



# SCARBOROUGH WATERFRONT PROJECT

*Environment Assessment*

from Bluffer's Park to East Point Park in the City of Toronto



# DRAFT ENVIRONMENTAL ASSESSMENT

*Prepared by:*

**Toronto and Region Conservation Authority**  
5 Shoreham Drive  
Downsview, Ontario  
M3N 1S4

*In partnership with:*



*In association with:*



**SHOREPLAN**



*With additional support provided by:*

Dillon Consulting Limited

Modelling Surface Water Limited

WSP Canada Inc.

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>GLOSSARY OF TERMS.....</b>	<b>GL-1</b>
<b>ACRONYMS .....</b>	<b>AC-1</b>
<b>1. INTRODUCTION.....</b>	<b>1-1</b>
1.1 Project Background .....	1-3
1.2 Project Vision and Objectives .....	1-4
1.3 Proponent .....	1-6
1.4 EA Framework .....	1-6
1.5 Other Approvals.....	1-11
1.6 Public and Agency Review of the Draft EA Report .....	1-13
1.7 Overview of EA Report .....	1-13
<b>2. PURPOSE OF THE UNDERTAKING .....</b>	<b>2-1</b>
2.1 Planning Context .....	2-1
2.2 Key Studies and Plans.....	2-3
2.3 Study Areas .....	2-10
2.4 Temporal Boundaries .....	2-11
2.5 Problem/Opportunity Assessment .....	2-11
2.5.1 Project Vision Element: Erosion and Risk to Public Safety and Property ...	2-13
2.5.1.1 Key Problems .....	2-13
2.5.1.2 Project Opportunities .....	2-16
2.5.2 Project Vision Element: Limited Access to and Along the Waterfront .....	2-16
2.5.2.1 Key Problems .....	2-16
2.5.2.2 Project Opportunities .....	2-18
2.5.3 Project Goal Element: Habitat Integrity .....	2-19
2.5.3.1 Key Problems .....	2-19
2.5.3.2 Project Opportunities .....	2-21
<b>3. DESCRIPTION OF THE POTENTIALLY AFFECTED ENVIRONMENT .....</b>	<b>3-1</b>
3.1 Physical Environment .....	3-1

3.1.1 Physiography .....	3-1
3.1.2 Geology and Hydrogeology .....	3-2
3.1.3 Source Water Protection .....	3-5
3.1.4 Surface Water Conditions and Flow Volumes .....	3-6
3.1.5 Stormwater Run-Off, Infrastructure and Hydraulics.....	3-10
3.1.6 Surface Water Quality and Sediment Quality .....	3-10
3.1.7 Lake Ontario Bathymetry .....	3-12
3.1.8 Coastal Processes, Engineering and Geomorphology.....	3-12
3.1.8.1 Water Levels.....	3-14
3.1.8.2 Wave Climate .....	3-16
3.1.8.3 Wave Uprush and Overtopping Levels .....	3-20
3.1.8.4 Shoreline Classification .....	3-24
3.1.8.5 Shoreline Condition .....	3-25
3.1.8.6 Sediment Loadings.....	3-28
3.1.8.7 Ice and Debris .....	3-33
3.1.9 Climate Change .....	3-37
3.1.10 Shoreline and Bluff Erosion.....	3-37
3.1.10.1 Slope Stability Considerations and Hazard Setback Delineation.....	3-37
3.1.10.2 Risk Lines .....	3-41
3.1.10.3 Shoreline Erosion .....	3-46
3.1.10.4 Stages of Bluff Stabilization .....	3-46
3.1.11 Landfills and Brownfield Sites .....	3-47
3.2 Natural Environment .....	3-48
3.2.1 Terrestrial Habitat.....	3-48
3.2.1.1 Terrestrial Habitat Types .....	3-49
3.2.1.2 Vegetation Communities.....	3-49
3.2.1.2.1 Forest Communities .....	3-50
3.2.1.2.2 Wetland Communities .....	3-57
3.2.1.2.3 Successional Communities .....	3-58
3.2.1.2.4 Meadow Communities.....	3-59

