



ECS Lunch and Learn

Supporting internal knowledge transfer within TRCA

January 27, 2021

Erosion Risk Management Program

Lunch and Learn Presentation

Presented by: Matt Johnston, Associate Director
Ashour Rehana, Manager
David Gingerich, Analyst

January 27, 2021

Agenda

- Erosion Risk Management Program Overview
- Project Portfolios
- Innovations (Erosion Studies & Analyses)
- Open Q&A Session

Erosion Risk Management Program Overview

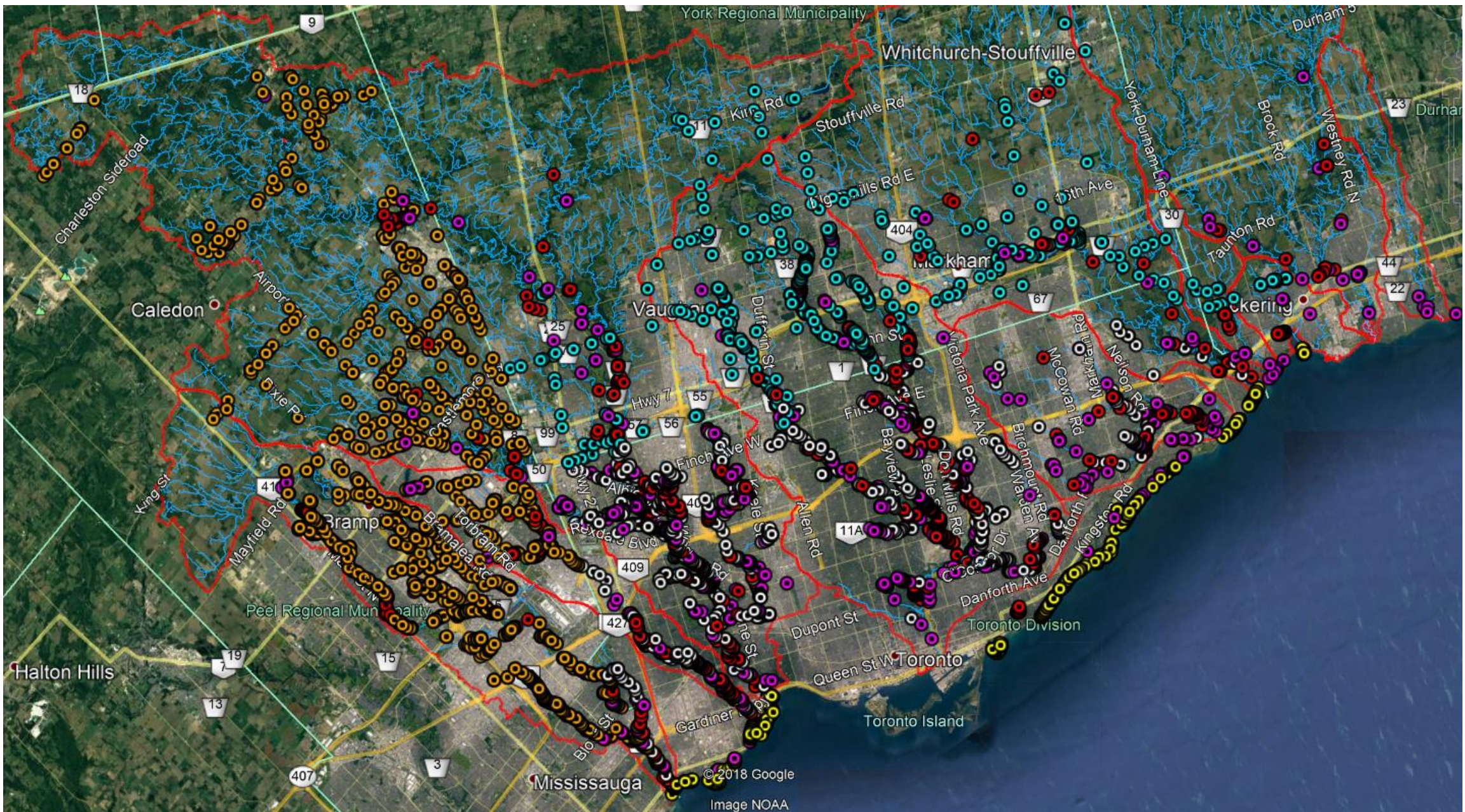
Erosion Risk Management Program (ERMP)

Primary Goal

- Inspecting and planning maintenance for the 700+ TRCA owned erosion control structures across our jurisdiction.
- Expertise allows TRCA to assess erosion risk to other property and infrastructure.

Programming

- Varies depending on funding received from TRCA's municipal partners
- Can be tailored to align with other asset management goals
- Region of York, Region of Peel, and Toronto Water all work with TRCA (assess erosion risk to their linear assets through comprehensive annual inspection programs)
- Individual projects related to hazard management can be led on a fee-for-service basis through the entire project lifecycle (environmental assessment, design, and implementation).



Project Portfolios

Maintenance vs. Remediation

Maintenance

- Focuses on existing assets
- Simplified planning process
- Public is notified prior to construction through on-site signage and notice distribution
- Often on TRCA land or other public lands

Remediation

- Focuses on new erosion hazards
- Planned in accordance with MCEA or *Class EA for Remedial Flood and Erosion Control Projects*
- Public consultation during the Class EA process
- Can occur on public or private land

ERM's Project Portfolios

- Fee for Service Projects
- City of Toronto
 - Ravine and Valley Major Maintenance Portfolio
 - Valley Erosion Hazards Portfolio
 - Waterfront Major Maintenance Portfolio
- Peel and York Infrastructure Hazard Mitigation Portfolio

Fee for Service Projects

- Primarily with municipal partners to help address their priorities
- Mostly erosion hazard mitigation and infrastructure protection work
- Also work on a variety of other projects



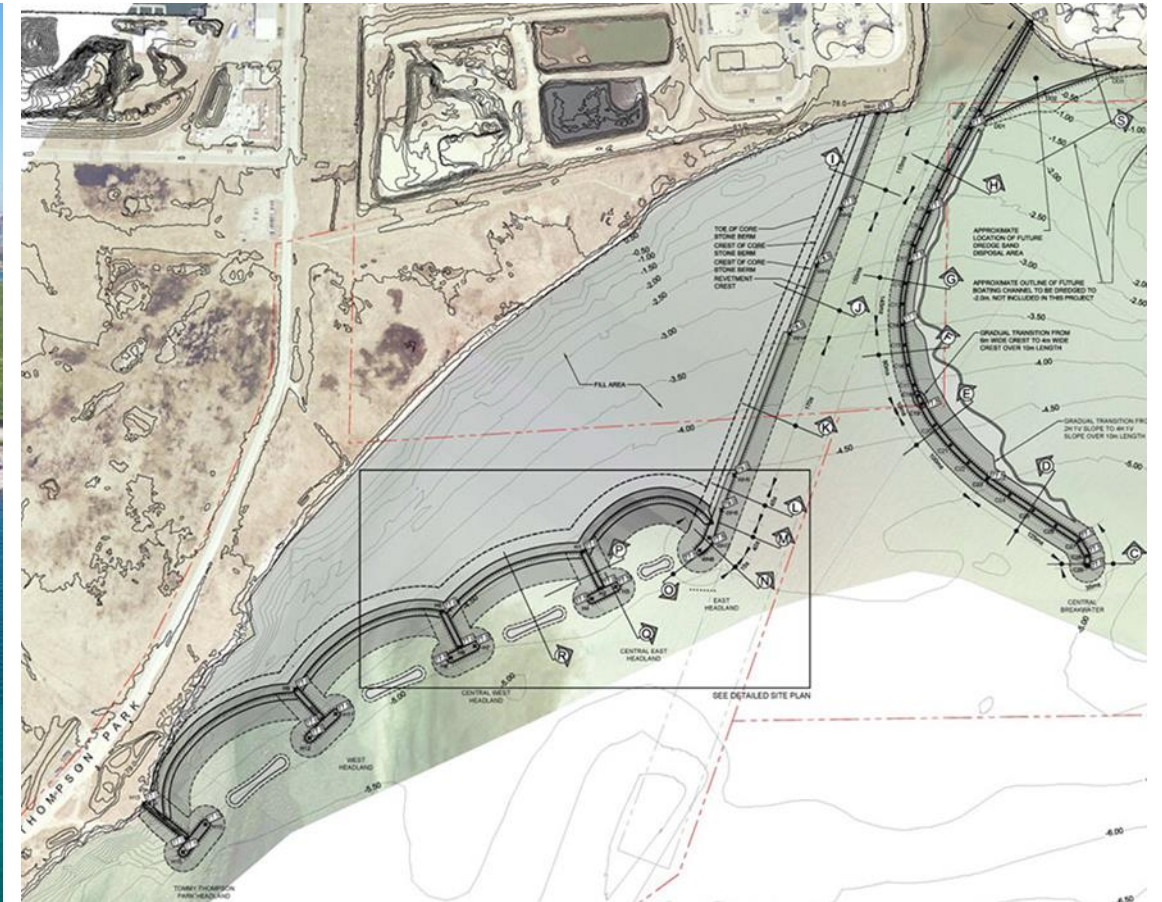
Upper Highland Creek Pan Am Path Connection



