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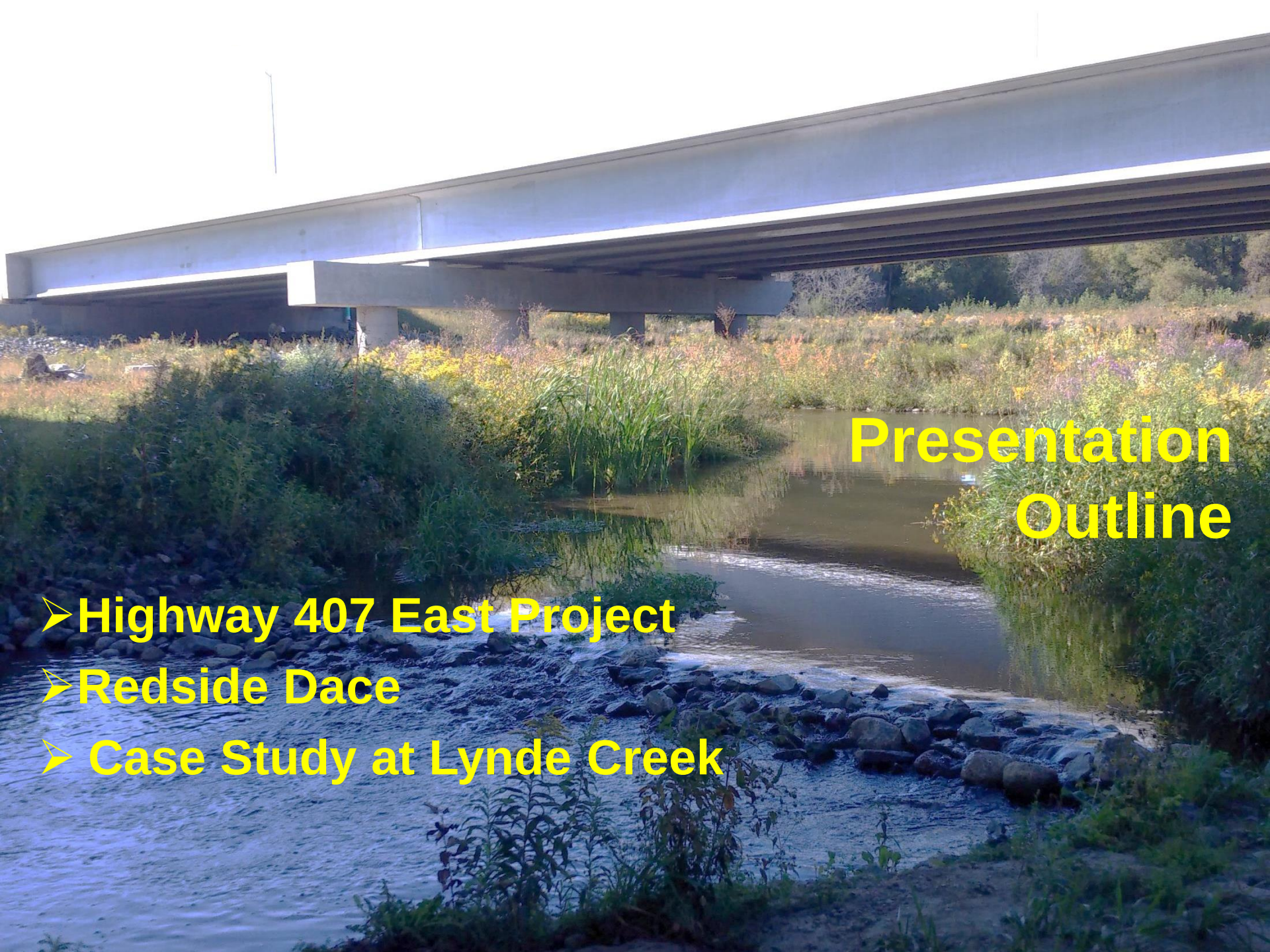
TRIECA 2018 Conference

‘Towards Achieving Overall Benefit for Species at Risk Related to a Mega Transportation Project’

Presentation by
Darlene Proudfoot and April Currie
Ontario Ministry of Transportation