3.2.1.2.5 Beach/Bluff Communities .....	3-60
3.2.1.3 Vascular Plants.....	3-62
3.2.1.4 Wildlife and Wildlife Habitat .....	3-64
3.2.1.4.1 Wildlife Corridors.....	3-64
3.2.1.4.2 Birds.....	3-65
3.2.1.4.3 Mammals .....	3-67
3.2.1.4.4 Herpetofauna .....	3-67
3.2.1.5 Significant Natural Areas .....	3-69
3.2.1.5.1 Areas of Natural and Scientific Interest (ANSIs) .....	3-69
3.2.1.5.2 Environmentally Significant Areas (ESAs) .....	3-70
3.2.1.5.3 Provincially Significant Wetlands (PSWs) .....	3-72
3.2.2 Aquatic Habitat and Fish Community .....	3-72
3.2.2.1 Connected Lake Ontario Ecosystem Zones .....	3-72
3.2.2.2 Aquatic Habitat Types.....	3-76
3.2.2.3 Fish Community.....	3-81
3.2.2.3.1 Project Area Fish Community Overview.....	3-82
3.2.2.3.2 Fish Community by Project Area Segment – Summary .....	3-84
3.2.3 Species at Risk .....	3-88
3.2.3.1 Species at Risk Recognition and Protection .....	3-88
3.2.3.2 Plant Species at Risk.....	3-90
3.2.3.3 Terrestrial Species at Risk.....	3-90
3.2.3.4 Fish Species at Risk .....	3-91
3.3 Socio-Economic.....	3-92
3.3.1 Land Use.....	3-92
3.3.1.1 Planned Land Use .....	3-92
3.3.1.2 Existing Land Use.....	3-93
3.3.1.3 Future Land Use .....	3-95
3.3.1.4 Land Ownership .....	3-95
3.3.2 Population and Demographics .....	3-95
3.3.3 Infrastructure, Community Services and Recreation .....	3-99

3.3.3.1 Infrastructure .....	3-99
3.3.3.2 Community Facilities and Services .....	3-100
3.3.3.3 Parks and Recreation .....	3-101
3.3.3.4 Boat Clubs .....	3-106
3.3.3.5 Regional and Local Trails .....	3-106
3.3.4 Access .....	3-107
3.3.4.1 Shoreline Access .....	3-107
3.3.4.2 Parking .....	3-111
3.3.4.3 Transit Services .....	3-112
3.3.5 Traditional Use, Interests and Identification of Indigenous and Treaty Rights within the Project Study Area .....	3-113
3.3.6 Cultural Heritage/Archaeology .....	3-113
3.3.6.1 Archaeology (Terrestrial) and Built Heritage and Cultural Heritage Landscapes .....	3-114
3.3.6.2 Archaeology (Marine) .....	3-118
<b>4. DESCRIPTION, EVALUATION AND RATIONALE FOR “ALTERNATIVES TO” ...</b>	<b>4-1</b>
4.1 Description of “Alternative To” the Undertaking .....	4-1
<b>5. DESCRIPTION, EVALUATION AND RATIONALE FOR “ALTERNATIVE METHODS” .....</b>	<b>5-1</b>
5.1 Step 1: Consideration of Baseline Environmental and Social Conditions ....	5-1
5.2 Step 2: Confirm Problems and Opportunities by Shoreline Segment .....	5-1
5.3 Step 3: Develop Alternatives by Shoreline Segment .....	5-2
5.3.1 West Segment Alternatives.....	5-4
5.3.1.1 West Segment Alternatives .....	5-6
5.3.1.2 West Segment, Alternative 1: Headland Beach .....	5-6
5.3.1.3 West Segment, Alternative 2A/2B: Bridge (Short Span and Long Span) .....	5-9
5.3.1.4 West Segment, Alternative 3A/3B: Island-Bridge (Short Span and Long Span).....	5-9
5.3.1.5 West Segment, Alternative 4: Causeway .....	5-12

5.3.1.6 West Segment, Alternative 5A/5B: Beach Expansion (Narrow/Wide).....	5-16
5.3.2 Central Segment Alternatives .....	5-19
5.3.2.1 Central Segment, Do Nothing (Leave as Is).....	5-19
5.3.2.2 Central Segment, Alternative 1: Headland Beach.....	5-19
5.3.2.3 Central Segment, Alternative 2: Revetment.....	5-22
5.3.3 East Segment Alternatives.....	5-24
5.3.3.1 East Segment Alternatives, Do Nothing (Leave As is) ...	5-24
5.3.3.2 East Segment Alternatives 1A/1B: Headlines with Top-of- Bluffs/Base of Bluffs Connection.....	5-26
5.3.3.3 East Segment, Alternatives 2A/2B: Bridge with Top-of – Bluffs Connection (Headlands/Headlands + Revetment)5-29	
5.3.3.4 East Segment, Alternative 3A/3B: Island-Bridge with Top-of- Bluffs Connection (Headland Beach/Headland Beach + Revetment) .....	5-32
5.3.3.5 East Segment, Alternative 4A/4b: Headland Beach with Revetment to East Point Park/ Headland Beach to East Point Park .....	5-35
5.3.3.6 East Segment, Alternative 5: Tableland Connection Over Grey Abbey Ravine.....	5-36
5.4 Step 4: Select the Preferred Alternative .....	5-40
5.4.1 Evaluation Methodology.....	5-40
5.4.1.1 Criteria and Indicators .....	5-40
5.4.1.2 Effects Assessment and Ranking.....	5-51
5.4.1.3 Comparative Evaluation .....	5-51
5.4.2 Evaluation Results – West Segment.....	5-52
5.4.3 Evaluation Results – Central Segment .....	5-62
5.4.4 Evaluation Results – East Segment.....	5-71
5.5 Sensitivity Test of Alternative Plan for the Central and East Segments Submitted by the Friends of the Bluffs .....	5-85
<b>6. DESCRIPTION OF THE PREFERRED ALTERNATIVE.....</b>	<b>6-1</b>
6.1 Refinements to the Preferred Alternative.....	6-1