Upper Highland Creek Pan Am Path Connection



Ashbridges Bay Landform

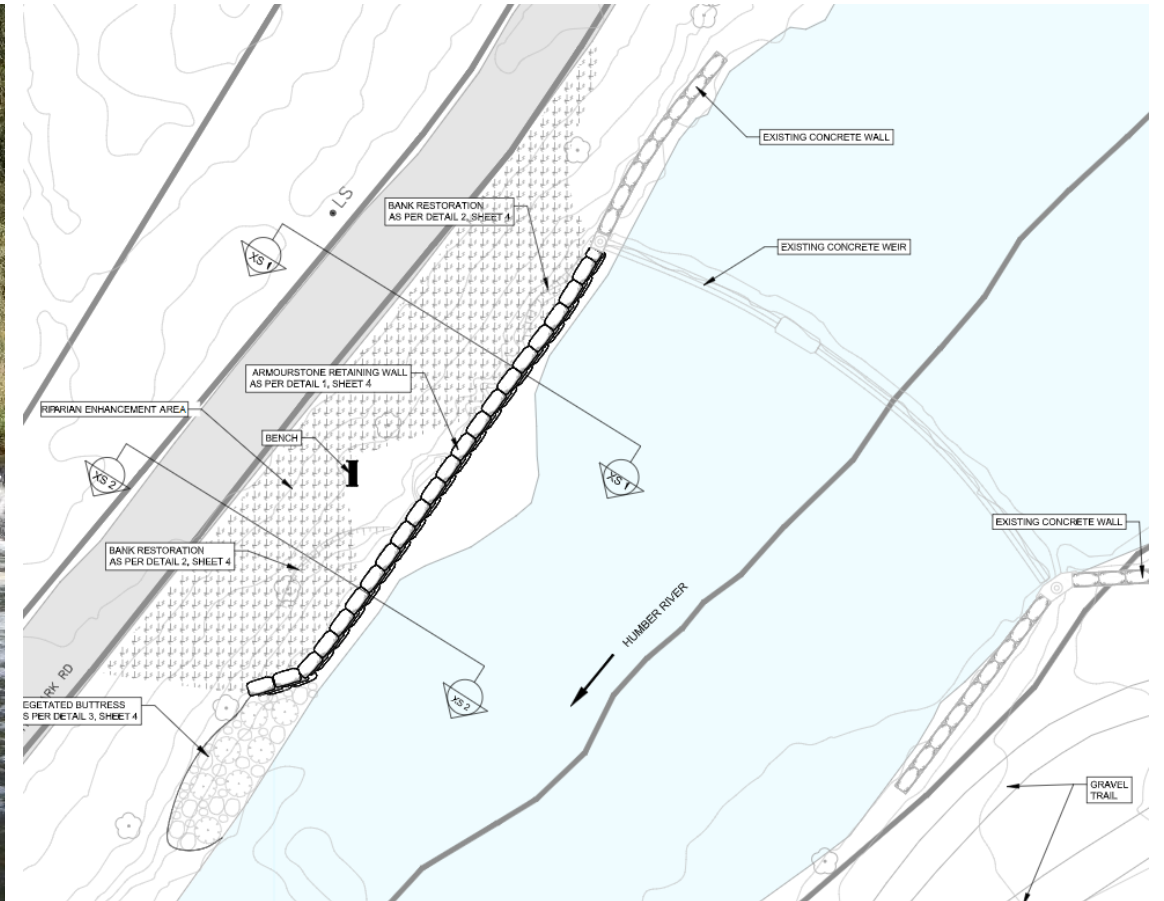


Toronto Ravine Major Maintenance

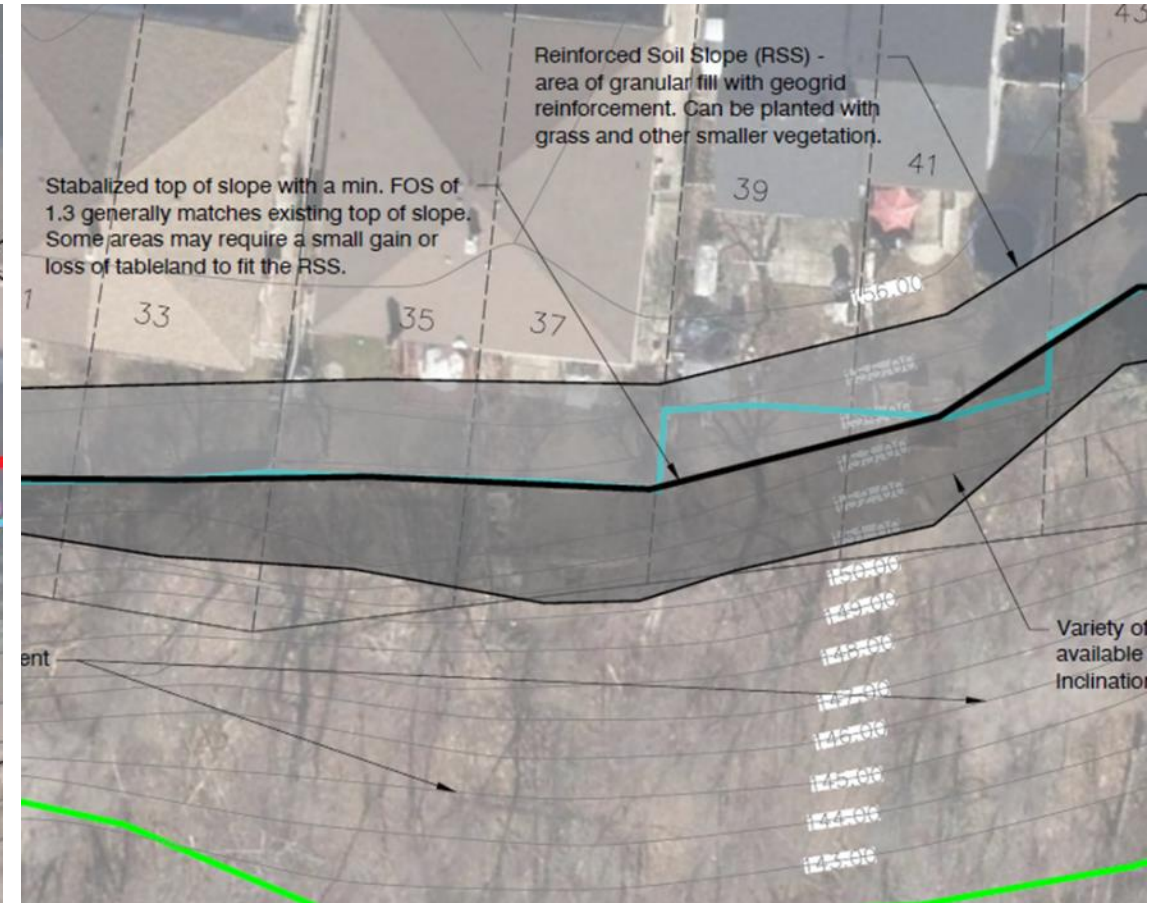
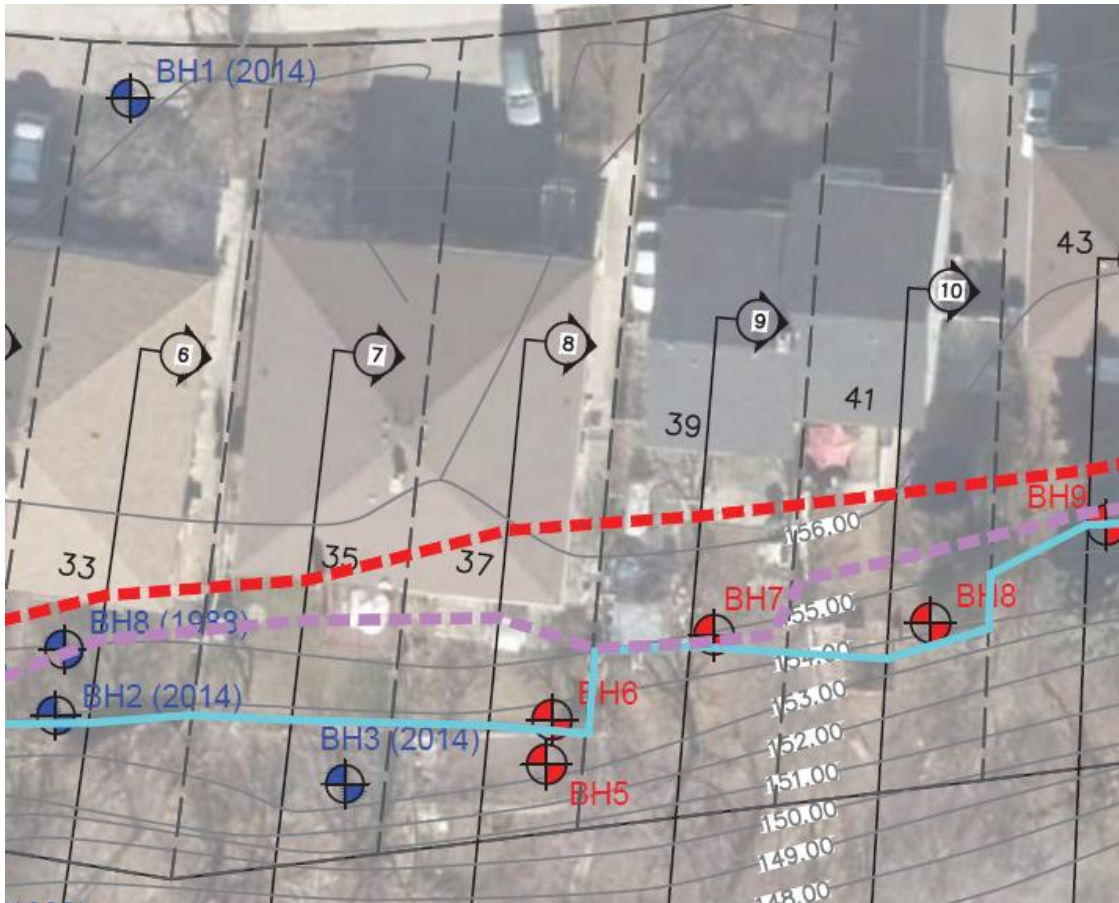
- 300+ erosion control structures
- Structures located across the City of Toronto in Ravine and Valley Systems
- Prioritize repairs based on several factors
- Oldest structures built in late 1960s
- Average structure age is 25-30 years



