



## Construction and traffic flow smoothly

**Construction work on the 407ETR highway was completed with minimal disruption to the motoring public.**

The 407ETR operates the world's first all-electronic, barrier-free toll highway stretching 108 kilometres across the northern part of Toronto, Ontario. The 407ETR highway is owned by a consortium of Cintra Concesiones de Infraestructuras de Transporte (major shareholder) from Spain, Macquarie Infrastructure Group, and a Montreal-based engineering firm SNC-Lavalin. Since 1997 the 407ETR highway has seen many extensions and enhancements to accommodate use by hundreds of thousands of drivers every day.

The 407ETR uses a series of cameras and transponder devices to help automate the toll process. The 407ETR is the only highway in Canada that exclusively uses open road tolling.

The 407ETR highway is designed to be a quick and efficient transport route, that's why there are no toll booths and instead a radio antenna detects when a vehicle with a transponder has entered and exited the highway and calculates the toll. For vehicles without a transponder, an automatic number

plate recognition system is used. The toll is calculated on a kilometre basis and monthly statements are mailed to all users.

### **Avoiding traffic delays with sliplining**

During the initial construction of this highway it was fitted with corrugated metal culverts, at the time this was seen as an economical decision, but due to the harsh climate in southern Ontario, the life of this piping system was drastically reduced. To maintain this fast, safe and reliable highway that people have come to expect, the 407ETR begun refurbishing the culverts. In 2009, the 407ETR made the decision to refurbish eight corrugated metal culverts using a trenchless construction process called sliplining. This method was selected since it does not cause traffic delays and road closures which are typical with traditional 'dig and replace' methods.

Weholite was chosen as the preferred liner material as it has an excellent track record in many places across Canada for sliplining corroded culverts. Another reason for the selection of Weholite was the ingenious threaded joint that provides excellent tensile qualities and helps reduce overall installation time which gives it a clear advantage over other materials.

The existing culverts (DN/ID 600mm to 2,700mm) were cleaned, sliplined with Weholite PE-HD pipe and then the annular spaces were grouted to provide additional structural support as well to fill any voids created by previous washouts.

The construction work was completed with minimal disruption to the motoring public while avoiding future post-installation road problems that are common with traditional "dig & replace" methods. The project was a resounding success and the 407ETR plans to expand the culvert rehabilitation programme in the coming years.



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