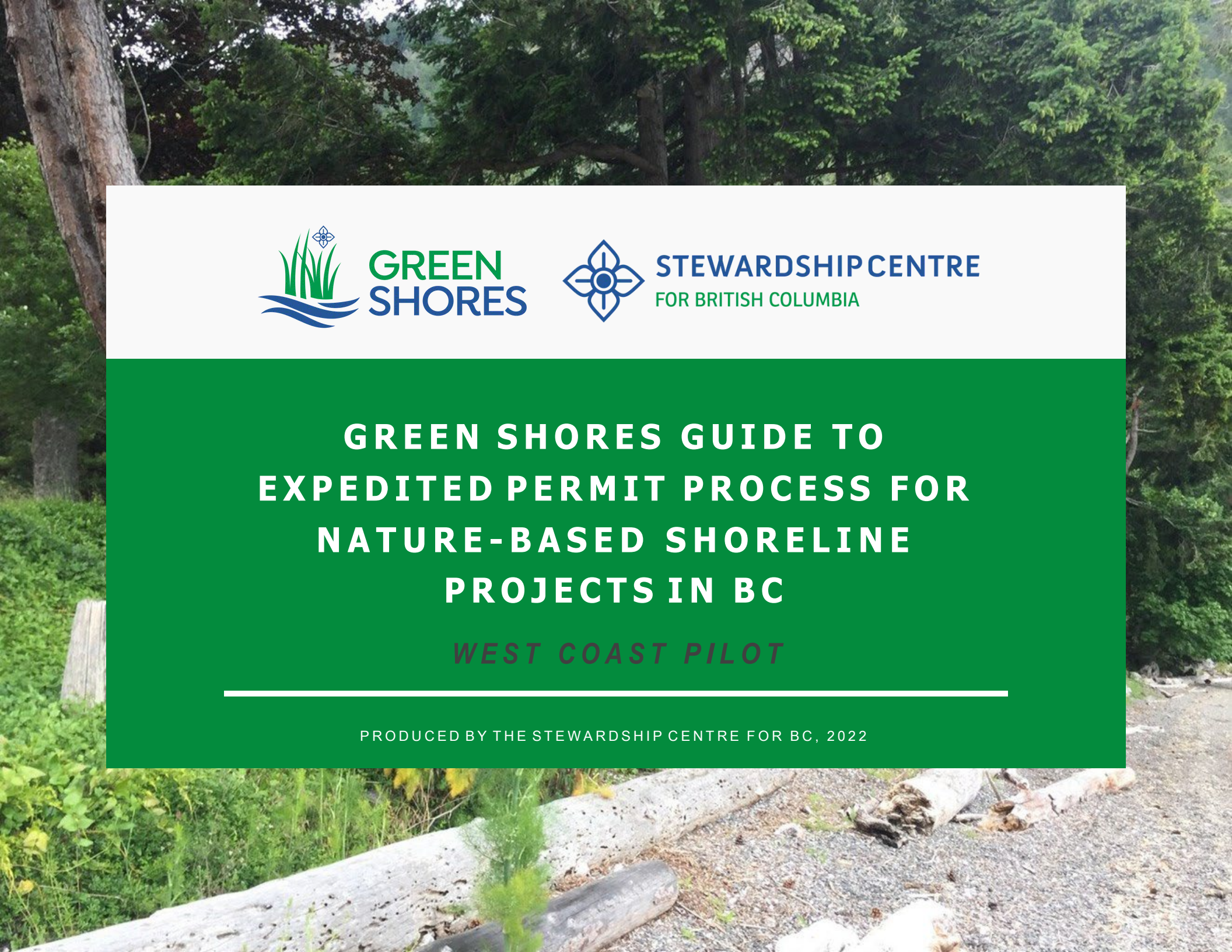


GREEN SHORES

STEWARDSHIP CENTRE FOR BRITISH COLUMBIA

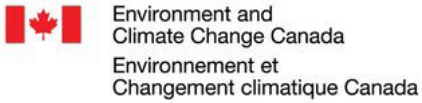
GREEN SHORES GUIDE TO EXPEDITED PERMIT PROCESS FOR NATURE-BASED SHORELINE PROJECTS IN BC

WEST COAST PILOT

PRODUCED BY THE STEWARDSHIP CENTRE FOR BC, 2022

ACKNOWLEDGEMENTS

Information in this informational guide has been adapted from the Green Shores for Homes Guide by the Stewardship Centre for BC, Your Marine Waterfront Guide by the Washington Department of Fish and Wildlife. Thank you to our in-kind supporters Paul de Greef and the Northwest Hydraulic Consultants for the graphics. The guide was produced by the Stewardship Centre for British Columbia, 2022 ©.



INTRODUCTION

WHY USE A NATURE-BASED APPROACH?

People love to live in places where water and land meet. Shorelines provide work, recreation, living space, mild climates and wonderful views. People are not the only creatures drawn to shorelines. Due to their diverse resources and habitats provided by shorelines, they are biologically rich and productive habitats for many varieties of wildlife. In fact, scientists continue to highlight the critical value that shorelines provide to important wildlife species such as juvenile salmon on the west coast of North America and Piping Plover on the east coast.

Unfortunately, many of the natural features that make shorelines so attractive are often the casualty of human activities. Native trees, shrubs, and grasses are cleared to make way for houses, lawns, and views.

Bulkheads, docks and piers displace beaches and alter natural shoreline processes. Loss of shoreline vegetation allows contaminants to flow directly into the water. Prime wildlife habitats disappear, taking with them birds, mammals, fish, and beneficial insects.

The **good news** is that researchers and professionals are finding new strategies using nature-based approaches for protecting waterfront properties while also protecting and restoring habitats.

Instead of concrete and sheet pile, nature-based practices use a combination of plantings, gravel, sand, logs, stones, setbacks, and slope modification to protect against shoreline erosion and provide recreational access while at the same time maintaining the ecological attributes of the shoreline.

INTRODUCTION

GREEN SHORES®

The **Stewardship Centre for BC's Green Shores®** program encourages shoreline project proponents to use nature-based erosion protection and restoration in sites where erosion protection is needed. With appropriate guidance from Qualified Coastal and Environmental Professionals, nature-based shoreline projects can be designed to be resilient to sea level rise and other climate change impacts.