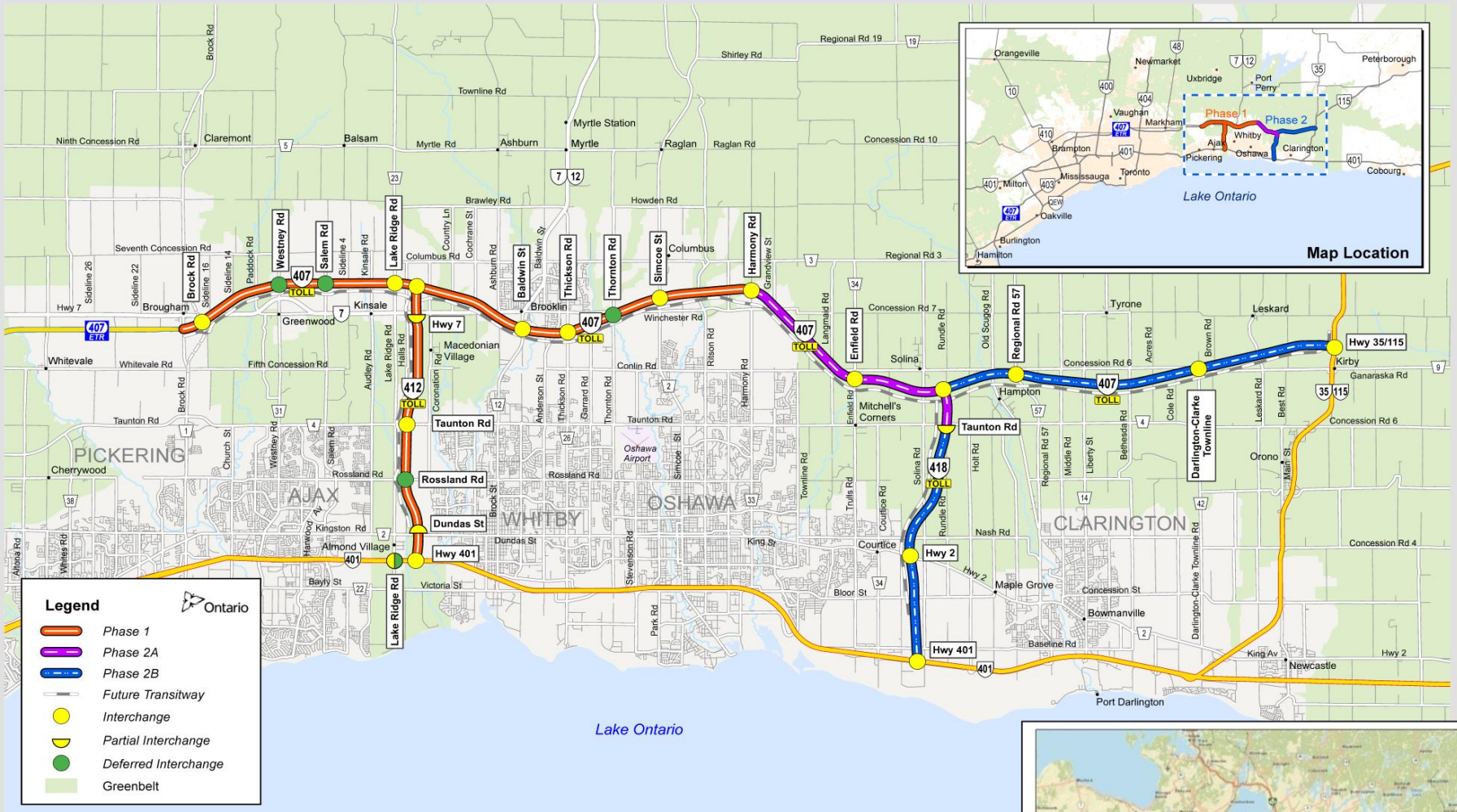
Thursday March 22, 2018



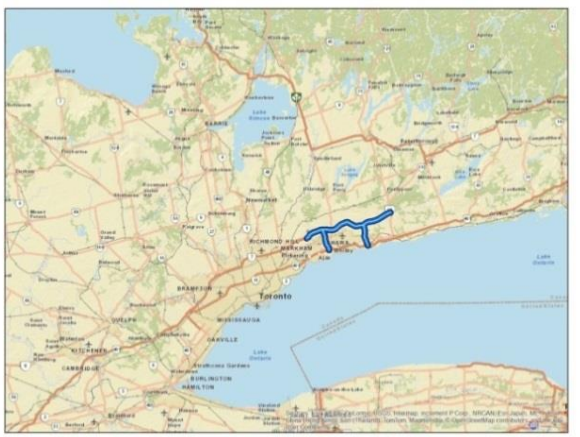
Presentation Outline

- Highway 407 East Project
- Redside Dace
- Case Study at Lynde Creek

Highway 407 East Project



The Highway 407 East project comprises of three highways: 407, 412 & 418. Located in Ontario, Canada, the highways support the movement of goods and people through the eastern Greater Toronto Area and beyond.



