Crown Land Application Management Plan

To complete this plan:

1. Review the application checklist and guidance document
2. Describe your project in detail in the form below (you may be required to use a qualified professional to complete the plan)
3. Submit your plan with your application through Virtual FrontCounter BC.

Please note:

- If we need more information, we will contact you. Applications not meeting application requirements within the requested timeframes may be rejected.

1.0 Background

The Application for Crown land tenure requires general information about your proposed activity.

1.1 Project Overview

Describe the intended use for which authorization is requested, including construction and/or phase development details, and decommissioning information (if applicable). Provide general information on activity purpose, location, size, timeframe, and main features. Be sure to include any proposed mitigative measures for impacts.

Project Location & Background:

Roberts Bay is a semi-enclosed bay located on the northeast side of the Saanich Peninsula, within the Town of Sidney, BC in the Traditional Territory of the Tseycum First Nation. The bay is of regional, cultural, and ecological importance and provides habitat for migratory and resident species of birds and wildlife. It is a Federally designated site as a key part of the Shoal Harbour Migratory Bird Sanctuary, which also includes Tsehum Harbour directly to the North and is also a part of the larger Sidney Channel Important Bird Area (IBA). It is exposed to waves primarily from the northeast. The bay has private single-dwelling residential development in the backshore. Though most of its shoreline is armoured with private bulkheads and seawalls, one area has a small slough and delta feature known as Mermaid Creek. This urban creek daylights from stormwater infrastructure ~200 m from its delta mouth in the southeast corner of Roberts Bay. A small salt marsh is located on the Mermaid Creek delta, mainly consisting of American glasswort (*Sarcocornia pacifica*) and saltgrass (*Distichlis spicata*). See PSS Ecological Restoration and Impact Report for location – Figure 1.

Concerns from the local community prompted ENGOs SeaChange Marine Conservation Society (SeaChange) and Peninsula Streams Society (PSS) to commission a study by Coastal and Ocean Resources (CORI) to highlight biological, geomorphological, and blue carbon baselines of the shoreline, intertidal, and subtidal areas. A key finding of the report was that ~70% of the salt marsh has eroded and retreated up the beach over the past ~50 years, with the pace of loss increasing since 2005, likely due to coastal squeeze and increased storm action (CORI, 2021). In

2021, CORI used a new CRD orthophoto to estimate that 20% of the remaining marsh was lost over the previous winter (CORI, 2021). In 2022, drone imagery was taken and used to estimate that a further 34% of the marsh remaining in 2021 was lost. There is now only ~28% of the salt marsh extent from 1964 remaining. Salt marsh reduction has resulted in the loss of important environmental services including habitat, nutrient processes, natural protection from waves, and carbon sequestration capacity. A recent technical report completed by DHI (2022) that assessed shear stress and wave and wind models concludes that without intervention the marsh will continue to erode at comparable rates and will be lost without intervention.

Project Goal:

The restoration projects aim is to protect the remaining ~2,000 m^2 and restore ~4,000 m^2 of Mermaid Creek's salt marsh and backshore habitats below the natural boundary, through the introduction of suitably sized sediment nourishment materials, anchored large woody debris, strategic placement of large attenuating boulders and cobble crescent features, and marsh plantings. Construction and nourishment of the historic marsh footprint will occur across a three-week window within the DFO timing window for Area 19 (July 1 to October 1), and the planting will occur in spring 2024 prior to the spring and summer growth period to allow roots and rhizomes to establish prior to the winter storm period.

Mitigation Measures:

A Registered Professional Biologist will be on-site monitoring for the duration of this project and will be authorized to halt work if conditions warrant under their professional discretion.

Machinery: All machinery will be in good and well-maintained working order and inspected for leaking and excessive residues before entering the project area. Machinery will be required to be under a regular maintenance schedule to ensure no excessive noise is created while operating. A spill kit will be stored on-site equipped with absorbent pads and booms of sufficient size to contain any accidental spills. Inspections and spills will be documented and recorded by the biologist and submitted in the event of a spill. All machinery and equipment will be fueled offsite and will be equipped with biodegradable hydraulic and lubricating fluids where possible.

Timing Windows: The DFO timing window for working in the intertidal areas for Area-19 are July 1 - Oct 1. The timing of appropriate tide windows also facilitates getting this work done in accordance with local noise bylaws identified during the proposed project timing window of July 10th to August 4th. The period of least risk to nesting herons and eagles is September 15 - Jan 31. Though we will be working outside of this window for nesting birds' sufficient buffers can be provided to minimize any potential impacts (see section 6.4.).