Note that not all shoreline sites are suitable candidates for a nature-based shoreline project. It is important to get professional guidance to determine the best approach for your site.

HOW DO NATURE-BASED EROSION PROTECTION AND RESTORATION BENEFIT HOMEOWNERS AND THE ENVIRONMENT?

BENEFITS FOR HOMEOWNERS:

- By beautifying shorelines, adding native vegetation, and habitat for wildlife.
- By increasing homeowner's access to their shoreline, eliminating drop offs and walls, and creating opportunities for strolling, kayaking, foraging, and simple beach fun.
- By making shorelines more secure against erosion and flooding, with alternatives to costly bulkheads, rip rap and seawalls.
- By offering benefits such as possible access to an expedited permit approval process
- Through Green Shores, offering of technical assistance similar to other "green" programs like LEED, BuiltGreen, and Sustainable Sites

BENEFITS FOR THE ENVIRONMENT:

- By preserving and restoring physical processes – the natural function of water and sediment movement that maintain healthy shorelines. This is in contrast to the impact of seawalls and riprap on shorelines which disrupt these natural processes.
- By minimizing or reducing pollution to the aquatic environment.
- By reducing and even reversing cumulative impacts: the small individual actions that add up to large impacts on shoreline environments.

HOW TO USE THIS GUIDE

Recognizing the benefits for coastal ecosystems and communities, the Province of BC now offers eligible nature-based shoreline projects an expedited process compared to the authorization process for hard armour projects such as seawalls and rip rap.

This guide has been developed to aid property owners and managers to navigate the expedited permitting checklist developed by the Ministry of Forests (FOR) in partnership with the Stewardship Centre for British Columbia.

For shoreline project permitting, this guide should be used in conjunction with the FOR Checklist (Appendix A). Using the Guide and Checklist, shoreline project proponents (owners and Crown Lease holders of marine waterfront property) can pull together all the required information for an application using the expedited process for nature-based erosion protection and restoration works (Nature-based Shoreline Projects).

Shoreline homeowners considering using the Green Shores for Homes (GSH) program and achieving Green Shores certification may find this guide useful as there are many synergies between GSH and the practices supported by the Expedited Permit Process for Nature-based Shoreline Projects.

WHO IS INVOLVED?

QUALIFIED PROFESSIONALS

Many types of shoreline projects require help from one or more professionals. In general, the greater the degree of wind and wave exposure, the greater the need for some professional design expertise, particularly on softer, sediment shores. Trained, experienced consultants and contractors can help with design, permitting, building, operating, and maintaining a cost-effective, sustainable, attractive, and environmentally friendly project. Depending on the specifics of the project and site, consultation may be required with a coastal/shoreline engineer or geologist, biologist, geotechnical expert, civil engineer, landscape architect, site designer, machine operator, or permit specialist. Some companies do all of these things while others specialize in one or two professions. Of note, the Stewardship Centre maintains a registry of Green Shores Approved Professionals who are skilled at applying Green Shores criteria to nature-based (NB) shoreline projects.

In order for projects to qualify for the expedited process using the Checklist, project proponents must use Qualified Professionals who meet the following definitions:

Qualified Coastal Professional:
An engineer, geoscientist, or geotechnical engineer in good standing with their professional organization with demonstrated experience and/or training pertaining to shore protection and coastal processes and acting within their professional abilities. (Note: The design of a NB shoreline may require more than one professional as a single professional may not have sufficient expertise in all required areas of expertise required to undertake the project, such as wave modelling, sediment transport, and coastal geomorphology.)

Qualified Environmental Professional:
A professional biologist, landscape architect, environmental land use planner or other suitably qualified professionals in good standing with their professional organization, acting within their professional abilities with expertise in shoreline ecology and habitat function (vegetation/aquatic/riparian ecology) and are members of BC professional associations governed under the BC Professional Governance Act.

USING THE CHECKLIST

It is important to go through all sections of the checklist and gather the required documentation for a complete application.

You must submit all documentation for the following sections:

- **Existing Conditions,** including a site plan, with critical or sensitive habitat, noted as well as a coastal processes report;
- **Proposed Development,** including a drawing package of the proposed shoreline design and a Project Report prepared by a Qualified Professional;
- list all **Existing Authorizations**;
- provide a copy of **Land Title/Lease;**
- include **BC Archaeological Information**.

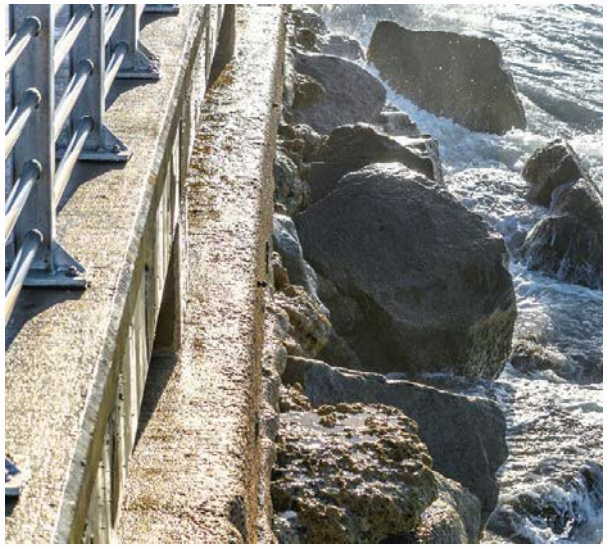
Only a complete application will qualify your project for the expedited review process.

Further details may be found in the sections that follow.

Exclusions

If you answer yes to any of the following questions, then the proposed project is likely **NOT** a nature-based design or requires extra review/does not qualify for the nature-based shoreline project expedited process.

- Does the new design include a seawall or rock revetment that covers more than 30% of shoreline length fronting the upland property?
- Does the design infringe upon critical habitat on Crown Land?
- Does the design block public access along the foreshore or beach? Note that members of the public must be able to readily go around or cross over any constructed structures along the foreshore, i.e. access along the foreshore should not be impeded.



Examples of excluded project proposals demonstrating the use of hard armour that consists of greater than 30% seawall or rock revetment.

