

COWICHAN VALLEY REGIONAL DISTRICT

SCHEDULE C DEVELOPMENT PERMIT AREAS

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1 INTRODUCTION

B.C.'s *Local Government Act* provides local governments with a special tool – the development permit – for managing development on a site-specific basis where the characteristics and/or context of the development site call for more finely-tuned development standards than are contained in the applicable zoning bylaw.

If your property is situated within a development permit area (DPA), any alteration or improvement to the land (by subdivision, clearing or construction, for example), you may first need to apply to the Regional District for a development permit. The permit authorizes you to proceed and sets out any conditions for development to satisfy community standards for safety, environmental protection and appearance. Also note: a development permit is not a building permit; if you are planning construction, you will also need a building permit.



Image 1: Plans to alter land or build on it are expected to satisfy community standards.

Depending on their specific purpose, some DPAs encompass the entire regional district, while others only a part of it. Still other development permit areas overlap. You can tell which DPAs pertain to your property by looking at the maps that accompany the individual DPA descriptions and guidelines.

Development permit guidelines further support compliance with a variety of regional district, provincial and federal government policies, laws, regulations and best management practices.

Authority for DPA Designation

The legislative authority for designation of development permit areas resides in sections 488 to 491 of the *Local Government Act*, which describe the various purposes for which local governments may create development permit areas, the types of activity requiring a development permit, and the range of requirements local governments may impose on applicants for different kinds of development permits.

In designating a development permit area, the official community plan must

- describe the special conditions or objectives that justify the designation; and
- specify guidelines respecting the manner in which the special conditions or objectives will be addressed.

Activities Affected and Applicability of Multiple DPAs

Once a local government has designated a development permit area, an owner of land in the area is prohibited (under section 489) from taking certain actions without either a development permit or an exemption under section 488(4). These prohibitions include

- a. subdividing land;
- b. starting construction of, addition to or alteration of a building or other structure;
- c. altering land in any development permit area designated under section 488(1)(a) or (b) (protection of the natural environment, protection of development from hazardous conditions); or
- d. altering land, a building or other structure in a development permit area designated under section 488(1)(d), (h), (i) or (j) (revitalization, energy conservation, water conservation, greenhouse gas reduction).

GG1. Where land lies within more than one development permit area, all the applicable permit requirements must be met for the part of the land lying within the applicable DPA.

Permit Exemptions

Section 488(4) of the *Local Government Act* provides that an official community plan may specify conditions under which a development permit would not be required in a designated development permit area. Accordingly, each development permit area contains a list of exemptions. Some apply to specific activities; others apply to local areas within the development permit area.

Information Requirements

Under section 485(1) of the *Local Government Act*, a local government may specify circumstances under which certain information is required prior to approval of a development permit application and may designate areas in which such information is required.

The level of assessment required depends on the type of development permit area, the size of a proposed development, and its potential impact on the community and the environment. The greater the potential risk, the more rigorous the information requirement.

CVRD's Bylaw No. 3540 ([A Bylaw to Establish Development Approval Information Requirements and Procedures](#)) sets out the type of information an applicant for a development permit may be required to provide as well as what type of appropriate professional may be required by the approving officer to prepare the report. Where applicable, a development permit area in this OCP may provide further guidance on specific application requirements.

How to Use the Development Permit Area Guidelines

Each DPA is formatted for ease of use, according to the following outline:

- **Development Permit Area** describes the development permit area by means of a reference to a map.
- **Basis for Designation** refers to the applicable subsection of s. 488 (1) of the *Local Government Act*.
- **Justification for Designation** describes special conditions or objectives that justify requiring a development permit in addition to other development approvals, including subdivision approvals and building permits. This section includes references to any relevant technical studies supporting “natural environment” or “hazard lands” designations.
- **Permit Exemptions** considers the prohibitions in s. 489 of the *Local Government Act* and sets out exemptions where development permits are not required. Note that all of the following require a development permit under the statute, unless exempted:
 - subdivision in all development permit areas;
 - building construction, addition or alteration in all development permit areas;
 - land alteration in natural environment and hazard land development permit areas; and
 - land alteration in commercial revitalization, energy or water conservation and GHG reduction development permit areas.
- **Permit Guidelines** are organized according to the type of development that is being managed: subdivision, building or land alteration. If there are no relevant guidelines, exemptions may be provided. For example, Form and Character DPAs might not require a development permit at the subdivision stage because the form and character objectives don’t encompass how subdivisions are laid out. However, energy conservation DPAs may require a development permit for subdivision because subdivision layout can optimize the use of solar energy.

For each development permit area, there may be specific conditions that section 490 of the *Local Government Act* mandates, and guidelines that enable the imposition of such conditions may be included. Some of these might include guidelines respecting the requirement for securities under section 504 of the *Local Government Act*. This section may also include guidelines for the variance of zoning bylaw provisions, such as building height and siting, which would allow the applicant to use the development permit to affect variance, rather than requiring the applicant to also apply for a development variance permit.

- **Application Requirements** do not apply to all DPAs; however, some DPAs include this section to help assist applicants in gathering relevant information for their application. If this section is not included in the DPA, other resources are available, such as the application checklist and meeting with staff for a pre-application consultation. Only applications for subdivisions or uses that comply fully with the land use bylaw may be eligible for a development permit.

Within this document, individual development permit area pages will feature colour-coded headers that correspond with the colours used to shade individual DPAs on their associated maps.

List of Development Permit Areas and Guideline Key

The CVRD Official Community Plan for the Electoral Areas (OCP) designates and maps 13 development permit areas in the regional district, each with its own set of guidelines. Individual guidelines are identified by the acronyms of the areas they belong to, followed by their numerical order. Guidelines pertaining to Application Requirements are followed by the letters AR, for instance RP-AR1. General form and character guidelines in Part 5 (prefaced by the acronym FCG) apply to all DPAs in Part 5.

Part 1 Introduction

Part 2 Protection of the Natural Environment

[DPA 1 Riparian Area Protection – RP](#)

[DPA 2 Sensitive Ecosystem Protection – SE](#)

[DPA 3 Marine Uplands and Foreshore Protection – MUFP](#)

[DPA 4 Aquifer Protection – AP](#)

Part 3 Protection from Hazardous Conditions

[DPA 5 Wildfire Hazard – WH](#)

[DPA 6 Flood Hazard – FH](#)

[DPA 7 Landslide Hazard – LH](#)

Part 4 Protection of Farming

[DPA 8 Protection of Farming – PF](#)

Part 5 Form and Character

[General Form and Character Guidelines – FCG](#)

[DPA 9 Intensive Residential Development – IR](#)

[DPA 10 Multi-family Residential Development – MR](#)

[DPA 11 Commercial and Mixed-use Development – CM](#)

[DPA 12 Industrial Development – ID](#)














Part 6 Energy, Water, Greenhouse Gas Emissions

[DPA 13 Energy and Water Conservation; Greenhouse Gas Emissions Reduction – EW](#)

Abbreviations

ALC	Agricultural Land Commission
ALR	Agricultural Land Reserve
ASTM	American Society for Testing and Materials
CEEI	Community Energy Emissions Inventory
CWPP	Community Wildfire Protection Plan
DPA	development permit area
QEP	qualified environmental professional
SEI	Sensitive Ecosystem Inventory
SPEA	streamside protection and enhancement area (riparian areas protection regulation)

DPA Wayfinding Colour Keys

	DPA #1 Riparian Area Protection		DPA #7 Landslide Hazard
	DPA #2 Sensitive Ecosystems Protection		DPA #8 Protection of Farming
	DPA #3 Marine Shore Protection		DPA #9 Intensive Residential Form and Character
	DPA #4 Aquifer Protection		DPA #10 Multi-Family Form and Character
	DPA #5 Wildfire Protection		DPA #11 Commercial Mixed-Use Form and Character
	DPA #6 Flood Protection		DPA #12 Industrial Form and Character
			DPA #13 Energy Water Conservation Reduction GHG Emission

Definitions

These definitions apply to the development permit areas only.

Aquifer means an underground water body present in the interstices of the materials in the ground overlain by either permeable gravel or an impervious material, such as clay. The water level of the aquifer rises and falls in response to water removal and infiltration and flows to other aquifers.

Board means the board of directors of the Cowichan Valley Regional District.