Materials:

Specifications and volumes for the aggregate materials required for the outlined treatments can be found in the McElhanney engineering report. These materials will be sourced from a virgin quarry of alluvial sediments. The specifications for the marsh and beach nourishment mix was based on a sieve analysis of sediments taken as a bulk sample from productive areas where forage fish spawn in Roberts Bay to mitigate the risk of eroded materials (i.e., if materials erode they will work to nourish the beach down cell). Plants including American Glasswort, Saltgrass,

and Dune Grass, and other backshore native plant species will be sourced from a local nursery with as local providence as possible and planted in the spring of 2024.

Nest Protections: With an existing High disturbance level in an Urban Zone (<1 ha lots), a 60 m buffer is recommended for herons and 100 m for eagles. Since this work is happening during the breeding season for these species (Jan 31 - Sept 15) an additional 100 m is recommended for eagle nests and 200 m for herons. A minimum 260 m buffer will be established for herons and a minimum 200 m for eagles. These buffers will be marked with periodic monitoring for both nests from a suitable distance using optical instruments for signs of distress. These buffers are following recommendations from both ECCC and Provincial standards (Develop with Care 2014; Appendix 3). A survey of cryptic nesting habitats within and around a 50 m project buffer of the project area will be conducted by a qualified professional prior to the commencement of work.

1.2 Investigative Work

If any preliminary investigative work has been carried out, with or without an investigative authorization, provide details on work completed, incomplete, or on-going. Be sure to describe the activity, its status, and any comments/milestones.

Activity	Brief Description	Complete/ Incomplete/ Ongoing	Comments
Desktop Review	The study area and surrounding area of Roberts Bay were entered as a polygon into the following environmental atlases in January 2023 for a desktop review of documented endangered species: CRD Atlas, CDC iMap, Strait of Georgia Marine Data Centre Catalogue, iNaturalist, iBird, and Habitat Wizard.	Complete	There was a record of Tall Woolly-Heads (*Psilocarphus elatior*), an Endangered annual herb; however, this recording is unconfirmed, dated and in the upper marsh outside of the project area/footprint. The site is identified as within the proposed Sidney Marbled Murrelet (*Brachyramphus marmoratus*) Critical Habitat though observations of murrelets are uncommon. Killdeer (*Charadrius vociferus*) and black oystercatchers (*Haematopus bachmani)* have been observed in the area though are unlikely to nest in this area due to the high levels of disturbance. Surveys for shoreline nesting species will be

			conducted prior to construction. Most bird activity that would be subject to disturbance occurs in winter and spring and fall migrations with a summer window being opportune.
Known Nest Sites	A recurring American bald eagle (*Haliaeetus leucocephalus*) nest and a single great blue heron *(Ardea herodias ssp. fannini*) nest are found in the bay.	Complete	Buffers were established using the Develop With Care Guidelines for American bald eagles and great blue heron standards (Develop with Care, 2014). Heron pair has not been observed (anecdotal communication with neighbour, Jan 2022). See provided habitat map.
Eelgrass Bed	Eelgrass mapping – blue carbon mapping project.	Complete	Concern for this bed – coastal squeeze due to highly modified coastline.
Forage Fish Monitoring	Monitoring of sand and gravel beach for forage fish beach spawning events – community science monitoring program (long-term monitoring efforts).	Ongoing	Detections of surf smelt and Pacific sand lance eggs predominately in the northern portion of the Bay. Sporadic detections around project site. Surf smelt (Nov to Apr) and Pacific sand lance (Nov to Feb). See provided habitat map.
Cryptic shrub and cavity passerine nesters	Survey for nests prior to the commencement of the work within the project footprint and within a 50 m buffer. If nests are discovered project managers will ensure no further works are completed outside of compliance with the Federal *Migratory Bird Convention Act* or the BC *Wildlife Act*.	Incomplete	Project site is within a high disturbance level in an Urban Zone – so potential for nesters will be highly limited due high level of disturbance.

1.3 Engagement with First Nations

- Describe your engagement with First Nation communities or groups regarding your proposed activities.
- Include the name of the First Nation(s) and its representative(s)
- Detail your discussion of potential adverse effects from the proposed activity and any discussed mitigation measures.