1.0 PROPERTY SURVEY AND EXISTING CONDITIONS

Provide a copy of both

- your most recent property survey and
- a map of existing conditions.

Make sure the date of the survey is indicated.

Map of existing conditions

Identify and map out any existing site conditions that will affect—or be affected by—the proposed project in an Existing Conditions Plan. This is a drawing done 'to scale' that shows basic features such as the location of the site, property boundaries, terrain elevations and contours, trees and vegetation, as well as buildings and structures on the site, along the shoreline, and in the riparian area. It should show the water level reference (Natural Boundary) used by the local authority to define setbacks, permits and environmental regulations.

WHAT IS THE NATURAL BOUNDARY?

The Natural Boundary is the visible high water mark of any lake, stream, or other body of water where the presence and action of the water are so common and usual and so long continued as to mark on the soil character distinct from that of its banks, its vegetation, and the nature of the soil itself (BC Land Act). In coastal areas this is generally determined by the lower elevation of terrestrial vegetation.

Benefits

To the homeowner

Mapping site characteristics and features are an important tool to inform the design process. A thorough study of site conditions allows homeowners to gain an understanding of key site features and their individual and collective benefits while helping to identify cost-saving opportunities and constraints. Knowing existing site conditions allows designers to develop an approach that benefits both the owner and the environment while possibly preventing costly mistakes from an ineffective design.

To the environment

Identifying and assessing site features, processes and characteristics before developing a detailed design allows features that play vital roles in how the site and shoreline function to be protected early on. For example, areas of valuable vegetation or erodible soils will be identified and proper buffer zones established before new infrastructure and buildings are placed, minimizing the risk of impacts to nearby aquatic environments.

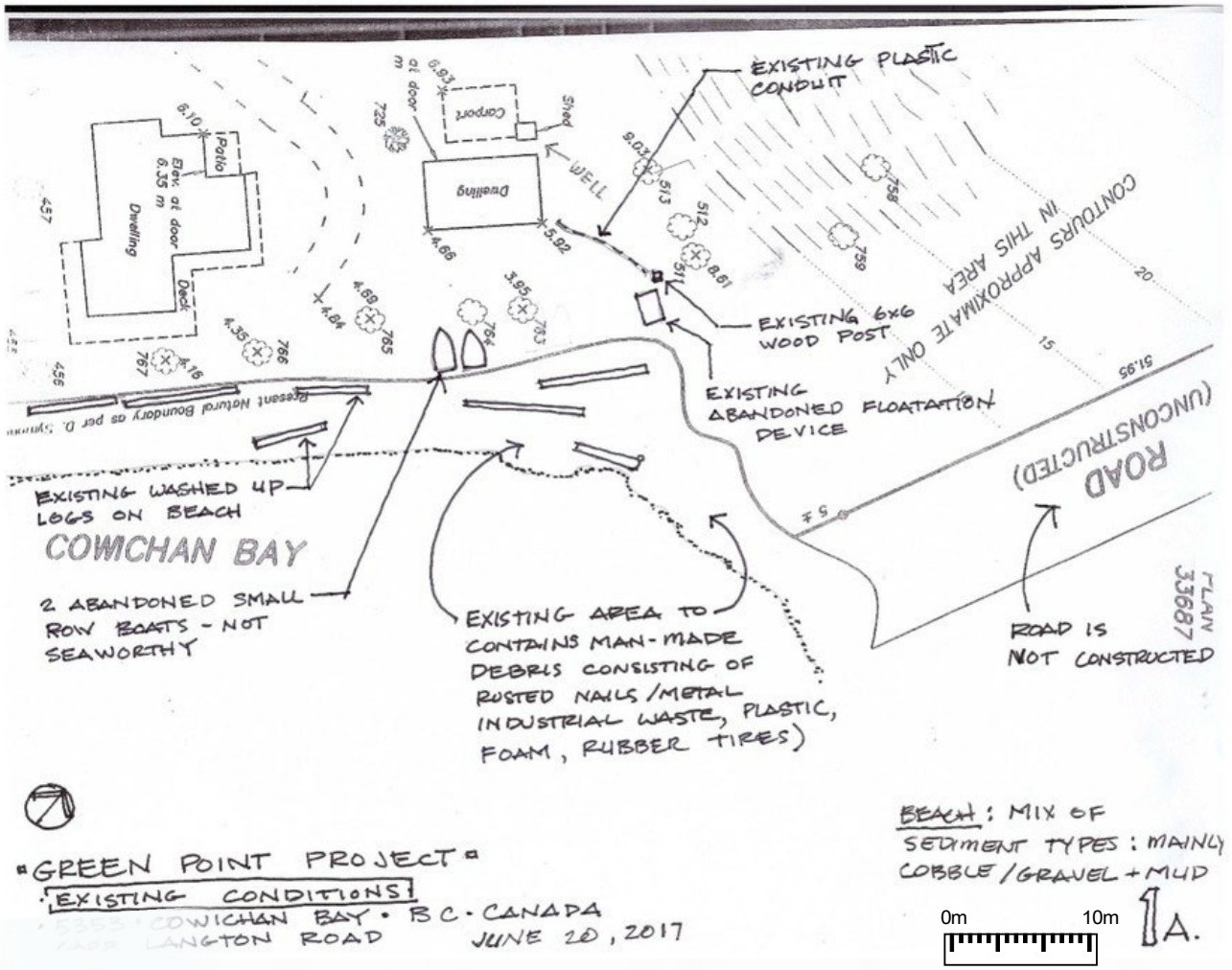
1.0 PROPERTY SURVEY AND EXISTING CONDITIONS

EXAMPLE EXISTING CONDITIONS SITE PLAN

Existing Conditions Site Plan

(pre-construction) must include:

- Plan view (view from above looking down, like a floor plan) showing a legal survey of the property, with the location of property lines and Natural Boundary indicated
- Scale and north arrow is shown on the plan view
- Location of buildings and structures shown to scale on the site plan, including any existing structures below the Natural Boundary
- Spot elevations are given for the property and shoreline, along with elevation contours at 0.5 m intervals. Vertical Datum to be noted on the drawing notes.



Credit: This site plan was completed by the property owner.