Buffer area means an area of land that separates and protects two land uses. Examples include treed areas between commercial parcels and residences, and vegetated areas between riparian areas and nearby development.

Development means any activity referred to in section 489 of the *Local Government Act* and includes alteration or development of land for residential, commercial, industrial, institutional, service or utility uses or activities, to the extent that these uses or activities are subject to local government powers under the *Local Government Act*.

Activities that require a development permit:

489 If an official community plan designates areas under section 488 (1), the following prohibitions apply unless an exemption under section 488 (4) applies or the owner first obtains a development permit under this division:

- (a) land within the area must not be subdivided;
- (b) construction of, addition to or alteration of a building or other structure must not be started;
- (c) land within an area designated under section 488 (1) (a) or (b) [*natural environment, hazardous conditions*] must not be altered;
- (d) land within an area designated under section 488 (1) (d), (h), (i) or (j) [*revitalization, energy conservation, water conservation, greenhouse gas reduction*], or a building or other structure on that land, must not be altered.

Emergency works means emergency actions taken to prevent flooding, erosion or other immediate threats to life and property. Such emergency works may include clearing of an obstruction from a watercourse or culvert or repairs to a bridge, culvert or drainage flow and the removal of tree(s) that present an immediate danger to public property or existing structures.

Environmentally sensitive area is an area that contains sensitive or rare ecosystems, or other environmentally sensitive values. Often used as a synonym for Sensitive Ecosystems (see below).

Environmentally significant area means a natural area with special features, habitat and ecological value, such as bald eagle nesting sites and Garry oak ecosystems.

Fish means all life stages of salmonids, game fish and regionally significant fish.

Fish-bearing watercourse means a watercourse in which fish are present or potentially present if introduced barriers or obstructions are either removed or made passable for fish.

Floodplain means a relatively flat, low-lying area adjacent to a watercourse, with a potential to flood when water levels are high.

Foreshore means the strip of land that lies between the maximum high and low tide lines and that is alternately wet and dry, according to the flow of the tide.

Green roof means a roof partially or completely covered with vegetation planted in a growing medium over a waterproof membrane.

Groundwater means water found underground in the cracks and spaces in soil, sand and rock. It is stored in and moves through geologic formations of soil, sand and rocks called aquifers.

Impervious surfaces mean hard surfaces that do not permit water to flow through to the ground beneath.

Invasive plant species means a species included on the [priority invasive plant list](#) established by the Coastal Invasive Species Committee.

Natural features, functions and conditions include but are not limited to the following:

- a. large organic debris that falls into the stream or streamside area, including logs, snags and root wads;
- b. areas for channel migration, including active floodplains;
- c. side channels, intermittent streams, seasonally wetted contiguous areas and floodplains;
- d. the multi-canopied forest and ground cover adjacent to streams that
 - i. moderates water temperatures;
 - ii. provides a source of food, nutrients and organic matter to streams;
 - iii. establishes root matrices that stabilize soils and stream banks, thereby minimizing erosion; and
 - iv. buffers streams from sedimentation and pollution in surface runoff;
- e. a natural source of stream bed substrates; and
- f. permeable surfaces that permit infiltration to moderate water volume, timing and velocity and maintain sustained water flows in streams, especially during low flow periods.

Riparian Areas Protection Regulation, s. 1

No net loss is a working principle by which the Cowichan Valley Regional District strives to balance unavoidable habitat losses with habitat replacement on a project-by-project basis so that further reductions to natural resources (e.g. fisheries) due to habitat loss or damage may be prevented.

Non-fish-bearing watercourse means a watercourse that (a) is not inhabited by fish and (b) provides water, food and nutrients to a downstream fish-bearing stream or other water body.

Non-permanent watercourse means a watercourse that typically contains surface waters or flows for periods less than six months in duration.

Permanent watercourse means a watercourse that typically contains continuous surface waters or flows for a period more than six months in duration.

Qualified environmental professional (QEP) means an applied scientist or technologist, acting alone or together with another qualified environmental professional, if

- a. the individual is registered and in good standing in British Columbia with an appropriate professional organization constituted under an Act, acting under that association's code of ethics and subject to disciplinary action by that association; and
- b. the individual's area of expertise is recognized in the assessment methods as one that is acceptable for the purpose of providing all or part of an assessment report in respect of that development proposal, and the individual is acting within that individual's area.

Regional District means the Cowichan Valley Regional District governing body; **regional district** refers to the CVRD's geographical area.

Riparian area means an area adjacent to a watercourse that links aquatic to terrestrial ecosystems and includes both the riparian area vegetation and the adjacent upland vegetation that exerts an influence on the watercourse, the width of which includes the area up to 30 m from each edge of a bank of a watercourse.

Riparian assessment area means:

- a. for a stream, the 30 m strip on both sides of the stream, measured from the high-water mark;
- b. for a ravine less than 60 m wide, a strip on both sides of the stream measured from the high-water mark to a point that is 30 m beyond the top of the ravine bank; and
- c. for a ravine 60 m wide or greater, a strip on both sides of the stream measured from the high-water mark to a point that is 10 m beyond the top of the ravine bank.

Sensitive ecosystem means an ecosystem in the landscape that is at-risk or ecologically fragile.

Sensitive Ecosystem Inventory (SEI): the standardized method by which sensitive ecosystems are mapped and described. The scale of mapping can be variable, ranging from 1:1 000 to 1:20 000. SEI mapping coverage in the CVRD is only available in some areas.

Shoreline means the normal high-water mark of tidal waters, a coastal or inland wetland, a standing body of water or flowing water.

Stormwater means the water that drains off or into the land following rainstorm or snowfall.

Stream includes any of the following that provides fish habitat:

- a. a watercourse, whether it usually contains water or not;
- b. a pond, lake, river, creek or brook;
- c. a ditch, spring or wetland that is connected by surface flow to something referred to in paragraph (a) or (b) of the Riparian Areas Protection Regulation.

Streamside Protection and Enhancement Area is the portion of the riparian assessment area for the stream that

- a. includes the land, adjacent to the stream boundary, that
 - i. links aquatic to terrestrial ecosystems;
 - ii. is capable of supporting streamside vegetation; and

- iii. in the case of a simple assessment, extends far enough upland from the stream that development outside the streamside protection and enhancement area will not result in any harmful alteration, disruption or destruction of natural features, functions and conditions in the area referred to in paragraph (a) that support the life processes of protected fish.

Without limiting subsection (1) (a) (ii), an area of human disturbance must be considered capable of supporting streamside vegetation if the area would be capable of supporting streamside vegetation were the area in a natural condition.

Sustainability means development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability involves integrating social, economic and environmental considerations.

Watercourse means a creek, pond, lake, river, stream or brook, whether usually containing water or not, and any spring or wetland that is integral to a watercourse.

Wetland means land that is inundated or saturated by surface or ground water at a frequency and duration that are sufficient to support and under normal conditions do support vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, fens, estuaries and similar areas that are not part of the active floodplain of a watercourse.

Wetland ecosystem means an ecosystem described as such in the Sensitive Ecosystems Inventory.

Wildlife corridor means an area of habitat connecting wildlife populations separated by human activities or structures (such as roads, development or logging), providing animals with an opportunity to move freely between two or more habitat patches or habitat types in an otherwise fragmented landscape.

1 PROTECTION OF THE NATURAL ENVIRONMENT

The health of ecological systems underpins the economic, recreational and cultural well-being of the CVRD. Simply put, nature in the Cowichan Valley is too valuable an asset to risk losing. Resilience is a primary focus of the Cowichan Valley Regional District OCP, and protection of our natural environment is a top priority.

For context, and as reported by the Cowichan Valley 2010 *State of the Environment Report*, the human footprint—including development and logging—now covers more than 75% of our land base, affecting its ability to supply and maintain basic ecological values and services. Poorly managed human activity leads to significant impacts that include:

- a steady increase in invasive plant and animal species that compromise native ecosystems;
- erosion and sedimentation of wetlands and waterways;
- point-source and non-point-source pollution from stormwater runoff (including heavy metals, fuel, disintegrating rubber and plastic), poorly maintained septic systems and dispersal of fertilizers, manure, pesticides and even backyard herbicides; and
- destruction of habitat and disruption of wildlife corridors critical to the maintenance of stable populations.