2021 Priorities – Home Smith Park



2021 Priorities – Lakeland Drive





Beaucourt Road Major Maintenance Project

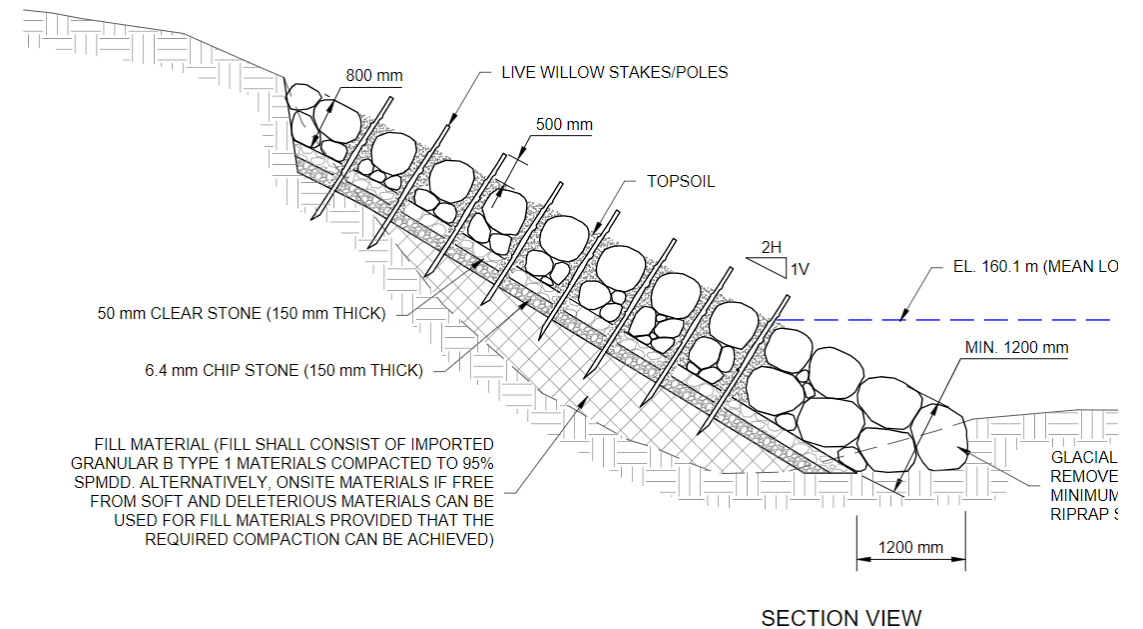


Toronto Valley Erosion Hazards

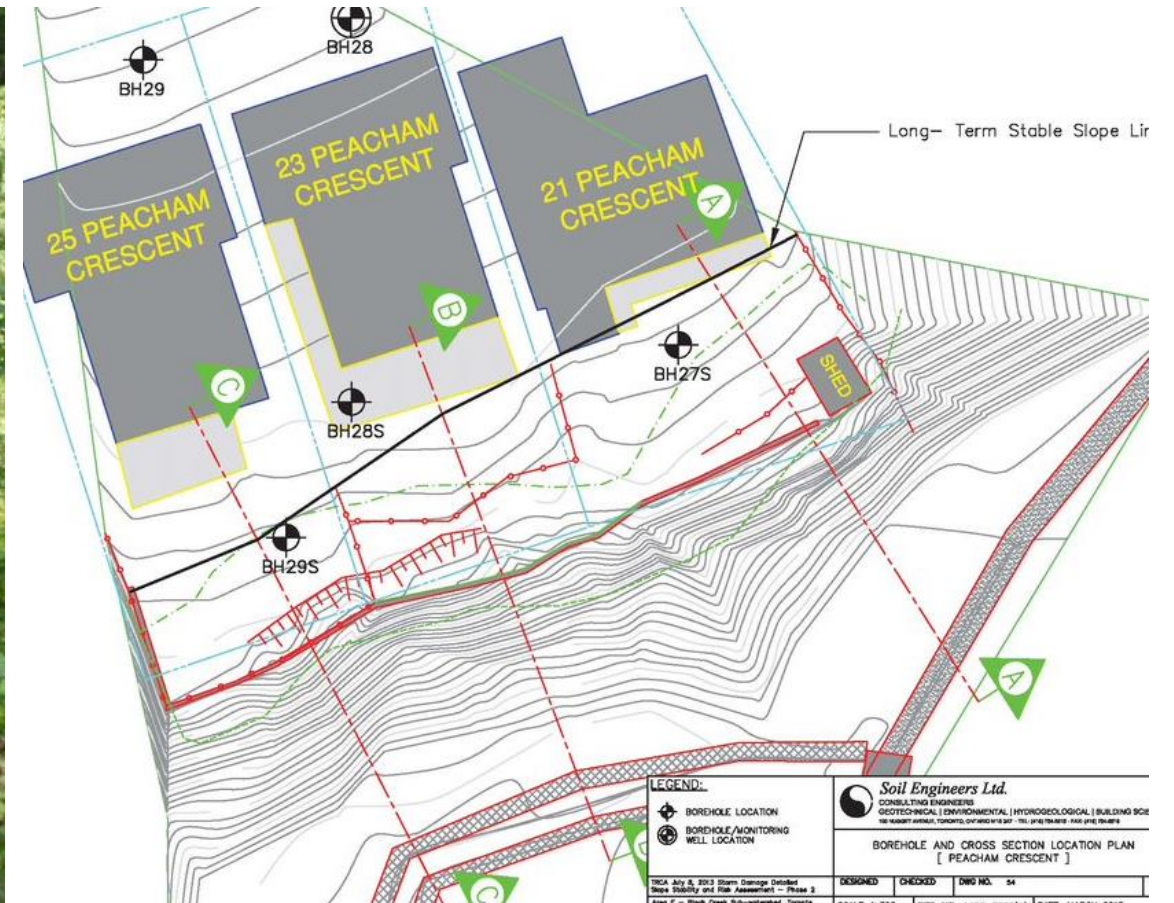
- Program stemming from the July 8, 2013 heavy rainfall event
- Valley and ravine-based erosion hazard sites
- Over 400 properties enrolled in our ERMP
- Address the highest priority sites on an annual basis