- Provide information on First Nations agreements undertaken.

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2.0 Location

A General Location Map and a Detailed Site Plan are required to be uploaded with the application.

2.1 Description

Provide a general description of the location of the project. Be sure to note:

- Traffic patterns and volume
- Parking
- Any other significant details related to your activity

Roberts Bay is a semi-enclosed bay located on the northeast side of the Saanich Peninsula, within the Town of Sidney, BC in the Traditional Territory of the Tseycum First Nation. The bay is of regional, cultural, and ecological importance and provides habitat for migratory and resident species of birds and wildlife. It is a Federally designated site as a key part of the Shoal Harbour Migratory Bird Sanctuary, which also includes Tsehum Harbour directly to the North and is also a part of the larger Sidney Channel Important Bird Area (IBA). Though most of its shoreline is armoured with private bulkheads and seawalls, one area has a small slough and delta feature known as Mermaid Creek. This urban creek daylights from stormwater infrastructure ~200 m from its delta mouth in the southeast corner of Roberts Bay. A small salt marsh is located on the Mermaid Creek delta, mainly consisting of American glasswort (*Sarcocornia pacifica*) and saltgrass (*Distichlis spicata)*, which is the restoration project site. Approximately 70% of the salt marsh has

eroded and retreated up the beach over the past ~50 years, with the pace of loss increasing since 2005, likely due to coastal squeeze and increased storm action and without intervention the marsh will continue to erode at comparable rates and will be lost without intervention. See PSS Ecological Restoration and Impact Report – and associated reports for maps.

Access to the Roberts Bay project site will occur through 10244 Fifth Street, Sidney, BC, which is one of the two kayak launch locations for Roberts Bay. Limited parking exists on Fifth Street near the site access, but Resthaven Drive and Amelia Ave has capacity for additional street parking. Minor change to traffic patterns on this portion of the Fifth Street to occur during daylight hours during the project period – with an increase of truck activity to deliver beach material to the project site. See Town of Sidney Right of Way Permit Application Package.

2.2 Location Justification

Tell us why you need this type of activity at this location. For example, is the activity close to a highway for easy truck access?

Fifth street kayak location is the closest beach access site to the salt marsh and enables access to the beach to deliver the beach nourishment material to build up the elevation of the marsh and restore the marsh footprint back to its orthophoto historic extent. Material will be trucked from a material staging site situated near highway 17 for easy truck access to the municipal roadway.

2.3 Seasonal Expectations of Proposed Use

Let us know what times of the year you're proposing to use the land. Ensure you reference appropriate timing windows for projects in or around water.

Construction/ Operations	Brief Description	Season/ Timing	Comments
Machinery – build rock sill or crescents	Approximately 1,360 tonnes of cobble and boulders will be brought to the site to build ~7 ~1.2m high crescent wave attenuating features along the historic leading edge of the marsh approximately 30 m seaward of the existing leading edge.	Summer and/or early fall 2024 (within DFO timing windows for Area 19 – July 1 to October 1) – construction to occur within a three-week period	Structural living shoreline options – provide protection/buffer against erosional forces that are degrading habitats. See the living shoreline research completed off Vancouver, BC – located here.
Delivery of beach and marsh nourishment material	The area between the historic and current leading edges will then be backfilled to current marsh elevations with ~4,000 tonnes of a marsh nourishment mix of round alluvial gravels and sands	Summer and/or early fall 2024 (within DFO timing windows for Area 19 – July 1 to October 1) – construction to	Nourishment material inserted behind the rock sills will raise the elevation of the beach to an appropriate elevation for marsh vegetation and restores the marsh area back to its historic orthophotos

	ranging in size up to 20 mm, including some organics to promote marsh plant establishment. Additionally, ~500 tons of beach nourishment will also be placed on the North and South ends of the marsh to provide nourishment for forage fish spawning habitat where materials have been scoured and further buffer marsh materials from longshore drift. Nourished beach areas will be further enhanced with Dune Grass plantings and Large Woody Debris additions.	occur within a three-week period	footprint. No machines will be on the existing marsh, and benthic and infaunal surveys reveal low species diversity within the project footprint with no species of concern being observed.
No heavy machinery – hand planting of marsh vegetation & dune grass with community members.	The newly established marsh area will then be planted with pickleweed and saltgrass.	Spring 2024	Planting will occur prior to the spring and summer growth period, which enables the rhizomes and roots to establish prior to the next winter season.