Environmental development permit areas identify sensitive aquatic and terrestrial environments and set conditions by which development within these areas may be permitted. Typically, a report prepared by a qualified environmental professional (QEP) (such as a registered hydrogeologist or biologist) is required to assess potential impacts and/or risks and applicants are required to adhere to a set of guidelines accompanying issuance of the development permit.



Image 2: Marine mammals in the strait.

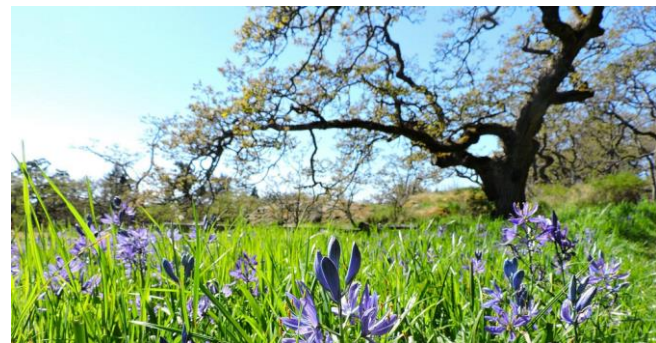


Image 3: Garry oak meadow in bloom.



Image 4: A heron fishes in the estuary.

Legislative Authority and Activities Affected

Section 488(1)(a) of the *Local Government Act* authorizes an official community plan to designate development permit areas for the protection of the natural environment, its ecosystems and biological diversity. This part of the development permit areas section of the OCP addresses the need for the protection of riparian areas, sensitive ecosystems, marine shores and aquifers.

Section 491 describes the scope permitted to environmental development permit area guidelines:

491 (1) For land within a development permit area designated under section 488 (1)

(a) [*protection of natural environment*], a development permit may do one or more of the following:

- a) specify areas of land that must remain free of development, except in accordance with any conditions contained in the permit;
- b) require specified natural features or areas to be preserved, protected, restored or enhanced in accordance with the permit;
- c) require natural water courses to be dedicated;
- d) require works to be constructed to preserve, protect, restore or enhance natural water courses or other specified natural features of the environment;
- e) require protection measures, including that vegetation or trees be planted or retained in order to
 - (i) preserve, protect, restore or enhance fish habitat or riparian areas,
 - (ii) control drainage, or
 - (iii) control erosion or protect banks.

Unless an activity is exempted, section 489 of the *Local Government Act* requires local government approval of a development permit in an area designated for protection of the natural environment, its ecosystems and biological diversity before

- subdivision of land;
- commencement of construction of, addition to or alteration of a building or other structure; and
- alteration of land.

There are four development permit areas for Protection of the Natural Environment:

[Development Permit Area 1 – Riparian Protection](#)

[Development Permit Area 2 – Sensitive Ecosystem Protection](#)

[Development Permit Area 3 – Marine Uplands and Foreshore Protection](#)

[Development Permit Area 4 – Aquifer Protection](#)

Development Permit Area 1: Riparian Protection

Development Permit Area

Those parts of all nine electoral areas of the Cowichan Valley Regional District on Schedule U, UDPA1 Riparian Area Protection – Regional shaded dark green are designated as a development permit area in order to establish guidelines for the protection of riparian areas pursuant to section 488(1)(a) of the *Local Government Act*.

Basis for Designation

The area included in the development permit area is the “riparian assessment area” as defined by the Riparian Areas Protection Regulation under the [Riparian Areas Protection Act](#), and its width depends on the type of stream (refer to Figure 1-1).

Justification for Designation

The primary purpose of the Riparian Areas Protection Regulation is to protect riparian areas from development so that those areas can provide the natural features, functions and conditions that support fish life processes.

Streams and adjacent riparian areas act as natural storage, drainage and purification systems that help to maintain and improve water quality. Undisturbed riparian areas can help prevent flooding, control erosion, reduce sedimentation and recharge groundwater. They are also critical to a healthy aquatic environment, providing habitat, shelter, water, shade and food sources for a variety of fish and wildlife.

Riparian areas provide essential wildlife corridors for numerous species that depend on access to aquatic habitat. Wetlands, which are intricately connected with watercourses, form an integral component of riparian areas and provide similar ecosystem services, in addition to acting as water purification systems through their filtration function.

Many of the region’s watercourses, including the Cowichan River, the Koksilah River, Stocking Creek and Porter Creek, are important salmon-spawning streams. Many of the watercourses and waterbodies in the region also provide, or have the potential to provide, drinking water sources for human communities. Waterbodies that currently provide drinking water for such communities include Cowichan Lake, Shawnigan Lake, Holland Lake and Stocking Lake.



British Columbia

Water use restricted for critically low Koksilah River on Vancouver Island



Water level so low habitat conditions are 'severely degraded'

The Canadian Press · Posted: Aug 19, 2019 12:29 PM PT | Last Updated: August 19



Image 5: Water restrictions are common during the summer months.

The Riparian Areas Protection Regulation requires the CVRD to protect riparian areas from negative impacts of development such as loss of trees, sedimentation and the alteration of natural processes. Streams, as defined by the Riparian Areas Protection Regulation, may include everything from a seasonal creek to a lake as large as Cowichan Lake. The Riparian Areas Protection Regulation requires a local government to provide a level of protection that meets or exceeds the Riparian Areas Protection Regulation standards.

The objectives of designating a development permit area for the protection of riparian areas are to

- protect streams, their riparian areas and adjacent upland areas that exert an influence on streams from development; and,
- promote the restoration and enhancement of riparian areas to support biologically diverse wildlife habitat, corridors for wildlife movement, and the natural features, functions and conditions that support fish life processes.



Image 6: Salmon spawning in gravel bar.

Permit Exemptions

There are several exemptions to the permit guidelines. A development permit is not required for the following activities:

- a. gardening and yard maintenance activities within an existing landscaped area, such as mowing lawns, pruning trees and shrubs, planting vegetation and minor soil disturbance that does not alter the general contours of the land;
- b. the construction of a fence if only non-native trees are removed and the disturbance of native vegetation is restricted to 0.5 m either side of the fence;
- c. the construction of an accessory building, such as a pump house, gazebo, garden shed or playhouse, if all of the following apply:
 - i. the building is located within an existing landscaped area;
 - ii. no native trees are removed;
 - iii. the building is located a minimum 5 m from the high-water mark of the stream; and
 - iv. the total floor area of accessory buildings on the parcel, including the pumphouse, gazebo, garden shed or playhouse, is less than 10 m²;
- d. the construction of a private trail if all the following apply:
 - i. the trail is 1 meter wide or less;
 - ii. no native trees are removed;
 - iii. the surface of the trail is pervious (for example soil, gravel or wood chips);
 - iv. the trail is designed to prevent soil erosion where slopes occur; and
 - v. no part of the trail is less than 5 m from the high-water mark of the stream;
- e. normal farm practices within the Agricultural Land Reserve;
- f. ecological restoration and enhancement projects undertaken or authorized by public authorities;
- g. construction, maintenance or operation of
 - i. municipal works and services undertaken or authorized by Cowichan Valley Regional District;
 - ii. park works and services undertaken or authorized by Cowichan Valley Regional District; and

- iii. federal and provincial works; and
- h. emergency actions required to prevent, control or reduce an immediate threat to human life, the natural environment or public or private property including
 - i. forest fire, flood and erosion protection works;
 - ii. protection, repair or replacement of public utilities;
 - iii. clearing of an obstruction from a bridge, culvert or stream;
 - iv. bridge repairs;
 - v. removal or modification of trees certified by an arborist to be hazardous; and
 - vi. protection, repair or replacement of private or public septic system.

