Foreshore
Development Permit Area

Sustainable OCP Bylaw 3475, 2012

This handout is for general guidance purposes only. It does not replace any bylaws or other legislation. For complete details please refer to the Official Community Plan Bylaw 3475, 2012, Part V: Development Permit Areas..

As part of your Development Permit application you will need to consider the following:

- **General Environmental Development Permit Guidelines,**
- **General Multi-Family, Commercial and Industrial Form, Character & Performance Development Permit Guidelines**
- **Specific Development Permit Area Guidelines**
- **For Area Designation, Justification and Exemption for this section please refer to Chapter 22, Sustainable OCP Bylaw 3475, 2012.**

Foreshore Development Permit Guidelines

In addition to the *General Environmental Development Permit Guidelines*, the following specific guidelines shall be addressed for Foreshore Development Permit Areas:

a) A detailed description of the shoreline's current physical and ecological condition shall be prepared by a Qualified Environmental Professional.

b) Development of the shoreline area shall not impede public access along the shoreline below the natural boundary.

c) A minimum 30 metre setback shall be maintained for new buildings and structures, additions to existing buildings and structures, or the placement and removal of fill, other than beach nourishment fill, except where a Qualified Environmental Professional demonstrates a lesser setback is appropriate and to the satisfaction of the City.

d) New upland structures or additions shall be located and designed to avoid the need for shore protection works. Only if all options to locate and design without the need for shore protection measures are exhausted will such works be considered for approval by the City.

e) Using geotechnical analysis of the site and shoreline characteristics, subdivision concepts shall ensure that the lots created will not require shore protection measures

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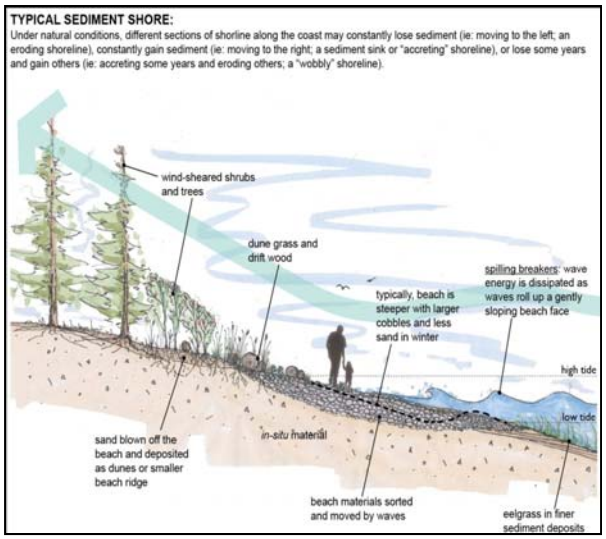
to provide useable, safe building sites.



f) New driveways and septic systems shall not be located in the development permit area. If such a location cannot be avoided, the encroachment shall be minimized, and the design and construction of the road or septic system be supervised by a Qualified Environmental Professional to ensure that the objectives and Guidelines are met to the satisfaction of the City.

g) Environmental Assessments for reduction in the 30 metre foreshore setback shall include recommendations for protection and restoration required for existing native vegetation to minimize disruption to habitat and to protect against erosion and slope failure.

h) When works are undertaken within the 30 metre setback area, existing trees and shrubs to be retained shall be clearly marked prior to development, and temporary fencing installed at the drip line to protect them during clearing, grading and other development activities.

i) Where the development permit area includes native plant species or plant communities dependent on a marine shoreline habitat that are identified as sensitive, rare, threatened or endangered, or have been identified by a Qualified Environmental Professional for protection, their habitat areas shall be left undisturbed. If disturbance cannot be entirely avoided, development and mitigation/compensation measures shall be undertaken under the supervision of a Qualified Environmental Professional with advice from applicable senior government agencies.

