

Ultra-Urban Application of the Drainage Act: Southdown District, Mississauga

Bill Trenouth, Ph.D.
May 25th, 2018



STEP Water is a partnership between:



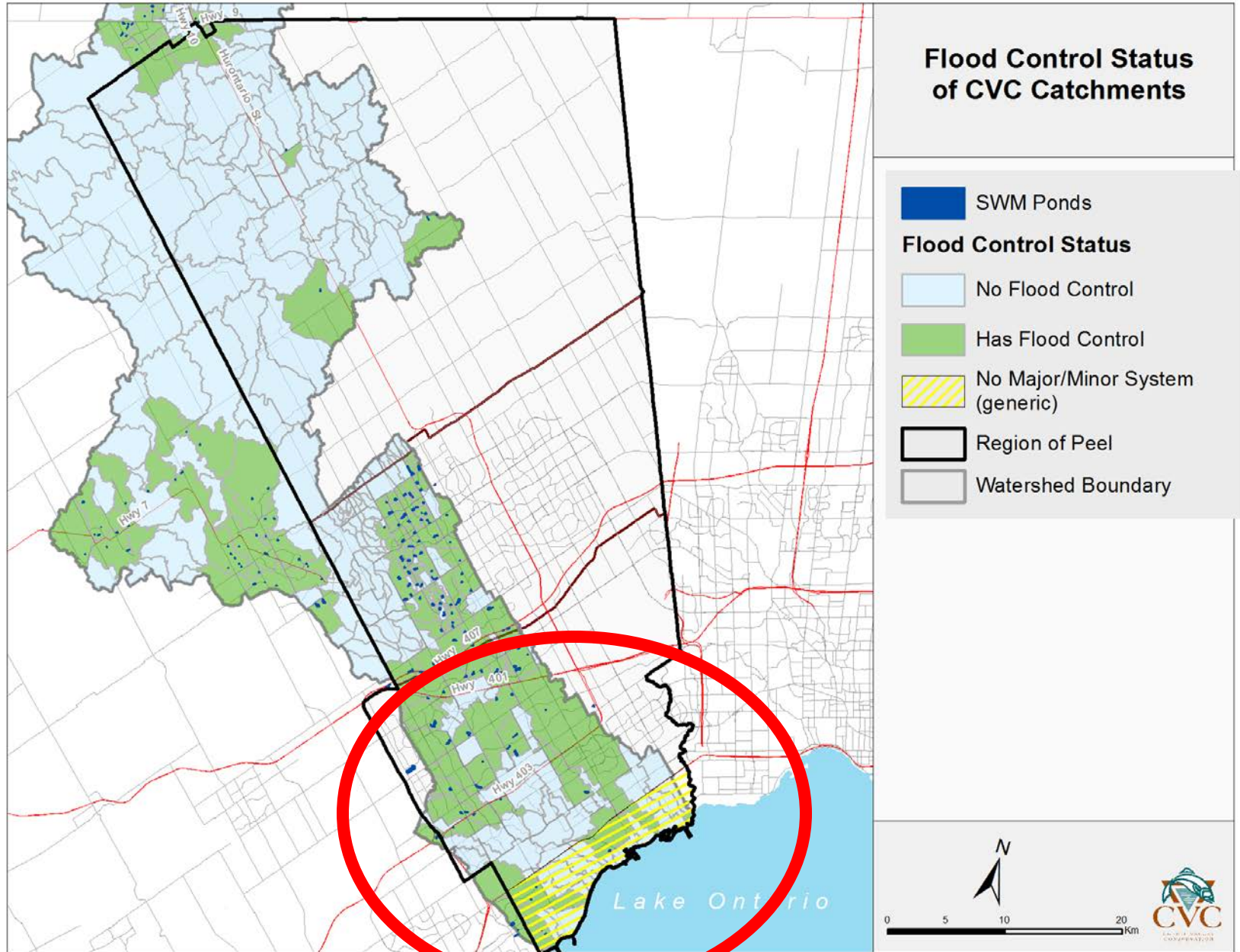
CREDIT VALLEY
CONSERVATION



Water Quality



Water Quantity



Why Hasn't Wide Scale Adoption Occurred?