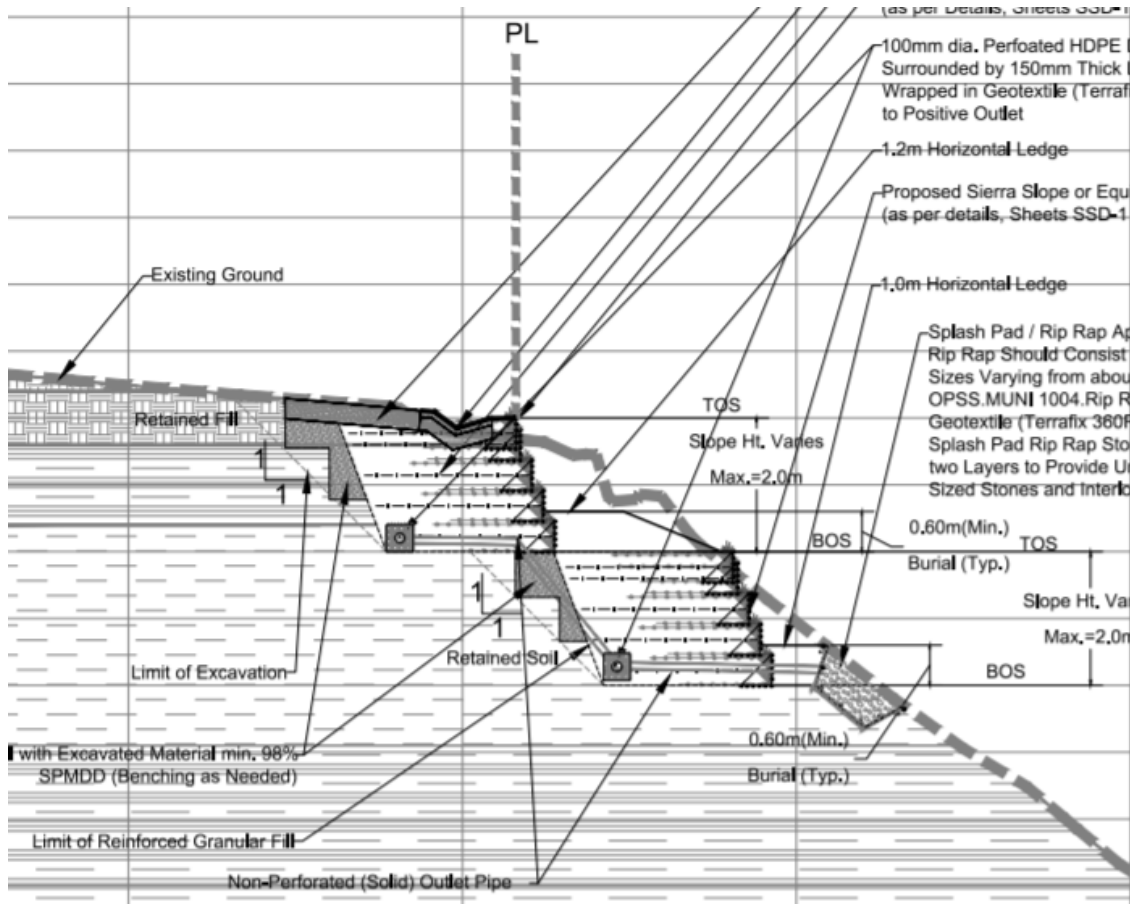
2021 Priorities – Bucksburn Road



2021 Priorities – Peacham Crescent



2021 Priorities – Peacham Crescent



90 Meadowcliffe Drive Slope Stabilization Project

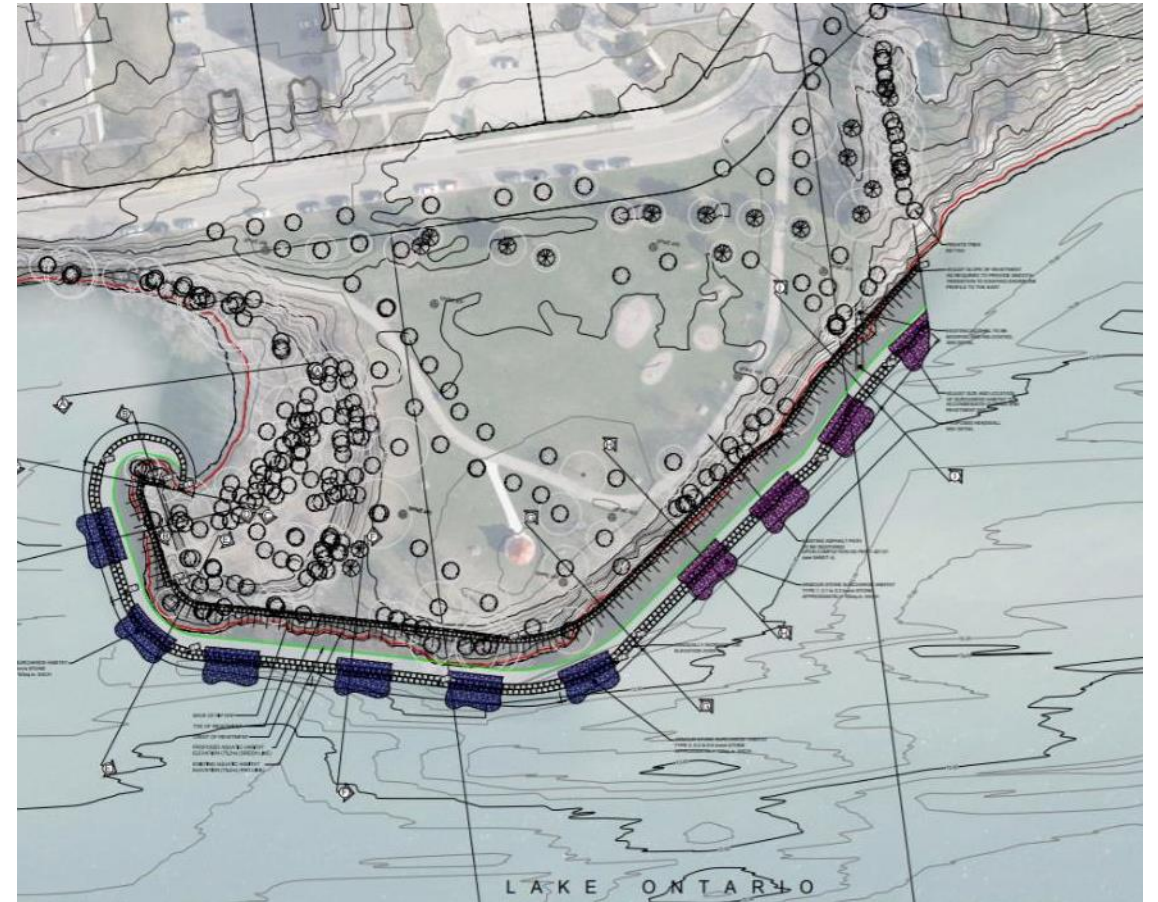




Waterfront Major Maintenance



Long Branch Park Major Maintenance Project





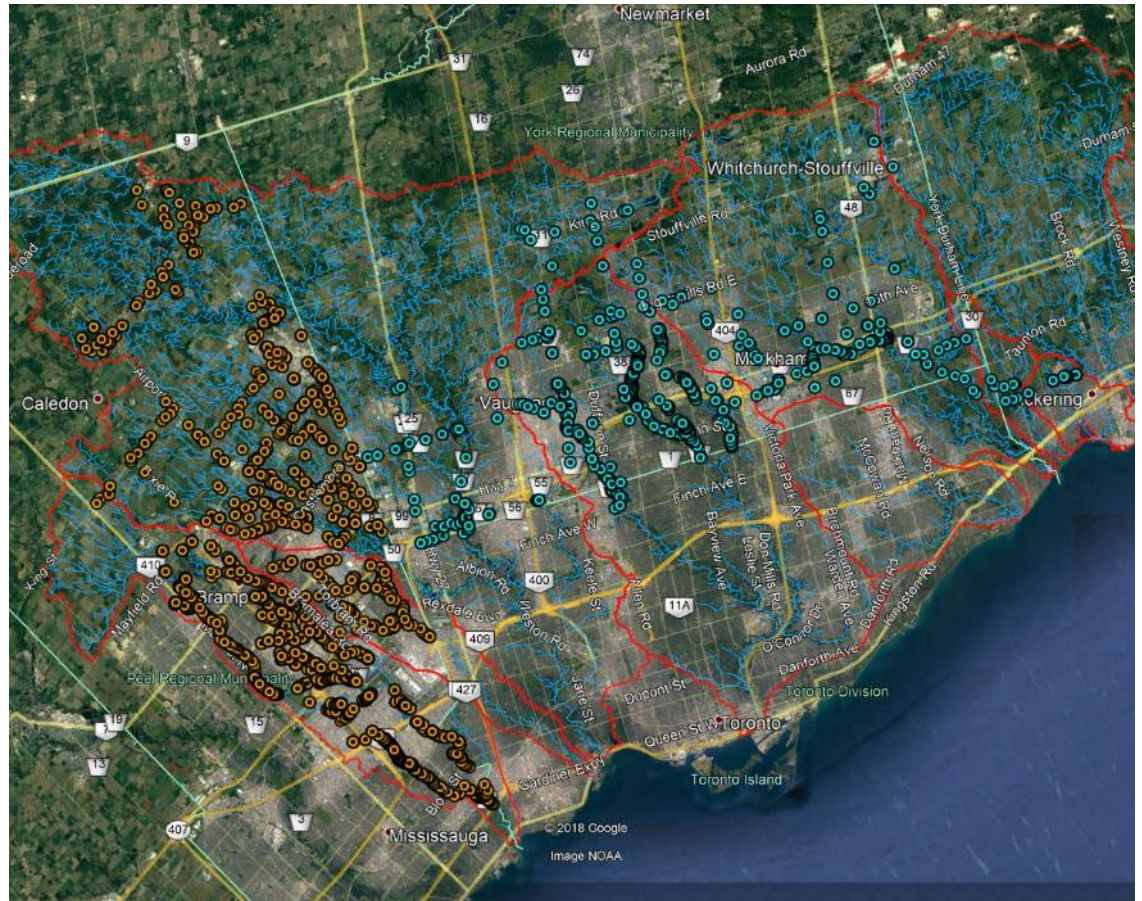
Bluffer's Park Headland and Beach Maintenance



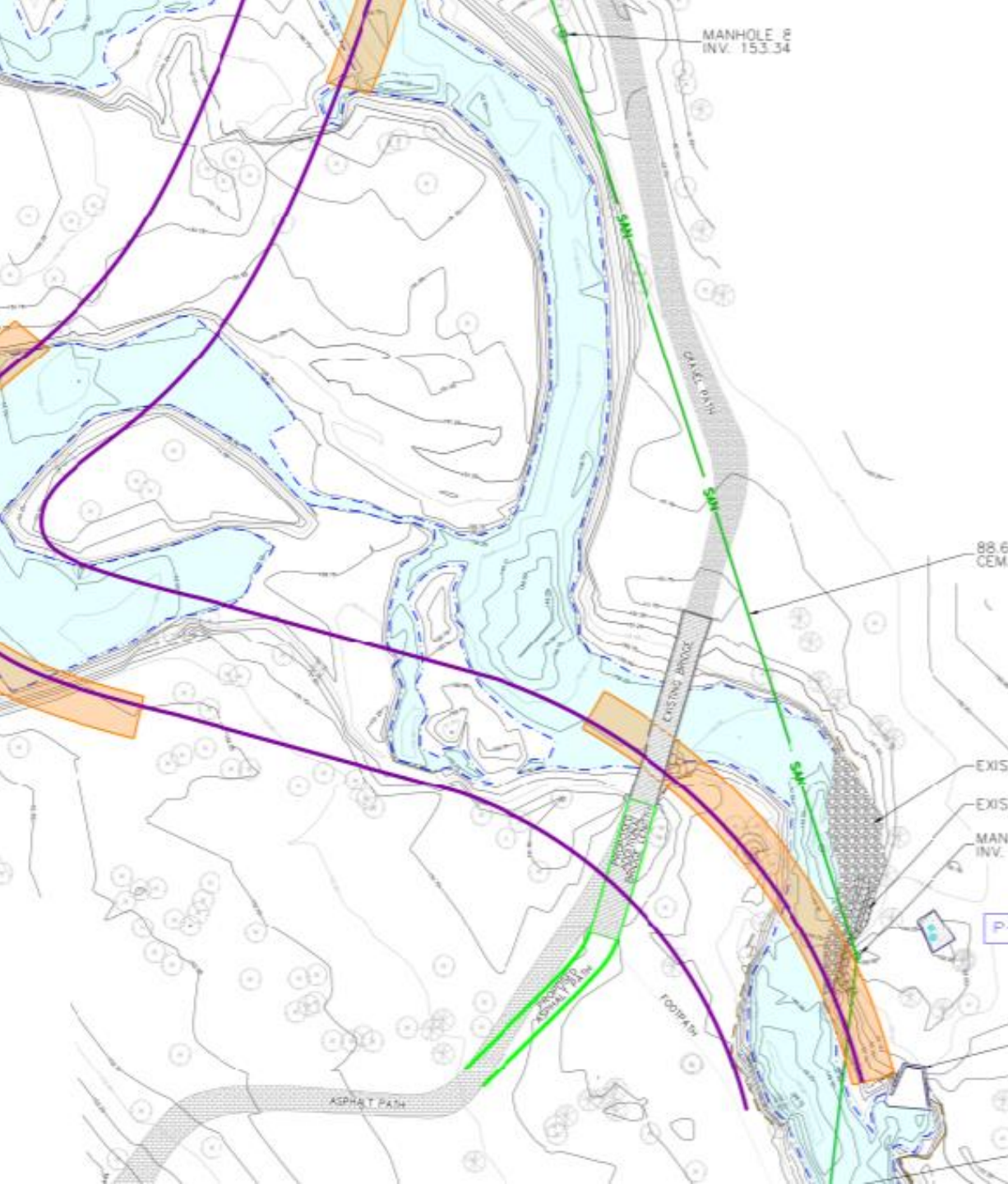


York and Peel Infrastructure Hazard Mitigation

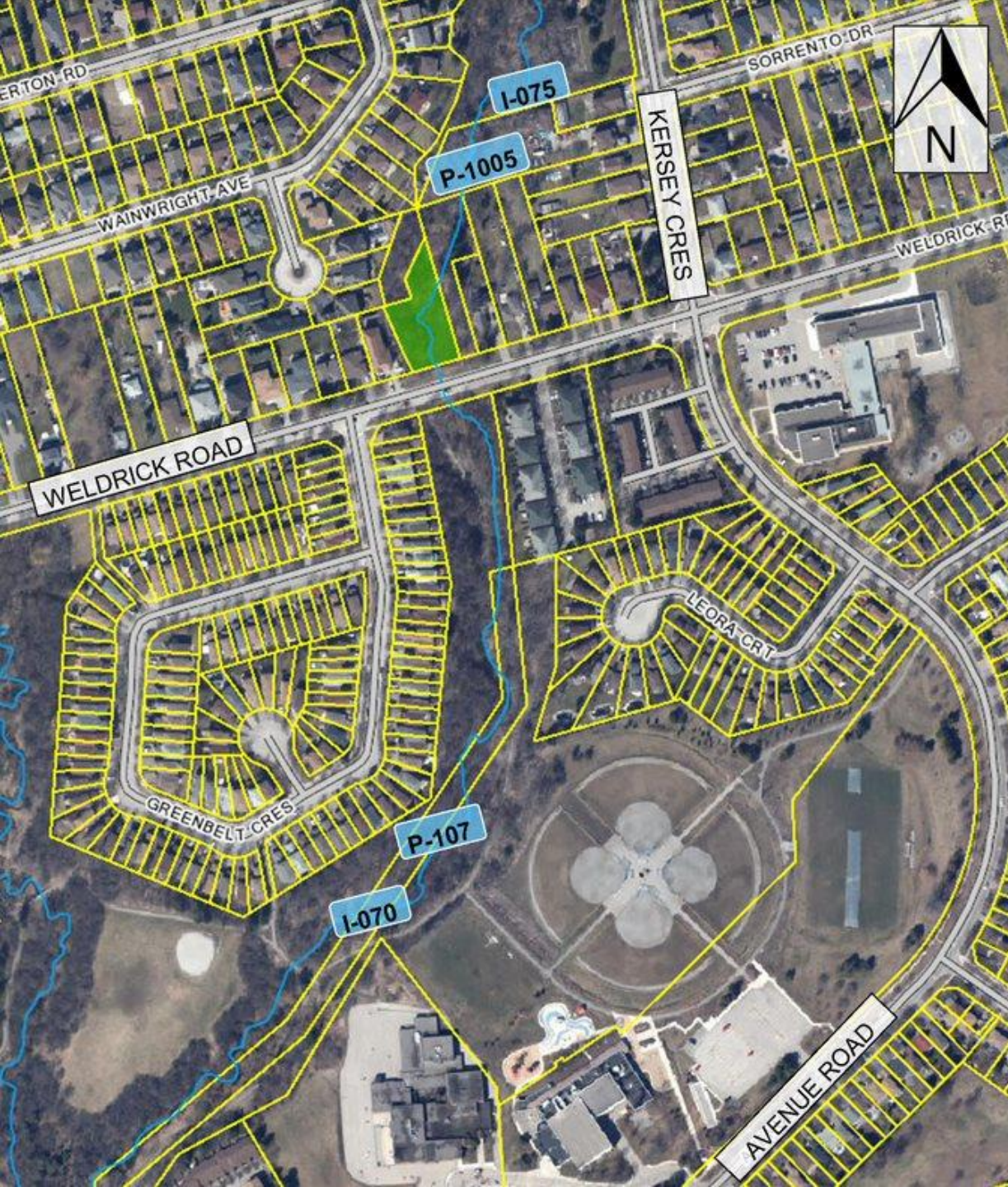
- 641 sites in York
- 1,415 sites in Peel
- Track erosion risks threatening sanitary sewers and water mains
- Inspections completed at pre-determined intervals
- Projects are planned and implemented on a priority basis



German Mills Settlers Park Sanitary Protection Project



Patterson Creek Sanitary Sewer Protection Project



Patterson Creek Sanitary Protection Project



Peel Village Golf Course Sanitary Protection





Innovations – Erosion Studies & Analyses



Our approach is ...