j) If the area has been previously cleared of native vegetation, or is cleared during the process of development, restoration shall be required. Vegetation species used in replanting and restoration shall be identified by a Qualified Environmental Professional and be selected to suit the soil, light and groundwater conditions of the site, should preferably be native to the area, and be selected for erosion control and/or fish and habitat wildlife habitat values as needed. Suitably adapted, non-invasive, non-native vegetation may also be considered acceptable.

k) All replanting shall be maintained by the property owner for a minimum of one year from the date of completion of the planting. Watering or irrigation shall be provided

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for establishment of new plantings. Unhealthy, dying or dead stock should be replaced, and the maintenance period extended until replacement plantings are thriving. Removal of invasive, non-native weeds (such as Himalayan blackberry, Scotch broom, English ivy) is required on an annual basis.

l) Prior to land disturbance within or adjacent to the development permit area, a stormwater management plan and erosion and sediment control plan prepared by a qualified professional is required that is consistent with the City's current development servicing bylaw and any geotechnical evaluations as required.

m) Prior to land disturbance an environmental management plan is required that articulates:

i) site and project description;

ii) roles and responsibilities for construction manager and Qualified Environmental Professional;

iii) sequence of major construction activities;

iv) scaled site map;

v) spill management protocol;

vi) waste management protocol; and

vii) management protocol for hazardous materials.

a) Bluff shorelines require special attention due to the risk of slope instability, with measures to prevent saturation of the bluff face, prevent excessive removal of backshore vegetation, prevent construction of excessive beach access structures and ensure appropriate setbacks from the top of bank. These measures shall be prepared by a geotechnical engineer.

b) Risk slope stabilization must give priority to bioengineering approaches.

c) If geotechnical analysis specifically allows, vegetation may be strategically pruned by or under the guidance of a professional for views.

d) Shoreline protection measures as outlined in the following section shall be adhered to as required.

Shoreline Protection Measures

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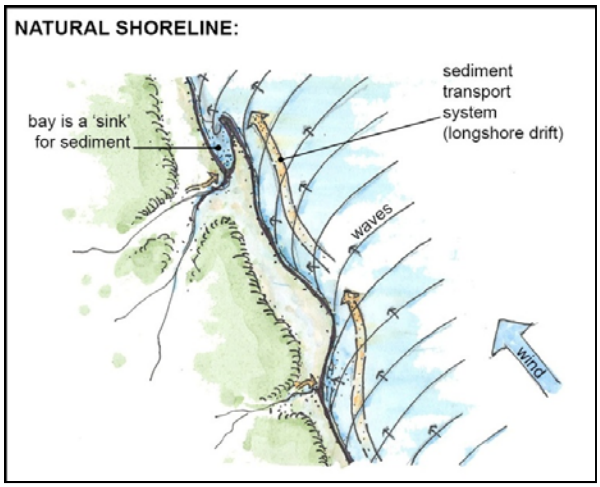
Shore Protection Measures are the range of modification measures to the shoreline, or adjacent seaward or landward areas, for the purpose of protection against erosion. Structural protection methods are often referred to as “hard” and “soft.” "Hard" measures refer to those with solid, hard surfaces, such as concrete bulkheads, while "soft" structural measures rely on less rigid materials, such as biotechnical vegetation measures or beach enhancement. There is a range of measures varying from soft to hard.

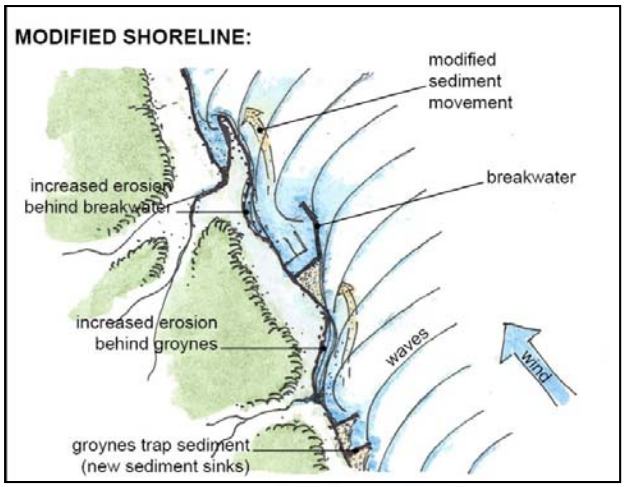
- Vegetation enhancement
- Biotechnical measures
- Beach restoration
- Anchor trees
- Gravel placement
- Ballasted log structures
- Rock (rip rap) revetments
- Gabions
- Concrete groynes
- Retaining walls or bulkheads
- Seawalls