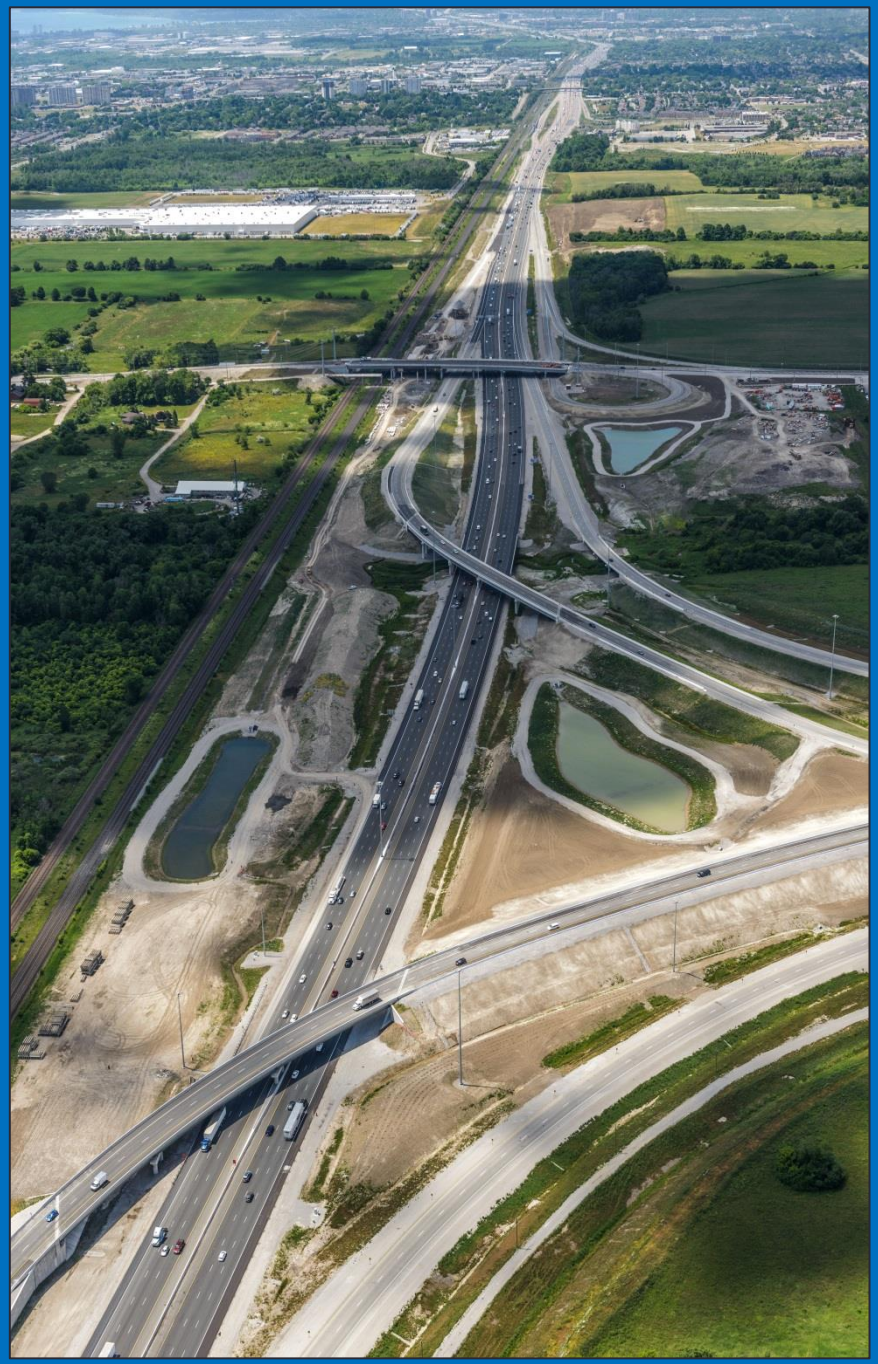
Ultimate lane requirements for 65 km corridor:

- 10 lanes - Hwy 407 Phase 1
- 8 lanes – Hwy 407 Phase 2a
- 6 lanes – Hwy 407 Phase 2b
- 6 lanes - Hwys 412 & 418

Highway ROW 110 m and Transitway ROW 60 m

Support facilities:

- Highway maintenance facilities, transitway maintenance facilities
- Commercial vehicle inspection facilities, truck lay-bys
- Transitway stations



Did You Know?

The Highway 407 East project is part of the largest infrastructure investment in the province's history

The highways will be tolled

The Ontario Provincial Police will provide enforcement in accordance with Ontario's laws

The highway will be maintained according to the Ministry's current maintenance standards

The entire Highway will be open in 2020.

Redside Dace (*clinostomus elongatus*)

Redside Dace (RSD) are regulated as 'Endangered' under ESA and 'Listed' under SARA.

Under the ESA legislation, RSD receives both species and habitat protection.

RSD habitat is defined as "*the entire area of an occupied reach of stream plus 30 m on either side of the meander belt*."

For the Hwy 407 project, an ESA permit was issued in October 2012 for 12 RSD watercourses in 3 watersheds.

RSD are small colourful cyprinids that are found in headwaters and low order watercourses

RSD require cool, clear flowing water with riffle-pool sequences and overhanging streamside vegetation. They are particularly dependent on adjacent habitat (riparian zone and meander belt)

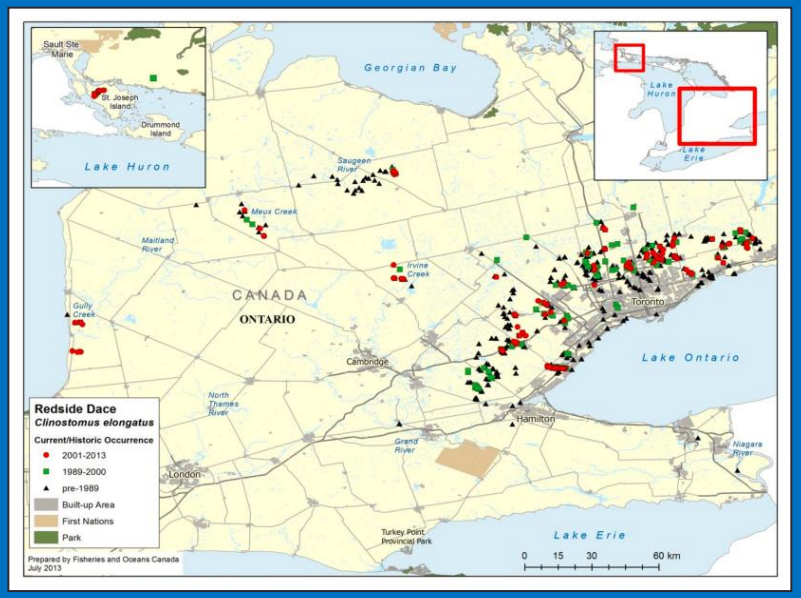
RSD are “cool water” species sensitive to temperature and turbidity

Pools are used as resident habitat while riffles are used for spawning

RSD have been observed spawning in or near the nests of Creek Chub and Common Shiner

RSD lives in small streams in the southern Great Lakes basin, the upper Mississippi drainage and the upper Susquehanna River drainage.