The area above (Square One) is 245,945.2 m² in size.

Annual stormwater charge is \$93,952.20.

Commercial Property Owners

- Return on Investment key determinant for commercial property owner expenditures in on-site SWM
- Stormwater utility & credit programs or “feebates” do not tip the scales in favour of adoption (in Mississauga uptake is below 5%)
- Major challenge, as small- to medium-sized businesses cannot afford significant capital outlays

A 'Made in Ontario' Solution: The Drainage Act as an Innovation Tool

Why the Drainage Act?

- The Act has been serving the drainage needs of the Province for 183 years
- The Act brings people together as a community and helps everyone realize financial efficiencies / economies of scale
- The Act speaks directly to many of the concerns that municipalities have about infrastructure on private property:
 - Who pays, and how much?
 - Ability to inspect & maintain
 - Power to protect
 - Infrastructure improvement and optimization
 - Movement of water across (multiple) property boundaries
 - Etc.

The Nitty Gritty: Setting the Boundaries

- *Drainage Works: A drain constructed by any means [...] and includes works necessary to regulate the [...] water level within or on any lands... (S.1)*
- *Improvement: Any modification of or addition to a drainage works intended to increase the effectiveness of the system (S.1)*
- *Effectiveness: ...Manages the volume and rate of flow of the water artificially caused to flow (S.3)*

The Nitty Gritty: Initiating Projects Through Petition

- Almost anyone can petition for drainage. This includes individuals, municipalities and for-profit corporations (signing authority must reside with the petitioner) (Section 1)
- Rural and urban property owners can sign a petition for drainage
- Since the Act specifies an “Area Requiring Drainage” (ARD), and not a “drainage area” or “watershed”, it lends itself well to the Grid Block concept

Drainage Area vs. Area Requiring Drainage



THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHILE SHOWN, THE ACCURACY IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PLAN LEGEND	
	MAJOR WATERSHED
	INTERMEDIATE WATERSHED
	PROPOSED WORK OR INCORPORATION
	Denotes PROPERTY OWNERSHIP ON BOTH SIDES OF LOT LINE
[101]	INTERMEDIATE WATERSHED ID

DESIGNED BY: N.W.M.
CHECKED BY: J.W.K.
DRAWN BY: C.J.M.
CHECKED BY: J.W.K.



SOUTHDOWN DRAINAGE ACT STUDY	
CREDIT VALLEY CONSERVATION AUTHORITY	
WATERSHED PLAN	DEC. 22, 2017
K. SMART ASSOCIATES LIMITED CONSULTING ENGINEERS AND PLANNERS RICHMOND SUBURBY	REVIEWED BY: JOB NUMBER: 17-318 DRAWING: 1 OF

The Nitty Gritty: Defining Projects Through Onsite Meetings

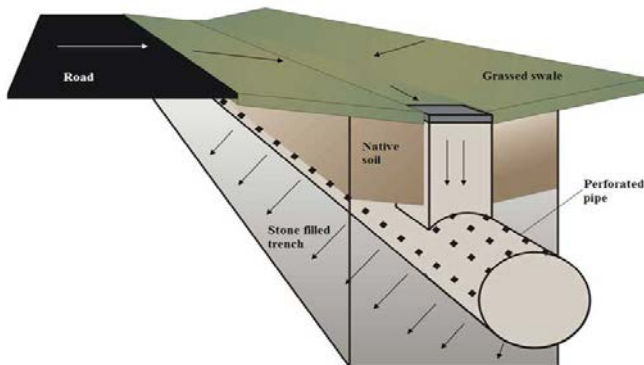
- Under the Act, the engineer must hold an onsite meeting to determine the ARD (Section 9(1))
- Onsite meeting is a good opportunity for land owners to provide project input



Urban Onsite Meetings: An Opportunity for Scoping and Discovery

The Nitty Gritty: Project Designs

- Covered drainage works can be employed (Section 14(2)).



