APPENDIX J – Part 1

Record of Consultation

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APPENDIX J: RECORD OF CONSULTATION - PART 1

Notice of Commencement

TORONTO AND REGION CONSERVATION AUTHORITY
PICKERING AND AJAX DYKES REHABILITATION PROJECT
CLASS ENVIRONMENTAL ASSESSMENT NOTICE OF COMMENCEMENT

Toronto and Region Conservation Authority (TRCA) has commenced a study to investigate flood remedial solutions for the rehabilitation of two (2) existing flood control dykes, referred to as the Pickering and Ajax Dykes, located north of Hwy 401 between Brock Road and Church Street, in the City of Pickering and Town of Ajax.

In the 1980s, TRCA constructed the dykes to provide flood protection for the Pickering and Ajax Special Policy Areas (SPA). Recent studies have identified that the dykes do not meet current engineering design standards and factors of safety (FOS). The purpose of this study is to identify and evaluate flood remedial solutions and select a preferred remedial solution to rehabilitate the dykes to meet current engineering standards and FOS, while at minimum, maintaining the existing level of flood protection.

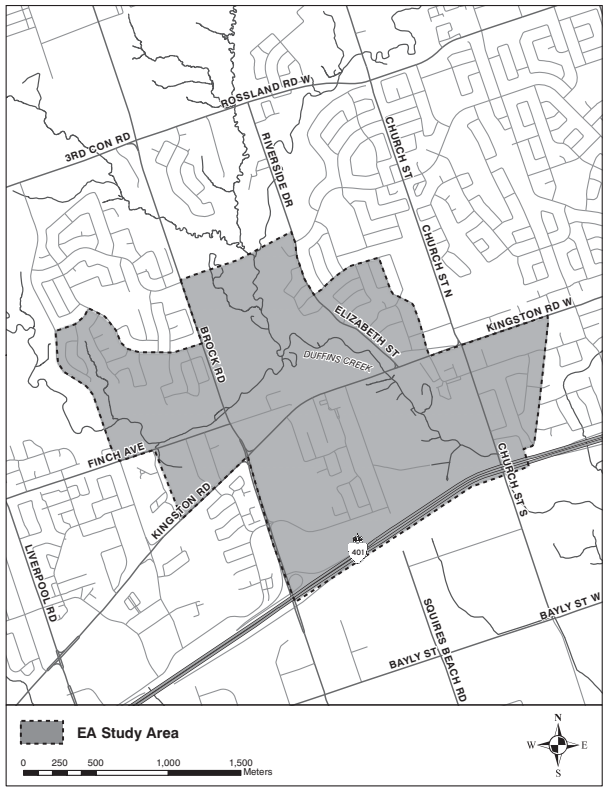
TRCA invites the public to participate in this study which is subject to the *Class Environmental Assessment for Remedial Flood and Erosion Control Projects,* regulated by Conservation Ontario (January 2002, as amended in June 2013), under the Ontario Environmental Assessment Act. Two (2) Public Information Centres (PICs) will be held during the study to provide information and allow for public comment. Notification of the PICs will be advertised in the local newspaper and posted on TRCA's website.

For further information on this project or if you wish to be added to the mailing list, please contact:

Melody Brown P.Eng.
Project Manager, Capital Projects
Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan Ontario, L4K 5R6
E-mail: PADR@trca.ca
Website: www.trca.ca/PADR

Subject to comments received as a result of this study and the receipt of necessary approvals and funding, TRCA intends to proceed with the implementation.

Notice issued on August 8, 2019.



A project of: Toronto and Region Conservation Authority

Notice of Filing

NOTICE OF FILING REPORT FOR REVIEW

Pickering And Ajax Dykes Rehabilitation Project
Class Environmental Assessment
Toronto And Region Conservation Authority

Toronto and Region Conservation Authority (TRCA) has now completed the Environmental Study Report (ESR) regarding flood remedial solutions for the rehabilitation of two (2) existing flood control dykes, referred to as the Pickering and Ajax Dykes, located north of Hwy 401 between Brock Road and Church Street, in the City of Pickering and Town of Ajax. The ESR has been prepared in accordance with the *Class Environmental Assessment for Remedial Flood and Erosion Control Projects,* approved for projects of this type.

In the 1980s, TRCA constructed the dykes to provide flood protection for the Pickering and Ajax Special Policy Areas (SPA). Recent studies have identified that the dykes do not meet current engineering design standards and factors of safety (FOS). As described in the ESR, the Conservation Authority is proposing to rehabilitate the existing dykes to meet current engineering standards and FOS, while maintaining the level of flood protection associated with the existing Pickering Dyke height and increasing the level of flood protection provided by the Ajax Dyke.

Interested persons are invited to review this report on the project website: **www.trca.ca/PADR.** In light of current public health recommendations due to the COVID-19 pandemic, interested parties are strongly encouraged to access the report online. Should this not be possible, an individual printed copy will be provided via mail, upon request.

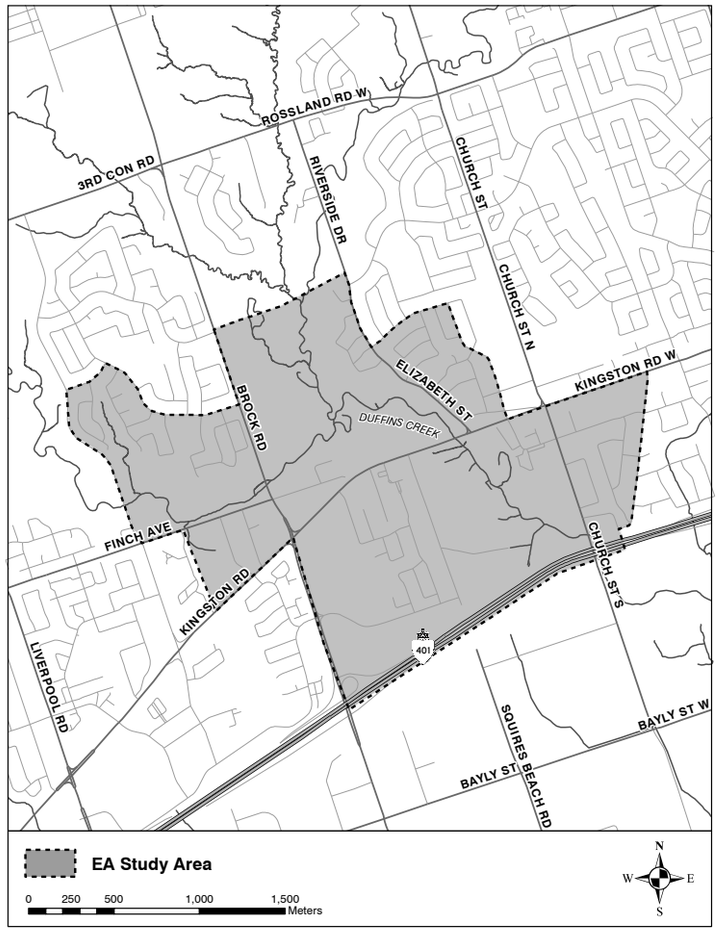
You may provide written comments to TRCA, no later than **October 26th, 2020**, to the attention of:

Melody Brown, P.Eng.
Project Manager, Capital Projects
Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan, Ontario, L4K 5R6
Phone: 416-661-6600 ext. 5320
E-mail: **PADR@trca.ca**

Subject to comments received as a result of this study and the receipt of necessary approvals and funding, TRCA intends to proceed with the construction of this project. If any individual feels that serious environmental concerns remain unresolved after consulting with TRCA staff, it is their right to request that the project be subject to a Part II Order by the Minister of the Environment. The Part II Order Request Form can be found here: **www.ontario.ca/page/class-environmental-assessments-part-ii-order**. Part II Order requests must be received by the Minister, with a copy to the TRCA, at the following address no later than October 26th, 2020:

Minister of the Environment, Conservation and Parks
77 Wellesley Street West, 11th Floor
Toronto ON M7A 2T5
Minister.mecp@ontario.ca

Notice issued on August 27, 2020.



A project of: Toronto and Region Conservation Authority

Stakeholder List

Stakeholder List

Contact Name	Contact Title	Agency Name	Mailing Address
Federal Government			
Ms. Anjala Puvananathan	Director	Canadian Environmental Assessment Agency	55 St. Clair Avenue East, Room 907, Toronto ON M4T 1 M2
-	Fisheries Protection	Fisheries and Oceans Canada	867 Lakeshore Road, Burlington, ON L7S 1A1
Mr. Rob Dobos	Manger, Environmental Assessment Section	Environment Canada	867 Lakeshore Road, 5th Floor, Office L509, Burlington, ON L7S 1A1
Ms. Kitty Ma	Regional EA Coordinator, Safe Environments Program, Ontario Region	Health Canada	180 Queen Street West, 10th floor Toronto, ON M5V 3L7
Ms. Monique Mousseau	Regional Manager, Environmental and Engineering	Transport Canada	4900 Yonge Street. Suite 300 Toronto ON M2N 6A5
Provincial Government			
-	EA Coordinator, Central Region	Ministry of Environment Conservation and Parks	Online notification
Jeff J. Andersen	Permissions and Complaince Section, Species at Risk Branch, Land and Water Division	Ministry of Environment Conservation and Parks	50 Bloomington Road, Aurora ON L4G 0L8
Ms. Bonnie Fox	Manager, Policy and Planning	Conservation Ontario	120 Bayview Parkway, Box 11 Newmarket Ontario L3Y 4W3
Mr. Mark Stephen	Regional Engineering Supervisor	Ministry of Natural Resources and Forestry	4th Flr. S, 300 Water St. Peterborough, ON K9J 3C7
Mr. Brad Allan	District Manager (Acting)	Ministry of Natural Resources and Forestry - Aurora District	50 Bloomington Rd., Aurora ON L4G 0L8
Mr. Bohdan Kowalyk	District Planner	Ministry of Natural Resources and Forestry - Aurora District	50 Bloomington Rd., Aurora ON L4G 0L8

Contact Name	Contact Title	Agency Name	Mailing Address
Maria Jawaid	Planner	Ministry of Natural Resources and Forestry	51 Bloomington Rd., Aurora ON L4G 0L8
Steven Strong	Planner	Ministry of Natural Resources and Forestry	52 Bloomington Rd., Aurora ON L4G 0L8
Mr. James Hamilton	Manager - Heritage Planning Unit	Ministry of Tourism Culture and Sport	Suite 1700, 401 Bay St, Toronto, ON M7A 0A7
Ms. Katherine Cappella	Manager - Archeology Program Unit	Ministry of Tourism Culture and Sport	Suite 1700, 401 Bay St, Toronto, ON M7A 0A7
Aly N. Alibhai	Regional Director	Ministry of Municipal Affairs and Housing - Central Municipal Services Office	College Park 13th flr. 777 Bay St. Toronto ON M5G 2E5
Ms. Katarina Masih	Head, Engineering Services	Ministry of Transportation - Central Region	Building D 5th flr. Sir William Hearst Avenue, Toronto ON M3M 0B7
Mr. Steve Hounsell	Senior Advisor	Ontario Power Generation - Sustainable Development	700 University Ave. Toronto ON M5G 1X6
Ms. Lisa Myslicki	Environmental Advisor, Environmental Management	Infrastructure Ontario	Suite 2000, 1 Dundas St W, Toronto, ON M5G 1Z3
Mr Dan Minkin	Heritage Planner | Heritage Planning Unit	Ministry of Tourism Culture and Sport	Email only.
Karla Barboza	Team Lead - Heritage (Acting) | Heritage Planning Unit	Ministry of Tourism Culture and Sport	Email only.
Public Authorities			
Mr. John Hagg	Fire Chief	Fire Services City of Pickering / Community Emergency Management	1616 Bayly Street Pickering ON L1W 2N2
Mr. Richard Armstrong	Chief/Director	Durham Region - Emergency Medical Services	4040 Anderson Street Whitby ON L1R 3P6
Mr. David Lang	Fire Chief	Ajax - Fire and Emergency Services	900 Salem Rd N. Ajax ON, L1Z 0K4

Contact Name	Contact Title	Agency Name	Mailing Address
Ms. Sheryl Bennett	Manager	Ontario Provincial Police-Research, Planning & Analysis Section	777 Memorial Avenue, 2nd flr. Orillia ON L3V 7V3
-		Ontario Provincial Police - Community Safety Services	777 Memorial Avenue, Orillia ON L3V 7V3
Mr. Jeff Haskins	Inspector	Durham Regional Police - West Division	1710 Kingston Rd., Pickering, ON L1V 1C6
Ms. Lisa Millar	Director of Education	Durham District School Board	400 Taunton Road East, Whitby ON L1R2K6
Ms. Ann O'Brian	Director of Education	Durham District Catholic School Board	650 Rossland Road West, Oshawa ON L1J 7C4
Politicians			
Hon. Mr. Mark Holland	Member of Parliament	Pickering-Ajax	100 Old Kingston Road, Ajax ON
Hon. Mr. Rod Phillips	Member of Provincial Parliament	Ajax	1 Rossland Rd W, Suite 209 Ajax, ON L1Z 1Z2
Hon. Mr. Peter Bethlenfalvy	Member of Provincial Parliament	Pickering-Uxbridge	Suite 213 1550 Kingston Rd. Pickering ON L1V 1C3
Mr. Dave Ryan	Mayor	City of Pickering	One The Esplanade, Pickering ON L1V 6K7
Mr. David Pickles	Regional Councillor Ward 3	City of Pickering	One The Esplanade, Pickering ON L1V 6K7
Mr. Shaheen Butt	Councillor Ward 3	City of Pickering	One The Esplanade, Pickering ON L1V 6K7
Mr. Shaun Collier	Mayor	Town of Ajax	65 Hardwood Ave. S. Ajax ON L1S 2H9
Ms. Marilyn Crawford	Regional Councillor Ward 1	Town of Ajax	65 Hardwood Ave. S. Ajax ON L1S 2H9
Mr. Rob Tyler Morin	Councillor Ward 1	Town of Ajax	65 Hardwood Ave. S. Ajax ON L1S 2H9
Municipal Government			
Ms. Susan Cassels	City Clerk	City of Pickering	Pickering Civic Complex, 2nd flr. One The Esplanade, Pickering ON L1V 6K7
-	City Clerk	Town of Ajax	66 Hardwood Ave. S. Ajax ON L1S 2H9
Indigenous Communities			
Refer to Indigenous Engagement Report for stakeholder consultation list.			
Utilities			

Contact Name	Contact Title	Agency Name	Mailing Address
Jenny Seo	Network Management Officer, asset optimization, strategy and integrated planning	Hydro one	483 Bay St.13th floor, North Tower Toronto ON, M5J 2W3
Ashley Barber	Senior Planning Analyst	Enbridge Gas	500 Consumers Road North York ON M2J 1P8
Rebecca McHolm	Supervisor, Asset Management	Elexicon Energy Inc. | Veridian Connections Inc.	55 Taunton Rd. E. Ajax ON, L1T 3V3
Mr. Brian Elbe	Structures Manager, York and Durham Regions	Bell Canada	Floor 3 West Tower Building E, 5115 Creekbank Rd, Mississauga, Ontario L4W 5R1
Ms. Andrea Coleman	Specialist, Network Provisioning	Bell Canada	15 Victoria St., Flr 2 Oshawa ON L1H 8W9
-	Planning-Coordinator	Rogers Cable TV Limited	3573 Wolfdale Road Mississauga ON L5C 316
User Groups			
-		Oak Ridges Trail Association	P.O. Box 28544, Aurora, Ontario, L4G 6S6
-		Friends of Seaton Trail	
Executive Steering Committee			
Marilee Gadzovski	Division Head, Water Resources & Development Services	City of Pickering	One The Esplanade, Pickering ON L1V 6K7
Ross Pym	Principal Planner	City of Pickering	One The Esplanade, Pickering ON L1V 6K7
Kevin Tryon	Manager, Development Engineering and Transportation Planning	Town of Ajax	65 Hardwood Ave. S. Ajax ON L1S 2H9
Mr. Geoff Romanowski	Director of Planning and Development Services	Town of Ajax	65 Hardwood Ave. S. Ajax ON L1S 2H9
Sameer Dhalla	Director, Development and Engineering Services	Toronto and Region Conservation Authority	101 Exchange Ave, Vaughan ON, L4K 5R6
Moranne McDonnell	Director, Restoration and Infrastructure	Toronto and Region Conservation Authority	101 Exchange Ave, Vaughan ON, L4K 5R6
Laurie Nelson	Director, Policy and Planning	Toronto and Region Conservation Authority	101 Exchange Ave, Vaughan ON, L4K 5R6
Technical Advisory Committee			

Contact Name	Contact Title	Agency Name	Mailing Address
Marilee Gadzovski	Division Head, Water Resources & Development Services	City of Pickering	One The Esplanade, Pickering ON L1V 6K7
Rob Gagen	Supervisor, Parks Operation	City of Pickering	One The Esplanade, Pickering ON L1V 6K9
Irina Marouchko	Senior Water Resources Engineer	City of Pickering	One The Esplanade, Pickering ON L1V 6K10
Kevin Tryon	Manager, Development Engineering and Transportation Planning	Town of Ajax	65 Hardwood Ave. S. Ajax ON L1S 2H9
Matt Porporo	Infrastructure and Asset Management Technologist	Town of Ajax	66 Hardwood Ave. S. Ajax ON L1S 2H9
Charlotte Pattee	Transportation Infrastructure, Public Works	Region of Durham	605 Rossland Rd E, Whitby, ON L1N 6A3
Craig Mitchell	Senior Manager, Flood Infrastructure and Hydrometrics	Toronto and Region Conservation Authority	101 Exchange Ave, Vaughan ON, L4K 5R6
Ali Shirazi	Senior Manger, Geotechnical Engineering	Toronto and Region Conservation Authority	101 Exchange Ave, Vaughan ON, L4K 5R6
Emily Markovic	Senior Ecologist, Planning and Policy	Toronto and Region Conservation Authority	101 Exchange Ave, Vaughan ON, L4K 5R6
Shauna Fernandes	Senior Ecologist, Planning and Policy	Toronto and Region Conservation Authority	101 Exchange Ave, Vaughan ON, L4K 5R6
Sharon Lingertat	Senior Planner, Infrastructure Planning and Permits	Toronto and Region Conservation Authority	101 Exchange Ave, Vaughan ON, L4K 5R6
Mark Rapus	Senior Planner, Development Planning and Permits	Toronto and Region Conservation Authority	101 Exchange Ave, Vaughan ON, L4K 5R6
Community Liaison Committee and Other Members of the Public			
Details have not been included for protection of personal information.			

CLC Information Package

August 19, 2019

[redacted]

SUBJECT: Community Liaison Committee for the Pickering and Ajax Flood Control Dykes Rehabilitation – Class Environmental Assessment

Dear Property Owner,

Please be advised that Toronto and Region Conservation Authority (TRCA) is proposing to carry out remedial flood control works to provide long-term flood protection along sections of the Duffins Creek, in the City of Pickering and Town of Ajax. The purpose of the study is to determine a preferred solution for the rehabilitation of two (2) existing flood control dykes through the planning and design process prescribed in the *Class Environmental Assessment for Remedial Flood and Erosion Control Projects* (Conservation Ontario, January 2002, as amended in June 2013). A "Notice of Commencement" formally initiating the study appeared in the Ajax/Pickering News Advertiser on August 8, 2019.

As part of the Class Environmental Assessment (Class EA) process, a Community Liaison Committee, or CLC, will be formed to aid in the collection of public input through the planning and design phases of this project. The first CLC meeting for this project will be held on:

Wednesday, September 11, 2019
6:30 PM – 8:30 PM
McLean Community Centre – Community Hall
95 Magill Drive, Ajax, L1T 4M5

A package of information accompanies this letter providing a brief overview of the project, and the roles and responsibilities of a CLC member.

If you are interested in participating in the CLC please RSVP by Monday, August 26, 2019 to the Pickering and Ajax Dyke Rehabilitation Project Coordinator by email at PADR@trca.ca

Sincerely,

Melody Brown, P.Eng.
Project Manager, Capital Projects

Encl: Notice of Commencement
CLC Terms of Reference

TERMS OF REFERENCE
Community Liaison Committee (CLC)
Pickering and Ajax Flood Control Dykes Rehabilitation
Class Environmental Assessment

Project Description

Toronto and Region Conservation Authority, hereinafter referred to as TRCA, is proposing to carry out remedial flood control works to provide long-term flood protection for the Pickering and Ajax Special Policy Areas, in the City of Pickering and Town of Ajax. The purpose of the study is to determine a preferred measure of flood control infrastructure rehabilitation through the planning and design process prescribed in the *Class Environmental Assessment for Remedial Flood and Erosion Control Projects (Conservation Ontario, January 2002, as amended in June 2013).* Kontzamanis Graumann Smith MacMillan Inc (KGS Group) has been retained by TRCA to provide professional engineering services to assist with the planning and design of the Class EA. As well, Environmental Communications Consulting (ECCI) has been retained as a subconsultant by KGS Group to assist third party facilitation services at the Community Liaison Committee (CLC) meetings and Public Information Centers (PIC).

Class Environmental Assessment Study

The Class Environmental Assessment for Remedial Flood and Erosion Control Projects (Class EA) approach is considered a suitable means for planning of remedial flood and erosion control projects as it provides a consistent, streamlined process that ensures compliance with Environmental Assessment Act (EAA) requirements. The Class EA process for this project will identify and evaluate a range of alternatives to determine a preferred solution. The Class EA process involves the inclusion of members of the general public including: affected landowners, public interest groups, and any other interested parties in the planning and design phases of the project lifecycle. Interested individuals are provided with opportunities to offer recommendations on the development of solutions, and objections to design proposals where appropriate.

Consultation Plan

The Consultation and Communication Strategy for the Pickering and Ajax Flood Control Dykes Rehabilitation Class EA recognizes the need for accountability to the public and stakeholders. To facilitate ongoing stakeholder involvement at the planning level of the project a Community Liaison Committee (CLC) made up of public and stakeholder representatives will be formed. In compliance with the approved Class EA process, a minimum of two Public Information Centres (PICs) are proposed to allow for public comment on the project. These public meetings (PICs) will provide opportunities for the community to be made aware of the project and to have their concerns addressed. As previously noted, KGS Group retained ECCI as a professional facilitator for meetings of both the Community Liaison Committee and Public Information Centres.

Additionally, a Technical Advisory Committee (TAC) and an Executive Steering Committee (ESC) has been formed by TRCA. Both Committees will have representative from TRCA, City of Pickering and Town of Ajax. The TAC will have technical staff that will provide input and technical review throughout the EA process. While the ESC will provide senior management level input at key touchpoints prior to public consultation.

Purpose and Objectives of Community Liaison Committee (CLC)[1]

The purpose of the Community Liaison Committee (CLC) is to assist TRCA in obtaining additional public input concerning the planning process, evaluation and design of the Pickering and Ajax Flood Control Dykes Rehabilitation.

The objectives of the CLC are:

- To assist TRCA in reaching out and maintaining contact with community residents, groups, associations and organizations.
- To act as the voice of the community for the Pickering and Ajax Flood Control Dykes Rehabilitation.

Roles and Responsibilities

The CLC will:

- Review information and provide direct input throughout the Class EA process.
- Attend meetings organized by TRCA to facilitate the resolution of concerns relating to proposed remedial work.
- Identify items of public concern with regard to the impact and design of proposed flood, and erosion reduction alternatives.
- Provide direct input on these concerns to TRCA to be utilized throughout the planning and design process.
- Assist the Project Team, Technical Advisory Committee (TAC) and Executive Steering Committee (ESC) with content review.
- If required, review Part II Order requests made by members of the public and attempt to resolve the issues of concern between the Part II Order requesters and the Conservation Authority before the request gets referred to the Minister of the Environment for a decision.
- The CLC is not a formal commenting or decision-making body of TRCA.

Individual members will be responsible for:

- Signing of the Committee Member's Agreement (mandatory in order to participate).
- Attending all thee (3) CLC meetings, as outlined in the CLC Information Package. Each CLC member may send one (1) alternate in his or her place if he/she is not able to attend a meeting. The name of the alternate, along with the relationship to the CLC member must be provided to the Committee Chair at least 24 hours prior to the CLC meeting date. If the name and relationship is not provided, the alternate may not be permitted to participate in the CLC meeting.

[1] Taken from Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects (January 2002, as amended in June 2013)

- Listening to, reviewing and considering the information provided by TRCA
- Participating in discussions.
- Striving at all times to ensure that the best interests of all affected landowners are taken into account.
- Listening to and considering the opinions of other CLC members.
- Providing constructive feedback on TRCA suggestions for improvements.
- Preparing for meetings by reviewing any materials provided by TRCA in advance of the meeting (including Minutes from previous meetings).
- Participating in the evaluation of alternatives and in determining the preferred alternative.
- Assisting TRCA by keeping the local community and other interest groups apprised of information about the Project.
- Not on their own, or as part of another association, engaging in independent action that is in conflict with this Terms of Reference or the CLC Information Package.
- Speaking with one voice on all matters related to the Pickering and Ajax Flood Control Dykes Rehabilitation; disagreements and differences of opinion will only be voiced within the CLC.
- Being responsible to inform TRCA of any situation that may be either a conflict of interest or a potential conflict of interest with CLC obligations.
- Committing to serve on, and to the work of the CLC.
- Abiding by and sign the CLC Member Agreement.

Chairing of CLC Meetings

The independent third-party facilitator, ECCI, is a sub-consultant retained by KGS Group and will serve as Chair of the CLC.

Membership

Participants invited to join the CLC are the landowners potentially affected by the Pickering and Ajax Flood Control Dykes Rehabilitation. This includes the property owners immediately adjacent to the dykes, more specifically:

- 98, 100, 104, 108, 110, 114, and 118 Church Street South, Ajax
- 92 Church Street South, Ajax - Village Gardens – Durham Condominium Corporation No.35
- 778 and 780 Kingston Road West, Ajax
- 1710, 1714, 1722, 1730, 1734, 1744, 1748, 1760, 1764, 1766, 1770, 1774 and 1816 Finch Avenue., Pickering
- 1760 and 1780 Bluebird Crescent., Pickering
- 1864, 1892 and 1898 Kingston Road, Pickering
- 1790 Finch Avenue. and 1850 Kingston Road, Pickering - Watermark – Durham Common Element Condominium Corporation No. 195
- 2055 Brock Road., Pickering

Additionally, one (1) representative from each of the following organizations has been invited to participate as a member of the CLC:

- Pickering Village Business Improvement Area
- Trans Canada Trail Ontario

Length of Term

The length of the term will be for the duration of the Pickering and Ajax Flood Control Dykes Rehabilitation Class EA, which is expected to be close to one (1) year. Members may be released at any time during the term by written resignation or by expressing their intent at a CLC Meeting.

CLC Meetings

- The CLC will not have a formal voting structure, but instead will promote discussion.
- Each meeting will be chaired by a Facilitator, and be attended by the members of the CLC, and TRCA staff. Over the course of the EA, project consultants may be asked to attend CLC meetings to discuss specific issues with the CLC.
- Individuals not in attendance at a scheduled meeting will be encouraged to add their viewpoints to meeting notes via written correspondence to TRCA.
- The CLC meeting dates will be fixed as they will follow the Class EA schedule. The dates and meeting location will be provided to CLC members at the first meeting.
- Meetings shall be scheduled to ensure that the majority of CLC members have the opportunity to attend.
- If a scheduled meeting is required to be re-scheduled, TRCA will provide formal notification in writing (via email) within 24 hours prior to the original scheduled meeting time.
- TRCA, with assistance of the Facilitator, will provide administrative support for the CLC meetings.

Record Keeping

The proceedings of each CLC meeting will be kept in the form of notes, rather than verbatim minutes that will be taken by the Facilitator. The meeting minutes will be a record of who attended, decisions of the CLC, and the main points of discussion.

The meeting notes will be circulated in draft to the CLC in advance of the next meeting. At the beginning of each meeting the notes from the previous meeting will be discussed and either approved by the CLC members present at the meeting or appropriately modified during the meeting, and then approved.

Once finalized, the minutes shall be documented in the Environmental Study Report that will be submitted as part of the Class EA process.

Media Protocol

All media requests to CLC members will be directed to the CLC committee Chair and circulated to the Committee. The Committee as a whole will respond to media requests for information.

Committee Member's Agreement

I have read the Information Package and Terms of Reference of the Community Liaison Committee (CLC) of the Pickering and Ajax Flood Control Dykes Rehabilitation, agree with them as a description of the CLC's role and as a member of the CLC commit myself to directing my efforts to these ends.

Further, I promise not to undertake, while a member of the CLC, any independent action with respect to the Pickering and Ajax Flood Control Dykes Rehabilitation study area, the erosion control works, or community liaison process.

I recognize that the length of term will be for the duration of the Pickering and Ajax Flood Control Dykes Rehabilitation Class Environmental Assessment.

I also recognize that I may be released at any time during the term by written resignation or by expressing their intent at the CLC meeting.

_____

Name

_____

Address

_____ _____

Signature Date

Community Liaison Committee
Meeting #1 (September 11, 2019)
Consultation Report

Prepared for

Toronto Region Conservation Authority

Prepared by

Environmental Communications Consulting Inc.

October, 2019

Table of Contents

1.0
CLC Meeting #1
Minutes

Community Liaison Committee
Meeting #1, September 11, 2019
Meeting Minutes

Venue: McLean Community Centre – Community Hall
95 Magill Drive
Ajax, Ontario

Time: 6:30 – 8:30pm

Present:

Community: [redacted]

Project Team: Melody Brown (TRCA), Fuad Curi (KGS), Sameer Dhalla (TRCA, for Nick Lorrain), Catherine Hull (KGS), Art Krause (ECCI), Lindsay Prihoda (TRCA), Crystal Robertson (TRCA)

Overview

This first meeting of the Project's Community Liaison Committee (CLC) addressed three main subject areas:

- Introductions:
  - Project Team members introduced themselves and their responsibilities with respect to the Project; and, the role and format of the CLC going forward was discussed.
- Project Overview:
  - The Project Team presented an outline of the issues underlining the need for this dyke rehabilitation assessment, i.e., the dykes are deficient, they do not satisfy current engineering design standards and there is a risk that they could fail, and the broad categories of evaluation criteria (social, biological, technical, financial) typically applied to Class EA project's of this type (dyke rehabilitation).
  - The existing conditions information collected to date was presented. For design analysis purposes, the two dykes have been divided into six "segments" (five segments of the Pickering Dyke and one segment for the Ajax Dyke). Each segment of the dykes has distinct conditions that allow them to be evaluated separately in devising appropriate engineered solutions.

- Two types of alternative solutions are being considered: those that include a structural component are labelled "hard" engineering solution, and those that do not are labelled "soft" engineering solutions. The "do-nothing" alternative was also considered.

- Members of the CLC were asked to consider what options might be applicable and were invited to offer additional criteria by which prospective rehabilitation option(s) might be assessed. Members of the CLC were also asked to provide any local knowledge of existing conditions within the study area.

- Next Steps:

  - The timeline for the CLC's role in this Class EA was discussed (three more meetings between now and April 2020, tentatively) with the next meeting scheduled for October 17, 2019 at the Pickering Recreation Complex, 1867 Valley Farm Rd (6:30 – 8:30p).

  - CLC members were advised that based on their input (during the meeting and through their completed comment sheets), the Project Team would have preliminary preferred rehabilitation options for each distinct "segment" of the two dykes to present for discussion at the next CLC meeting.

Discussion Points and Comments

The discussions that occurred throughout the presentation are summarized below. Questions are noted with a "**Q**" and answers with an "**A**".

- The meeting began with a project overview. It included a description of those nearby landowners and user groups who were invited (via mail) to participate as members of this project's Community Liaison Committee.

- With respect to CLC member participation and timelines, it was explained that interested participants would be expected to attend four meetings through the Spring 2020, when it is expected the Project's environmental assessment would be filed for regulatory review and approval.

  The Project's implementation (construction) would require separate and subsequent approval and release of the needed funds to undertake the dykes' rehabilitation.

- There was some discussion that revolved around the "design standard" storm events, i.e., 1 in 50 yr events, 1 in 100 yr events, and Hurricane Hazel. The Project Team explained that:

- The dykes were originally designed for a 500-year event, but the most recent study indicates that their crest level only allows protecting for a 100-year event (Pickering Dyke) and a 50-year event (Ajax Dyke). But due to aging and decay, these dykes no longer provide adequate flood control protection. The aim of this dyke rehabilitation project is to restore reliable flood control protection based on the current dyke crest elevations, as a minimum level of protection.

- Larger events, such as the 500-year storm flood, would cause water levels that exceed the existing crest of the dykes but also would exceed the river valley banks in other areas beyond the dykes, spilling into areas that the current dykes cannot protect. As such the dykes alone cannot protect against these floods.

- Hurricane Hazel is the storm used to define the regulatory floodplain and, for this area, results in an even greater flood than the 500-year storm. There are neighborhoods in the study area that are within the regulatory floodplain defined based on Hurricane Hazel. These have been given a special designation by the Province (i.e. Special Policy Area designation).

- **Q:** One CLC member asked what regulations exist to control building in the floodplain.

  A: The Project Team explained that the regulatory floodplain is defined as the area inundated during a Hurricane Hazel storm event (which is the most severe storm event on record for the study area). It was also clarified that the limits to development, related to designated Special Policy Areas within the study area, are defined irrespective of the presence or function of the dykes. Therefore, the Special Policy Area and development regulations will not change as a result of this project.

- **Q:** One CLC Member asked how the extent of the different floods (50-year, 100-year, 500-year and Hurricane Hazel) was determined.

  A: The Project Team indicated that it was based on simulations with computer models. A discussion followed about the model data sources and the validation of model results using recorded storm data.

- A couple of CLC Members identified flooding/inundation experiences in their local areas. In one case, a CLC member noted that the path leading to the Creek (from Elizabeth St) was often impassable after any notable storm event.

- **Q:** Another CLC member asked if the rehabilitation work would require the removal of trees and vegetation. While there seemed to be a general interest among the community members in preserving the tree-covered character of the Creek's banks, at least one person

was looking forward to selective clearing improving the view/vista of the Creek from their property.

A: The Project Team indicated that the project is focused on the rehabilitation of the dyke infrastructure and that tree removal would be limited to what is required to achieve this.

- Several CLC members suggested there seemed to be pinch-points, along Duffins Creek, e.g., the culvert that runs under Finch Avenue, that if addressed, might improve the Creek's flow and thereby reduce the frequency and severity of streambank over-topping that has been occurring over recent years.

  Q: CLC members asked if a parallel study was being undertaken to look at bridges that might be impacting water flow i.e. the 401 crossing.

  A: It was explained that to the Project Team's knowledge, no such parallel studies were underway. But that said, these considerations would need to be part of a much larger study/analysis of the watershed that is beyond the scope of this study.

- CLC members also noted that there are areas where fallen trees and logs have collected inside the stream's banks and along its edges, and, that sedimentation within the stream may have reduced the stream's capacity making the over-topping of the streambanks a more frequent and more severe occurrence.

  Q: CLC members asked if dredging and/or channelizing portions of the stream might help address the overtopping issues with the Pickering and Ajax dykes.

  A: The Project Team clarified that while there may be an opportunity to revisit the operation and maintenance schedule that is in place for seasonal "clean-ups" and "nuisance flooding" of the Creek within the study area, that channelizing a stream is a very expensive undertaking and is not without potentially significant environmental impacts (as it would dramatically alter stream habitats and flow characteristics that could have dramatic environmental consequences both up- and downstream of the study area).

- The Project Team underscored the point that this dyke rehabilitation project evaluation is motivated by the degraded conditions of these two dyke structures as a result of aging (settling, erosion and the infiltration of root systems) since they were built in the 1980's, and, that the aim of this project is to restore the flood control infrastructure to provide reliable flood protection. The target level of protection is based on the current dyke crest elevations, as a minimum level of protection.

- **Q:** CLC asked why there were problems with the dykes if they had been designed for the 500-year storm flood.

A: Outside and apart from the settlement and erosion that has occurred since these dykes were built in the 1980s, it was explained that the technology and methodology used for flood modelling has advanced considerably. Current hydraulic modelling methods require and provide a far greater level of detail in predicting inundation areas.

- **Q:** In response to questions about whether land uses and activities upstream in the watershed might be exacerbating the flooding/inundation being experienced.

  A: The Project Team clarified that while storm event modelling of Duffins Creek is a critical element to the design and positioning of the rehabilitated dykes, re-examining watershed land uses and features is outside the scope of this dyke rehabilitation class EA. That said, the Project Team explained that TRCA regularly updates the hydrology and hydraulic modelling to reflect current land uses, topography and surface conditions which were critical "inputs" to accurately modelling floodplain limits and the effects of design storm events on these two dykes within the study area.

- **Q:** CLC members asked if rehabilitation of the dykes meant that owners would lose land.

  A: The Project Team indicated that land acquisition will be a criterion used in the evaluation of alternatives. Every effort practical would be taken to avoid such a circumstance. Suitable options for discrete segments of the dykes would be developed taking into consideration the particular constraints of topography, soil composition, land use, and, confining the dykes to public lands wherever practical.

- Following the meeting there was a discussion with one CLC member about possible historic deeded access to the river for residents along Finch Ave. The Project Team will look into this matter.

Prepared by: Art Krause

2.0

CLC Meeting #1

Presentation Material

PICKERING AND AJAX DYKES REHABILITATION

Class Environmental Assessment

COMMUNITY LIAISON COMMITTEE
SEPTEMBER 11, 2019

Toronto and Region Conservation Authority

WELCOME TO COMMUNITY LIAISON COMMITTEE MEETING #1

PRESENTATION AGENDA

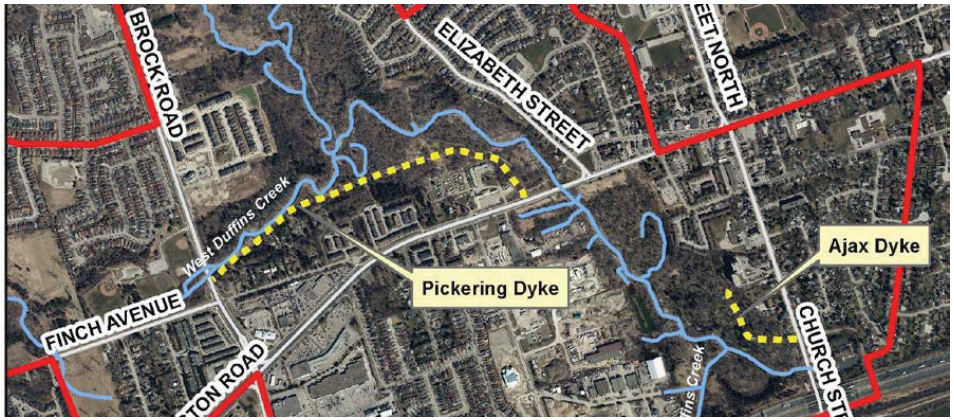
1. **Introduction**
   - Role of the 3rd Party Facilitator
   - Role of the CLC
   - CLC “Housekeeping”

2. **Project Overview**
   - What is the problem and opportunity?
   - Environmental Assessment Process
   - Existing Conditions
   - Preliminary Alternative Solutions
   - Preliminary Evaluation Criteria

3. **Next Steps**

SEEK YOUR FEEDBACK ON:

- Purpose of the Project
- Existing Conditions
- Preliminary Alternative Solutions
- Preliminary Evaluation Criteria
- Your input, issues and concerns



LAND ACKNOWLEDGEMENT

We acknowledge the land we are standing on is the traditional territory of nations including the Mississauga's of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat people and is now home to many diverse First Nations, Inuit and Métis peoples.

ROLE OF 3RD PARTY FACILITATOR

- Chair the Meetings

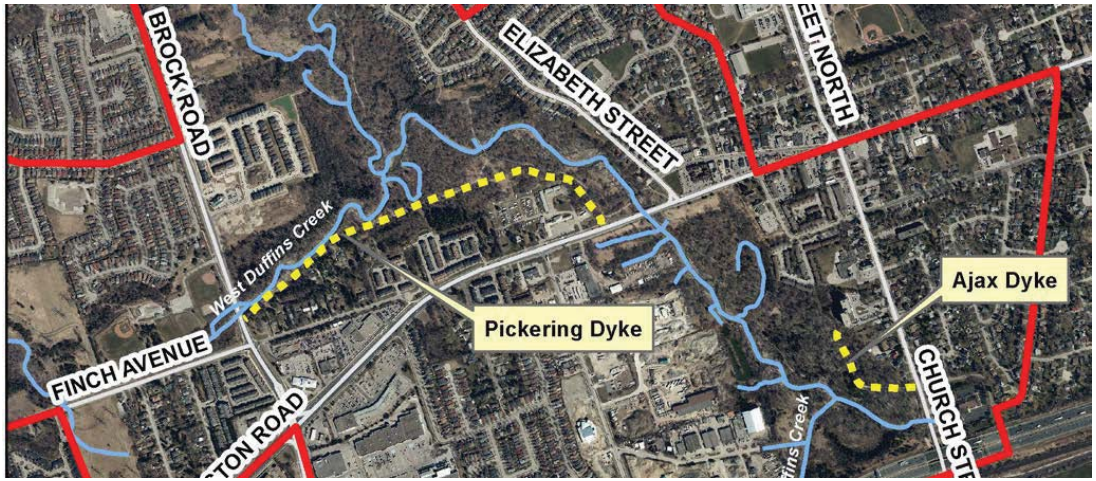
- Maintain a forum to share information and provide opinions

ROLE OF THE COMMUNITY LIAISON COMMITTEE (CLC)

The CLC is to assist TRCA in obtaining additional public input

- Concerning the planning and design process of the EA
- Review of information
- Identify items of public concern regarding impacts and designs
- Provide input

CLC is comprised of interested community members



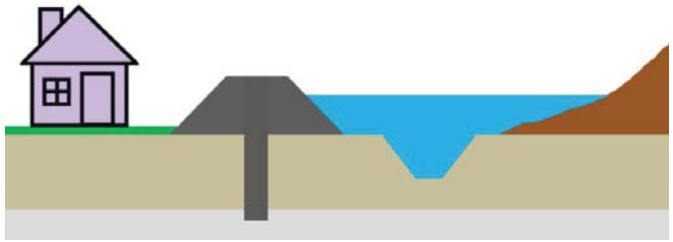
HOUSEKEEPING

- CLC Terms of Reference
- CLC Member's Agreement
- Meeting format and ground rules
- Any questions so far?

WHAT IS THE PROBLEM?

WHAT IS A DYKE?

A flood control dyke is a long wall or embankment built to prevent flooding from a river course.



THE DYKES ARE AT RISK OF FAILURE

- **The dykes do not meet the current engineering design standards**
- **Channel erosion in areas adjacent to the Pickering Dyke**
- **Other issues**
  - Tree growth compromising integrity
  - Narrow crest width

WHAT IS THE OPPORTUNITY?

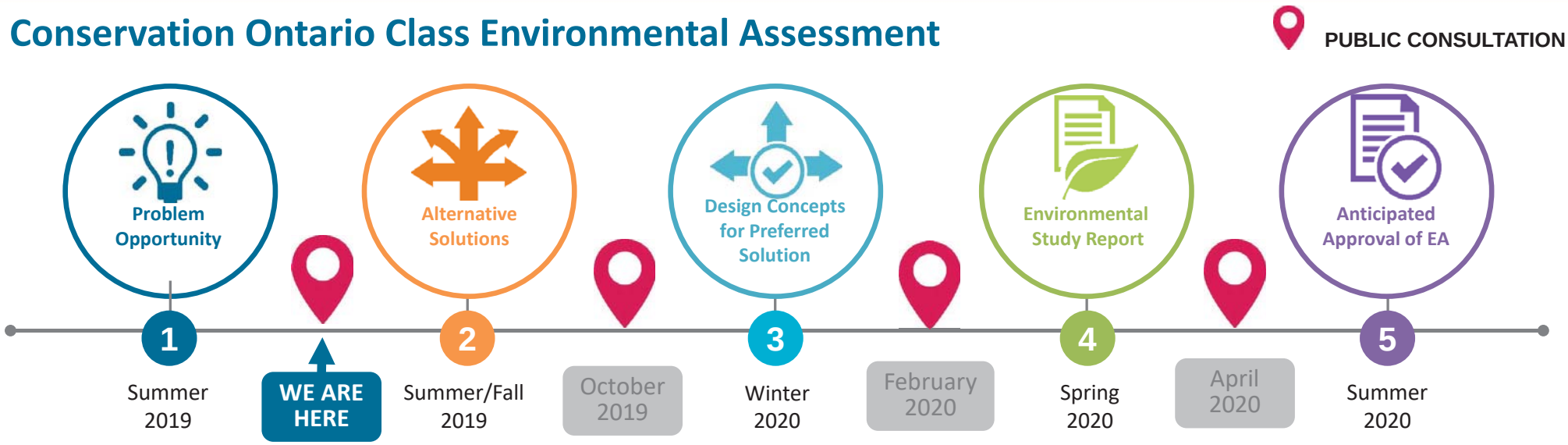
- **Meet current design standards**
  - **Ensure performance of flood protection at current crest levels**
    - Pickering Dyke: 100-year storm flood event
    - Ajax Dyke: 50-year storm flood event
- **Protect the dykes against channel bank erosion**
- **Enhance the natural environment**
- **Allow for future improvements**
  - **Flexibility to increase level of flood protection in the future**

CHECK IN POINT

- Any questions so far?

