

**SUNSHINE COAST REGIONAL DISTRICT  
BYLAW NO. 375.7**

A bylaw of the Sunshine Coast Regional District to amend “Roberts Creek Official Community Plan Bylaw No. 375, 1990”.

The Board of the Sunshine Coast Regional District in open meeting assembled enacts as follows:

**PART A – CITATION**

1. This bylaw may be cited as the “Roberts Creek Official Community Plan Amendment Bylaw No. 375.7, 2007”.

**PART B – AMENDMENT**

2. “Roberts Creek Official Community Plan Bylaw No. 375, 1990” is hereby amended as follows:
  - a) Replace “Schedule A2: Roberts Creek Plan Area and Development Permit Areas” with “Schedule A2: Roberts Creek Plan Area and Development Permit Area Map”, which is attached to this bylaw as Appendix 1;
  - b) Insert in alphabetical order the following terms into “Definitions”, Schedule A: Introduction”:

*Beach Nourishment* – a shore protection works design in which sand or sediments lost by longshore drift or erosion are replaced on a certain area of a beach. It involves the transportation of sand or other materials from other areas to the affected area. Beach nourishment can both protect upland from erosion and contribute to important coastal processes such as longshore drift. However many nourished beaches must be maintained with the periodic addition of sediment as the sea will continue to erode it.

*Bulkhead* – Seawall designed to keep land behind it from eroding, generally constructed of concrete, wood or metal sheet wall.

*Coastal Processes* – are natural processes that shape the physical characteristics of shores  
There are three key coastal processes:

*Waves* – Wind waves are the primary force in the coastal zone, creating most of the erosion, sediment transport and deposition that form beaches, sand spits, and other coastal shore features.

*Sediment Movement* – Sediment, where it is available on the coastal shore, is constantly moving with the waves and currents towards, away from, and along the coast.

*Water Levels* – Water levels on the coast vary according to the twice-daily tides, surges caused by storms, and, over longer periods of time, changes in western North American sea levels, due to climate change or other global events.

*Erosion* - A combination of processes in which materials of the earth’s surface are loosened, dissolved or worn away, and transported from one place to another by natural agents.

*Foreshore* – the area of the shore that lies between the high and low water levels that is flooded daily by the tide.

*Hardened Shore* – a natural shore that has been altered by the addition of seawalls, riprap, sheet metal, concrete, rock or other “hard” material or structure.

*Intertidal Zone* — the shore area bounded by the low and high tide marks, also described as the foreshore.

*Invasive Species* – A species that is non-native to the ecosystem under consideration and whose introduction is likely to cause economic or environmental harm (including harm to human health)

*Qualified Coastal Professional* A coastal engineer, coastal geologist or geotechnical engineer with demonstrated coastal experience.

c) Re-number existing Policy 3.17 as 3.18

d) Add a new Policy 3.17 as follows:

**3.17 AREA: DEVELOPMENT PERMIT AREA 17: ROBERTS CREEK SHORELINE, as shown on Schedule A2.**

**CATEGORY:** "a" Protection of the natural environment, its ecosystems and biological diversity, and  
"b" Natural Hazardous Conditions.

**JUSTIFICATION:** DEVELOPMENT PERMIT AREA 17: ROBERTS CREEK SHORELINE extends 15 metres landward and seaward of the natural boundary of the ocean of the Plan Area.

Shore Type	Associated Feature	# of Segments	Total Length (m)
Beach	None	9	2,678
	Bedrock Outcrop	4	2,644
	Marine Scarp	3	2,112
	Marine Scarp and Bedrock Outcrop	1	745
	<b>Subtotal</b>	<b>17</b>	<b>8,179</b>
Bedrock		2	500
Stream Delta		2	570
	<b>Total</b>	<b>21</b>	<b>9,249</b>

Research and analysis supporting the identification of DEVELOPMENT PERMIT AREA 17: ROBERTS SHORELINE as "Natural Environment" and "Natural Hazardous Conditions" is provided in the report by the Green Shores Working Group titled Green Shores Case Study: Roberts Creek Overview of Key Shore Management Issues and Green Shores Opportunities (2007).

The objective of this designation is to preserve and protect the three types of existing shoreline (see table above), and adjacent foreshore and upland to provide long-term protection for their ecological values and guard against erosion and damage to existing and future buildings and structures.

Residential development and shoreline structures may threaten the integrity of the foreshore and valuable upland. A development permit is required in order to balance development opportunities with conservation of the ecological values of the shoreline.

