

WHEY-AH-WICHEN / CATES PARK SHORELINE RESTORATION PROGRAM VFPA PER SUPPLEMENTAL REPORT PER #24-174

May 2025



Tsleil-Waututh Nation
PEOPLE OF THE INLET



Prepared for:

Vancouver Fraser Port Authority

Vancouver, British Columbia

Hatfield Consultants LLP

#200 – 850 Harbourside Drive
North Vancouver, British Columbia, Canada V7P 0A3
Tel: 1.604.926.3261 • Fax: 1.604.926.5389
www.hatfieldgroup.com





Hatfield



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Prepared for:

VANCOUVER FRASER PORT AUTHORITY
100 THE POINTE, 999 CANADA PLACE
VANCOUVER, BC CANADA V6C 3T4

Prepared by:

HATFIELD CONSULTANTS LLP
#200 - 850 HARBOURSIDE DRIVE
NORTH VANCOUVER, BC
CANADA V7P 0A3
TEL: 1.604.926.3261 • WWW.HATFIELDGROUP.COM

 *Canadian and owner-operated*

On behalf of:

DISTRICT OF NORTH VANCOUVER
355 WEST QUEENS ROAD
NORTH VANCOUVER, BC CANADA V7N 4N5

TSLEIL-WAUTUTH NATION
3178 ALDER COURT
NORTH VANCOUVER, BC CANADA V7H 2V6

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LIST OF ACRONYMS

| | |
|---------------|--|
| AIA | Archaeological Impact Assessment |
| BC | British Columbia |
| CEMP | Construction Environmental Management Plan |
| CGVD28 | Canadian Geodetic Vertical Datum of 1928 |
| DFO | Fisheries and Oceans Canada |
| DNV | District of North Vancouver |
| EAO | BC Environmental Assessment Office |
| ECCC | Environment and Climate Change Canada |
| HHWMT | Higher high water mean tide |
| IFP | Issued for Permitting |
| ILP | Inlailawatash Limited Partnership |
| PER | Project and Environmental Review |
| TWN | Tsleil-Waututh Nation |
| VFPA | Vancouver Fraser Port Authority |

DISTRIBUTION LIST

The following individuals/firms have received this document:

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AMENDMENT RECORD

This report has been issued and amended as follows:

| Issue | Description | Date | Approved by | |
|-------|--|----------|--|---|
| 1 | First version of Whey-ah-Wichen / Cates Park Shoreline Restoration Program – VFPA PER Supplemental Report DRAFT | 20250219 | Stewart Wright Project Director | Becca Kordas, RPBio Project Manager |
| 2 | Second version of Whey-ah-Wichen / Cates Park Shoreline Restoration Program – VFPA PER Supplemental Report DRAFT | 20250328 | Stewart Wright Project Director | Becca Kordas, RPBio Project Manager |
| 3 | Third version of Whey-ah-Wichen / Cates Park Shoreline Restoration Program – VFPA PER Supplemental Report | 20250404 | Stewart Wright Project Director | Becca Kordas, RPBio Project Manager |
| 4 | Fourth version of Whey-ah-Wichen / Cates Park Shoreline Restoration Program – VFPA PER Supplemental Report | 20250521 |  Stewart Wright Project Director |  Becca Kordas, RPBio Project Manager |

1.0 INTRODUCTION

səlilwətał/Tsleil-Waututh Nation (Tsleil-Waututh, TWN) and the District of North Vancouver (DNV) are planning to implement a shoreline protection and restoration program at Whey-ah-Wichen / Cates Park: the Whey-ah-Wichen / Cates Park Shoreline Restoration Program (“the Program”). Whey-ah-Wichen (meaning “facing the wind”) has been an active part of the traditional and unceded territory of the Tsleil-Waututh for thousands of years and continues to hold strong cultural and archaeological significance to the Tsleil-Waututh people. Now a large waterfront park, Whey-ah-Wichen / Cates Park (“the Site”) has been co-managed by DNV and TWN since 2001. The shoreline of the Site has been eroding and this is likely to worsen with sea level rise and climate change. Impacts to and loss of this shoreline continue to threaten archaeological resources, shoreline habitat, park infrastructure, and Tsleil-Waututh cultural sites. The Program involves long-term strategies to restore the shoreline of the Site and enhance its resilience to climate change while preserving its cultural and historical significance.

The proposed works align with TWN’s overall vision for Burrard Inlet and are part of larger initiatives by TWN and DNV to mitigate coastal erosion and restore shoreline habitat on the North Shore. DNV has partnered with other North Shore stakeholders to develop a sea level rise adaptive management strategy¹. This strategy document is intended to provide guidance for the next ten years and is considered an initial step in what will likely be a multi-decade collaborative initiative. The strategy aims to address sea level rise adaptation from a variety of perspectives, but a major focus is on flood risk assessment and reduction through the application of a variety of policies, land use planning, building floodproofing, and structural flood protection measures. Sea level rise adaptation and shoreline protection at Cates Park is one of the priorities within this strategy.