1.0 PROPERTY SURVEY AND EXISTING CONDITIONS

EXAMPLE EXISTING CONDITIONS SITE PLAN

Image: Example of an aerial photo (left) of the property and existing conditions (right).

2.0 SITE PLAN SHOWING EXISTING CRITICAL OR SENSITIVE HABITAT

Avoid impacting critical or sensitive habitats

A natural shoreline is a dynamic ecosystem that transforms naturally and comprises a unique gradient of habitats that help sustain fish and wildlife populations. Many of these habitats are considered sensitive habitats because of their high ecological value. Sensitive habitats are protected through a combination of federal, provincial, and municipal laws. For example, the federal Species At Risk Act (SARA) protects the critical habitat of species listed as Threatened or Endangered under SARA, where critical habitat is defined as the habitat that is necessary for the survival or recovery of a listed wildlife species.

In British Columbia, sensitive habitats include:

1. Areas providing important feeding, resting, spawning, nesting, or rearing habitat for federal or provincial species at risk.

2. Federally, provincially or regionally designated Environmentally Sensitive/ Significant Areas, Protected Natural Areas, National Parks, Nature Reserves.

3. Valued foreshore habitats including estuarine marshes and meadows, mudflats, eelgrass beds, kelp beds, commercial/ recreational/First Nation clam beds, tidal channels, important spawning and rearing areas for fish, seabirds, and other wildlife.

Benefits

To the homeowner

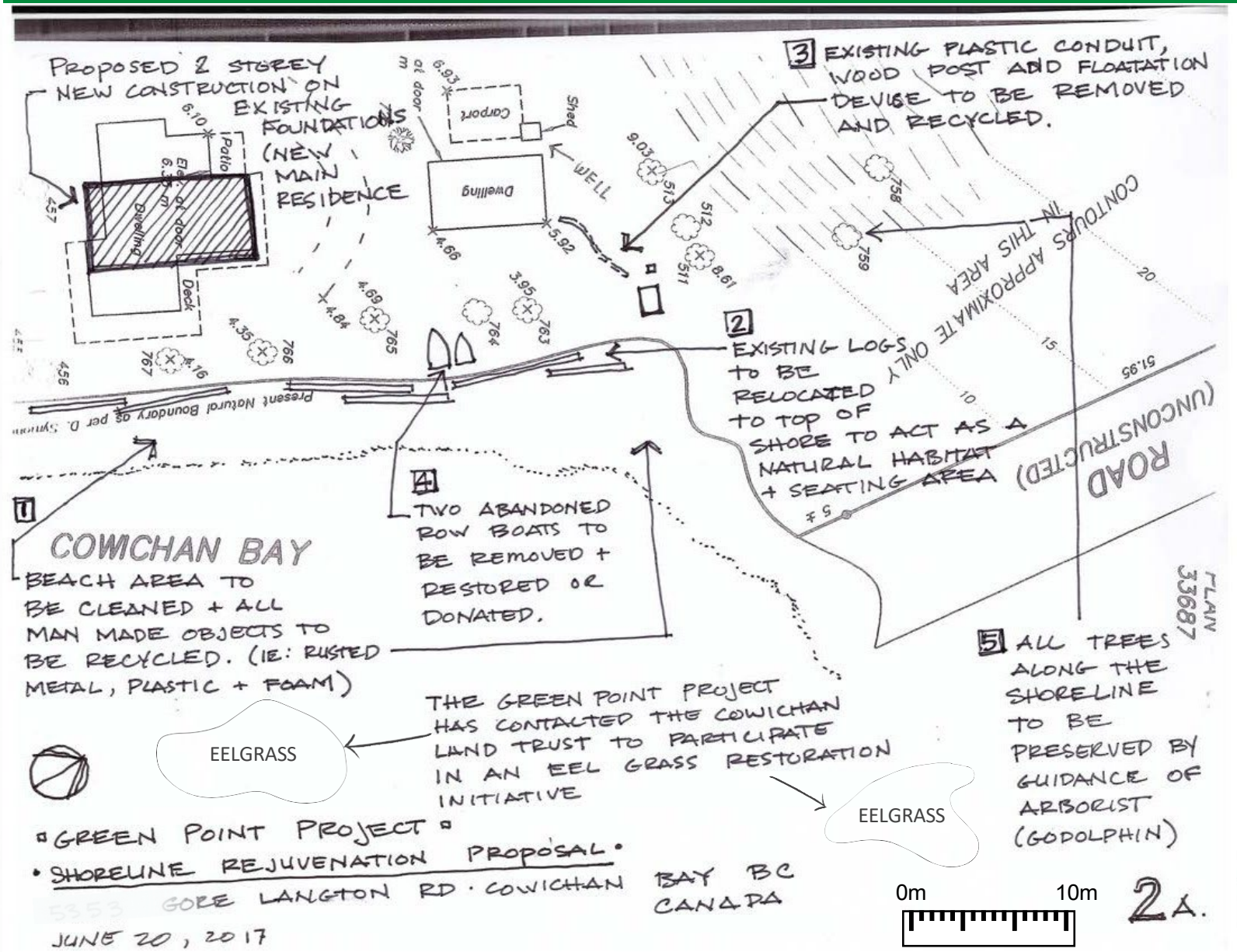
Protecting sensitive habitats preserves the attractiveness and vitality of living on the shoreline and provides opportunities for wildlife viewing. These habitats perform many ecological functions that maintain the quality of the environment—like controlling erosion and maintaining water quality—far more inexpensively than engineered methods.

To the environment

Protecting sensitive habitats maintains native plant and animal populations, and with that biodiversity.