SOFT (more natural)

↓

HARD (engineered)





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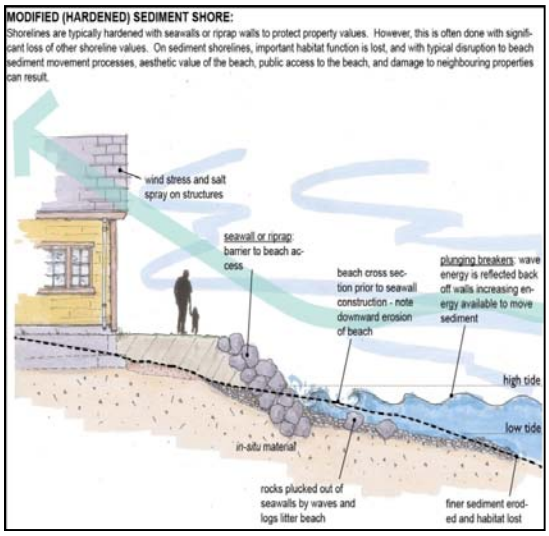
In general, **the harder the construction measure, the greater the impact on shoreline processes**, including sediment transport, geomorphology, and biological functions.

Groynes and breakwaters should be avoided to prevent disruption of sediment movement along the shoreline and to prevent possible exacerbation of erosion for adjacent parts of the shoreline. Also, in situations where sediment supply is starved by 'upstream' alterations or blocks to sediment supply, beach nourishment may be required, especially where a more natural beach cross-section has been restored.

1) Shoreline protection measures shall be limited to that necessary to prevent damage to existing structures or established uses on adjacent upland and only if all options to locate and design without the need for shore protection measures have been exhausted.

2) When required, only the softest possible shore protection measure that will still provide satisfactory protection such as beach nourishment designs shall be considered

3) Shore protection measures should include the addition of appropriately sized material to the upper beach, creating a natural beach slope and beach armour.



4) Use of seawalls and rip rap embankments are generally not acceptable except when no alterative shore protection design is possible (e.g. on existing narrow lots at the base of the marine scarp).

5) Shore protection measures that will cause erosion or other physical damage to adjacent or down-current properties will not be supported.

6) New structural shore protection measures along the shoreline may be considered for the protection of existing structures or to protect habitat restoration projects or hazardous substance remediation projects, if the

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following criteria are met:

i) A report provided by a Qualified Environmental Professional that provides conclusive evidence that the existing structure is at risk from shoreline erosion caused by tidal action, currents, or waves. Evidence of normal sloughing, erosion of steep bluffs, or shoreline erosion itself, without a scientific or geotechnical analysis, is not sufficient demonstration of need.

ii) The erosion is not being caused by upland conditions, such as the loss of vegetation and/or drainage conditions. The geotechnical analysis should evaluate on-site drainage issues and address drainage problems affecting the shoreline before considering structural shoreline stabilization.

iii) Non-structural measures, such as locating new buildings and structures further from the shoreline, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient.

iv) The shore protection works will not result in a net loss of shoreline ecological function, as determined by a Qualified Environmental Professional.