The Program involves the design and construction of nature-based shoreline protection and stabilization measures in combination with habitat restoration and enhancement. The Program utilizes a multi-disciplinary approach to understand existing environmental conditions at the Site, develop design concepts with community input, test the design through coastal process modelling, and evaluate the success of the design via post-construction monitoring.

The shoreline protection and restoration works will be combined with improvements to park amenities and shoreline access. These additional design features are located in upland areas and thus outside the scope of this assessment. This assessment focuses on Program components located within the Vancouver Fraser Port Authority’s (VFPA’s) managed lands and waters, below the Ordinary High Water Mark.

This purpose of this document is to provide:

- Supplemental information that fulfills the requirements outlined in the PER checklist that are not covered within other documents; and
- A concordance table (Table 1) that acts as a guide to where the PER checklist requirements are covered, and information can be found.

¹ [KWL] Kerr Wood Leidal. 2021. North Shore Sea Level Rise Risk Assessment & Adaptive Management Strategy. Prepared for the District of North Vancouver.

2.0 APPLICATION CONCORDANCE

Hatfield Consultants (Hatfield) has prepared this application for a VFPA Project and Environmental Review (PER) – Category C approval, in accordance with the requirements listed in Table 1.

Table 1 VFPA PER #24-174 concordance table.

| Requirement | Description | Concordance |
|---|--|--|
| Section 2: Project Description Requirement | | |
| General Scope | <ul style="list-style-type: none"> Brief background of the applicant's company and business operations in the region. Description of the Project, including the purpose, volume of materials and other specifications, and rationale. Include rationale for design including materials and techniques in relation to Project goals and objectives. I.e., use of certain combinations of rock for creation of habitat. Description of the Project setting, including proximity to sensitive receptors such as schools or residential areas. List all studies that have been completed in support of the application, if any. | Section 3.1, 3.2 |
| Construction | <ul style="list-style-type: none"> Proposed construction period (start and finish), hours, and methods of construction, including what equipment will be used. Description of construction, staging activities, laydown areas, and material transportation. Description of how construction would be handled in the park. If there is an anticipated need to construct outside of the standard the port authority construction hours, this can be requested in the application. Should this information not be provided at the time of application, the request can be processed at a later date but will be subject to a permit amendment and fees. <p>For further information, please review the port authority's Requests to Conduct Construction Outside of Regular Work Hours guideline.</p> | Section 3.4, See Extended Hours Request (Appendix A7) |
| Section 3: Drawing Requirements | | |
| Location Plan | <ul style="list-style-type: none"> Plan, with the Project site outlined in red, showing the relationship of the proposed Project to surrounding area at a 1:5000 scale. Include jurisdictional boundaries. | Figure 1 |
| Site Plan | <ul style="list-style-type: none"> Lease and property boundaries, easements and rights-of-way. Legal high-water mark where applicable. Location and dimensions of all existing and proposed buildings, structures, equipment, and marine structures. Access points including roadways, driveways, parking areas, walkways, berths, gangways, docks. Area of construction staging/laydown proposed. | Figure 2 |

Table 1 (Cont'd.)

| Requirement | Description | Concordance |
|---|--|---|
| Section 3: Drawing Requirements (Cont'd.) | | |
| Utilities | <ul style="list-style-type: none"> Separate plans showing existing and proposed utilities, or any utilities that may be extended such as outfalls. Plan showing utilities to be terminated and/or abandoned, including method of termination. Provide written confirmation of which other authorities or jurisdictions will need to provide consent or conduct works to establish connections to utilities. <p>The Applicant is responsible for location of all existing utilities. The port authority will provide known utility information, but location of buried utilities must be confirmed by the applicant.</p> | There will be no change to utilities within VFPA managed lands and waters |
| Landscape Plan | <ul style="list-style-type: none"> Include plan with plantings, ground treatments, fencing or screening, furnishings, irrigation, and any other proposed features. Include locations and specifications. | See Planting Plan (Appendix A2) |
| Section 4: Required Studies, Reports and Plans | | |
| Archaeological Potential – Preliminary Assessment | <ul style="list-style-type: none"> Footprint and depth of ground alteration works, if proposed. Identify if the proposed project is situated on fill or native soil, and what the anticipated impacts to native soil may be. Identify if the proposed project is within 100 m of potable water (historically present or currently present). Location of proposed project in relation to the original shoreline or river/stream bank. Determine if the proposed project is situated on relatively level ground. | Section 4.0 |
| Habitat Assessment | <ul style="list-style-type: none"> An assessment of species and habitats that will be affected by project activities such as infilling, vegetation removal, or shoreline modification. <p>For further information, please review the port authority's Habitat Assessment guideline.</p> | <p>Hatfield et al. 2023. Site Assessment Report submitted as part of preliminary application and includes required information.</p> <p>See also Overview Effects Assessment (Appendix A3)</p> |
| Species-at-Risk Assessment | <ul style="list-style-type: none"> Identification of all federal and provincial listed species-at-risk associated with the proposed Project. Include a description of potential impacts and proposed mitigation strategies. | <p>See Overview Effects Assessment (Appendix A3), CEMP (Appendix A4), and Hatfield et al. 2023. Site Assessment Report submitted as part of preliminary application.</p> |

Table 1 (Cont'd.)

