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GO Transit Lisgar Station

Project Location

Mississauga, Ontario, Canada

Atlantis Application

Stormwater Detention

Project Overview

The GO Transit Lisgar Station project required a high-capacity underground stormwater detention system beneath a busy commuter parking facility. Limited excavation depth, varying pavement cover, and the need to preserve surface functionality required a shallow-profile solution capable of delivering significant storage capacity while supporting long-term pavement performance.

Technical Summary

Project	GO Transit Lisgar Station
Location	Mississauga, Ontario, Canada
Application	Underground Stormwater Detention
Completion	May 2005
Surface Use	Parking Lot
Regulatory Approval	Credit Valley Conservation Authority, MTO & GO Transit
Storage Capacity	2,600 m^3
Atlantis System	Flo-Tank®
Tank Configuration	SINGLE
Tank Height	0.45m

Design Challenge

The detention system needed to satisfy multiple engineering and construction constraints simultaneously:

01 Provide approximately 2,600 m³ of underground detention beneath an operational parking facility.

02 Maintain pavement integrity under regular vehicular traffic.

03 Operate within cover depths ranging from 0.7 to 2.1 m

04 Maximise storage despite the shallow installation profile.

05 Meet the approval requirements of the Credit Valley Conservation Authority, the Ontario Ministry of Transportation (MTO), and GO Transit.

Engineering Solution

Eight Atlantis Flo-Tank® detention tanks were hydraulically interconnected using Atlantis drainage trenches to create a distributed underground storage network.

Rather than relying on a single large storage structure, the modular configuration allowed stormwater to be distributed across multiple detention zones while maintaining hydraulic connectivity throughout the system.
The shallow 450 mm tank profile enabled the required storage volume to be achieved beneath the available pavement depth, reducing excavation requirements while preserving the parking area above.

Design Benefits

✓ High void ratio maximising underground storage.
✓ Modular layout adaptable to available site geometry.
✓ Distributed storage through interconnected detention cells.
✓ Shallow profile reducing excavation depth.
✓ Durable underground structure beneath trafficked pavements.

Construction Considerations

Installation beneath active transport infrastructure required a construction methodology that balanced hydraulic performance with practical installation constraints.

The shallow-profile Atlantis modules simplified excavation compared with deeper conventional storage structures and enabled the detention system to be integrated beneath the parking lot while maintaining the required pavement cover.

Interconnecting the detention tanks through Atlantis drainage trenches also provided balanced flow distribution throughout the underground storage network during storm events.

Project Outcomes

- 2,600 m³ underground detention capacity.
- Eight interconnected storage tanks.
- Minimal excavation depth through a 450 mm module profile.
- Surface parking functionality maintained.
- Approved by all relevant regulatory authorities.

Engineering Insight

Transport infrastructure often presents one of the most challenging environments for underground stormwater storage. Designers must balance structural loading, available excavation depth, hydraulic performance, and long-term maintenance without compromising the functionality of the surface above.

Distributed modular detention systems offer an effective solution by combining high storage efficiency with flexible layouts that can be adapted to constrained sites. By interconnecting multiple storage cells, designers can increase detention capacity while maintaining hydraulic continuity across the entire system.

Did You Know?

Why use multiple interconnected tanks instead of one large tank?

Interconnected detention systems allow storage to be distributed around existing site constraints, reduce excavation complexity, improve hydraulic flexibility, and make future expansion or maintenance easier than a single large underground structure.





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Thank You For Your Attention



Contact Us

Phone Number:
+61 (2) 9417 8344

Website:
www.atlantiscorporation.com.au

Email Address:
info@atlantiscorp.com.au