2.4 Historical Use

Has the land, or portions of the land been previously developed? Provide as much detail as you can, adding this detail to the maps if necessary.

Yes – extensive shoreline protection structures exist around the project site and most of Roberts Bay has seawalls. See DHI Technical Report – Figure 13 & 14.

3.0 Infrastructure and Improvements

3.1 Facilities and Infrastructure

Detail any new and existing facilities, infrastructure, or processes proposed and any ancillary uses. Provide details of planned construction methods, materials, and construction scheduling. Identify mitigation for potential issues. Outline your plan for long term maintenance of improvements, decommissioning, and/or required remediation.

Facility/Infrastructure/ Process	Construction Methods/Materials	Construction Schedule	Long Term Planning

Rock Sills - structural living shoreline options to add a buffer for a salt marsh	1,360 tonnes of cobble and boulders	Three-week period within the DFO Summer Timing Window (Area-19: July 1 – Oct 1) for summer and early fall 2024	A PhD student from the National Scientific Research Center in Quebec will be providing a framework for monitoring physical and biological parameters. Peninsula Streams and SeaChange staff will make modifications based on recommendations from the above monitoring with any major modifications requiring further engineering covered under warranty and best practice by McElhanney Engineering. Works requiring subsequent permitting will ensure compliance with regulatory requirements.

3.2 Infrastructure/Access

Identify existing and proposed roads used to access the site.

Include information about:

- Types of roads and vehicles expected to use them
- Anticipated traffic volumes during construction and operation
- The use of roads by season
- Connections that:
  - Need either a Ministry of Transportation and Infrastructure permit for connection or
  - Use of a Forest Service Road.
- Any road use agreements

Roadway/ Proposed Connection	Existing Road Classification	Road Permittee Information and Road Use Agreements	Traffic Volume for Construction and Operational Phases	Mitigation of Traffic Effects

Fifth Street – dump truck and regular vehicles	Municipal Road	Right of Way with Town of Sidney – in progress.	Increase of daytime traffic on this municipal road during the three-week project window.	Traffic management plan – temporary closures to maintain high level of public safety. Flaggers will be commissioned to be onsite to ensure public accessibility is optimal. Insurance options will be reviewed, so that it can be in place as needed.
Fifth Street (Spring 2024) – pick-up trucks with small trailers for plant delivery	Municipal Road	n/a	Minimal increase of daytime traffic to deliver the pick-up trucks and trailers to deliver the marsh vegetation and saltgrass for hand planting (two to three days max. – depending on volunteer capacity to do the planting)	n/a
Amelia Ave	Municipal Road	n/a	Street parking for project team	n/a
Resthaven Road	Municipal Road	n/a	Street parking for project team	n/a
Highway 17	Provincial Highway	n/a	No impact – high trafficked roadway, including transportation of goods and services to communities on the Saanich Peninsula.	n/a

3.3 Utility Requirements and Sources

Describe utility requirements and potential sources, include agreements in place or underway allowing access to utilities. Utilities include power generation, electrical or gas transmission or distribution lines, and telecommunications.

n/a

3.4 Water Supply

Identify water requirements for construction and operation phases.

Construction/ Operation Phase	Water Source(s) (e.g. Surface Water, Ground Water, etc.)	Source/Location	Infrastructure Description	Agreements*
n/a	n/s	n/a	n/a	n/a

*Agreements outside of Water Sustainability Act Authorizations, such as Municipal water supply.

3.5 Waste Collection Treatment and Disposal

Identify any waste disposal (note septic system required), sewage, sanitation facilities, and refuse disposal proposed. Include agreements in place or underway such as regional health board sewage disposal permits.

Construction/ Operation Phase	Discharge distance to closest body of water (lake, well, etc.)	Volume of daily discharge	Infrastructure description	Agreements
n/a	n/a	n/a	n/a	n/a

3.6 FireSmart

Identify any proposed actions to incorporate FireSmart best practices in the tenure area.

n/a – project site situated within a coastal zone, which is exposed to a tidal range, waves, and ocean currents. Higher resilience to fire due to the damp nature of the project site.

4.0 Environmental

Describe significant impacts and proposed mitigation for each of the following:

4.1 Land Impacts

4.1.1 Vegetation Removal

Is any timber removal required? To cut timber on Crown land once your tenure has been issued, you may require an Occupant Licence to Cut.

n/a

Are any areas of vegetation to be cleared, outside of timber removal?

n/a

4.1.2 Soil Disturbance

Will there be any areas of soil disturbance, including grubbing, excavation, contouring, and levelling?