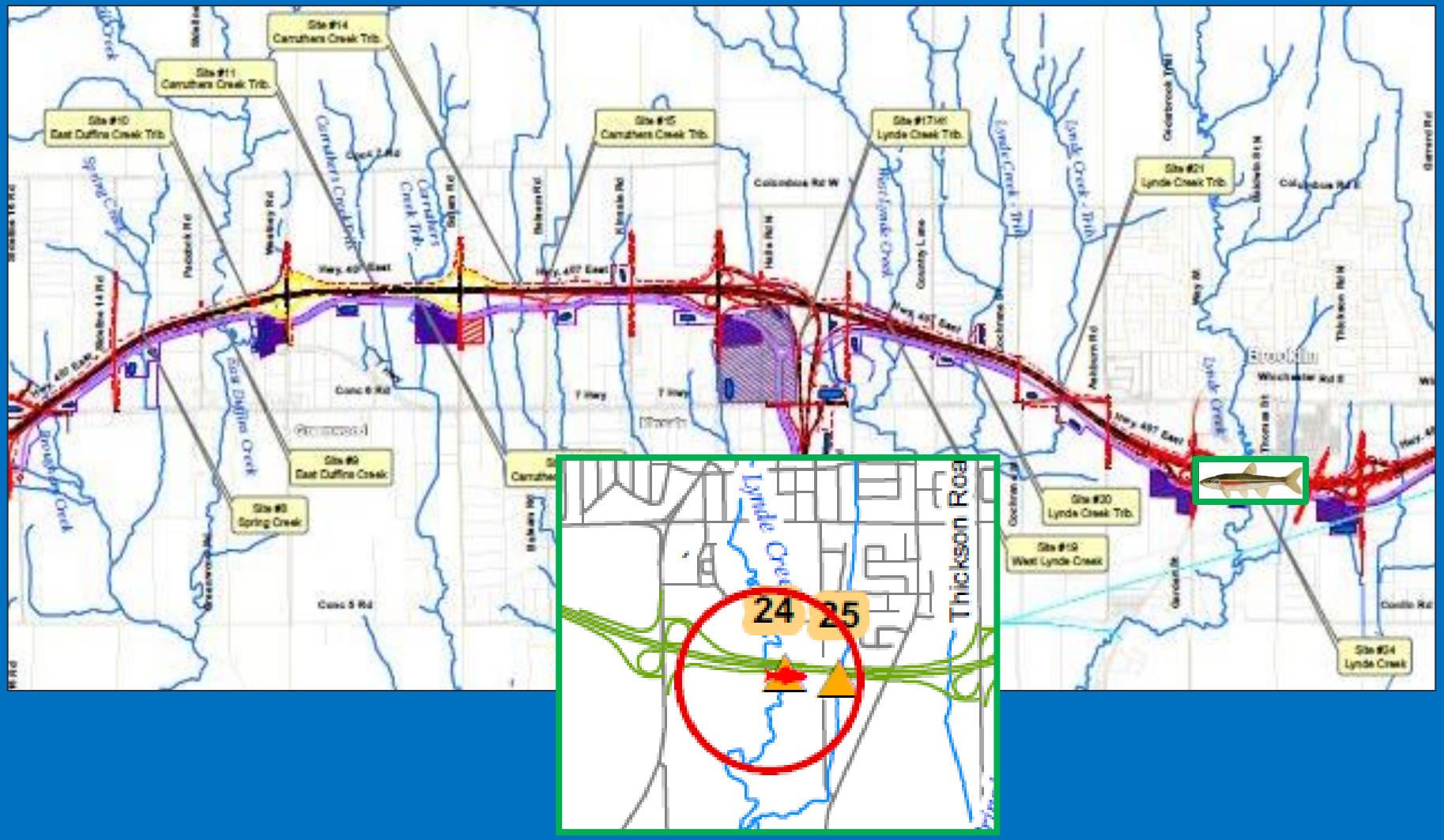
Distribution in North America



Canada – Ontario Distribution

Although globally secure, the species has declined in many areas throughout its range. In Canada, RSD are found only in southern Ontario where it most frequently occurs in streams flowing into western Lake Ontario.

Case Study at Lynde Creek Crossing (Site 24)

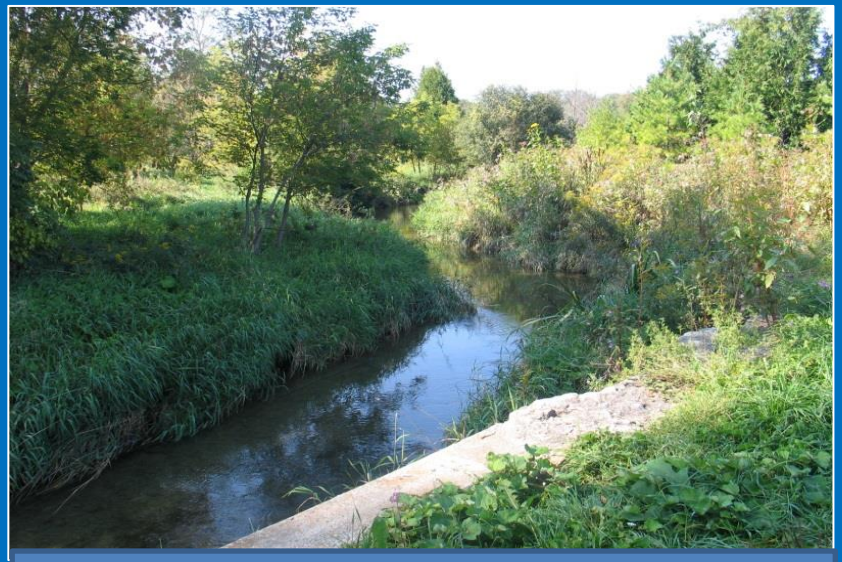


The main branch of Lynde Creek is an occupied reach for RSD.