7) An existing shore protection measure may be replaced if the existing works can no longer adequately serve its purpose provided that:

i) The replacement shore protection measures are of the same size and footprint as the existing works, unless required to prevent shoreline erosion as determined by a Qualified Environmental Professional.

ii) Replacement walls or bulkheads shall not encroach seaward of the natural boundary of an existing shore protection measure unless there are significant safety or environmental concerns that could only be addressed via such an encroachment. In such cases, the replacement shore protection measures should utilize the 'softest' approach possible and abut the existing shore protection works and senior government agency approval is also required.

iii) Where impacts to critical marine habitats would occur by leaving the existing works, existing works can be removed as part of the

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replacement measure.

8) All structural shore protection measures shall be installed within the property line or upland of the natural boundary, whichever is further inland. "Soft" shoreline protection measures that provide restoration of previously damaged ecological functions (e.g. beach nourishment) may be permitted seaward of the natural boundary subject to obtaining necessary approvals from the provincial and federal governments.

9) Materials used for shoreline stabilization shall consist of inert materials. Stabilization materials should not consist of debris or contaminated material that could result in pollution of tidal waters.

10) Where revetments are proposed:

    i) The size and quantity of materials used shall be limited to that necessary to withstand the estimated energy of the location's hydraulic action and prevent collapse.

    ii) Designs shall be prepared by a Qualified Environmental Professional.

11) Where bulkheads are proposed:

    i) They shall not to be located where geo-hydraulic processes are critical to shoreline conservation. Feeder bluffs, marshes, wetlands, spits or hooks should be avoided.

    ii) They shall be located parallel to and landward of the natural boundary of the sea, as close to any natural bank as possible.

    iii) They shall allow the passage of surface or groundwater without causing ponding or saturation.

    iv) They shall be constructed of stable, non-erodible materials that preserve natural shoreline characteristics. Adequate toe protection including proper footings and retention mesh should be included. Beach materials shall not be used for fill behind bulkheads.

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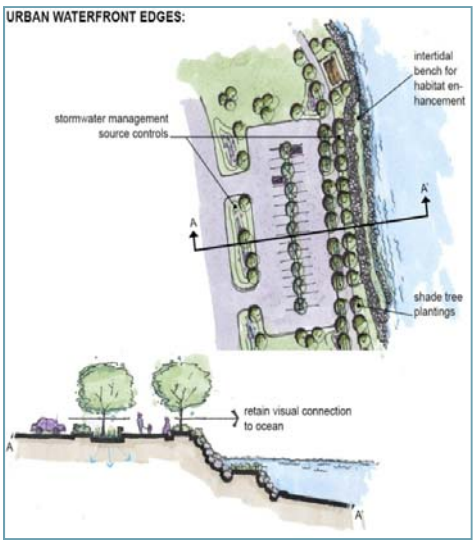
12) All upland fill and beach nourishment materials should be clean and free of debris and contaminated material. All fill and beach nourishment proposals are subject to review and approval by the appropriate provincial and/or federal authorities.



13) The construction of elaborate stairways, boardwalks and other means to acquire access down the beach face shall be restricted unless an engineered design is accompanied by a geotechnical evaluation and an average of 30 metre (with a 5 metre minimum) wide shoreline zone over a minimum 50% of the shore length can be maintained.

14) The following guidelines should be applied for the construction and replacement of existing docks and boat launch facilities:

i) Docks and wharves shall ensure that public access along the shore is maintained, and should serve multiple users rather than one dock per property.

ii) Docks and wharves shall be sited to avoid impacts on sensitive ecosystems such as eelgrass beds, fish habitat, and natural processes such as currents and littoral drift.

iii) Docks shall be constructed in a manner that permits the free flow of water beneath. Supports should be located on a hard substrate.

iv) Floating docks shall not rest on the bottom at any time and a minimal, moveable ramp shall be utilized to connect the dock with the shore rather than a fixed wharf or pier.

v) Piers and pilings and floating docks are preferred over solid-core piers.

vi) Docks shall not use unenclosed plastic foam or other non-biodegradable materials that have the potential to degrade over time. Docks shall be constructed of stable materials that will not degrade water quality. The use of creosote-treated pilings shall be discouraged.

Please contact Land Use Services Department staff for further discussion

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