Yes – minimal excavation at the seaward edge of the historical marsh footprint to install the rock sills, with backfill material being added behind the sills to build up to current marsh elevation (~4,000 tonnes of marsh nourishment mix). The specifications for the marsh and beach nourishment mix was based on a sieve analysis of sediments taken as a bulk sample from productive areas where forage fish spawn in Roberts Bay to mitigate the risk of eroded materials (i.e., if materials erode they will work to nourish the beach down cell). Minimal disturbance will occur during planting of the marsh vegetation and salt grass during the spring planting event.

Is the area to be excavated a brownfield site or have the potential to be contaminated?

No – project site is situated within a residential region of Sidney, BC and identified as an Environmentally Sensitive Area within the community's Official Community Plan (OCP).

Any ground-disturbing activities have the potential to impact archaeological, paleontological fossils, or historical artifacts. Have you considered these potential impacts or taken any action to identify them? You may be required to hire a professional to assist with your investigations.

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4.1.3 Riparian Encroachment

Will any works be completed within or adjacent to the riparian zone of any water body? The Riparian Areas Protection Regulation may affect your development if it's within 30 metres of a watercourse and you intend to:

- Disturb soil
- Remove plants
- Construct or install works for flood protection

- Develop drainage systems or service sewer or water systems

This project will not have any works occurring within 30 meters of Mermaid Creek, which is the only watercourse in the vicinity. The works will take place entirely within the intertidal zone of Roberts Bay, with the exception of the construction of the access point at the end of 5th Street, which is well outside the 30-meter buffer zone.

4.1.4 Pesticides and Herbicides

Will pesticides, fertilizers, or herbicides be used during construction, operations, or maintenance?

n/a

4.1.5 Visual Impacts

What impacts will your activity have on visual quality objectives. Could it impact sight lines from surrounding areas likely to be used for scenic viewing?

No – sight lines for the community residents will be maintained for views of the Bay and the wildlife that utilize it.

4.2 Atmospheric Impact

4.2.1 Sound, Odour, Gas, or Fuel Emissions

Will your activity cause any of the following to disturb wildlife or nearby residents?

- Sound?
- Odour?
- Gas?
- Fuel Emissions?

An increase in sound will be temporarily present during the three-week period of construction. However, the construction activity will be scheduled during the daylight period and meet the noise by-law for the Town of Sidney. Project site is situated within a highly pre-disturbed urban area for wildlife. Project timing is outside the non-migratory and winter waterfowl period of the Roberts Bay-Shoal Harbour Migratory Bird Sanctuary. A recurring American bald eagle (*Haliaeetus leucocephalus*) nest and a single great blue heron *(Ardea herodias ssp. fannini*) nest are found in the bay. These species and their nests are under Federal and Provincial protections including those under the *Federal Migratory Birds Act* and the BC *Wildlife Act*. Both sites are expected to be active during the works proposed here, if the heron pair shows up. Buffers were established using the Develop With Care Guidelines for American bald eagles and great blue heron standards (Develop with Care, 2014). With an existing high disturbance level in an Urban Zone (<1 ha lots), a 60 m buffer is recommended for herons and 100 m for eagles. Because this work is happening during the breeding season for these species (Jan 31 - Sept 15) an additional 100 m is recommended for eagle nests and 200 m for herons. A minimum 260 m buffer will be established for herons and a minimum 200 m for eagles. These buffers will be marked with periodic monitoring for both nests from a suitable distance using optical instruments for signs of distress. These buffers are in compliance with recommendations from both ECCC and Provincial standards (Develop with Care 2014) – See Appendix 3 within the PSS Ecological and Impact Report.

All machinery will be in good and well-maintained working order and inspected for leaking and excessive residues before entering the project area. Machinery will be required to be under a regular maintenance schedule to ensure no excessive noise is created while operating. A spill kit will be stored on-site equipped with absorbent pads and booms of sufficient size to contain any accidental spills. Inspections and spills will be documented and recorded by the biologist and submitted in the event of a spill. All machinery and equipment will be fueled offsite and will be equipped with biodegradable hydraulic and lubricating fluids where possible.

4.3 Hydrology

4.3.1 Drainage Effects

Will the project result in changes to land drainage?