- **DiRTy**

Defensible

Repeatable

Transparent

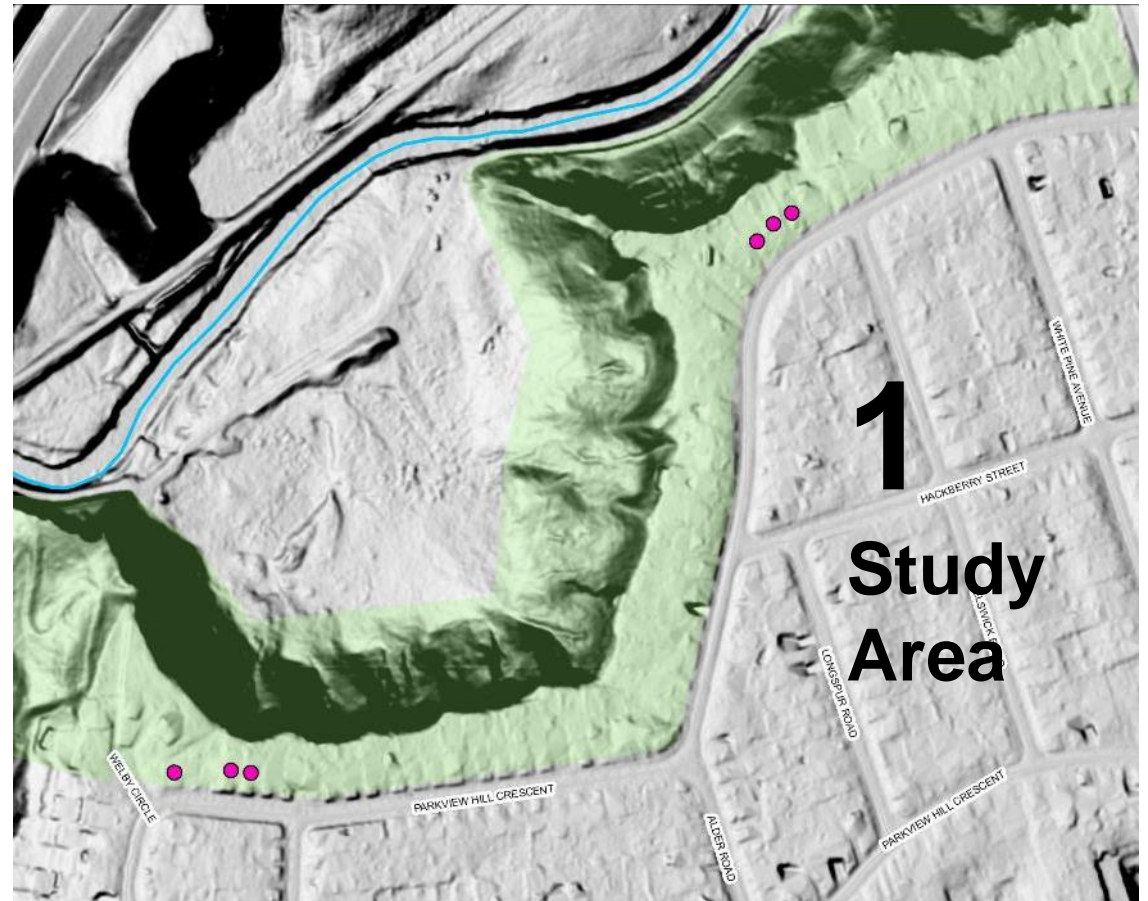
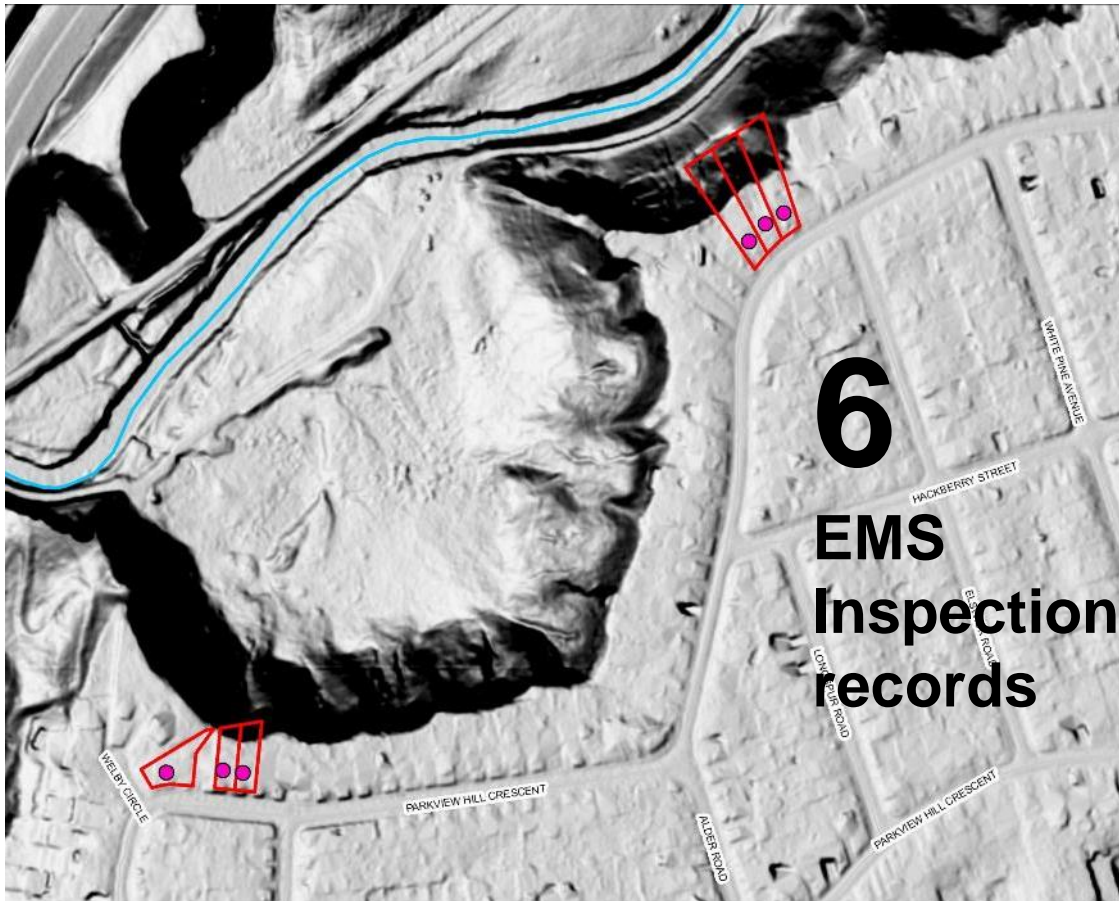
- **TEAMWORK**

“Coming together is a beginning.
Keeping together is progress.
Working together is success.”