6.1.1 West Segment .....	6-1
6.1.2 Central Segment.....	6-3
6.1.3 East Segment .....	6-5
6.2 Overview of the Conceptual Design .....	6-7
6.2.1 Shoreline Configuration and Protection Features .....	6-8
6.2.1.1 West Segment.....	6-8
6.2.1.2 Central Segment .....	6-10
6.2.1.3 East Segment.....	6-12
6.2.2 Naturalization .....	6-12
6.2.2.1 Terrestrial Habitat.....	6-14
6.2.2.1.1 West Segment.....	6-17
6.2.2.1.2 Central Segment .....	6-17
6.2.2.1.3 East Segment .....	6-18
6.2.2.2 Aquatic Habitat.....	6-19
6.2.2.2.1 West Segment.....	6-23
6.2.2.2.2 Central Segment .....	6-24
6.2.2.2.3 East Segment .....	6-24
6.2.3 Recreational.....	6-24
6.2.3.1 West Segment.....	6-25
6.2.3.2 Central Segment .....	6-25
6.2.3.3 East Segment.....	6-26
6.2.4 Shoreline Access Routes.....	6-26
6.2.4.1 Brimley Road.....	6-27
6.2.4.2 Doris McCarthy Trail/Bellamy Ravine.....	6-29
6.2.4.3 Guild Construction Access Route.....	6-30
6.2.4.4 Beechgrove Drive.....	6-30
6.3 Operations and Maintenance.....	6-30
6.3.1 Shoreline Protection Features .....	6-31
6.3.2 Naturalization Components.....	6-31
6.3.3 Recreational Trails .....	6-31



6.3.4 Site Access Routes.....	6-31
6.4 Construction Access.....	6-31
6.4.1 Brimley Road.....	6-32
6.4.2 Guild Construction Access Route.....	6-32
6.4.3 Alternative Access Routes.....	6-32
6.5 Construction Activities.....	6-35
6.5.1 Large Headlands (Bluffer’s Park, Guild Public Gathering Space).....	6-36
6.5.2 Headlands within the Headland Beach System.....	6-36
6.5.3 Beaches within the Headland Beach System.....	6-36
6.5.4 Guild Park and Gardens Shoreline Regeneration.....	6-37
6.5.5 Corkscrew Ramp.....	6-37
6.5.6 Brimley Road Separated Pathway Access Improvement.....	6-37
6.6 Construction Phasing.....	6-37
<b>7. POTENTIAL EFFECTS, EFFECTS ASSESSMENT AND MITIGATION MEASURES FOR PREFERRED ALTERNATIVES.....</b>	<b>7-1</b>
7.1 Approach to Step 4: Detailed Assessment of the Preferred Alternatives.....	7-1
7.2 Assessment Criteria and Indicators.....	7-1
7.2.1 Identifying Net Effects.....	7-1
7.3 Effects Assessment by Objective.....	7-2
7.3.1 Objective 1: Project and enhance terrestrial and aquatic natural features and linkages.....	7-2
7.3.1.1 Construction Effects.....	7-2
7.3.1.2 Operation Effects.....	7-15
7.3.1.3 Summary of Objectives.....	7-22
7.3.2 Objective 2: Manage Public Safety and Property Risk.....	7-23
7.3.2.1 Construction Effects.....	7-23
7.3.2.2 Operation Effects.....	7-23
7.3.2.3 Summary of Objective 2.....	7-29
7.3.3 Objective 3: Provide an Enjoyable Waterfront Experience.....	7-30