As the town of Sidney developed, Mermaid Canal and estuary slough was mostly piped up to its current extent and incorporated into the town's stormwater system. The system concentrates water from ~1.5 km^2 (Appendix 1 in the PSS Ecological Restoration and Impact Report). The water quality and hydrology of stormwater runoff became increasingly warmer, faster, and more toxic, a suite of characteristics that accompanies development known as 'Urban Creek Syndrome'. As rural density increased and encroached on the marsh, the ability of the marsh to drain was also compromised. A local homeowner on the creek was documented dredging a portion for better boat access and moorage (anecdotal). Evidence of this dredge site can still be seen and has relic negative impacts. Invasive species are also an issue including Himalayan Blackberry, Golden Willow, English Ivy, Bindweed, and Reed Canary Grass. Today the north side of the upper marsh is used as an informal trail. Foot traffic is creating fissures in the eroding banks which are now collapsing in a few areas. These factors likely led and continue to contribute to accelerating the erosion of the upper marsh community above the natural boundary and dramatically altering overall sediment budgets impacting the sediment recruitment of the lower delta salt marsh. A large pier (now since mostly removed) was constructed in the southeast end of Roberts Bay with associated dredging and sediment alterations. Additionally, as density increases along the backshore, the shoreline is continually 'armoured' with seawalls and bulkheads which are also impacting sediment dynamics in the bay. Finally, a pier in nearby Sidney is thought to be impacting coastal marine sediment transfer (anecdotal). These altered sediment budgets are thought to be starving the delta of new sediment while storm surge and Sea Level Rise (SLR) erode the marsh and its sediments. For more information on these low salt marsh dynamics please refer to the DHI Technical Report (2022).

This project proposes to install crescent wave attenuating features at the historic leading edge of the marsh which is approximately 30 m seaward of the existing leading edge of the marsh. This installation, and the sediment nourishment behind the crescent features, along with the salt marsh plantings, will expand the area that Mermaid Creek drains into. The gaps in the rock berm structures will ensure there is still appropriate drainage from the current and restored salt marsh. There will be potential for drainage channels to be introduced into the marsh to prevent standing pools of water on the marsh. Standing water will be easy to determine following the winter season at the site and adaptive decisions can be made about drainage channels.

Additionally, the dynamic nature of the bay presently moves sediment in and around the current sea wall drainages causing fluctuations in the height of the sediment relative to the base of the seawalls and any drains. This has the potential to influence drainage of the properties behind the seawalls, although it is not anticipated this project will negatively impact those drainages in any way.

4.3.2 Flood Potential

Will the project result in a potential for flooding?

No – the focus of the project is on habitat enhancement of a degraded salt marsh. Salt marshes are vital coastal habitats that provide foraging and nursery opportunities but can also provide a nature-based solution to climate change through carbon sequestration and storage and attenuate wave energy that can cause coastal flooding through increased storm surges. The degree of attenuation from a salt marsh can vary greatly but wave heights are known to experience decreases as waves move onshore across a marsh, which was observed in a salt marsh with closely related vegetation in San Francisco Bay (Foster-Martinez et al. 2018).

4.4 Fish and Wildlife Habitat

4.4.1 Disturbance to Fish/Wildlife and Fish/Wildlife Habitat

What effect will your activity (construction or operations phase) have on wildlife or wildlife habitat?

Construction phase will result in the expansion of the salt marsh footprint to its historical orthophoto footprint through the construction of rock sills along the historical leading edge of the marsh approximately 30 m from its existing leading edge. Backfill with marsh nourishment material will raise the elevation to the existing salt marsh level and salt marsh vegetation planting will expanding the marsh.

This increases the areal extent of the salt marsh to be able to provide habitat to wildlife and support biodiversity.

Will the activity (construction or operations phase) occur in and around streams, lakes, estuarine, or marine environments?

Yes – we are restoring a salt marsh. Construction and planting will expand the salt marsh to its historical orthophoto footprint and rock sills will reduce the impact of sheer stress on the marsh edge.