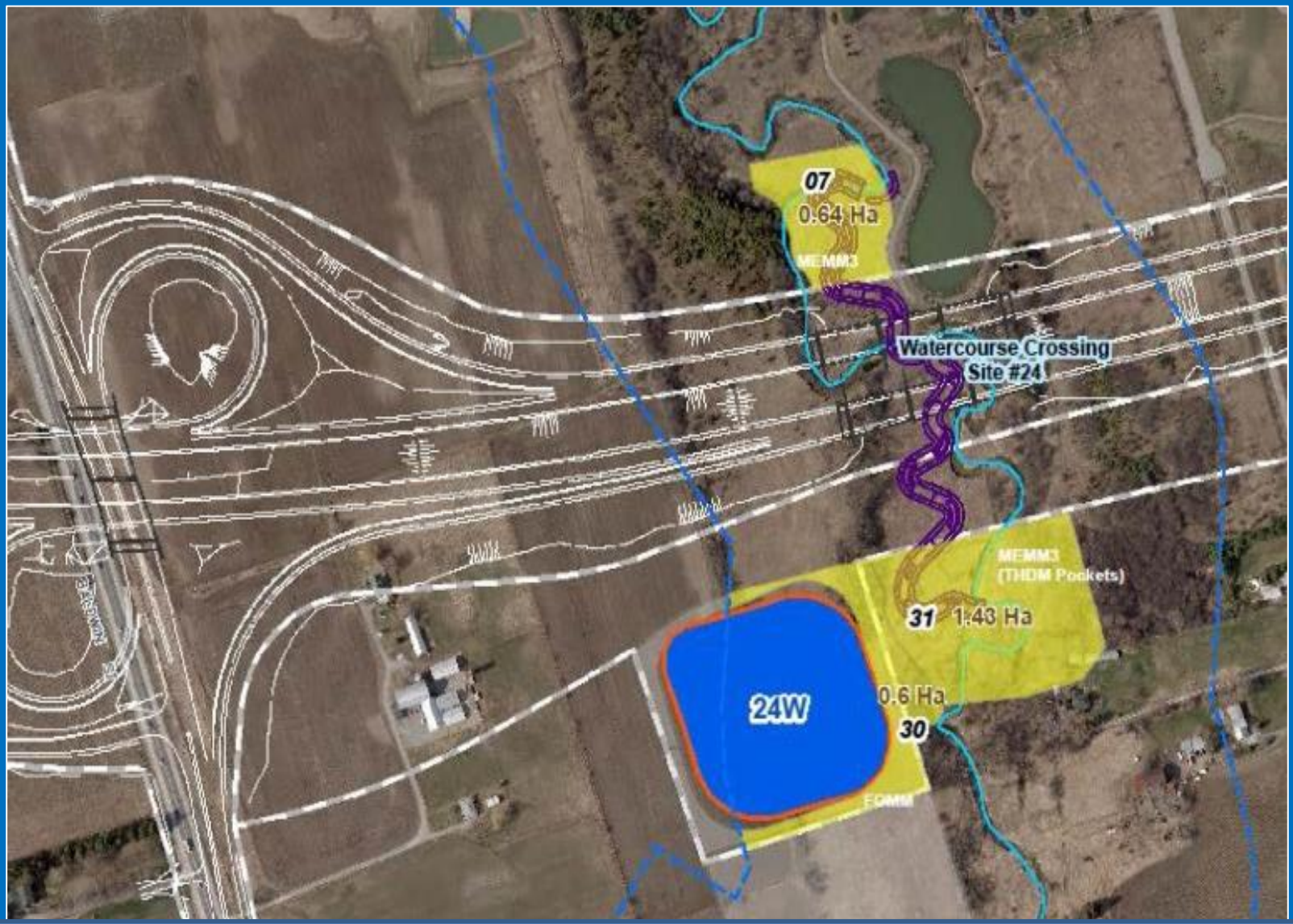
Pre- construction pictures of the Lynde Creek watercourse and floodplain, 2010