7.3.3.1 Construction Effects .....	7-30
7.3.3.2 Operation Effects .....	7-36
7.3.3.3 Summary of Objective 3 .....	7-46
7.3.4 Objective 4: Consistency and Coordination with Other Initiatives .....	7-47
7.3.4.1 Construction Effects .....	7-47
7.3.4.2 Operation Effects .....	7-56
7.3.4.3 Summary of Objective 4 .....	7-62
7.3.5 Objective 5: Achieve Value for Cost.....	7-64
7.3.5.1 Construction Effects .....	7-64
7.3.5.2 Operation Effects .....	7-65
7.3.5.3 Summary of Objectives .....	7-67
<b>8. MONITORING AND ADAPTIVE ENVIRONMENTAL MANAGEMENT .....</b>	<b>8-1</b>
8.1 SWP Monitoring Program .....	8-1
8.1.1 Baseline Conditions Monitoring.....	8-2
8.1.2 EA Compliance Monitoring.....	8-3
8.1.3 Environmental Performance Monitoring .....	8-5
8.2 Adaptive Environmental Management .....	8-6
8.2.1 What is Adaptive Environmental Management?.....	8-6
8.2.2 AEM Strategy for the SWP.....	8-6
8.2.2.1 Monitoring and Evaluation within the SWP AEM Process .....	8-8
8.2.2.2 Adjustments, Refinements, Modifications within the SWP AEM Process.. .....	8-8
8.2.2.3 Learning within the SWP AEM Process.....	8-10
<b>9. EA AMENDMENT PROCESS.....</b>	<b>9-1</b>
9.1 Regulatory Provisions for Post EA Modifications .....	9-1
9.2 Screening Criteria for Post EA Modification .....	9-1
9.3 SWP Approach to Post EA Modifications .....	9-3
<b>10. CONSULTATION.....</b>	<b>10-1</b>
10.1 Consultation on Environmental Assessment .....	10-1

10.2 Guiding Principles and Objectives .....	10-1
10.3 Consultation Mechanisms.....	10-2
10.3.1 Mandatory Notices and Other Notifications.....	10-2
10.3.1.1 Notice of Commencement and Public Information Centre (PIC) #1... 10-2	
10.3.1.2 Notice of Public Information Centre #2 .....	10-2
10.3.1.3 Notice of Public Information Centre #3 .....	10-3
10.3.1.4 Notice of Submission of Draft EA .....	10-4
10.3.2 E-Newsletter Project Updates .....	10-4
10.3.3 Project Information Materials.....	10-10
10.3.3.1 Information Sheets .....	10-10
10.3.4 Project Website .....	10-10
10.3.5 Social Media.....	10-11
10.3.6 Project Videos .....	10-12
10.4 Public Consultation & Engagement .....	10-12
10.4.1 Stakeholder Committee.....	10-13
10.4.2 Public Information Centres (PICs).....	10-17
10.4.3 Direct Community Engagement .....	10-18
10.4.4 Landowners and Community Organizations.....	10-23
10.4.4.1 Landowners .....	10-23
10.4.4.2 Community Organizations & Local Residents.....	10-23
10.4.5 Utilities.....	10-25
10.4.6 Response to Public Comments .....	10-26
10.5 Indigenous Consultation .....	10-60
10.5.1 Potentially Interested Indigenous Communities .....	10-60
10.5.2 Identification of Indigenous and Treaty Rights within the Study Area.....	10-61
10.5.3 Correspondence with Indigenous and Métis Communities .....	10-61
10.5.3.1 Indigenous Communities Outreach/Communication.....	10-61
10.5.3.2 Additional Indigenous Communities Outreach/Communication .....	10-62
10.5.4 Summary of Indigenous and Métis Comments.....	10-63
10.6 Agency Consultation.....	10-64

10.6.1 Agency Contact List .....	10-64
10.6.2 Technical Advisory Committee (TAC) .....	10-65
10.6.3 Agency Meetings.....	10-66
10.6.3.1 Aquatic Habitat Toronto (AHT) .....	10-66
10.6.3.2 City of Toronto .....	10-67
10.6.3.3 Fisheries and Oceans Canada (DFO) .....	10-68
10.6.3.4 GO Transit/Metrolinx.....	10-68
10.6.3.5 Ministry of Environment and Climate Change (MOECC).....	10-69
10.6.3.6 Ministry of Natural Resources and Forestry (MNRF) .....	10-69
10.6.3.7 Ministry of Tourism, Culture and Sport (MTCS).....	10-70
<b>11. ADVANTAGES AND DISADVANTAGES .....</b>	<b>11-1</b>
<b>12. REFERENCES AND WORKS CITED.....</b>	<b>12-1</b>

## LIST OF APPENDICES

- Appendix A** – Terms of Reference
- Appendix B** – Geotechnical Report
- Appendix C** – Coastal Technical Report
- Appendix D** – Natural Environment Technical Report
- Appendix E** – Terrestrial Archaeology Stage 1 Report
- Appendix F** – Detailed Evaluation of Alternatives Tables
- Appendix G** – Friends of the Bluffs Alternate Plan Sensitivity Analysis
- Appendix H** – Mitigation Tables
- Appendix I** – Water Quality Modeling Report
- Appendix J** – Traffic Impact Assessment
- Appendix K** – Supplementary Coastal Wave Model Technical Memo
- Appendix L** – Consultation Activities
  - Appendix L.1** – Mandatory Notices and Other Notifications
  - Appendix L.2** – E-Newsletters Project Updates
  - Appendix L.3** – Project Information Materials
  - Appendix L.4** – Stakeholder Committee
  - Appendix L.5** – Public Information Centre’s
  - Appendix L.6** – Direct Community Engagement
  - Appendix L.7** – Utility Engagement
  - Appendix L.8** – Public Comments
  - Appendix L.9** – Indigenous Communities Outreach / Communication
  - Appendix L.10** – Agency Consultation
- Appendix M** – Renderings

