



**SOLENO**  
Mastering Storm Water

**THE MOST  
POWERFUL**  
APPROACH FOR STORM WATER MANAGEMENT



## DÉRY TOYOTA

**The Soleno solution, “Material & Know-how”: two major advantages for affordable storm water management in compliance with the new guide**

In 2011—in keeping with its new facilities—the Déry Toyota car dealership in Saint-Jean-sur-Richelieu needed to include a parking area to comply with municipal requirements. It called on the DGS Group engineering firm in Châteauguay to analyze the situation, recommend the best approach and prepare plans and specifications.

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## THE CONTEXT

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Generally, municipal regulation aims to restrict the flow of storm water from private land to prevent overloading of sewers. In addition, the client was aware of the new provincial regulations requiring that storm water be captured for transport to a wastewater treatment plant, subsequent treatment (optimal sediment removal) and storage with a view to re-infiltration. As a private investor, he was concerned about the cost of infrastructure.

To meet regulatory requirements, solutions usually considered in the context of a traditional PVC/concrete installation include the construction of a surface or underground retention basin. A surface basin was not a proper solution to the land area and restricted the parking space. An underground basin required the installation of small-diameter PVC pipes around the building (8, 10 or 12 inch), either connected to larger-diameter concrete pipes or connected to independent concrete catch basins, as well as the installation of a flow control system.



## NEW NEEDS, NEW SOLUTIONS

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The engineering firm then consulted with Soleno, which has for some years offered new environmentally-friendly and affordable solutions for storm water management. The solution? The use of oversized pipes made from HDPE (high density polyethylene), a versatile material tested and known for durability, lightness and savings that result from its quick installation on site.

The secret? Thanks to the lightness of the material, ease of fitting pipes of the same diameter, and to the fixed thermofused trim (patent pending and exclusive to Soleno) and locks that simplify the installation and monitoring of work, oversized pipes not only allow the capture and treatment of storm water, but also its storage, eliminating the need to create a retention basin. In addition, a technique developed by Soleno allows the direct installation of chimney-type manholes on the pipes. In most cases, their diameter can be the same as the connections, which avoids oversizing the manholes. The cost of the entire system is thus reduced. HDPE manholes also provide excellent resistance to deicing salts, abrasives, chemicals and vibrations, and their smooth outer surface eliminates the need to use antifrost geocomposite material.





# THE PROJECT

## DESCRIPTION

Installation, below the surface of the parking area, of a 400 cubic meter retention basin as a oversized storm sewer made from Solflo Max with a diameter of 900 mm, 320 kPa with 23 catch basins/manholes, and all required accessories. Ground material is composed of soil, sand and clay. Depth of about 2 m, width approximately 2 m., 0-19 mm stone embankment, asphalt surface, 300-mm minimum backfill above the pipe. Project valued at \$10 million.

## MATERIAL+KNOW-HOW

According to Jean-Yves Joubert, project engineer with Groupe GDS, the principle of oversizing pipes is the unmatched advantage of the integrated solution offered by Soleno. He explains: "This big project included the construction of a storm sewer system that includes a number of catch basins in a large parking area. Oversized HDPE pipes and their direct connection to the manholes undeniably provide greater flexibility in tight spaces, unparalleled strength and additional possibilities in terms of design and installation. Not to mention the savings that this material and this technique can achieve, whereas the same project in concrete would cost about two and a half times more." He adds: "The large-diameter HDPE pipes have the advantage of being more economical than concrete, while the price of the small-diameter ones is roughly equal. But the capacity of merging the lines with the manholes is an advantage that is worth its weight in gold."

According to the experts at Soleno, the "Lego" concept developed to optimize the performance of HDPE infrastructure and the thermofusion technology developed for pipe assembly and watertightness, make them fully compliant with the new regulatory requirements and provide clients with an integrated, sustainable and affordable customized solution for any application.

The economic benefits are optimized if the collaboration between the Soleno engineering department and the engineering firm chosen by the client is established early in the design stage of the system, thus ensuring an optimal solution at all levels for the client. Stéphane Kirouac, an engineer at Soleno, states: "Just for each manhole, the client saved approximately \$5,000 per unit, not including the savings associated with the speed of installation and durability of the material. This new method is a winning formula."



In the regulatory arena, and as a leader in the industry, Soleno is actively involved in efforts to establish standards for new applications and techniques related to HDPE. In terms of expertise and customer service, Soleno assigns a manager for each project within its engineering department. That manager liaises with the engineering firm and is responsible for the design of the storm water management system as required by the client engineers. It also dispatches a representative on site to ensure quality installation.

Since this project was completed, two other car dealerships have adopted this relatively inexpensive but very effective approach, in building infrastructure that is compliant with the storm water management regulatory requirements.

## SOLENO, MASTERING STORM WATER

For more information and learn about our services and products, please visit: [www.soleno.com](http://www.soleno.com). Other case studies are also available.