| Requirement | Description | Concordance |
|--|--|--|
| Section 4: Required Studies, Reports and Plans (Cont'd.) | | |
| Vegetation Assessment | <ul style="list-style-type: none"> ▪ Description of topography, hydrology, soil cover and quality. ▪ Description of trees and current vegetation types (e.g., riparian), characteristics and relative abundance, including native, non-native, and species at risk. Include recommendations on removal, retention and/or protection. ▪ Description of listed species-at-risk species or ecological communities at risk. ▪ Overview plan depicting existing vegetation communities for removal, retention, and/or protection. Include species composition, location, total area, and condition. Show the location of invasive species. ▪ Overview plan depicting existing trees >20 cm DBH and recommendation for removal, retention, and/or protection. Include location, species/vegetation type, size (DBH), height, quantity, and condition. | Hatfield et al. 2023. Site Assessment Report submitted as part of preliminary application includes required information. |
| Draft Construction Environmental Management Plan (CEMP) | <ul style="list-style-type: none"> ▪ Description of how the site will be managed during construction such that the work does not result in adverse impacts to the environment, heritage resources, public (municipal, stakeholders, community), Indigenous groups. ▪ Include potential effects from noise, vibration, light, dust emissions, or other deleterious discharges. ▪ Include details on waste management. <p>For further information, please review the port authority's CEMP guideline.</p> | See CEMP (Appendix A4) |
| Spill Prevention and Emergency Response Plan (on land and water) | <ul style="list-style-type: none"> ▪ Emergency Response Plan as it relates to spills during construction. ▪ Inventory and storage methods of hazardous materials anticipated to be handled or stored on site during construction. ▪ A description of spill prevention, containment and clean-up plan for hydrocarbon products (including fuel, oil and hydraulic fluid) and any other deleterious substances using standards, practices, methods and procedures to a good commercial standard, conforming to applicable laws. ▪ Description of proposed employee training, emergency response communication plan, emergency procedures, spill tracking and reporting. ▪ Reference to appropriate spill containment and clean-up supplies available on site at all times and that all personnel working on the Project are familiar with the spill prevention, containment and clean-up plan. <p>Some references to this topic can be found in Section 5.6.3 of the port authority's Construction Environmental Management Plan guideline.</p> | See CEMP (Appendix A4) |

Table 1 (Cont'd.)

| Requirement | Description | Concordance |
|--|--|--|
| Section 4: Required Studies, Reports and Plans (Cont'd.) | | |
| Vegetation Protection and Invasive Species Management | <ul style="list-style-type: none"> Measures for vegetation and tree protection during construction. Include measures on how invasive species will be managed during construction. Mitigation plan to prevent the introduction and spread of invasive species during construction following best management practices (see ISCMV BMPs here). Include identification, treatment recommendations, disposal methods and location, mitigation measures for handling, follow-up monitoring. <p>Noted that Japanese knotweed identified on site. Ensure species-specific management measures included for Japanese knotweed and other noxious species.</p> | <p>See CEMP (Appendix A4)</p> <p>See Invasive Species Management Plan (Appendix A5)</p> |
| Soil, Sediment, and/or Groundwater Management Plan | <ul style="list-style-type: none"> Outlines how the proponent will test for, appropriately handle, limit migration/run-off and dispose of contaminated soils and/or groundwater. Provide details of the source and quality of all soil and/or sediment materials that will be imported onto the site. Required when dealing with properties with known or suspected contamination in the soil and/or groundwater. <p>For further information, please review Section 5.5.7 of the port authority's Construction Environmental Management Plan guideline.</p> | <p>See CEMP (Appendix A4)</p> <p>Fill material has yet to be sourced, but will be tested in accordance with Disposal at Sea guidelines.</p> |
| Section 5: Notification, Consultation and Engagement Requirements | | |
| Indigenous Groups | <ul style="list-style-type: none"> Provide all records of previous information sharing activities, agreements, or other interactions with Indigenous groups with respect to the Project. | <p>Section 5.0, and see updated Engagement Summary (Appendix A6)</p> |
| Stakeholders | <ul style="list-style-type: none"> The proposed Project may have an impact on stakeholder interests. Stakeholder notification and/or consultation will be led by the port authority during application review phase with the involvement of the Applicant at the request of the port authority (responding to stakeholders, attending meetings etc.). <ul style="list-style-type: none"> Seachange Marine Conservation Society; Polygon Cates Landing Ltd.; Takaya Tours; and Deep Cove Kayak. <p>For further information, please review the port authority's Stakeholder Consultation guideline.</p> | <p>Acknowledged that during the PER process the port authority will refer the application to the stakeholders listed. The proponent has done some early engagement with some stakeholders (see Engagement Summary, Appendix A6).</p> |

Table 1 (Cont'd.)