This estuarine complex is made up of three or more estuarine wetland community associations including upper brackish communities of Tufted Hairgrass (*Deschampia cespitosa)* - Meadow Barley (*Heuampia brachyantherum*) (ED01) and Lyngbye's Sedge (*Carex lyngbei*) (EM05) (Mackenzie and Moran, 2004). The lower eusaline salt marsh community that is the target of this restoration is a Glasswort (*Sarcocornia pacifica)* - Sea-milkwort (*Lysimachia maritima*) community (EM02). The low salt marsh medium is a mix of small cobbles, gravels,

and sands ranging in size and fixed in a peat matrix with saltgrass and pickleweed predominating the vegetative community. The marsh is currently rapidly eroding and where the marsh has eroded away peat remnants are detected. There is evidence of eroded organics depositing Northwest while large, eroded chunks of marsh are strewn about the beach after large storms. Though no formal survey or sampling for fish species has been conducted for the Mermaid Canal and delta for this report, the habitat is potentially suitable for species of analogue environments including Three spined stickleback, juvenile shiner surf, minnow (spp.), juvenile pile perch, sculpin spp., and low densities of juvenile flatfish spp., and juvenile rockfish among others.

Is the construction or operation of your activity likely to increase erosion or sedimentation?

No – it will reduce the effects of shear stress to the leading edge of the marsh, which is resulting in erosion of the marsh through rock sills. Additionally, it will expand out the marsh through the introduction of marsh nourishment to raise the elevation to current marsh height and through planting of vegetation.

Will the construction or operation of your activity require water diversion?

No

Will the activity threaten or endanger species at risk in the area?

No – it will support the listed Great Blue Heron by enhancing shoreline foraging habitat (Develop With Care 2014).

5.0 Socio-Community

Describe significant impacts and proposed mitigation for each of the following:

5.1 Land Use

Describe the current community setting or any locally known areas in use on, or near, the activity area.

Roberts Bay is a semi-enclosed bay located on the northeast side of the Saanich Peninsula, within the Town of Sidney, BC in the Traditional Territory of the Tseycum First Nation (Figure 1). The bay is of regional, cultural, and ecological importance and provides habitat for migratory and resident species of birds and wildlife. It is a Federally designated site as a key part of the Shoal Harbour Migratory Bird Sanctuary, which also includes Tsehum Harbour directly to the North and is also a part of the larger Sidney Channel Important Bird Area (IBA). It is exposed to waves primarily from the northeast. The bay has private single-dwelling residential development in the backshore. Though most of its shoreline is armoured with private bulkheads and seawalls, one area has a small slough and delta feature known as Mermaid Creek. This urban creek daylights from stormwater infrastructure ~200 m from its delta mouth in the southeast corner of Roberts Bay. A

small salt marsh is located on the Mermaid Creek delta, mainly consisting of American glasswort (*Sarcocornia pacifica*) and saltgrass (*Distichlis spicata*).

5.1.1 Land Management Plans and Regional Growth Strategies

Are there any plans, strategies, or use restrictions that could limit or prevent your activity? They include:

- Land and resource management plans
- Coastal plans
- Provincial or regional growth strategies
- Local government plans with zoning, or management policies or use restrictions in place that could limit or preclude your proposed use of the land?

Refer to the Union of BC Municipalities, and check the websites of the municipality, regional district, or other organization with jurisdiction that includes your activity area.

No, the project has received funding from the Town of Sidney to support the restoration of the Salt Marsh. The area has been included by the Town of Sidney's Official Community Plan (OCP) as an Environmentally Sensitive Area with strict development regulations as well as restrictions around noise pollution and dog leashing.

5.2 Socio-Community Conditions

5.2.1 Adjacent Users or Communities

Is the project likely to restrict public access, or the ability of adjacent landowners or tenure holders to access their property or tenures?

A traffic management plan will be developed. The areas around construction will experience temporary closures where necessary to maintain a high level of public safety. Flaggers will be commissioned to be on site to ensure public accessibility is optimal.

Access to the beach via Fifth Street by the public, including recreational kayakers to use the designated kayak launch site during the construction activities will be maintained as much as possible, but temporary closures are expected. After construction, this area can continue to be used as a kayak launch. However, the beach nourishment material of the lower marsh will result in an improved gradual incline to the water versus the current entry angles experienced presently. Spacing between the constructed rock crescent headlands facilitates smooth access at lower tides.

5.2.2 Public Access

Will the project result in changes to public access?

No – access to the bay will remain and fifth street kayak access will only experience a temporary closure to protect the public from construction activities.

5.2.3 Existing Services

Describe any increased demand on fire protection, health facilities, or emergency services. Include proposed management or mitigation measures.

n/a

END OF FORM