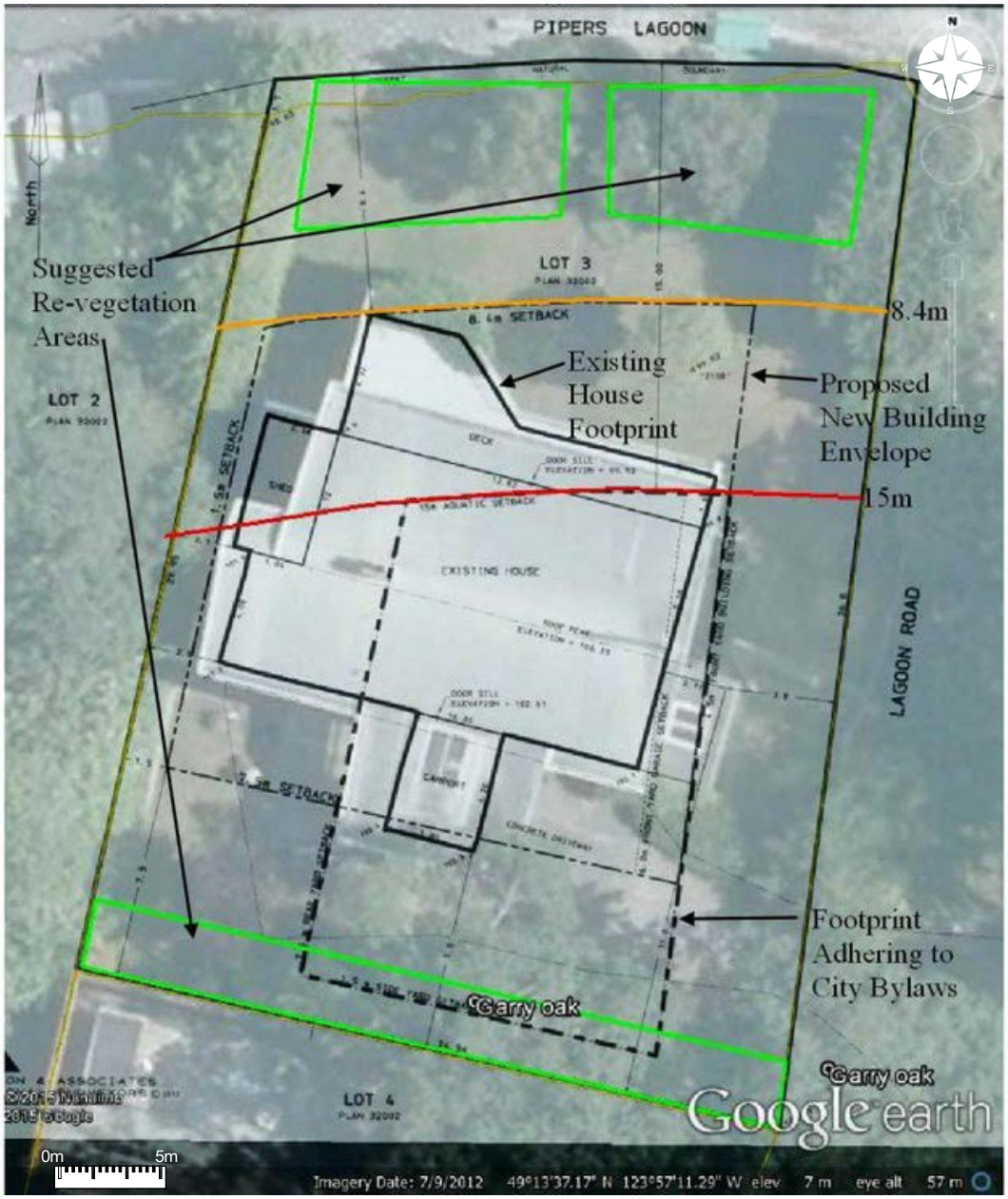
The Site Plan that shows existing critical or sensitive habitat must be prepared by a Qualified Environmental Professional and include: critical or sensitive habitat on the property and the foreshore adjacent to the site. This map should include riparian, foreshore, subtidal/littoral zones and along the shoreline extending at least 50 m on each side of the property lines.

2.0 SITE PLAN SHOWING EXISTING CRITICAL OR SENSITIVE HABITAT



Credit: This site plan was completed by the property owner.

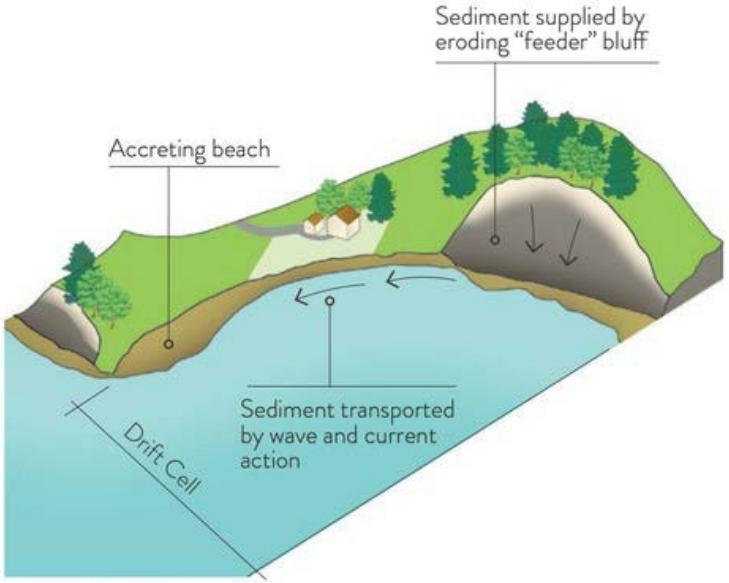
2.0 EXAMPLE EXISTING SITE CRITICAL OR SENSITIVE HABITAT



3.0 COASTAL PROCESSES REPORT

Nature-based shoreline projects must be designed and supervised by a Qualified Coastal Professional in order to qualify for the expedited permit process.

The project must employ a design that allows for the continuation of natural ecological processes such as littoral drift and successful establishment of riparian vegetation, while not completely altering beach or backshore areas. As such, it is important that the design fully takes into account the coastal processes at the site prior to construction as well as those anticipated with changing coastal conditions like sea-level rise.



Elements of a drift cell *Credit: Your Marine Waterfront Guide*

Benefits

To the homeowner

Your property is part of a larger system driven by wind, waves, and currents that continuously moves beach material (sand, gravel, logs) along the waterfront like a conveyor belt. In some places, beach material may build up and in other places, it may erode. Many factors combine to determine the rate and amount of material that moves along the beach. Recognizing that beach material moves as part of a natural, healthy system is fundamental to understanding coastal processes and for the development of a project design that will work at your site. (Your Marine Waterfront).