| Requirement | Description | Concordance |
|--|---|---|
| Section 5: Notification, Consultation and Engagement Requirements (Cont'd.) | | |
| Public | <ul style="list-style-type: none"> ▪ The proposed Project may have an impact on adjacent community interests. As a result, the port authority requires the Applicant to undertake public engagement to solicit feedback from the public on the proposed project, the completed technical studies, and proposed mitigations during construction and operation. ▪ The public engagement approach must include: <ul style="list-style-type: none"> ○ 20 business day public engagement period that includes live engagement opportunities (e.g., in-person/online meetings), and self-access engagement opportunities (e.g., online survey, email/phone lines). ○ The Applicant shall identify proposed activities and materials in an engagement plan (see next row). ○ Notification of the public engagement period and public engagement opportunities. ○ Project webpage with relevant information and materials. ▪ The project will be posted to the Canadian Impact Assessment Registry for a public comment period of 30 calendar days. The posting will be managed by the port authority and coordinated to coincide with the Applicant-led public engagement period. ▪ Promotion of the Canadian Impact Assessment Registry on the Applicant's website (link to be provided by the port authority). ▪ Under the PER process, the port authority's definition of "public" includes residents and businesses (non-port authority tenants), including any organized groups that represent them. See the port authority's Public Engagement guideline for more information. | Acknowledged, further details below. |
| Public engagement plan (PEP) | <ul style="list-style-type: none"> ▪ Submit a draft public engagement plan in accordance with the Public Engagement guideline. ▪ Once the application has been submitted, schedule a meeting with the port authority to discuss public engagement plan, approach, and materials. | Draft PEP emailed to the port authority on Feb 13, 2025. |
| Public notification and engagement materials | <ul style="list-style-type: none"> ▪ The Applicant is required to include drafts of any notification and engagement materials upon submission of a complete application. The review of these materials can take up to five business days. ▪ Examples of notification materials: <ul style="list-style-type: none"> ○ Email/newsletter text to Applicant distribution lists (if any); ○ Newspaper advertisement; and ○ Public engagement notification letters/notices/postcards. | Information to be submitted separately from this application package. |

Table 1 (Cont'd.)

| Requirement | Description | Concordance |
|--|---|-----------------|
| Section 5: Notification, Consultation and Engagement Requirements (Cont'd.) | | |
| Public notification and engagement materials (Cont'd.) | <ul style="list-style-type: none"> Examples of engagement materials: <ul style="list-style-type: none"> Project website text and any online information. Discussion guide/project overview document/fact sheet. Feedback form and/or online survey (as applicable). Display boards and/or presentations. Coloured renderings, schematics or other visual representations. Other materials, e.g., videos, brochures, social media posts, as chosen by the Applicant. The port authority shall review and approve all materials prior to the Applicant distributing to the public, and before the start of the public engagement period. For further information, including submission timelines, please review the port authority's Public Engagement guideline. | |
| Port Community Liaison Committees | <ul style="list-style-type: none"> The Applicant may be required to provide information and/or present to the following community liaison committee: <ul style="list-style-type: none"> North Shore Waterfront Liaison Committee. The port authority shall review any draft content and/or presentation materials in advance. For further information, please review the port authority's Public Engagement guideline. | Acknowledged. |
| Section 6: Other Requirements/Considerations | | |
| Fisheries and Oceans Canada (DFO) Request for Review | <ul style="list-style-type: none"> If in-water works are proposed to occur outside the fisheries least risk window for the Project Area or do not meet any other of the Measures to Protect Fish and Fish Habitat, please submit a DFO Request for Review. If submitted, please provide the DFO file number and contact information for the DFO review lead. | See Section 6.0 |
| Transport Canada <i>Canadian Navigable Water Act</i> | <ul style="list-style-type: none"> If any in-water works could impede navigation, review by Transport Canada under the <i>Canadian Navigable Water Act</i> may be required. Please complete the NPP Review Tool to determine if your works require review. If review is required, please provide the Transport Canada file number and contact information for the review lead. If submitted, please provide the TC file number and contact information for the TC review lead. | See Section 6.0 |
| BC Environmental Assessment Office (EAO) | <ul style="list-style-type: none"> If applicable, provide the Notification package submitted to EAO, any supplemental information requested by EAO, and correspondence from EAO about the project. | See Section 6.0 |
| Federal agency funding | <ul style="list-style-type: none"> Please indicate if funding was provided by Infrastructure Canada, DFO or any other federal agency. | See Section 6.0 |

3.0 PROGRAM DESCRIPTION

3.1 PROPONENT BACKGROUND

Located on Metro Vancouver's North Shore, DNV extends from the Capilano River in the west to Indian Arm in the east, and from Burrard Inlet northwards to the Coast Mountains. With a population of just over 95,000 and a total land area of just over 16,000 hectares, DNV is the largest of the three North Shore municipalities. The naturally beautiful surroundings, high quality of life and proximity to downtown Vancouver make DNV one of Canada's most desirable places to live, work and play. The combination of unique geography and location offers the benefits of simultaneously being part of a dynamic metropolitan region while living next door to a vast natural wilderness.

3.2 GENERAL SCOPE

DNV and TWN have retained a diverse team of professional coastal engineers, marine biologists, and landscape architects to complete this work who have drafted several studies and reports describing the Program (Table 2).