CLASS EA PROCESS

Conservation Ontario Class Environmental Assessment



The Pickering and Ajax Dykes Rehabilitation Project is following the Class EA process for Remedial Flood and Erosion Control Projects outlined by Conservation Ontario.

Consultation Activities Completed in Phase 1:

- ✓ Project website launch
- ✓ Notice of Commencement published in Ajax/Pickering News Advertiser
- ✓ Notice of Commencement sent to stakeholders
- ✓ Technical Advisory Committee meeting #1
- ✓ Community Liaison Committee meeting #1

CONSULTATION PLAN

TECHNICAL ADVISORY COMMITTEE

The Technical Advisory Committee (TAC) has technical staff from TRCA, City of Pickering, Town of Ajax and Region of Durham who will provide input and technical review throughout the planning and design process of the EA.

EXECUTIVE STEERING COMMITTEE

The Executive Steering Committee (ESC) has senior management staff from TRCA, City of Pickering and Town of Ajax who will provide input at key touchpoints prior to public consultation.

COMMUNITY LIAISON COMMITTEE

The Community Liaison Committee (CLC) is to assist TRCA in obtaining additional public input concerning the planning and design process of the EA and items of public concern.

PUBLIC INFORMATION CENTRE

A Public Information Centre (PIC) will provide opportunities for the community to be made aware of the project and to have their concerns addressed.

STAKEHOLDERS

Are individuals or groups that have an interest in the project or the proposed works. Stakeholders identified by the project team include: public agencies (federal, provincial and municipal), politicians, utilities, and user groups (e.g. trail associations).

CHECK IN POINT

- Any questions so far?

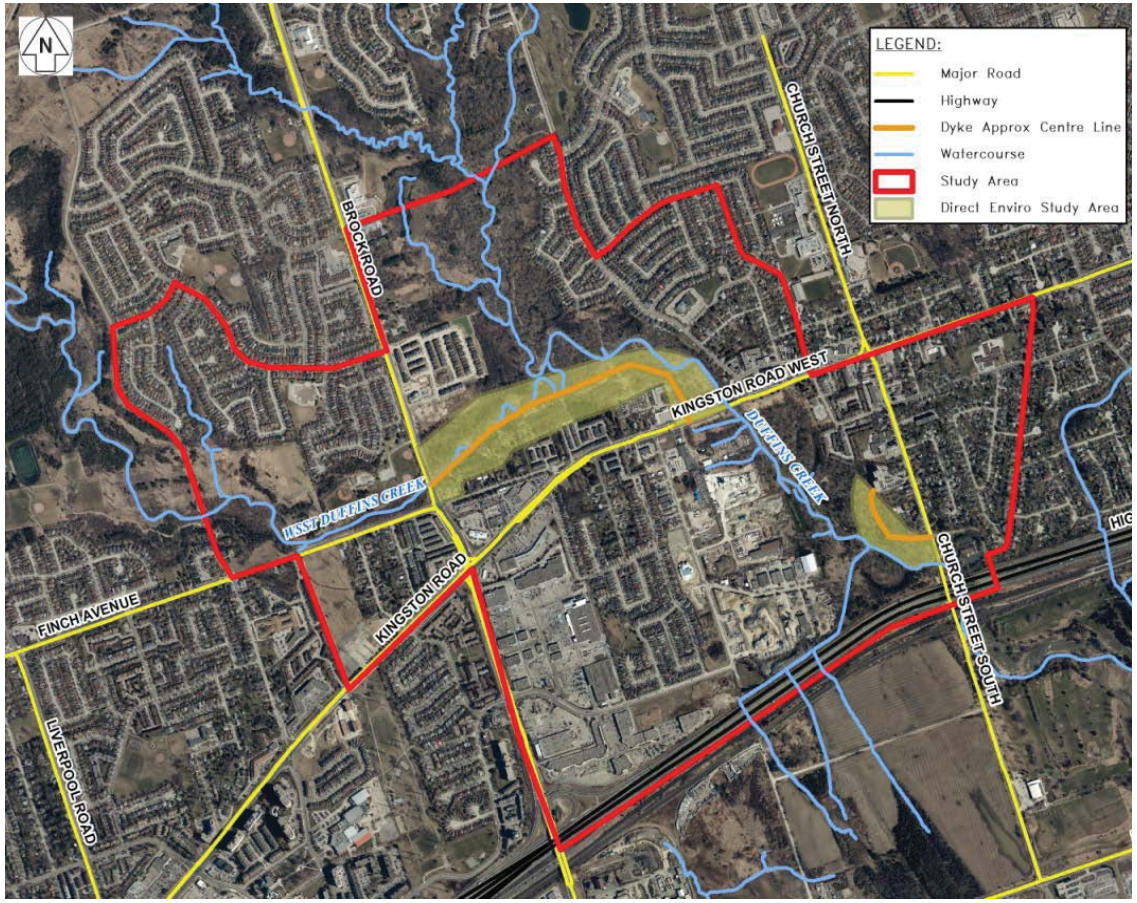
WHERE IS THE PROJECT?

DIRECT STUDY AREA

Valley lands within the limits of the flood control structures (Dykes) and the area primarily impacted by construction access and/or routes.

INDIRECT STUDY AREA

Valley lands and local communities surrounding the flood control structures (Dykes) that may be impacted by remedial works within the Direct Study Area.



HISTORY OF PROJECTS IN STUDY AREA

- **1980's (approximately) Special Policy Area (SPA) Designation** for Village East and Notion Road Pickering Village communities

- **1984-1985 Pickering and Ajax Dykes constructed**

- Designed to provide flood protection for the SPAs up to the 500-year storm flood

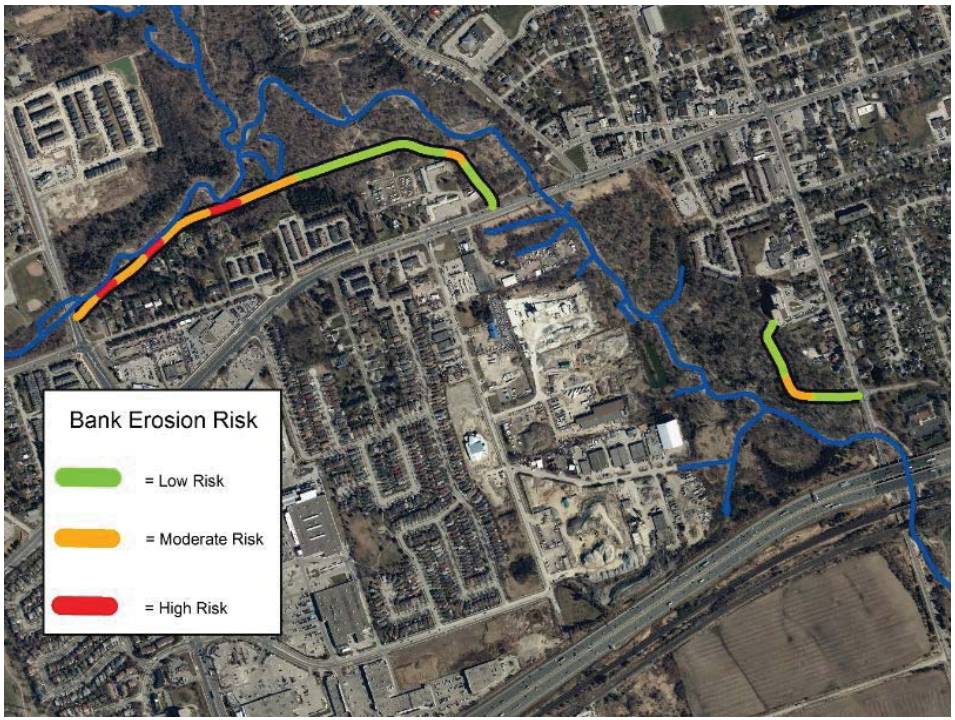
- **2008 repair of major erosion damage to Pickering Dyke**

- **2018 study of geotechnical dyke conditions and flood characterization**

- Indicated that the dykes do not provide expected 500-year storm flood protection
- Recommended completing a Class EA study

TECHNICAL ENVIRONMENT

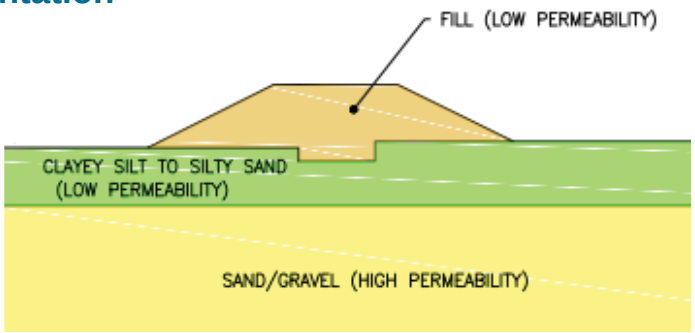
EROSION RISK



SLOPE INSTABILITY

- Dykes do not satisfy **engineering design standards**
- Dykes do not include **seepage control measures**
- Erosion along **eroding creek banks**
- Areas of excessive **vegetation/tree growth**

General Representation



TECHNICAL ENVIRONMENT – FLOODING

50 YEAR STORM EVENT

- No dyke overtopping
- Some spilling in low areas

100 YEAR STORM EVENT

- Ajax Dyke overtops
- Spills in multiple low areas, impacting commercial and industrial properties

500 YEAR STORM EVENT

- Pickering Dyke and Ajax Dyke overtop
- Spill into the multiple low areas, impacting residential, commercial and industrial properties

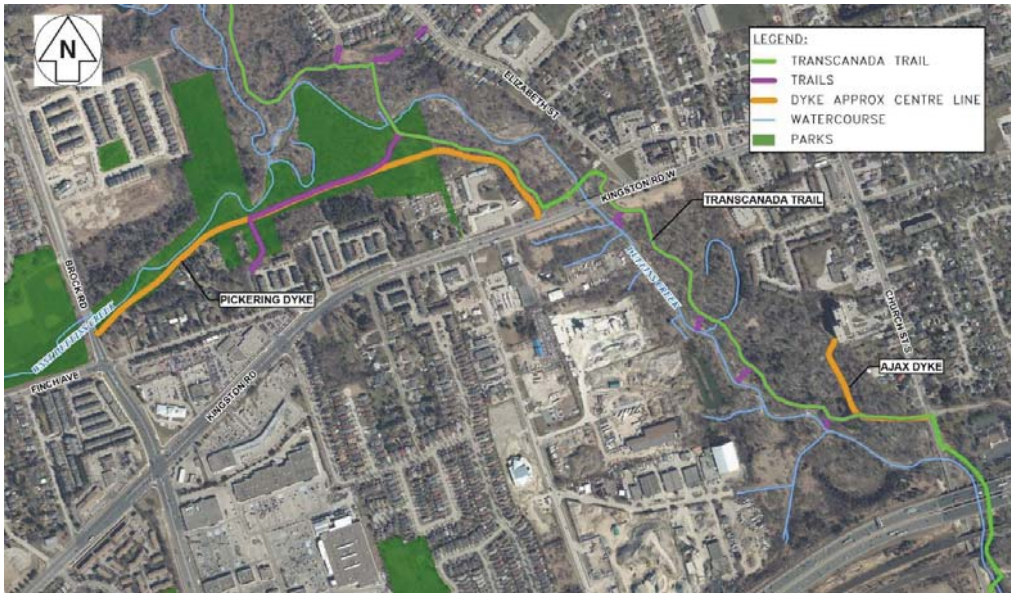
= spilling in low lying areas

= spilling due to overtopping of dyke

SOCIOECONOMIC & CULTURAL ENVIRONMENT

SURROUNDING LAND USE

- Land Uses include residential, commercial, industrial, institutional and park lands
- Transportation Routes includes roads and trails (e.g. TransCanada Trail)



TRADITIONAL LAND USES

- No Aboriginal Reserves or Communities presently in the area
- No outstanding Native Land Claims

ARCHEOLOGICAL

- Archeological Assessment completed.
- There is potential for archeological resources therefore further archeological assessment is required prior to any ground disturbing activities

PHYSICAL ENVIRONMENT

BUILT ENVIRONMENT

- Local drainage infrastructure (direct study area)
- Close proximity to residential properties

NATURAL ENVIRONMENT

- The valley lands provide a link between Lake Ontario and the Greenbelt Plan area north of Pickering/Ajax
- A potential for Significant Wildlife Habitats were observed in the Study Area.
- Special Concern or Rare Wildlife Species include:
  - » Snapping Turtle
  - » Eastern Wood-pewee
- Endangered Species observed include:
  - » Butternut Trees
  - » Redside Dace

Redside Dace

Butternut tree

SPECIAL POLICY AREA

This project will not remove or reduce current limitations on development.
The Special Policy Area designation and planning permit requirements will remain in effect. All planning and development will be subject to current policy and procedures.

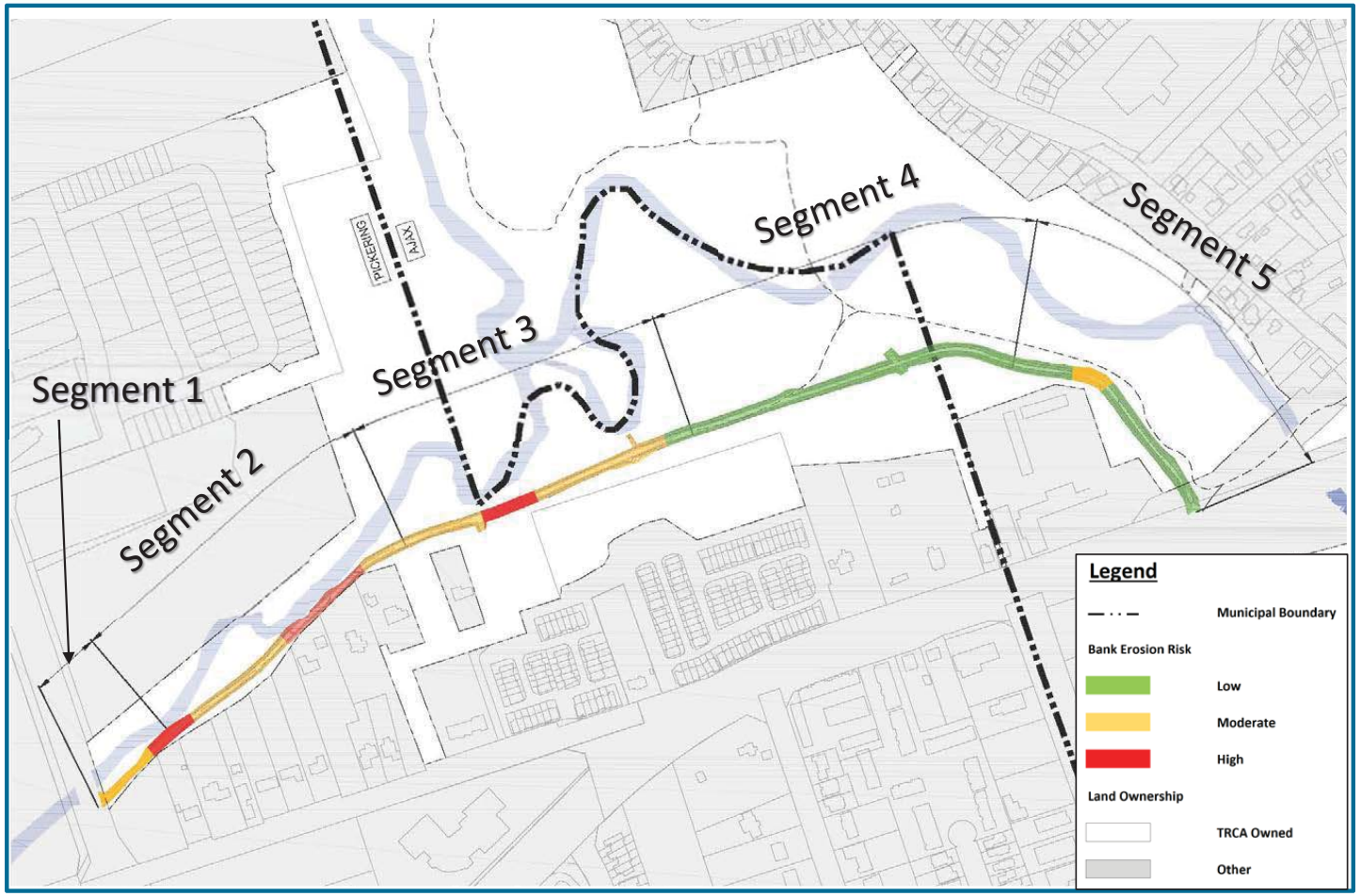
Special Policy Area (SPA)

SPA is a land use planning designation. It acknowledges that there is already development in a flood-vulnerable area, and that only limited changes can be made to the development in the flood plain.

CHECK IN POINT

- Any questions so far?
- Are there any other conditions we did not mention?

PICKERING DYKE SEGMENTS



- Dykes were divided into segments based on unique characteristic of the dyke and surrounding area.
- Segmentation allows for a solution unique to each segment

NOTABLE CONDITIONS

- Does not meet engineering standards.
- Space limitations – property impacts
- Channel erosion
- Excessive vegetation
- Trail
- Utilities
- Protected terrestrial and aquatic species

AJAX DYKE SEGMENTS

Legend

- Municipal Boundary
- Bank Erosion Risk
  - Low
  - Moderate
  - High
- Land Ownership
  - TRCA Owned
  - Other

NOTABLE CONDITIONS

- Does not meet engineering standards.
- Excessive vegetation
- Trail
- Utilities
- Protected terrestrial and aquatic species

WHAT ARE ALTERNATIVE SOLUTIONS?

ALTERNATIVE SOLUTIONS

are different ways to reduce flood risk to life and property.

Alternative Solutions must:

- Provide at minimum, the level of flood protection associated with the current dyke crest elevation
- Meet current engineering standards
- Include the Do-Nothing alternative

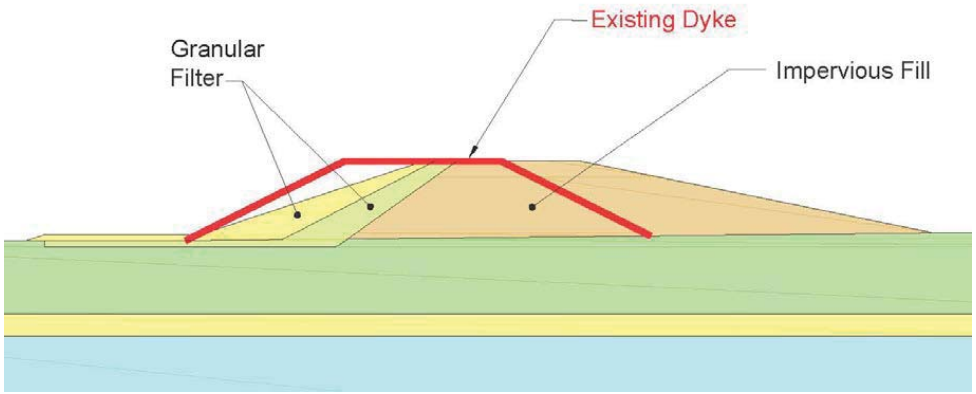
This project will not remove or reduce current limitations on development. The Special Policy Area designation and planning permit requirements will remain in effect.

PRELIMINARY ALTERNATIVE SOLUTIONS

1 'Soft' Engineering Solution (Embankment)

Rehabilitation of the existing flood protection structure with a softer, more natural looking, stable berm (i.e, earth embankment with stable slopes)

ADVANTAGES	DISADVANATAGES
• Less costly to construct and maintain	• Generally will require a larger footprint to accommodate embankment slopes • Generally will disrupt a larger area during construction



Example Cross-Section (not the exact solution)

PRELIMINARY ALTERNATIVE SOLUTIONS

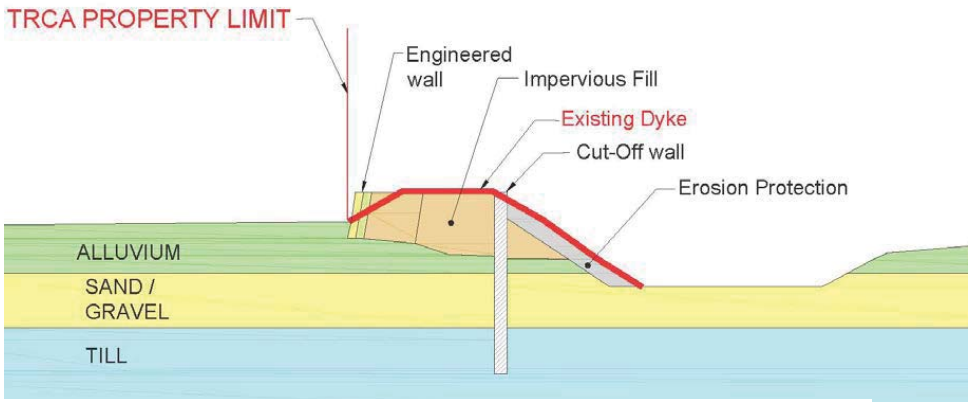
Examples of “Soft” Engineering Solutions

PRELIMINARY ALTERNATIVE SOLUTIONS

2 'Hard' Engineering Solution (Structural)

Rehabilitation of the existing flood protection structure with a highly engineering structural solution (i.e., retaining walls and/or seepage-cutoff methods)

ADVANTAGES	DISADVANATAGES
• Generally will require a smaller footprint (than the embankment alternative) • Generally will disrupt a smaller area during construction	• More costly to construct and maintain



Example Cross-Section (not the exact solution)

PRELIMINARY ALTERNATIVE SOLUTIONS

Examples of “Hard” Engineering Solutions

PRELIMINARY ALTERNATIVE SOLUTIONS

3 Do "Nothing"

Does not mitigate current risk of flooding that would occur during a dyke failure

ADVANTAGES	DISADVANATAGES
• No capital cost • No disturbance to existing environments	• High potential of dyke failure • Risk to human life and property

CHECK IN POINT

- Any questions so far?
- Do you think there are any alternatives that we should add?

HOW WILL WE CHOOSE THE BEST OPTION?

PRELIMINARY EVALUATION CRITERIA

NATURAL ENVIRONMENTAL

- Removal or disturbance of vegetation communities and wildlife habitat
- Removal or disturbance of aquatic habitats

SOCIAL ENVIRONMENT

- Removal and disturbance to private and public property and uses
- Disturbance or enhancement of public recreational spaces
- Effects of construction

TECHNICAL

- Allows for future enhancement to a higher level of protection
- Impacts to existing infrastructure
- Construction constraints and complexities

COST

- Capital Cost
- Maintenance and operation cost/level of effort

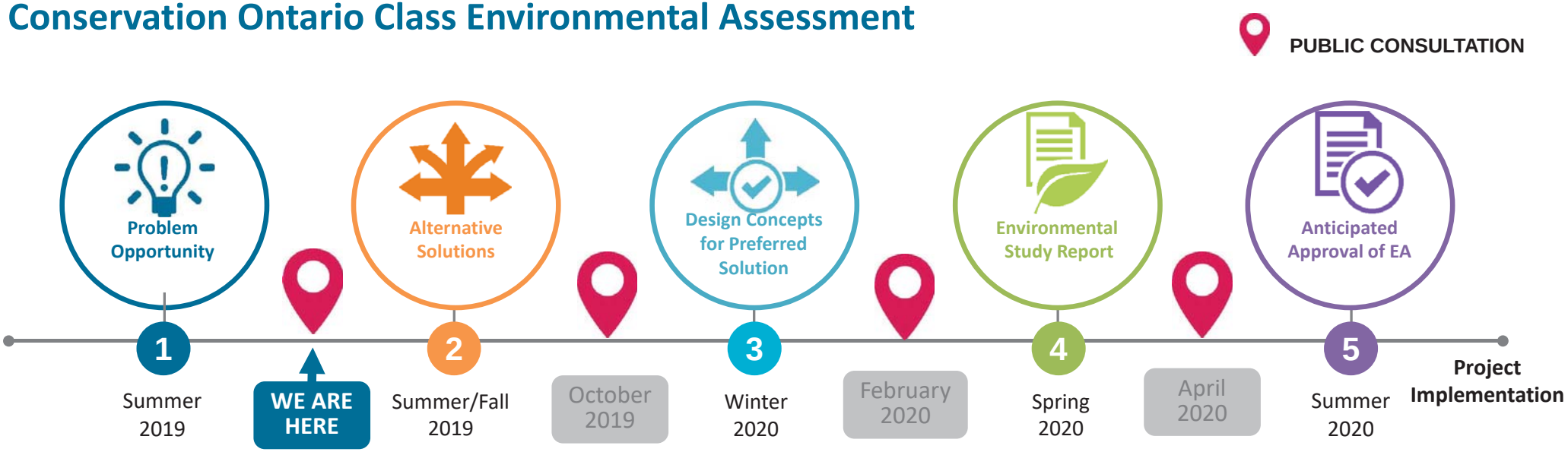
The criteria will be revised based on comments received and then used to evaluate the Alternative Solutions

CHECK IN POINT

- Any questions so far?
- Are there any other criteria that we should add?

TIMELINE

Conservation Ontario Class Environmental Assessment



Detailed design and project implementation is pending EA approval and funding.

THANK YOU

We appreciate the time you have taken to learn more about the Pickering and Ajax Dykes Rehabilitation EA. Your input is important for the success of the EA process. Please provide your input.

Contact the Project Team:
Pickering and Ajax Dykes Rehabilitation Project Coordinator

EMAIL: PADR@trca.ca

WEBSITE: www.trca.ca/PADR

PHONE: 416-661-6600 ext. 5948

Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan ON, L4K 5R6

HOW TO STAY CONNECTED:

- Next meeting: October 17, 2019 *date tentative and to be confirmed*
- Join our mailing list – leave us an email or mailing address so we can keep you up-to date as the study progresses
- Send us your comments or questions. Email us at **PADR@trca.ca**

Thank you.

Melody Brown, P.Eng
TRCA
Fuad Curi, P.Eng
KGS Group

TECHNICAL ENVIRONMENT – FLOODING

500 YEAR STORM EVENT

spilling in low lying areas

spilling due to overtopping of dyke

3.0

CLC Meeting #1

Completed Comment Forms

COMMUNITY LIAISON COMMITTEE #1

Feedback – September 11, 2019

1. Do you have any additional information regarding the existing conditions?

- Remove log jams (Some done this year)
- Dig river bed down

2. What issues and concerns are important to you?

- vertical barriers a concern

Continued access to creek & creekbed sides

who
~~Who~~ is responsible to remove or stop trees from growing on sides of berms?

Will there be any remedial repairs to Bluebird Cr after the heavy ~~equipment~~ equipment pulverized the roadway?

3. Do you have any comments on the presented Preliminary Alternative Solutions?

No

4. Are there any other Preliminary Alternative Solutions that should be considered?

Dig river bed down

Straighten river to increase flow and eliminate sharp bends.

COMMUNITY LIAISON COMMITTEE #1

Feedback – September 11, 2019

5. Do you have any comments on the presented Preliminary Evaluation Criteria?

6. Are there any other Preliminary Evaluation Criteria that should be considered?

7. Do you have any additional thoughts or comments?

Please leave your completed feedback form at the door on the way out OR if you'd like more time to write your comments, please send them to TRCA no later than **Tuesday September 24, 2019.**

Attention: Crystal Robertson, Project Coordinator
Toronto and Region Conservation Authority 101 Exchange Avenue, Vaughan, ON L4K 5R6
Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

[redacted]

From: [redacted]
Sent: September 23, 2019 8:15 PM
To: Pickering Ajax Dyke Rehabilitation
Subject: Community Liaison Committee #1
Attachments: Community Liason Committee #1.pages

Greetings,

Once again thank you for the opportunity to be involved on the Community Liaison Committee.
Apparently, I find it difficult to be constrained by lines and boxes and have chosen the following manner to submit my feedback to the September 11 meeting. I hope that this meets your needs.
Looking forward to the October meeting,

[redacted]

COMMUNITY LIASON COMMITTEE #1
Feedback - September 11, 2019

1. Do you have any additional information regarding the existing conditions?

[redacted], there is a large area between the dyke and river where tree growth is impeding the movement of ice and debris during spring runoff. In 2019 there was the potential for a serious ice jam - please see accompanying photos. This could result in an accumulation of water which would go over the dyke or do serious damage to the structure which could cause it to fail. As well, a large amount of silt has accumulated in the area which has decreased the depth of the dyke on the north side. Note: I realize that this issue possibly does not fall under the mandate of dyke rehabilitation however would be most grateful if it could be brought to the attention of the suitable personnel at TRCA. Thank you

2. What issues and concerns are most important to you?

We are most concerned that we be protected from flooding and that this be achieved in a way that is as responsible and as respectful of the natural environment as possible.

3. Do you have any comments on the presented Preliminary Alternative Solutions?

We prefer the “soft” approach where possible to maintain the natural character of the area. In some segments where space is limited perhaps the “hard “ solution would be necessary.

4. Are there any other Preliminary Alternative Solutions that should be considered?

Not that I know of.

5. Do you have any comments on the presented Preliminary Evaluation Criteria?

The natural environment is of supreme importance to us and in the context of the TRCA mandate, I know that protecting it will be a priority.

[redacted]

COMMUNITY LIAISON COMMITTEE #1

Feedback – September 11, 2019

1. Do you have any additional information regarding the existing conditions?

2. What issues and concerns are important to you?

3. Do you have any comments on the presented Preliminary Alternative Solutions?

WATER LEVEL

LAKE ONTARIO + CREEK + RESTRICTION
= LEVEL AT SITE

4. Are there any other Preliminary Alternative Solutions that should be considered?

REMOVING CHOKE POINT @ HIGHWAY
- LOGS IN RIVER
-

COMMUNITY LIAISON COMMITTEE #1

Feedback – September 11, 2019

5. Do you have any comments on the presented Preliminary Evaluation Criteria?

6. Are there any other Preliminary Evaluation Criteria that should be considered?

7. Do you have any additional thoughts or comments?

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Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

Le

[redacted]

COMMUNITY LIAISON COMMITTEE #1

Feedback – September 11, 2019

1. Do you have any additional information regarding the existing conditions?

'BEACH' completely changed in character over last years, incl. Sandy beach / dune appeared

2. What issues and concerns are important to you?

Keeping the dyke as NATURAL looking as possible

3. Do you have any comments on the presented Preliminary Alternative Solutions?

Yes - fallen trees need to be removed to allow better water flow

4. Are there any other Preliminary Alternative Solutions that should be considered?

COMMUNITY LIAISON COMMITTEE #1

Feedback – September 11, 2019

5. Do you have any comments on the presented Preliminary Evaluation Criteria?

7. Do you have any additional thoughts or comments?

DO NOTHING is NOT AN OPTION – neither is "soft" only or "hard" only solutions

6. Are there any other Preliminary Evaluation Criteria that should be considered?

The North side (lands) of Duffins Creek – Consider to dredging the river

Please leave your completed feedback form at the door on the way out OR if you'd like more time to write your comments, please send them to TRCA no later than **Tuesday September 24, 2019.**

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Website: trca.ca/PADR

COMMUNITY LIAISON COMMITTEE #1
Feedback – September 11, 2019

1. Do you have any additional information regarding the existing conditions?

NO

2. What issues and concerns are important to you?

That maximum effort is placed on providing a safe environment. Water can be devastating and even the most placid creeks can cause havoc. You need only to look at the west side of Brock to appreciate what may happen if the dykes are not optimized.

3. Do you have any comments on the presented Preliminary Alternative Solutions?

As I am neither an engineer, a geologist nor working for Conservation I rely on you, the professionals to keep me "safe and dry". My personal opinion was that both solutions have merit and again will rely on your expertise to proide the "best practice".

4. Are there any other Preliminary Alternative Solutions that should be considered?

Dredging is out, I have seen the short life span of that endeavour firsthand. Changing the course of the river is arrogance on our part. It flows that way for a reason and again I saw what happened at the mouth of the Sturgeon River when they did that. Not Pretty!

COMMUNITY LIAISON COMMITTEE #1

Feedback – September 11, 2019

5. Do you have any comments on the presented Preliminary Evaluation Criteria?

No, I think it gives us a strong touchpoint providing people don't come to the meeting with their own personal ajeddas

6. Are there any other Preliminary Evaluation Criteria that should be considered?

I can't thing of anything to add.

7. Do you have any additional thoughts or comments?

I don't swim that well so for the most part I am relying on you to "steer" us to a saluable solution.

May I say how grateful I and my family is that you are taking a pro-active stance with this!

Please leave your completed feedback form at the door on the way out OR if you'd like more time to write your comments, please send them to TRCA no later than **Tuesday September 24, 2019.**

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Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

1. Do you have any additional information regarding the existing conditions?

Flood/water level seems to be highest in the winter with ice jams, and also pressure on the Dyke highest for same reason

2. What issues and concerns are important to you?

- Having the 4 critical areas fixed/reinforced,
- A viable plan developed for flood/water/ice management

3. Do you have any comments on the presented Preliminary Alternative Solutions?

- More scope of attention needs to be given to alternative solutions
- Biggest concerns for flood risk for us is a winter ice jam, not summer storms

4. Are there any other Preliminary Alternative Solutions that should be considered?

- Straighten river to ↑ water & ice flow
- perhaps more aggressive tree removal in direct flood plain to ↑ water/ice movement
- Can a flood escape culvert be bored into the Bayly St Bridge to ↓ water pressure upstream rather than a new bridge being built?
- is selective dredging an option if shore bank erosion policies are followed. Does that buy 20/30 yrs of time or is it fruitless after 1/2 yrs?

COMMUNITY LIAISON COMMITTEE #1
Feedback – September 11, 2019

5. Do you have any comments on the presented Preliminary Evaluation Criteria?

I Don't think scope of inquiry is broad enough- if some of the bends of the river aren't taken out I fear with more winter rain ice jams will be worse, and I think the impact of winter rain on ice break-up isn't fully appreciated.

6. Are there any other Preliminary Evaluation Criteria that should be considered?

– Perhaps a higher level of "de-forestation" in the immediate water highway corridor to ↑ water flow
– widening or straightening some of the river bends to remove bottlenecks and ↓ pressure on the Dyke in critical areas
Stone cages on sanding banks on South side to ↓ silt accumulation

7. Do you have any additional thoughts or comments?

- I don't think reinforcing the dyke is enough of a solution – other factors that control water movement need to be considered
- From what I understand, the impact floating dead trees cause on ice jams + rainstorms is not reflected / incorporated in the computer model

Please leave your completed feedback form at the door on the way out OR if you'd like more time to write your comments, please send them to TRCA no later than **Tuesday September 24, 2019.**

Attention: Crystal Robertson, Project Coordinator
Toronto and Region Conservation Authority 101 Exchange Avenue, Vaughan, ON L4K 5R6
Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

Community Liaison Committee
Meeting # 2 (October 17, 2019)
Consultation Report

Prepared for

Toronto Region Conservation Authority

Prepared by

Environmental Communications Consulting Inc.

December, 2019

Table of Contents

1.0
CLC Meeting #2
Minutes

Community Liaison Committee
Meeting #2 Minutes (October 17, 2019)

Venue: Program Room A
Chestnut Hill Developments Recreation Complex
1867 Valley Farm Road
Pickering, Ontario

Time: 6:30 – 8:30pm

Present:

Community: [redacted]

Project Team: Melody Brown (TRCA), Fuad Curi (KGS), Art Krause (ECCI), Nick Lorrain (TRCA), Lindsay Prihoda (TRCA), Crystal Robertson (TRCA), Ryan Weise (KGS)

Overview

This second meeting of the Project's Community Liaison Committee (CLC) focussed largely on providing CLC members with an update on the evaluated alternative solutions and proposed preferred solution being considered for each of the six dyke segments. Specifically:

- The Project Team reviewed the need for these dyke's rehabilitation assessments, explaining that the dykes are deficient, they do not satisfy current engineering design standards, and there is a risk that they could fail.

- The Project Team presented conceptual "hard" and "soft" engineered solutions that have been developed for the five segments of the Pickering Dyke and for the single segment associated with the Ajax Dyke. Generalized plan views were presented that illustrated the amount of land that would be required to rehabilitate these six dyke segments (permanently), and, the land that would be temporarily required during construction to rebuild these two dykes.

- Applying the variously applicable socioeconomic, natural, technical, and cost criteria presented at the first CLC Meeting (September 11, 2019), the Project Team presented the preliminary preferred solution for each of the five segments of the Pickering Dyke and for the single segment associated with the Ajax Dyke.

- The Project Team explained that with the input provided by CLC members, the next phase of the Project would present more detailed (and site-specific) alternative designs for each of the segments including cross-section profiles of the dykes at key locations along their lengths.

Different options ('alternative designs') for these more detailed designs will be prepared and evaluated by the Project Team.

- CLC members were provided an update on the schedule for the dyke designs and the continuing public/stakeholder consultation process.

- TRCA committed to formalizing a call-in number for reporting ice jams, to address comments raised at the first CLC meeting.

- CLC members were reminded of the upcoming Public Information Centre, scheduled for October 30, 2019 where, it was explained, the preferred solution for each of the six dyke segments would be presented for public review and comment.

Discussion Points and Comments

Discussions that occurred throughout the presentation are summarized below. Questions are noted with a "Q" and answers with and "A".

- There was some further discussion to distinguish between the different "design standard" storm events, i.e., 1 in 50-Yr events, 1 in 100-Yr events, 1 in 500-Yr events, and Hurricane Hazel. The Project Team explained that:

  - The dykes were originally designed for a 500-year event, but the most recent study indicates that their crest levels only allows protecting for a 100-year event (Pickering Dyke) and a 50-year event (Ajax Dyke). But in their current state, these dykes could fail during smaller flood events and no longer provide adequate flood control protection. The aim of this dyke rehabilitation project is to restore reliable flood control protection based on the current dyke crest elevations, as a minimum level of protection.

  - Larger events, such as the 500-year storm flood, would cause water levels that exceed the existing crest of the dykes but also would exceed the river valley banks in other parts of the Study Area, spilling into areas that the current – or, rebuilt – dykes would not provide protection from. As such, the dykes alone cannot protect against the impacts of a 500-year flood event.

- **Q:** The question from the first CLC meeting concerning limitation to development in the floodplain was raised again.

  A: The Project Team explained that the regulatory floodplain is defined as the area inundated during a Hurricane Hazel storm event (which is the most severe storm event on record for the region). It was also clarified that the limits to development, related to such a designated Special Policy Areas within the Study Area, are defined irrespective of the presence or function of the

dykes. Therefore, the Special Policy Area and development regulations will not change as a result of this Project.

- **Q:** CLC members asked if it was possible to build large surface/subsurface catchment basins to retain storm event runoff/flows so as to minimize peak flows in the creek.

  A: The Project Team clarified that such basins are extremely expensive (and impractical) to build in already developed areas. These basins are employed, with the greatest effect, in areas of new residential development where these basins can be sized correctly and where there is adequate space to incorporate them into a new subdivision.

- The Project Team underscored the point that this dyke rehabilitation project evaluation is motivated by the stability deficiencies and the degraded conditions of these two dyke structures as a result of aging (settling, erosion and the infiltration of root systems) since they were built in the 1980's, and, that the aim of this project is to restore the flood control infrastructure to provide reliable flood protection. The target level of protection is based on the current dyke crest elevations, as a minimum level of protection.

- **Q:** The question from the first CLC meeting concerning whether land uses and activities upstream in the watershed might be exacerbating the flooding/inundation being experienced was addressed again.

  A: The Project Team clarified that while storm event modelling of Duffins Creek is a critical element to the design and positioning of the rehabilitated dykes, re-examining watershed land uses and features is outside the scope of this dyke rehabilitation Class EA. That said, the Project Team explained that TRCA regularly updates its hydrologic and hydraulic modelling to reflect current land uses, topography and surface conditions as these provide critical "inputs" to accurately model floodplain limits and the effects of design storm events on these two dykes within the Study Area.

- **Q:** CLC members asked if rehabilitation of the dykes meant that property owners would lose land.

  A: The Project Team indicated that land acquisition was a criterion used in the evaluation of alternative solutions and will be a criterion used to evaluate alternative design concepts in the next phase of the study. The current alternative solutions do show that selective areas of private property may be impacted, however these are very conceptual/high level designs. In the next phase of the study more detailed designs will be developed and suitable options for discrete segments of the dykes will be developed, taking into consideration the particular constraints of topography, soil composition, land use, and, to confine the dykes to public lands wherever practical.

- A couple of CLC members expressed some concerns that the more gradual slope of the dry side of the soft dyke option (as compared to the existing terrain) may, in some few cases, affect abutting private lands. The Project Team indicated this consideration would be factored into the next, more detailed, design phase.

- CLC members inquired as to whether the larger footprint of the proposed soft dyke segments might affect the creek's flow capacity. The Project Team indicated that this would be considered in the next phase of the Project.

- One CLC member noted that the hard solution, required in places with limited space, may conflict with some landowners' deeded access rights to the creek. The Project Team indicated this consideration would be factored into the next, more detailed design, phase.

- There was also some discussion about general access to the Creek where it was explained that access for users and maintenance purposes would be factored into the more detailed design phase.

- One CLC member suggested that impacts to some abutting private properties could be avoided by building the hard solution on the north side of the existing dyke (river side) near 1760 Finch Ave.

- CLC members expressed confidence that the Project Team would develop best solutions for everyone and not just preserve the views for a few.

- CLC members expressed some interest in whether all alternative solutions would require the removal of trees. The Project Team confirmed that all alternatives will require tree removal, the extent of tree removal would vary for each of the alternatives.

- A few CLC members, residing at locations where hard dyke solutions are being proposed and where their houses are close to the dyke, expressed concern they would lose the natural vistas and the access to the river that they currently enjoy.

- CLC members expressed interest in better understanding the extent of the depth of flood waters that would occur in the event the dykes failed, or, if they were not there. The Project Team committed to bring this information to the next CLC meeting.

- CLC members expressed concern that private properties could be at greater risk of flooding once the existing dykes are removed and before the new dykes are fully in place. They asked that construction during the Spring freshet, be avoided.

The Project Team explained that dyke removal and replacement would likely occur in a phased-in fashion, that measures would be taken to mitigate the flood risk over what is expected to be a 12 to 24-month construction period. In addition to the need to schedule the work during low-flow periods, there are other overlapping considerations including fisheries protection, migratory bird patterns and other sensitive habitat considerations that would have to be factored into scheduling the construction work.

- CLC members also expressed interest and some concern about the Project's constructability, construction phasing and the expected construction duration. They asked that these matters be considered in the next stages of the Project's environmental assessment.

  It was explained that the Project's constructability, the period over which it would be built, and, the phasing of construction activities would be part of the next, more detailed, phases of the environmental assessment.

Prepared by: Art Krause

2.0

CLC Meeting #2

Presentation Material

PowerPoint Presentation

PICKERING AND AJAX DYKES REHABILITATION

Class Environmental Assessment

COMMUNITY LIAISON COMMITTEE MEETING #2
OCTOBER 17, 2019

Toronto and Region Conservation Authority

LAND ACKNOWLEDGEMENT

We acknowledge the land we are standing on is the traditional territory of nations including the Mississauga's of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat people and is now home to many diverse First Nations, Inuit and Métis peoples.