To the environment

The movement of water and sediment is captured by the concept of drift cells. A drift cell includes a source of sediment input to the beach, a zone where wind and waves move sediment called down drift, and a terminus where sediment either builds up on the beach (accretion) or moves offshore into deeper water. Maintaining the flow of sediment through the drift cell will allow downdrift beaches to receive sediment – avoiding the situation where the beach is "starved" of sediment. If a beach does not receive sufficient sediment, it will erode. Knowing your place in a drift cell will help you and any professionals you hire to design an approach for your site that allows coastal processes to continue as naturally as possible. (Your Marine Waterfront).

3.0 COASTAL PROCESSES REPORT

The Coastal Processes Report must be prepared by a Qualified Coastal Professional (P.Eng or P.Geo) with expertise in coastal engineering, coastal geomorphology, or geotechnical engineering with experience in coastal processes.

The Coastal Processes Report must:

- Define incident sea state (wave) at the project site and design water levels.

- Provide an assessment of coastal sediment transport processes at the site. In particular, a coastal/shoreline sediment transport assessment must be included as well as site mapping based on existing aerial photo interpretation and a site visit.

- Provide technical analysis showing:

  - Dominant and seasonal sediment transport pathways along the shoreline adjacent to the property;
  - Sediment sources relevant to the littoral cell for the project; and
  - Sediment sinks or depositional areas that may be connected to the littoral cell for the project.

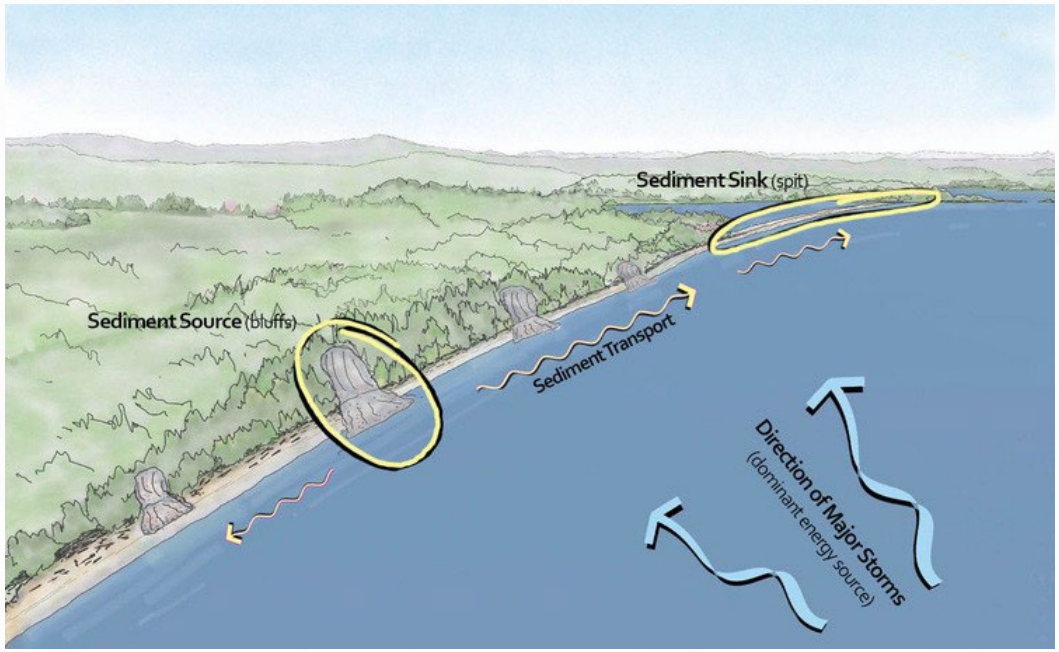


Image: Example of coastal processes highlighting the sediment sources and sinks along a natural shoreline.

Credit: Paul de Greeff.

WAVE ENERGY

Wave energy is an important factor in determining erosion patterns and depends greatly on fetch –the distance that wind will travel over open water, which will influence the properties of the waves. The greater the distance, the larger the waves and the more energy they carry.

4.0 PROPOSED DEVELOPMENT

In order to qualify for the expedited process, you must provide a drawing package of the proposed shoreline design and a project report.

The drawing package shows the proposed development project in the context of current site conditions and processes. It is a set of drawings that shows the elements of a proposed development project and should contain a 'plan view' and drawings that show 'side' and 'section' views. Like an Existing Conditions Plan, these drawings are a component of project design drawings typically required by local authorities to approve a building or development project.

Proposed Development Drawing Sheets

The minimum required drawing sheets include:

- Plan view to scale showing project elements clearly, including all areas that extend onto Crown Land.
- Excavation drawing sheet (if relevant) of any excavations.
- Cross section view(s).
- Riparian zone plan view sheet. A scaled site plan showing the location and typical species composition of the existing riparian zone and clear indications of any removals, planting, and re-vegetation for the project, as well as plans for monitoring plant survival and replacement as required.
- Plan showing proposed shoreline design and existing critical or sensitive habitat.
- Site access drawing sheet.
- Site plan indicating where equipment will access the shoreline, and extent of any work areas including all site access and lay-down areas for the project.