## LIST OF TABLES

<b>Table 1-1</b> Concordance with Commitments Made in the ToR.....	1-8
<b>Table 1-2</b> Potential Permits and Approvals.....	1-11
<b>Table 2-1</b> List of Background Studies.....	2-1
<b>Table 2-2</b> List of Erosion Protection Projects previous undertaken by TRCA.....	2-3
<b>Table 3-1</b> Summary of vegetation communities, ranked L1 to L5, within the Project Area Segments.....	3-50
<b>Table 3-2</b> Individual species of vascular plants observed in the Project Area based on level of conservation concern. Generally secure species are not included.....	3-62
<b>Table 3-3</b> Herpetofauna species detected within the Project Area.....	3-68
<b>Table 3-4</b> Annual and average species richness values by habitat type between 2006 and 2016.....	3-83
<b>Table 3-5</b> Annual species richness at the Meadowcliffe headland beach system, pre- and post- headland beach system construction. Grey-shaded years indicate construction years.....	3-84
<b>Table 3-6</b> Summary of fish species and habitat type within the Project Area, between 2006 and 2016.....	3-85
<b>Table 3-7</b> Species at risk levels of recognition and protection.....	3-89
<b>Table 3-8</b> Wildlife species at risk found in the Project Area.....	3-91
<b>Table 5-1</b> Criteria and Indicators Considered for the Comparative Evaluation.....	5-42
<b>Table 5-2</b> Criteria and Indicators Screened by Segment and Rationale for the Screening.....	5-49
<b>Table 5-3</b> West Segment, Objective #1 Criteria Level Evaluation Summary.....	5-54
<b>Table 5-4</b> West Segment, Objective #2 Criteria Level Evaluation Summary.....	5-56
<b>Table 5-5</b> West Segment, Objective #3 Criteria Level Evaluation Summary.....	5-58
<b>Table 5-6</b> West Segment, Objective #4 Criteria Level Evaluation Summary.....	5-59
<b>Table 5-7</b> West Segment, Objective #5 Criteria Level Evaluation Summary.....	5-61
<b>Table 5-8</b> West Segment – Objective Level Evaluation Results Summary.....	5-62
<b>Table 5-9</b> Central Segment, Objective #1 Criteria Level Evaluation Summary.....	5-64
<b>Table 5-10</b> Central Segment, Objective #2 Criteria Level Evaluation Summary.....	5-65
<b>Table 5-11</b> Central Segment, Objective #3 Criteria Level Evaluation Summary.....	5-67
<b>Table 5-12</b> Central Segment, Objective #4 Criteria Level Evaluation Summary.....	5-68
<b>Table 5-13</b> Central Segment, Objective #5 Criteria Level Evaluation Summary.....	5-70
<b>Table 5-14</b> Central Segment – Objective Level Evaluation Results Summary.....	5-71
<b>Table 5-15</b> East Segment, Objective #1 Criteria Level Evaluation Summary.....	5-72
<b>Table 5-16</b> East Segment, Objective #2 Criteria Level Evaluation Summary.....	5-77
<b>Table 5-17</b> East Segment, Objective #3 Criteria Level Evaluation Summary.....	5-78
<b>Table 5-18</b> East Segment, Objective #4 Criteria Level Evaluation Summary.....	5-81
<b>Table 5-19</b> East Segment, Objective #5 Criteria Level Evaluation Summary.....	5-83