WELCOME TO THE CLC MEETING #2

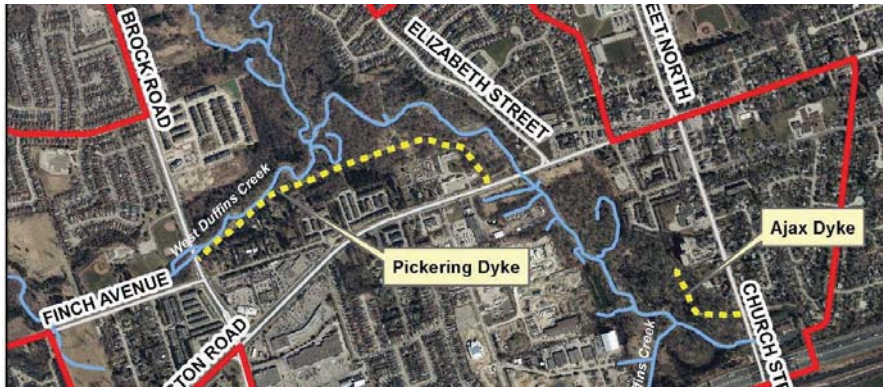
PRESENTATION AGENDA

1. **Project Overview**
   - Project Summary
   - Alternative Solutions
   - Evaluation of Alternative Solutions
   - Preliminary Preferred Alternative Solution
2. **Next Steps**

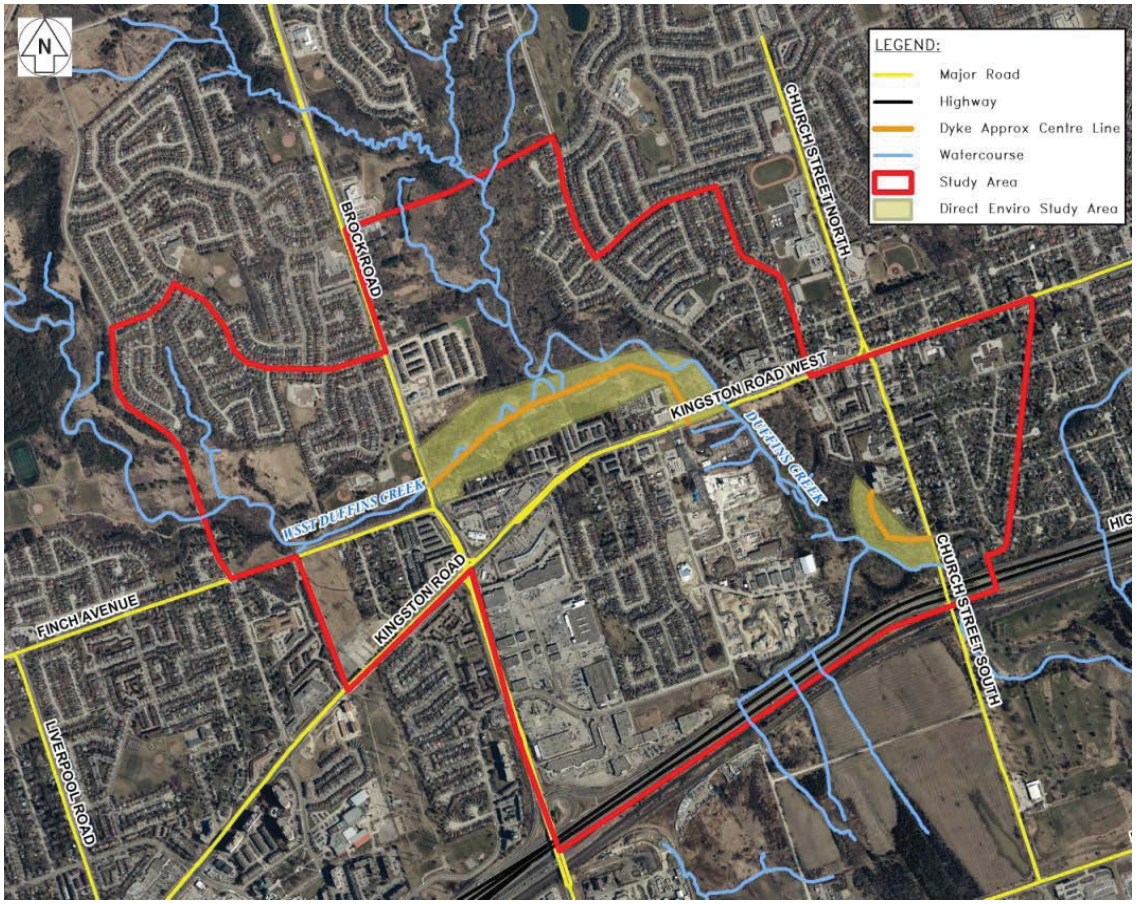
Feel free to ask questions throughout the presentation. However, please limit your questions and comments to matters directly related to this project.

SEEK YOUR FEEDBACK ON:

- Alternative Solutions
- Evaluation Criteria
- Preliminary Preferred Alternative Solution
- Your input, issues and concerns



WHERE IS THE PROJECT?



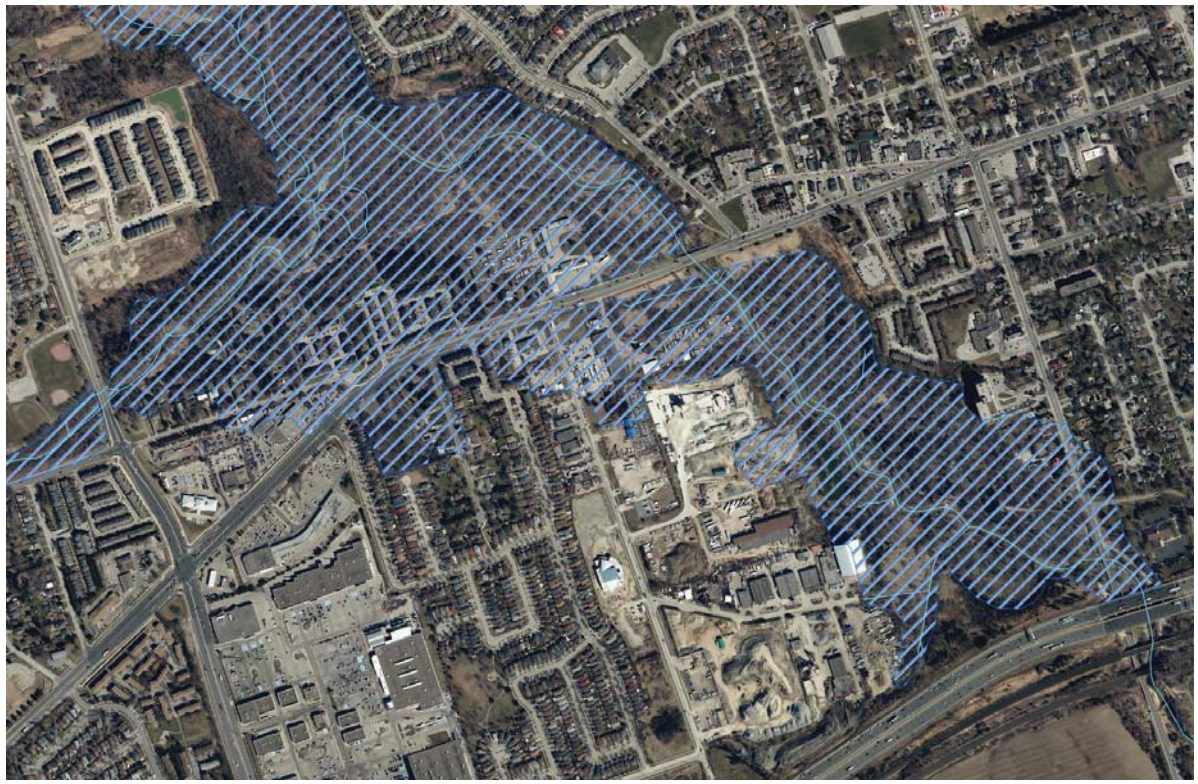
WHAT IS THE PROBLEM?

THE DYKES ARE AT RISK OF FAILURE

- **The dykes do not meet the current engineering design standards**
- **Channel erosion in areas adjacent to the Pickering Dyke**
- **Other issues**
  - Tree growth compromising integrity
  - Narrow crest width

WHAT IS THE OPPORTUNITY?

- **Meet current design standards**
  - **Ensure performance of flood protection at the current crest levels at minimum.**
    - Pickering Dyke: 100-year storm flood event
    - Ajax Dyke: 50-year storm flood event
- **Protect the dykes against channel bank erosion**
- **Enhance the natural environment**
- **Allow for future improvements**
  - **Flexibility to increase level of flood protection in the future**

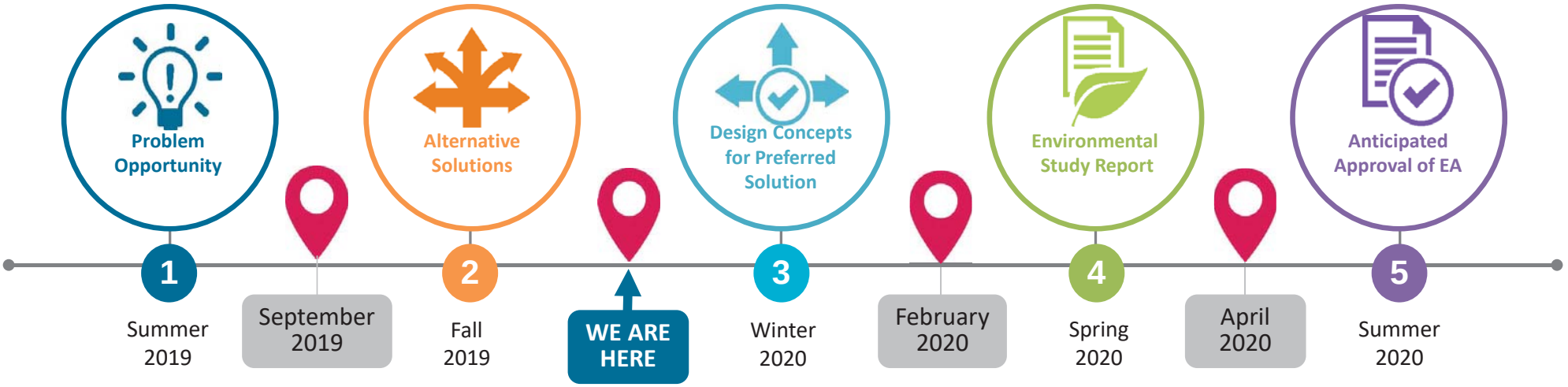


Potential extent of flooding without dykes (100 year storm event).

CLASS EA PROCESS

Conservation Ontario Class Environmental Assessment

PUBLIC CONSULTATION



The Pickering and Ajax Dykes Rehabilitation Project is following the Class EA process for Remedial Flood and Erosion Control Projects outlined by Conservation Ontario.

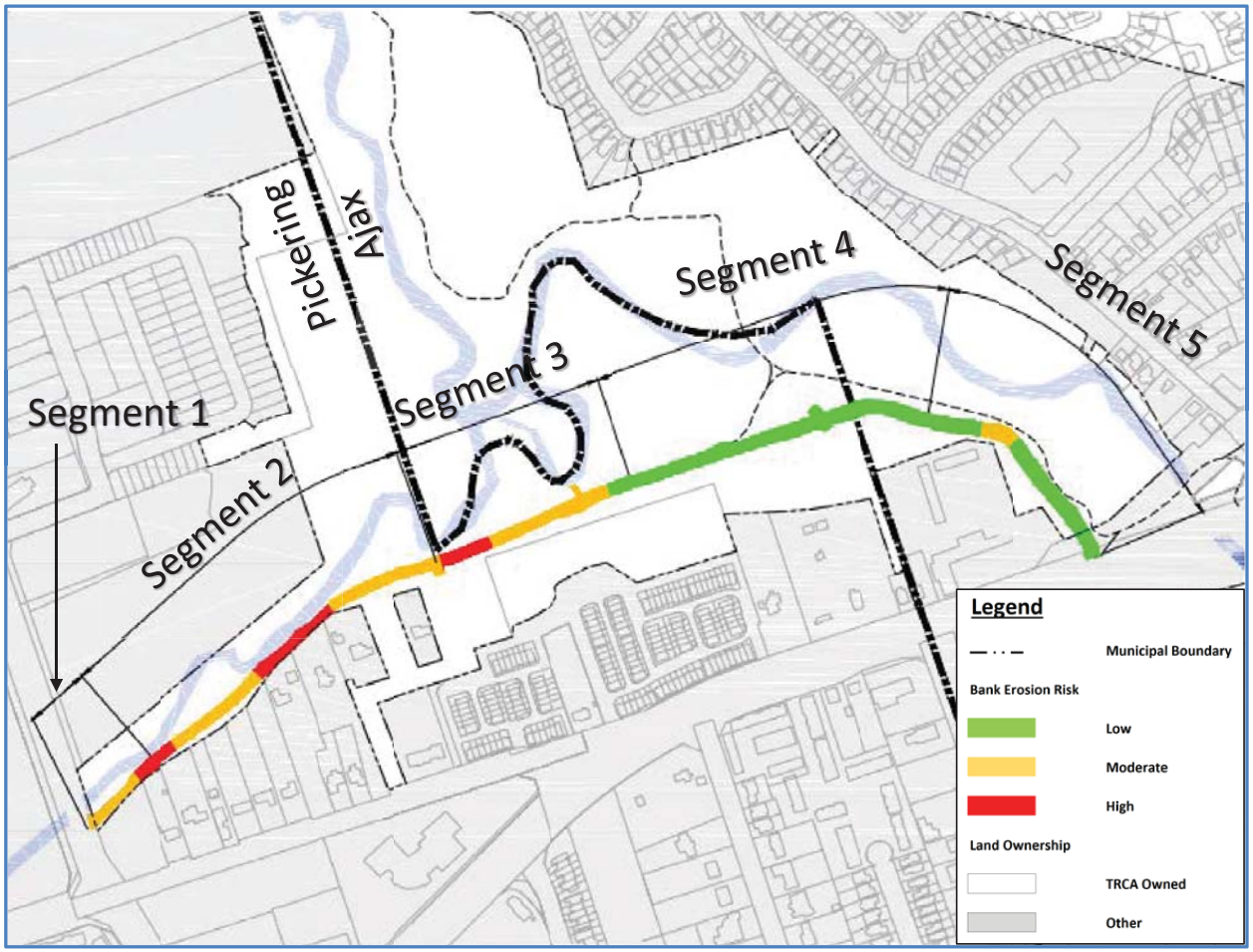
Consultation Activities Completed in Phase 2:

- ✓ **Technical Advisory Committee meeting #2**
- ✓ **Executive Steering Committee meeting #1**
- ✓ **Notice of PIC published in Ajax/Pickering News Advertiser**
- ✓ **Notice of PIC mailed to properties within the Indirect Study Area**
- ✓ **Community Liaison Committee meeting #2**
- ✓ Public Information Centre #1

WHAT WE HEARD FROM YOU AT CLC#1

- **Does the project affect the current limitations to development within the SPAs?**
  - No, it will not. However, it will allow restoration of flood protection infrastructure and provide operational flood mitigation.
- **Why are there problems if the dykes were designed for a 500-year event?**
  - Knowledge of the flows, topographic data, and modelling tools has advanced. In addition, the dykes have settled which affects the dyke performance.
- **Will enhancement of the dykes mean that owners would lose land?**
  - The study will attempt to limit using private property lands.
- **CLC highlighted the limitations to flow conveyance by trees, sedimentation, the presence of pinch points, and the presence of debris at times of high flows.**
  - It was indicated that some of those aspects relate to maintenance and will be noted for that purpose.
  - The project, however, is for the rehabilitation of the dykes as flood protection infrastructure. These noted aspects are beyond the scope of this project.
- **CLC members also highlighted the importance of flooding from ice jams, not only summer rainstorm floods**
- **Some CLC members indicated their interest on preserving the trees and the natural look of the area; but that the 'hard' solution was acceptable where needed**
- **Residents acknowledged the flood protection provided by the dykes and indicated the desire to keep them**

PICKERING DYKE SEGMENTS

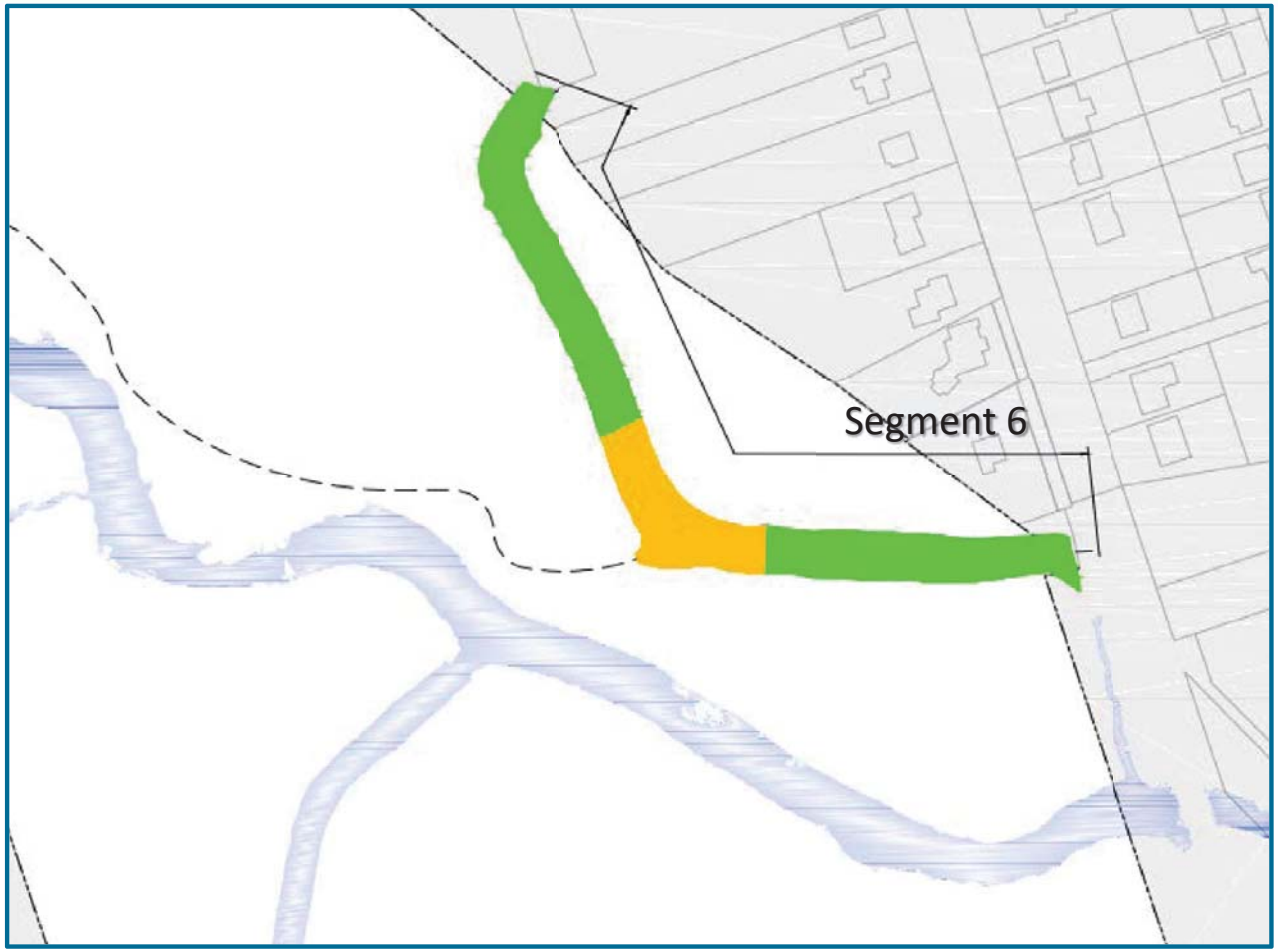


- Dykes were divided into segments based on unique characteristic of the dyke and surrounding area.
- Segmentation allows for a solution unique to each segment

NOTABLE CONDITIONS

- Does not meet engineering standards.
- Space limitations – property impacts
- Channel erosion
- Excessive vegetation
- Trail
- Utilities
- Protected terrestrial and aquatic species

AJAX DYKE SEGMENTS



Legend

- Municipal Boundary
- Bank Erosion Risk
  - Low
  - Moderate
  - High
- Land Ownership
  - TRCA Owned
  - Other

NOTABLE CONDITIONS

- Does not meet engineering standards.
- Excessive vegetation
- Trail
- Utilities
- Protected terrestrial and aquatic species

WHAT ARE ALTERNATIVE SOLUTIONS?

ALTERNATIVE SOLUTIONS

are different ways to reduce flood risk to life and property.

Alternative Solutions must:

- Provide at minimum, the level of flood protection associated with the current dyke crest elevation
- Meet current engineering standards
- Include the Do-Nothing alternative

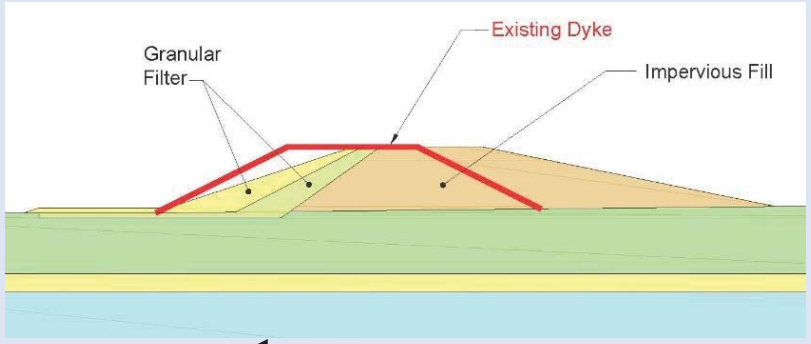
This project will not remove or reduce current limitations on development. The Special Policy Area designation and planning permit requirements will remain in effect.

PRELIMINARY ALTERNATIVE SOLUTIONS

1 'Soft' Engineering Solution (Embankment)

Rehabilitation of the existing flood protection structure with a softer, more natural looking, stable berm.

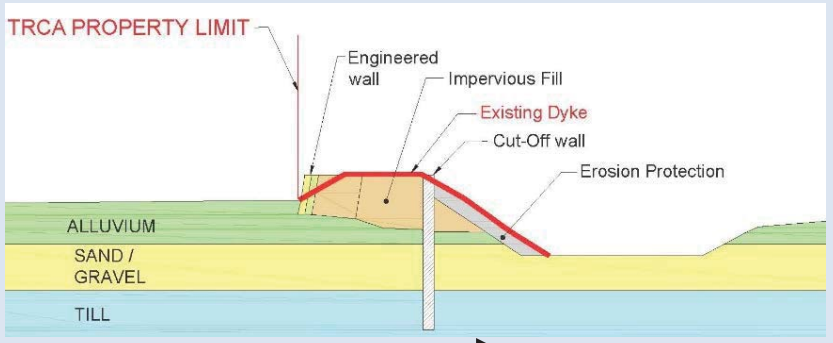
I.e., earth embankment with stable slopes.



2 'Hard' Engineering Solution (Structural)

Rehabilitation of the existing flood protection structure with a highly engineered structural solution.

I.e., retaining walls and/or seepage-cutoff methods.



Alternative Solutions for both 50 and 100 year storm events.

PRELIMINARY ALTERNATIVE SOLUTIONS

3 Do "Nothing"

Does not mitigate current risk of flooding that would occur during a dyke failure.

Ongoing repair works required as conditions degrade.

Impacts of a dyke failure included in evaluation.

4 Removal of Vegetation on Existing Flood Protection Structure

Rehabilitation of the existing flood protection structure by the removal of all vegetation within the limits of the dykes

5 Removal of Existing Flood Protection Structure

Decommissioning and removal of the existing flood protection structure

SCREENING OF ALTERNATIVE SOLUTIONS

Alternative solutions were screened to determine if they could address the problem and objective of project. Those that could not were dropped from further consideration.

Screening Questions

1. Does this alternative ensure the performance of flood protection at the current crest levels, at minimum?

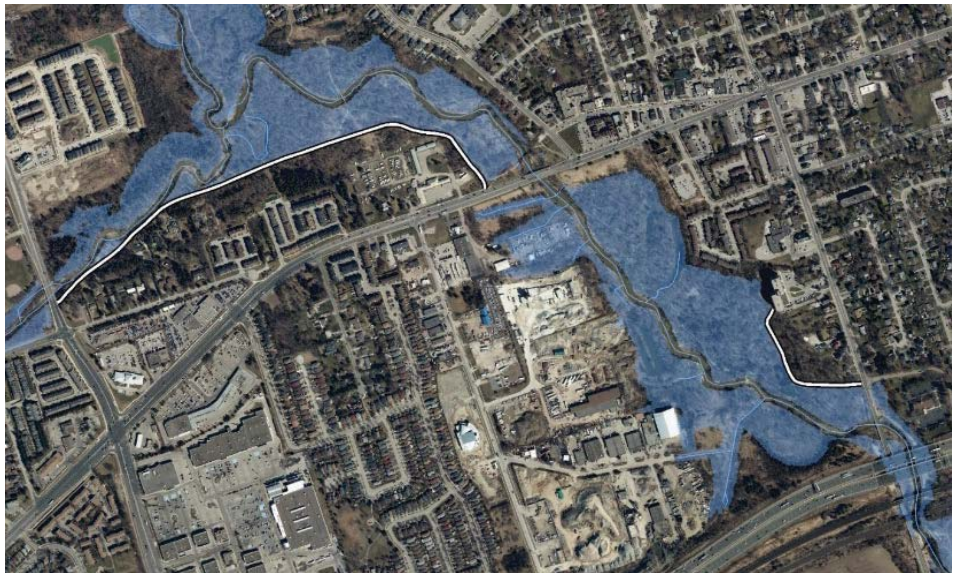
2. Does it meet current engineering design standards?

Alternative Solutions	Answer to Screening Question	
	Pickering Dyke	Ajax Dyke
1a. 'Soft' Engineering Solutions – 50 storm year event	No	Yes
1b. 'Soft' Engineering Solutions –100 storm year event	Yes	Yes
1c. 'Soft' Engineering Solutions –500 storm year event	No	No
2a. 'Hard' Engineering Solutions – 50 storm year event	No	Yes
2b. 'Hard' Engineering Solutions –100 storm year event	Yes	Yes
2c. 'Hard' Engineering Solutions –500 storm year event	No	No
3. Do Nothing Alternative	No	No
4. Removal of Vegetation on Existing Flood Protection Structure	No	No
5. Removal of Existing Flood Protection Structure	No	No

FLOOD PROTECTION – 50 YEAR STORM EVENT

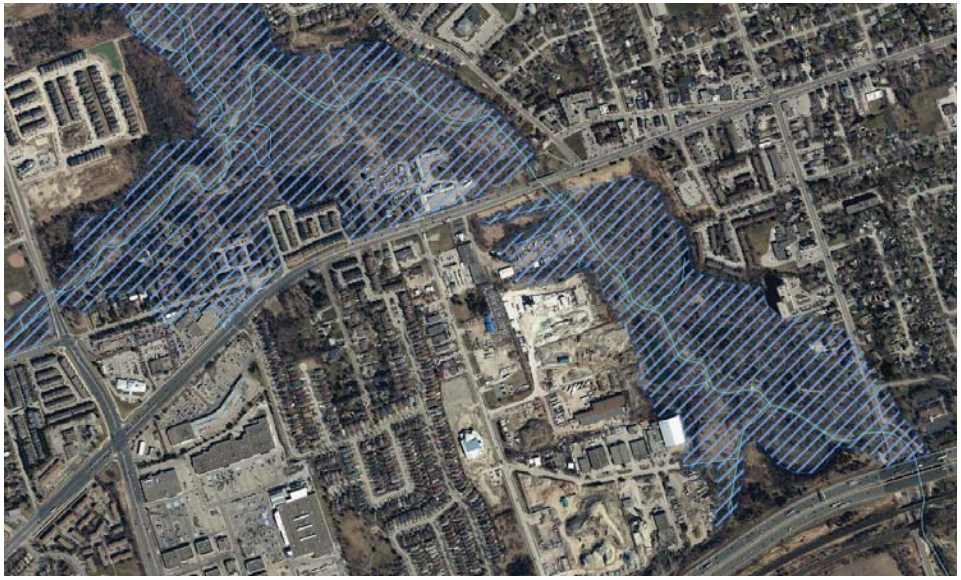
The feasibility of providing different levels of flood protection were investigated. The change in flood protection benefit was considered during the alternative solutions evaluation.

FUNCTIONING DYKES



Extent of flooding with functioning dykes based on existing crest elevation.

NO DYKES

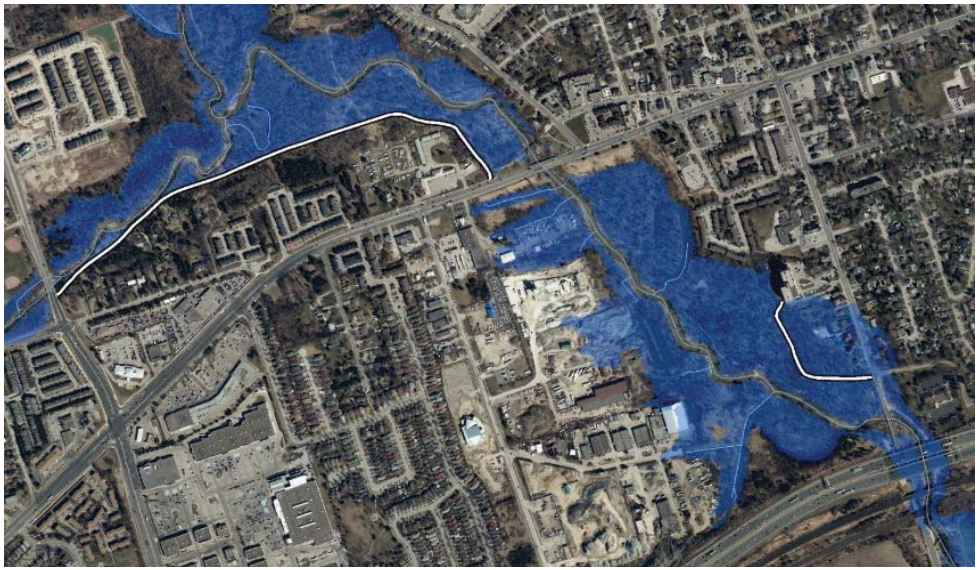


Potential extent of flooding without dykes (50 year storm event).

FLOOD PROTECTION – 100 YEAR STORM EVENT

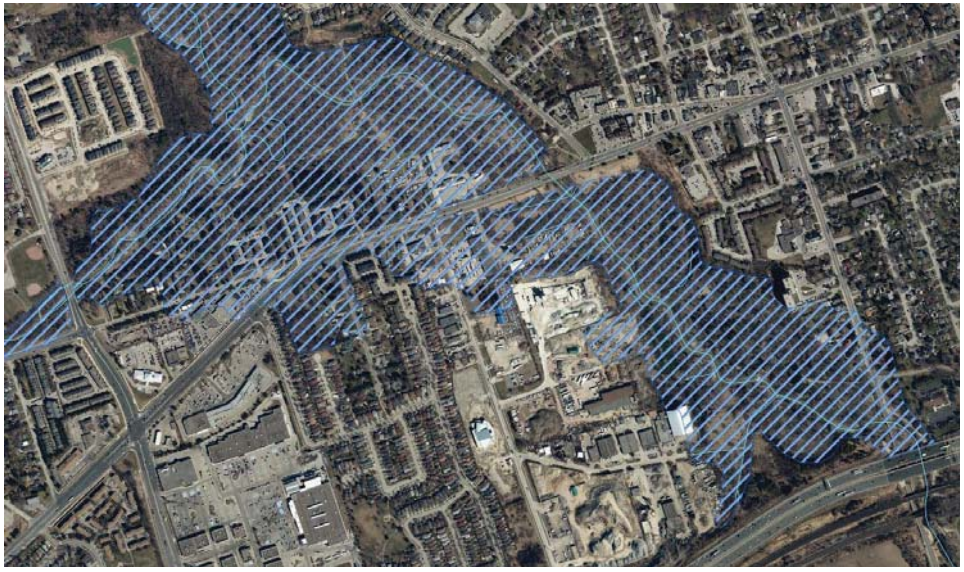
The feasibility of providing different levels of flood protection were investigated. The change in flood protection benefit was considered during the alternative solutions evaluation.

FUNCTIONING DYKES



Extent of flooding with functioning dykes based on existing crest elevation.

NO DYKES



Potential extent of flooding without dykes (100 year storm event).

FLOOD PROTECTION – 500 YEAR STORM EVENT

500 YEAR STORM EVENT

500-year storm flood protection is not feasible with just the dykes.

The dykes are circumvented by the flooding of low ground areas.

= spilling into low lying areas

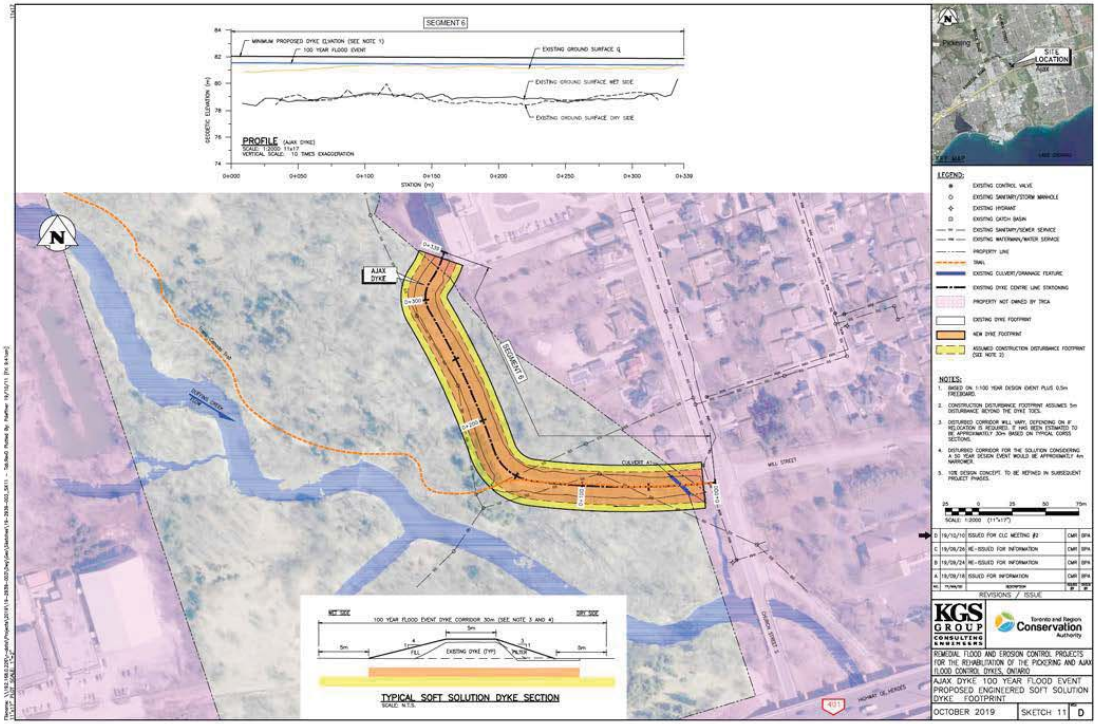
- Pickering Dyke and Ajax Dyke overtop
- Spills in multiple low areas, impacting residential, commercial and industrial properties

CONCEPTUAL DESIGN OF ALTERNATIVE SOLUTIONS

A conceptual design was prepared for each short-listed alternative.

These conceptual design drawings are available for you to review after the presentation.

CONCEPTUAL DYKE REHABILITATION PLAN
- AJAX DYKE 'SOFT' ENGINEERING SOLUTION



ALTERNATIVE SOLUTIONS

Examples of “Soft” Engineering Solutions

ALTERNATIVE SOLUTIONS

Examples of “Hard” Engineering Solutions

HOW DO WE CHOOSE THE BEST OPTION?

EVALUATION CRITERA

NATURAL ENVIRONMENT

- Removal, disturbance or enhancement of terrestrial habitat
- Removal, disturbance or enhancement of aquatic habitat

SOCIAL ENVIRONMENT

- Mitigation of flood risk due to dyke failure
- Removal or disturbance to private and public property
- Effects on public recreational spaces
- Disruption caused by construction activities
- Effects to servicing, utilities and infrastructure
- Removal or disturbance of archaeological resources

TECHNICAL

- Compliance with current engineering design criteria for target flood protection level
- Compliance with provincial policies, regulations and guidelines
- Allows for future enhancement to a higher level of protection
- Construction constraints and complexities

COST

- Capital cost
- Operations and maintenance cost

This criteria was used to evaluate the Alternative Solutions

ASSUMPTIONS

Special Policy Area (SPA)

All Alternative Solutions will not remove or reduce current limitations on development.

Infrastructure Changes

All Alternative Solutions will require modification to existing trails and surface drainage infrastructure. Effects on underground utilities varies for the different Alternative Solutions.

Construction Conditions

All Alternative Solutions will require full reconstruction of the dykes. Areas of disturbance adjacent to the footprint of the alternatives have been assumed based on typical construction methods.

Natural Environment

All Alternative Solutions will include restoration plans. These will be assessed during the next phase of the study.

Erosion Control

All Alternative Solutions will require channel erosion control along the channel bank within the western portion of the Pickering Dyke.

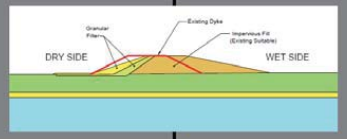
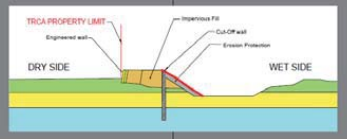
SUMMARY OF EVALUATION OF ALTERNATIVE SOLUTIONS

All short-listed alternatives were evaluated for each segment.

Tables summarizing the evaluation are available for you to review after the presentation.

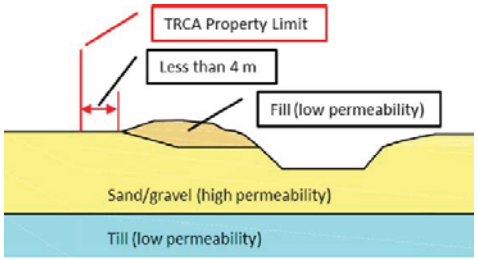
Segments with similar results are grouped into a combined table.

SUMMARY EVALUATION OF ALTERNATIVE SOLUTIONS – SEGMENT 6 - AJAX DYKE

EVALUATION CRITERIA	ALTERNATIVE 1a: 'SOFT' ENGINEERING SOLUTION – 50 Y	ALTERNATIVE 1b: 'SOFT' ENGINEERING SOLUTION – 100 Y	ALTERNATIVE 2a: 'HARD' ENGINEERING SOLUTION - 50 Y	ALTERNATIVE 2b: 'HARD' ENGINEERING SOLUTION - 100	ALTERNATIVE 3: DO-NOTHING
					
NATURAL ENVIRONMENT					
Removal, disturbance or enhancement of terrestrial habitat	• Established vegetation would be disturbed on a larger area than the 'hard' engineering solutions. • Disturbance area is narrower than for 100 year 'soft' engineering solution	• Established vegetation would be disturbed on a larger area than the 'hard' engineering solutions	• Established vegetation would be disturbed on a smaller area than the 'soft' engineering solutions	• Established vegetation would be disturbed on a smaller area than the 'soft' engineering solutions	• No immediate disturbance from construction; • Dyke failure could result in disturbance and habitat loss
Removal, disturbance or enhancement of a quatic habitat	• Dyke is farther away from the creek. Minimal impacts to aquatic habitat.	• Dyke is farther away from the creek. Minimal impacts to aquatic habitat.	• Dyke is farther away from the creek. Minimal impacts to aquatic habitat.	• Dyke is farther away from the creek. Minimal impacts to aquatic habitat.	• Minimal or no impact on aquatic habitat.
SUMMARY	LEAST PREFERRED	LEAST PREFERRED	MODERATELY PREFERRED	MODERATELY PREFERRED	MOST PREFERRED
TECHNICAL ENVIRONMENT					
Compliant with current engineering design criteria for target flood protection level	• Provides target flood protection level (100 year) and satisfies all engineering design criteria.	• Provides target flood protection level (100 year) and satisfies all engineering design criteria.	• Provides target flood protection level (50 year) and satisfies all engineering design criteria.	• Provides target flood protection level (50 year) and satisfies all engineering design criteria.	• Current dyke does not satisfy engineering design criteria; risk of dyke failure remains.
Compliant with provincial, policies, regulations and guidelines	• Satisfies LRIA slope stability and seepage requirements.	• Satisfies LRIA slope stability and seepage requirements.	• Satisfies LRIA slope stability and seepage requirements.	• Satisfies LRIA slope stability and seepage requirements.	• Does not satisfy LRIA slope stability safety factors.
Allows for future enhancement to a higher level of protection	• Allows for future upgrades to a higher level of protection.	• Allows for future upgrades to a higher level of protection.	• Allows for upgrades to a higher level of protection. • More complex as structural modifications would be needed.	• Allows for upgrades to a higher level of protection. • More complex as structural modifications would be needed.	• Dykes in their current state do not satisfy engineering standards and do not provide opportunity for enhancement.
Construction constraints and complexities	• Standard equipment and construction methods required	• Standard equipment and construction methods required.	• More complex construction operation, including cranes and pile driving hammers than for the 'soft' engineering solutions.	• More complex construction operation, including cranes and pile driving hammers, than for the 'soft' engineering solutions.	• Moderate potential for significant future repairs. • Repairs could be more complex due to access restrictions.
SUMMARY	MOST PREFERRED	MOST PREFERRED	MODERATELY PREFERRED	MODERATELY PREFERRED	LEAST PREFERRED
OVERALL	**MODERATELY PREFERRED**	**MOST PREFERRED**	**MODERATELY PREFERRED**	**MODERATELY PREFERRED**	**LEAST PREFERRED**

EVALUATION OF ALTERNATIVE SOLUTIONS

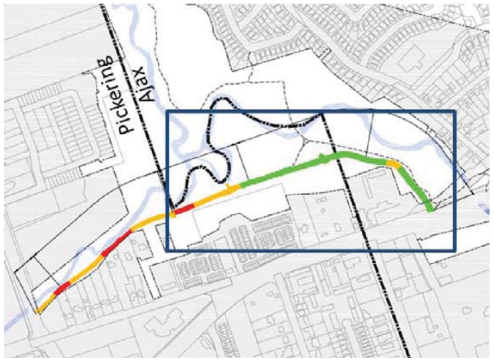
PICKERING DYKE SEGMENTS 1 and 2

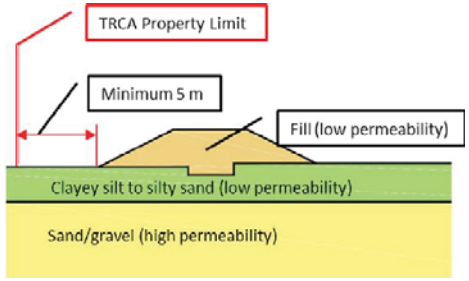


	ADVANTAGES	DISADVANTAGES
1. 'Soft' Engineering Solution 100 Year Storm Event	• Addresses dyke deficiencies • Can enhance public access • **Lower capital cost**	• **Requires private land acquisition** • Construction disturbance • **Largest disturbance area**; effects terrestrial habitat and potential archaeological resources
2. **'Hard' Engineering Solution 100 Year Storm Event**	• Addresses dyke deficiencies • Can enhance public access • Reduces impact to surroundings and **minimizes private land acquisition**	• **Higher capital cost** • Construction disturbance • Moderate disturbance area; effects terrestrial habitat and potential archaeological resources • More complex construction
3. "Do Nothing" Alternative	• No property acquisitions required • No immediate construction disturbance	• **Does not address dyke deficiencies** o Bank erosion o **Risk to life and property** o Public recreational spaces vulnerable • Ongoing repair works required

EVALUATION OF ALTERNATIVE SOLUTIONS

PICKERING DYKE SEGMENTS 3, 4 and 5

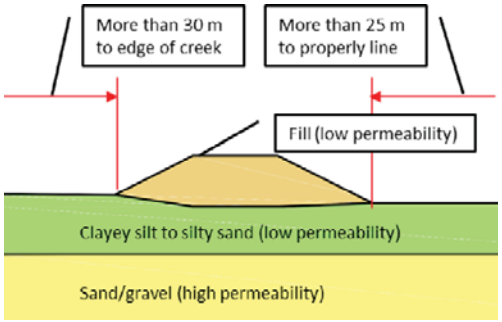




	ADVANTAGES	DISADVANTAGES
1. **'Soft' Engineering Solution 100 Year Storm Event**	• Addresses dyke deficiencies • **Lower capital cost**	• Construction disturbance • **Largest disturbance area**; effects terrestrial habitat and potential archaeological resources
2. 'Hard' Engineering Solution 100 Year Storm Event	• Addresses dyke deficiencies	• **Higher capital cost** • Construction disturbance • Moderate disturbance area; effects terrestrial habitat and potential archaeological resources • More complex construction and **interaction with underground utilities**
3. "Do Nothing" Alternative	• No immediate construction disturbance	• **Does not address dyke deficiencies** o Bank erosion o **Risk to life and property** o Public recreational spaces vulnerable • Ongoing repair works required