Benefits

To the homeowner

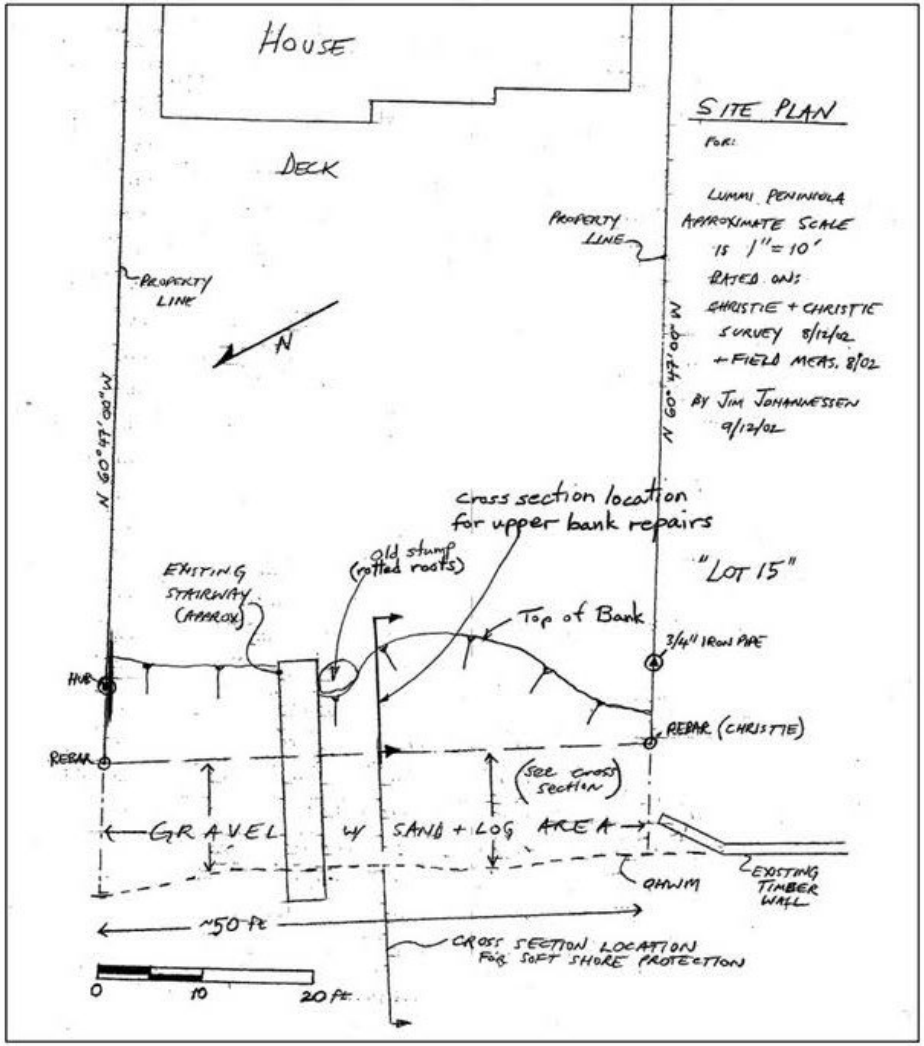
Developing proposed development site design drawings are part of the planning and design process to properly size and locate all the project elements on the existing site. The planning and design process allows homeowners to fit their projects to their existing site and to avoid costly alterations to existing site conditions. Completing a simple design plan and project report early in the design process will help identify potential problems and design shortcomings before they become a real problem. Rather than react to a problem, homeowners can design more efficient homes, multifunctional landscapes and greener shorelines.

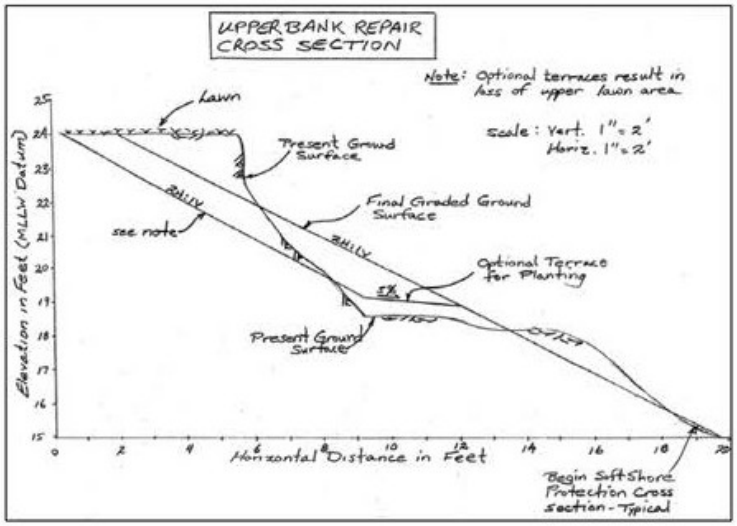
To the environment

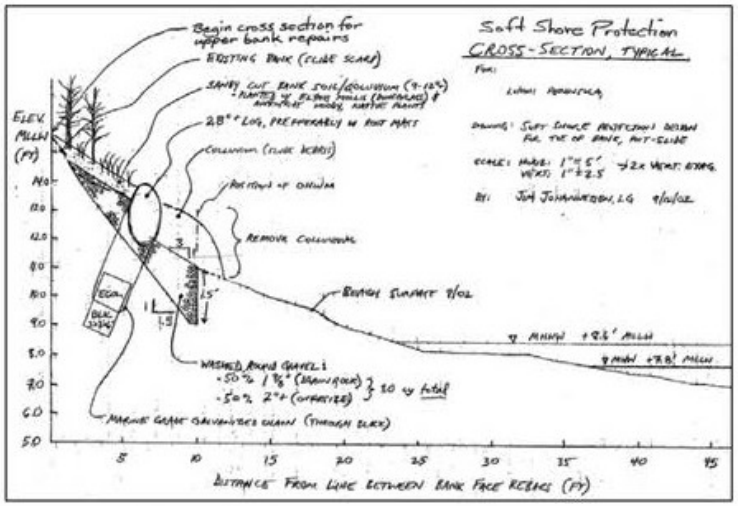
Site design drawings and a project report will ensure that all proposed design initiatives are properly sized and located in a way that protects important site features and preserves existing ecological processes and functions.

4.0 PROPOSED DEVELOPMENT

EXAMPLE SITE DESIGN PLAN







Images: Example site design plan (left) and cross-sections to provide detail (right).

Credit: Coastal Geologic Services, Marine Shoreline Design Guidelines (2014)

5.0 PROJECT REPORT

A project report, prepared by a Qualified Coastal Professional with experience in Coastal Engineering, must be submitted that confirms that the project site experiences erosion and/or that the project is intended to address coastal flooding (storm surge, sea-level rise, wave runup) at the site and upland property.

This report will also include input from a Qualified Environmental Professional supporting design that restores or enhances fish and wildlife values.

If a Hybrid Design is utilized (i.e. design that includes some 'hard shore' elements such as rock structures, groynes, revetments, and similar engineered structures along with soft shore elements) the report shall include the rationale for the inclusion of any such structures in the design and how the design still meets other specifications noted above.

Note: an Environmental Management Plan will be required before an approval is granted but is not required for initial screening.

