and has a total length of approximately 1.2 km. Two options were specified for the storm sewer, namely reinforced concrete pipe (RCP) and Aluminized Type 2 spiral rib corrugated steel pipe (CSP). Contractors were instructed to show the lowest priced option in their tender form and to also show the premium for their second option. There were many differences between those two systems and the Public Works Department at the Town of Saugeen Shores recognized those differences.

Structural Strength: CSP are flexible pipes. Flexible pipes have little inherent strength and depend upon a **properly installed and compacted soil embedment** to achieve the required design strength. A flexible pipe installation will typically receive less than 10 percent of the design strength from the pipe itself with the remainder being provided by the soil embedment around the pipe. Loss of the embedment due to washout or infiltration into the pipe due to leaky joints or corroded pipe walls will cause the pipe to collapse. RCP are rigid pipes. They have inherent pipe strength – the strength is built in to the pipe in the plant. Rigid pipes receive additional support from the bedding underneath the pipe when they are installed. RCP design has traditionally been very conservative and concrete pipes are regularly oversized.

Watertight Joints: CSP produced in accordance with *CAN CSA G401 Corrugated Steel Pipe Products* does not have watertight joints. In fact no hydrostatic testing is included in *CSA G401*, unlike standards for RCP, PVC and HDPE pipe. Leaky joints result in infiltration and exfiltration and over time will result in sinkholes or a complete failure of the pavement overhead. Failures of this nature pose safety risks and traffic disruption.

Corrosion: The manufacturer of the Aluminized steel recommends that pipe made from Aluminized Type 2 is installed in soils with a pH between 5 and 9 and a resistivity greater than 1,500 ohms cm. The appropriate soil and water testing should always be undertaken at the locations where Aluminized steel is proposed. This is an added cost to the municipality. The Town of



Saugeen Shores was also encouraged to seek clarification on the practice of painting the ends of Aluminized Type 2 Ultra Flo pipe with a zinc paint. If the aluminum is protecting the steel, why is there a need for zinc paint? And, if the aluminum is not protecting the steel, are the most critical points of the pipeline – namely the joints – relying on the performance of zinc paint for longevity? The reality is that the aluminized alloy layer gets damaged during the conversion processes from coil to corrugated pipe and this damage is not confined to the re-corrugated ends.

Ontario Content: All levels of government – federal, provincial and municipal – are spending taxpayers' money on projects such as the one under discussion in efforts to create jobs and to stimulate the economy. More than 90 percent of the cost of a piece of RCP produced in Ontario is an Ontario based cost. The concrete pipe manufacturers in Ontario use locally produced raw materials. These materials include cement, sand, aggregates, reinforcing steel and rubber gaskets. The Canadian content of a piece of RCP produced in Ontario can be close to 100 percent. RCP is also the most labour intensive pipe industry as more value is added to convert the raw materials into the finished pipe product. The concrete pipe industry in Ontario employs more people than any other gravity pipe industry and also plays an important role in providing employment in Ontario cement plants, quarries and indeed structural engineering companies. Aluminized steel is manufactured from steel coils produced in the United States. The steel cost component of a finished piece of CSP is typically greater than 85 percent of the total cost. Furthermore, CSP plants employ fewer people in comparison to RCP plants since the conversion process from steel coil to steel pipe is not labour intensive and the value added is low.

The Town of Saugeen Shores took the points above into consideration and awarded the contract with the RCP option to Omega Contractors Inc.

Chris Dixon with Omega Contractors Inc. said *"We were very happy to be awarded the contract with the reinforced concrete pipe option. We prefer installing concrete pipe and we know our clients are getting much better value for their money with a concrete pipe system."*