Table 2 Application supporting documents.

| Document Name | Prepared By | Location |
|---|---|---|
| Design Report and IFP Engineering Design Drawings | Northwest Hydraulic Consultants | Appendix A1 |
| Planting Plan | Hatfield | Appendix A2 |
| Site Assessment Report | Hatfield | Submitted with Preliminary Review Package |
| Overview Effects Assessment | Hatfield | Appendix A3 |
| Construction Environmental Management Plan | Hatfield | Appendix A4 |
| Invasive Species Management Plan | Inlailawatash Limited Partnership (ILP) | Appendix A5 |
| Engagement Summary (updated) | Hatfield | Appendix A6 |
| Extended Hours Request | Hatfield | Appendix A7 |

3.3 PROGRAM LOCATION

The Site is located in the Central Harbour of səliłwət (Burrard Inlet) within DNV, approximately 5.0 km east of the Ironworkers Memorial Bridge at the point where the Inlet curves north and becomes Indian Arm (Figure 1). The design footprint is within VFPA's managed lands and waters and falls within VFPA's navigational jurisdiction. The Program works are located along the shoreline of Whey-ah-Wichen / Cates Park, which is the largest waterfront park in North Vancouver. The Park covers approximately 1.3 km of linear shoreline and is characterized by a beach and shallow subtidal area bordered by riparian vegetation and managed parkland (Figure 2). A public boat launch and pier are also present on the western shore of the Site (Figure 2). The TWN reserve (səliłiwətaʔt, Burrard Inlet IR#3) is located approximately 500 m west of the Site (Figure 1). The design footprint is divided into five reaches: East Beach, West Beach, Central Beach, Roche Point, and Little Cates (Figure 2). There are no schools in close proximity to the Site. The closest residential areas are (1) Cates Landing, located south of Dollarton Highway bordering the west boundary of Cates Park and (2) the residential area bordering Little Cates, on the northeast boundary of the Park.

Figure 1 Location plan.

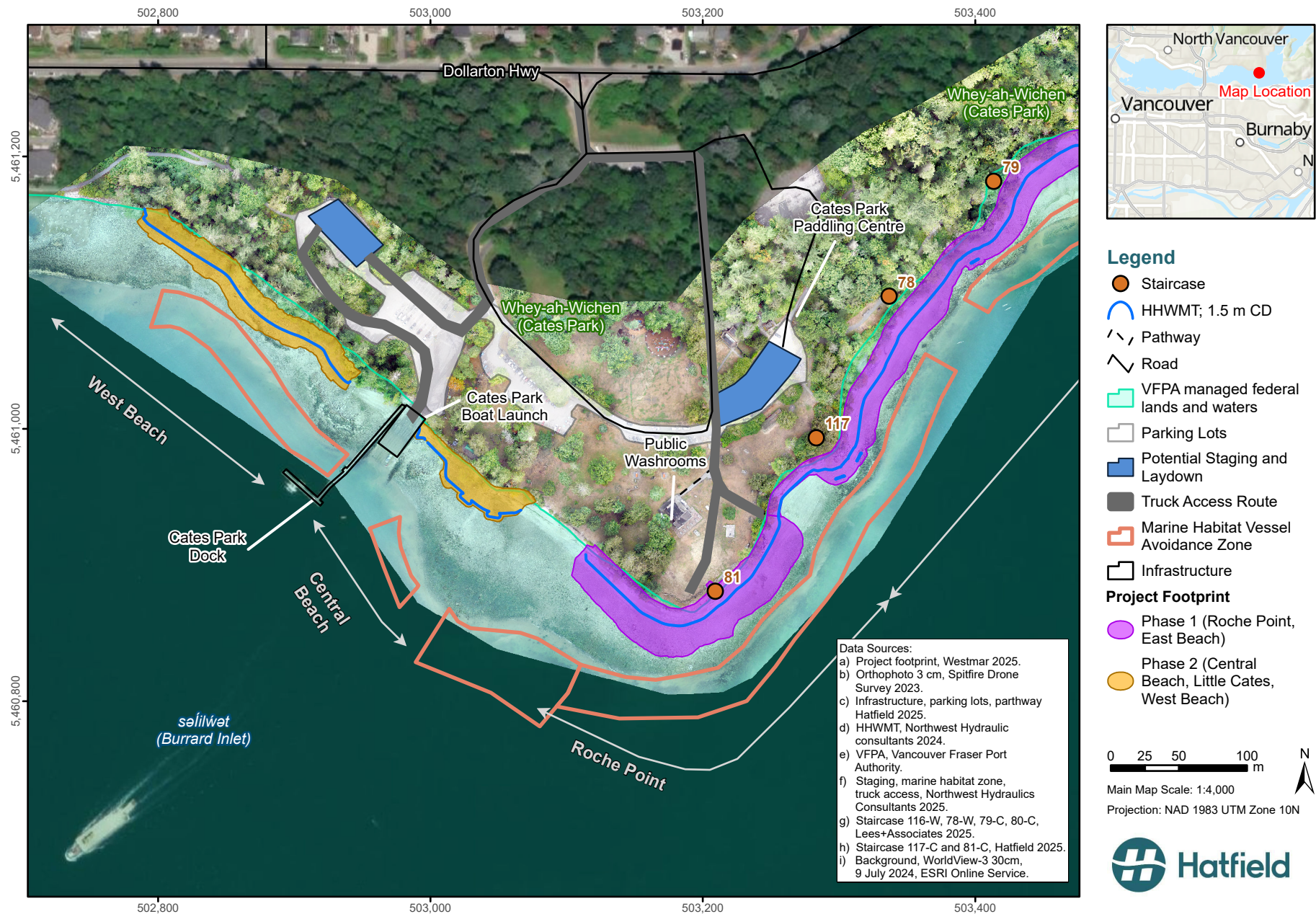


Tsleil-Waututh Reserve Shoreline Adaptation & Restoration Project

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TWN12545_VFPA_PER_LocationPlan_20250312_v04_VP

Figure 2 Site plan.