<b>Table 5-20</b>	East Segment – Objective Level Evaluation Results Summary. ....	5-84
<b>Table 6-1</b>	Terrestrial habitat enhancements by Project Study Area Segment.....	6-14
<b>Table 6-2</b>	Native species that may be included in restoration plantings.....	6-14
<b>Table 6-3</b>	Overview of potential naturalization/habitat enhancement techniques. ....	6-20
<b>Table 7-1</b>	Effects assessment criteria and indicators relevant to phase. ....	7-3
<b>Table 7-2</b>	Existing vegetation communities to be removed.....	7-10
<b>Table 7-3</b>	Detailed Effects Assessment: Objective 1 Construction. ....	7-12
<b>Table 7-4</b>	Detailed Effects Assessment: Objective 1 Operation.....	7-20
<b>Table 7-5</b>	Net gains and losses with respect to the Naturalization Objective.....	7-22
<b>Table 7-6</b>	Overall effects related to Objective 1. ....	7-23
<b>Table 7-7</b>	Detailed Effects Assessment: Objective 2 Operation.....	7-27
<b>Table 7-8</b>	Overall effects related to Objective 2. ....	7-29
<b>Table 7-9</b>	Detailed Effects Assessment: Objective 3 Construction. ....	7-34
<b>Table 7-10</b>	Detailed Effects Assessment: Objective 3 Operation.....	7-43
<b>Table 7-11</b>	Overall effects related to Objective 3. ....	7-47
<b>Table 7-12</b>	Detailed Effects Assessment: Objective 4 Construction. ....	7-54
<b>Table 7-13</b>	Fish Community Objectives for Lake Ontario Goals for the Nearshore and Offshore Pelagic Zones.....	7-57
<b>Table 7-14</b>	Detailed Effects Assessment: Objective 4 Operation.....	7-60
<b>Table 7-15</b>	On-going and proposed construction projects with the potential to impact the Guildwood Community. ....	7-62
<b>Table 7-16</b>	Overall effects related to Objective 4. ....	7-63
<b>Table 7-17</b>	Detailed Effects Assessment: Objective 5 Construction. ....	7-65
<b>Table 7-18</b>	Detailed Effects Assessment: Objective 5 Operation.....	7-66
<b>Table 7-19</b>	Overall effects related to Objective 5. ....	7-67
<b>Table 8-1</b>	Summary of commitments resulting from the SWP EA.....	8-4
<b>Table 8-2</b>	Examples of environmental performance monitoring for ecological components of the SWP.....	8-5
<b>Table 8-3</b>	Potential AEM Triggers and Adaptive Measures for SWP Components....	8-10
<b>Table 9-1</b>	Screening criteria.....	9-2
<b>Table 9-2</b>	Examples of minor vs. major Project modifications.....	9-2
<b>Table 10-1</b>	Notification Publication Information.....	10-5
<b>Table 10-2</b>	Email/mail notifications. ....	10-6
<b>Table 10-3</b>	Project E-Newsletter updates. ....	10-8
<b>Table 10-4</b>	Social media platforms. ....	10-11
<b>Table 10-5</b>	Project videos. ....	10-12
<b>Table 10-6</b>	Stakeholder Committee Meeting Summary. ....	10-15
<b>Table 10-7</b>	PIC summaries. ....	10-17
<b>Table 10-8</b>	Direct Community Engagement – Project Team Led.....	10-19
<b>Table 10-9</b>	Direct Community Engagement – Partner Organizations. ....	10-21

<b>Table 10-10</b>	Consultation with community organizations and local residents. ....	10-23
<b>Table 10-11</b>	Consultation with utilities.....	10-26
<b>Table 10-12</b>	Summary of comments and comment consideration. ....	10-27
<b>Table 10-13</b>	Outgoing consultation with Indigenous Communities. ....	10-62
<b>Table 10-14</b>	Responses from Indigenous Communities. ....	10-63
<b>Table 10-15</b>	Agencies contacted during the EA.....	10-65
<b>Table 10-16</b>	Consultation activities with AHT.....	10-66
<b>Table 10-17</b>	Consultation activities with the City of Toronto. ....	10-67
<b>Table 10-18</b>	Consultation activities with the GO Transit/Metrolinx.....	10-68
<b>Table 10-19</b>	Consultation activities with the MOECC.....	10-69
<b>Table 10-20</b>	Consultation activities with MNR. ....	10-69
<b>Table 11-1</b>	Advantages and Disadvantages of the SWP.....	11-1