EVALUATION OF ALTERNATIVE SOLUTIONS

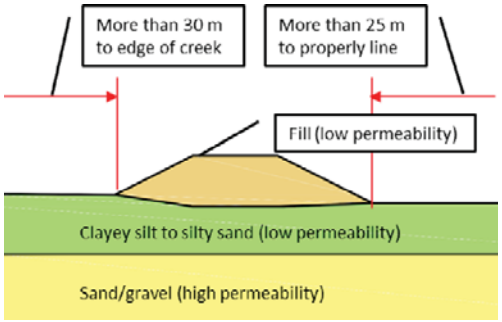
AJAX DYKE SEGMENT 6



	ADVANTAGES	DISADVANTAGES
1. 'Soft' Engineering Solution 50 Year Storm Event	• Addresses dyke deficiencies • **Lowest capital cost**	• **Large disturbance area**; effects terrestrial habitat and potential archaeological resources
2. 'Soft' Engineering Solution 100 Year Storm Event	• Addresses dyke deficiencies • **Low capital cost** • **Highest level of flood protection**	• **Largest disturbance area**; effects terrestrial habitat and potential archaeological resources

EVALUATION OF ALTERNATIVE SOLUTIONS

AJAX DYKE SEGMENT 6

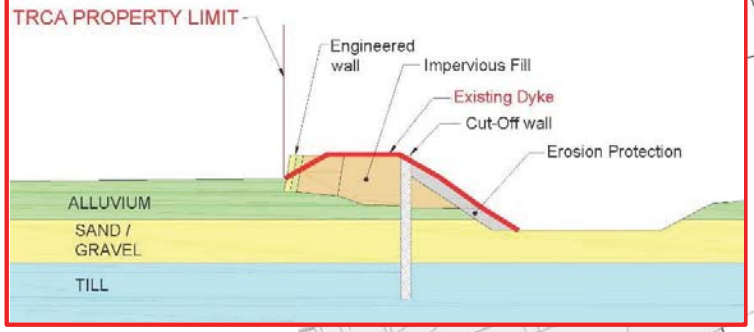


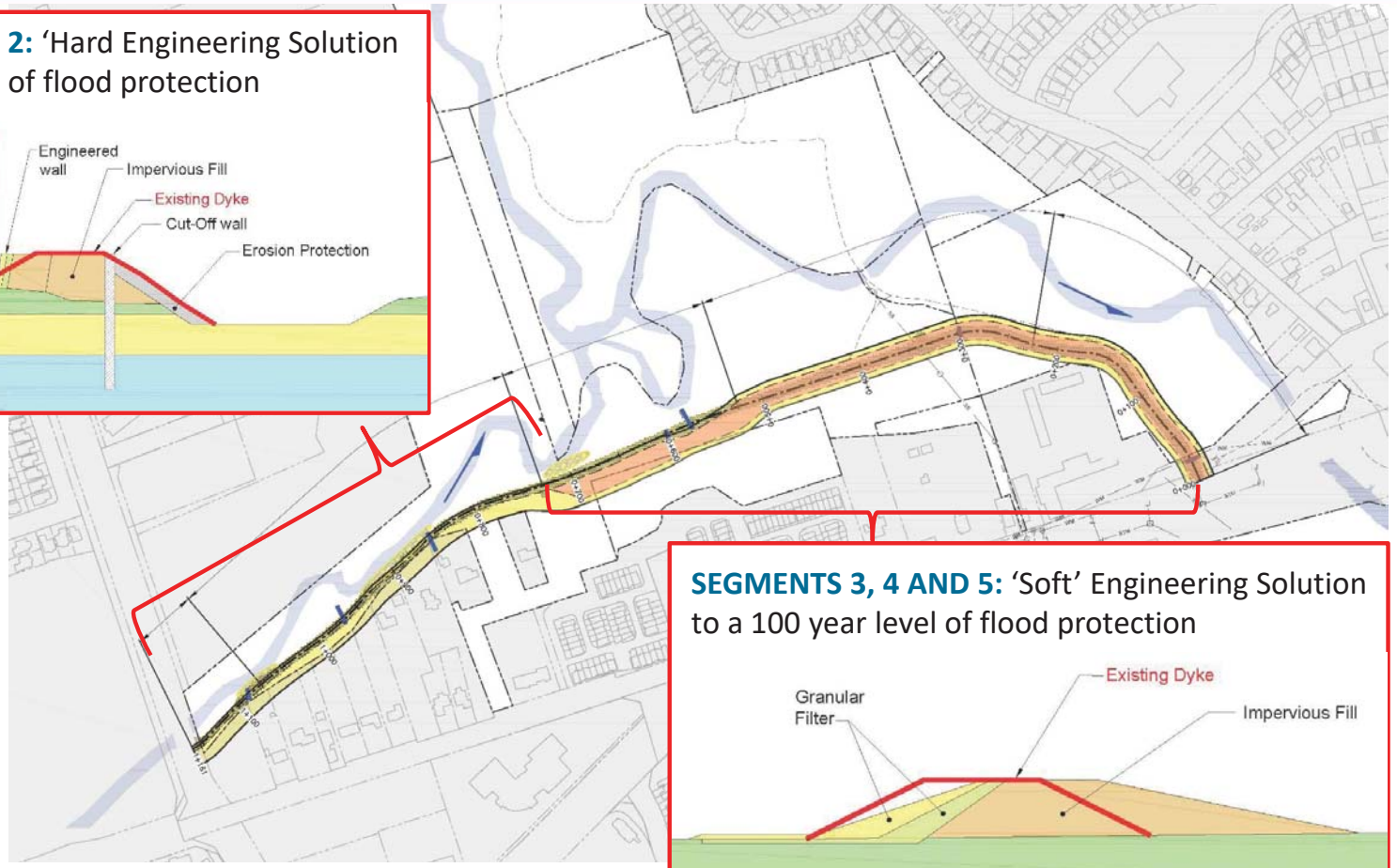
	ADVANTAGES	DISADVANTAGES
3. 'Hard' Engineering Solution 50 Year Storm Event	• Addresses dyke deficiencies • Reduced impacts to vegetation communities	• **High construction cost** • Construction disturbance • Moderate disturbance area; effects terrestrial habitat and potential archaeological resources • More complex construction and **interaction with underground utilities**
4. 'Hard' Engineering Solution 100 Year Storm Event	• Addresses dyke deficiencies • Reduced impacts to vegetation communities • **Highest level of flood protection**	• **Highest construction cost** • Construction disturbance • Moderate disturbance area; effects terrestrial habitat and potential archaeological resources • More complex construction and **interaction with underground utilities**
5. "Do Nothing" Alternative	• No immediate construction disturbance	• **Does not address dyke deficiencies** o **Risk to life and property** o Public recreational spaces vulnerable • Ongoing repair works required

PRELIMINARY PREFERRED ALTERNATIVE SOLUTION

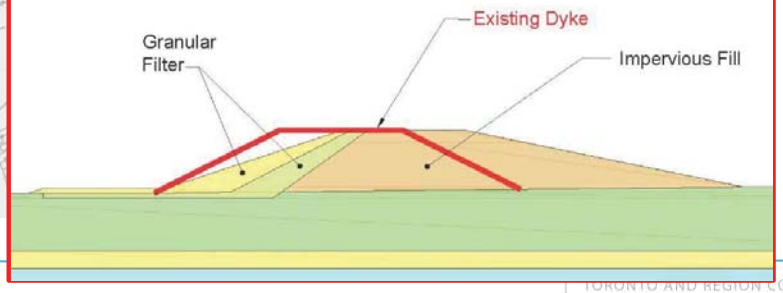
PICKERING DYKE

SEGMENTS 1 AND 2: 'Hard Engineering Solution to a 100 year level of flood protection



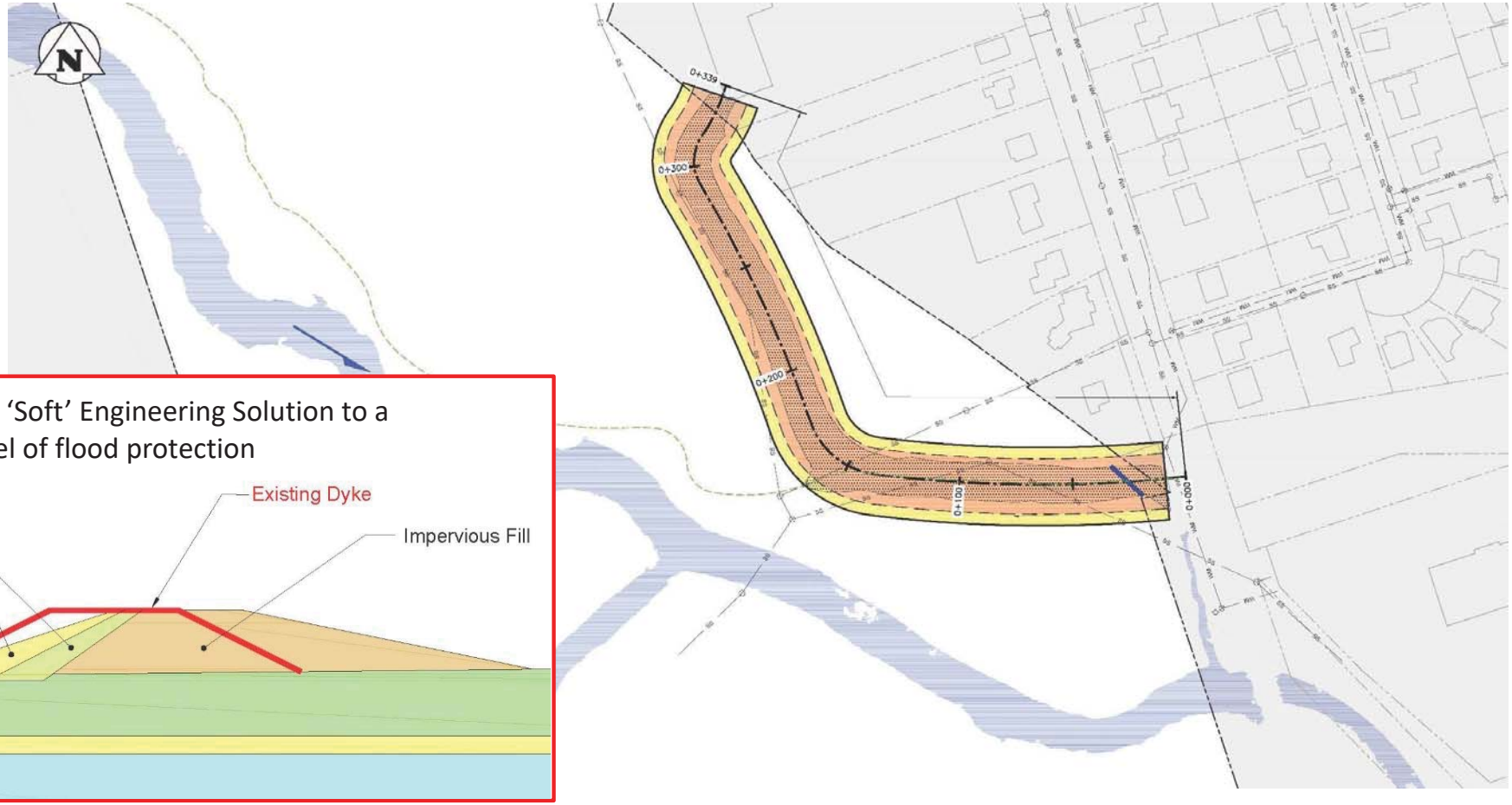


SEGMENTS 3, 4 AND 5: 'Soft' Engineering Solution to a 100 year level of flood protection

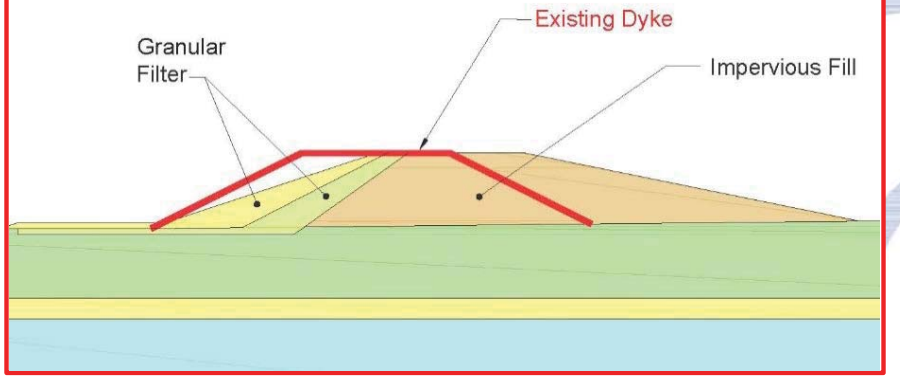


PRELIMINARY PREFERRED ALTERNATIVE SOLUTION

AJAX DYKE



SEGMENT 6: 'Soft' Engineering Solution to a 100 year level of flood protection



NEXT STEPS

Next Stage of the Class Environmental Assessment will include the following:

- **Public Information Centre #1**
- **Refine Evaluation and Preferred Alterative Solution based on feedback received.**
- **Consider Alternative Design Concepts which includes:**
  - Refining the Preferred Alternative Solution to minimize impacts.
  - More detailed consideration of changes to infrastructure including underground utilities.
  - More detailed modeling to refine design of flood protection works to withstand flooding.
- **Alternative Design Concepts and Evaluation Criteria will be brought back to the committees and public for comment in January and February 2020.**
- **On-going consultation with agencies, landowners and other stakeholders.**

THANK YOU

We appreciate the time you have taken to learn more about the Pickering and Ajax Dykes Rehabilitation EA. Your input is important for the success of the EA process. Please provide your input.

Contact the Project Team:
Pickering and Ajax Dykes Rehabilitation Project Coordinator

EMAIL: PADR@trca.ca

WEBSITE: www.trca.ca/PADR

PHONE: 416-661-6600 ext. 5948

Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan ON, L4K 5R6

HOW TO STAY CONNECTED:

- Next CLC meeting: February 2020 *date tentative and to be confirmed*
- Send us your comments or questions. Email us at **PADR@trca.ca**

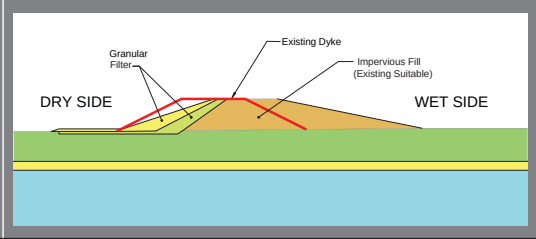
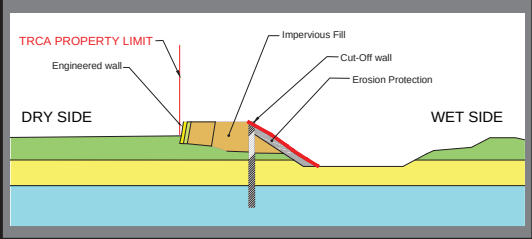
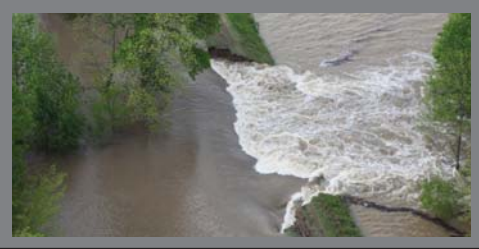
Thank you.

Melody Brown, P.Eng
TRCA
Fuad Curi, P.Eng
KGS Group

Display Boards

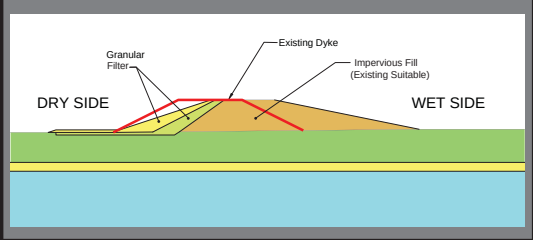
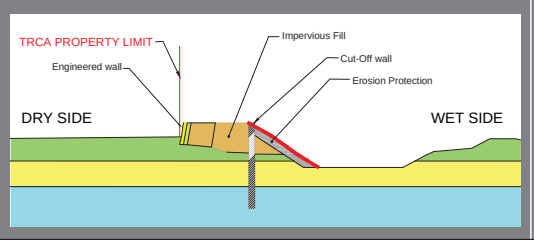
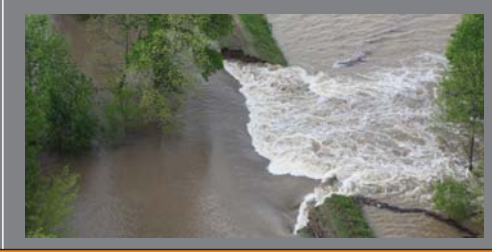
SUMMARY EVALUATION OF ALTERNATIVE SOLUTIONS

SEGMENTS 1 AND 2 – PICKERING DYKE

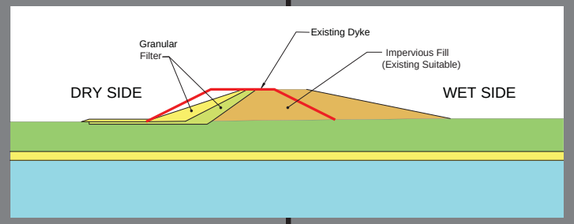
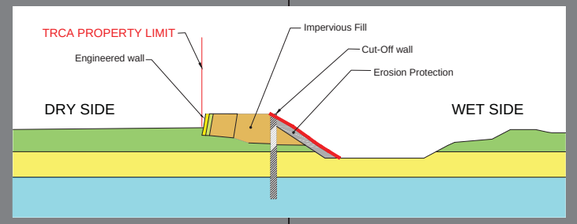
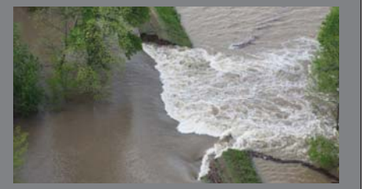
EVALUATION CRITERIA	**ALTERNATIVE 1:** 'SOFT' ENGINEERING SOLUTION – 100 Y	**ALTERNATIVE 2:** 'HARD' ENGINEERING SOLUTION - 100 Y	**ALTERNATIVE 3:** DO-NOTHING
			
SOCIAL ENVIRONMENT			
Mitigation of flood risk due to dyke failure	• Mitigates flood risk by addressing slope stability and seepage deficiencies	• Mitigates flood risk by addressing slope stability and seepage deficiencies	• Dyke deficiencies remain • Risk of impact to several properties and people's safety
Removal or disturbance to private and public property	• Requires potential easements or acquisitions of private properties	• No permanent impact to private property but temporary disturbance during construction • Potential need for long-term maintenance easement	• No immediate impacts to private or public property • Potential for moderate property damage associated with dyke failure
Effects on public recreational spaces	• Temporary disturbance to informal trail • Opportunities for permanent trail improvements	• Temporary disturbance to informal trail • Opportunities for permanent trail improvements	• Does not enhance public recreational spaces • Moderate impacts if dyke fails
Disruption caused by construction activities	• Disturbance within and outside of existing dyke footprint • Typical temporary construction impacts (dust, noise, vibration, etc.)	• Disturbance within and outside of existing dyke footprint • Typical temporary construction impacts (dust, noise, vibration, etc.)	• No immediate construction impacts • Increased need for future repair work with associated construction disturbance
Effects to servicing, utilities, and infrastructure	• Potential unknown private utilities could be impacted	• Potential unknown private utilities could be impacted	• No impact on servicing and utilities • Dyke failure would flood roads and could cause damages
Removal or disturbance of archaeological resources	• Poses potential for removal or disturbance of potential archaeological resources	• Poses potential for removal or disturbance of potential archaeological resources	• No disturbance or removal of potential archaeological resources
SUMMARY	LEAST PREFERRED	MOST PREFERRED	MODERATELY PREFERRED
NATURAL ENVIRONMENT			
Removal, disturbance, or enhancement of terrestrial habitat	• Established vegetation within and outside of the dyke footprint would be disturbed • Larger disturbance area than the 'hard' engineering solution	• Established vegetation within and outside of the dyke footprint would be disturbed • Smaller disturbance area than the 'soft' engineering solution	• No immediate disturbance from construction • Dyke failure could result in localized disturbance and habitat loss
Removal, disturbance, or enhancement of aquatic habitat	• Temporary disruption of creek banks due to construction • Opportunities for fish habitat and riparian enhancement	• Temporary disruption of creek banks due to construction • Opportunities for fish habitat and riparian enhancement	• No immediate disturbance from construction • Risk of channel bank erosion persists • Dyke failure could cause localized disturbance and send debris and sediment into the creek
SUMMARY	LEAST PREFERRED	MOST PREFERRED	MODERATELY PREFERRED
TECHNICAL ENVIRONMENT			
Compliant with current engineering design criteria for target flood protection level	• Provides target flood protection level (100 year) and satisfies all engineering design criteria	• Provides target flood protection level (100 year) and satisfies all engineering design criteria	• Current dyke does not satisfy engineering design criteria • Risk of dyke failure remains
Compliant with provincial, policies, regulations, and guidelines	• Satisfies LRIA slope stability and seepage requirements	• Satisfies LRIA slope stability and seepage requirements	• Does not satisfy LRIA slope stability safety factors
Allows for future enhancement to a higher level of protection	• Allows for future upgrades to a higher level of protection	• Allows for upgrades to a higher level of protection; more complex as structural modifications would be needed	• Dykes in their current state do not satisfy engineering standards, and do not provide opportunity for enhancement
Construction constraints and complexities	• Allows for future upgrades to a higher level of protection	• More complex construction operation, including cranes and pile driving hammers than for the 'soft' engineering solution	• Moderate potential for significant future repairs • Repairs could be more complex due to access restrictions
SUMMARY	MOST PREFERRED	MODERATELY PREFERRED	LEAST PREFERRED
COST			
Capital cost	• Moderate construction costs • Greatest amount of property easements or acquisitions needed resting in significant cost	• Highest construction cost • Lesser amount of property easements or acquisitions needed	• No immediate construction costs, however future repair costs • No additional property needed
Cost of flood damages	• Lower potential flood damage costs	• Lower potential flood damage costs	• Higher potential flood damage costs
Operations and maintenance cost	• Regular inspection and maintenance required • Higher slope maintenance costs than the 'hard' engineering solution	• Regular inspection and maintenance required • Lowest slope maintenance costs	• Regular inspection and maintenance required • Highest potential costs associated with dyke repair
SUMMARY	MODERATELY PREFERRED	MOST PREFERRED	LEAST PREFERRED
OVERALL	**MODERATELY PREFERRED**	**MOST PREFERRED**	**LEAST PREFERRED**

SUMMARY EVALUATION OF ALTERNATIVE SOLUTIONS

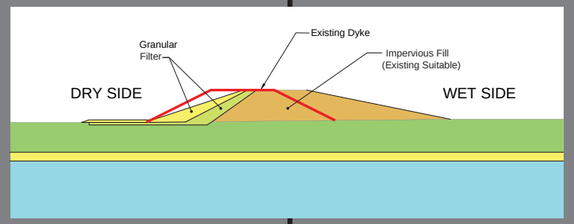
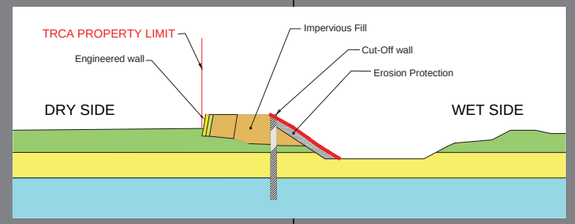
SEGMENTS 3, 4 AND 5 – PICKERING DYKE

EVALUATION CRITERIA	**ALTERNATIVE 1:** 'SOFT' ENGINEERING SOLUTION – 100 Y	**ALTERNATIVE 2:** 'HARD' ENGINEERING SOLUTION - 100 Y	**ALTERNATIVE 3:** DO-NOTHING
			
SOCIAL ENVIRONMENT			
Mitigation of flood risk due to dyke failure	• Mitigates flood risk by addressing slope stability and seepage deficiencies	• Mitigates flood risk by addressing slope stability and seepage deficiencies	• Dyke deficiencies remain • Risk of impact to several properties and people's safety
Removal or disturbance to private and public property	• Avoids impacts to private property due to available space	• Avoids impacts to private property due to available space	• No immediate impacts to private or public property • Potential for moderate property damage associated with dyke failure
Effects on public recreational spaces	• Temporary disturbance to trail during construction • Opportunities for permanent trail improvements	• Temporary disturbance to trail during construction • Opportunities for permanent trail improvements	• Does not enhance public recreational spaces • Moderate impacts if dyke fails
Disruption caused by construction activities	• Disturbance within and outside of existing dyke footprint • Typical temporary construction impacts (dust, noise, vibration, etc.)	• Disturbance within and outside of existing dyke footprint • Typical temporary construction impacts (dust, noise, vibration, etc.)	• No immediate construction impacts • Increased need for future repair work with associated construction disturbance
Effects to servicing, utilities, and infrastructure	• Due to shallower excavation there would be less opportunity for conflict with underground utilities than for the 'hard' engineering solution	• Deep sheet pile solution introduces more potential for conflict with underground utilities but these can be resolved as part of the design of the solution • Design complexity to accommodate surface drainage	• No impact on servicing and utilities • Dyke failure would flood roads and could cause damages
Removal or disturbance of archaeological resources	• Poses potential for removal or disturbance of potential archaeological resources	• Poses potential for removal or disturbance of potential archaeological resources	• No disturbance or removal of potential archaeological resources
SUMMARY	MODERATELY PREFERRED	MODERATELY PREFERRED	LEAST PREFERRED
NATURAL ENVIRONMENT			
Removal, disturbance, or enhancement of terrestrial habitat	• Established vegetation within and outside of the dyke footprint would be disturbed • Larger disturbance area than the 'hard' engineering solution	• Established vegetation within and outside of the dyke footprint would be disturbed • Smaller disturbance area than the 'soft' engineering solution	• No immediate disturbance from construction • Dyke failure could result in localized disturbance and habitat loss
Removal, disturbance, or enhancement of aquatic habitat	• Dyke is farther away from the creek • Minimal impacts to aquatic habitat	• Dyke is farther away from the creek • Minimal impacts to aquatic habitat	• Risk of channel bank erosion persists on a limited section of the creek
SUMMARY	LEAST PREFERRED	MODERATELY PREFERRED	MOST PREFERRED
TECHNICAL ENVIRONMENT			
Compliant with current engineering design criteria for target flood protection level	• Provides target flood protection level (100 year) and satisfies all engineering design criteria	• Provides target flood protection level (100 year) and satisfies all engineering design criteria	• Current dyke does not satisfy engineering design criteria; risk of failure remains
Compliant with provincial, policies, regulations, and guidelines	• Satisfies LRIA slope stability and seepage requirements	• Satisfies LRIA slope stability and seepage requirements	• Does not satisfy LRIA slope stability safety factors
Allows for future enhancement to a higher level of protection	• Allows for future upgrades to a higher level of protection	• Allows for upgrades to a higher level of protection; more complex as structural modifications would be needed	• Dykes in their current state do not satisfy engineering standards and do not provide opportunity for enhancement
Construction constraints and complexities	• Standard equipment and construction methods required	• More complex construction operation, including cranes and pile driving hammers than for the 'soft' engineering solution	• Moderate potential for significant future repairs
SUMMARY	MOST PREFERRED	MODERATELY PREFERRED	LEAST PREFERRED
COST			
Capital cost	• Moderate construction costs	• Highest construction cost	• No immediate construction costs, however future repair costs
Cost of flood damages	• Lower potential flood damage costs	• Lower potential flood damage costs	• Higher potential flood damage costs
Operations and maintenance cost	• Regular inspection and maintenance required • Higher slope maintenance costs	• Regular inspection and maintenance required • Lowest slope maintenance costs	• Regular inspection and maintenance required • Highest potential costs associated with dyke repair
SUMMARY	MOST PREFERRED	MODERATELY PREFERRED	LEAST PREFERRED
OVERALL	**MOST PREFERRED**	**MODERATELY PREFERRED**	**LEAST PREFERRED**

SUMMARY EVALUATION OF ALTERNATIVE SOLUTIONS – SEGMENT 6 - AJAX DYKE

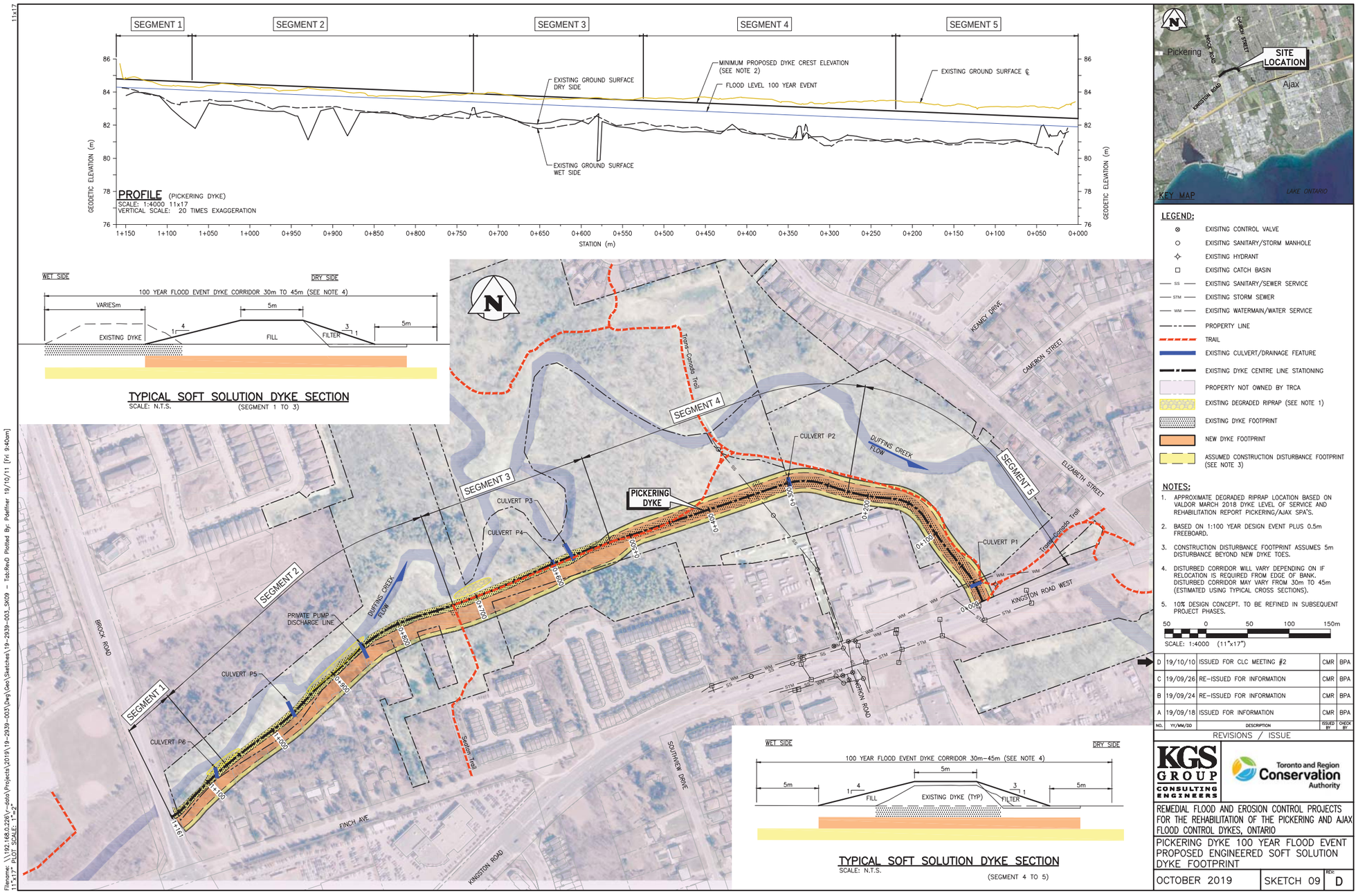
EVALUATION CRITERIA	**ALTERNATIVE 1a:** 'SOFT' ENGINEERING SOLUTION – 50 Y	**ALTERNATIVE 1b:** 'SOFT' ENGINEERING SOLUTION – 100 Y	**ALTERNATIVE 2a:** 'HARD' ENGINEERING SOLUTION - 50 Y	**ALTERNATIVE 2b:** 'HARD' ENGINEERING SOLUTION - 100 Y	**ALTERNATIVE 3:** DO-NOTHING
					
NATURAL ENVIRONMENT					
Removal, disturbance or enhancement of terrestrial habitat	• Established vegetation would be disturbed on a larger area than the 'hard' engineering solutions. • Disturbance area is narrower than for 100 year 'soft' engineering solution	• Established vegetation would be disturbed on a larger area than the 'hard' engineering solutions	• Established vegetation would be disturbed on a smaller area than the 'soft' engineering solutions	• Established vegetation would be disturbed on a smaller area than the 'soft' engineering solutions	• No immediate disturbance from construction; • Dyke failure could result in disturbance and habitat loss
Removal, disturbance or enhancement of a quatic habitat	• Dyke is farther away from the creek. Minimal impacts to aquatic habitat.	• Dyke is farther away from the creek. Minimal impacts to aquatic habitat.	• Dyke is farther away from the creek. Minimal impacts to aquatic habitat.	• Dyke is farther away from the creek. Minimal impacts to aquatic habitat.	• Minimal or no impact on aquatic habitat.
SUMMARY	**LEAST PREFERRED**	**LEAST PREFERRED**	**MODERATELY PREFERRED**	**MODERATELY PREFERRED**	**MOST PREFERRED**
TECHNICAL ENVIRONMENT					
Compliant with current engineering design criteria for target flood protection level	• Provides target flood protection level (100 year) and satisfies all engineering design criteria.	• Provides target flood protection level (100 year) and satisfies all engineering design criteria.	• Provides target flood protection level (50 year) and satisfies all engineering design criteria.	• Provides target flood protection level (50 year) and satisfies all engineering design criteria.	• Current dyke does not satisfy engineering design criteria; risk of dyke failure remains.
Compliant with provincial, policies, regulations and guidelines	• Satisfies LRIA slope stability and seepage requirements.	• Satisfies LRIA slope stability and seepage requirements.	• Satisfies LRIA slope stability and seepage requirements.	• Satisfies LRIA slope stability and seepage requirements.	• Does not satisfy LRIA slope stability safety factors.
Allows for future enhancement to a higher level of protection	• Allows for future upgrades to a higher level of protection.	• Allows for future upgrades to a higher level of protection.	• Allows for upgrades to a higher level of protection. • More complex as structural modifications would be needed.	• Allows for upgrades to a higher level of protection. • More complex as structural modifications would be needed.	• Dykes in their current state do not satisfy engineering standards and do not provide opportunity for enhancement.
Construction constraints and complexities	• Standard equipment and construction methods required	• Standard equipment and construction methods required.	• More complex construction operation, including cranes and pile driving hammers than for the 'soft' engineering solutions.	• More complex construction operation, including cranes and pile driving hammers, than for the 'soft' engineering solutions.	• Moderate potential for significant future repairs. • Repairs could be more complex due to access restrictions.
SUMMARY	**MOST PREFERRED**	**MOST PREFERRED**	**MODERATELY PREFERRED**	**MODERATELY PREFERRED**	**LEAST PREFERRED**
OVERALL	**MODERATELY PREFERRED**	**MOST PREFERRED**	**MODERATELY PREFERRED**	**MODERATELY PREFERRED**	**LEAST PREFERRED**

SUMMARY EVALUATION OF ALTERNATIVE SOLUTIONS – SEGMENT 6 - AJAX DYKE

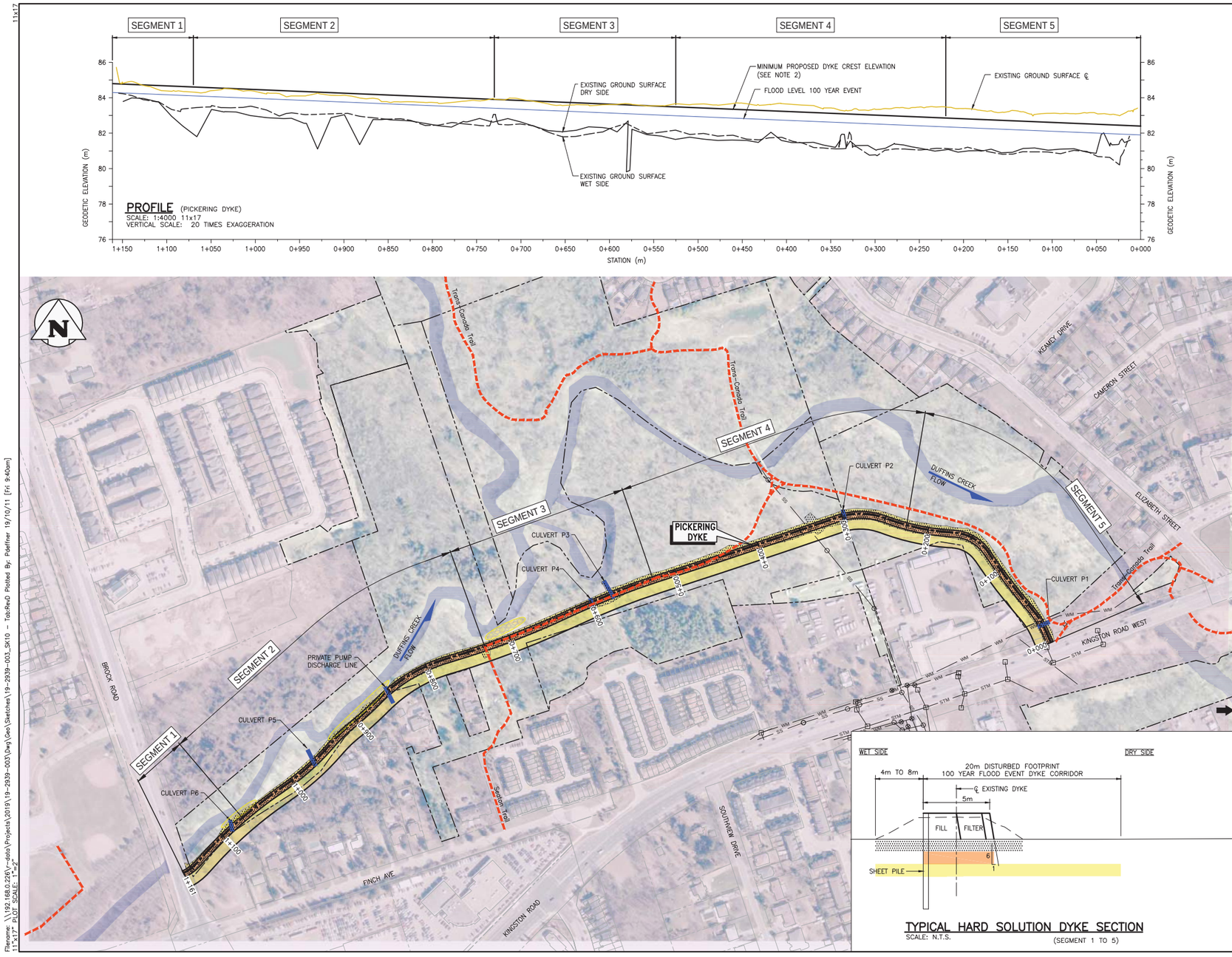
EVALUATION CRITERIA	ALTERNATIVE 1a: 'SOFT' ENGINEERING SOLUTION – 50 Y	ALTERNATIVE 1b: 'SOFT' ENGINEERING SOLUTION – 100 Y	ALTERNATIVE 2a: 'HARD' ENGINEERING SOLUTION - 50 Y	ALTERNATIVE 2b: 'HARD' ENGINEERING SOLUTION - 100 Y	ALTERNATIVE 3: DO-NOTHING
					
SOCIAL ENVIRONMENT					
Mitigation of flood risk due to dyke failure	• Mitigates flood risk (up to 50 year event) by addressing slope stability and seepage deficiencies • Flood protection level is less than for the 100 yr solutions	• Mitigates flood risk (up to 100 year event) by addressing slope stability and seepage deficiencies • Flood protection level is more than for the 50 yr solutions	• Mitigates flood risk (up to 50 year event) by addressing slope stability and seepage deficiencies • Flood protection level is less than for the 100 yr solutions	• Mitigates flood risk (up to 100 year event) by addressing slope stability and seepage deficiencies • Flood protection level is more than for the 50 yr solutions	• Dyke deficiencies remain. • Risk of impact to several properties and people's safety.
Removal or disturbance to private and public property	• Minimal impact to private property at ends of dyke	• Minimal impact to private property at ends of dyke	• Minimal impact to private property at ends of dyke	• Minimal impact to private property at ends of dyke	• No immediate impacts to private or public property. • Potential for property damage associated with dyke failure.
Effects on public recreational spaces	• Temporary disturbance to trail during construction. • Opportunities for permanent trail improvements.	• Temporary disturbance to trail during construction. • Opportunities for permanent trail improvements.	• Temporary disturbance to trail during construction. • Opportunities for permanent trail improvements.	• Temporary disturbance to trail during construction. • Opportunities for permanent trail improvements.	• Does not enhance public recreational spaces. • Moderate impacts if dyke fails
Disruption caused by construction activities	• Will cause disturbance within and outside of existing dyke footprint • Typical disruptions associated with construction (dust, noise, vibration, etc.)	• Will cause disturbance within and outside of existing dyke footprint; largest disturbance footprint of all solutions • Typical disruptions associated with construction (dust, noise, vibration, etc.)	• Will cause disturbance within and outside of existing dyke footprint, however on a narrower footprint than the 'soft' engineering solutions • Typical disruptions associated with construction (dust, noise, vibration, etc.)	• Will cause disturbance within and outside of existing dyke footprint, however on a narrower footprint than the 'soft' engineering solutions • Typical disruptions associated with construction (dust, noise, vibration, etc.)	• No immediate construction impacts. • Increase need for future repair work with associated construction disturbance.
Effects to servicing, utilities and infrastructure	• Due to shallower excavation there would be less opportunity for conflict with underground utilities than for the 'hard' engineering solutions	• Due to shallower excavation there would be less opportunity for conflict with underground utilities than for the 'hard' engineering solution	• Deep sheet pile solution introduces more potential for conflict with underground utilities but these can be resolved as part of the design of the solution	• Deep sheet pile solution introduces more potential for conflict with underground utilities but these can be resolved as part of the design of the solution	• No impact on servicing and utilities. • Dyke failure would flood roads and could cause damages.
Removal or disturbance of archaeological resources	• Poses potential for removal or disturbance of potential archaeological resources	• Poses potential for removal or disturbance of potential archaeological resources	• Poses potential for removal or disturbance of potential archaeological resources	• Poses potential for removal or disturbance of potential archaeological resources	• No disturbance or removal of potential archaeological resources
SUMMARY	**MODERATELY PREFERRED**	**MODERATELY PREFERRED**	**MODERATELY PREFERRED**	**MODERATELY PREFERRED**	**LEAST PREFERRED**
COST					
Capital cost	• Moderate construction costs and less costly than the corresponding 'soft' 100 year solution	• Moderate construction costs, but more costly than the corresponding 'soft' 50 year solution	• Higher construction cost than 'soft' engineering solutions	• Highest construction cost	• No immediate construction costs, but greater future repair costs.
Cost of flood damages	• Lower potential flood damage costs (however higher than corresponding 100 year solution)	• Lowest flood damage costs	• Lower potential flood damage costs (however higher than corresponding 100 year solution)	• Lowest flood damage costs	• Highest flood damage costs
Operations and maintenance cost	• Regular inspection and maintenance required; highest slope maintenance costs	• Regular inspection and maintenance required; highest slope maintenance costs	• Regular inspection and maintenance required; lowest slope maintenance costs	• Regular inspection and maintenance required; lowest slope maintenance costs	• Regular inspection and maintenance required. • Highest potential costs associated with dyke repair.
SUMMARY	**MODERATELY PREFERRED**	**MOST PREFERRED**	**MODERATELY PREFERRED**	**MODERATELY PREFERRED**	**LEAST PREFERRED**