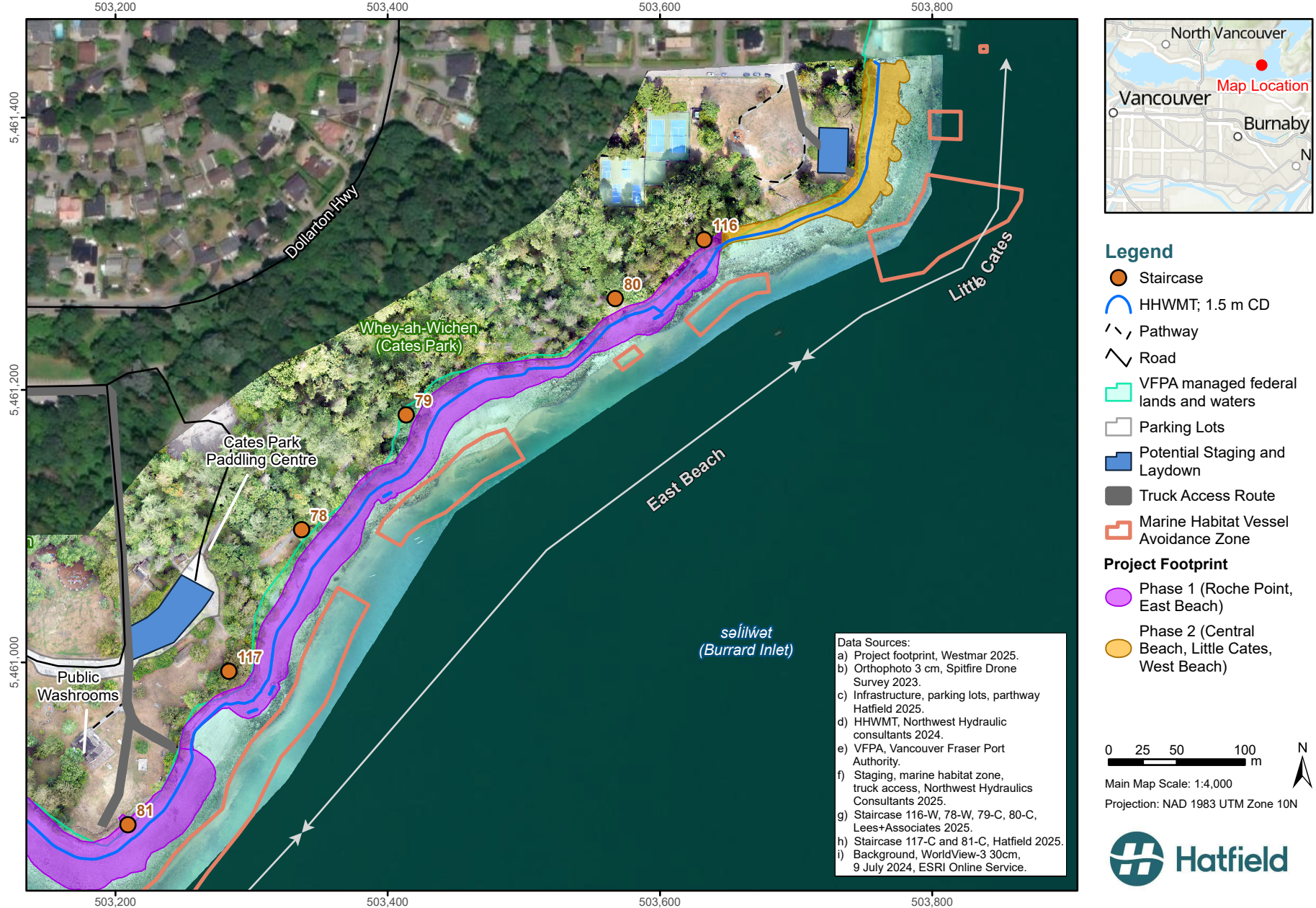


Tsileil-Waututh Reserve Shoreline Adaptation & Restoration Project

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TWN12545_VFPA_PER_Site_Plan_20250509_v06_AH

Figure 2 (Cont'd.)