DRAFT



## LIST OF FIGURES

<b>Figure 1-1</b>	Project location within the context of the City of Toronto.....	1-2
<b>Figure 2-1</b>	Project Area and Study Area.....	2-12
<b>Figure 2-2</b>	Existing shoreline protection structures within the Project Study Area.....	2-15
<b>Figure 3-1</b>	Physiographic regions within the Project Study Area.....	3-2
<b>Figure 3-2</b>	Project Study Area bluff stratigraphy.....	3-3
<b>Figure 3-3</b>	Seepage along the Cudia Park Bluff face.....	3-5
<b>Figure 3-4</b>	Ravines within the West Segment.....	3-7
<b>Figure 3-5</b>	Ravines within the Central Segment.....	3-8
<b>Figure 3-6</b>	Ravines within the East Segment.....	3-9
<b>Figure 3-7</b>	Stormwater outfall locations in the Project Study Area.....	3-11
<b>Figure 3-8</b>	Project Study Area bathymetry.....	3-13
<b>Figure 3-9</b>	Lake Ontario hydrograph.....	3-15
<b>Figure 3-10</b>	Lake Ontario mean water levels from 1918 to 2015.....	3-15
<b>Figure 3-11</b>	Distribution of highest hindcast wave heights and total wave power.....	3-17
<b>Figure 3-12</b>	Wave height and period exceedance curves.....	3-18
<b>Figure 3-13</b>	Annual distribution of total wave power.....	3-18
<b>Figure 3-14</b>	Monthly distribution of total wave power.....	3-18
<b>Figure 3-15</b>	Extreme value analysis of easterly wave heights.....	3-19
<b>Figure 3-16</b>	Extreme value analysis of southwesterly wave heights.....	3-19
<b>Figure 3-17</b>	CMS wave model results, 100-year easterly wave condition.....	3-21
<b>Figure 3-18</b>	CMS wave model, 100-year southwesterly wave condition.....	3-22
<b>Figure 3-19</b>	SWP Study Area shoreline conditions - June 7, 2017.....	3-23
<b>Figure 3-20</b>	Windshield/walking survey reaches in West Segment.....	3-29
<b>Figure 3-21</b>	Windshield/walking survey reaches in Central Segment.....	3-30
<b>Figure 3-22</b>	Windshield/walking survey reaches in East Segment.....	3-31
<b>Figure 3-23</b>	Alongshore sediment transport rates.....	3-32
<b>Figure 3-24</b>	3.0 m 7s east wave used for sediment transport pathway example.....	3-34
<b>Figure 3-25</b>	Alongshore current from 3.0 m 7s east wave for the Project Study Area.....	3-35
<b>Figure 3-26</b>	Sediment transport rates from 3.0 m 7s east wave for the Project Study Area.....	3-36
<b>Figure 3-27</b>	Existing shoreline conditions through East Segment – April 5, 2017.....	3-39
<b>Figure 3-28</b>	SWP Study Area landslides in 2017.....	3-42
<b>Figure 3-29</b>	West Segment risk line.....	3-43
<b>Figure 3-30</b>	Central Segment risk line.....	3-44
<b>Figure 3-31</b>	East Segment risk line.....	3-45
<b>Figure 3-32</b>	Vegetation community types within the West Segment.....	3-51
<b>Figure 3-33</b>	Vegetation community by L-Rank within the West Segment.....	3-52
<b>Figure 3-34</b>	Vegetation community types within the Central Segment.....	3-53

<b>Figure 3-35</b> Vegetation community by L-Rank within the Central Segment.....	3-54
<b>Figure 3-36</b> Vegetation community types within the East Segment.....	3-55
<b>Figure 3-37</b> Vegetation community by L-Rank within the East Segment. ....	3-56
<b>Figure 3-38</b> ANSIs and ESAs overlapping West Segment with the locations of existing formal and informal trails identified.....	3-73
<b>Figure 3-39</b> ANSIs and ESAs overlapping with Central Segment with the locations of existing formal and informal trails identified.....	3-74
<b>Figure 3-40</b> ANSIs and ESAs overlapping with East Segment with the locations of existing formal and informal trails identified.....	3-75
<b>Figure 3-41</b> Open coast aquatic habitat in West Segment. ....	3-78
<b>Figure 3-42</b> Open coast aquatic habitat in Central Segment. ....	3-79
<b>Figure 3-43</b> Open coast aquatic habitat in East Segment. ....	3-80
<b>Figure 3-44</b> Land use designations within the Project Study Area (City of Toronto, 2002; consolidated 2015). ....	3-94
<b>Figure 3-45</b> Shoreline ownership in West Segment. ....	3-96
<b>Figure 3-46</b> Shoreline ownership in Central Segment. ....	3-97
<b>Figure 3-47</b> Shoreline ownership in East Segment. ....	3-98
<b>Figure 3-48</b> East Segment infrastructure.....	3-101
<b>Figure 3-49</b> Existing parks and trails in West Segment. ....	3-103
<b>Figure 3-50</b> Existing parks and trails in Central Segment.....	3-104
<b>Figure 3-51</b> Existing parks and trails in East Segment. ....	3-105
<b>Figure 3-52</b> Existing access points to the waterfront. ....	3-108
<b>Figure 3-53</b> Cudia Park Bluffs shoreline – May 10, 2017. ....	3-109
<b>Figure 3-54</b> Doris McCarthy Trail and Guild Construction Access Route. ....	3-110
<b>Figure 3-55</b> Beechgrove Drive extension. ....	3-111
<b>Figure 5-1</b> Framework for the Development and Evaluation of Alternatives.....	5-5
<b>Figure 5-2</b> West Segment, Do Nothing (Leave Shoreline As Is) – Overview.....	5-7
<b>Figure 5-3</b> West Segment, Alternative 1: Headland Beach – Overview. ....	5-8
<b>Figure 5-4</b> West Segment, Alternative 2A: Bridge (Short Span) – Overview. ....	5-10
<b>Figure 5-5</b> West Segment, Alternative 2B: Bridge (Long Span) – Overview.....	5-11
<b>Figure 5-6</b> West Segment, Alternative 3A: Island-Bridge (Short Span) – Overview. .	5-13
<b>Figure 5-7</b> West Segment, Alternative 3B: Island-Bridge (Long Span) – Overview...	5-14
<b>Figure 5-8</b> West Segment, Alternative 4: Causeway – Overview. ....	5-15
<b>Figure 5-9</b> West Segment, Alternative 5A: Beach Expansion (Narrow) – Overview..	5-17
<b>Figure 5-10</b> West Segment, Alternative 5B: Beach Expansion (Wide) – Overview. ..	5-18
<b>Figure 5-11</b> Central Segment, Do Nothing (Leave As Is) – Overview.....	5-20
<b>Figure 5-12</b> Central Segment, Alternative 1: Headland Beach – Overview. ....	5-21
<b>Figure 5-13</b> Central Segment, Alternative 2: Revetment – Overview. ....	5-23
<b>Figure 5-14</b> East Segment, Do Nothing (Leave As Is) – Overview.....	5-25