Application Requirements

- RP-AR1** Under the Riparian Areas Protection Regulation, a local government must not approve a development proposal within a riparian assessment area unless a QEP has conducted an assessment that provides a professional opinion that there will be no adverse effect on the natural features, functions and conditions that support fish life processes in the riparian assessment area if (a) the development is implemented as proposed or (b) imposes a condition of the approval that the development proceed as proposed in the assessment report and comply with any measures recommended in the assessment report.
- RP-AR2** The assessment report must specify the width of the SPEA and the measures necessary to protect its integrity, and it must adhere to the assessment methods set out in the schedule to the Riparian Areas Regulation. Recommendations from the assessment report may become conditions of the development permit.
- RP-AR3** To proceed with consideration of the development application, the Regional District will require a copy of the assessment report provided by the Minister of the Environment and Climate Change Strategy unless the federal Minister of Fisheries and Oceans or a regulation under the *Canada Fisheries Act* has authorized the harm to conditions in the riparian assessment area that would result from the implementation of the development proposal.
- RP-AR4** The Regional District may approve the development application only if the QEP reports that the development as proposed will not harm natural features, functions and conditions that support fish life processes in the riparian assessment area, or that there will be no such harm if the streamside protection and enhancement areas identified are protected and the measures identified in the assessment report are implemented.
- RP-AR5** If adequate, suitable areas of land for the intended use exist on a portion of the parcel that lies outside the riparian assessment area, the applicant should direct development to those areas in order to minimize adverse impacts. In all other cases, the applicant will be required to demonstrate with the support of a qualified environmental professional, to the satisfaction of the CVRD board, that developing in the riparian assessment area is necessary or advisable due to circumstances such as topography, hazards or lack of alternative developable land and that every effort has been made to minimize adverse impacts.

The *Riparian Areas Regulation* requires a *Qualified Environmental Professional (QEP)* to provide an opinion in an *Assessment Report* that development will not result in a harmful alteration of riparian fish habitat. Through this report the QEP helps to plan any new development so that it will avoid impacting fish habitat. The Assessment Report, submitted electronically to provincial and federal governments, facilitates monitoring and compliance.

RIPARIAN ASSESSMENT AREA means:

- for a stream, the 30 meter strip on both sides of the stream, measured from the high water mark,
- for a ravine less than 60 meters wide, a strip on both sides of the stream measured from the high water mark to a point that is 30 meters beyond the top of the ravine bank, and
- for a ravine 60 meters wide or greater, a strip on both sides of the stream measured from the high water mark to a point that is 10 meters beyond the top of the ravine bank.

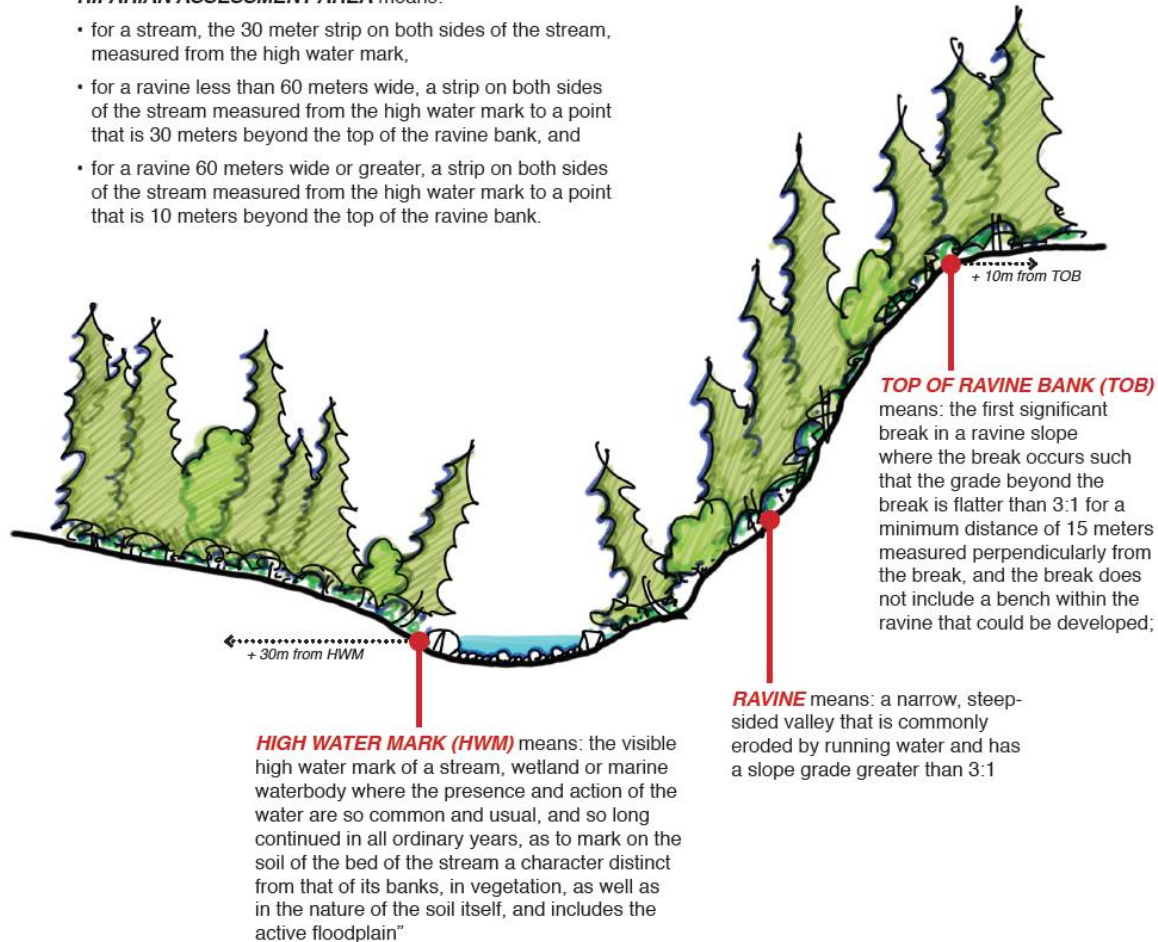


Figure 1-1: Riparian assessment area key terms.

Permit Guidelines

Protection of the Streamside Protection and Enhancement Area

- RP1.** No development should occur within a streamside protection and enhancement area except for
- a. works authorized by the Minister of Fisheries and Oceans or a regulation under the *Fisheries Act* (Canada);
 - b. works and activities that comply with the laws and regulations of the *Water Sustainability Act*, such as bank repairs, stormwater outfalls, road crossings, footbridges and pipeline crossings; and
 - c. a local government has received an approved, non-expired assessment report from a QEP in which the report indicates how permitted use/density can be authorized on the parcel while causing minimum damage to the SPEA and, in

some circumstances, how the SPEA encroachment can be compensated for by enhancement of contiguous land outside the SPEA.

- RP2.** Notwithstanding RP1, where a minor intrusion into a SPEA determined in accordance with that guideline is required and the SPEA is greater than 15 m setback, the SPEA boundary may be adjusted to accommodate the intrusion where all the following apply:
- a. the SPEA intrusion is situated within a previously landscaped area;
 - b. adjustment of the SPEA boundary does not result in any portion of the boundary being less than 10 m from the high-water mark;
 - c. terrain stability is not compromised;
 - d. land is added to the SPEA equal in area to that removed, so that there is no reduction in the overall SPEA area within the property;
 - e. new areas added to the SPEA to replace those removed are contiguous with the original SPEA and located as close to the stream as possible;
 - f. there is, in the opinion of the QEP who performed the riparian area assessment, no reduction in the overall quality of the fish and wildlife habitat provided by the SPEA;
 - g. a B.C. land surveyor survey plan is provided that identifies the high-water mark of the stream, top of the ravine bank if applicable and adjusted SPEA boundary in relation to the parcel boundaries and existing and proposed development; and
 - h. identify the SPEA in the development permit as an area that must remain free of development as a condition of development.
- RP3.** Address terrain stability as identified in a geotechnical assessment by a qualified engineer or geologist that may have an impact on the SPEA.

Retention of Native Vegetation and Control of Invasive Species

- RP4.** Retain lands within the riparian assessment area (including wetland, seasonal watercourse, lake or pond) in their natural state, preserving native vegetation and trees.
- RP5.** During construction, protect the root zones of trees located within the SPEA and those identified for retention outside the SPEA as identified by an arborist.
- RP6.** Remove and/or control invasive plant species on the [priority plant list](#) established by the Coastal Invasive Species Committee as identified by the QEP.



Image 7: The priority plant list outlines species to be prevented, eradicated, contained or controlled.

Enhancement and Restorations

- RP7.** Restore previously disturbed riparian areas to a natural condition based on a local reference ecosystem identified by the qualified environmental professional.
- RP8.** Enhance and, where feasible, restore watercourses in already developed areas to improve watercourse quality from uplands to inlets.