Lifecycle of an Erosion Hazard Site



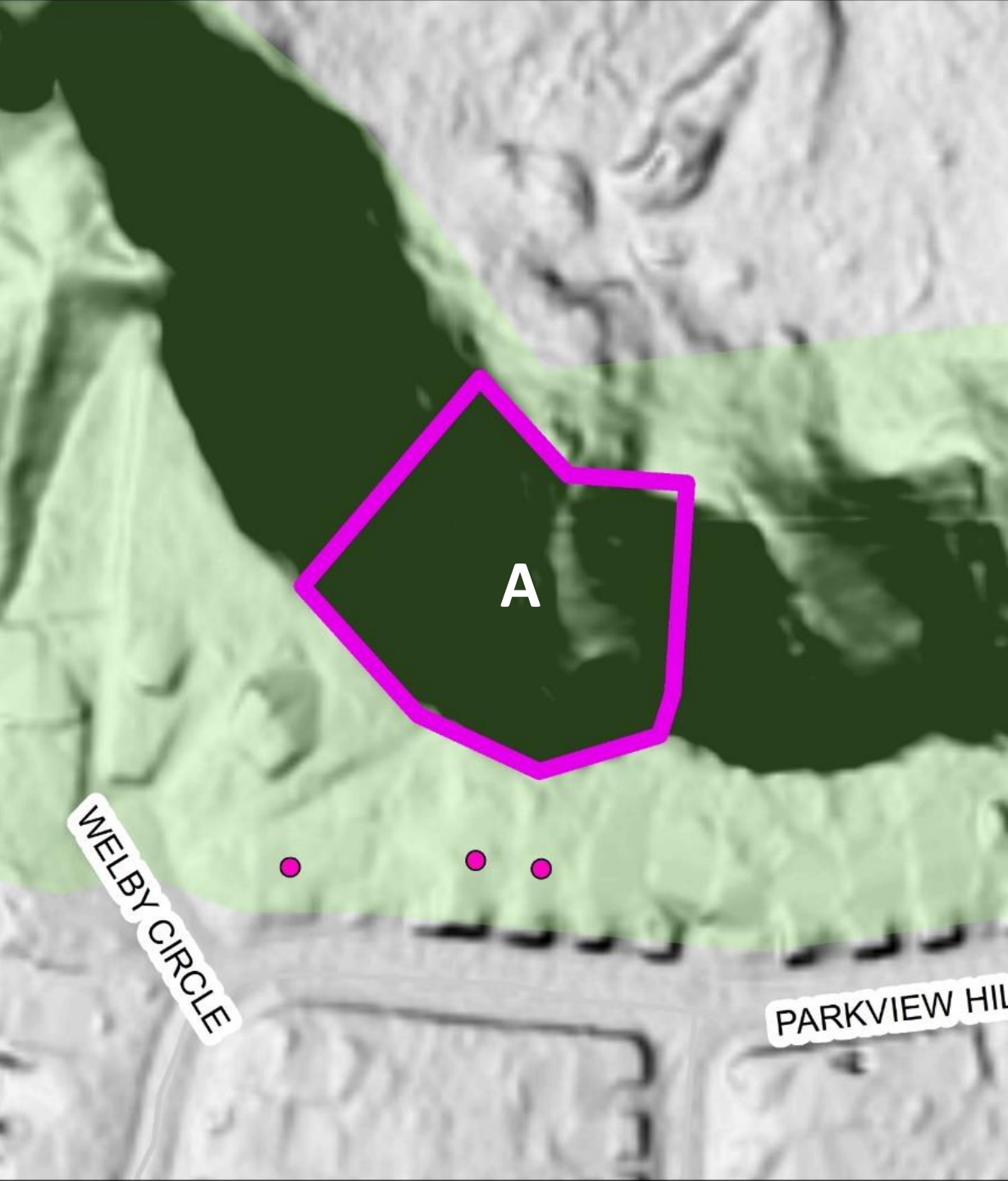
Lifecycle of an Erosion Hazard Site



Erosion Hazard Lifecycle

- 2 Potential Project Sites

Project A





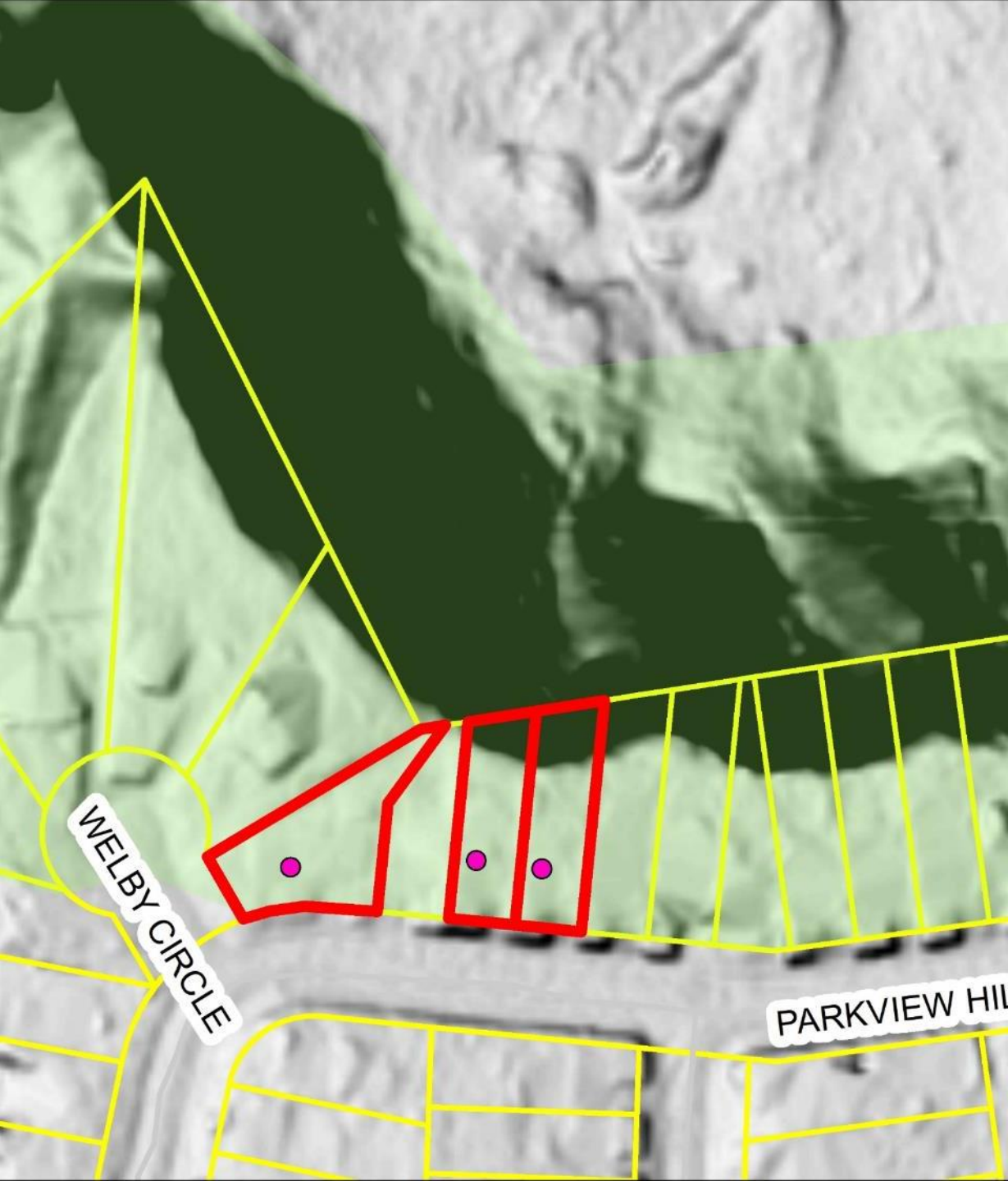
Erosion Hazard Lifecycle

- 2 Potential Project Sites

Project A

better than

Project B



Erosion Hazard Lifecycle

- 2 Potential Project Sites

Project A

+

Participating
Properties



Erosion Hazard Lifecycle

- 2 Potential Project Sites

Project A

+

= DRXX

Participating
Properties

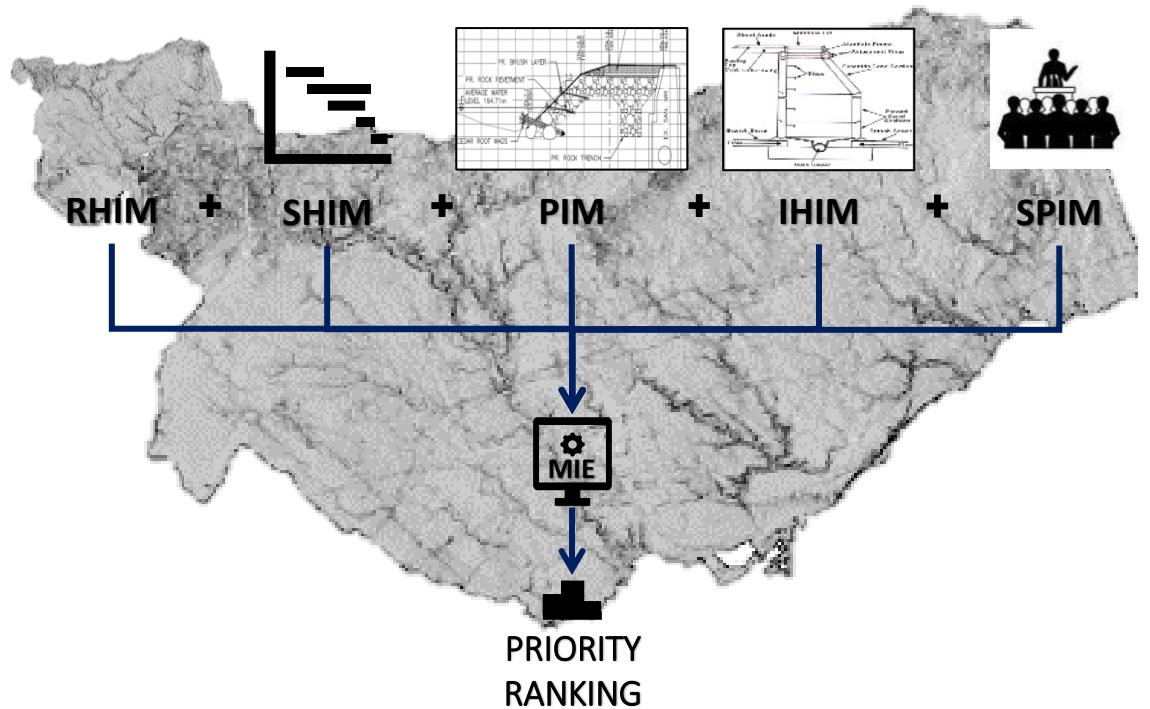
Erosion Hazard ... under ... Erosion Control



Disclaimer: Not the actual EC Structure DRXX

Modular Index Equation (MIE)

- Connects a site geospatially to the components of erosion risk
- Geomorphological reach-based risk
- Site-specific risk factors
- Infrastructure & erosion control risk
- Socio-political risk factors

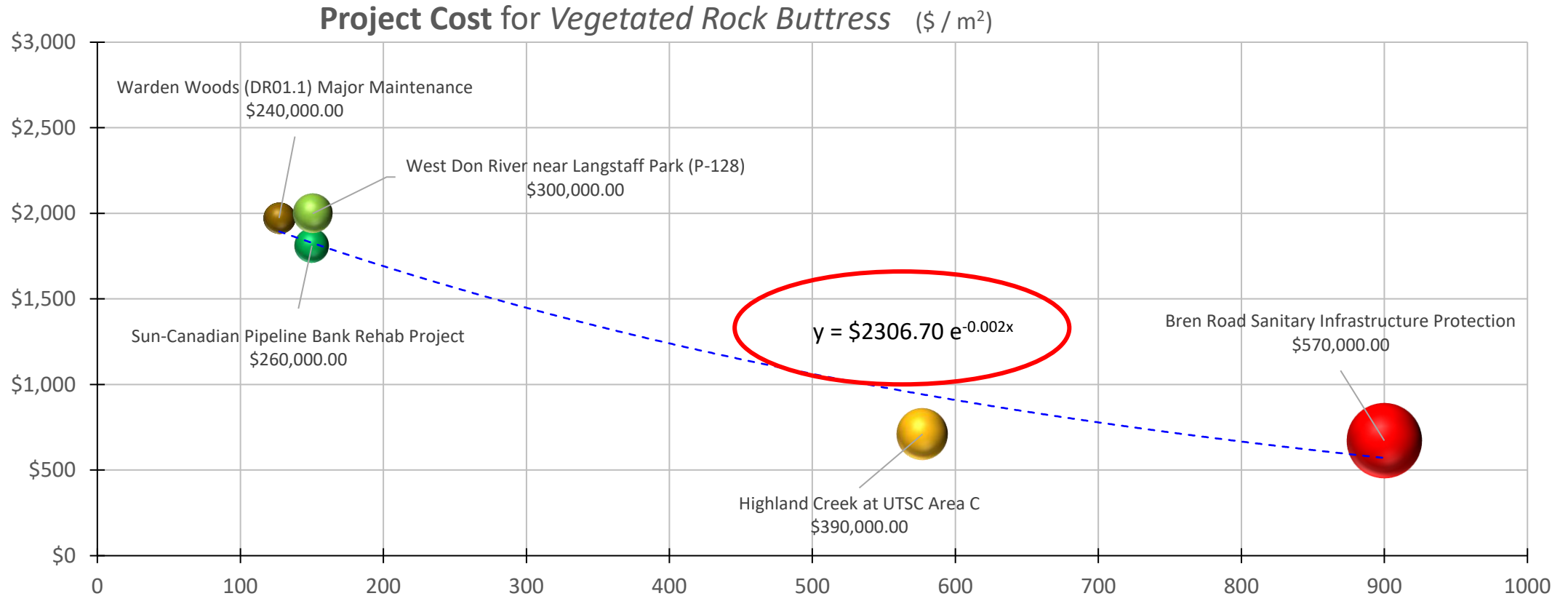


Erosion Control Structures ... FRANK

- How do we monitor TRCA EC Assets ?
- First things first
 - High Priority sites (Annually)
 - Sites attacked by Storm Events
 - All sites within a 5-yr cycle
- An opportunity to collect data !