**GUIDELINES:** Development Permits issued in this area for "Natural Environments" and "Natural Hazardous Conditions" shall be in accordance with the following guidelines:

**1. General Development Guidelines:**

- a. Shore protection works should be limited to that necessary a) to prevent damage to existing structures or established uses on adjacent upland; or b) to prevent damage to a proposed public land use.
- b. New upland structures or additions should 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 works are exhausted should such works be considered.
- c. Apply the 'softest' possible shore protection measure that will still provide satisfactory protection.
- d. Limit the size of shore protection works to the minimum necessary.
- e. All structural shore protection works must be installed within the property line or upland of the natural boundary, whichever is further inland. "Soft" shoreline stabilization measures that provide restoration of previously damaged ecological functions may be permitted seaward of the natural boundary.

**2. New Development/Subdivision:**

- (a) Using geotechnical analysis of the site and shoreline characteristics, subdivision applications must ensure that the lots created will not require shore protection works in order for useable, safe building sites to be created.
- (b) New development on steep slopes or bluffs shall be set back sufficiently from the top of the bluff to ensure that shore protection will not be necessary during the life of the structure, as demonstrated by a geotechnical analysis for the said structure.
- (c) Shore protection works will not be allowed for the purpose of providing a sufficient setback to meet zoning requirements (i.e., where the setback could not be achieved without such shore protection works).
- (d) Shore protection works that will cause impacts to adjacent or down-current properties shall not be supported.
- (e) "Hard" structural shore protection (e.g. concrete walls, lock block, stacked rock, etc.) works may be considered in support of new development only when a geotechnical analysis provides conclusive evidence that:
  - i. The erosion is not being caused by upland conditions, such as the loss of vegetation and drainage associated with the proposed development;
  - ii. All possible on-site drainage solutions away from the shoreline edge have been exhausted;
  - iii. Non-structural measures, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient to address the stabilization issues; and
  - iv. The shore protection structure will not result in a net loss of shoreline ecological functions.
- (f) New driveways and septic systems should not be located in the development permit area. If such a location cannot be avoided, the encroachment into the DPA must be minimized, and the design and

construction of the road or septic system be supervised by a qualified coastal professional to ensure that the objectives and guidelines the development permit area are met to the satisfaction of the Regional District.

- (g) Stormwater outflows shall have water quality and water quantity/erosion control features installed satisfactory to the Regional District, so as to avoid impacts on slope stability and fish habitat and to comply with stormwater management guidelines and policies of the Regional District.
- (h) Where this development permit area includes native plant species or plant communities dependent on a marine shoreline habitat that are identified locally (municipal or regional designation), provincially, or federally as sensitive, rare, threatened or endangered, or have been identified by a qualified environmental Professional as worthy of particular protection, their habitat areas should be left undisturbed. If disturbance cannot be entirely avoided, development and mitigation/compensation measures shall be undertaken only under the supervision of the Qualified Environmental Professional with advice from applicable senior environmental agencies.

### **3. Changes to Existing Development:**

- a. Shore protection works shall not be allowed for the purpose of extending lawns or gardens, or to provide space for additions to existing structures or new outbuildings.
- b. New structural shore protection works along the shoreline shall be considered for the protection of existing structures or to protect habitat restoration projects or hazardous substance remediation projects, if the following criteria are met:
  - i. A report provided by a Qualified coastal professional provides conclusive evidence that the 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 drainage. The geotechnical analysis should evaluate on-site drainage issues and address drainage problems away from the shoreline edge before considering structural shoreline stabilization;
  - iii. Non-structural measures, such as placing the development further from the shoreline, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient; and
  - iv. The shore protection works will not result in a net loss of shoreline ecological functions.
- c. An existing shore protection works may be replaced if the existing works can no longer adequately serve its purpose.
  - i. The replacement shore protection works should be of the same size and footprint as the existing works, unless required to prevent shoreline erosion as determined by a qualified coastal professional.
  - ii. The replacement shore protection works should be designed, located, sized, and constructed to assure no net loss of ecological functions.

- iii. Replacement walls or bulkheads shall not encroach seaward of the natural boundary or an existing shore protection works unless there are overriding safety or environmental concerns which would be addressed. In such cases, the replacement works shall abut the existing works.
- iv. Where impacts to critical marine habitats would occur by leaving the existing works, it can be removed as part of the replacement measure.

#### 4. Guidelines for Specific Shoreline Types:

Development proposed within the three types of shoreline (beach, bedrock and stream delta) identified within Development Permit Area No. 17 shall adhere to the following guidelines:

- a) **Beach** – This type of shoreline is formed either of sand or gravel (largely cobble and small boulders) often with shallow sloped flats in the mid to lower intertidal area. With this type of shoreline, the following guidelines apply:
  - i. Ensure that a minimum 15m. (49.2 ft.) setback for new buildings and structures or additions to existing buildings and structures is maintained.
  - ii. Where shore protection works are necessary, make use of “beach nourishment” designs, which add appropriately sized material to the upper beach, creating a natural beach slope and beach armour;
  - iii. Use of seawalls and rip rap embankments are generally not acceptable except when no alternative shore protection design is possible (e.g. on existing narrow lots at the base of the marine scarp);
  - iv. Retain or restore a minimum 5.0m (16.4 ft.) wide riparian zone (i.e., riparian vegetation) over a minimum 50% of shore length; and
  - v. Marine scarp areas are under existing development permit area designation for geotechnical hazards (slope stability) - review the adequacy of criteria for septic installation and drainage control (e.g. trenching and installation of services).
- b) **Bedrock** – Shore segments are formed of moderately sloped bedrock with most, if not all, of the upper intertidal zone being bedrock. While shore protection works are generally not required on bedrock shores as the bedrock provides adequate protection from erosion the following guidelines apply:
  - i. A setback for new buildings and structures or additions to existing buildings and structures of less than 15m may be considered if it is supported by a report by a Qualified coastal professional (for geotechnical and coastal process considerations) and a QEP (for biological/environmental considerations) and satisfies all of the guidelines associated with this development permit area;
  - ii. Due to the inherently stable nature of this type of shoreline, applications for shore protection works will generally not be accepted unless evidence is provided by a Qualified coastal professional that there is a substantial risk of damage or loss of structures; and
  - iii. Retain or restore a minimum 5.0m (16.4 ft.) wide riparian zone (i.e., riparian vegetation) over a minimum 50% of shore length, with recognition that the type and extent of riparian vegetation on rocky shores may be less than that found on beach or stream delta shores.
- c) **Stream Delta** – Stream deltas are sections of shore where sediment from stream outwash (sand and finer gravels) form the dominant material along at the natural boundary between the intertidal zone and

upland areas<sup>1</sup>. The intertidal (foreshore) zone is typically dynamic, changing in response to large stream flows and storm events. Though dynamic, the shore zone in these areas are generally accretional rather than erosional. It is important to allow sufficient space to allow these natural sediment processes to occur. With this type of shoreline, the following guidelines apply:

- i. Provide a property-specific assessment with respect to building setbacks and shore protection designs, as stream sediment processes are important and will vary from site to site;
- ii. Where shore protection works are necessary, make use of “beach nourishment” designs, which add appropriately sized material to the upper beach, creating a natural beach slope and beach armour;
- iii. Do not use seawalls and rip rap embankments except when no alternative shore protection design is possible (e.g. on existing narrow lots at the base of the marine scarp); and
- iv. Retain or restore a minimum 5.0m (16.4 ft.) wide riparian zone (i.e., riparian vegetation) over at least 50% of shore length.

## **5. Construction Practices:**

- a. Erosion control: All development within this development permit area is to be undertaken and completed in such a manner as to prevent the release of sediment to the shore or to any watercourse or storm sewer that flows to the marine shore. An erosion and sediment control plan, including actions to be taken prior to land clearing and site preparation and the proposed timing of development activities to reduce the risk of erosion, may be required as part of the development permit application.
- b. Monitoring: The implementation of required environmental mitigation, restoration or enhancement planting or measures approved under a development permit shall be monitored by a Qualified Environmental Professional until all such measures have been completed and the Professional has provided a report confirming completion to a standard acceptable to the Regional District..

## **6. Vegetation Management, Restoration and Enhancement Guidelines:**

- a. Existing, native vegetation is to be retained wherever possible to minimize disruption to habitat and to protect against erosion and slope failure.
- b. To ensure their long-term health, existing trees and shrubs that are 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.
- c. If the area has been previously cleared of native vegetation, or is cleared during the process of development, replanting shall be required in accordance with these guidelines or requirements specified in the development permit. Areas of undisturbed bedrock exposed to the surface or natural sparsely vegetated areas shall not require planting.
- d. Vegetation species used in replanting, restoration or enhancement shall 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.

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<sup>1</sup> There are stream outwash areas other than those designated “Stream Delta” along the shore of Robert’s Creek. However, in these non-designated areas, outwash sediments do not appear to form the dominant material immediately below the natural boundary.

- e. Replanting requirements will be set out in plans developed as part of the development permit application and will form part of the development permit.
- f. All replanting shall be maintained by the property owner for a minimum of 2 years from the date of completion of the planting. This may require removal of invasive, non-native weeds (e.g., blackberry, Scotch broom, English ivy) and irrigation. Unhealthy, dying or dead stock will be replaced at the owner's expense within that time in the next regular planting season.