Subdivision

- RP9.** At the time of subdivision, allocate an area at least 30 m in width from the high-water mark of the watercourse or top of ravine bank to be designated in the development permit to remain free of buildings, structures and alterations of land; designate the riparian assessment area in the development permit as an area that must remain free of development; and lay out subdivision parcels accordingly.
- RP10.** Design subdivisions so that all parcels allow for a suitable building envelope and driveway that is set back from the riparian assessment area at least 7.5 m.
- RP11.** Design subdivisions to avoid crossings of riparian areas and to maximize the distance between roads and riparian areas.
- RP12.** Where a crossing of a riparian area is unavoidable, locate and design crossings to minimize the environmental impact.
- RP13.** Design subdivisions to avoid disruption of wildlife corridors in riparian areas.

Building and Structures

- RP14.** Develop and implement a soil erosion and sediment control plan as part of site design and construction to prevent the discharge of sediment-laden water into a stream.
- RP15.** Install temporary fencing and signage to prevent encroachment into the streamside protection and enhancement area during land preparation and construction.

- RP16.** Minimize alteration of the contours of the land outside the areas approved for buildings, structures and site accesses by minimizing the deposit of fill and the removal of soil.
- RP17.** Locate buildings, structures and driveways to maximize separation from riparian areas.

Best Management Practices for Protection of Riparian Areas

[Environmental Best Management Practices for Urban and Rural Land Development: Aquatic and Riparian Ecosystems](#) Government of British Columbia, 2004

[Standards and Best Practices for Instream Works](#) Government of British Columbia, 2004

[Land Development Guidelines for the Protection of Aquatic Habitat](#) Fisheries and Oceans Canada, 1993

[Stormwater Planning: A Guidebook for British Columbia](#)
Government of British Columbia et al. 2002

[Code of Practice for Agricultural Environmental Management B.C. Reg. 8/2019](#)

[BC Riparian Area Management Guidebook](#)
Government of British Columbia, 2004

Development Permit Area 2: Sensitive Ecosystem Protection

Development Permit Area

DPA 2 – Sensitive Ecosystem Protection designates the following areas a development permit area:

- those parts of electoral areas A, B, C, D, E, F, G, and I identified within the report entitled *Environmentally Sensitive Areas (ESAs) Mapping in the Cowichan Region – Phase II* (Madrone Environmental Services, 2018), shaded orange on Schedule U, UDPA2 Sensitive Ecosystem Protection – Regional;
- those parts of electoral area H identified in Bylaw 1497, Figure 3 Environmentally Sensitive Areas, shaded light orange on Schedule U, UDPA2 Sensitive Ecosystem Protection – Regional;
- those parts of area E as identified within the report entitled *Western Toad Winter Habitat Requirements in Modified Landscapes on Vancouver Island Summary* (Wind, 2018) for Wake Lake, symbolized with dark orange hash lines on Schedule U, UDPA2 Sensitive Ecosystem Protection – Regional; and,
- those parts of area F identified in the Honeymoon Bay Property Environmental Overview Assessment prepared by ENKON Environmental Ltd. (2013), shaded dark orange on Schedule U, UDPA2 Sensitive Ecosystem Protection – Regional.

Basis for Designation

These areas are designated development permit areas in order to establish guidelines for protection of sensitive ecosystems pursuant to section 488(1)(a) of *the Local Government Act*.

Justification for Designation

Sensitive ecosystems provide important habitat for fish, birds and other wildlife. Maintaining the natural diversity of a region's ecosystems is vital to slowing or preventing species extirpations and extinctions and to maintaining natural resilience for the future. Undisturbed ecosystems are a form of natural capital for future economic well-being of the region and provide critical ecosystem services such as storage, drainage, purification of water and carbon sequestration.

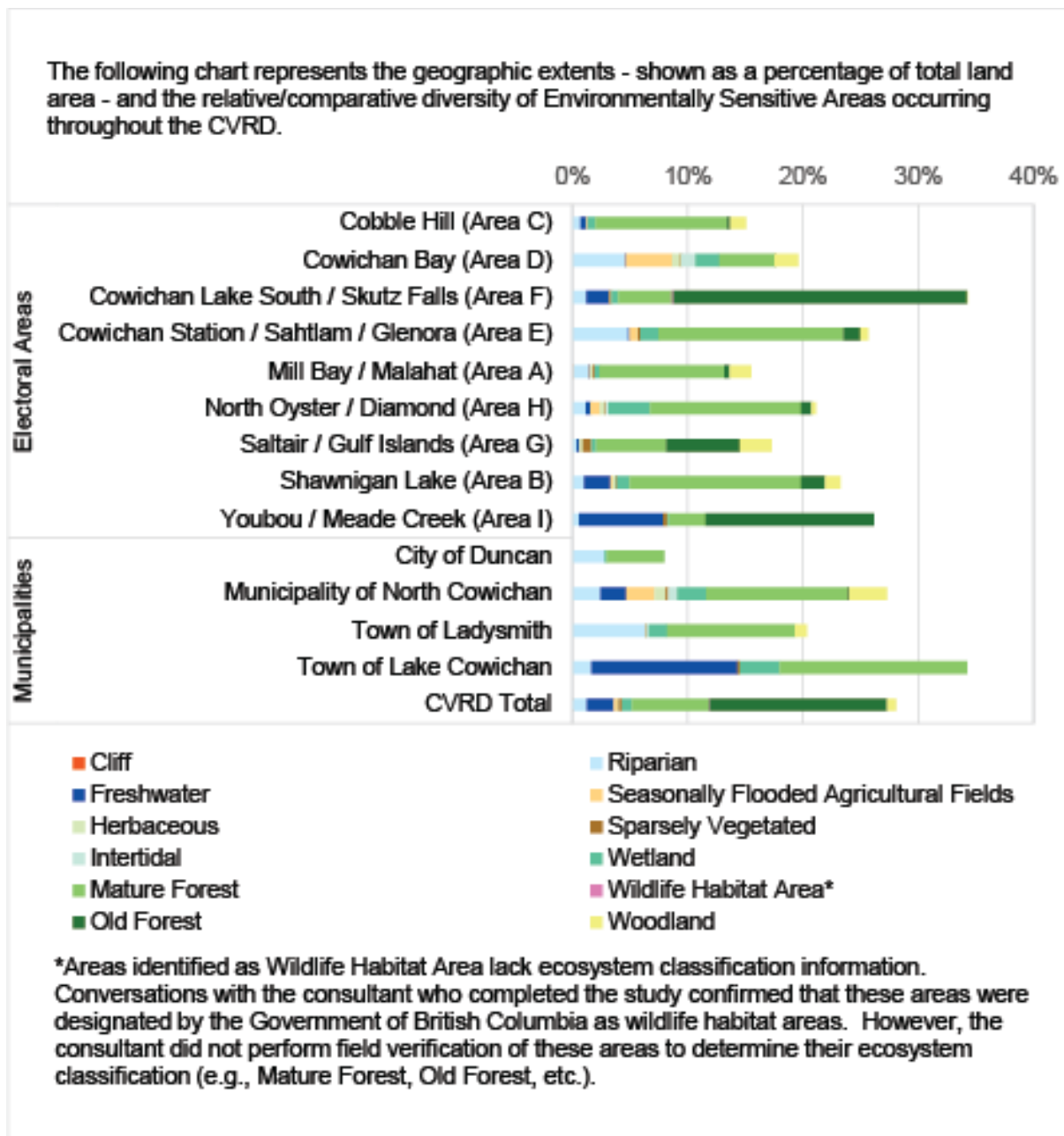


Figure 1-2: Environmentally sensitive areas (ESAs) by total land area in the CVRD.

Ecosystems in the CVRD with particularly high ecological values include the following:

- Garry oak woodlands.** One of the most endangered ecosystems in Canada, Garry oak woodlands provide a home for a wide diversity of species, though some formerly found here have already disappeared—including the Western bluebird, Lewis's woodpecker, the acorn woodpecker and the streaked horned lark (efforts have recently been underway to attempt to re-introduce the Western bluebird to eastern Vancouver Island). Not surprisingly, Garry oak woodlands have long been one of the most favoured locations for development, the result of which losses to this type of ecosystem have been severe.