CONCEPTUAL DYKE REHABILITATION PLAN

- PICKERING DYKE 'SOFT' ENGINEERING SOLUTION

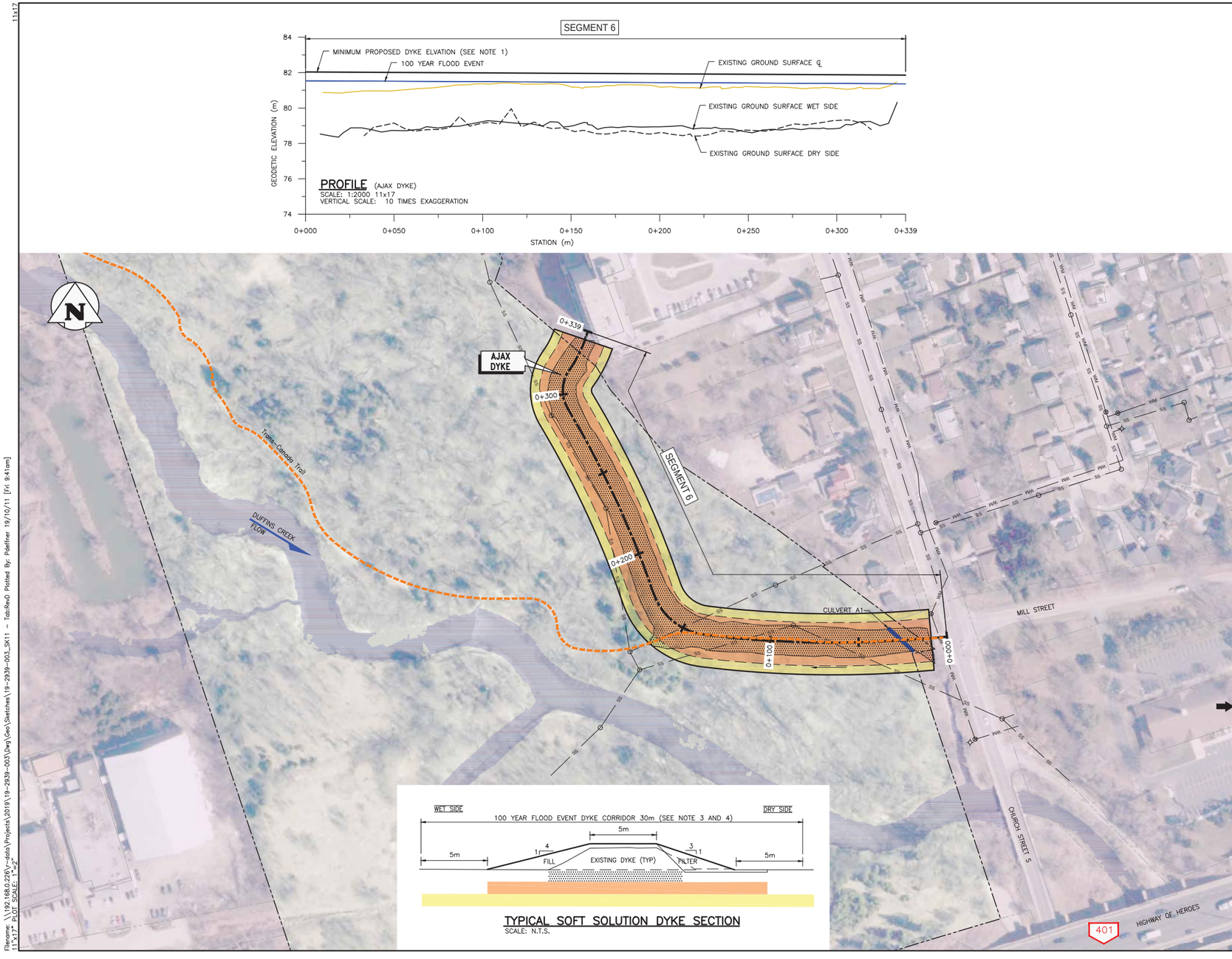


CONCEPTUAL DYKE REHABILITATION PLAN
- PICKERING DYKE 'HARD' ENGINEERING SOLUTION



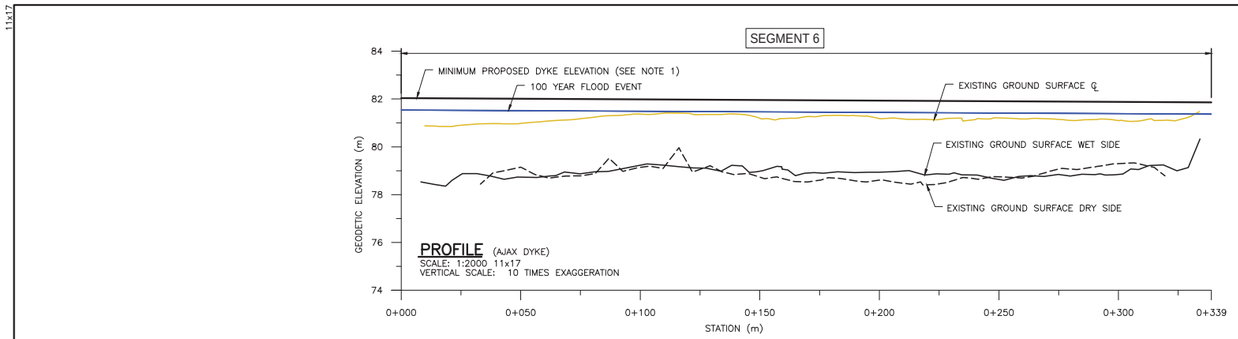
CONCEPTUAL DYKE REHABILITATION PLAN

- AJAX DYKE 'SOFT' ENGINEERING SOLUTION

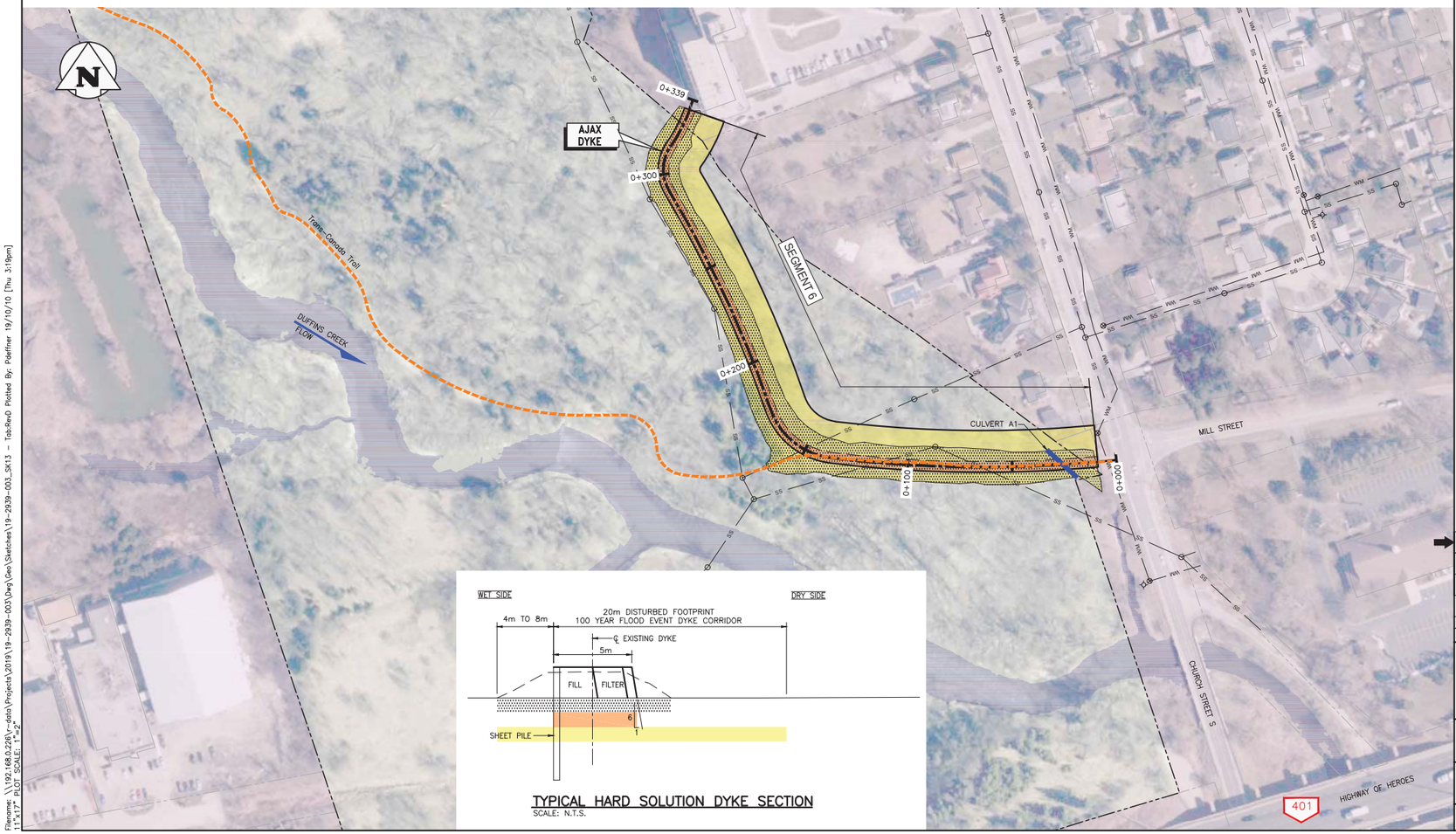


CONCEPTUAL DYKE REHABILITATION PLAN

- AJAX DYKE 'HARD' ENGINEERING SOLUTION



PROFILE (AJAX DYKE)
SCALE: 1:2000 11x17
VERTICAL SCALE: 10 TIMES EXAGGERATION



TYPICAL HARD SOLUTION DYKE SECTION
SCALE: N.T.S.

LEGEND:

- EXISITNG CONTROL VALVE
- EXISITNG SANITARY/STORM MANHOLE
- EXISTING HYDRANT
- EXISITNG CATCH BASIN
- SS — EXISTING SANITARY/SEWER SERVICE
- WM — EXISITNG WATERMAIN/WATER SERVICE
- PROPERTY LINE
- TRAIL
- EXISTING CULVERT/DRAINAGE FEATURE
- EXISTING DYKE CENTRE LINE STATIONING
- PROPERTY NOT OWNED BY TRCA
- EXISTING DYKE FOOTPRINT
- NEW DYKE FOOTPRINT
- ASSUMED CONSTRUCTION DISTURBANCE FOOTPRINT (SEE NOTE 2)

NOTES:

1. BASED ON 1:100 YEAR DESIGN EVENT PLUS 0.5m FREEBOARD.
2. THIS DRAWING HAS BEEN BASED ON A DYKE SOLUTION CONSIDERING A 100 YEAR EVENT. THE DISTURBED AREA FOR A DYKE SOLUTION CONSIDERING A 50 YEAR EVENT WOULD BE ESSENTIALLY THE SAME.
3. 10% DESIGN CONCEPT. TO BE REFINED IN SUBSQUENT PROJECT PHASES.

25 0 25 50 75m
SCALE: 1:2000 (11"x17")

NO.	YY/MM/DD	DESCRIPTION	ISSUED BY	CHECK BY
D	19/10/10	ISSUED FOR CLC MEETING #2	CMR	BPA
C	19/09/26	RE-ISSUED FOR INFORMATION	CMR	BPA
B	19/09/24	RE-ISSUED FOR INFORMATION	CMR	BPA
A	19/09/18	ISSUED FOR INFORMATION	CMR	BPA

REVISIONS / ISSUE

KGS GROUP CONSULTING ENGINEERS

Toronto and Region Conservation Authority

REMEDIAL FLOOD AND EROSION CONTROL PROJECTS FOR THE REHABILITATION OF THE PICKERING AND AJAX FLOOD CONTROL DYKES, ONTARIO

AJAX DYKE 100 YEAR FLOOD EVENT PROPOSED ENGINEERED HARD SOLUTION DYKE FOOTPRINT

OCTOBER 2019 | SKETCH 13 | REV: D

Filename: \\192.168.0.226\Data\Projects\2019\19-2939-003\Dwg\Dwg\Sketches\19-2939-003_SK13 - Tab:Rev0 Plotted By: Pdeffner 19/10/10 [Thu 3:19pm]
11"x17" PLOT SCALE: 1"=2

3.0

CLC Meeting #2

Completed Comment Forms

COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

1. Do you have any comments on the evaluation of the alternative solutions?

I would prefer as little hard solution as possible to allow access to the creek? adjoining areas. Especially as some of us have deeded right of access to use the area from our property line to the north bank of the creek.

2. Do you have any comments on the preferred alternative solution?

3. Are there additional issues you would like addressed in the next phase?

Access via Bluebird Cres & restoration process if possible.

COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

4. Do you have any additional thoughts or comments?

Please leave your completed feedback form at the door on the way out OR if you'd like more time to write your comments, please send them to TRCA no later than **Thursday October 24, 2019.**

Attention: Crystal Robertson, Project Coordinator
Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan, ON L4K 5R6
Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

1. Do you have any comments on the evaluation of the alternative solutions?

Confused about 100 YR & 500 YR & open forum would perhaps be just as confused. Oct 30

2. Do you have any comments on the preferred alternative solution?

We just want you to do the best solution for everyone and not just perserving "the view" for a few. I think the Hard solution is best for Pickering dyke, segment 1 & 2

3. Are there additional issues you would like addressed in the next phase?

I just need the clarification of the 100 & 500 YR. And why the back & forth.

COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

4. Do you have any additional thoughts or comments?

Thank you!

Please leave your completed feedback form at the door on the way out OR if you'd like more time to write your comments, please send them to TRCA no later than **Thursday October 24, 2019.**

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COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

1. Do you have any comments on the evaluation of the alternative solutions?

Would not like to see Dyke taken down, would prefer Hard Solution to be built on North Side of Dyke (river side) near 1760 Finch Ave.

2. Do you have any comments on the preferred alternative solution?

Does some tree removal occur w/ every solution

3. Are there additional issues you would like addressed in the next phase?

Assess feasibility of straightening the river in center of area where it is a convoluted wishbone, to ↑ water flow

COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

4. Do you have any additional thoughts or comments?

(1) would like some idea of what flood levels are if Dyke fails

(R) would like some case study info on construction of other projects when Dyke's are removed.

Please leave your completed feedback form at the door on the way out OR if you'd like more time to write your comments, please send them to TRCA no later than **Thursday October 24, 2019.**

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[redacted]

COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

1. Do you have any comments on the evaluation of the alternative solutions?

2. Do you have any comments on the preferred alternative solution?

3. Are there additional issues you would like addressed in the next phase?

Very concerned about the effect of the 'Hard' solution to the look of our property. Also, top of new structure should still be grass.

Option – do work on North side of Berm?

COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

4. Do you have any additional thoughts or comments?

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COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

1. Do you have any comments on the evaluation of the alternative solutions?

2. Do you have any comments on the preferred alternative solution?

I have confidence in your wisdom & resources & encourage you to do what is best for the whole community.

Thank you.

3. Are there additional issues you would like addressed in the next phase?

COMMUNITY LIAISON COMMITTEE #2

Feedback – October 17, 2019

4. Do you have any additional thoughts or comments?

Please leave your completed feedback form at the door on the way out OR if you'd like more time to write your comments, please send them to TRCA no later than **Thursday October 24, 2019.**

Attention: Crystal Robertson, Project Coordinator
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Letter Sent to CLC Members in Response to Comments Received in CLC #2 Meeting

February 19, 2020 CFN 61407

BY E-MAIL ONLY

Dear [redacted],

**Re: Response to Comments Received at Community Liaison Committee Meeting #2 (October 17, 2019)
Pickering and Ajax Dykes Rehabilitation Class Environmental Assessment Project;
Duffins Watershed; City of Pickering and Town of Ajax.**

Toronto and Region Conservation Authority (TRCA) is investigating remedial solutions for the rehabilitation of two (2) existing flood control dykes, referred to as the Pickering and Ajax Dykes, located north of Hwy 401 between Brock Road and Church Street, in the City of Pickering and Town of Ajax. This project is being undertaken as a Conservation Ontario Class Environmental Assessment for Remedial Flood and Erosion Control Projects.

As part of the Class Environmental Assessment process, public input is solicited through various means including meetings with a Community Liaison Committee comprised of interested members of the public. During the second Community Liaison Committee (CLC) meeting, held on October 17th, 2019, the evaluation of alternative solutions to rehabilitate the existing flood control dykes was presented. A number of CLC members asked that the project consider relocating West Duffins Creek to the north of its current alignment in the area of Pickering Dyke Segments 1 and 2. This was proposed as a means to create more room south of the channel within TRCA owned lands to allow for the implementation of the dyke rehabilitation solution with minimal impacts to private properties

In response to this request from multiple CLC members, the project study team has investigated the proposed option of relocating the creek and is providing this letter to all CLC members as a formal response to the request.

The objective of the channel relocation is:

- To create additional land south of West Duffins Creek such that the permanent footprint of the proposed dyke and all construction and maintenance access can be facilitated fully within lands currently owned by TRCA.

There are constraints to the channel relocation:

- The existing Brock Road bridge restricts the relocation of the channel near the bridge.
- There is limited land north of the channel that is owned by TRCA.

To achieve the objective while working within these constraints the channel relocation concept includes:

- Excavation to the north and creek filling to the south in order to shift the channel to the north by approximately 5m. This would be done for most of the creek adjacent to Dyke Segments 1 and 2 in the study area.
- Removal of mature vegetation to the north of the existing channel to accommodate the newly shifted channel.
- Channel depth, width and bank slopes may be similar to existing but would require fluvial studies to confirm.
- Restoration of the channel banks and bed, and installation of erosion control protection measures along the channel where needed.

This option has been reviewed by the project team and was found to have significant ecological, cost, and time impacts. In the spirit of these constraining impacts, the option was not carried forward for evaluation. The impacts are described below.

Shifting the creek to the north will result in a straighter channel. This change can have a permanent long-term impact to channel stability and creek function. This can:

- Negatively impact aquatic habitat.
- Negatively impact mature forest communities that currently contribute to stability within the creek corridor.
- Increase erosion locally and downstream.
- Cause other unexpected new issues locally and downstream.
- Be financially and environmentally costly, both to relocate the channel and deal with future problems this may cause.

Environmental regulation agencies generally consider channel relocation as “least preferred” due to significant environmental impacts, unless a net aquatic habitat benefit can be achieved. It is anticipated that shifting the channel to the north, resulting in a straighter channel, will require significantly more armoring of the channel to control the expected increase in channel erosion. Significant armoring of a watercourse results in significant habitat degradation, and therefore securing permits/approvals from regulatory agencies would be at risk.

Achieving a channel relocation that could be considered a net benefit to aquatic habitat would require a much larger footprint. It is anticipated that larger bends would need to be added to the channel and so the channel corridor would need to be increased significantly. In this case, less armouring of the channel would be allowed and more trees and other vegetation around the channel would be required. To avoid impacts to private properties south of the existing channel, the new channel would have to extend significantly to the north, which is also privately owned property. The woodlot in this area would need to be drastically reduced to accommodate the new channel, which creates a significant impact on terrestrial habitat. Construction and restoration costs would be significant.

Relocating the channel will require more time to complete the necessary studies, both during the Class EA stage, and later during the detailed design stage. This cannot be completed within the timeline of the current EA project as the project completion date is restricted by funding deadlines. Additionally, temporary social impacts, such as construction noise, will be experienced for a longer period of time as relocating the channel will lengthen the overall duration of construction activity for the dyke rehabilitation works and can further delay construction as channel relocation works would be limited to certain times of year based on permit conditions to reduce aquatic impacts.

TRCA is committed to developing a solution that will reduce all impacts including ecological, cost and social impacts while providing suitable flood protection. The project team is considering other ways to address property concerns and will be bringing ideas forward at future meetings.

Should you have any questions or require any additional information please contact us at PADR@trca.ca

Regards,

The Pickering and Ajax Dykes Rehabilitation Class Environmental Assessment Team

Community Liaison Committee
Meeting #3 (March 10, 2020)
Consultation Report

Prepared for

Toronto Region Conservation Authority

Prepared by

Environmental Communications Consulting Inc.

April, 2020

Table of Contents

1.0
CLC Meeting #3
Minutes

Community Liaison Committee
Meeting #3 Minutes (March 10, 2020)

Venue: Community Hall
McLean Community Centre
95 Magill Drive
Ajax, Ontario

Time: 6:30 – 8:30pm

Present:

Community: [redacted]

Project Team: Melody Brown (TRCA), Fuad Curi (KGS), Art Krause (ECCI), Craig Mitchell (TRCA, for Nick Lorrain), Crystal Robertson (TRCA), Meg St. John (TRCA), Ryan Weise (KGS)

Overview

This third meeting of the Project's Community Liaison Committee (CLC) included a review of display panels and a 33-slide presentation describing the assessment of Design Concepts for the rehabilitation of the Pickering and Ajax dykes, and, the selection of the Preferred Design Concepts for each dyke segment (Pickering 1 (P1), Pickering 2 (P2) and Ajax 1 (A1)). Specifically, the presentation:

- Recapped the project location, the Class EA process and the problem and opportunity statements
- Reviewed the Preferred Alternative Solutions determined during the previous project phase.
- Provided an overview of the Design Concepts evaluated for each Preferred Alternative Solution
- Described the evaluation of the Design Concepts
- Summarized the recommended Preferred Design Concepts, highlighting features specific to each dyke segment, their respective environmental effects, the measures proposed to mitigate undesirable effects, and, their predicted net impacts
- Discussed next steps in the Project.

Specifically, the display panels depicted:

- An aerial view of the recommended preferred Design Concept for each dyke segment
- A summary table of the evaluation of the various Design Concepts considered for each dyke segment

- The Project Team presented the rationale for consolidating the six dyke segments, employed in the earlier phases of the project to differentiate discrete portions of the Pickering and Ajax dykes, into three segments: two segments for the Pickering Dyke (P1 and P2); and, a single segment for the Ajax Dyke (A1) based on which segments had the same preferred Alternative Solution from the previous project phase (hard engineered ("hard") solutions vs soft engineered ("soft") solutions). This segmentation was used to evaluate Design Concepts individually for each segment.

- It was explained how consultations and engagement with the Project's Technical Advisory Committee and Executive Steering Committee, along with the input from the Community Liaison Committee and the October 30, 2019 Public Information Centre, informed the design of, and evaluation of potential Design Concepts for the hard- and soft-engineered solutions for rehabilitating the Pickering and Ajax dykes. Specifically, that:
    - Both dykes be designed to the same level of protection (1-in-100 year design storm event)
    - Consideration be given to the impact on local utilities, preserving public access, ensuring the viability of maintenance access over the long term
    - Attention be paid to avoid having the rehabilitated dykes look like walls, i.e., preserve the natural appearance of the setting and the dykes
    - Every effort be made to minimize/avoid impacts to private property, during construction and over the long term.
- The advantages and disadvantages of four (4) different Design Concepts for the hard solution, to be applied at Segment P1, were presented:
    - H1 - MSE Wall + Sheetpile,
    - H2 - Modified Dry-side Embankment + Sheetpile,
    - H3 – Deep Structural Sheetpile only, and,
    - H4 - Modified Dry-side Embankment + Concrete Wall.

  And, the rationale for selecting H2 as the recommended Preferred Design Concept was discussed.

- The advantages and disadvantages of two (2) different Design Concepts for the soft solution, to be applied at Segments P2 and A1, were presented:
    - S1 - Modified Embankments + Filter
    - S1 - Modified Embankments + Seepage Cut-off + Filter where needed

  And, the rationale for selecting S1 as the recommended Preferred Design Concept for both the Segment P2 and Segment A1 was discussed.

- The anticipated environmental effects (under the categories of physical, biological, cultural, socioeconomic and technical) of the recommended preferred Design Concepts, the measures proposed to mitigate undesirable effects, and, their predicted net impacts were presented.

- CLC members were provided an update on the next steps in the Class EA process and asked if they would like to have a final CLC meeting to review the Environmental Study Report together.

Discussion Points and Comments

Discussions that occurred throughout and after the presentation are summarized below. Questions are noted with a "Q" and answers with an "A".

- CLC Members showed support for the approach being taken and the proposed Design Concepts for the three dyke segments (P1, P2, and A1).

- **Q:** What would happen in the event that archaeologically significant artifacts were discovered during the excavation/construction phase?

  A: In view of the excavation disturbance that occurred building the original dykes and the amount of cleaned/engineered soils that were used to build them, there is little likelihood of unearthing any archaeological artifacts. Given that the proposed construction/excavation activities are going to be largely confined to the sites of the existing dykes, it is highly unlikely that archaeologically significant artifacts will be unearthed. That said, a Class 2 Archaeological Assessment is recommended as part of the next phase of the dyke design (after the EA is complete) to be sure. Should something be found during excavation/construction, there is a well established (by regulation) protocol in place to recover the artifacts before the work continues.

- Several members expressed a desire to see this project move forward expeditiously, and, there was some discussion as to who they might reach out to in order to have their support for the Project heard.

- **Q:** Members wondered where the additional funding, required to complete detailed engineering (once the environmental assessment was complete) and the actual construction of the new dykes, would come from?

  A: It was explained that the additional funding would be sought from a variety of municipal, provincial and federal agencies and funding programs.

- A CLC Member suggested, as a means for offsetting the Project's capital costs, that TRCA consider incenting waste haulers by enabling them to deposit their waste fill (if appropriately

clean and classified) on site for use in constructing the new dykes. It was explained that TRCA has a Soils Management Team that would, as a matter of course, consider such an opportunity for these two dykes.

- **Q:** Does securing funding to rebuild the two dykes also include whatever funding would be required to maintain the structures over the long term?

  A: Yes. Costing out the rehabilitation of the dykes is not confined to the detailed engineering and construction costs. TRCA is required to prepare and submit, for review and approval, an Asset Management Plan that identifies both the short term construction costs as well as the Project's longer term life cycle maintenance costs.

- **Q:** Would the new dykes cause a change with respect to the maintenance practices that have been in place to date?

  A: Yes. As previously discussed, TRCA would secure funding for long-term maintenance of the new dykes, allowing for more maintenance work to be completed on a regular basis. On-site inspections would occur in accordance with current protocols (every 3 to 4 months), seasonal ice jam monitoring would continue, and, drainage flap gates would be routinely inspected. Mowing of the dykes would be completed regularly to stop the establishment of trees on the dykes. The option would exist to conduct frequent mowing to a manicured park type of aesthetic, or, some or all of these areas could be allowed to mature and form a more natural meadow setting with less frequent/seasonal mowing.

- **Q:** What measures and/or approaches would be taken to minimize the risks of flooding during the construction phase?

  A: It was explained that it is too early to say definitively what approach would be taken for construction. This matter would be addressed in the detailed pre-construction phase that would lay out the construction schedule and approach. Based on previous experience, the likelihood is that discrete sections of the old dykes would be worked on, one-at-a-time, in a serial fashion so as to minimize any risk of failures or flooding during construction. The material, resources and procedures that might be needed to shore up the dykes during construction, would be detailed in the construction emergency preparedness plan.

- **Q:** Assuming this project moves through its review and approval without inordinate delays, what would be the timeline to project completion (construction complete)?

  A: The timeline was laid out in broad strokes, under an ideal scenario, as follows:

  - Class EA completion/approval: Summer 2020
  - Secure multi-agency funding for detailed design: end of 2020

- Complete detailed design and secure multi-agency funding for construction: end of 2021
- Dyke rehabilitation construction: likely to be done in phases over multiple years between 2022 - 20023/2024

This was explained to be the best case scenario for the timeline, assuming permits are issued from other agencies in a timely fashion and that there are no unexpected findings during detailed design as further investigation work will be completed during detailed design (such as more soil testing pits/boreholes and the Stage 2 Archeological Assessment).

- **Q:** Will there be any changes with respect to the dyke maintenance practices in the meantime, before the new dykes are built?

  A: For the most part, there will be no changes from the area's current maintenance practices. The funding TRCA currently has for maintenance is limited. Inspections of the dykes, culverts and flap gates are done annually, as well as after major storm events. The dykes are too overgrowth to start mowing those areas now. TRCA is increasing their ice jam monitoring activities in the area.

- CLC Members continued to raise queries about the nearby casino; whether the large culvert installed on its site would impact flows and flood levels in the area and whether the facility was built in the floodplain?

  As these structures were outside the scope of the Pickering and Ajax Dyke Rehabilitation project, these are questions better put to the local councillor(s) and planning officials. That said, TRCA committed to having answers at the next meeting (PIC #2) and it was explained there are strict policies and practices in place that determine the location of built structures within or abutting a floodplain, and, the sizing/positioning of drainage culverts to mitigate any impacts on the existing storm drainage regime.

- As a closing proposition, CLC Members were presented the option of holding an additional CLC meeting to conduct a detailed page-by-page/section review of the to-be-completed draft Environmental Study Report (ESR), or, if they would prefer to do it individually and send comments to the study team. CLC Members were left to consider this option and indicate their preference for reviewing the ESR on the meeting feedback form.

Prepared by: Art Krause

2.0

CLC Meeting #3

Presentation Material

PowerPoint Presentation

PICKERING AND AJAX DYKES REHABILITATION

Class Environmental Assessment

COMMUNITY LIAISON COMMITTEE MEETING #3
MARCH 10, 2020

Toronto and Region Conservation Authority

LAND ACKNOWLEDGEMENT

We acknowledge the land we are standing on is the traditional territory of nations including the Mississauga's of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat people and is now home to many diverse First Nations, Inuit and Métis peoples.

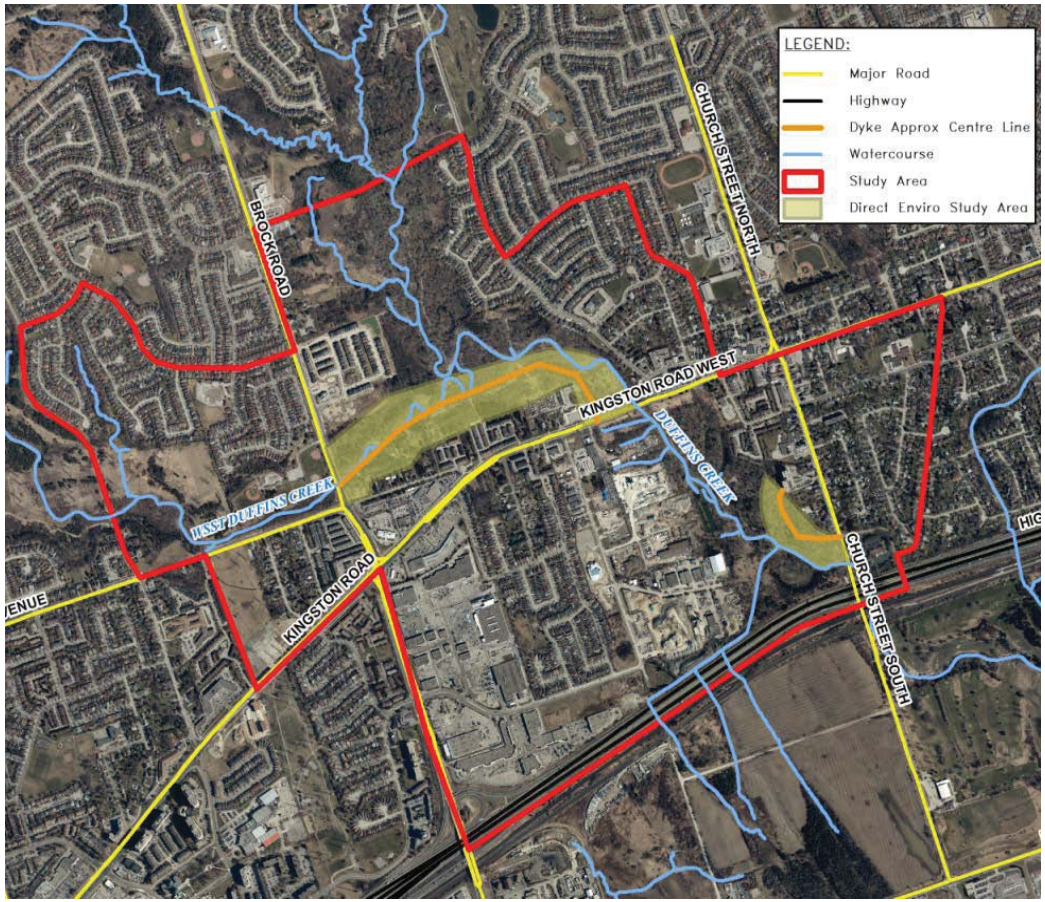
WELCOME TO THE CLC MEETING #3

PRESENTATION AGENDA

- Recap: Problem and Opportunity
- Recap: Preliminary Preferred Alternative Solution
- Design Concepts for Preferred Alternative
- Evaluation of Design Concepts
- Summary of Impacts and Mitigation
- Next Steps

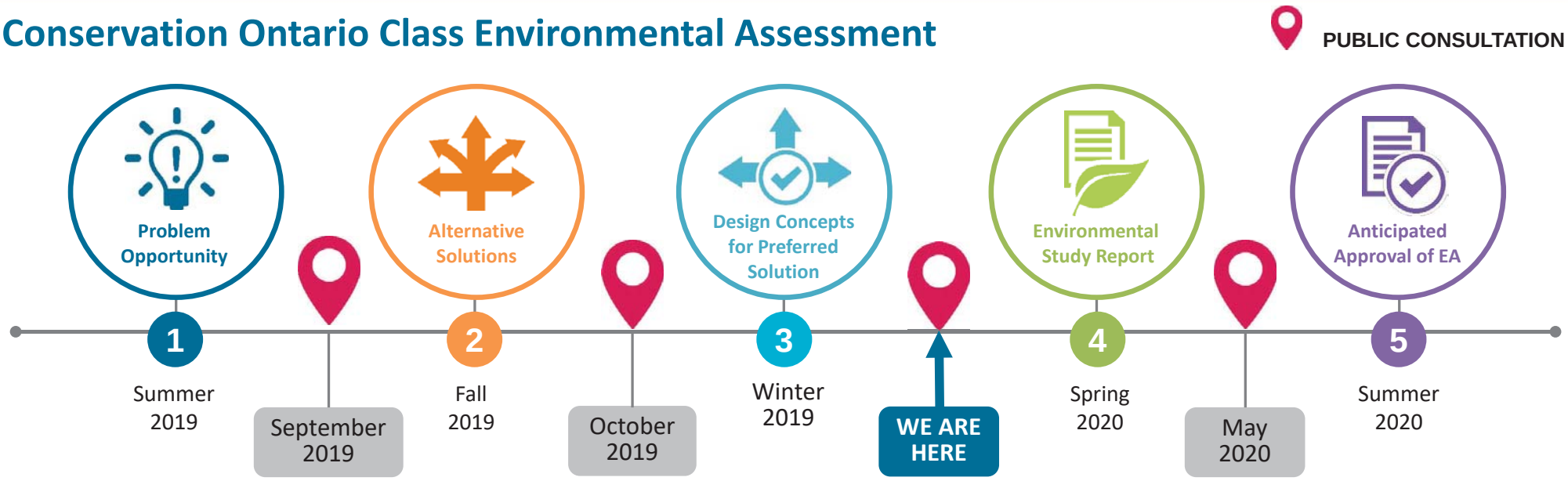
SEEK YOUR FEEDBACK ON:

- Design concepts for preferred alternative solution
- Evaluation of design concepts
- Impacts and mitigation
- Your input, issues and concerns



CLASS EA PROCESS

Conservation Ontario Class Environmental Assessment



The Pickering and Ajax Dykes Rehabilitation Project is following the Class EA process for Remedial Flood and Erosion Control Projects outlined by Conservation Ontario.

Consultation Activities to be Completed in Phase 3:

- ✓ TAC meeting #3, ESC meeting #2, and CLC meeting #3
- ✓ Individual meetings with adjacent landowners
- ✓ Public Information Centre #2
- ✓ Circulation of materials to other stakeholders

WHAT IS THE PROBLEM?

THE DYKES ARE AT RISK OF FAILURE

- **The dykes do not meet the current engineering design standards**
- **Channel bank erosion in areas adjacent to the Pickering Dyke**
- **Other issues**
  - Tree growth compromising integrity
  - Narrow crest width

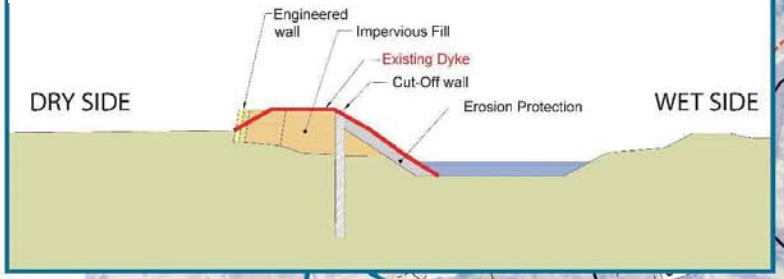
WHAT IS THE OPPORTUNITY?

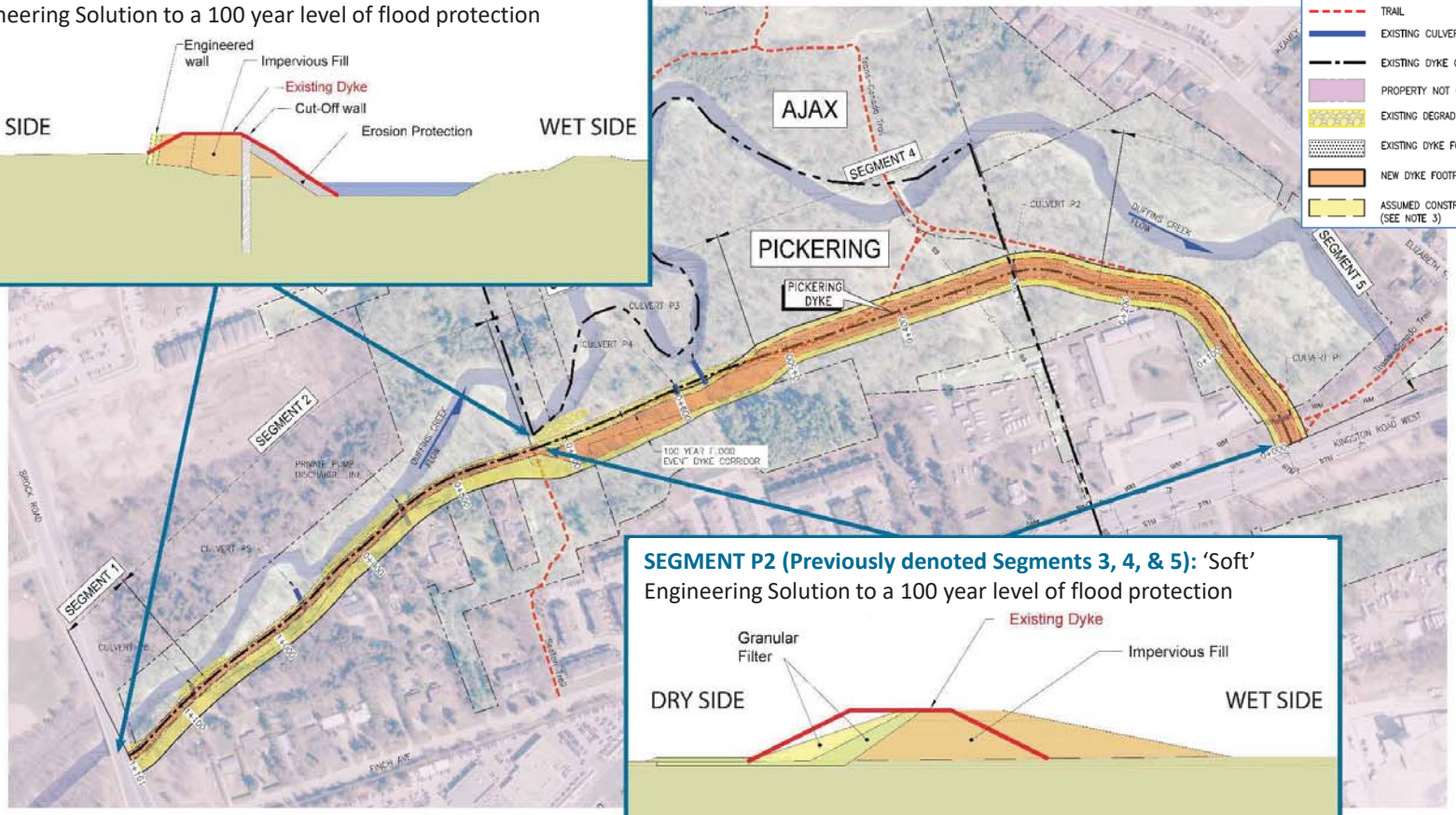
- **Meet current design standards**
  - **Ensure performance of flood protection to the existing crest levels at a minimum**
    - Pickering Dyke: 100-year Storm flood event
    - Ajax Dyke: 50-year storm flood event
- **Protect the dykes against channel bank erosion**
- **Enhance the natural environment**
- **Allow for future improvements**
  - **Flexibility to increase level of flood protection in the future**

PREFERRED ALTERNATIVE SOLUTION

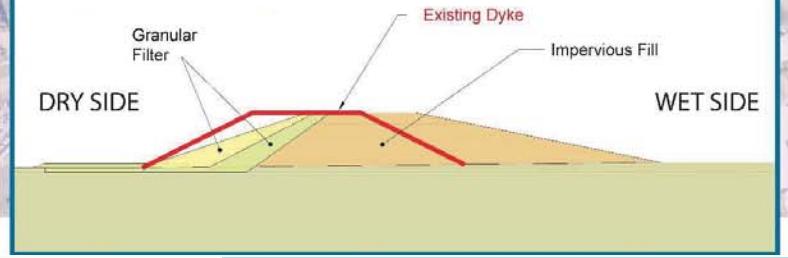
PICKERING DYKE

SEGMENT P1 (Previously denoted Segments 1 & 2): 'Hard'
Engineering Solution to a 100 year level of flood protection



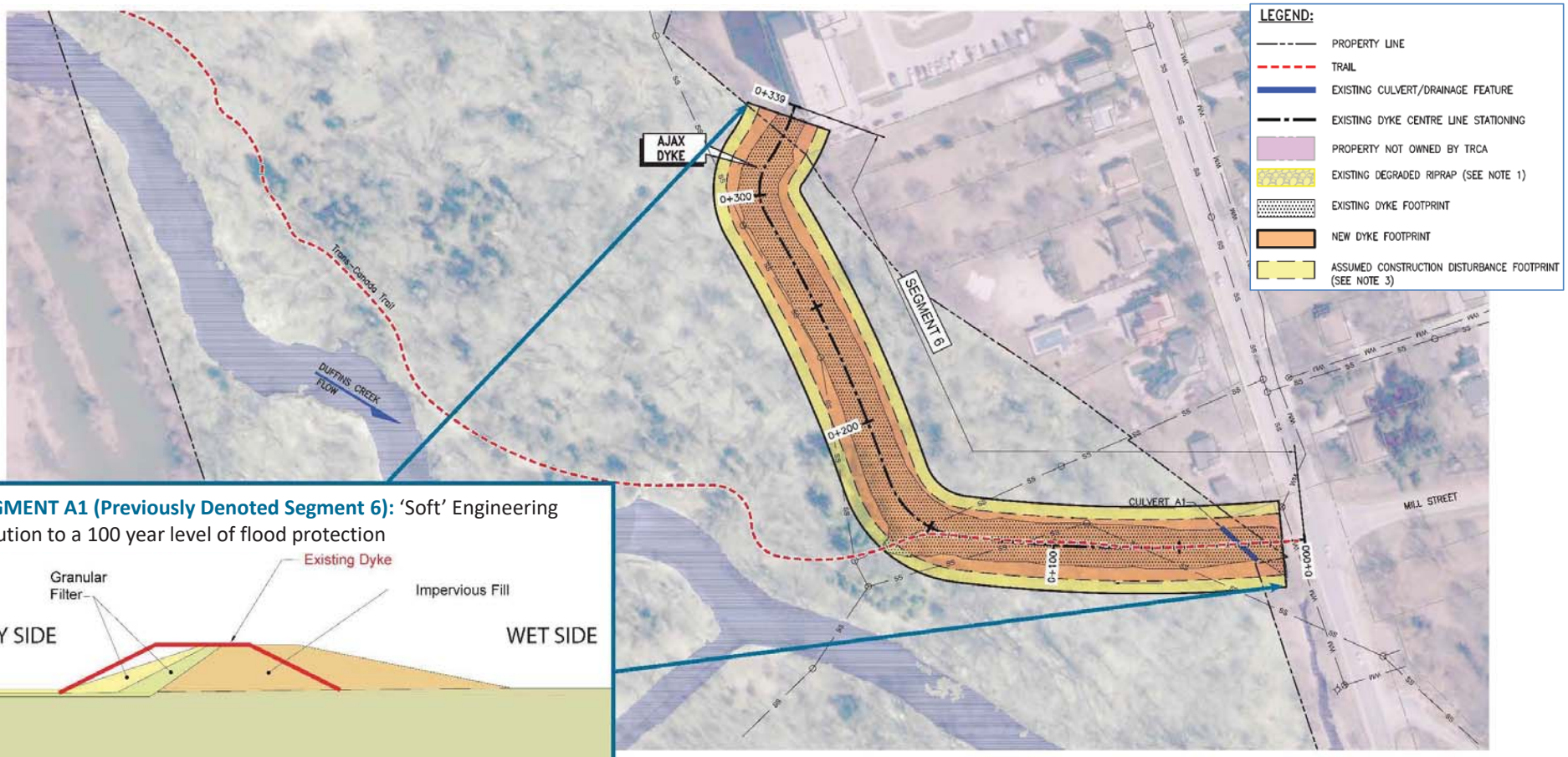


SEGMENT P2 (Previously denoted Segments 3, 4, & 5): 'Soft'
Engineering Solution to a 100 year level of flood protection

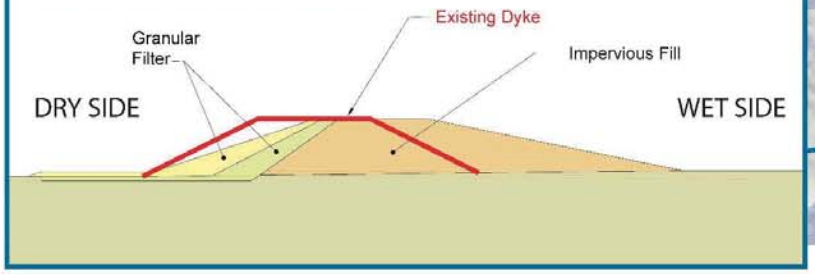


PREFERRED ALTERNATIVE SOLUTION

AJAX DYKE



SEGMENT A1 (Previously Denoted Segment 6): 'Soft' Engineering Solution to a 100 year level of flood protection



WHAT WE HEARD FROM STAFF

Feedback from TAC and ESC

- Recommendation that both dykes provide the same level of protection
- **Consideration for impacts on local utilities.** Consult with appropriate Durham Region department.
- In Phase 3 include evaluation criteria of:
  - resistance to overtopping
  - facilitation of public access/trails
  - facilitation of sufficient access for long-term maintenance

Questions from TAC and ESC

- Where and how will erosion be addressed?
- LRIA applicability and progress of consultation with MNRF
- How local drainage is being dealt with?
- Why the project is not considering the option of moving the dyke further from the creek in Pickering Dyke Segment 1 and 2?

