SOLENO

Mastering Storm Water

THE MOST POWERFUL

APPROACH FOR STORM WATER MANAGEMENT

THE “BRISSETTE INTERCEPTING SEWER”

3000 m³ large combined sewer overflow

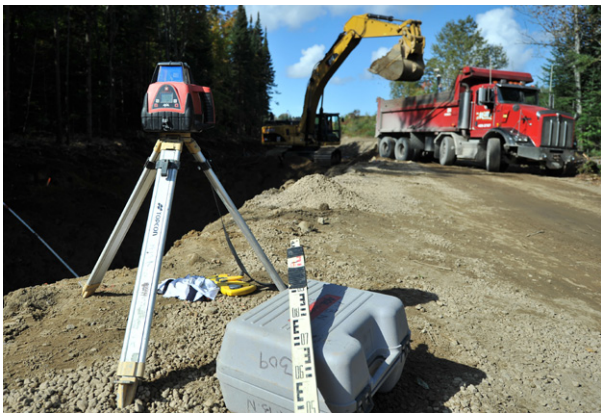
A recent challenge associated with the installation of a storage system for combined wastewater in a Quebec municipality was resolved brilliantly, thanks to the expertise of Soleno’s technical team and the engineering firm: Les Consultants S.M. inc., and to the use of two of their products, large-diameter Sclairpipe and Weholite (HDPE). This is the first application of its kind under special conditions.

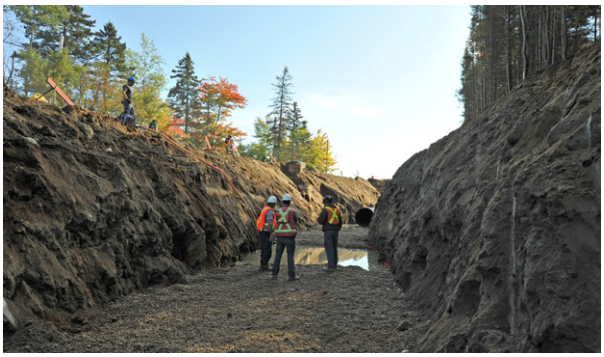
READ MORE

THE CUSTOMER

BACKGROUND

The Laurentian city of Sainte-Agathe-des-Monts was faced with the problem of repeated overflows in the receiving environment before combined wastewater arrived at the water purification plant. Looking for an analysis of the problem and the best long-term solution, the city took the decision to engage the services of the international engineering firm Les consultants SM Inc, which has an office situated directly in Sainte-Agathe-des-Monts.





ALTERNATIVES

The experts and the municipality considered different options. In particular, they looked at increasing the capacity of the treatment plant so as to treat - in real-time - all combined wastewater coming from the existing system. Another possibility was to install a large-capacity reservoir to collect and store temporarily the combined wastewater and convey them to the treatment plant once past the tip. It was finally decided to design and install a large-capacity reservoir, and to look for high-performance products to accomplish this.

CRITICAL ELEMENTS

A project of this size was composed of several critical elements. First of all, the total cost, estimated at between three and four million dollars, represented a hefty sum for a municipality of this size. It was important, therefore, to opt for the most economical and durable choice. The storage option was preferred over the option of building a detention pond. Ease of installation impacting on the cost of manpower and equipment, as well as the time required for completion of the project, would also be decisive elements. Furthermore, special soil conditions and the other existing infrastructure added to the constraints of the site.

In this context, it was extremely important to find competitive materials with the highest standards of performance as regards their lifespan, resistance to deterioration and leakage, and ease of installation. The materials would also have to meet specifications and qualify for funding applications.