- **Estuaries.** Among shoreline ecosystems, estuaries have particularly high ecological value because of the rich mix of habitat types they contain. The Cowichan River estuary is among B.C.'s most ecologically valuable, and other smaller estuaries are locally valuable¹.
- **Wake Lake.** Wake Lake has been identified as an important breeding site for Western toad (*Anaxyrus boreas*), a species listed federally as *Special Concern*. Primary threats to this species include the loss of natural terrestrial habitats and aquatic breeding sites, and road mortality during annual migrations. A report entitled *Western Toad Winter Habitat Requirements in Modified Landscapes on Vancouver Island Summary* (Wind, 2018) identifies increased road density and traffic volumes as a serious threat to this population.



Image 8: The Cowichan Bay estuary is highly ecologically valuable... and vulnerable.

¹ CVRD, 2010 State of the Environment Report, p. 45

The focus of Development Permit Area 2 is sensitive terrestrial ecosystems, including Wake Lake.

The report entitled *Environmentally Sensitive Areas (ESAs) Mapping in the Cowichan Region – Phase II* (Madrone Environmental Services, 2018) covers a portion of the plan area and identifies rare and fragile terrestrial ecosystems that should be protected. The report includes the following categories of ecosystems: Cliff, Freshwater, Herbaceous, Intertidal, Mature Forest, Old Forest, Riparian, Seasonally Flooded Agricultural Fields, Sparsely Vegetated, Wetland and Woodland. These upland and aquatic ecosystems provide important breeding, overwintering, cover and foraging habitat for native wildlife, such as the Western toad. Native plants, wildlife and their habitat in sensitive ecosystems are particularly vulnerable to threats posed by invasive plant species.

A development permit area designation is required to ensure protection of these ecosystems from the gradual degradation of these rare areas by human activities and includes measures to protect these areas from land clearing, construction of buildings or roads, or other site alteration activities that have the potential to impair the ecological value of these areas.

The objective of designating a development permit area for the protection of sensitive ecosystems is to protect from development rare and fragile ecosystems identified in the SEI.

Permit Exemptions

A development permit is not required in the stated electoral areas for the following purposes:

Electoral Area:	Exemption:
A, B, C, E, F, G, H, I	No exemptions.
D	Addition to a single detached dwelling of up to 10 m ² in gross floor area.
	Construction of an accessory building or structure with a gross floor area of less than 10 m ² provided it has no permanent foundation and that it does not require the removal of trees.
	Construction of a retaining wall less than 10 m horizontal and less than 1 m in height.
	Construction of a non-structural impervious surface such as a driveway, walkway, patio or terrace not exceeding 10 m ² .

The Sensitive Ecosystems Inventory

The B.C. Sensitive Ecosystems Inventory (SEI) began as a joint initiative of the federal and provincial governments in 1993. Its purpose was to identify and map ecologically significant and relatively unmodified terrestrial ecosystems in order to support sustainable land use decisions and encourage wildlife conservation.

The [*Sensitive Ecosystems Inventory: East Vancouver Island and Gulf Islands*](#), completed in 1997, focused primarily on the Coastal Douglas-fir biogeoclimatic zone, which is the smallest and rarest of B.C.'s 16 ecological zones and contains B.C.'s highest number of species and ecosystems at risk, many of them ranked globally as imperiled or critically imperiled. [CVRD 2014 State of the Environment update.]

Note: The Sensitive Ecosystems Inventory (SEI) is included in the Environmentally Sensitive Areas identified by Madrone 2018.

Application Requirements

- SE-AR1** Submit development approval information that has been prepared by qualified environmental professionals (QEPs) and includes at a minimum:
- a topographic survey with an appropriate contour interval;
 - an inventory of natural biophysical features;
 - identification of populations, habitats or natural features (e.g. wetlands, snags, coarse woody debris, etc.) supporting species at risk;
 - identification of the boundaries of environmentally sensitive areas;
 - description of site development plans and operations, including location and area calculations for proposed parcels, roads/driveways, building sites, impervious surface areas and natural and landscaped areas; and
 - assessment of the potential environmental effects of proposed development on sensitive and important ecosystems and watercourses.

Protecting Species at Risk

The federal *Species at Risk Act* (SARA) defines a species at risk as an extirpated, endangered or threatened species or a species of special concern.

The B.C. government's Conservation Data Centre (CDC) assesses the level that B.C. species or ecological communities are at risk of being lost. Based on that, the CDC assigns a provincial conservation status rank that can be used to set conservation priorities.

All species in B.C. are ranked red, blue or yellow:
Red—any species or ecosystem that is at risk of being lost (extirpated, endangered or threatened)
Blue—any species or ecosystem that is of special concern (vulnerable to extirpation or extinction)
Yellow— Any species or ecosystem that is at the least risk of being lost. All red-listed and blue-listed species are considered species at risk under SARA.

A 2015 update to the CVRD's *State of the Environment Report* included a full list of [species at risk in the Cowichan Valley Regional District](#).

- SE-AR2** Submit an environmental site plan, prepared by QEPs, that
- reflects Best Management Practices in environmental site planning;
 - includes details of specific provisions that will be implemented to preserve and protect the natural environment, ecosystems and biological diversity of sensitive ecosystems within the DPA;
 - specifies terms and conditions regulating any activities that may adversely affect or disturb species, vegetation, soils, watercourses, natural features or ecological processes of sensitive ecosystems within the DPA, where such disturbance is unavoidable;
 - details specific provisions that will be implemented to restore and enhance the natural environment, ecosystems and biological diversity of sensitive ecosystems within the DPA;
 - defines measures for professional environmental supervision, inspection and monitoring of development activities and related environmental effects on sensitive ecosystems occurring during and after development, including the environmental consequences of any contravention of a condition of the development permit and proposed measures for mitigation of these consequences;

- f. conforms to all municipal bylaws, federal and provincial legislation, and regulations; and
- g. in Honeymoon Bay (electoral area F), references the Honeymoon Bay Property Environmental Overview Assessment prepared by ENKON Environmental Ltd. (2013).

Permit Guidelines

Measures for Protecting Natural Attributes of Sensitive Areas

- SE1.** Maintain a minimum 15 m natural buffer adjacent to sensitive ecosystem areas that
- a. recognizes natural processes and changing natural boundaries;
 - b. avoids disturbance of native vegetation, and removes and/or control invasive plant species on the [priority plant list](#);
 - c. avoid disturbance to large trees, snags, stumps and logs;
 - d. deter grazing by livestock in sensitive ecosystem areas;
 - e. deter predation and disturbance of wildlife by pets and domestic animals in sensitive and other important ecosystem areas; and
 - f. maintain wildlife corridors between the ecosystem and nearby wildlife habitat patches.
- SE2.** Include in the environmental site plan measures to maintain connectivity and linkages with adjacent sensitive ecosystems and other habitat areas through the use of corridors and greenways to minimize fragmentation. These connectivity features should be as undisturbed/natural as possible (i.e., include a variety of structural attributes or layers such as trees, shrubs, stumps, logs, etc.)
- SE3.** Where the development site contains or is adjacent to a natural watercourse
- a. prevent access to the watercourse by construction activities, except as approved by government agencies having jurisdiction;
 - b. preserve and restore the watercourse to natural condition, including the planting and retaining of vegetation and trees to preserve and protect fish habitat and riparian areas, control drainage and erosion and protect banks; and

Best Management Practices for Protection of Sensitive Ecosystems

Best Management Practices for Environmental Protection

[Environmental Best Management Practices for Urban and Rural Land Development: Special Wildlife & Species at Risk](#)

Government of British Columbia

[Natural Resource Best Management Practices](#)

Government of British Columbia

Working around Watercourses

[Standards and Best Practices for Instream Works](#)

Government of British Columbia

Invasive and Native Plants

[Coastal ISC Priority Invasive Plant List](#)

Coastal Invasive Species Committee

[Gardening with Native Plants](#)