The Nitty Gritty: Engineer's Report

- Engineers are required by this Act (and others!) to be fair and impartial. They must perform their duties without prejudice, and must make a true report and promulgate a design which holds above all else their duty to the public (Section 11).
 - O.Reg. 941 77(1): “Practitioner shall act at all times with (ii) fidelity to public needs”
 - O.Reg. 941 77(2): “Practitioners shall (i) regard the practitioner’s duty to public welfare as paramount”

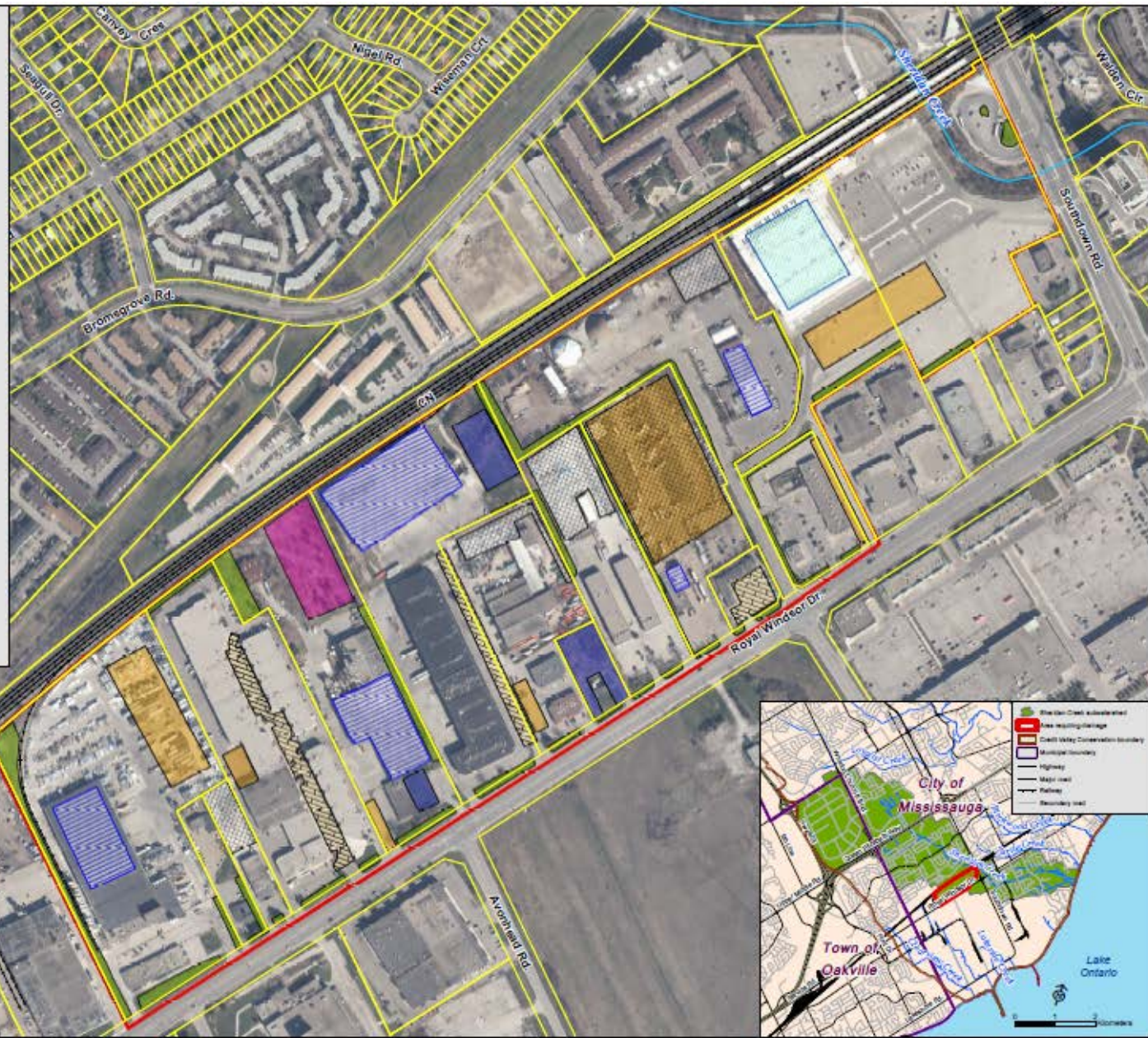
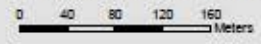
Preliminary Reports