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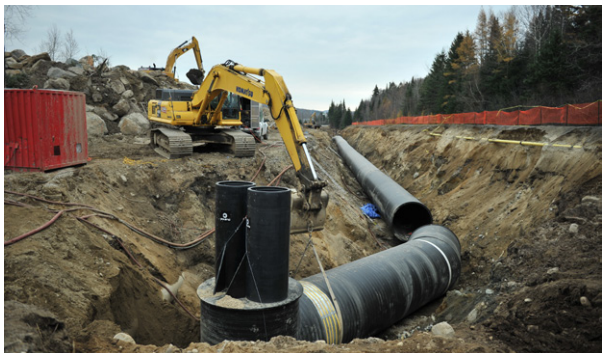
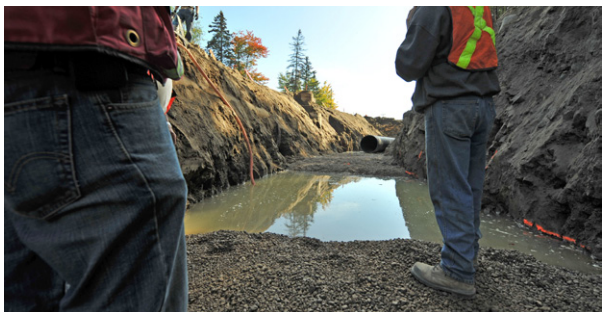
THE PROJECT

DESCRIPTION

The “Brissette Intercepting Sewer” project entailed the installation of a 3000 m^3 large combined sewer overflow to collect combined wastewater, which would eliminate overflow in the receiving environment





CONSTRAINTS AND SPECIAL RISKS

Constraints and risks inherent in the project were considerable.

The terrain presented serious challenges. The soil itself was made up of very dense glacial moraine which made excavation to a depth of three to five meters very difficult, and the high water table necessitated pumping operations. The presence of other infrastructures limited the space available for installation and manœuvering of machinery, and also increased the risk of breakage.

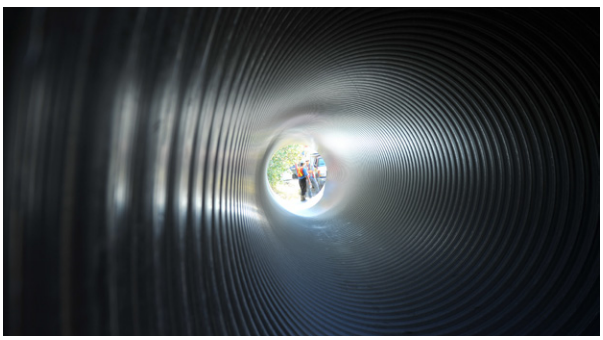
As for the products used, it would be necessary, not only that the pipes meet required technical specifications, but also that they have an elevated life expectancy in relation to the cost of materials and installation, and all within the context of a low-pressure installation.

The specifications were clear, and the demands, high.

THE CHALLENGE

For the client, this project, demanding in all its aspects, also had to respond to specific admissibility criteria for subsidization. In fact, although MAMROT (Ministère des Affaires municipales, des Régions et de l’Occupation du territoire) might recognize the competitive advantages of HDPE, it expected that equivalences of traditional products also be specified in invitations to tender. Also, the financial resources allocated to the project had to remain as low as possible, taking into account their impact on the taxation of citizens.

The performance of large-diameter conduits under low pressure was, however, an issue for close study, and the invitations to tender had to provide for equivalences for both traditional and innovative installations. Authorities in charge of financing were extremely careful, because although the use of large-diameter conduits is common in the U.S. and elsewhere in Canada, they had not yet been applied in Quebec soil.



Mr. Sylvain Racette, an engineer at Soleno, exclusive distributor of Weholite products, commented, “The challenge for our technical team was to begin by responding both to the overall characteristics and to the specific demands of the project. One of the obstacles encountered was to convince government authorities to allow the use of large-diameter PEHD and then to proceed for the first time to the installation of this type of product at a complex construction site in Quebec.” It goes without saying that Soleno spared no effort to meet the requirements and to promote the durability and efficiency of conduits manufactured by KWH Pipe for an installation of this scope. Other selling points were their competitive advantage with regard to price and the hundred-year lifespan of the installation. The project was unique; Soleno’s strong points were the competence of its technical team and the dependability of its products. The company was aware of how the outcome could influence future developments in a special sector of activities. From all points of view, it was absolutely necessary for this application to be accepted.