**7. Shore Protection Works Design Guidelines:**

- a. Materials used for shoreline stabilization should consist of inert materials. Stabilization materials should not consist of debris or contaminated material that could result in pollution of tidal waters.
- b. Revetments (rip rap slopes) and bulkheads (retaining walls) should only be constructed if no other alternative exists.
- c. Where revetments are proposed:
  - i. They should not result in the loss of riparian vegetation or fish habitat;
  - ii. The size and quantity of materials used should be limited to that necessary to withstand the estimated energy of the location's hydraulic action and prevent collapse; and
  - iii. Filter cloth should be used to aid drainage.
- d. Where bulkheads are proposed:
  - i. They should not to be located where geohydraulic processes are critical to shoreline conservation. Feeder bluffs, marshes, wetlands, spits or hooks should be avoided;
  - ii. They should be located parallel to and landward of the natural boundary of the sea, as close to any natural bank as possible;
  - iii. They should allow the passage of surface or groundwater without causing ponding or saturation; and
  - iv. They should be constructed of stable, non-erodable materials that preserve natural shoreline characteristics. Adequate toe protection including proper footings and retention mesh should be included. Beach materials should not be used for fill behind bulkheads.

**8. Beach Nourishment and Upland Fill Guidelines:**

- a. Fill upland of the natural boundary greater than 10 cubic meters in volume shall be considered only when necessary to assist in the enhancement of the natural shoreline's stability and ecological function.
- b. Such fills shall be located, designed, and constructed to protect shoreline ecological functions and ecosystem-wide processes, including channel migration.
- c. Fill below (seaward of) the natural boundary shall be considered only when necessary to assist in the enhancement of the natural shoreline's stability and ecological function, typically as part of a beach nourishment design.
- d. All upland fill and beach nourishment materials must be clean and free of debris and contaminated material.

- e. All fill and beach nourishment proposals are subject to review and approval by the appropriate provincial and/or federal authorities.

## **9. Guidelines for Public Shore Access, Roads and Pathways**

- a. Ensure that shoreline stabilization measures do not restrict appropriate public access along the shoreline except where such access is determined to be infeasible because of incompatible uses, safety, security, or harm to ecological functions.
- b. Where feasible, incorporate ecological restoration and public access improvements into the project.
- c. Public road or pathways shall not result in a net loss of shoreline ecological functions.
- d. Public access development in extremely sensitive areas should be restricted or prohibited.
- e. Fill at or below the natural boundary for the purposes of providing a trail or walkway is not supported.
- f. Parking areas should be placed away from the shore, buffered or landscaped, and constructed so as to minimize erosion and water pollution by controlling storm runoff. Structural measures such as catch basins, oil separators, filtration trenches or swales, unpaved or permeable all weather surfaces should be considered for this purpose.

## **10. Application Report Requirements**

Applications for development permits in this development permit area shall include:

- a. A survey prepared by a certified B.C. Land Surveyor showing the parcel boundaries, the natural boundary of the ocean, the extent and location of the boundary of the Development Permit Area (i.e., 15 m landward and seaward of the natural boundary), and existing buildings and structures.
- b. A development plan, preferably overlain on the survey noted in item (a), showing the nature, location, footprint, design and construction specifications (e.g., cross-sections, elevations, etc.) needed to fully understand the development being proposed, including all proposed shore protection works as well as mitigation and restoration measures.
- c. A report, prepared by a Qualified coastal professional, that presents:
  - i. How the Guidelines associated with this Development Permit Area will be met, and where they cannot be met, the rationale and measures proposed to minimize, mitigate and/or compensate for impacts to the shoreline;
  - ii. if shore protection works are being proposed, the need for the proposed works to protect existing or new structures;
  - iii. where there is need to protect new structures, any sites on the property where those structures could be built and not require shoreline modification and the rationale for why these sites are not being considered;
  - iv. if any natural hazards, erosion, interruption of geohydraulic processes or impacts on sediment conveyance systems may arise from the proposed modification, including at sites on other properties or foreshore locations, and measures to mitigate these effects;
  - v. the effect of shoreline stabilization works on adjacent and down current properties or shore areas;

- vi. whether there will be any degradation of water quality or loss of fish or wildlife habitat because of the modification of the shoreline;
- vii. what conditions should be incorporated into the development permit to achieve short- and long-term compliance with the objectives of this development permit area. Among other things, conditions should address timing of construction, erosion control, monitoring, re-vegetation, etc.; and
- viii. confirms the extent of each of the three types of shoreline (beach, bedrock, or delta) that are present on the site.

**PART C – ADOPTION**

READ A FIRST TIME this	DAY OF	,	2007.
READ A SECOND TIME this	DAY OF	,	2007.
CONSIDERED IN CONJUNCTION WITH THE SUNSHINE COAST REGIONAL DISTRICT FINANCIAL PLAN AND ANY APPLICABLE WASTE MANAGEMENT PLANS this	DAY OF	,	2007.
PUBLIC HEARING HELD this	DAY OF	,	2008.
READ A THIRD TIME this	DAY OF		2008.
APPROVED BY THE MINISTER OF COMMUNITY SERVICES this	DAY OF	,	2008
ADOPTED this	DAY OF		2008.

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Corporate Officer

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Chair