Tsileil-Waututh Reserve Shoreline Adaptation & Restoration Project

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TWN12545_VFPA_PER_Site_Plan_20250509_v06_AH



3.4 CONSTRUCTION

3.4.1 Schedule

Subject to securing permits and approvals, the Program is expected to be constructed according to the schedule below. In-water fill placement will be completed during DFO's Least Risk Window for Burrard Inlet: August 16 – February 28. The Program will be implemented in two phases:

Phase 1 – Roche Point and East Beach (2025 – 2026)

- Pre-construction invertebrate salvage & forage fish survey: mid September 2025 (within one week of construction).
- Mobilization and site clean up: mid September 2025.
- Placement of fill materials and construction of access points: late September – November 2025.
- Demobilization: December 2025.
- Riparian and dunegrass habitat planting: April – May 2026.

Phase 2 – West Beach, Central Beach, Little Cates (2026 – 2027)

- Pre-construction invertebrate salvage & forage fish survey: mid September 2026 (within one week of construction).
- Mobilization and site clean up: mid September 2026.
- Placement of fill materials and construction of access points: September – November 2026.
- Demobilization: December 2026.

3.4.2 Methods

Construction activities will involve the placement of fill and rock materials (sand, gravel, cobble, and boulder). It will either be sourced from dredging or other projects as beneficial reuse or from local quarries. The material will not be contaminated (i.e., it will meet Environment and Climate Change (ECCC) requirements for Disposal at Sea, see details in Appendix A4 CEMP). Since timing is key to re-use, the source and transportation route for sediment are not yet known. Material can be delivered to the Site by barge or transported by truck, or a combination of the two, depending on the material sources available. Both approaches are described below.

Barge delivery

Material delivery by barge will involve a materials barge and a spud barge. The spud barge would be used to secure the position adjacent to the shoreline for the materials barge. Beach nourishment materials would be offloaded from the materials barge onto the beach with either a conveyor or ramp and placed within the footprint of the Program work areas. If a ramp is used, it will land within the working footprint of the Program work areas. Marine vessel access to the Site will be restricted within the subtidal sensitive habitat areas

shown in Figure 2, which contain eelgrass and two kelp restoration sites (Hatfield et al. 2023²). These areas are to be avoided during construction whenever feasible and can only be traversed for marine access at high tide without any contact with the seabed. The remaining offshore area can be used for barge access to the Site during construction, including spudding. The only contact that barges are expected to have with the seabed during normal operations are (1) spudding in the subtidal outside of the sensitive habitat areas and (2) barge ramp contact in the high intertidal (within the Program footprint).

Truck delivery

Material delivery by truck would require designated laydown areas within the Site to stockpile materials prior to the start of construction. The locations of these laydown areas would differ for each construction phase to reduce the distance between the laydown area and the foreshore area where the materials will be placed. Figure 2 shows the proposed laydown areas at the Site. One laydown area would be used during the construction of the Roche Point and East Beach reaches as part of Phase 1. Two laydown areas would be used during Phase 2 to construct the West Beach, Central Beach, and Little Cates reaches.

If materials were only delivered by truck, then for the entire program (i.e., both Phases), approximately 1860 truck deliveries would be needed to deliver the total volume of materials required for construction. This is based on a 14 m³ dump truck capacity (assumed for a standard truck and pony configuration). Assuming 15 to 20 truck deliveries per day, it would take between 93 to 124 working days to have the materials delivered to the Site. Therefore, for each Phase, it would take a minimum of two months to deliver materials to the Site, if all materials were delivered by truck. However, it is likely that materials will be delivered by a combination of truck and barge, depending on the source of the materials. The access routes for the trucks during Phase 1 and Phase 2 are indicated on Figure 2. Traffic would be managed by DNV and a detailed traffic management plan would be developed to mitigate traffic impacts.

Material would be loaded from the stockpile within the laydown locations onto a low ground pressure haul vehicle for transportation and delivery to the final placement areas on the shoreline. An access route onto the shoreline would need to be established, and the haul vehicle would only travel on the shoreline within the design footprint, as much as possible.

Foreshore construction methods

Regardless of delivery method, work will commence with the placement of materials within the middle of the work footprint to establish a haul road for vehicles working on the beach. To the extent possible, work will be completed in the dry and the lowest tides will be used to install the lowest elevation elements such as the boulder headlands rock toes. Where a backshore gravel-cobble berm and boulder headlands are planned, these would be installed next. Beach nourishment materials will then be placed on top of the gravel-cobble backshore berm and behind the boulder headlands.

Following the placement of fill materials, construction will also include planting riparian and coastal dune vegetation. Plants will be sourced from local nurseries.

² Hatfield, NHC, and Lees & Associates. 2023. Whey-ah-Wichen / Cates Park Site Assessment Report. Prepared for District of North Vancouver.

Stair replacements

There are several access points from the upland areas of the Park into the foreshore. Four of these staircases have been damaged or undermined (Appendix A1). All staircases are above higher high water mean tide (HHWMT) and most are outside of VFPA managed federal lands and waters. See Figure 2 for stair number locations.

- Stair 81: The main access point at Roche Point currently consists of a short run of concrete steps with handrails on both sides. Because the beach fill would bury this structure, it needs to be replaced with a similar set of cast-in-place concrete steps with a handrail on one side.
- Stair 78: This existing wooden staircase is deteriorating and will be replaced with a prefabricated metal staircase.
- Stair 79: The lower section of this concrete stairway is being undermined by beach erosion, however, the planned beach nourishment will cover the lower section, eliminating the problem. No repairs are required at this time.
- Stair 116: This existing wooden staircase is deteriorating and will be replaced with a prefabricated metal staircase.