Soleno’s technical team therefore prepared an optimal quote respecting the particular specifications established by the engineering firm in response to physical constraints. The project consisted of placing 448 linear metres of 2290 mm (90 inches) interior diameter RSC 250 Weholite conduit, for use under low pressure (15 psi), with a manhole in HDPE and an access chimney in HDPE; connected to 488 meters of 1520 mm (60 inch) exterior diameter DR 32.5 (50 psi) Sclairpipe.

THE PROJECT

ADVANTAGES OF KWH PRODUCTS AND THE SOLENO SOLUTION

The Soleno solution prevailed in the minds of stakeholders in the project—more or less naturally, dare we say! And then, the outcome of the bidding process confirmed the evaluations of the experts.

The use of large-diameter HDPE conduits, an exclusive product of KWH Pipe, allowed an economical installation, particularly within the context of this project. It offered superior resistance to corrosion, abrasion, chemical substances, road salts, soil movements and chemical reactions caused by gas in combined wastewater, preventing their deterioration and ensuring their durability (an exceptional life expectancy of more than 100 years.) unlike concrete pipes. Their considerable diameter allows a reduction in the length of the installation. Their 50-foot length, lightness and ease of connection permits easy and fast manipulation. Their installation dœs not require the services of specialized contractors, because any contractor qualified to install sewers and aqueducts can carry out the work. And, their connection on the site by the Soleno technical team, using a thermal fusion process developed for this purpose, provides a guarantee against leakage. Finally, their cost (materials and installation) is less than that of traditional conduits and their ecological footprint is small.

Another invaluable advantage of using HDPE in the context of this project was the possibility of making connections of the same diameter as the conduits, and in a single piece (a manhole with smooth exterior wall pipe having the same diameter as the 90-inch conduit). In fact, only HDPE provides the possibility of this type of connection, since the concrete manhole used to connect to a 90 inch conduit is made up of several large pieces (150-160 inch diameter vs. 90 inches for Weholite conduits). The concrete installation is a puzzle for the on site contractor. The surface excavation required for it is consequently larger, numerous manipulations of heavy pieces are necessary, and all this increases the installation time (about eight hours, as compared to two hours for Weholite conduits). This spirals into more time on site and increased associated costs.

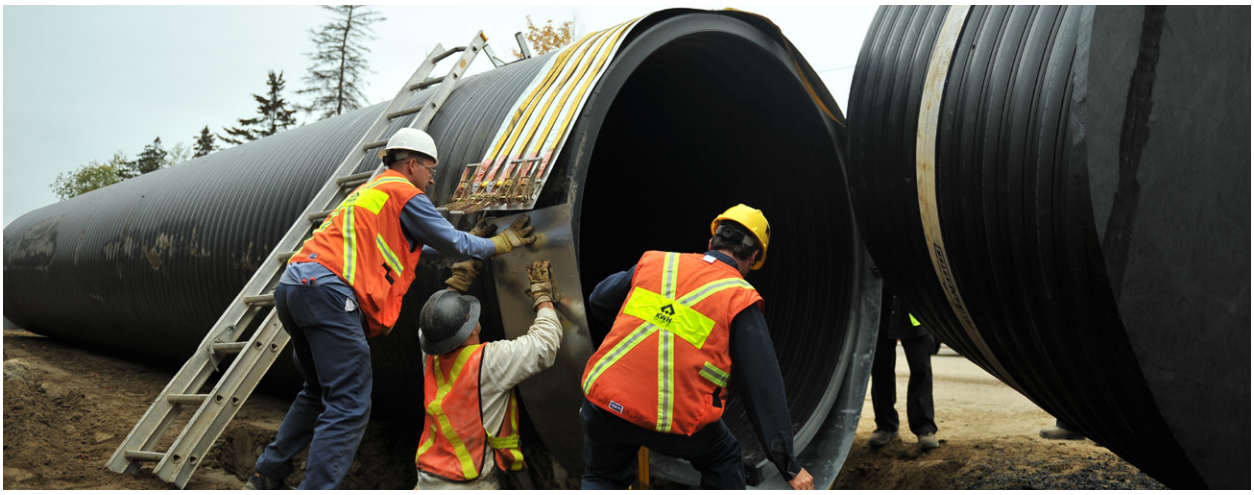
In this case, the work, brought to completion in the autumn of 2011, was accomplished in a total of twelve weeks and did not suffer from any delays.

