



SRPE Pipe Rehabilitation

OWNER**CONTRACTOR****LOCATION**

Ministry of Transportation Ontario

Pioneer Construction

Atikokan, ON

A forty year old asphalt dipped galvanized Corrugated Steel Pipe (CSP) culvert near Atikokan, Ontario was identified for maintenance by the Ministry of Transportation Ontario (MTO). Once inspection began, it was discovered the culvert had collapsed and was in need of replacement. A new large diameter pipe was required, capable of delivering a 75 year Design Service Life (DSL) under challenging environmental conditions.

**TECHNICAL DETAILS**

SRPE pipe: 2130 mm (84 in)
diameter, 27 m (88.6 ft) length,
21 kPa (3 psi) joint



The Challenge:

The replacement pipeline needed to withstand aggressive environmental conditions. The resistivity of the surrounding soil was low and the effluent water was acidic (low pH value). With a soil-tight 21 kPa (3 psi) joint, both the interior and exterior of the culvert could be exposed to acidic effluent. The pipe material needed to achieve the specified service life requirements. The unanticipated discovery of the collapsed pipe also led to concerns of project delays and heightened the need for a product that was readily available and could be installed quickly.



The Solution:

In order to improve the structural integrity, Armtec proposed the installation of a 2130 mm (84 in) diameter Steel Reinforced Polyethylene (SRPE) pipe to replace the failed culvert. The reinforcing steel ribs provide improved pipe stiffness compared to like diameter High Density Polyethylene (HDPE) pipe, thereby providing the benefits of HDPE in much larger pipe sizes.

SRPE pipe was also selected for its durability and resistance to chemical attack. The galvanized steel rib component is completely encased in HDPE which has a documented history of performance. The Ministry of Ontario’s “Gravity Pipe Design Guidelines”, April 2014 confirms a design service life of 75 years for HDPE pipe. SRPE pipe possesses the same chemical corrosion resistant properties of HDPE, outperforming other pipe materials such as concrete, steel and aluminum.

For more information on the benefits of SRPE pipe see:

Technical Bulletin B3.11.1 Chemical Resistance of BOSS 3000 SRPE Pipe and the BOSS 3000 Product Guide.

The SRPE pipe was available in stock and could easily be delivered within the required time frame. Installation of the new culvert proceeded smoothly. The longer pipe lengths required fewer joints compared to conventional large diameter pipe. Soil-tight joints were achieved by using a propriety coupler system. The light weight of the SRPE pipe permitted easier handling and placement during installation.

Thanks to product availability and ease of installation, the project was successfully completed in the fall of 2014 despite initial concerns of unexpected delays.



**Find out how SRPE Pipe can be used on your next project.
Contact us today!**



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