Valley & Floodplain

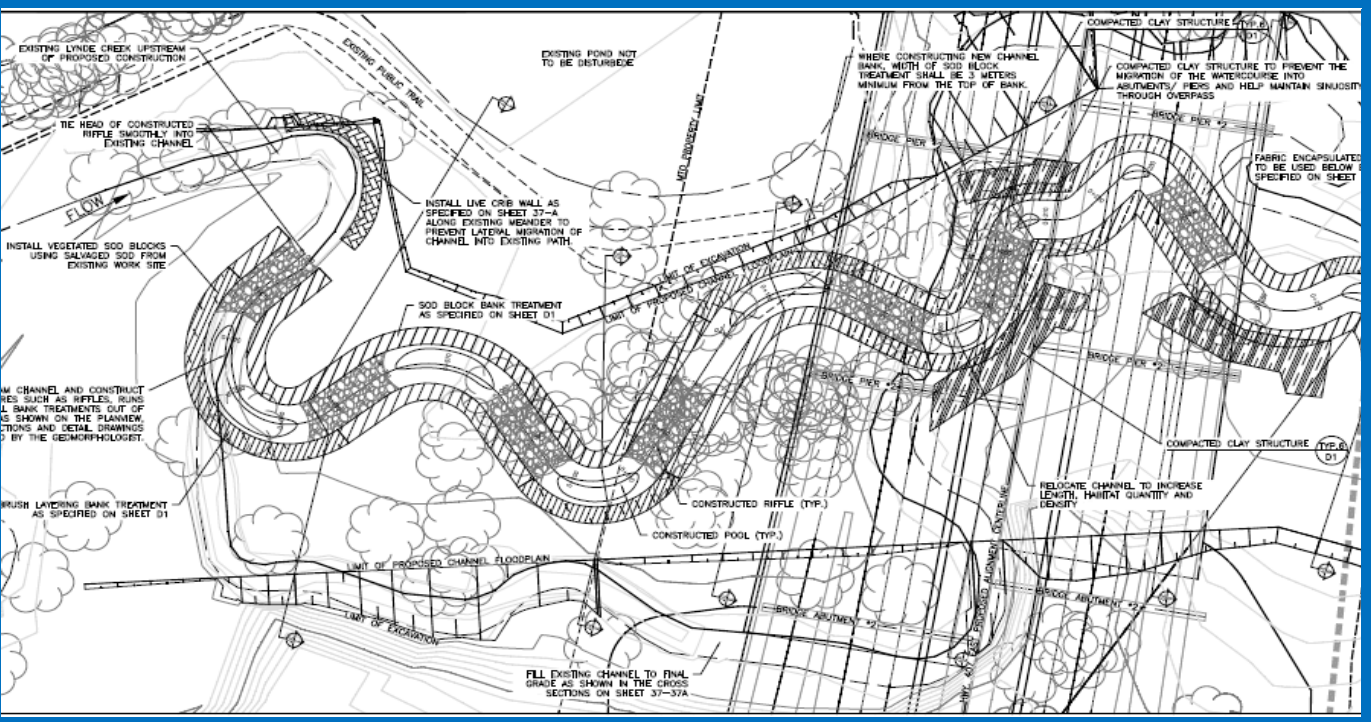
Meandering Lynde Creek

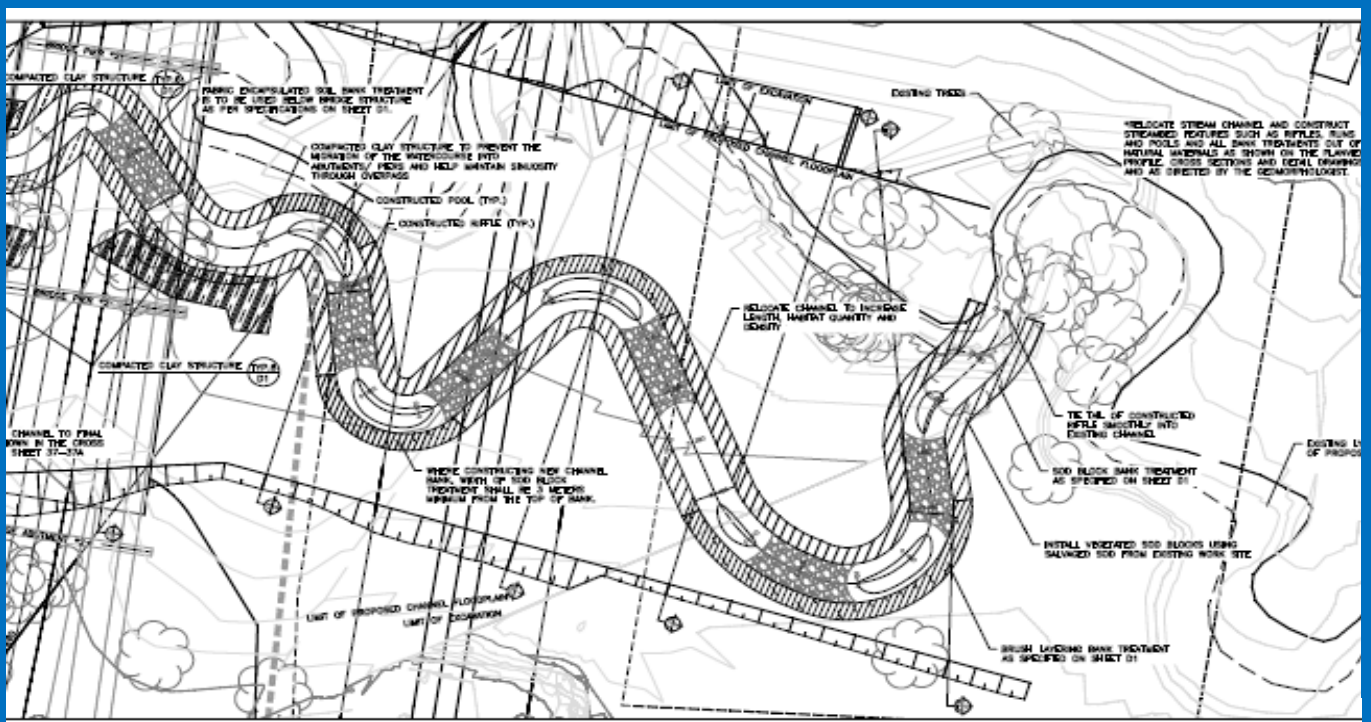


SWM pond outlet to Lynde Creek



The highway design (white), original stream (teal) and stream realignment (purple) are shown. The floodplain and SWM pond are in blue. The Plan showing the area of Overall Benefit for RSD is highlighted in yellow.