TRCA EC Asset Data - Cost Estimate Tool (CET)



2020

Erosion Control Infrastructure



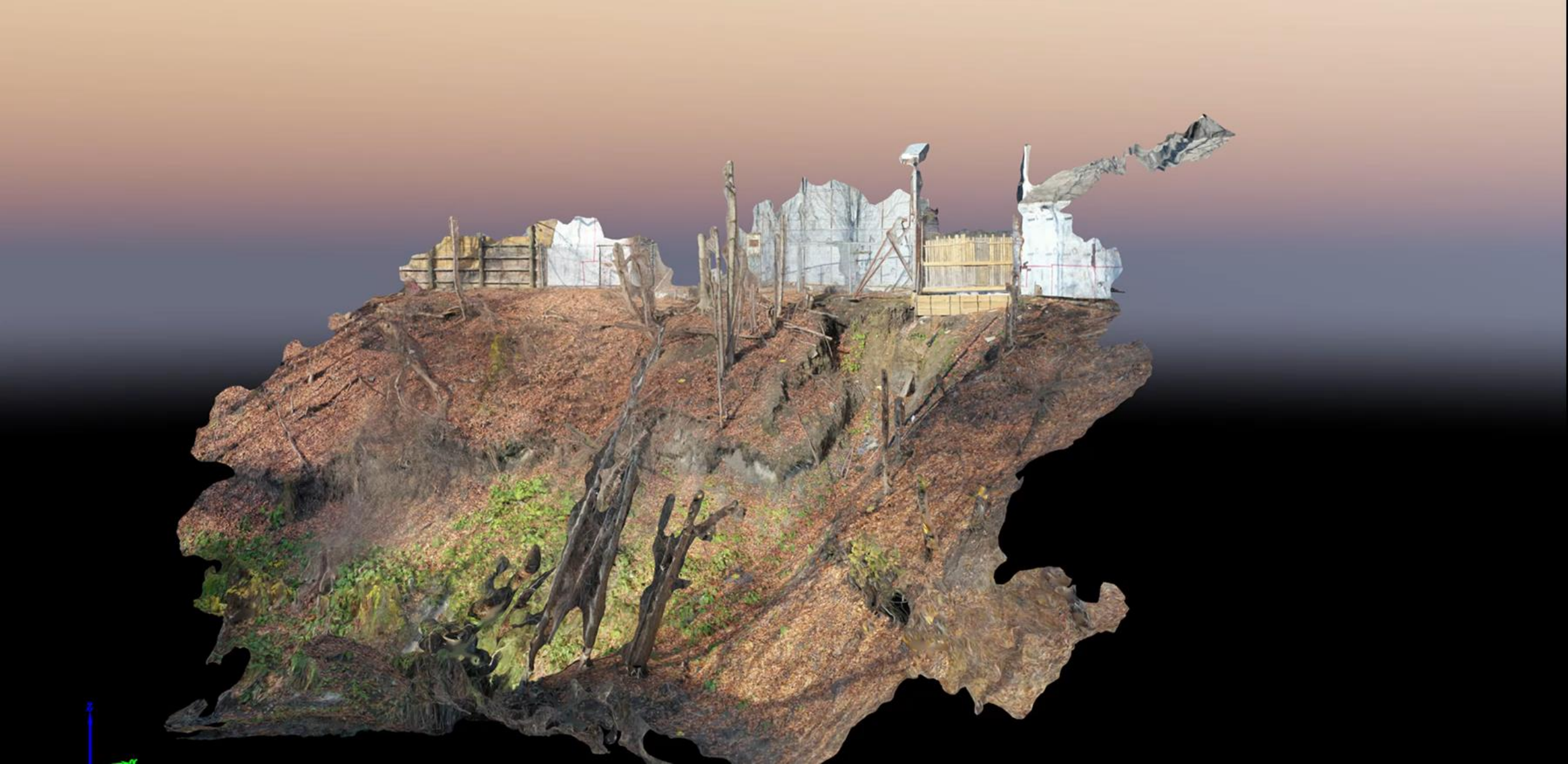
Asset Management Plan

- New way of viewing EC Structures
- Lifecycle analysis
- Not your typical asset ...
(designed to fail ... sacrifice)
- Return-on-Investment

Data Collection – RPAS

(Remotely Piloted Aircraft Systems)







TORONTO | NEWS

Beachgoers shocked as part of Scarborough Bluffs collapses

Chris Herbold | Web Content Writer, CP24
@CHerbold | Contact

Published Monday, August 24, 2020 10:41 AM EDT
Last Updated Monday, August 24, 2020 6:46 PM EDT

Sun, Aug 23rd



Residents react to collapse at Scarborough Bluffs

Residents and experts alike are urging caution to those who choose to visit the Scarborough Bluffs after a landslide occurred on Sunday.

Collapse caught on camera at Scarborough Bluffs

A large section of the Scarborough Bluffs broke off Sunday afternoon, sending a wave of dust and panic over nearby beachgoers.

Part of cliff collapses at Scarborough Bluffs

Police say no one was injured after a large section of the Scarborough Bluffs stone face collapsed into Lake Ontario.

[1 2 >](#)SHARE    

TORONTO — Emergency crews say no one was injured when a large section of the Scarborough Bluffs stone face collapsed into Lake Ontario on Sunday afternoon, forcing police to cordon off the area.

Just before 4 p.m. Sunday, beachgoers beneath the cliff side scrambled out of the way as a section of the side of the tall cliff crumbled and fell into the lake.

Images on social media showed some visitors running away from a dust cloud spreading across the beach.

Toronto police said they were called to the area beneath Lookout Point for what felt to witnesses like "an explosion."



Advertisement

MOST-WATCHED

Bluff Monitoring

- No vacation for erosion hazards !

Bluff Monitoring

- A sign that Godzilla will appear ?
- A sign of things to come ?
- An opportunity to collect data !