TAC – Technical Advisory Committee

ESC – Executive Steering Committee

WHAT WE HEARD FROM THE PUBLIC

Feedback from CLC and PIC

- Comments regarding other flood concerns such as debris jams and development
- **Concern for loss of private property**
  - Suggestion to shift West Duffins Creek north to make more room to construct the dyke, to avoid property impacts
- **Concern for the dyke looking unnatural or being a wall**
  - Suggestion to just install sheet pile on existing dyke, with no other measures, to avoid disturbances
- **Concern for maintaining pedestrian access to creek**
- Concern for construction impacts
- Importance of trail access

Questions from CLC and PIC

- How did we decide the dykes need rehabilitation?
- Can a higher level of flooding protection be achieved?
- **Will the dykes change flooding elsewhere?**
- How is the project being funded?
- Questions regarding drainage impacts in backyards

HOW DO WE CHOOSE THE BEST OPTION?

EVALUATION CRITERA FOR DESIGN CONCEPTS

NATURAL ENVIRONMENT

- Removal, disturbance or enhancement of terrestrial habitat
- Removal, disturbance or enhancement of aquatic habitat

SOCIAL ENVIRONMENT

- Removal or disturbance to private and public property not owned by TRCA
- Effects on public recreational spaces
- Disruption caused by construction activities
- Effects to servicing, utilities and infrastructure
- Removal or disturbance of potential archaeological resources
- Aesthetics

TECHNICAL

- Allowance for future enhancement to a higher level of flood protection
- Construction complexity and constraints
- Service life
- Maintenance requirements

COST

- Capital cost
- Operations and maintenance cost

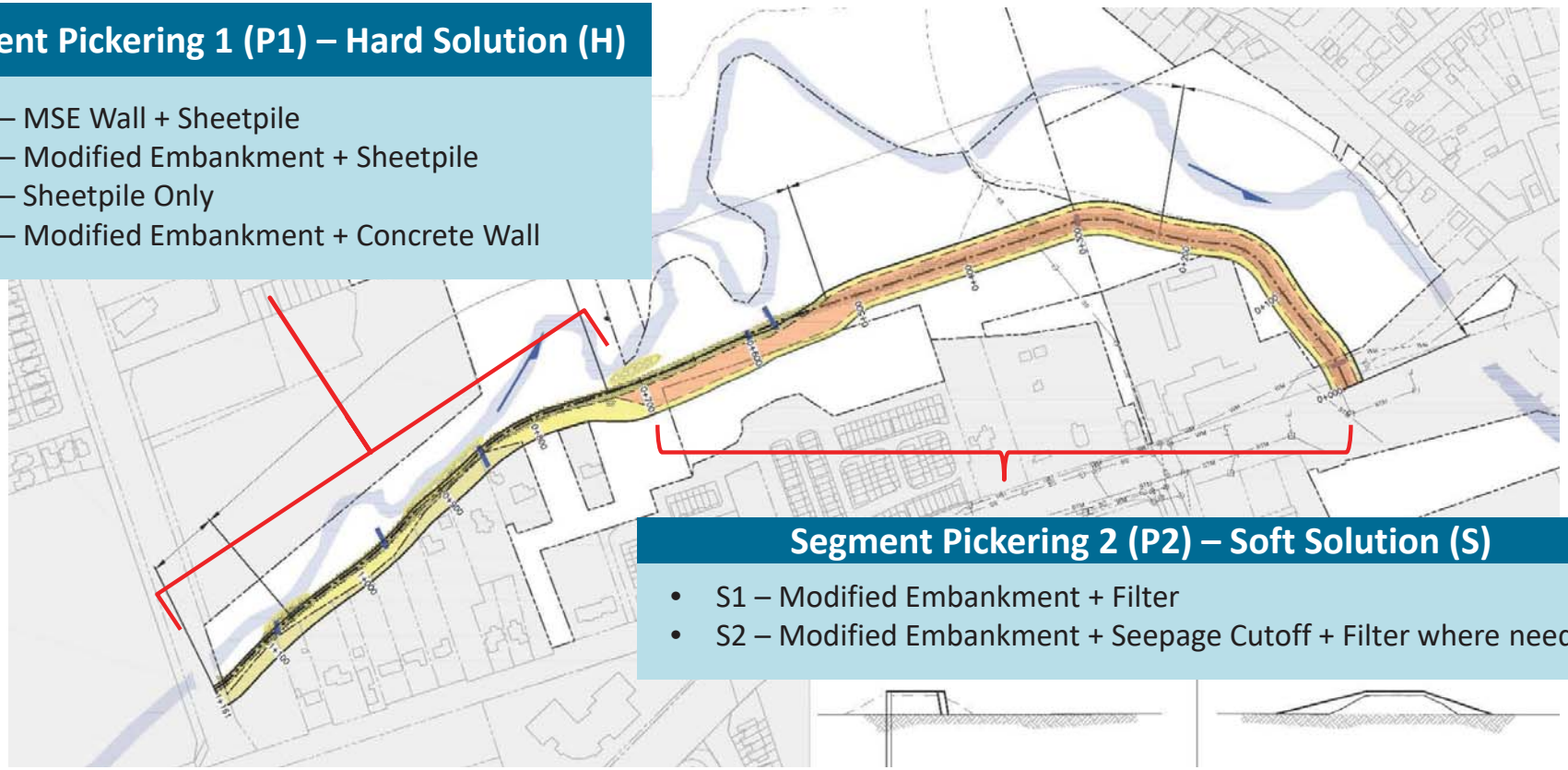
This criteria was used to evaluate the Design Concepts

DESIGN CONCEPTS FOR PREFERRED ALTERNATIVE

PICKERING DYKE

Segment Pickering 1 (P1) – Hard Solution (H)

- H1 – MSE Wall + Sheetpile
- H2 – Modified Embankment + Sheetpile
- H3 – Sheetpile Only
- H4 – Modified Embankment + Concrete Wall



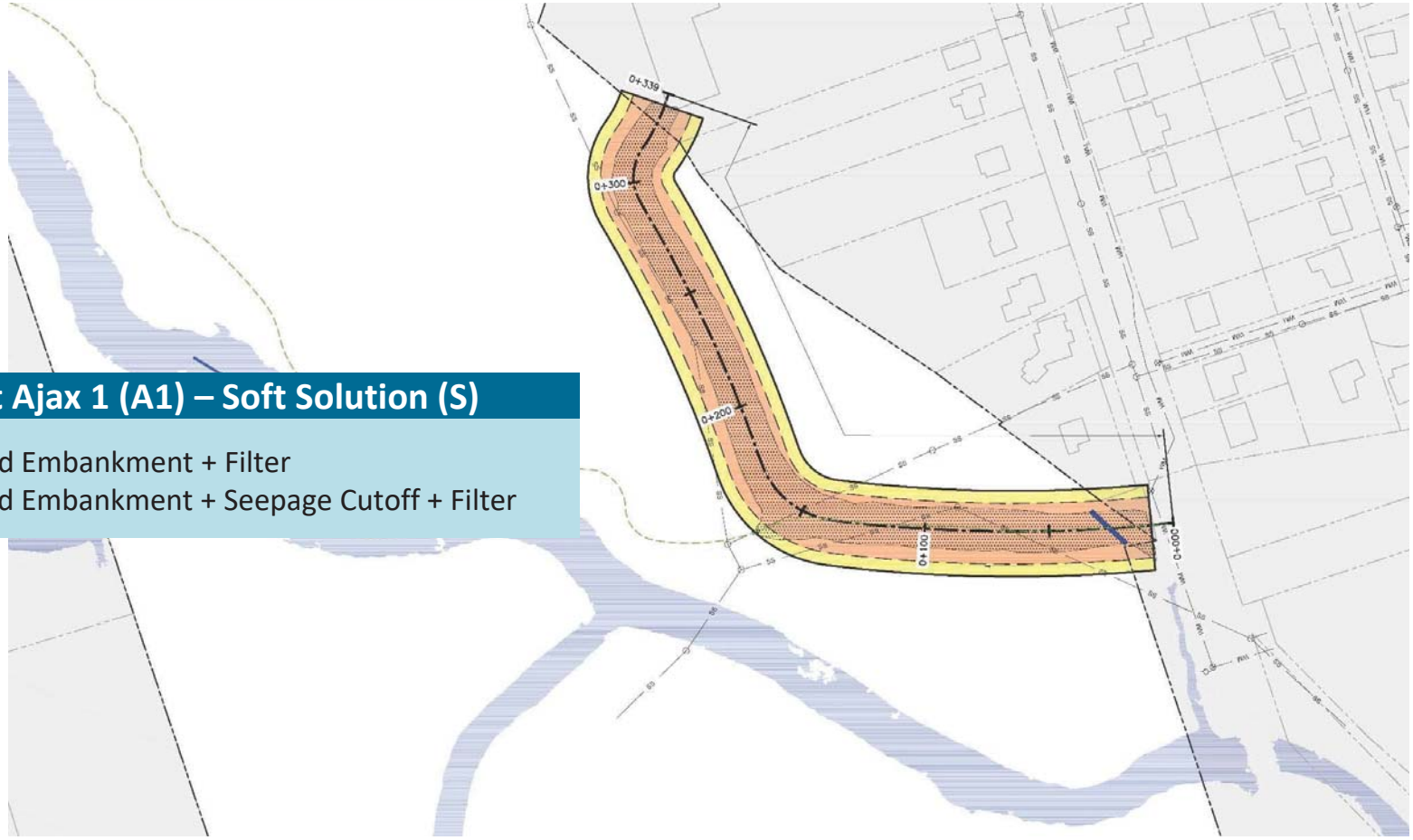
Segment Pickering 2 (P2) – Soft Solution (S)

- S1 – Modified Embankment + Filter
- S2 – Modified Embankment + Seepage Cutoff + Filter where needed

DESIGN CONCEPTS FOR PREFERRED ALTERNATIVE

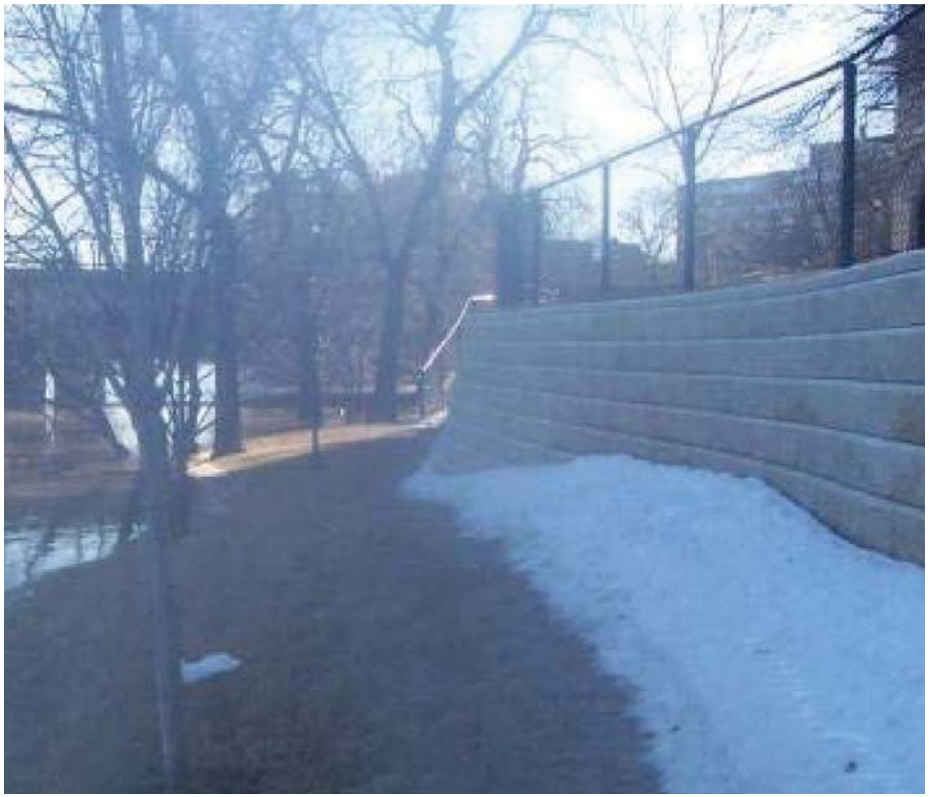
Segment Ajax 1 (A1) – Soft Solution (S)

- S1 – Modified Embankment + Filter
- S2 – Modified Embankment + Seepage Cutoff + Filter



DESIGN COMPONENTS

MSE Wall



Sheetpile

DESIGN CONCEPTS

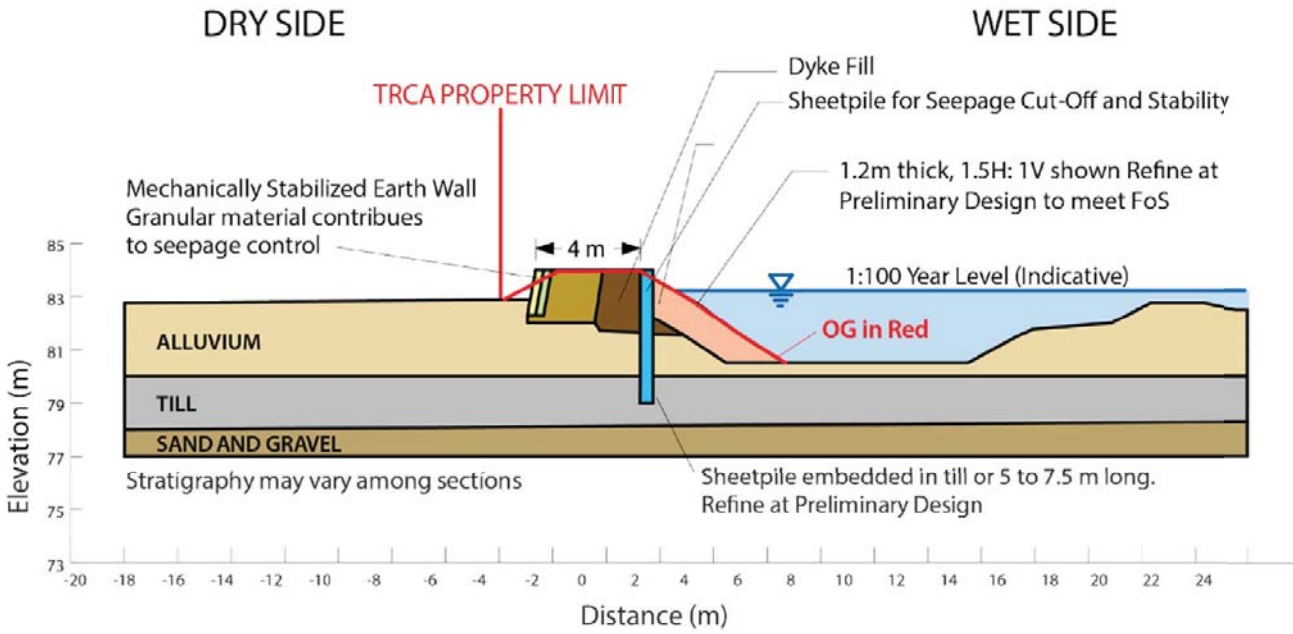
DESIGN CONCEPT H1: MSE Wall + Sheetpile

ADVANTAGES

- Moderate capital cost ($7.2 million)
- Smallest footprint and disturbance area
- Smallest impact to private properties (no permanent impact, 5 m temporary for construction)
- Can be raised in the future without permanently impacting private properties

DISADVANTAGES

- Lowest aesthetics: not a natural appearance and requires a fence at top for public safety
- Dyke difficult to cross. Higher complexity for maintaining pedestrian access to creek.
- Slightly more complex construction than typical embankment
- Moderate construction duration



DESIGN CONCEPTS

PICKERING DYKE

DESIGN CONCEPT H2: Modified Dry-side Embankment + Sheetpile

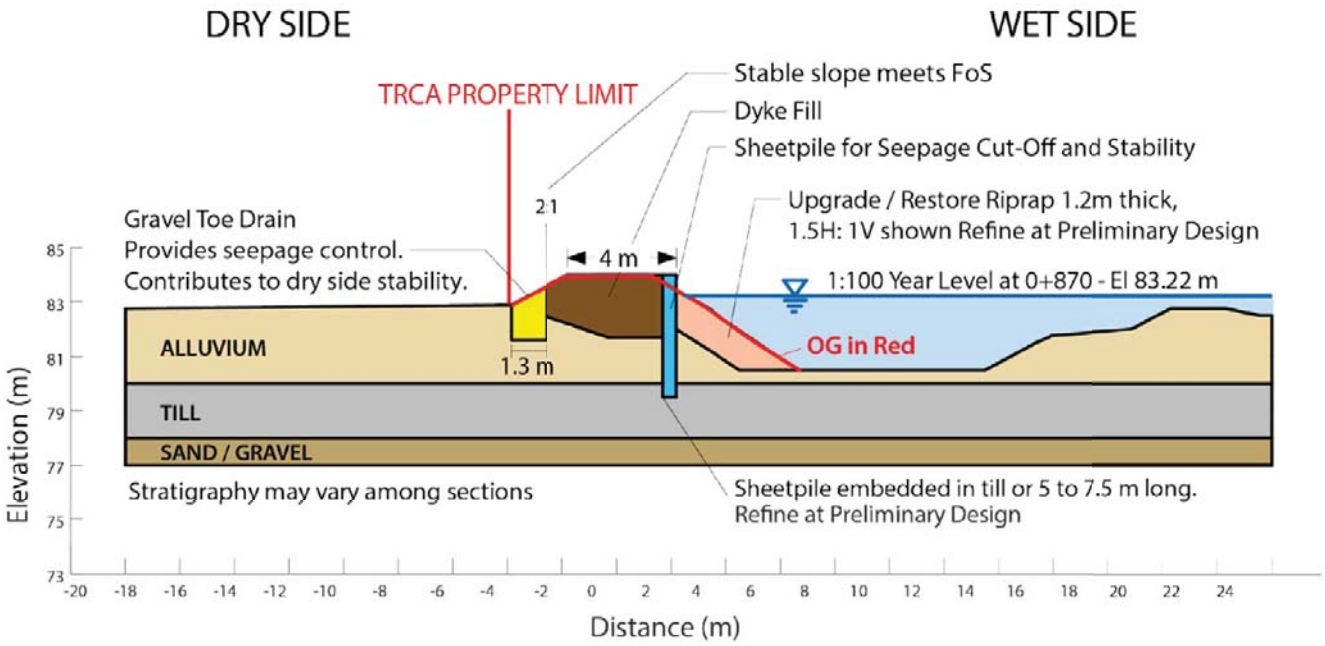
RECCOMENDED PREFERRED CONCEPT FOR DYKE SEGMENT P1

ADVANTAGES

- Lowest capital cost ($7 million)
- Lowest construction complexity and time
- Easiest pedestrian access to creek
- Preferred aesthetic: natural appearance

DISADVANTAGES

- Moderate footprint (larger than existing) and disturbance area
- Impacts to private properties (up to 1.5 m permanent for drainage, plus 5 m temporary for construction)



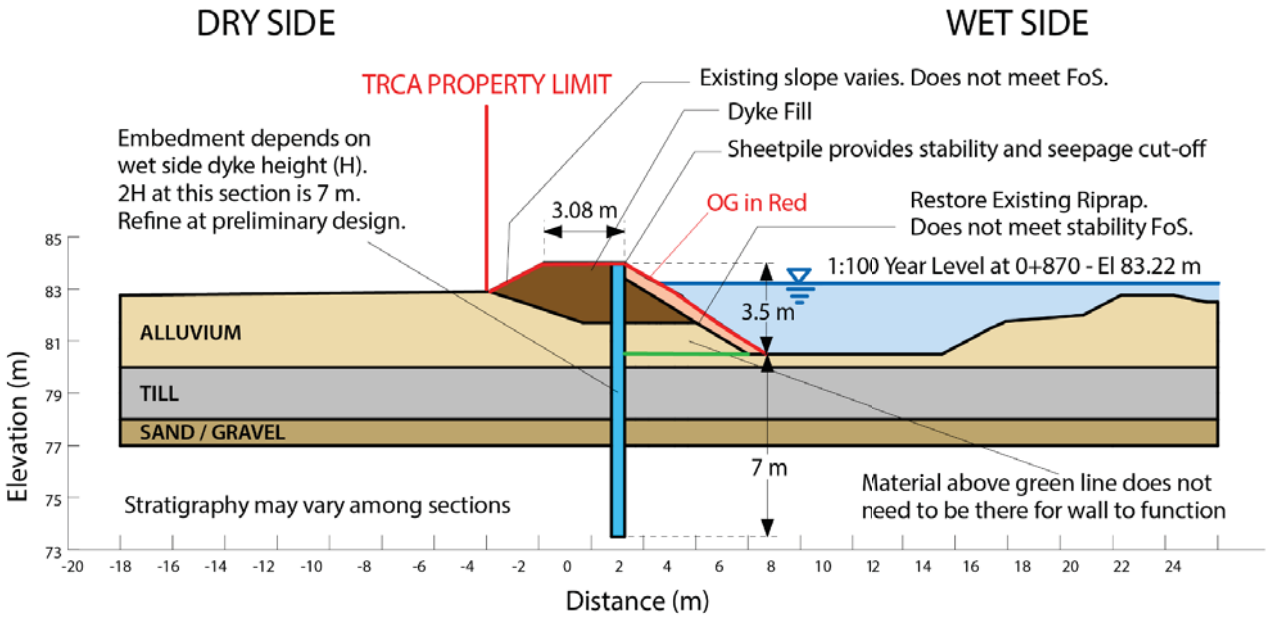
DESIGN CONCEPT H3: Deep Structural Sheetpile

ADVANTAGES

- Greatest aesthetics: most natural appearance
- Smallest permanent disturbance area
- Lowest immediate aquatic impacts

DISADVANTAGES

- High capital cost ($11.1 million)
- Largest construction impact and largest equipment required
- Slopes do not meet standards and could fail, causing environmental impacts and requiring expensive repairs
- Narrower crest width limits maintenance access
- More susceptible to construction complications which could increase impacts

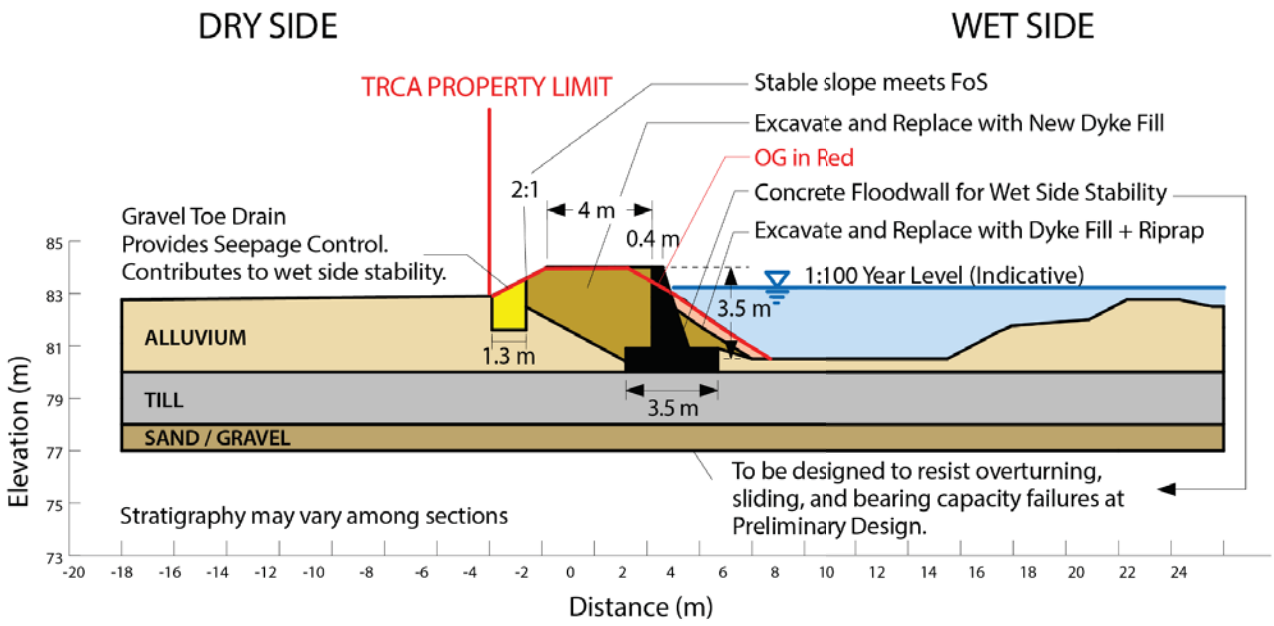


DESIGN CONCEPTS

DESIGN CONCEPT H4: Modified Dry-side Embankment + Concrete Wall

ADVANTAGES
• No notable advantages over other options

DISADVANTAGES
• Highest capital cost ($10.6 million) • Large construction disturbance including creek • Difficult construction and future repairs • Longest construction duration • Impacts to private properties



EVALUATION - HARD SOLUTION CONCEPTS

Pickering Segment P1

	H1 : MSE Wall + Sheetpile	H2: Modified Dry-side Embankment + Sheetpile	H3: Deep Structural Sheetpile	H4: Modified Dry-side Embankment + Concrete Wall
NATURAL ENVIRONMENT	MOST	MOST	LEAST	LEAST
SOCIAL ENVIRONMENT	MODERATELY	MOST	LEAST	LEAST
TECHNICAL	MOST	MOST	MODERATELY	LEAST
COST	MODERATELY	MOST	LEAST	LEAST
OVERALL	**MODERATELY**	**MOST**	**LEAST**	**LEAST**

DESIGN CONCEPTS

PICKERING DYKE | AJAX DYKE

DESIGN CONCEPT S1: Modified Embankments + Filter

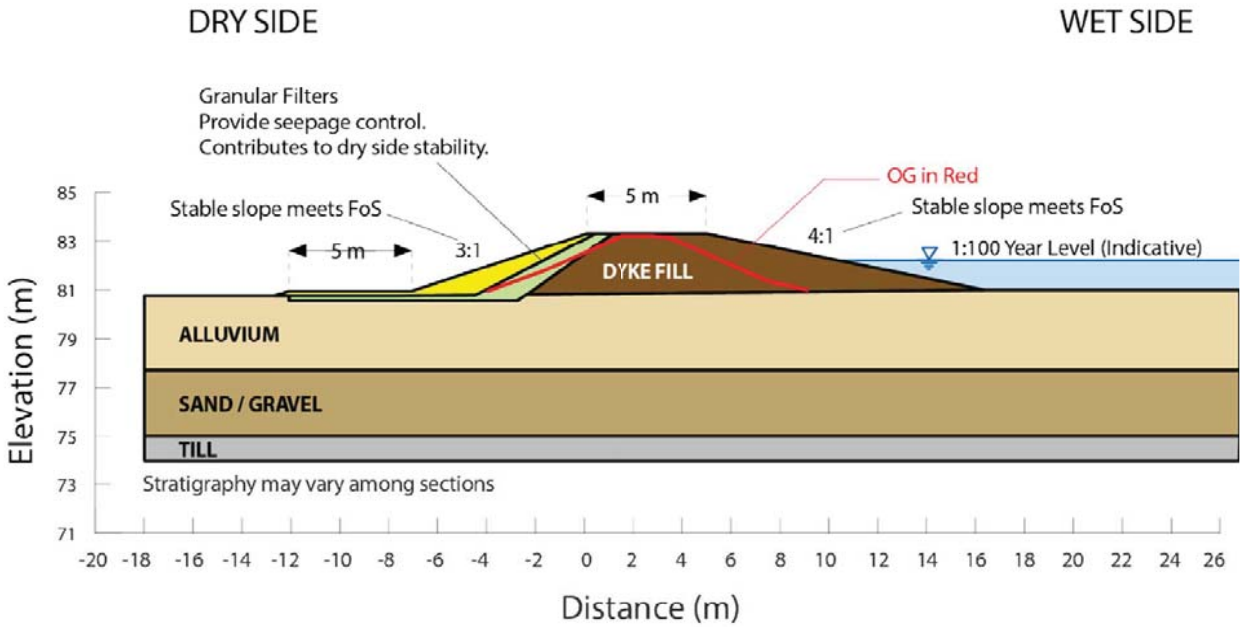
RECCOMENDED PREFERRED CONCEPT FOR DYKE SEGMENTS P2 & A1

ADVANTAGES

- Lowest capital cost ($3 / 2.6 million P2 / A1)
- Easier and faster construction with fewer impacts
- No interaction with buried utilities, minimal impact
- Easier to raise in the future

DISADVANTAGES

- Largest footprint and construction area
- More area to maintain



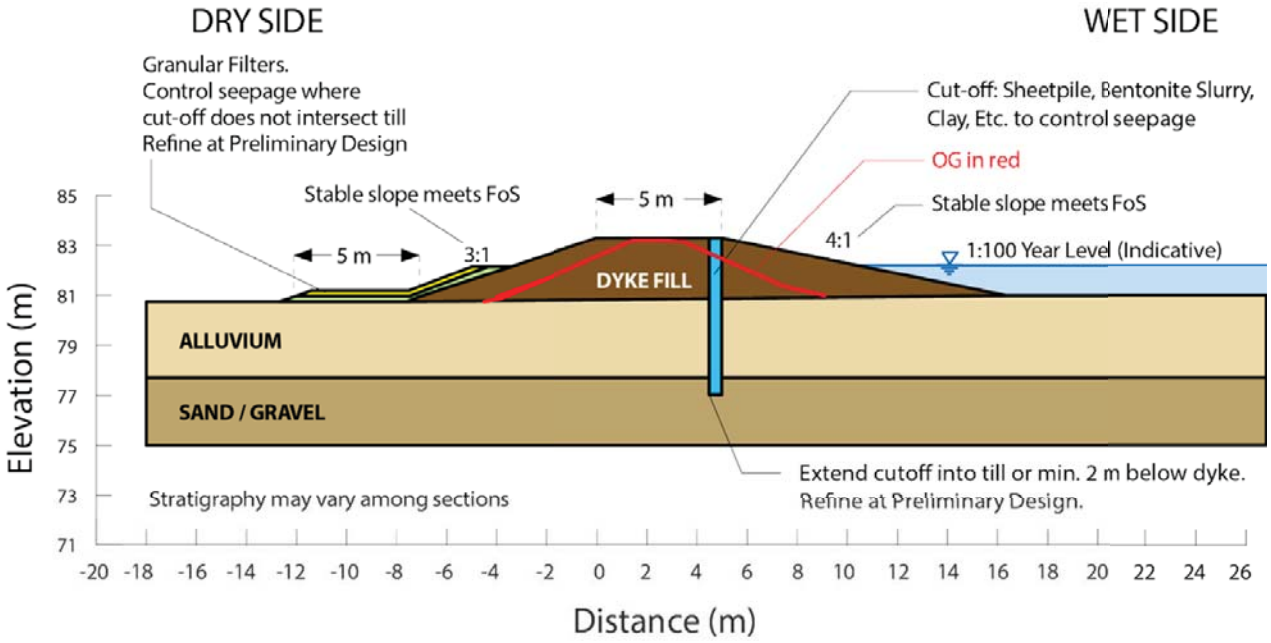
DESIGN CONCEPT S2: Modified Embankments + Seepage Cut-off + Filter where needed

ADVANTAGES

- Smaller footprint and construction area than S1 where the filter is not needed
- Less area to maintain where the filter is not needed

DISADVANTAGES

- Highest capital cost (P2 $9.1 million and A2 $4.7 million)
- More complex construction, longer duration and more noise impacts
- Greatest impact & interaction with buried utilities
- More complex and expensive to raise in the future



EVALUATION - SOFT SOLUTION CONCEPTS

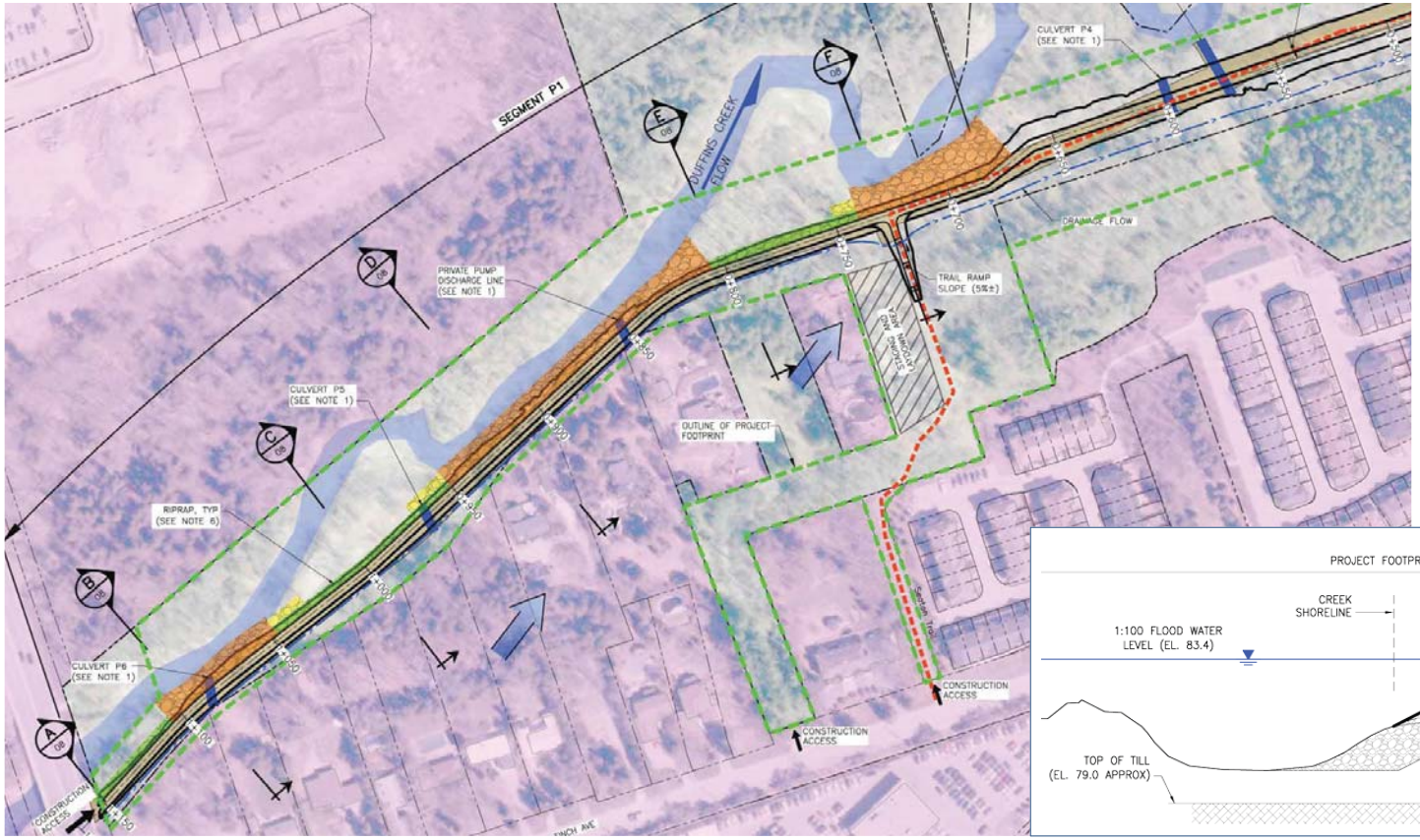
Pickering Segment P2

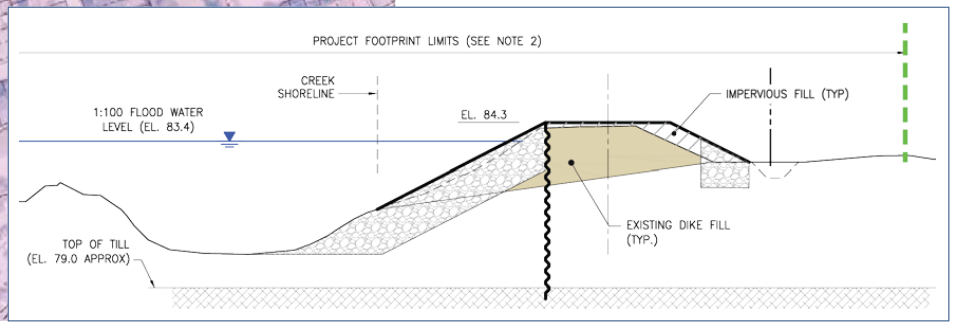
	S1: Modified Embankments + Filter	S2: Modified Embankments + Seepage Cut-off + Filter (where needed)
NATURAL ENVIRONMENT	MODERATELY	MOST
SOCIAL ENVIROMENT	MOST	MODERATELY
TECHNICAL	MOST	MODERATELY
COST	MOST	LEAST
OVERALL	MOST	LEAST

Ajax Segment A1

	S1: Modified Embankments + Filter	S2: Modified Embankments + Seepage Cut-off + Filter (where needed)
NATURAL ENVIRONMENT	MOST	MOST
SOCIAL ENVIROMENT	MOST	MODERATELY
TECHNICAL	MOST	MODERATELY
COST	MOST	LEAST
OVERALL	MOST	LEAST

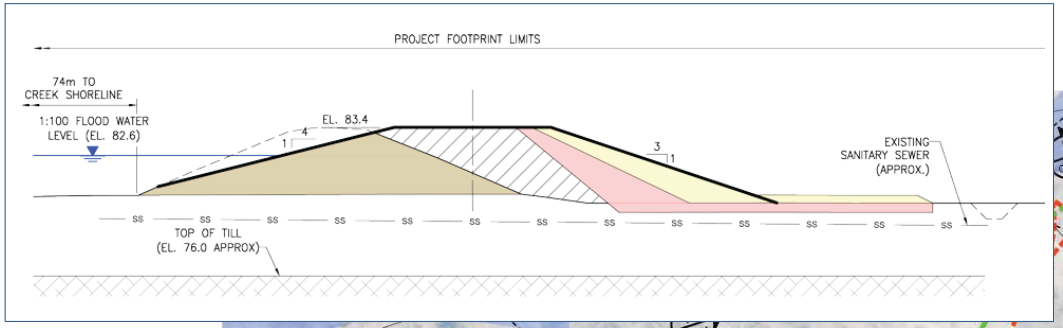
RECOMMENDED PREFERRED DESIGN CONCEPT – SEGMENT P1