The installation and connection of the conduits took only eight weeks, while a traditional installation, in the view of experts, could easily have lasted a few weeks more.

Thus, all the qualities of HDPE produced the effect of an installation brought to completion in record time. The issue of productivity was fully resolved. This was confirmed by Mr. Alexandre Foisy, engineer at MBN Construction Inc.: “The use of Weholite conduits allowed us to complete this project with minimum delay, and also to adapt ourselves well to a problematic work site. In fact, because of space constraints between a high pressure gas conduit and the municipality’s sewer main, we would have had to adjust our alignment from the original plan. But the speed with which our partners in the project adapted permitted us to limit delays caused by the situation. Engineers responded quickly, and Soleno quickly supplied the pieces necessary to make corrections. ”

THE PROJECT

THE OUTCOME



Their chosen solution allowed the city of Sainte-Agathe-des-Monts to enjoy considerable savings, and at the same time they acquired a durable and ecological installation. Experts say this choice enabled them to reduce the duration of work on site by a third. From the point of view of taxpayers, this was a wisely managed investment on the part of the municipality, which had corrected a critical situation with the potential to inflict damage on the political level, and with other negative implications. This action had also been carried out within announced deadlines and with durable effect.

From the point of view of the manufacturer (KWH Pipe), the success of this first Quebec project in which conduits of such a size were installed represents an important breakthrough in a market with high potential (Quebec and Canada.) The quality of its products, combined with the available know-how of the technical personnel at its sole distributor Soleno, is a favourable advantage in a context where much of the infrastructure has reached its expiry date and where traditional products do not respond as well to the demands of the present market.

From the point of view of the engineering firm, their efficient collaboration with the Soleno technical support team allowed them to overcome all the challenges involved in the project. They developed an increased confidence in Soleno's know-how and confirmed the competitive advantage of installing HDPE conduit over traditional methods.

From the point of view of the contractor, the enhanced relationship of trust developed with the supplier (Soleno) and its technical support team reinforced the obvious superiority of installed products and inspired peace of mind about future projects of the same type.

From Soleno's point of view, this was the opportunity to offer a solution using exclusive Weholite products, the best performers on the market, and then to put their long professional tradition at the service of project partners. This gave them the chance to win the confidence of the client and of government authorities, through a successful first application of large-diameter conduits in Quebec. Evidence of Weholite's overall high level of performance in the context of this project permitted Soleno personnel to confidently promote future applications of this type of technical conception.

This job well done opened the door to a huge market. It allowed Soleno to confidently offer its specialized consulting services, now building on proven innovative techniques, to engineering firms, managers of municipal and road services, and to contractors faced with problems of regulating combined wastewater and storm water.

This is a success story on all levels, to be added to an already impressive portfolio.

SOLENO, FOCUSED ON PERFORMANCE

Soleno is headquartered in Saint-Jean-sur-Richelieu, Quebec. Led by a visionary team, Soleno's mission is to design, manufacture and distribute high-quality primarily HDPE-products for controlling and mastering storm water.

Our highly competent team supports clients in solving problems related to collecting, conveying, treating and storing storm water efficiently, ecologically and sustainably.

The company operates several manufacturing and distribution facilities in Quebec and the Maritimes, and can quickly serve markets in Eastern Canada and the northeastern United States.

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