<b>Figure 5-15</b> East Segment, Alternative 1A: Headlands with Top-of-Bluffs Connection – Overview.....	5-27
<b>Figure 5-16</b> East Segment, Alternative 1B: Headlands with Base-of-Bluffs Connection (Revetment) – Overview.....	5-28
<b>Figure 5-17</b> East Segment, Alternative 2A: Bridge with Top-of-Bluffs Connection (Headlands) – Overview.....	5-30
<b>Figure 5-18</b> East Segment, Alternative 2B: Bridge with Base-of-Bluffs Connection (Headlands + Revetment) – Overview. ....	5-31
<b>Figure 5-19</b> East Segment, Alternative 3A: Island-Bridge with Top-of-Bluffs Connection (Headland Beach) – Overview. ....	5-33
<b>Figure 5-20</b> East Segment, Alternative 3B: Island-Bridge with Base-of-Bluffs Connection (Headland Beach + Revetment) – Overview.....	5-34
<b>Figure 5-21</b> Proposed tableland connection at East Point Park. ....	5-36
<b>Figure 5-22</b> East Segment, Alternative 4A: Headland Beach with Revetment to East Point Park – Overview.....	5-37
<b>Figure 5-23</b> East Segment, Alternative 4B: Headland Beach to East Point Park – Overview. ....	5-38
<b>Figure 5-24</b> East Segment, Alternative 5: Tableland Connection Over Grey Abbey Ravine - Overview. Yellow Line Denotes Proposed Top of Bluff Trail.....	5-39
<b>Figure 5-25</b> Alternatives Comparative Evaluation Process.....	5-52
<b>Figure 6-1</b> Refined West Segment Preferred Alternative - Bluffer's Park Headland....	6-2
<b>Figure 6-2</b> Refined West Segment Preferred Alternative - Interim Groyne.....	6-3
<b>Figure 6-3</b> Refined Central Segment Preferred Alternative – Sylvan Headland Beach.....	6-4
<b>Figure 6-4</b> Refined Central Segment Preferred Alternative – Guild Park and Gardens Shoreline.....	6-5
<b>Figure 6-5</b> Refined East Segment Preferred Alternative – Headland Beach. ....	6-6
<b>Figure 6-6</b> Proposed tableland connection on the east side of Grey Abbey Ravine....	6-7
<b>Figure 6-7</b> Refined West Segment Preferred Alternative.....	6-9
<b>Figure 6-8</b> Refined Central Segment Preferred Alternative. ....	6-11
<b>Figure 6-9</b> Refined East Segment Preferred Alternative.....	6-13
<b>Figure 6-10</b> Surcharged revetment technique. ....	6-21
<b>Figure 6-11</b> Shoreline shoal treatment technique.....	6-22
<b>Figure 6-12</b> Boulder pavement restoration technique.....	6-23
<b>Figure 6-13</b> Proposed path along Brimley Road.....	6-28
<b>Figure 6-14</b> Brimley Road access route. ....	6-33
<b>Figure 6-15</b> Guild Construction Access Route.....	6-34
<b>Figure 7-1</b> Possible construction access routes through Guildwood Village.....	7-52
<b>Figure 7-2</b> Preferred construction access route through Guildwood Village.....	7-53
<b>Figure 8-1</b> Relationship between monitoring phases and SWP implementation. ....	8-2
<b>Figure 8-2</b> Relationship between SWP Design and AEM.....	8-7

**Figure 8-3** Monitoring and evaluation within the AEM Cycle. .... 8-9  
**Figure 9-1** Approval process for proposed modifications to the SWP..... 9-5

DRAFT