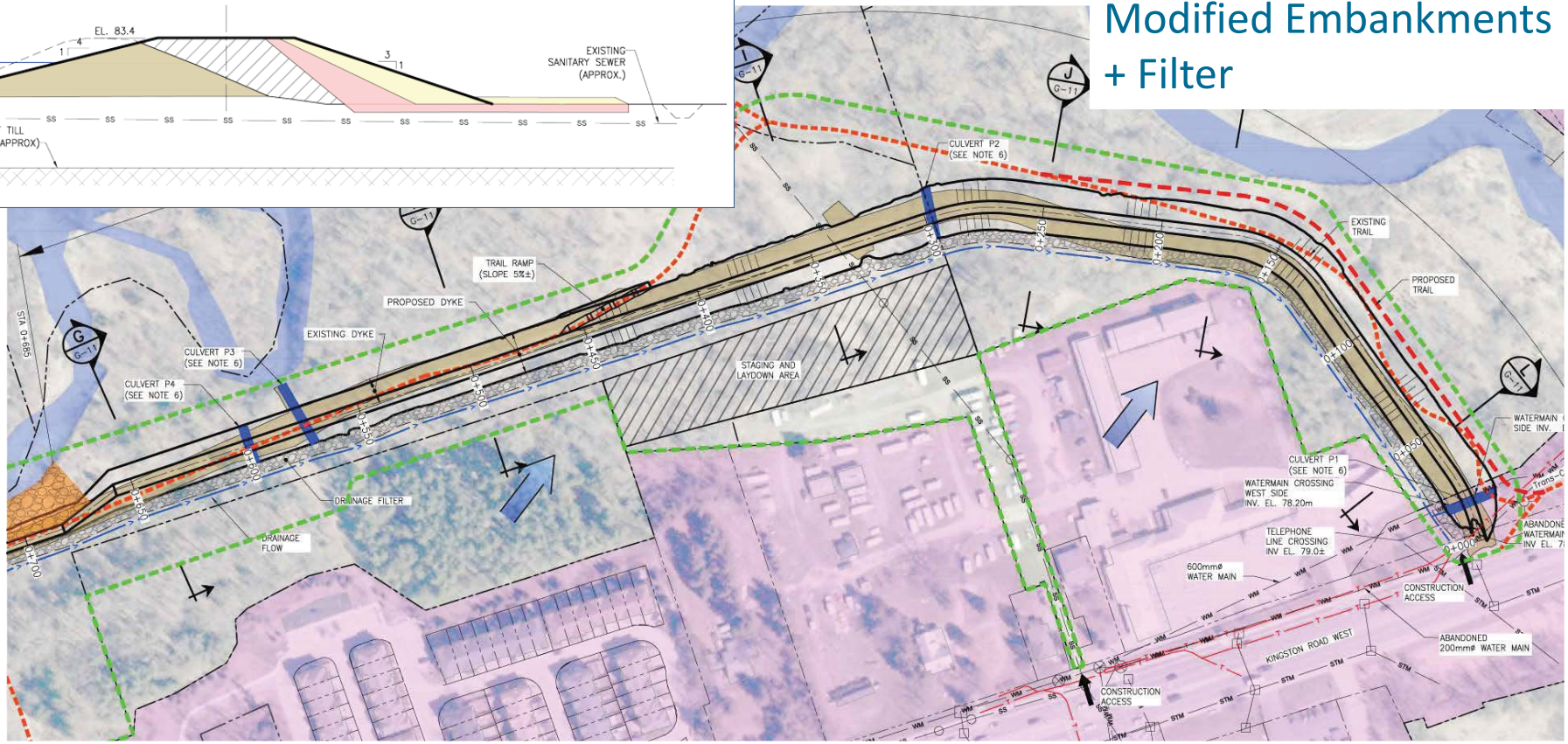


DESIGN CONCEPT H2:
Modified Dry-side Embankment + Sheetpile

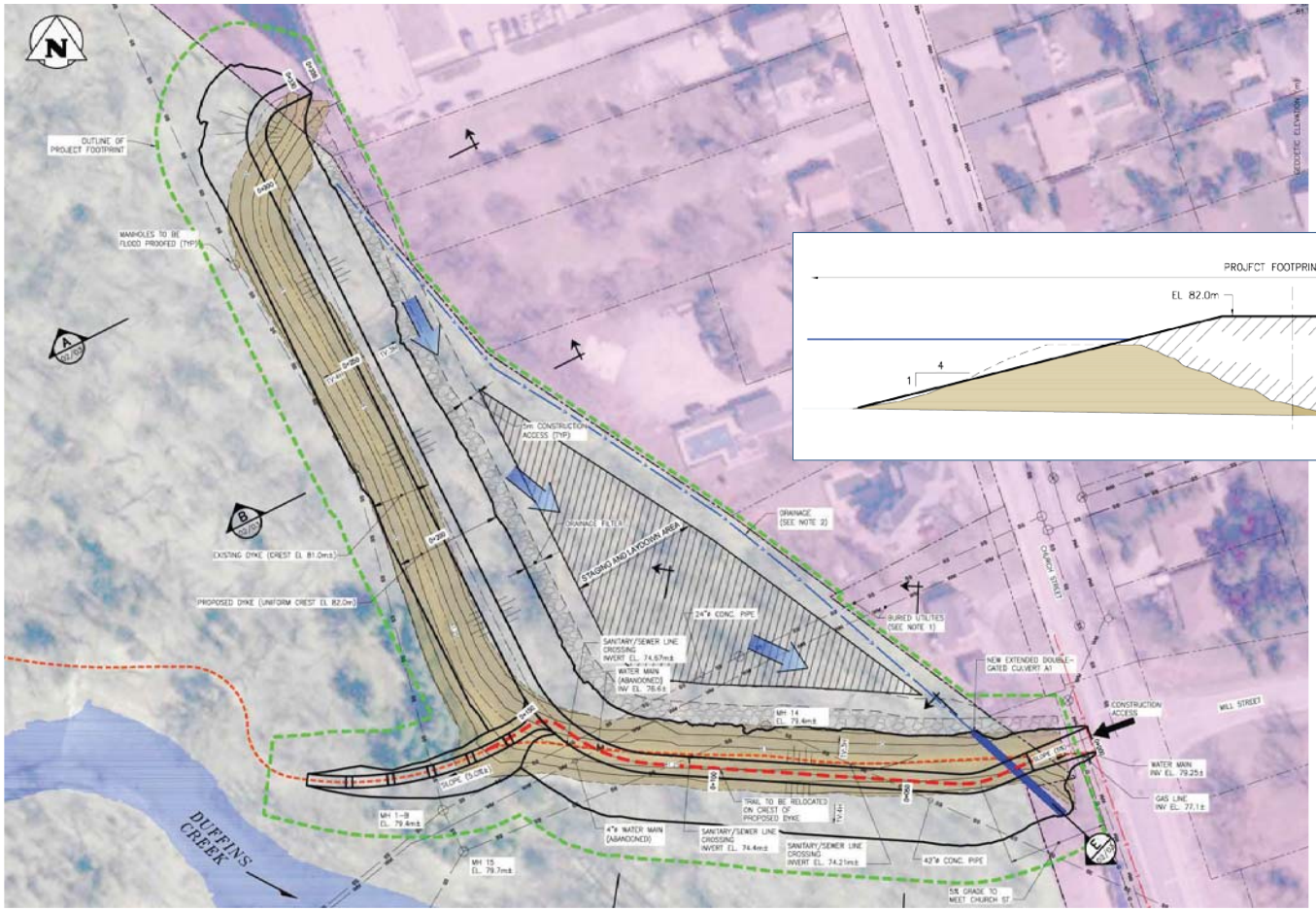
RECOMMENDED PREFERRED DESIGN CONCEPT – SEGMENT P2



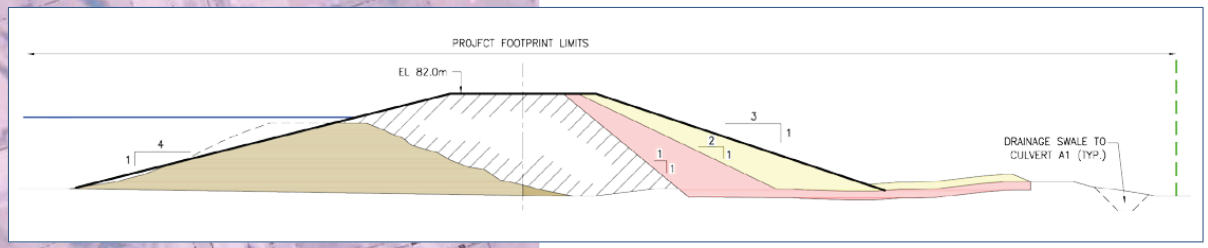
DESIGN CONCEPT S1:
Modified Embankments + Filter



RECOMMENDED PREFERRED DESIGN CONCEPT – SEGMENT A1



DESIGN CONCEPT S1:
Modified Embankments
+ Filter



DETAILED ANALYSIS OF ENVIRONMENTAL EFFECTS

Physical Environment

Effects

- Potential noise, dust and vibration impacts to adjacent properties during construction
- Potential spills during construction could affect soil and surface water quality
- Contaminated soils have not been identified on site but they could exist in area of excavations
- Changes to high water flow regimes. Up to 100-year storm event
  is contained within valley (restricted by dykes).
- Improvements to surface water drainage on dry side through formalized drainage swales discharging to culverts in dykes
- Potential, but not expected, localized effects to groundwater flow patterns

Mitigation Measures

- Construction best management practices will be used for noise, dust, vibration, spill control, sediment control, and soil management. This will include implementation of construction management and contingency plans.
- Application of TRCA ESC Guidelines
- Works restricted by Noise By-Law
- Groundwater study recommended to determine if there is impact

Net Effects Physical Environment

- Nuisance effects from construction activities will be lessened to the extent possible
- Risk of spills, sedimentation and spreading contaminated soils effectively controlled

DETAILED ANALYSIS OF ENVIRONMENTAL EFFECTS

Biological Environment

Effects

- Disturbance of wildlife habitat during construction and temporary avoidance of the area by wildlife
- Removal of approximately 2.7 ha of forest/woodland and thicket for rehabilitation of the Pickering Dyke
- Removal of approximately 1.4 ha forest/woodland for the rehabilitation of the Ajax Dyke
- Butternut Tree and Redside Dace habitat within the project impact area
- Potential negative impacts to fish habitat during in-water works during construction of Segment 1 of the Pickering Dyke

Mitigation Measures

- All temporarily disturbed areas will be restored and planted with native vegetation
- A tree compensation plan will be developed during detailed design
- Guidelines to reduce risk to migratory bird as per the Migratory Bird Act will be followed including removal of trees outside of the nesting window
- Species at Risk surveys during detailed design and mitigation in consultation with Ministry of the Environment, Conservation and Parks
- Construction fencing and avoidance of buffer area for Butternut Tree.
- Evaluation of harmful effect to fish habitat during detailed design and mitigated e.g. adhere to timing windows
- Adherence to Best Management Practices for in-water works
- Creek features restored to pre-construction condition or better

Net Effects Biological Environment

- Permanent removal of approximately 2.7 ha of terrestrial habitat to be compensated off-site.
- Re-established vegetation will be comprised of targeted native species and will contribute to a healthier ecosystem.
- Permanent vegetation removals are linear and narrow in comparison to valley scale so not expected to detriment the overall terrestrial habitat value.

DETAILED ANALYSIS OF ENVIRONMENTAL EFFECTS

Cultural Environment

Effects

- Temporary removal/closure of trails will impact accessibility within the parklands in the Direct Project Area during construction
- Trail will be reconstructed to present conditions or better
- Reconstructed trails can be located differently to improve vistas / public realm
- There will be a permanent aesthetic change as there will not be trees within the dyke footprint
- Possibility of incorporating some vertical structural components into dyke where public space is most restricted to avoid property impacts. Fencing / fall barrier could be necessary in those areas for public safety
- In most areas pedestrian accessibility to cross dykes will be improved with more gradual side slopes and clear passage
- Chance of impacting potential archaeological resources (per Stage 1 assessment)

Mitigation Measures

- Safety measures will be implemented in construction area
- Appropriate public notification of construction works and temporary trail closure. Pedestrian barriers into work areas and other safety measures to be implemented during construction to ensure public safety.
- If possible, trail closures will be scheduled during periods of lower use and provide accessibility during weeknights and weekends. Safety considerations provided
- Restoration of dykes will favour natural look, with grassy dyke slopes
- Stage 2 Archaeological Assessment will be carried out prior to construction to confirm presence of archaeological resources

Net Effects Cultural Environment

- Temporary and minimized impacts to access and enjoyment of recreation areas during construction
- Dyke appearance will be different than present but will maintain natural appearance in general
- In most areas pedestrian accessibility to cross dykes will be improved with more gradual side slopes and clear passage

DETAILED ANALYSIS OF ENVIRONMENTAL EFFECTS

Socioeconomic Environment

Effects

- Potential impact to private property for access during construction and potentially long term
- Improved riverine flood protection for properties within the SPAs
- Potential impacts to local traffic during construction due to material hauling activities (e.g. Kingston Road West, Brock Road and Church Street South)
- Access to creek temporarily restricted during construction
- Potential impact to underground utilities due to construction
- Potential construction conflict of the Durham BRT

Mitigation Measures

- Further refinement of dyke rehabilitation design during detailed design stage to focus on reducing dyke footprint and construction access requirements
- A traffic management plan and communication strategy will be developed for construction
- Synergies with utilities upgrades to be explored during subsequent project design and planning stages. Coordinate with utilities on timing of upgrades
- Coordinate with other projects to reduce/avoid construction conflicts

Net Effects Socioeconomic Environment

- Minimized impacts to private properties
- Improved riverine flood protection for properties within the SPAs
- Minimized impacts to traffic in the Direct and Project Study Area during construction
- Temporary restrictions to pedestrian routes through Direct Study Area during construction

DETAILED ANALYSIS OF ENVIRONMENTAL EFFECTS

Engineering/Technical Environment

Effects

- Flood protection afforded by the dykes will be compromised / reduced during construction, as portions of the dyke are being rebuilt / rehabilitated
- Long term improvements to dyke stability, creek bank stability, and reduction of creek bank erosion
- Long term improvement to dyke access for maintenance
- No impact to SPA designation
- Improvements to extreme storm event flood conditions. Up to 100-year storm event is contained within valley (restricted by dykes)

Mitigation Measures

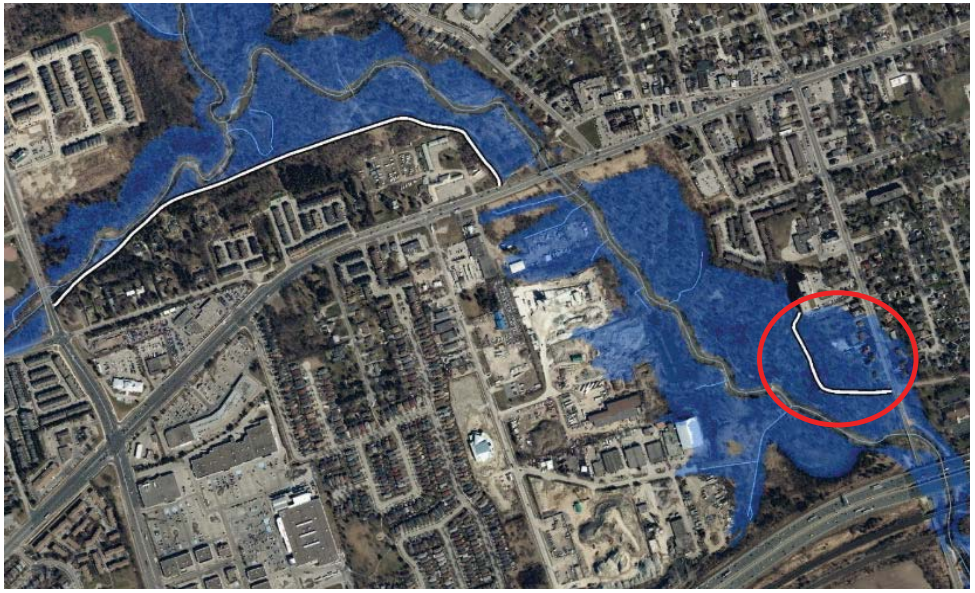
- Dyke construction works to be completed outside of spring freshet period during less flood prone seasons
- A risk management plan, to minimize risk and restore flood protection during construction in short notice, will be required from the contractor

Net Effects Engineering/Technical Environment

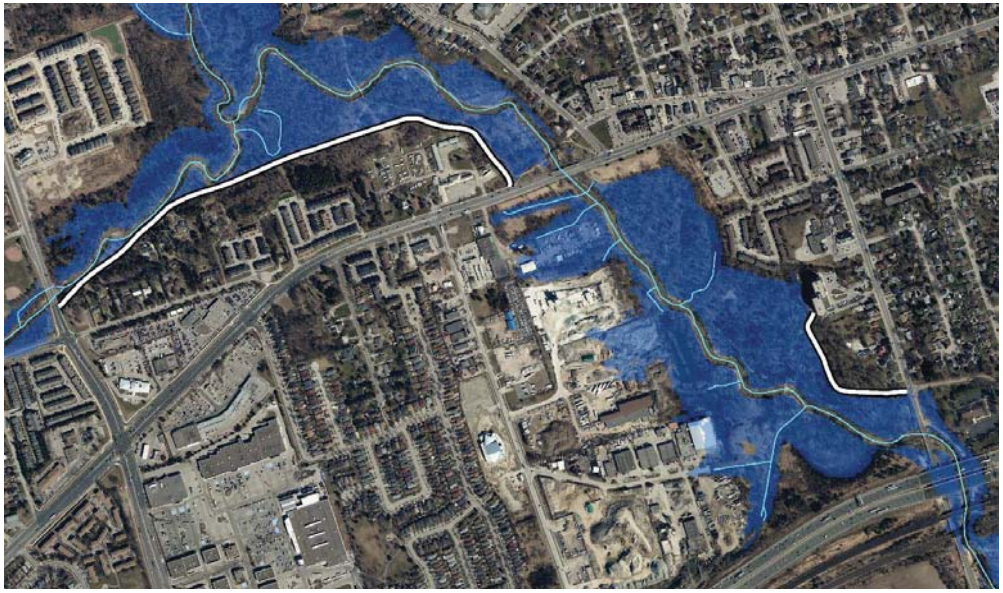
- Positive effects on long term flood protection, dyke and bank stability, and channel erosion
- Improved ability to maintain the flood protection infrastructure
- Minimized risk of flooding during construction. Risk expected to be similar or better than existing (due to current potential for dyke failure)

CHANGES TO FLOOD CONDITIONS

100 YEAR STORM EVENT



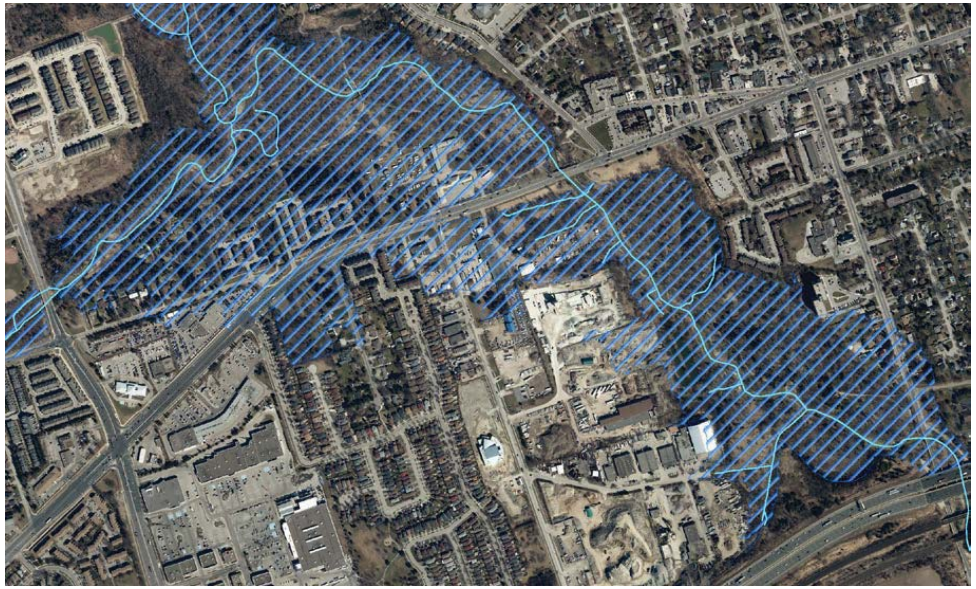
Extent of flooding with current dyke heights



Extent of flooding with proposed dykes

CHANGES TO FLOOD CONDITIONS

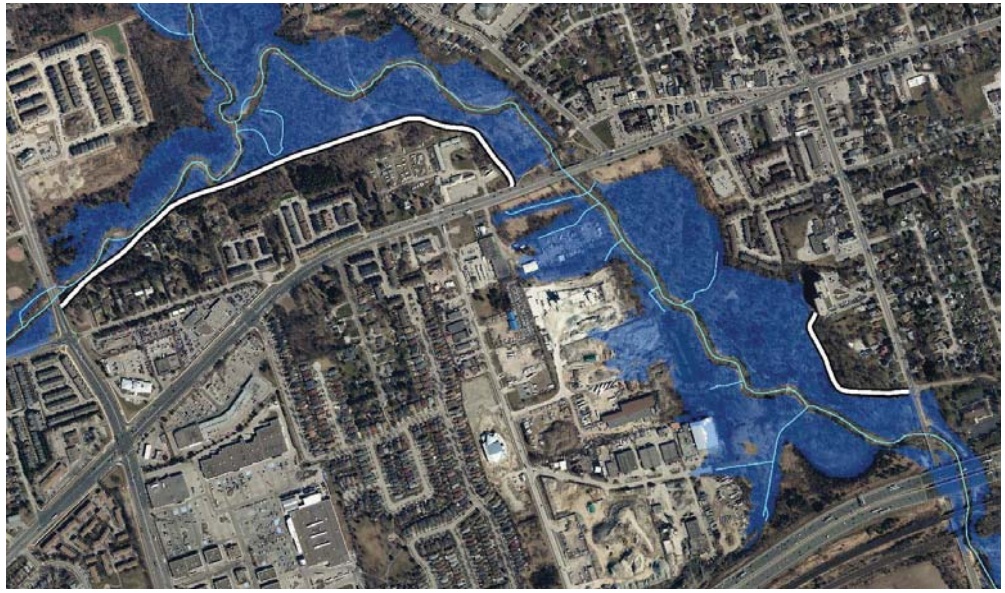
100 YEAR STORM EVENT



Potential extent of flooding without dykes (ie. a dyke failure)

Estimated average annual flood damages of $260,000 without dykes.*

Reference: TRCA Flood Risk Assessment and Ranking Project, IBI Group, October 2019.



Extent of flooding with proposed dykes

$13.1 million of estimated flood damages avoided over a 50 year period.*

*Note: The presented flood damage dollar values were later found to be erroneous and have been retracted.

NEXT STEPS

This next stage of the Environmental Assessment will include the following:

- On-going consultation with agencies, landowners, and other stakeholders
- Refinement of design concepts, evaluation and impacts assessment based on feedback received
- Confirmation of selection of the Preferred Design Concept
- Preparation of Environmental Monitoring Plan
- Completion of Environmental Study Report
- Project Filing with MECP

THANK YOU

We appreciate the time you have taken to learn more about the Pickering and Ajax Dykes Rehabilitation EA. Your input is important for the success of the EA process. Please provide your input.

Contact the Project Team:

Pickering and Ajax Dykes Rehabilitation
Project Coordinator

EMAIL: PADR@trca.ca

WEBSITE: www.trca.ca/PADR

PHONE: 416-661-6600 ext. 5948

Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan ON, L4K 5R6

HOW TO STAY CONNECTED:

- Send us your comments or questions. Email us at **PADR@trca.ca**

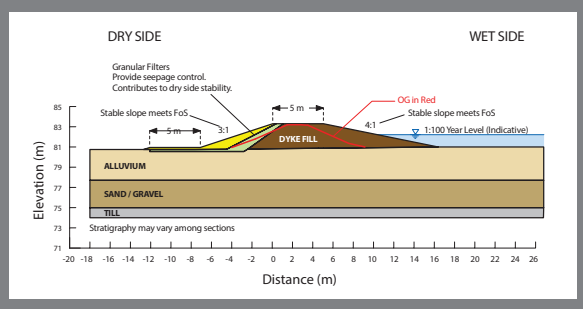
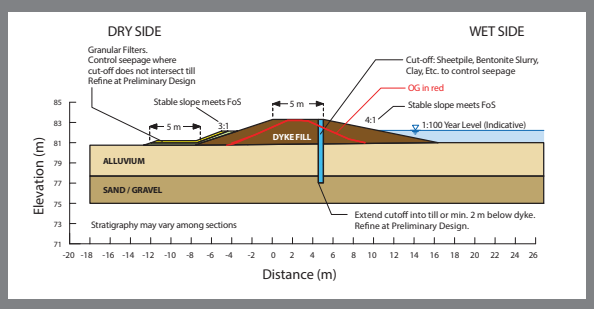
Thank you.

Melody Brown, P.Eng
TRCA
Fuad Curi, P.Eng
KGS Group

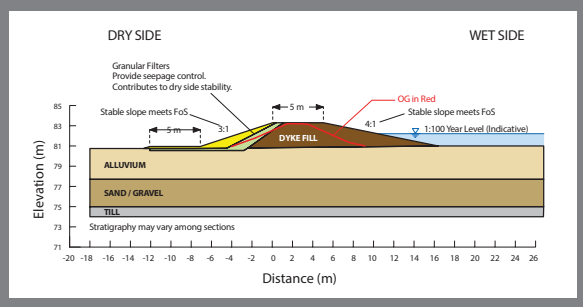
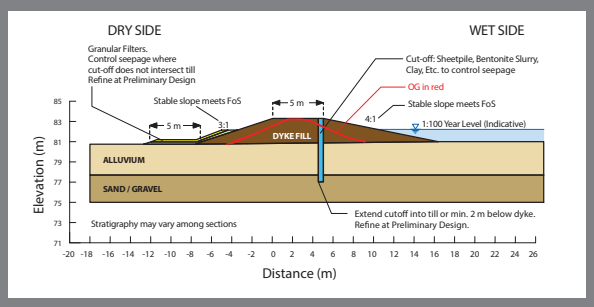
Display Boards

SUMMARY EVALUATION OF ALTERNATIVE DESIGN CONCEPTS

SEGMENT P2 – PICKERING DYKE

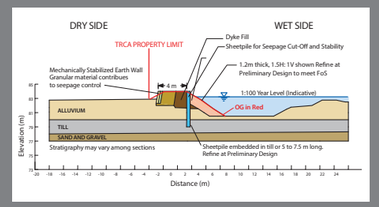
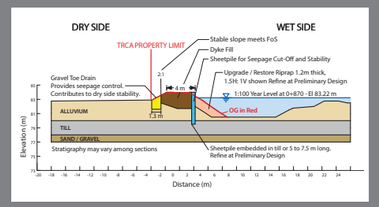
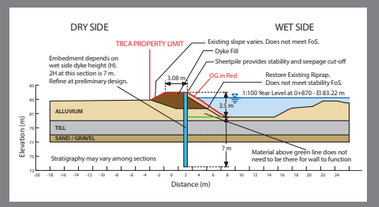
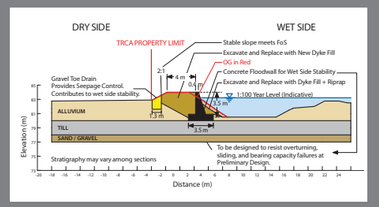
EVALUATION CRITERIA	**CONCEPT S1:** MODIFIED EMBANKMENTS + FILTER 	**CONCEPT S2:** MODIFIED EMBANKMENTS + SEEPAGE CUT-OFF + (where needed) FILTER 
SOCIAL ENVIRONMENT		
Removal or disturbance to private and public property not owned by TRCA	• No direct disturbance to private property • All components of this design are contained on TRCA property • Construction can be facilitated on TRCA and other public property	• No direct disturbance to private property • All components of this design are contained on TRCA property • Construction can be facilitated on TRCA and other public property
Effects on public recreational spaces	• Temporary removal of the TransCanada trail and municipal recreational trail during construction • Easier pedestrian access over dyke due to gentler side slopes • Opportunity to improve public realm / open space areas	• Temporary removal of the TransCanada trail and municipal recreational trail during construction • Easier pedestrian access over dyke due to gentler side slopes • Opportunity to improve public realm / open space areas
Disruption caused by construction activities	• Shortest construction duration • Typical temporary construction impacts (dust, noise, vibration, etc.)	• Longest construction duration • Typical temporary construction impacts (dust, noise, vibration, etc.), with potential for additional impacts if sheetpile is selected as preferred cut-off material
Effects to servicing, utilities and infrastructure	• Least impact to existing servicing and utilities • Pipes will remain covered during construction • Requires coordination with multiple utility owners	• Most impact to existing servicing and utilities due to interaction of seepage cut-off with pipes • Pipes will need to be exposed during construction • Requires coordination with multiple utility owners
Removal or disturbance of potential archaeological resources	• Largest excavation footprint • Highest chance of disturbing potential archaeological resources	• Smallest excavation footprint • Lowest chance of disturbing potential archaeological resources
Aesthetics	• High aesthetics value: natural appearance with native grasses	• High aesthetics value: natural appearance with native grasses
SUMMARY	MOST PREFERRED	MODERATELY PREFERRED
NATURAL ENVIRONMENT		
Removal, disturbance, or enhancement of terrestrial habitat	• Requires removal of trees • Moderate temporary disturbance during construction • Largest permanent disturbance, however only moderately larger than S2	• Requires removal of trees • Moderate temporary disturbance during construction • Smallest permanent disturbance, however only moderately smaller than S1
Removal, disturbance, or enhancement of aquatic habitat	• No permanent disturbance to aquatic habitat • Potential for temporary disturbance during installation of drainage pipe	• No permanent disturbance to aquatic habitat • Potential for temporary disturbance during installation of drainage pipe
SUMMARY	MODERATELY PREFERRED	MOST PREFERRED
TECHNICAL ENVIRONMENT		
Allowance for future enhancement to a higher level of flood protection	• Dyke can easily be built upon to raise / enhance in the future	• Dyke can be built upon to raise / enhance in the future • More complex to raise dyke as the seepage cut-off must also be raised
Construction complexity and constraints	• Typical earthworks construction practices, equipment and constraints • Low complexity	• Typical earthworks construction practices and equipment • Moderate complexity and additional constraints due to seepage cut-off
Service life	• Minimum 50 year design life, with regular maintenance	• Minimum 50 year design life, with regular maintenance
Maintenance requirements	• Typical, low complexity, maintenance works required on a regular basis (ie. mowing and culvert cleaning)	• Typical, low complexity, maintenance works required on a regular basis (ie. mowing and culvert cleaning)
SUMMARY	MOST PREFERRED	MODERATELY PREFERRED
COST		
Capital cost	• $ 3.0 Million	• 9.1 Million
Cost of flood damages	• Low maintenance cost • Largest area to mow, however only moderately larger than S2	• Low maintenance cost • Smaller area to mow, however only moderately smaller than S1
SUMMARY	MOST PREFERRED	LEAST PREFERRED
OVERALL	**MOST PREFERRED**	**LEAST PREFERRED**

SUMMARY EVALUATION OF ALTERNATIVE DESIGN CONCEPTS
SEGMENT A1 – AJAX DYKE

EVALUATION CRITERIA	**CONCEPT S1:** MODIFIED EMBANKMENTS + FILTER 	**CONCEPT S2:** MODIFIED EMBANKMENTS + SEEPAGE CUT-OFF + (where needed) FILTER 
SOCIAL ENVIRONMENT		
Removal or disturbance to private and public property not owned by TRCA	• A small portion of the dyke will be located on private lands • Potential temporary impacts to four properties for construction access • Both concepts have equivalent impacts	• A small portion of the dyke will be located on private lands • Potential temporary impacts to four properties for construction access • Both concepts have equivalent impacts
Effects on public recreational spaces	• Temporary removal of the TransCanada trail during construction • Easier pedestrian access over dyke due to gentler side slopes • Opportunity to improve public realm / open space areas	• Temporary removal of the TransCanada trail during construction • Easier pedestrian access over dyke due to gentler side slopes • Opportunity to improve public realm / open space area
Disruption caused by construction activities	• Shortest construction duration • Typical temporary construction impacts (dust, noise, vibration, etc.)	• Longest construction duration • Typical temporary construction impacts (dust, noise, vibration, etc.), with potential for additional impacts if sheetpile is selected as preferred cut-off material
Effects to servicing, utilities and infrastructure	• Least impact to existing servicing and utilities • Pipes will remain covered during construction • Requires coordination with multiple utility owners	• Most impact to existing servicing and utilities due to interaction of seepage cut-off with pipes • Pipes will need to be exposed during construction • Requires coordination with multiple utility owners
Removal or disturbance of potential archaeological resources	• Large excavation footprint into undisturbed soils • Chance of potentially disturbing archaeological resources	• Large excavation footprint into undisturbed soils • Chance of potentially disturbing archaeological resources
Aesthetics	• Natural appearance with native grasses	• Natural appearance with native grasses
SUMMARY	MOST PREFERRED	MODERATELY PREFERRED
NATURAL ENVIRONMENT		
Removal, disturbance, or enhancement of terrestrial habitat	• Requires removal of trees • Moderate temporary disturbance during construction • Large permanent disturbance (double the existing dyke footprint) • Both concepts have equivalent impacts	• Requires removal of trees • Moderate temporary disturbance during construction • Large permanent disturbance (double the existing dyke footprint) • Both concepts have equivalent impacts
Removal, disturbance, or enhancement of aquatic habitat	• No disturbance to aquatic habitat	• No disturbance to aquatic habitat
SUMMARY	MOST PREFERRED	MOST PREFERRED
TECHNICAL ENVIRONMENT		
Allowance for future enhancement to a higher level of flood protection	• Dyke can easily be built upon to raise / enhance in the future	• Dyke can be built upon to raise / enhance in the future • More complex to raise dyke as the seepage cut-off must also be raised
Construction complexity and constraints	• Typical earthworks construction practices, equipment and constraints • Low complexity	• Typical earthworks construction practices and equipment • Moderate complexity and additional constraints due to seepage cut-off
Service life	• Minimum 50 year design life, with regular maintenance	• Minimum 50 year design life, with regular maintenance
Maintenance requirements	• Typical, low complexity, maintenance works required on a regular basis (ie. mowing and culvert cleaning)	• Typical, low complexity, maintenance works required on a regular basis (ie. mowing and culvert cleaning)
SUMMARY	MOST PREFERRED	MODERATELY PREFERRED
COST		
Capital cost	• $ 2.6 Million	• $ 4.7 Million
Cost of flood damages	• Low maintenance cost • Largest area to mow	• Low maintenance cost • Large area to mow
SUMMARY	MOST PREFERRED	LEAST PREFERRED
OVERALL	**MOST PREFERRED**	**LEAST PREFERRED**

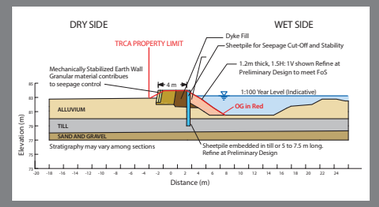
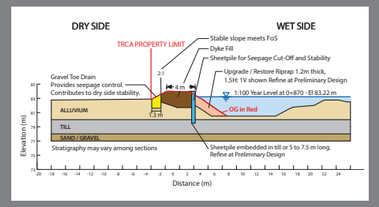
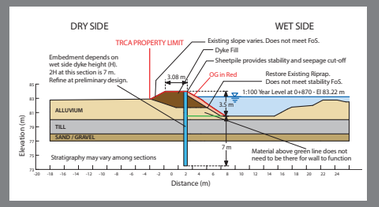
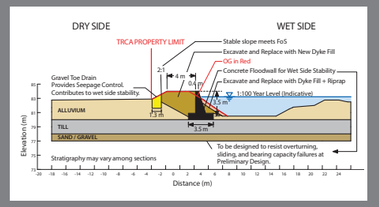
SUMMARY EVALUATION OF ALTERNATIVE DESIGN CONCEPTS

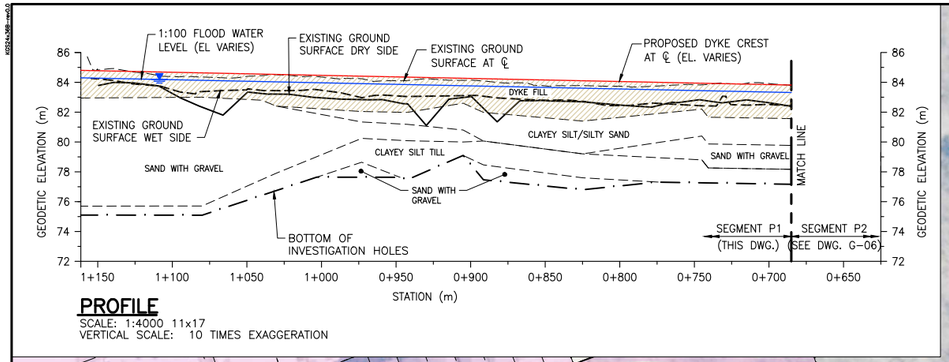
SEGMENT P1 – PICKERING DYKE

EVALUATION CRITERIA	CONCEPT H1: MSE WALL + SHEETPILE	CONCEPT H2: MODIFIED DRY-SIDE EMBANKMENT + SHEETPILE	CONCEPT H3: STRUCTURAL SHEETPILE IN EXISTING	CONCEPT H4: MODIFIED DRY-SIDE EMBANKMENT + CONCRETE WALL
				
NATURAL ENVIRONMENT				
Removal, disturbance or enhancement of terrestrial habitat	• Requires removal of trees • Moderate temporary disturbance during construction • Moderate permanent disturbance. Dyke footprint similar to existing	• Requires removal of trees • Moderate temporary disturbance during construction • Moderate permanent disturbance. Dyke footprint slightly larger than existing	• Requires removal of trees • Largest temporary disturbance during construction • Smallest permanent disturbance • Potential additional areas of disturbance should tie-backs be required	• Requires removal of trees • Large temporary disturbance during construction • Moderate permanent disturbance. Dyke footprint similar to existing
Removal, disturbance or enhancement of aquatic habitat	• Moderate disturbance to aquatic habitat due to installation of erosion controls • Significant temporary impact during construction if channel is used for access • Permanent reduction of instream erosion	• Moderate disturbance to aquatic habitat due to installation of erosion controls • Significant temporary impact during construction if channel is used for access • Permanent reduction of instream erosion	• Smallest disturbance to aquatic habitat as erosion controls are limited • Potential for large long-term impacts if channel bank erodes • Largest short-term disturbance should tie-backs be required	• Largest disturbance to aquatic habitat due to significant excavation • Permanent reduction of instream erosion, but with degraded habitat due to presence of concrete wall
SUMMARY	**MOST PREFERRED**	**MOST PREFERRED**	**LEAST PREFERRED**	**LEAST PREFERRED**
TECHNICAL ENVIRONMENT				
Allowance for future enhancement to a higher level of flood protection	• Moderate effort to raise / enhance the dyke in the future • Potential to raise MSE wall and extend sheetpile	• Least effort to raise / enhance the dyke in the future • Larger footprint required, which may require private properties	• Moderate effort to raise / enhance the dyke in the future • Potential increased maintenance needs and difficulty in maintenance	• Moderate effort to raise / enhance the dyke in the future • Larger footprint required, which may require private property
Construction complexity and constraints	• Moderate construction constraints and complexities • Additional construction complexities due to the installation of sheetpile and MSE wall using small equipment within limited space	• Least construction constraints and complexities • Additional construction complexities due to the installation of sheetpile using small equipment within limited space	• Significant construction constraints and complexities due to large construction equipment operating within limited space • Potential increase to construction constraints and complexity if tie-backs are required	• Significant construction constraints and complexities due to excavation and concrete work in close proximity to the creek
Service life	• Minimum 50 year design life, with regular maintenance and monitoring • Additional erosion mitigation measures may be required long-term	• Minimum 50 year design life, with regular maintenance and monitoring • Additional erosion mitigation measures may be required long-term	• Minimum 50 year design life, with regular maintenance and monitoring • Additional erosion mitigation measures may be required long-term	• Minimum 50 year design life, with regular maintenance and monitoring • Additional erosion mitigation measures may be required long-term
Maintenance requirements	• Typical, low complexity, maintenance works required on a regular basis (ie. mowing and culvert cleaning) • Potential, more complex, maintenance of MSE wall, fence / barrier and bank erosion protection	• Typical, low complexity, maintenance works required on a regular basis (ie. mowing and culvert cleaning) • Potential maintenance of bank erosion protection	• Typical, low complexity, maintenance works required on a regular basis (ie. mowing and culvert cleaning) • Potential maintenance of bank erosion protection and repair of damage from slope failures and tree failures	• Typical, low complexity, maintenance works required on a regular basis (ie. mowing and culvert cleaning) • Potential, complex, maintenance of concrete wall and bank erosion protection
SUMMARY	**MOST PREFERRED**	**MOST PREFERRED**	**MODERATELY PREFERRED**	**LEAST PREFERRED**
OVERALL	**MODERATELY PREFERRED**	**MOST PREFERRED**	**LEAST PREFERRED**	**LEAST PREFERRED**

SUMMARY EVALUATION OF ALTERNATIVE DESIGN CONCEPTS

SEGMENT P1 – PICKERING DYKE

EVALUATION CRITERIA	CONCEPT H1: MSE WALL + SHEETPILE	CONCEPT H2: MODIFIED DRY-SIDE EMBANKMENT + SHEETPILE	CONCEPT H3: STRUCTURAL SHEETPILE IN EXISTING	CONCEPT H4: MODIFIED DRY-SIDE EMBANKMENT + CONCRETE WALL
				
SOCIAL ENVIRONMENT				
Removal or disturbance to private and public property not owned by TRCA	• Smallest disturbance and impacts to private properties • Dyke and drainage swale contained on TRCA property • Temporary construction access could require up to 5m at the rear of private properties	• Moderate disturbance and impacts to private properties • Dyke contained on TRCA property while drainage swale could require up to 1.5m at the rear of private properties • Temporary construction access could require up to an additional 5m at the rear of private properties	• Largest disturbance and impacts to private properties • Dyke contained on TRCA property while drainage swale could require up to 1.5m at the rear of private properties • Temporary construction access could require up to 20m at the rear of private properties • Potential for additional impacts if tie-backs are required	• Moderate disturbance and impacts to private properties • Dyke contained on TRCA property while drainage swale could require up to 1.5m at the rear of private properties • Temporary construction access could require up to an additional 5m at the rear of private properties
Effects on public recreational spaces	• Largest temporary and long-term impacts • Municipal trail from Bluebird Cres to the dyke would be temporarily closed for use as construction access • Fence / barrier required along top of MSE wall per local building codes • Pedestrian access to cross dyke would be impeded by wall and fence • Opportunity to improve public realm at top of dyke	• Minor temporary impacts • Municipal trail from Bluebird Cres to the dyke would be temporarily closed for use as construction access • Dyke slope allows pedestrians to cross the dyke as existing • Opportunity to improve public realm	• Minor temporary impacts • Municipal trail from Bluebird Cres to the dyke would be temporarily closed for use as construction access • Dyke slope allows pedestrians to cross the dyke as existing • Less opportunity to improve public realm	• Minor temporary impacts • Municipal trail from Bluebird Cres to the dyke would be temporarily closed for use as construction access • Dyke slope allows pedestrians to cross the dyke as existing • Opportunity to improve public realm
Disruption caused by construction activities	• Moderate construction duration • Typical temporary construction impacts (dust, noise, vibration, etc.)	• Shortest construction duration • Typical temporary construction impacts (dust, noise, vibration, etc.)	• Moderate construction duration with potential for extended duration should the use of tie-backs be required • Significant temporary construction impacts due to larger equipment	• Longest construction duration • Significant temporary construction impacts due to significant excavation and concrete work
Effects to servicing, utilities and infrastructure	• No public utilities in the P1 segment • Potential private utilities can be accommodated during construction	• No public utilities in the P1 segment • Potential private utilities can be accommodated during construction	• No public utilities in the P1 segment • Potential private utilities can be accommodated during construction	• No public utilities in the P1 segment • Potential private utilities can be accommodated during construction
Removal or disturbance of potential archaeological resources	• Smallest excavation footprint • Smallest chance of disturbing potential archeological resources	• Small excavation footprint • Small chance of disturbing potential archeological resources	• Small excavation footprint • Small chance of disturbing potential archeological resources with increased potential should the use of tie-backs be required	• Largest excavation footprint • Largest chance of disturbing potential archeological resources
Aesthetics	• Low aesthetic value due to wall and fence • Natural appearance with native grasses on wet side	• High aesthetic value: natural appearance with native grasses	• Highest aesthetic value: natural appearance with native grasses, trees and shrubs	• Low aesthetic value: natural appearance with native grasses on dry side but with concrete wall on wet side
SUMMARY	**MODERATELY PREFERRED**	**MOST PREFERRED**	**LEAST PREFERRED**	**LEAST PREFERRED**
COST				
Capital cost	• $ 7.2 Million	• $ 7.0 Million	• $ 11.1 Million	• $ 10.6 Million
Operations and maintenance cost	• Low maintenance cost	• Low maintenance cost	• Moderate maintenance cost • Smallest area to mow (crest only) however, more effort and cost to repair regular nuisance failures	• Moderate maintenance cost with high complexity • Small area to mow however, significant long-term maintenance/repairs to concrete wall
SUMMARY	**MODERATELY PREFERRED**	**MOST PREFERRED**	**LEAST PREFERRED**	**LEAST PREFERRED**



PROFILE

SCALE: 1:4000 11x17
VERTICAL SCALE: 10 TIMES EXAGGERATION

KEY MAP

SEGMENT P1

SEGMENT P2

STA 0+685

CULVERT P3 (SEE NOTE 1)

CULVERT P4 (SEE NOTE 1)

CULVERT P5 (SEE NOTE 1)

CULVERT P6 (SEE NOTE 1)

PROPOSED DYKE

EXISTING DYKE

DUFFINS CREEK FLOW

DRAINAGE FLOW

PRIVATE PUMP DISCHARGE LINE (SEE NOTE 1)

TRAIL RAMP SLOPE (5%±)

STAGING AND LAYDOWN AREA

OUTLINE OF PROJECT FOOTPRINT

RIPRAP, TYP (SEE NOTE 6)

Section (typ)

CONSTRUCTION ACCESS

CONSTRUCTION ACCESS

CONSTRUCTION ACCESS

BROCK ROAD

FINCH AVE

KINGSTON ROAD

SOUTHVIEW DRIVE

0+450
0+500
0+550
0+600
0+650
0+700
0+750
0+800
0+850
0+900
0+950
1+000
1+050
1+100
1+150
1+165

25 0 25 50 75m
SCALE: 1:2000 METRIC (11"x17")

LEGEND:

- EXISTING CONTROL VALVE
- EXISTING SANITARY/STORM MANHOLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SS — EXISTING SANITARY/SEWER SERVICE
- STM — EXISTING STORM SEWER
- WM — EXISTING WATERMAIN/WATER SERVICE
- T — EXISTING TELEPHONE CABLE SERVICE
- PROPERTY LINE
- DRAINAGE SWALE
- TRAIL (SEE NOTE 3)
- NEW TRAIL
- PROJECT FOOTPRINT (SEE NOTE 5)
- CULVERT/DRAINAGE FEATURE
- EXISTING DYKE CENTRE LINE STATIONING
- PROPERTY NOT OWNED BY TRCA
- EXISTING DYKE FOOTPRINT
- PROPOSED DYKE FOOTPRINT
- PROPOSED RIPRAP ON DYKE WET SLOPE
- PROPOSED RIPRAP ON DYKE WET SLOPE DOWN TO CREEK BED
- PROPOSED ROCKFILL TRENCH
- EXISTING OVERLAND FLOW PATTERN

NOTES:

1. INSTALL NEW DOUBLE GATES AND EXTEND ALL EXISTING CULVERTS AND DISCHARGE PIPES.
2. ALL INTERNAL DRAINAGE TO BE DIRECTED TO DOUBLE GATED CULVERTS P1 TO P6.
3. TRAIL MAY REMAIN ALONG TOE OF DYKE OR BE RELOCATED TO CREST OF DYKE.
4. LOCATION AND DEPTH OF UTILITIES TO BE CONFIRMED AND UTILITIES TO BE PROTECTED DURING CONSTRUCTION.
5. PROJECT FOOTPRINT CORRESPONDS TO POTENTIAL DISTURBANCE FOOTPRINT.
6. RIP-RAP PLACED ON WET SIDE DYKE SLOPE ALONG SEGMENT P1, AS WELL AS IN ACCORDANCE WITH RESTORATION PLAN. RIP-RAP LOCATION TO BE REFINED DURING DESIGN.
7. DRAWINGS BASED ON LIDAR DATA AND SUPPLEMENTED WITH TOPOGRAPHIC GROUND SURVEY OF THE EXISTING DYKES AS PROVIDED BY TRCA.

NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
C	20/02/21	RE-ISSUED 30% COMPLETE REVIEW	CMR	BPA
B	20/01/31	ISSUED 30% COMPLETE REVIEW	CMR	BPA
A	19/12/23	ISSUED FOR INFORMATION	CMR	BPA

REVISIONS / ISSUE

CLIENT: Toronto and Region Conservation Authority

PROJECT: REMEDIAL FLOOD AND EROSION CONTROL CLASS EA FOR THE REHABILITATION OF THE PICKERING AND AJAX FLOOD CONTROL DYKES, ONTARIO

DWG. DESCRIPTION: PICKERING DYKE CONCEPTUAL RECONSTRUCTION SEGMENT P1 (H2) PLAN AND PROFILE

KGS GROUP

DESIGN BY:	CMR	DATE (YY/MM/DD):	19/12/02
DESIGN CHECK:		DATE:	
DRAWN BY:	TVW/ESm	DATE:	19/12/02
DWG CHECK:		DATE:	

DWG. NO. 19-2939-003 G-06 REV: C

Filename: R:\Projects\2019\19-2939-003\Dwg\Cad\Preliminary Design (30% Complete)\19-2939-003_G-06 - Tab:RevC Plotted By: pdelfner 20/02/21 [Fri 12:25pm]
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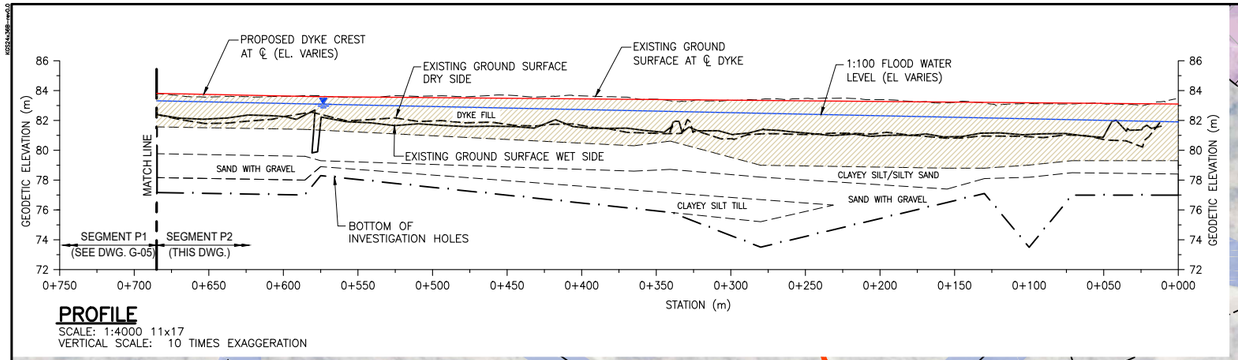
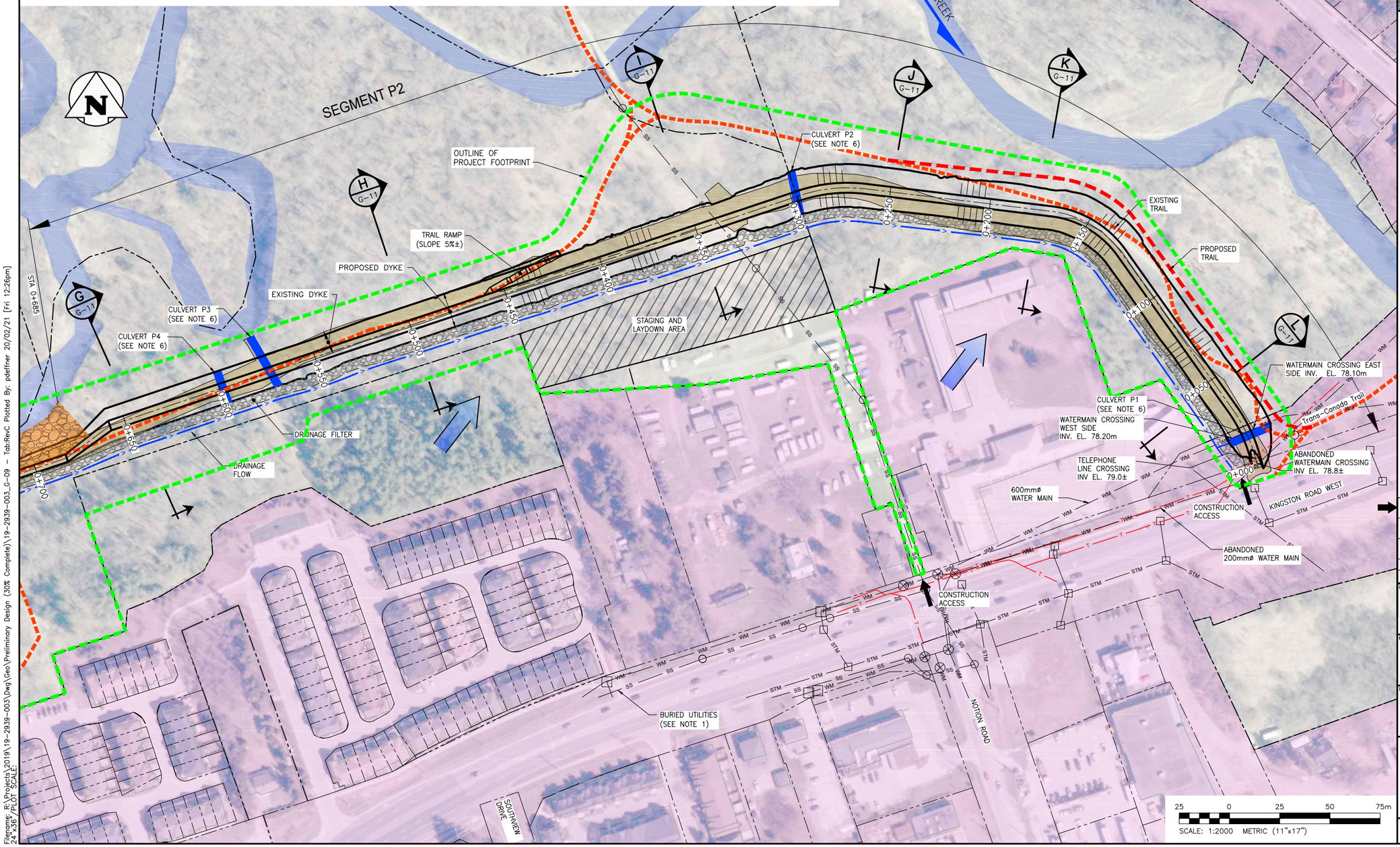


PROFILE

SCALE: 1:4000 11x17
VERTICAL SCALE: 10 TIMES EXAGGERATION



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SCALE: 1:2000 METRIC (11"x17")

KEY MAP

LEGEND:

- EXISTING CONTROL VALVE
- EXISTING SANITARY/STORM MANHOLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- SS — EXISTING SANITARY/SEWER SERVICE
- STM — EXISTING STORM SEWER
- WM — EXISTING WATERMAIN/WATER SERVICE
- T — EXISTING TELEPHONE CABLE SERVICE
- PROPERTY LINE
- DRAINAGE SWALE
- TRAIL (SEE NOTE 5)
- NEW TRAIL
- PROJECT FOOTPRINT (SEE NOTE 3)
- CULVERT/DRAINAGE FEATURE
- EXISTING DYKE CENTRE LINE STATIONING
- PROPERTY NOT OWNED BY TRCA
- EXISTING DYKE FOOTPRINT
- PROPOSED DYKE FOOTPRINT
- PROPOSED RIPRAP ON DYKE WET SLOPE DOWN TO CREEK BED
- EXISTING OVRERLAND FLOW PATTERN

NOTES:

1. LOCATION AND DEPTH OF UTILITIES TO BE CONFIRMED AND UTILITIES TO BE PROTECTED DURING CONSTRUCTION.
2. BASED ON 1:100 YEAR DESIGN EVENT PLUS 0.5m FREEBOARD.
3. PROJECT FOOTPRINT CORRESPONDS TO POTENTIAL DISTURBANCE FOOTPRINT.
4. DRAWINGS BASED ON LIDAR DATA AND SUPPLEMENTED WITH TOPOGRAPHIC GROUND SURVEY OF THE EXISTING DYKES AS PROVIDED BY TRCA.
5. TRAIL MAY REMAIN ALONG TOE OF DYKE OR BE RELOCATED TO CREST OF DYKE.
6. INSTALL NEW DOUBLE GATES AND EXTEND ALL EXISTING CULVERTS AND DISCHARGE PIPES.

NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
C	20/02/21	RE-ISSUED 30% COMPLETE REVIEW	CMR	BPA
B	20/01/31	ISSUED 30% COMPLETE REVIEW	CMR	BPA
A	19/12/23	ISSUED FOR INFORMATION	CMR	BPA

REVISIONS / ISSUE

CLIENT: Toronto and Region Conservation Authority

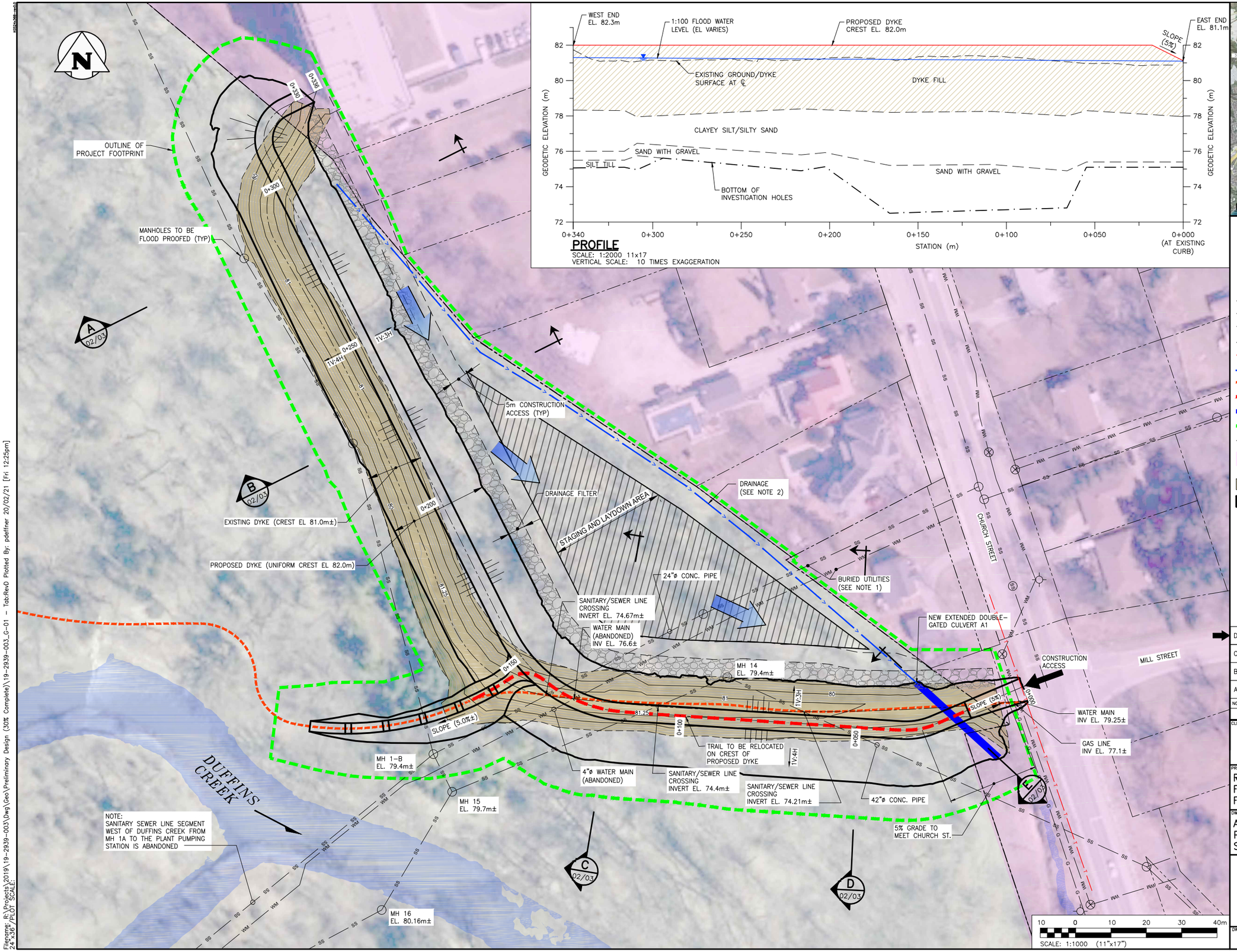
PROJECT: REMEDIAL FLOOD AND EROSION CONTROL CLASS EA FOR THE REHABILITATION OF THE PICKERING AND AJAX FLOOD CONTROL DYKES, ONTARIO

DWG. DESCRIPTION: PICKERING DYKE CONCEPTUAL RECONSTRUCTION SEGMENT P2 (S1) PLAN AND PROFILE

KGS GROUP

DESIGN BY:	DATE (YY/MM/DD):
CMR	19/12/02
DESIGN CHECK:	DATE:
DRAWN BY:	DATE:
TVW	19/12/02
DWG CHECK:	DATE:

DWG. NO. 19-2939-003 G-09 REV: C



PROFILE
SCALE: 1:2000 11x17
VERTICAL SCALE: 10 TIMES EXAGGERATION

KEY MAP

LEGEND:

- EXISTING CONTROL VALVE
- EXISTING SANITARY/STORM MANHOLE
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- EXISTING SANITARY/SEWER SERVICE
- EXISTING WATERMAIN/WATER SERVICE
- EXISTING GAS SERVICE
- PROPERTY LINE
- EXISTING TELEPHONE CABLE SERVICE
- DRAINAGE SWALE
- EXISTING TRAIL
- NEW TRAIL
- CULVERT/DRAINAGE FEATURE
- PROJECT FOOTPRINT (SEE NOTE 4)
- DYKE CENTRE LINE STATIONING
- PROPERTY NOT OWNED BY TRCA
- EXISTING DYKE FOOTPRINT
- PROPOSED DYKE FOOTPRINT
- EXISTING OVERLAND FLOW PATTERN

NOTES:

1. LOCATION AND DEPTH OF UTILITIES TO BE CONFIRMED AND PROTECTED DURING CONSTRUCTION.
2. ALL INTERNAL DRAINAGE TO BE DIRECTED TO DOUBLE GATED CULVERT A1.
3. DRAWINGS BASED ON LIDAR DATA AND SUPPLEMENTED WITH TOPOGRAPHIC GROUND SURVEY OF THE EXISTING DYKES AS PROVIDED BY TRCA.
4. PROJECT FOOTPRINT CORRESPONDS TO POTENTIAL DISTURBANCE FOOTPRINT.

NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
D	20/02/21	RE-ISSUED 30% COMPLETE REVIEW	CMR	BPA
C	20/01/31	ISSUED 30% COMPLETE REVIEW	CMR	BPA
B	19/12/19	RE-ISSUED FOR INFORMATION	CMR	BPA
A	19/12/10	ISSUED FOR INFORMATION	CMR	BPA

REVISIONS / ISSUE

CLIENT: Toronto and Region Conservation Authority

PROJECT: REMEDIAL FLOOD AND EROSION CONTROL CLASS EA FOR THE REHABILITATION OF THE PICKERING AND AJAX FLOOD CONTROL DYKES, ONTARIO

DWG. DESCRIPTION: AJAX DYKE CONCEPTUAL RECONSTRUCTION PLAN AND PROFILE – SEGMENT A1 SOFT SOLUTION (S1) AND (S2)

KGS GROUP

DESIGN BY:	CMR	DATE (YY/MM/DD):	19/12/02
DESIGN CHECK:		DATE:	
DRAWN BY:	TVW/ESm	DATE:	19/12/02
DWG CHECK:		DATE:	

DWG. NO. 19-2939-003 G-01 REV: D

Filename: R:\Projects\2019\19-2939-003\Dwg\Geo\Preliminary Design (30% Complete)\19-2939-003_G-01 - Tab:Rev0 Plotted By: pdefiner 20/02/21 [Fri 12:25pm]
24"x36"/PLOT SCALE:

3.0

CLC Meeting #3

Completed Comment Forms

[redacted]

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

1. Do you have any comments on the evaluation of the design concepts?

2. Do you have any comments on the recommended design concepts?

I agree with the recommended solution for Ajax dyke

3. Do you have any comments on the mitigation of potential project impacts?

4. Before coming to this meeting, my questions and concerns regarding this proposed dyke rehabilitation project were:

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

5. After this meeting, are there any questions or concerns that have not been addressed?

Will there be sufficient funding in the budget to continue to maintain the dykes when rebuilt?

6. Do you have any additional thoughts or comments?

How long will it take to get the funding to do any improvement to the Ajax dyke? What improvements will be done before funding is approved?

Please leave your completed feedback form at the door on the way out.

If later you have more feedback, please contact TRCA no later than Friday March 13, 2020.

Attention: Crystal Robertson, Project Coordinator
Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan, ON L4K 5R6
Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

[redacted]

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

5. After this meeting, are there any questions or concerns that have not been addressed?

Seneca construction will happen for approx. 4yrs. Can TRCA dump more boulders on the bank near our home? Boulders dumped about 16 yrs. ago are still mostly in place.

6. Do you have any additional thoughts or comments?

I'm not sure why a ditch is required on the south side of the dyke reconstruction — there is no water build up there now.

Currently I'm also not aware of major erosion on the bank

Please leave your completed feedback form at the door on the way out.

If later you have more feedback, please contact TRCA no later than Friday March 13, 2020.

Attention: Crystal Robertson, Project Coordinator
Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan, ON L4K 5R6
Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

[redacted]

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

1. Do you have any comments on the evaluation of the design concepts?

2. Do you have any comments on the recommended design concepts?

3. Do you have any comments on the mitigation of potential project impacts?

4. Before coming to this meeting, my questions and concerns regarding this proposed dyke rehabilitation project were:

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

1. Do you have any comments on the evaluation of the design concepts?

2. Do you have any comments on the recommended design concepts?

I support the choice

3. Do you have any comments on the mitigation of potential project impacts?

It is encouraging to know how much thought has been given

4. Before coming to this meeting, my questions and concerns regarding this proposed dyke rehabilitation project were:

answered in our one-on-one session

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

5. After this meeting, are there any questions or concerns that have not been addressed?

No

6. Do you have any additional thoughts or comments?

A very big Thank you. I would like interested in attending one more meeting please.

Please leave your completed feedback form at the door on the way out.

If later you have more feedback, please contact TRCA no later than Friday March 13, 2020.

Attention: Crystal Robertson, Project Coordinator
Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan, ON L4K 5R6
Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

1. Do you have any comments on the evaluation of the design concepts?

DESIGN LOOKS GREAT. WE SUPPORT YOU 100%

2. Do you have any comments on the recommended design concepts?

TRAFFIC CONTROL (SPEED) + DUST CONTROL MEASURES SHOULD BE PUT IN PLACE.

3. Do you have any comments on the mitigation of potential project impacts?

4. Before coming to this meeting, my questions and concerns regarding this proposed dyke rehabilitation project were:

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

5. After this meeting, are there any questions or concerns that have not been addressed?

6. Do you have any additional thoughts or comments?

Please leave your completed feedback form at the door on the way out.

If later you have more feedback, please contact TRCA no later than Friday March 13, 2020.

Attention: Crystal Robertson, Project Coordinator
Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan, ON L4K 5R6
Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

1. Do you have any comments on the evaluation of the design concepts?

Pleased to see that future growth put into Preferred Solution

2. Do you have any comments on the recommended design concepts?

I would not presume to question your professional opinions regarding the dyke

3. Do you have any comments on the mitigation of potential project impacts?

NO

4. Before coming to this meeting, my questions and concerns regarding this proposed dyke rehabilitation project were:

Which option was preferred & that question was answered.

COMMUNITY LIAISON COMMITTEE #3

Feedback – March 10, 2020

5. After this meeting, are there any questions or concerns that have not been addressed?

Time Frame? for Implementation

6. Do you have any additional thoughts or comments?

Needs to be done, the sooner the better, any proposed dates?

Please leave your completed feedback form at the door on the way out.

If later you have more feedback, please contact TRCA no later than Friday March 13, 2020.

Attention: Crystal Robertson, Project Coordinator
Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan, ON L4K 5R6
Email: PADR@trca.ca
Phone: 416-661-6600 ext. 5948
Website: trca.ca/PADR

CLC

Meeting #4 Minutes

PICKERING AND AJAX DYKES REHABILITATION CLASS EA CLC MEETING # 4 MINUTES

PROJECT DESCRIPTION: Conservation Ontario Class EA Rehabilitation of the Pickering and Ajax Flood Control Dykes

FILE NO: 19-2939-003

PREPARED BY: Fuad Curi

DATE: August 6, 2020

MEETING DATE: August 5, 2020

LOCATION: 'Virtual' meeting using the platform GoToMeeting supporting both web-based videoconference and telephone based teleconference

ATTENDEES:

Project Management Team (PMT) – attended via videoconference

Melody Brown, Project Manager, Capital Projects (TRCA)
Nick Lorrain, Senior Manager, Capital Projects (TRCA)
Crystal Robertson, Project Coordinator (TRCA)
Fuad Curi, Water Resources Department Head (KGS)

Community Liaison Committee – attended via video conference and teleconference

[redacted]

ISSUED: ALL PRESENT AND ALL REGRETS FROM CLC COMMITTEE

PURPOSE: PADR EA Community Liaison Committee (CLC) Meeting # 4
Review of the draft Environmental Study Report (ESR)

Agenda:

This meeting was arranged as a session to respond to questions from the CLC, after their review of the project's Draft Report: *Conservation Ontario Class Environmental Assessment for the Rehabilitation of the Pickering and Ajax Flood Control Dykes*.

The report had been provided to CLC members for their review on Friday July 17, 2020.

ITEM	DETAILS	ACTION BY:
1.00	**Introductory Remarks**	
1.01	Welcoming words and greetings from the participants in the meeting. TRCA indicated that this is the last meeting planned in the project for the CLC. It is intended to address questions regarding the EA draft report and any other questions from the CLC. However, the project team will continue to be available for questions until the end of the project. After then, TRCA's general contact lines will continue to be open to the community. TRCA explained that after the review of the draft report by the CLC in this meeting, the report will be formally published in the coming weeks for an official 60-day public review period (referred to as "filing of the ESR"). A *Notice of Filing Document for Review* will be published in the local newspaper to inform the public of this opportunity. At the end of that review period, pending that *Part 2 Review Requests* are not received, the project will be considered approved and completed. The completion of the EA is a critical step to allow proceeding towards the implementation of the flood protection rehabilitation. TRCA also indicated that they will directly contact some members of the CLC that have posted questions after reviewing the EA draft report; but could not attend this meeting. This correspondence is appended to these minutes.	
2.00	**Questions and Answers**	
2.01	A CLC member asked how long the process will take to achieve final implementation of the flood protection rehabilitation, considering potential delays due to the COVID 19 pandemic response measures. The CLC member expressed concern with the present conditions, given the high water levels recently experienced in the West Duffins/Duffins Creek (January 2020), which threatened to overtop the dykes. The PMT explained that the work for this project has continued during the pandemic and that the schedule for the EA has not been significantly affected. TRCA's leadership has also continued to promote projects like this with the various levels of government that will eventually contribute to its funding (Provincial, Federal, Municipal). While recognizing the uncertainties of the current times, TRCA believes that the work done will position the rehabilitation of the Pickering and Ajax Dykes favorably for any potential future stimulus package that could be available, in response to the economic effects of the pandemic.	
2.02	A CLC member asked if they would have access to the contractor's plan for managing flooding risk during construction, and who will be responsible for application of that plan. The PMT explained that this plan, among other construction	

ITEM	DETAILS	ACTION BY:
	management plans, will be submitted by the selected contractor before work on the site is approved. TRCA will review and eventually approve the plan prior to construction work starting. TRCA will then inform residents of the contents of the plan and of what can they expect during construction. The responsibility of implementing the plan will lie on the contractor (which also would intend to protect its own assets on site from flooding); but also on TRCA as the land owner. There will be oversight of the plan and other construction activities. TRCA, as an organization, has the capabilities to ensure that the risk of flooding during construction is mitigated as effectively as possible, including through their flood monitoring and warning program.	
2.03	A CLC member asked how they can support the project and support funding applications. The PMT thanks the CLC for their support. The PMT indicated that at this time members of the CLC can help support the project by sharing their knowledge and promoting the project within the community. If in the future there comes an opportunity to have the CLC member assist with supporting funding applications, or the project otherwise, the PMT will reach out to them.	
2.04	A CLC member indicated concerns with the vegetated rock bank proposed as part of the preferred solution for the west portion of the Pickering Dyke (i.e. Dyke Segment P1), as the bumpy rock surface would be an impediment to safe pedestrian access to the creek across the dyke. The PMT indicated that a vegetated rock buttress is proposed along the wet slope of the preferred solution for Dyke Segment P1. This rock buttress will provide protection to the dyke against ongoing and potential future bank erosion. The EA Draft Report, indicates that in some areas within Dyke Segment P1, where the dyke is relatively far from the creek and the risk of bank erosion is reduced, the wet side slope could be made of earthfill material (instead of the rock buttress) and be placed at a more gradual slope. The extent of the rock buttress and its transition to earthfill are to be addressed in the subsequent detailed design of the dyke rehabilitation. Having said that, a- the language in the EA report and the notes in the report drawings can be adjusted to further promote ease of pedestrian access, especially within the P1 Segment where gradual slopes will not always be feasible. This would be in line with the considerations made through the EA process, which included the pedestrian access across the dykes as a positive aspect of the preferred solution. b- It is also possible to have the rock buttress buried under a smoother earthen slope, where applicable, so that the solution allows for both pedestrian access and bank erosion protection.	PMT (TRCA/KGS)

ITEM	DETAILS	ACTION BY:
	These two recommendations will be incorporated into the draft report and drawings. The CLC member asked TRCA if they have consulted with their legal department and confirmed deeded access to the creek for residents. TRCA indicated that consultation with the legal department, on that aspect, has not yet been made; instead, as part of the EA, pedestrian access to the creek, across the dyke, was included as an important consideration, and was factored in the selection of the preferred solution for the dyke rehabilitation.	
2.05	CLC members commented that making the dyke even higher than proposed would be better, in their view. The PMT indicated that, as explained in previous meetings, for larger events than those already targeted for flood protection, flooding could circumvent the dykes from other low areas that are not currently protected, and therefore the areas adjacent to the dykes could be flooded even if the dykes are not overtopped. (As a further note to CLC members, as also explained before, the dykes will be designed so that they can be raised in the future, once other low areas are protected)	
3.00	**Closing remarks**	
3.01	The CLC thanked the PMT for the work done through the EA project. The PMT also thanked the CLC for their interest in the project, their time and commitment to attending the CLC meetings and for their valuable input and contributions. The PMT reiterated the communication channels that will be available after this meeting, as indicated in Item 1.01. TRCA also indicated that meetings with each owner adjacent to the dyke will be carried out at the time of the detailed design phase (following the EA completion), to discuss more precise details of the proposed design.	

I believe that these minutes accurately reflect the discussion held in the meeting. Please advise the undersigned if there are errors or omissions.

Prepared by:

Fuad Curi
Project Manager
FGC/kj

[redacted]

From: Pickering Ajax Dyke Rehabilitation <PADR@trca.ca>
Sent: August 7, 2020 6:13 PM
To: [redacted]
Cc: Pickering Ajax Dyke Rehabilitation
Subject: RE: Pickering and Ajax Dyke Rehabilitation EA - Draft ESR for CLC Review

Hi [redacted],

I returned your request for a phone call on Tuesday and left you a voicemail with my phone number if you wanted to call me back. Since you are were unable to attend Wednesday night's meeting I have provided a response to all of your questions below (in blue text). I havd also copied your questions fom your other two emails into this email for simplicity. In my responses I have also provided report page or section references of where you can find these details in the ESR report.

Please feel free to share this email and these responses with others in the community who may have the same questions.

If you would like to have a phone call with me to discuss the project please let me know what date and time works for you (I am generally available between 8:30am-4:30pm) and we can schedule something.

Kind regards,

Melody Brown, P.Eng.
Project Manager, Capital Projects
Engineering Services | Development and Engineering Services

[redacted]

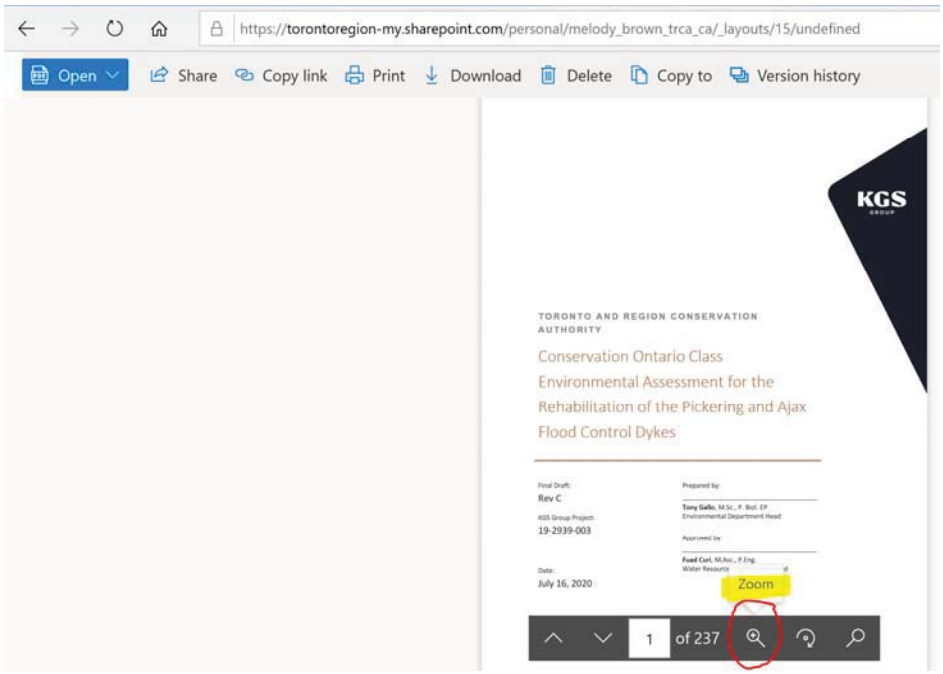
Toronto and Region Conservation Authority

From: [redacted]
Sent: Thursday, July 30, 2020 8:25 PM
To: [redacted]
Subject: Re: Pickering and Ajax Dyke Rehabilitation EA - Draft ESR for CLC Review

Hi All: I finally had a chance to look at this & hope I'm not the only lay person a little over whelmed by this document.

It is not easy to peruse as the print is very small & the graphics hard to decipher.

When viewing the pdf in a web browser you should be able to zoom into the page to make the text and images larger. Depending on the pdf viewer software you have on your device the same may be true if you download the pdf.



If someone in the group who does this for a living could give a brief synopsis of what's been decided it would be much appreciated - or at least indicate where answers can be found in these 237 + pages.

What we presented and discussed with you and your family during our one-on-one meeting on March 5th is still what is being proposed under this project. The report reflects the design we discussed with you then. If you would still like a summary, please refer to the display boards and presentation given at the last PIC meeting. They are available on the project website at www.trca.ca/padr

When some members of TRCA met with us end of Feb. we were assured the natural look would be retained as much as possible.

What we presented and discussed with you and your family during our one-on-one meeting on March 5th is still what is being proposed under this project.

I/we am wondering just how much higher is the projection for the berm?

Please refer to Appendix I, Drawing G-08, [redacted] We showed you this drawing during our March 5th meeting. The thin black line is the existing dyke the thick black line is the proposed dyke. The increase in height of the dyke varies along the length of the dyke. Behind your property it's proposed to increase the height by about 20cm.

How much wider than the current width?

Same as the previous question, please refer to Appendix I, Drawing G-08, Section D[redacted]. Again the increase in width varies along the dyke. Behind your property the top of the dyke is proposed to be about 1m wider. The base of the dyke is proposed to be

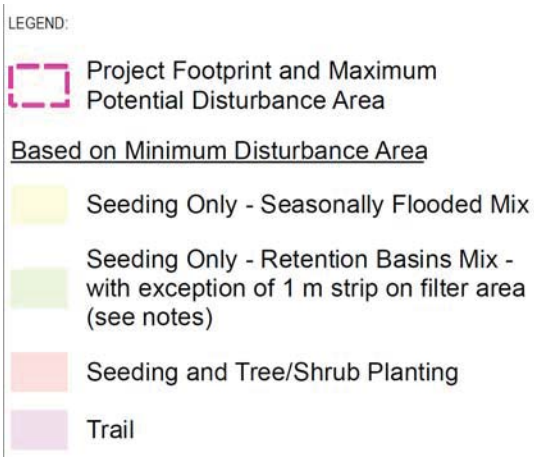
about 1.2 m wider on the south side and a drainage swale (small ditch) will be added beside the south end of the dyke. The increase in width will be confirmed during detailed design and the size of this drainage swale will be determined during the detailed design.

How much of the corrugated metal will be visible?

Please refer to Appendix I, Drawing G-08. The corrugated metal will be buried within the dyke and under normal circumstances would not be visible from the adjacent backyards. However, on the north face of the dyke, a small portion of the metal could be visible from the creek, in areas where the rock protection cannot go up all the way to the crest of the dyke (due to grading limitations). This exposure of a small portion of metal near the top of the north dyke bank allows us to have a wider dyke crest without moving the dyke more towards the private properties. Based on the current concept design, the amount of metal that might be exposed ranges from zero (no visibility) up to approximately 0.5 m. Even where there is metal exposed it will not be sticking up out of the ground in a way that someone might trip on it.

How many trees on the south side will be destroyed - I understand everything on the immediate north of the berm will be a write off due to construction.

Trees cause damage to the dyke and therefore it is not desired to have any trees growing on the dyke. Once the dyke is repaired, mowing will be undertaken to ensure no trees become established on the dyke. Appendix I, drawings R-01, R-02 and R-03 show the areas that may be disturbed by construction activities, and therefore all trees in this area will possibly be removed, depending on what is required to complete the construction. The pink dashed line in drawings R-01, R-02 and R-03 shows the maximum disturbance area. The coloured-in areas (see screen-capture below) show the anticipated minimum disturbance area. Every effort will be taken to minimize the removal of trees in the disturbance area and all trees that do have to be removed will be ecologically compensated for by planting new trees on site and in surrounding areas.



How steep will the slope be on the south side & how far will it impede our properties?

Please refer to Appendix I, Drawing G-08, [redacted] The slope on the south side behind your property is proposed to have a 2:1 slope. This means that for every 1m in height there will be 2m in width. The proposed 2:1 slope is very similar to the existing slope behind your property. The bottom edge of the dyke (referred to as the toe) will likely not extent into your property but the drainage swale may. The size of the drainage swale (depth and width) depend on a number of factors and will be sized during the Detailed Design Phase after this EA project.

What is the anticipated time line for this project?

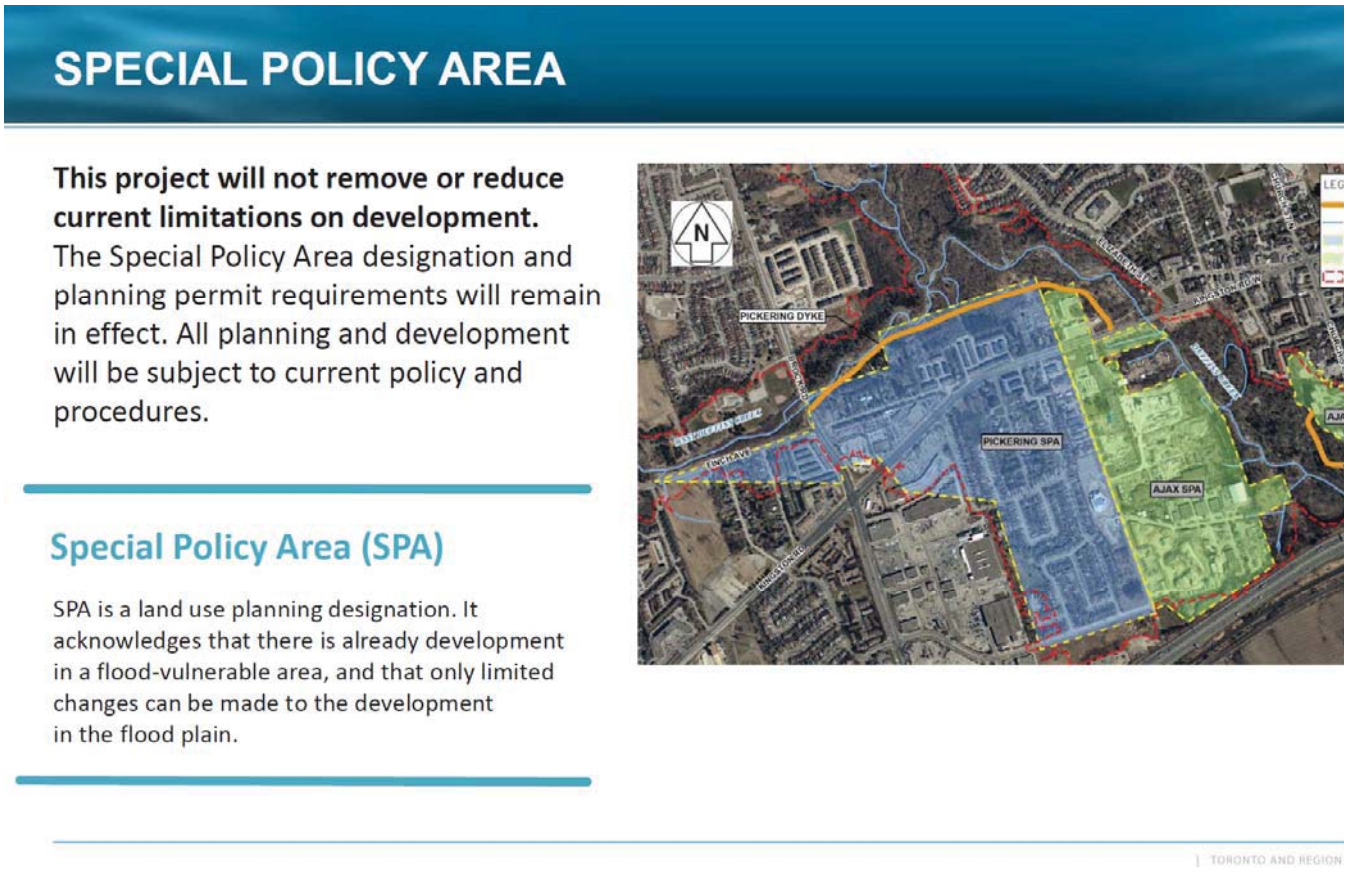
The timeline was discussed during the third CLC meeting and is recorded in those meeting minutes (included in Appendix J Part 1 of the report). Under an ideal scenario the timeline is:

- Class EA completion/approval: Fall 2020
- Secure multi-agency funding for detailed design: end of 2020
- Complete detailed design and secure multi-agency funding for construction: end of 2021
- Dyke rehabilitation construction: likely to be done in phases over multiple years between 2022 - 2023/2024

This is the best case scenario for the timeline, assuming permits are issued from other agencies in a timely fashion and that there are no unexpected findings during detailed design as further investigation work will be completed during detailed design (such as more soil testing pits/boreholes and the Stage 2 Archeological Assessment).

Is this entire venture to allow for building density to be increased?

No. Building density is controlled by planning and development policies. This neighborhood is designated as a Special Policy Area meaning there are unique policies around what can be built in this neighborhood since it is within a floodplain. We have communicated at every meeting that this project has no effect on the Special Policy Area (SPA) policies. This venture is being undertaken to achieve a state-of-good-repair of existing flood infrastructure to ensure the infrastructure provides reliable flood protection for the community. Refer to sections 1.2 and 1.4.1 of the report for the rationale of undertaking this project and the objectives. Refer to section 2.1 of the report for discussion of the Special Policy Area. This question regarding development was discussed during the first and second CLC meetings and is recorded in the meeting minutes included Appendix J Part I of the report. It was also included in the presentation slides at the first and second CLC meeting and Public Information Centers (a copy of which are in Appendix J of the report).



Decisions made regarding this berm do not just affect us, but future generations as well. The recent increased foot traffic due to COVID made it clearer than ever that this space is a jewel in Pickering & must be protected as much as possible for future generations - a natural habitiat.

Noted.

I am also very concerned about the proposal for a twenty (20!!) story highrise in the north east corner property just east of the bridge and would very much like to know TRCA's thoughts about this.

Any new development applications would have to meet TRCA regulatory requirements, including flood proofing, in order to obtain a permit from TRCA. Land development applications is outside of the scope of this EA project. Please reach out to the City/Town planning department for information related to applications in the area.

Further to the concerns I listed last week, please note the attached photo. I am wondering just how much of this view will still be there after the work on the berm commences? It would be quite awful to be looking at a fence only.

I cannot evaluate the photo. During our one-on-one meeting with you on March 5th we walked around your backyard and discussed what the possible impacts would be specific to your property. During this meeting we also committed to having a meeting with you, and all adjacent landowners, during the detailed design phase (after the completion of the EA project) to discuss the details of what is being proposed, including specific tree removals. We also offered to plant new trees within your property during construction if you desire, which can be decided upon during the detailed design phase. TRCA will reach out to adjacent landowners during the detailed design phase to arrange these meetings. This commitment is documented in the report in Appendix J Part 2 in the Individual Landowner Meetings, Summary of Consultation, March 2020.

Please feel free to share this email and these responses with others in the community who may have the same questions.

I/we would very much appreciate a response.

Thank you & have a great long weekend.

Regards,

[redacted]

[redacted]

[redacted]

[redacted]

---------- Original Message ----------
From: Pickering Ajax Dyke Rehabilitation <PADR@trca.ca>
Date: July 17, 2020 at 11:05 AM

Good Morning CLC Members,

The draft Environmental Study Report for the Pickering and Ajax Dykes Rehabilitation EA is now available for your review. The report and its appendices can be viewed and downloaded here:

https://torontoregion-my.sharepoint.com/:f:/g/personal/melody_brown_trca_ca/EgA1PMEUZ2tHs8GCW2mbqlQBRapqm3JNB0FD7yXiDFGb5w?e=lfRfOc

We ask that you please complete your review by August 4th so that we may proceed with the project. Please use the attached comment tracking table to note your questions and comments as you review the documents, and send it back to us when you are finished with your review.

As a reminder, your role as a CLC Member includes assisting TRCA with keeping the local community and other interest groups apprised of information about the project, and in essence being a representative voice of the community at our CLC meetings. So please do feel free to discuss the project with your neighbours and others in the community and please share with us the comments and questions of those you talk to.

We will be holding an **optional virtual CLC meeting during the week of August 4th** to discuss and address your questions and comments. The expectation is that you would have finished reading the report to your satisfaction before the meeting. We would then only discuss any particular sections that you have questions or comments on. The meeting will be held virtually using computer or telephone technology to allow everyone to share their thoughts collectively while physical distancing. Only one CLC member previously confirmed interest in attending this meeting, so we are working with them to schedule a date and time for the week of August 4th. However, the meeting details will be provided to all CLC members and all are welcome to attend.

As always, feel free to reach out to us directly should you have any immediate questions, or if you cannot access the files. The link provided above will only work with your email address.

Kind regards,

The PADR EA Team

Pickering Ajax Dyke Rehabilitation, Environmental Assessment
PADR EA
Toronto and Region Conservation Authority
101 Exchange Avenue, Vaughan, ON L4K 5R6
Project Email: PADR@trca.ca
Project Website: trca.ca/PADR