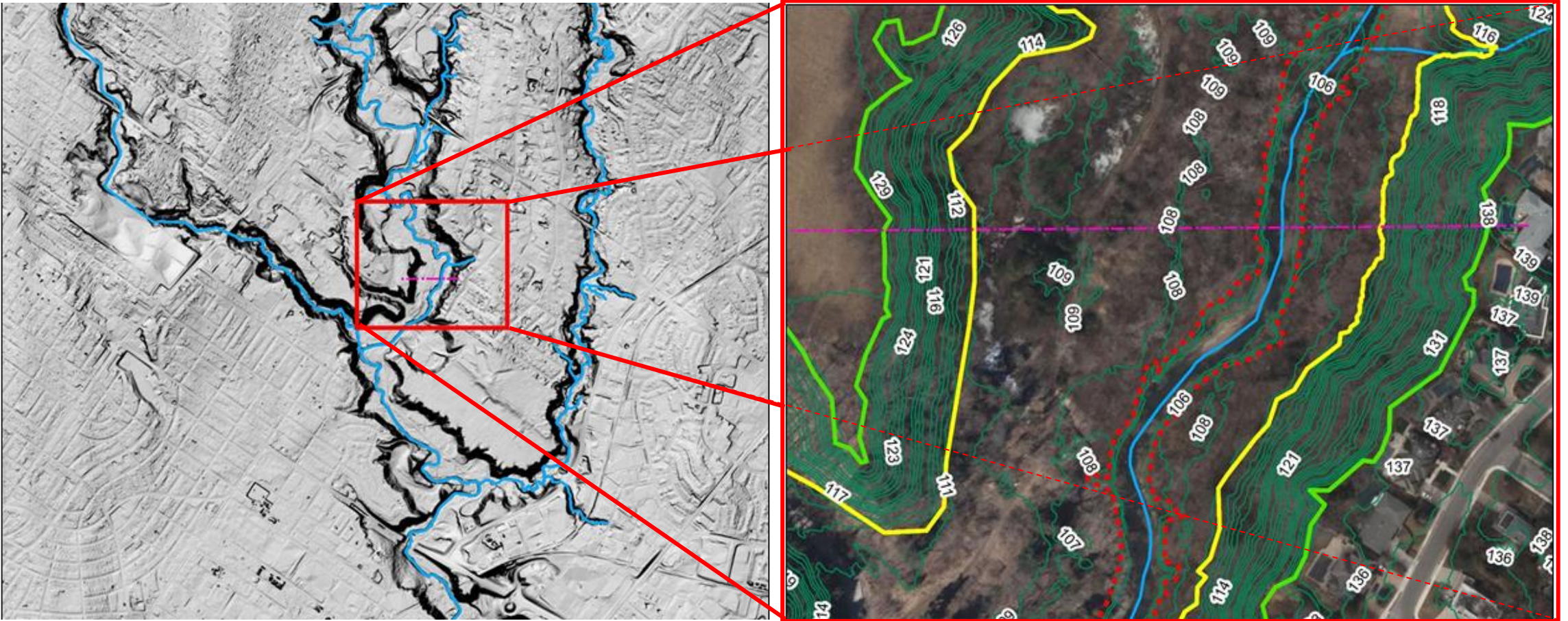






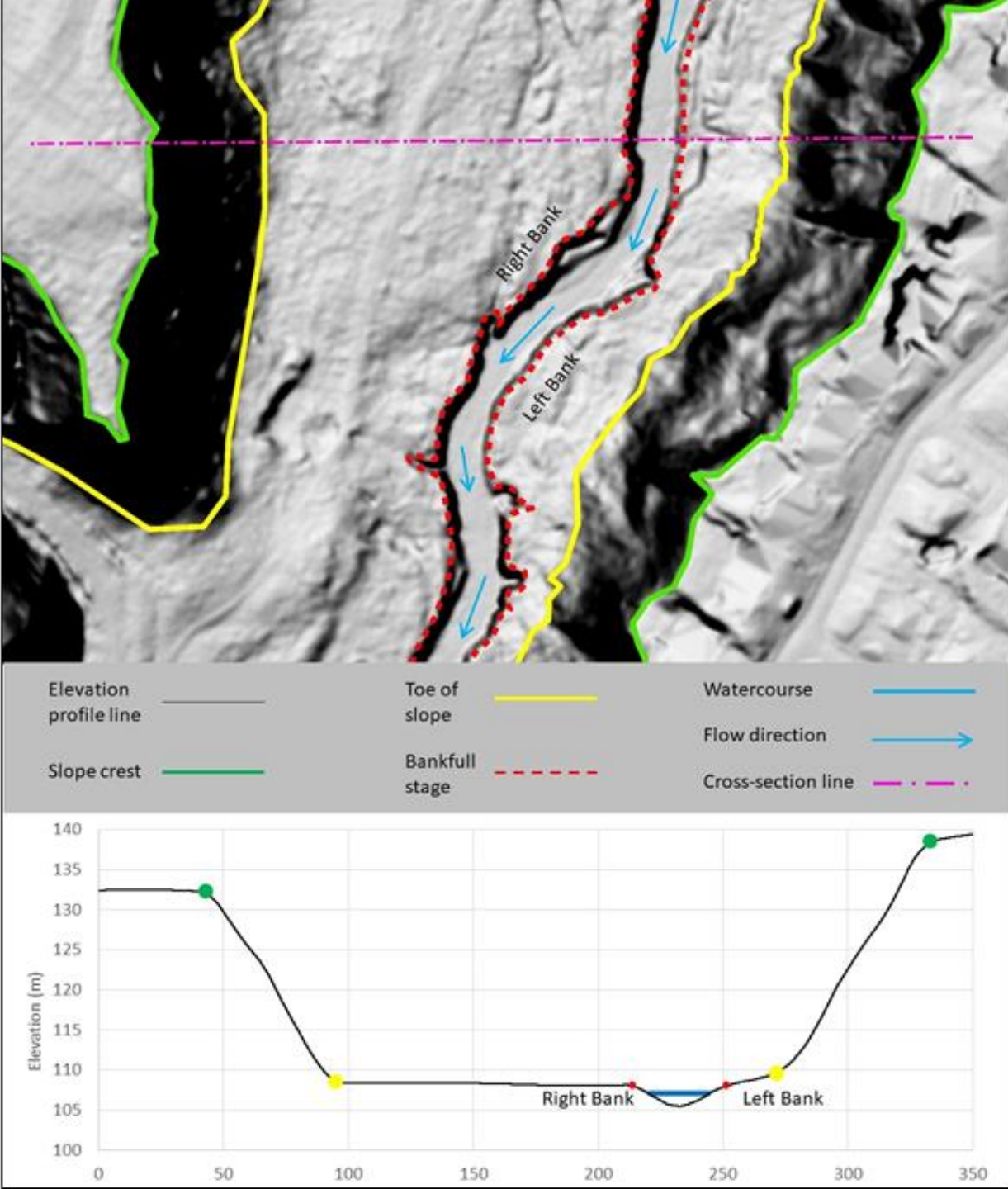
Data Use – Products

ERM Screening Layers *(updated with LiDAR flights)*



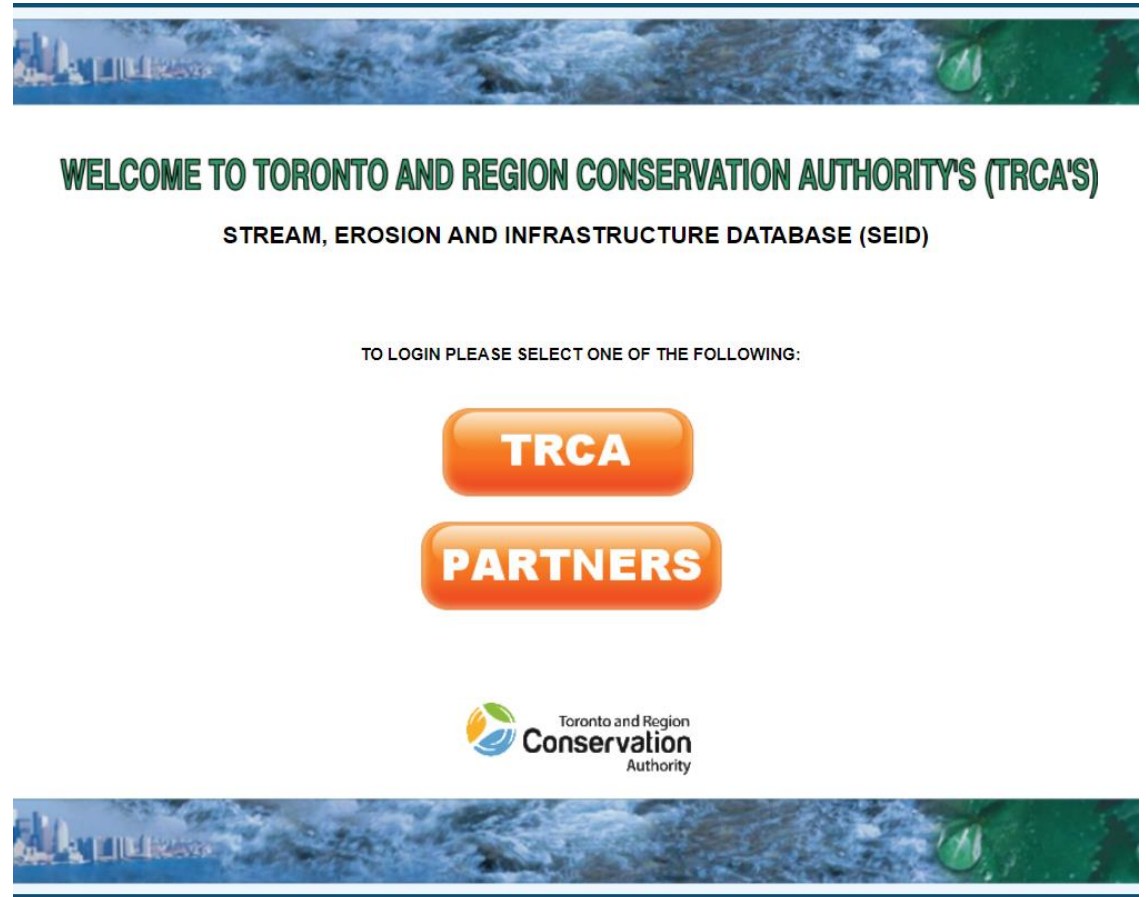
ERM Screening Layers

- ERM has an immediate use
- Watershed Strategies
(*Erosion Characterization*)
- FRM Group
(*Hydraulic Modelling -1st Cut ?*)
- *Anyone else ?*

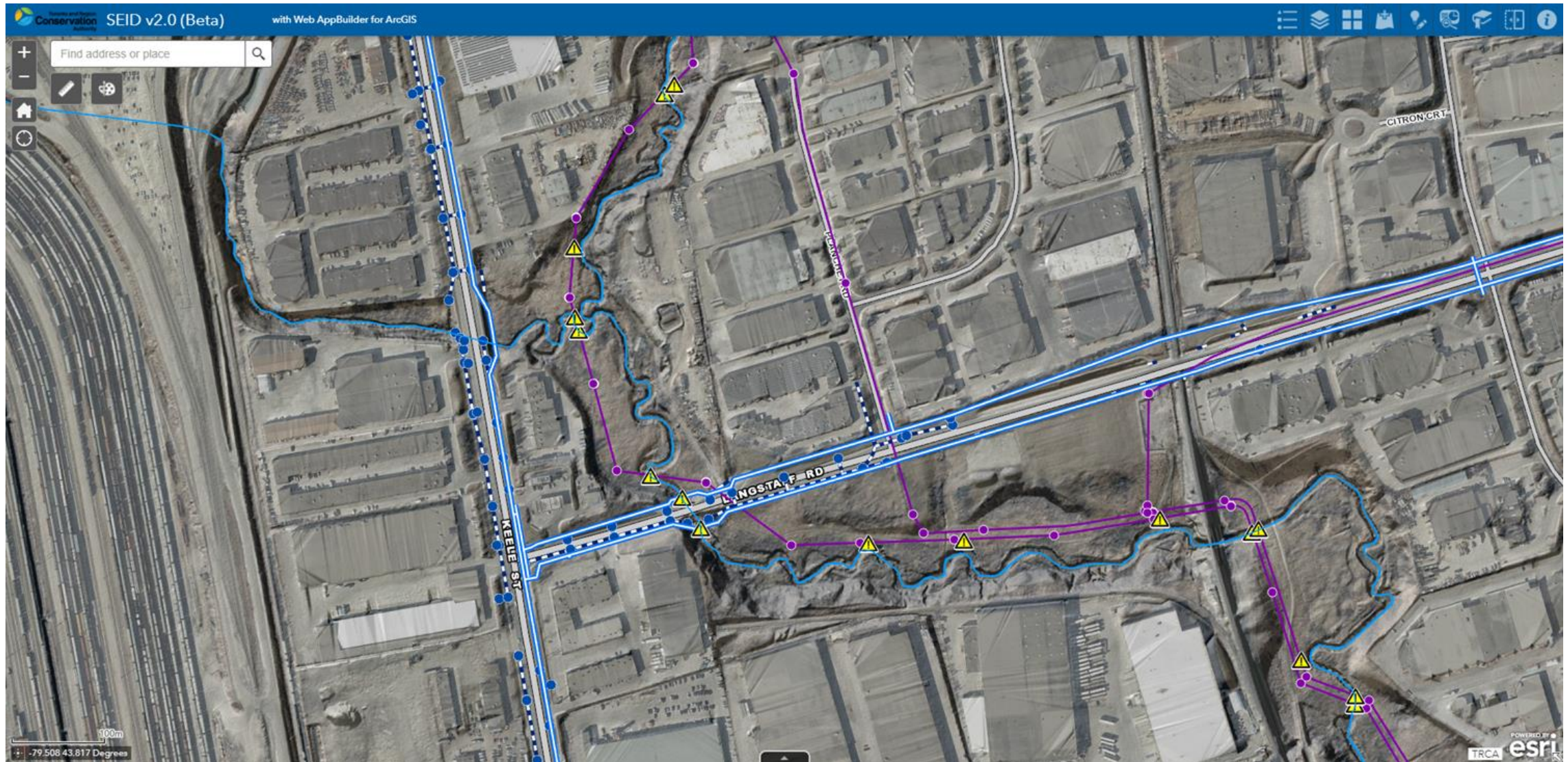


ERM Web-based Database - SEID

- SEID was created a decade ago
- SEID v2.0 being developed



SEID v2.0 (*Beta*) – available **2021 !!**



Thank you for your time;
we look forward to your questions.

- Matt, Ashour, and David

Upcoming ECS Lunch and Learns!

Wednesday, February 10
11:00am-12:00pm

Research in the Meadoway

By Katie Turnbull, Paul Morris,
Lyndsay Cartwright, and Chris
Cormack

Wednesday, March 24
11:00am-12:00pm

Natural Heritage System (NHS) Update

By Namrata Shrestha

Past Recordings

Watersheds and Ecosystems Reporting

Draft Web Application

Laura Del Giudice, Senior Manager, Watershed Planning & Reporting
Kristina Dokoska, Project Coordinator, Ontario Climate Consortium

September 21, 2020



Introduction to the LID Treatment Train Tool

Presented by – Steve Auger, Sahila Abbasi and Yuestas David

November 5, 2020



TRCA's Recent Floodplain Mapping Updates

Wilfred Ho*, Christina Bright*, Mike Todd**

* Flood Risk Management, Development & Engineering Services
** Information Technology & Records Management

November 10, 2020



Working with Indigenous Communities

Lunch and Learn

November 17, 2020



Green Infrastructure in Asset Management Planning

Presented by:
Michelle Sawka, Senior Research Scientist
Tracy Timmins, Research Analyst

Ecosystem and Climate Science

December 8, 2020



Explore TRCA's Biodiversity

How to get the most from our enormous natural heritage data set.

Presented by: Gavin Miller, Flora Biologist, Paul Prior, Fauna Biologist, and Parth Sheth, GIS Technician.



December 17, 2020

Evaluating the effectiveness of fish habitat restoration across the Toronto waterfront

Kaylin Barnes¹, Lyndsay Cartwright¹, Rick Portiss¹, Jon Midwood², Christine Boston², Monica Granados³, Thomas Sciscione¹, Colleen Gibson¹, Olusola Obembe¹

ECS Lunch and Learn
January 14, 2021

¹ Toronto and Region Conservation Authority
² Fisheries and Oceans Canada
³ PREview.org





Thank you

For questions about the ECS Lunch and Learn Series, please contact:

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