Project report contents must include:

- Specifications for a nature-based protection design (e.g., no hard armour except to tie in with neighbouring property and to a maximum of 30% of the shoreline).
- Demonstration that the design allows for the continuation of natural processes such as longshore sediment transport and riparian vegetation growth.
- Demonstration that the design is based on analysis of erosion potential, wave energy and backshore width AND a demonstrated need:
  - a) to protect existing permanent structures AND/OR
  - b) to enhance degraded shore habitat that can be addressed by nature-based shoreline measures.

6.0 EXISTING AUTHORIZATIONS

Before submission, the proponent shall make their best effort to confirm the following:

- The proposed project or any part of it must not be on Crown land that has been designated as a reserve or withdrawal under sections 15 or 16 of the Land Act. Reserve or withdrawal designations may restrict shoreline development. These areas will be identified as Land Act sections 15, 16 or 17's on digital maps.
- There are no other authorizations for use of the Crown land which would prevent overlapping permission on that land.
- The application and proposed project must comply with any other applicable federal, provincial, local government laws and regulations.

As a waterfront property owner, you have both the privilege and the responsibility to ensure human activity is managed in a way that protects the health of your shoreline – now and for future generations. Shoreline development in the province of British Columbia and along the Salish Sea is regulated, which means an installation of most shoreline protection techniques will require an understanding of existing authorizations.

Photo Credit: Green Shores for Homes: Credits and Ratings Guide. Stewardship Centre for BC (2015).

7.0 LAND TITLE

Provide a Land Title Certificate or Lease that demonstrates that the proponent is the owner or Crown lessee of the upland property.

8.0 ARCHAEOLOGICAL INFORMATION ABOUT THE PROJECT

Protected archaeological sites may not be altered or changed in any manner without a permit. Applicants should request archaeological information about the project site through a BC Archaeological Information Request Form prior to submitting their project application.

The Integrated Land & Resource Registry (ILRR) tool can be used to determine known archaeology sites. A business BCeID is needed to generate a “public report” for the proposed project site. If the report indicates the presence of an archaeology site within the proposed project vicinity, applicants must apply for tenure through Front Counter BC (FCBC).

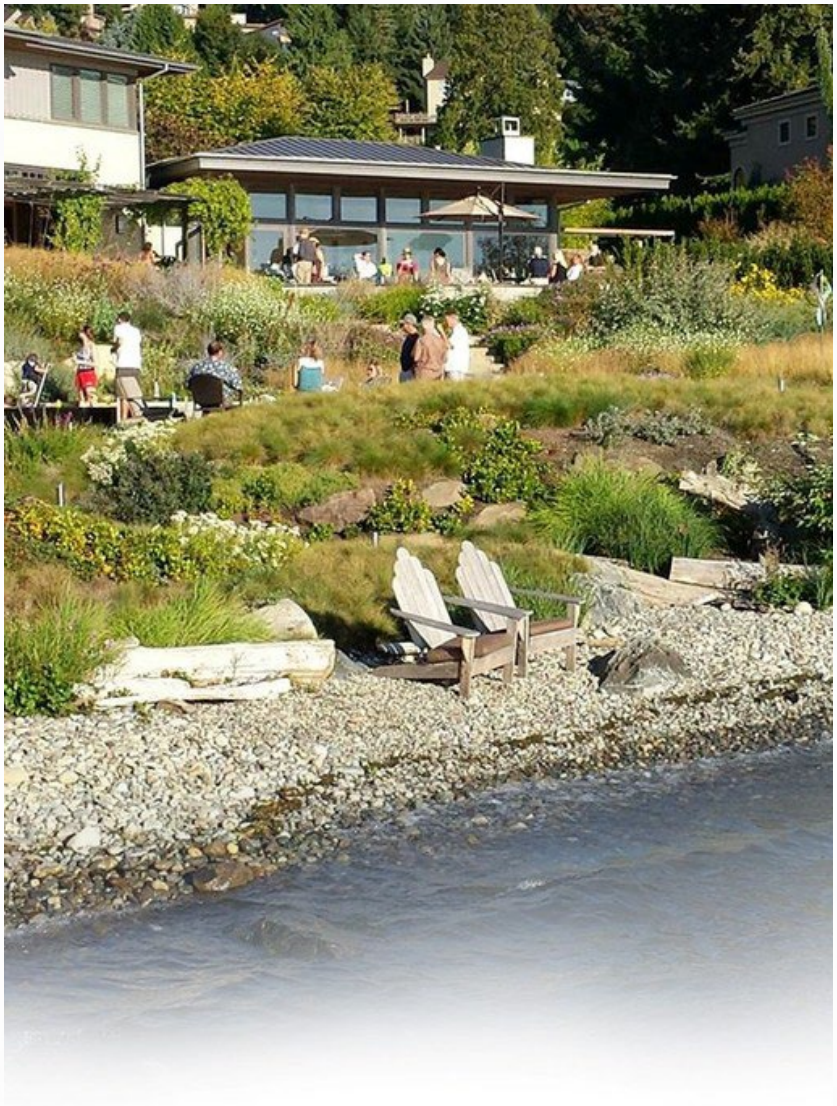


Photo Credit: Green Shores for Homes: Credits and Ratings Guide. Stewardship Centre for BC (2015).

9.0 SUBMITTING YOUR APPLICATION FOR EXPEDITED PERMIT

Once you have gathered all required documentation, contact the Front Counter BC to get assistance and submit your application with the Expedited Permit Process. If your project is also enrolled in the Green Shores for Homes program, the Green Shores Projects Coordinator can assist you with any questions you may have.

Front Counter BC Contact Infromation

Visit www.portal.nrs.gov.bc.ca/web/client/-/crown-land-tenure-application

Toll Free: 1-877-855-3222

Email: FrontCounterBC@gov.bc.ca

10.0 ENROLL IN GREEN SHORES FOR HOMES (OPTIONAL)

If your want to enrol your project in Green Shores for Homes program, follow the steps below. The process to enroll in Green Shores is simple, and of no cost for GSH projects:

1. Download the online enrollment
2. Enter your information
3. Email your form to info@stewardshipcentrebc.ca

Visit www.stewardshipcentrebc.ca/green-shores-home/gs-programs/project-enrollment web for more information.

Stewardship Centre for BC
Contact Information

info@stewardshipcentrebc.ca

www.stewardshipcentrebc.ca

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