

Wychwood at Upper Churchville, Residential Subdivision

Location: Brampton
Constructed: 2012-2015



Rain Gardens

Rain gardens are small bioswales. They collect runoff from several homes and from a portion of the roadway at Wychwood. They help to infiltrate and filter stormwater on-site.



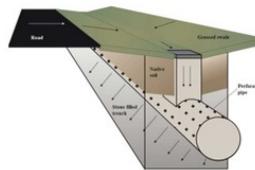
Permeable Pavers

The permeable paver driveways allow rainfall hitting the rooftops and driveways to pass between joints in the pavers. The water is then stored in an underground gravel storage layer, where it can infiltrate into the ground.



Bioswale

Wychwood has a long bioswale that runs almost the entire eastern side of the subdivision. It collects stormwater run-off from roads and rooftops from part of the subdivision and cleans the water through an engineered soil mixture. In the bioswale, the interaction of plants, soil and natural microbes removes pollutants to improve the quality of water flowing into Lake Ontario – our drinking water source.



Perforated Pipe

A perforated pipe is buried beneath the grass right-of-way in the Wychwood subdivision. Runoff is temporarily stored within the trench and slowly released back into ground.

Project Overview

Wychwood at Upper Churchville is the first low impact development (LID) residential subdivision in Brampton. All stormwater runoff is managed on-site through a variety of LID practices, including an infiltration trench, bioswale, rain gardens and permeable pavement driveways. Because of these LID stormwater management practices a stormwater pond (typically required for most residential subdivisions larger than 5 ha) was not needed, giving the developer, *Sequoia Grove Homes*, the opportunity to increase the number of developable lots. Construction of the Wychwood subdivision began in 2012 and was completed in 2015.

Successes

The successes achieved by this project include:

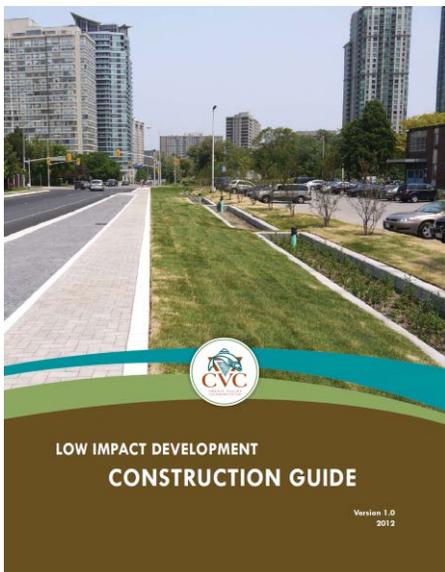
Innovative project – Wychwood is the first compact residential subdivision in Ontario to achieve all stormwater management goals, including flood control, with LID practices.

Overcoming regulatory barriers – While requiring extra effort from Sequoia Grove Homes, the engineering consultant (The Municipal Infrastructure Group- TMIG), CVC and other project champions, the project overcame the regulatory barriers through the use of scientifically supported arguments and creative solutions.

Protection of downstream habitat – By preserving the natural water balance, the Wychwood LID is designed to reduce downstream erosion and thermal pollution compared to a standard wet pond design. .

LID Construction

CVC has worked closely with Sequoia Grove Homes and TMIG to document and protect the LID features during construction. This helps to ensure LID practices within the subdivision perform well the day they go into operation.



For more information and guidance on LID construction, refer to CVC's LID Construction Guide at <http://goo.gl/pVz3Ef>

Infrastructure Performance Assessment

As one of the first subdivisions that utilizes an LID-only stormwater management system in place of a stormwater pond, the LID features at Wychwood will be assessed by CVC and its partners as part of the *CVC Stormwater Management Monitoring Strategy*. CVC has built partnerships with the City of Brampton, Sequoia Grove Homes, Building Industry and Land Development Association, and the Ministry of the Environment and Climate Change to undertake this project. Assessing the performance of these LID practices to manage stormwater, improve water quality and mitigate infrastructure risk are part of CVCs long term monitoring objectives. These results will inform municipalities, regulatory agencies, and the development industry to move forward on sustainable stormwater management. The 5 year assessment work began in Fall 2015.

Performance Assessment Objectives

Some of the key objectives of the infrastructure assessment include:

1. Evaluate how a site with multiple LID practices treats stormwater runoff and manages stormwater quantity as a whole.
2. Evaluate whether LID stormwater management systems are providing flood control, erosion control, water quality, recharge, and natural heritage protection as per the design standard.
3. Evaluate and refine construction methods and practices for LID projects.
4. Evaluate long-term maintenance needs and maintenance programs, and the impact of maintenance on performance.
5. Determine the life-cycle costs of LID practices

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