- Section 10(1): When municipalities consider it expedient to do so, they can instruct the engineer to produce a preliminary report, which includes:
 - A sketch of the plan
 - A simple cost estimate
 - If an environmental appraisal is required, it must also be included
- In an urban context this may be akin to a feasibility study
- Section 10(2): Upon filing a preliminary report, council must cause the clerk to send a meeting notice to every landowner within the ARD

Southdown Stormwater Retrofit: Conceptual Feature Map

-  Approximate parcel boundary
-  Railway
-  Watercourse
-  Bioswale
-  Blue roof
-  Blue roof with rain water harvesting
-  Infiltration gallery
-  Subsurface storage chamber
-  Subsurface storage chamber with ecoraster
-  Subsurface storage with ecoraster
-  Wetland
-  Permeable pavement
-  Area requiring drainage

*This is not a plan of survey. 2017 Orthophoto



The Nitty Gritty: Assessments and Allowances

- Allowances (for land dedicated to the works, the disposal of spoil, loss of property access, etc.)
- Assessment schedules developed by the engineer provide a transparent means to assess all project costs to the parcels of land which benefit from the work's existence
- Construction costs ,Engineering costs, Administrative costs, etc. all captured in the assessment schedules

The Nitty Gritty: Costs Efficiencies and Apportionments

- Project costs are initially borne by the municipality before being assessed out to land owners
- Municipalities are eligible for an HST rebate, and pay only 1.76% tax

A note on property taxes:

- General taxes pay the municipality's portion of the drain costs. However, drainage works are a "user pay system", so lands within the ARD are informed what their share of construction, O&M and monitoring costs are and are assessed accordingly

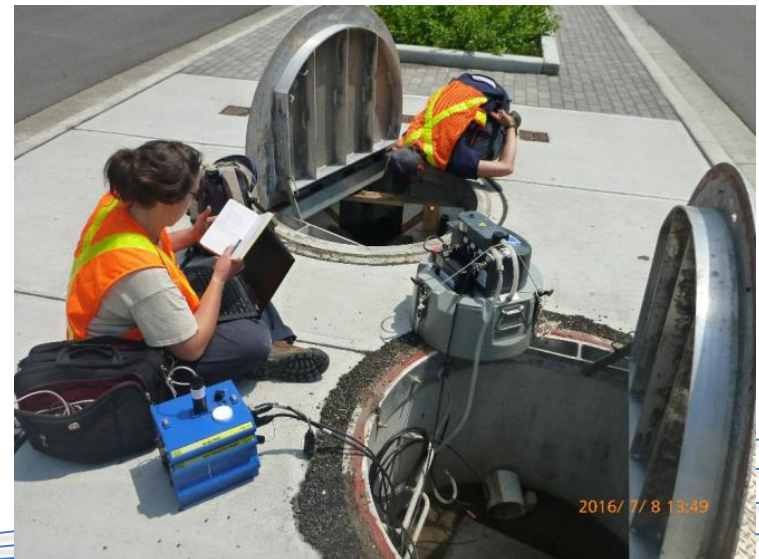
The Nitty Gritty: Provisions for Maintenance

- Future maintenance schedules are developed by the engineer
- All costs must be assessed to lands being served and accounted for in the engineers assessment schedule (e.g. Sections 23, 24 and 74)



The Nitty Gritty: Planning for the Future

- Section 78(1) states that municipalities “...may endeavour to undertake one or more projects which improve the drainage works, without the need for a petition.”
 - “Improvement” is defined under Section 1 as “any modification of or addition to a drainage works intended to increase the effectiveness of the system”
 - If the intended purpose of the works is to alleviate drainage issues – including issues noted under 23(3): “...volume and rate of flow of the water artificially caused to flow”, then improvements by extension include any enhancements to LID features



The Nitty Gritty: Giving People A Say

- Grid Blocks are tailored such that only signatories to a petition are included therein.
- Robust appeals system exists within the Drainage Act process (e.g. Sections 47, 52 and 54).



