



VIAU Terminal Rehabilitation Port of Montreal

OWNER	Montreal Port Authority
DESIGNER	Cima+
CONTRACTOR	Roxboro Inc.
LOCATION	Montreal, QC

The Port of Montreal is the second largest container port in Canada receiving \$41 billion in goods annually. In 2015, the construction of the Viau Container Terminal increased its container handling capacity to 600,000 TEUs (twenty-foot equivalent units). The project was carried out in two phases. The second phase involved the addition of a second berth, complementary container reception area and service road. The new service road required an effective drainage system in order to provide uninterrupted vehicular access to the terminal.



Application:

The Port of Montreal's Viau Container Terminal rehabilitation project included the construction of a service road to the new container reception area. As it was an important access point, an effective drainage system was required to ensure the road remained accessible at all times.

The Challenge:

The new drainage system needed to be perfectly level and free of bumps or uneven surfaces to ensure safe vehicle access. A conventional catch-basin system would require steep gradients in order to provide effective drainage, resulting in an unwanted 'roller-coaster' effect.

The new road would be subjected to heavy vehicle loads. The proposed drainage system needed to be rated for industrial applications and resistant to environmental factors such as frost, de-icing salt and UV radiation. The designers requested a shallow design with easy access for inspection and maintenance. The elevation difference between the upstream and downstream collection points also had to be minimized while still providing efficient drainage.

The service road contained two manholes that interfered with the location for the new drainage system. These structures needed to be incorporated into the design without sacrificing performance.

The Solution:

Armtec was involved in the project from the very beginning, providing assistance with hydraulic analysis, sizing recommendations and structural design requirements. A Hauraton RECYFIX HICAP linear trench drain system was proposed as the optimum solution. Its unique design combined efficient linear drainage with a large cross-sectional area to ensure proper hydraulic capacity for the maximum design flow.

The high-grade polypropylene construction of the RECYFIX HICAP product provided a durable drainage solution in a lightweight component, with each section weighing no more than 30.4kg. The drains were installed perfectly level in 400m runs with a single outlet at one end. Unlike pre-sloped linear drainage systems, RECYFIX HICAP trench drains provided effective water evacuation in a non-sloping system. Their shallow design also minimized excavation and ensured easy access for future maintenance.

In order to accommodate the two existing manholes, Armtec designed and supplied custom-made adaptors for the RECYFIX HICAP F300 system to channel effluent through several metres of PVC pipe. The outlet size from the trench drain was also increased from the standard 200mm to 300mm to maintain hydraulic performance and prevent bottlenecks in the system.

The trench drain installation was completed in the summer of 2016. The final design included 400m of RECYFIX HICAP F300 (nominal width 300mm) and 400m of RECYFIX HICAP F680 (nominal width 680mm). RECYFIX HICAP provided a durable, efficient and discreet drainage system for this busy port location.

TECHNICAL DETAILS

- RECYFIX HICAP F300 - 400m
- RECYFIX HICAP F680 - 400m

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