The three staircases will be replaced following foreshore beach fill placement.

3.4.3 Hours

To reduce environmental impacts, construction during low tides is preferred. Low tides are largely at night during the Least Risk Window and VFPA's standard working hours are Monday to Saturday 07:00 to 20:00. The proponent requests a variance to work outside VFPA's standard working hours (Appendix A7), to include nighttime hours, to avoid in-water work. Work will commence as soon as possible within the Least Risk Window (low tides are during daylight hours from August to September) to limit nighttime operations as much as possible to minimize disturbance to neighbours.

4.0 ARCHAEOLOGICAL POTENTIAL – PRELIMINARY ASSESSMENT

Whey-ah-Wichen is known to be a sensitive and unique archeological site of significant cultural importance to TWN. Thus, an Archeological Impact Assessment (AIA) was not required for the Program as the archeological potential of the Site is well documented. Detailed archaeological studies (e.g., Alexander and Grier, 2000³) have revealed that the park contains three archaeological sites located along the shoreline between Roche Point and the east end of the Site. Excavations of these sites provide evidence of at least 3,500 years of occupation (TWN 2006⁴). Shoreline archeological deposits may also occur offshore of the Site, although these deposits have likely been destroyed by beach erosion (TWN 2006). These resources demonstrate the long history of Tsleil-Waututh's presence at the Site and are vital to protect. The Whey-

³ Alexander D, Greer C. 2000. Investigations at Cates Park, District of North Vancouver. Report prepared for the District of North Vancouver. Report on file with the Archaeology Branch (Permit No. 1999-244), Victoria, BC.

⁴ Tsleil-Waututh Nation. 2006. Cates Park/ Whey-ah-Wichen Park Master Plan and Cultural Resources Interpretation Management Plan. North Vancouver, BC.

ah-Wichen archeological site (DhRr-8) is one of the few large sites in the Lower Mainland that has not been impacted by development (TWN 2006).

Due to the archeological sensitivity of the Site, the Program will include adding materials on top of native soils, but no native soils will be disturbed. This approach is consistent with TWN's conditions that bar excavation for the protection of archaeological and cultural sites. TWN will obtain a TWN Archaeology & Cultural Heritage Permit for the Program. In addition, the Contractor will be required to undertake Chance Find Procedure training and cultural awareness training. Inlailawatash Limited Partnership (ILP) will also provide an Archeological Monitor during construction.

Design drawings are provided in Appendix A1, which includes the location of the Program footprint and cross sections of the shoreline relative to the existing shoreline. Refer to the Site Assessment Report (Hatfield et al. 2023²) for the history of erosion and a description of local watercourses at the Site. Two small (~0.5 m wide) unnamed ephemeral streams were identified at the Site. There is a potable water main that provides water within the Site and is approximately 100 m north of the construction footprint. Construction will not interact with this water main.

5.0 NOTIFICATION, CONSULTATION AND ENGAGEMENT REQUIREMENTS

The Program is co-led by TWN and located adjacent to TWN reserve lands. Indigenous engagement for the Program is ongoing and has been conducted throughout the design process, including engagement with the TWN community, technical and other advisory groups, and referral and engagements with the xʷməθkʷəy̓ əm (Musqueam) and Skwxwú7mesh (Squamish). Results of engagement have been integrated into each stage of the Program design process. More information about the engagement process is provided in the Engagement Summary (submitted with the Preliminary Review Package).

Public and stakeholder engagement materials will be submitted to the VFPA separately from this application package.

6.0 OTHER REQUIREMENTS AND CONSIDERATIONS

The status of regulatory permit applications associated with the Program is listed in Table 3. Program funding sources are listed in Table 4.

Table 3 **Related Program permits.**

| Document Name | Status | File No. / Contact Information |
|---|---|---|
| DFO Request for Review | Submitted: 2024-12-11 Letter of Advice received: 2025-03-18 | 24-HPAC-01222; Review Lead: Eleanor Wilson |
| DFO Scientific Collection Permit | Not Started, to be submitted 2025-05 | TBD |
| TC Navigation Protection Program Notice of No Interference | In Progress, to be submitted 2025-05 | TBD |
| BC EAO Notification | An EA is required if a project entails dredging, filling, or other direct physical disturbance of: (i) ≥ 1,000 m of linear shoreline, or (ii) ≥ 2 ha of foreshore or submerged land, or a combination of foreshore and submerged land, below the natural boundary of a stream, marine coastline or estuary. | Since each phase of the Program falls under the thresholds, an Environmental Assessment (EA) or EA Notification are not anticipated to be required. |

Table 4 **Program funding sources.**

| Grant Name | Grant Recipient | Funding Agency |
|---|-----------------|---|
| Community Emergency Preparedness Fund | DNV | Province of BC (UBCM) |
| Destination Development Fund | DNV | Province of BC (Ministry of Tourism, Arts, Culture and Sport) |
| Local Leadership for Climate Adaptation | DNV | Federation of Canadian Municipalities* |

Note: * indicates a federal agency.