Habitat Acquisition Trust

- c. ensure the environmental site plan complies with provisions of the [B.C. Water Sustainability Act](#), [Canada Fisheries Act](#) and [B.C. Riparian Areas Protection Regulation](#).
- SE4.** Design and implement a sediment and erosion control plan to protect sensitive ecosystems from silt smothering of low-growing plants where land disturbance is planned or likely.
- SE5.** Where utilities, servicing and infrastructure are required near sensitive ecosystems
- locate these works within sensitive ecosystem areas and associated buffers only where the installation is necessary, such as essential public roads, utilities, public works and pathways, and where there is no other physical alternative, by the determination of the local government;
 - manage construction to avoid adverse effects on sensitive ecosystem functions and conditions;
 - locate and design installations through the environmental site plan so that sensitive ecosystems can be maintained when adjacent lands are developed; and
 - restore and enhance any disturbed sensitive ecosystems to maintain previously existing natural conditions and functions of the sensitive ecosystem.
- SE6.** Use only native plant species where development occurs within or adjacent to a sensitive ecosystem, and do not use invasive plant species as identified by the [Invasive Species Council of BC](#).
- SE7.** Create and implement a plan to control the introduction or spread of invasive plant species. This plan may include removal of invasive species by hand clearing, pruning, mowing, excavation or other appropriate method. Disturbed sites are to be planted with appropriate native species.
- SE8.** Avoid development activities in areas that would disturb wildlife during nesting and breeding seasons. Ensure that wildlife agencies and experts are consulted as necessary to determine the best times and practices for development.
- SE9.** Minimize activities that disturb wildlife, compact or expose soils, or damage native vegetation, such as intensive recreation and livestock grazing. Where such activities are unavoidable, use designs that avoid public and livestock access to sensitive and important ecosystems (e.g., via roads and trails).
- SE10.** Minimize the presence of trails and other crossings within environmentally sensitive areas or sensitive ecosystems. Where they are required, they should be designed to
- be as narrow as possible;
 - not impact natural hydrological processes (i.e., water flows and drainage pathways)
 - provide the least intrusive and disruptive route to viewing areas;
 - avoid areas with high erosion potential;



Image 9: Boardwalks are elevated to minimize disruption of wetlands.

- e. ensure adequate drainage;
- f. avoid sensitive or rare vegetation; and
- g. prevent intrusion into wet areas including seepage sites and wetlands.



Development Permit Area 3: Marine Uplands and Foreshore Protection

Development Permit Area

Marine Uplands and Foreshore Protection refers to those areas of electoral areas A, C, D and G of the Cowichan Valley Regional District UDPA3 Marine Uplands and Foreshore Protection - Regional noted in pink. This development permit area covers approximately 76 km of marine shoreline on the east coast of Vancouver Island along the waterfronts of Stuart Channel, Satellite Channel and Saanich Inlet including

- a. upland areas extending 15 m inland from the high-water mark, upland areas extending 30 m inland from the high-water mark in area G and marinas and yacht clubs, shaded dark pink;
- b. Cowichan Village foreshore (hatched light pink).

Basis for Designation

These areas are designated as development permit areas in order to establish guidelines for protection of the marine environment, pursuant to section 488(1)(a) of the *Local Government Act*.

Justification for Designation

Development on land almost always affects the marine environment in ways that can have cumulative and significant impacts. Shoreline development can alter natural sedimentation processes, introduce pollution and modify the infiltration of sunlight to marine species.

Marine shorelines, including both the upland area above the high-water mark and the foreshore between the high- and low-water marks, provide many ecological services including slope and soil stability, sediment control, water purification, nutrient input and habitat. The shoreline and adjacent waters provide important habitat both for wildlife and for the forage fish on which commercially valuable fish species depend for prey. Eelgrass beds, for example, are vital for spawning and rearing a variety of fish species and are vulnerable to damage from sedimentation resulting from shoreline development. Shoreline riparian areas are also important to the health of marine ecosystems by absorbing runoff containing sediments and pollutants.

Forming the interface between terrestrial and marine environments, the shoreline is ecologically important to both. In addition to providing critical habitat for many marine and intertidal species, shorelines are important for key species such as forage fish (examples

Climate Change and the Foreshore

Projected impacts of climate change heighten the importance of ensuring careful development along shorelines. The Cowichan Region [State of the Environment Report](#) (CVRD, 2014) noted that the sea level has already risen except in areas being pushed upwards by geological processes and is expected to rise by at least one metre by the end of the century. Storm surges from windstorms and rainstorms will continue to become more frequent and intense.

Rising seas and increased storm activity will change the location of the shoreline and the nature of erosion and sedimentation patterns along shorelines. Development needs to take into account both current natural features and future patterns that may be hard to predict.

include herring and lancefish) that provide a prey base for ecologically and commercially valuable marine species like Pacific salmon and, in turn, orca whales.

Parcels along the shoreline generally slope down to the ocean and may have complex topography. They can be on the receiving end of drainage and seepage, may have wetter soils and may be susceptible to instability. The cumulative impact of careless development of waterfront parcels, such as situating buildings close to the top of escarpment banks or clearing vegetation for views, may have a detrimental impact on habitat in addition to disrupting natural beach processes and detrimentally affecting other properties and marine habitat. Measures to stabilize one site can lead to instability of other nearby sites, as a result of wave and tidal actions combined with longshore drift energy. The demand for private boat docks and other overwater structures may also threaten the integrity of the foreshore and valued upland habitats.

One of the most vulnerable and ecologically valuable locations along the shoreline is the Cowichan River estuary, included in the SEI. In addition to acting as a globally significant flyway for migratory birds, the estuary provides important habitat for a broad variety of wildlife and fish species. Without proper mitigation, overwater structures such as piers, docks and floating homes can adversely affect estuarine habitat by affecting light, wave energy, seabed layers and water quality.



Image 10: Recreational, commercial and industrial uses in Cowichan Bay.

The designation of a development permit area for the protection of marine shores includes the following objectives:

- to protect shoreline ecosystems from negative impacts of sedimentation and pollution;
- to reduce the risk of bank erosion resulting from development;
- to mitigate impacts of shoreline development on neighbouring and nearby properties; and
- to minimize impacts of overwater structures on Cowichan River estuary habitat.



Image 11: A view of the Saanich Inlet toward the Finlayson Arm.

Permit Exemptions

A development permit is not required in the stated electoral areas for the following purposes:

Electoral Area:	Exemption:
A, C, D	Activities located in areas more than 15 horizontal metres upland from the high-water mark.
G	Activities located in areas more than 30 horizontal metres upland from the high-water mark.
A, C, D, G	Subdivision
	Minor alterations to areas that have been previously distributed for at least five years, provided that only hand tools and natural materials, such as wood or stone, are used in the construction.
	Construction of a non-structural impervious surface, such as a driveway, walkway, patio or terrace, not exceeding 10 m ² .

The following exemptions apply:

- construction of, addition to or alteration of buildings or structures not located over the foreshore or water; and
- activities requiring provincial government approval prior to the CVRD issuing a building permit. A requirement for provincial approval is generally triggered where the proposed development would increase the area of the foreshore or ocean floor.

Best Management Practices for Marine Shores Protection
[Green Shores for Coastal Development: Credits and Ratings Guide for Waterfront Properties](#)
 Part 2: Prerequisites, pp. 8-24.

Permit Guidelines

Protection of Shoreline Ecosystems

- MUFP1.** Submit a report prepared by a QEP to eliminate or mitigate impacts of the proposed development on the subject property, other parcels with marine shorelines in the general area, and the general marine ecology.
- MUFP2.** Retain lands inland from and abutting the shoreline in their natural condition, preserving native vegetation and trees. Where a building, structure or alteration of land is proposed in these areas, demonstrate the circumstances that make this necessary.
- MUFP3.** Restore vegetation to marine riparian areas affected by construction or alteration of land using native species in accordance with a vegetation restoration plan prepared by a landscape architect or qualified environmental professional.
- MUFP4.** Implement measures to manage erosion and sedimentation during site preparation and construction.

Subdivision

- MUFP5.** Design subdivisions so that all proposed parcels allow for a suitable building envelope with an appropriate setback from the natural boundary of the ocean. A minimum 15 m setback is generally required in addition to flood construction levels determined by a coastal engineer.
- MUFP6.** Locate roads as far as possible from the edge of a slope or from the marine shoreline.

Limiting Shoreline Erosion

- MUFP7.** Avoid shoreline hardening and erosion control measures such as retaining walls.
- MUFP8.** Where erosion control measures are required to protect existing buildings, give preference to natural measures such as a [Green Shores](#) approach rather than shoreline/slope hardening.

Seawalls and Shorelines

Construction of concrete seawalls, once standard practice, has given way in recent years to a preference for natural barriers designed not to interfere with natural shoreline processes.