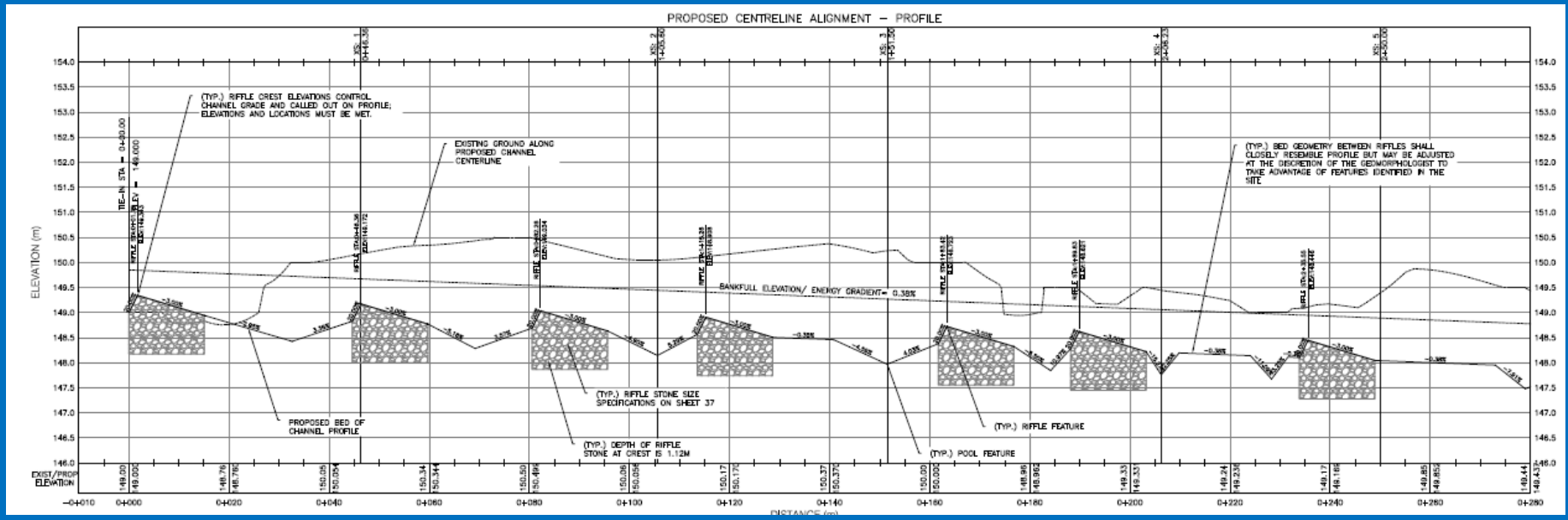




OB projects included:

- 4 ha (10 ac) plantings
- 470 m (1540 ft) channel realignment
- 0.26 ha (0.6 ac) wetland creation
- 1 new SWM pond outlet
- 35 m (115 ft) bioengineering
- 1 structure removed
- 0.11 ha (.27 ac) reconnecting the floodplain
- 0.69 ha (1.7 ac) wetland created at SWM pond