It's Already Being Done



Southdown Flagship Study









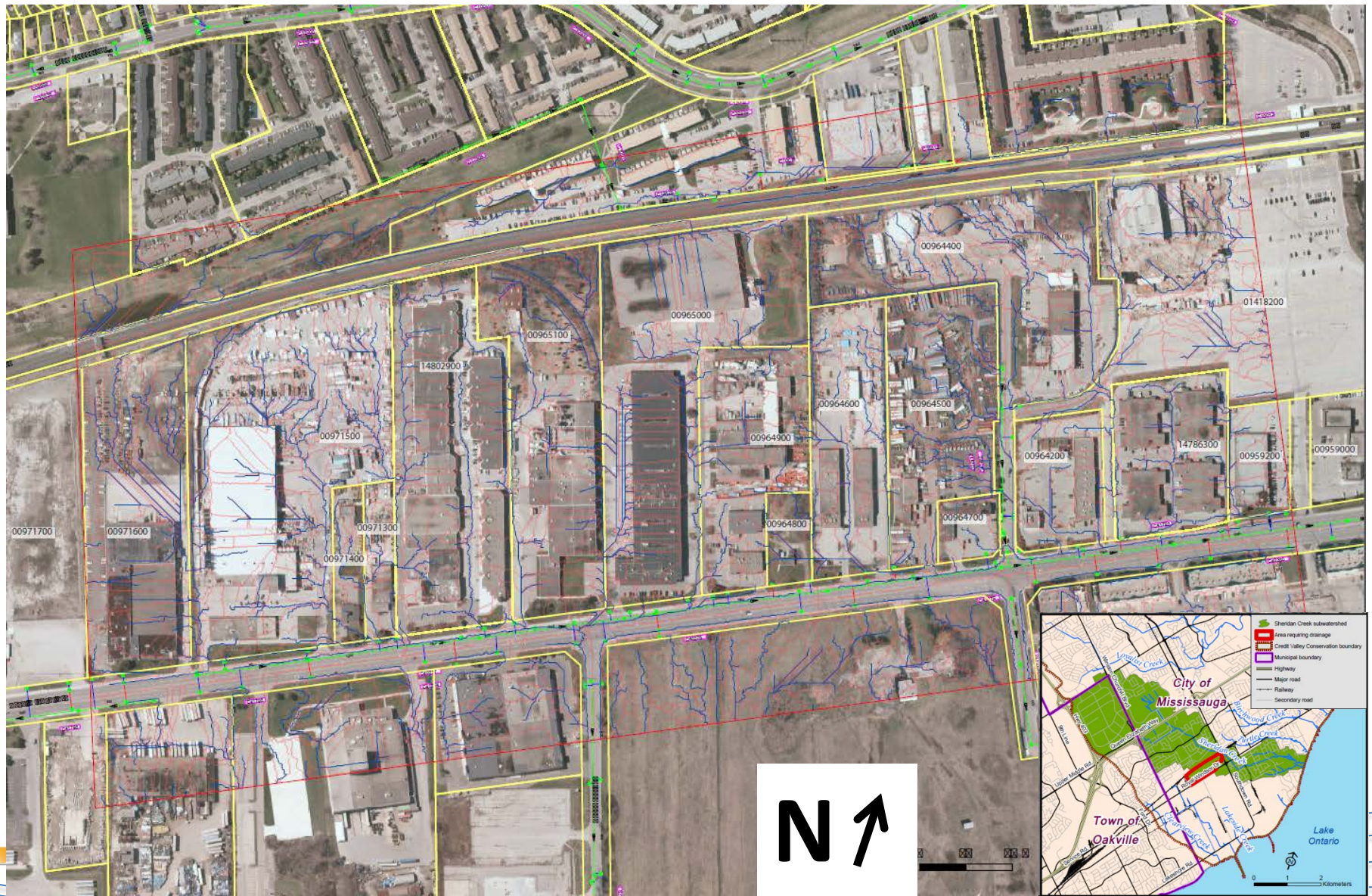
Project Goals (Broad Strokes)



- Support to other CVC-led projects
- City of Mississauga Southdown MDPU
- Region of Peel Synergies
- History of Engagement
- Drainage Issues!



90 Acre Retrofit Initiative



Thank You!

The Project Team:



The **Water** Strategy



M. FORTIN ASSOCIATES