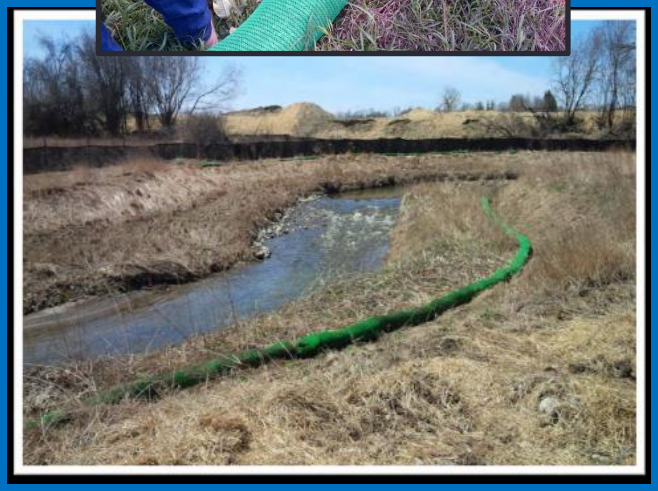
Building a new stream



Riffle and pool sequence

Creating a new floodplain

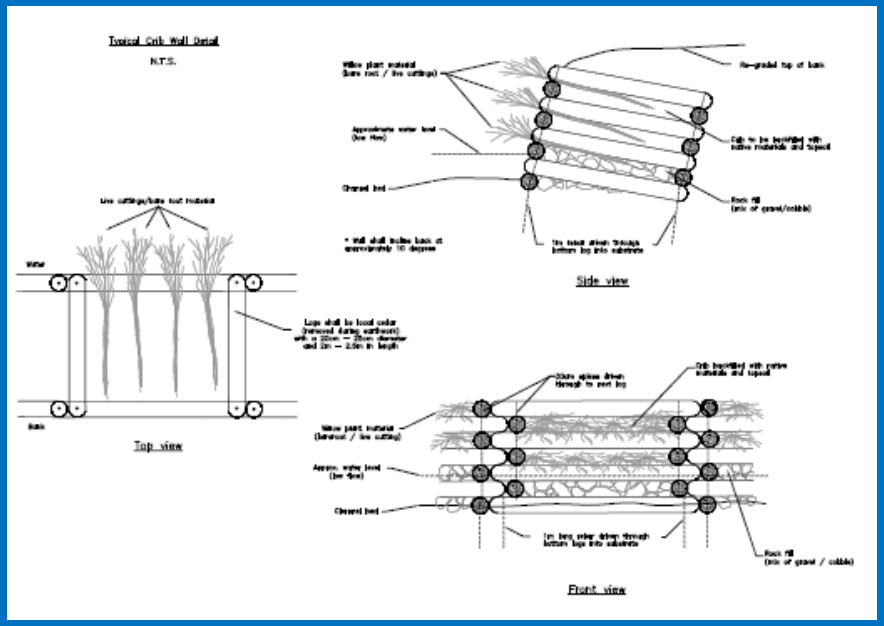
Construction Challenges



Managing Erosion & Sediment

Reconnecting the Stream

Flooding



Bank stabilization with wood crib & willow stakes

Remnant of original stream left as a wetland area

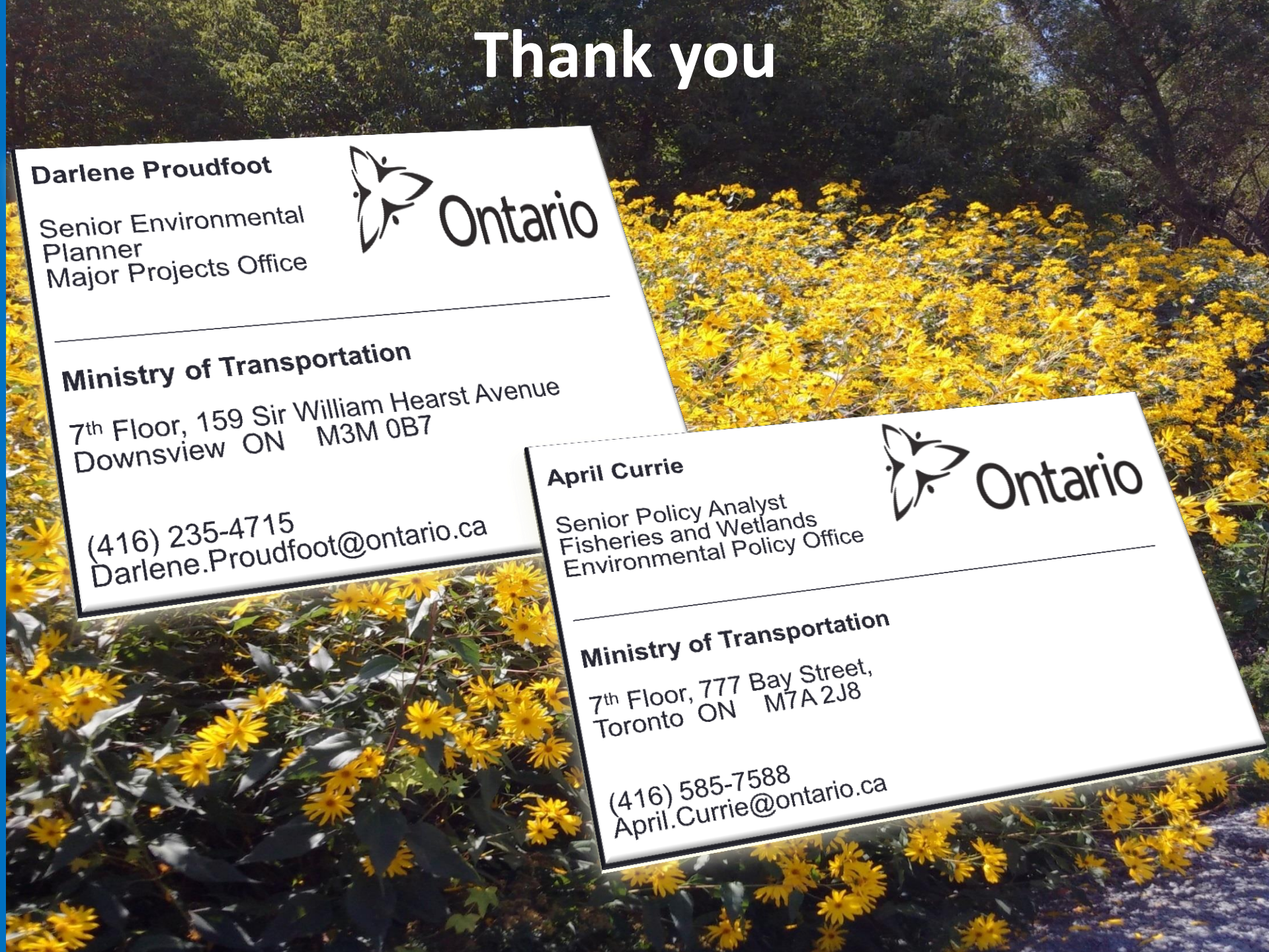
Planting Plan

Opening Day for Phase 1 of Highway 407 East project June 2016

Lessons Learned

- Building Natural Channel Design features that function well
- Enabling the channel to adjust over time
- Installing ESC measures that work
- Managing dewatering activities in a floodplain
- Successfully switching a temporary channel to a permanent channel
- Attaining good vegetation growth
- Meeting Overall Benefit

Thank you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