Hard structures that interrupt natural sediment movement can cause the loss of sand and gravel beaches and the habitat they provide for marine fauna and flora. Removal of natural vegetation, for example in order to expand a lawn up to the shoreline, may also mean the loss of the valuable functions it provides, such as providing wildlife habitat, filtering pollution washed off the land and absorbing the destructive energy of storm waves. Impacts on offshore marine ecosystems such as eelgrass beds can harm a wide range of marine life up the food chain from forage fish to salmon to orcas.

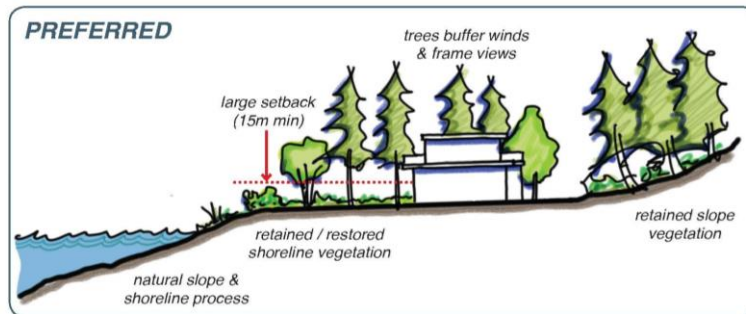
Interruption of natural shoreline processes by hard structures in one part of a beach may also have detrimental impacts on adjacent and nearby properties by altering erosion and drift patterns along the length of a shoreline.

MUFP9. Where retaining walls or other structures are required to protect buildings or prevent erosion, ensure they are limited to areas above the high tide mark and to areas of slope failure, rather than along the entire shoreline frontage, and are less than 2 metres in height in any one section.

MUFP10. Avoid backfilling behind a retaining wall unless clearly demonstrated by an engineer to be necessary to prevent further erosion or sloughing of the bank that would potentially endanger existing buildings.

Maintaining Public Waterfront Access

MUFP11. Ensure public access to the marine waterfront is not prevented or impeded by shoreline alterations.



MUFP12. Complete installation and construction during periods of least risk (summer: July 1–October 1; winter: December 1–February 15).

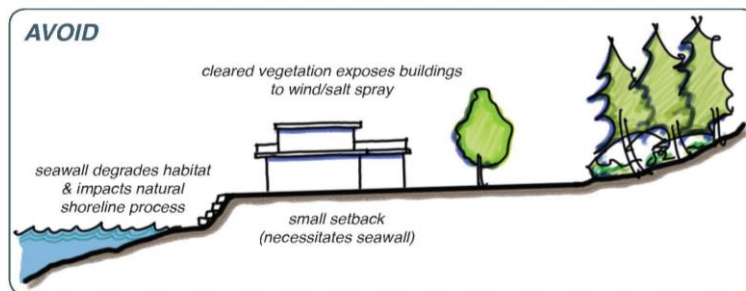


Figure 1-3: Foreshore overstructures.

Cowichan Bay Village Foreshore Overstructures

MUFP13. Minimize the extent of overwater structures and the number of pilings.

MUFP14. Orient piers and docks north to south.

MUFP15. Situate wharves to avoid extension over marshes or other productive foreshore areas; avoid extending wharves over the water beyond the low-water mark, except as necessary to access floats or for public viewing.

MUFP16. Locate overwater structures, including floating homes, at a sufficient depth of water to prevent the structure from grounding, ensuring a minimum 2 m vertical clearance between the level of the lowest tide and ocean floor substrate.

MUFP17. Focus lighting on the dock surface and use shades to minimize illumination of the water and surrounding environment at night.



Image 12: Full cut-off luminaires limit light pollution to reduce impact on marine life.

- MUFP18.** Incorporate measures to increase light penetration to the marine environment during the day. Measures to increase light penetration may include
- locating overwater structures so they will not cast shade on native aquatic vegetation or light-sensitive habitat;
 - locating overwater structures a minimum of 8 m from native aquatic vegetation;
 - using grating, glass inserts or reflective panels, with at least 60% functional openings, for elevated docks and gangways sited over nearshore areas; and
 - providing artificial lighting beneath overwater structures during daylight hours.
- MUFP19.** Avoid sheathing-in (skirting) overwater structures.
- MUFP20.** Design and locate structures to avoid the need for new bulkheads or shoreline armour.
- MUFP21.** Avoid use of wood treated with toxic compounds in decking, pilings or other in-water components.
- MUFP22.** Encapsulate foam material so that it cannot break up and be released into water.

Development Permit Area 4: Aquifer Protection

Development Permit Area

DPA 4 – Aquifer Protection designated the following areas a development permit area:

- those parts of electoral areas A, B, C, D, E, F, G and I of the Cowichan Valley Regional District included in the provincial [Ground Water Aquifers dataset](#), and those parts of electoral area H, shaded purple on Schedule U, UDPA4 Aquifer Protection - Regional.

The quality of surface and groundwater is affected by both natural factors, such as geology or climate, and human-caused factors related to land-use. Agricultural activities, sewage discharges, landfills or industrial composting can provide sources of nutrients, such as phosphorus or nitrogen, that influence the water quality within nearby aquifers and streams.

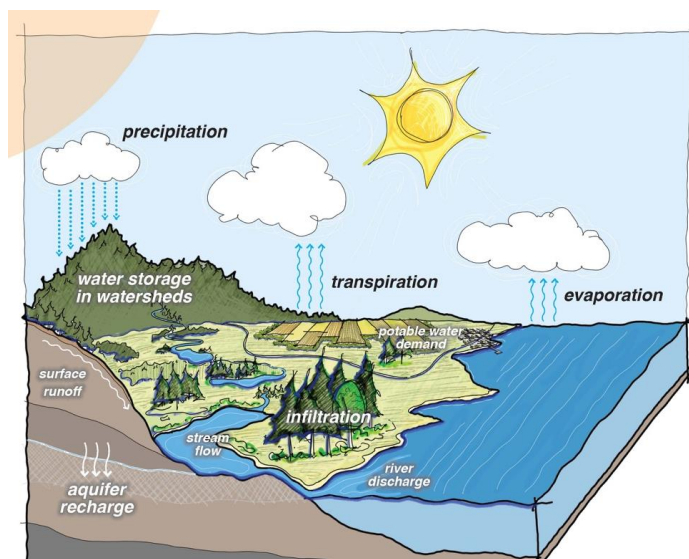


Figure 1-4: The Hydrological Cycle

It is important to protect the quality of aquifer water and to ensure its quantity is not unduly diminished by human overuse and by reductions in the surficial flows on which it depends for replenishment. In short, the ongoing health of aquifers depends on a combination of protection from contamination and promotion of efficient and frugal use of water supplies.

Basis for Designation

These areas are designated development permit areas in order to establish guidelines

- to protect the natural environment, its ecosystems and biological diversity pursuant to section 488(1)(a) of the *Local Government Act*; and
- to conserve water pursuant to section 488(1)(i) of the *Local Government Act*.

Justification for Designation

Access to clean, uncontaminated water supplies for domestic use is a critical priority for Cowichan Valley communities. A significant portion of Cowichan Valley Regional District households and commercial enterprises depend on aquifers for their daily water use. Aquifers in the region are vulnerable both to the impacts of drought and overuse on recharge capabilities and to the impacts of contamination on water quality.

The objectives of the guidelines for aquifer protection are to

- protect subsurface aquifers from contamination by land use and development activities; and
- avoid depletion of aquifer water supplies, maximize their recharge and promote the efficient use of water to ensure a stable and sustainable hydrologic system.

Permit Exemptions

Under section 489 of the *Local Government Act*, the following activities in an area designated as a development permit area for the purpose of water conservation are prohibited without a development permit or an exemption:

- a. subdivision of land;
- b. construction of, addition to or alteration of a building or other structure; and
- c. alteration of land or a building or other structure on that land.

In DPA 4, the following activities are exempt from the above requirements and do not need a development permit:

- a. construction of, addition to or alteration of a single detached dwelling including accessory structures.

The following activities are also exempt from the requirement for a development permit:

- a. removal of trees certified by an arborist to be hazardous;
- b. maintenance of existing lawns and gardens;
- c. removal of [invasive plants](#) and planting of native plants;
- d. repair and maintenance of existing structures; and
- e. forest management activities as described in Schedule A to the Private Managed Forest Land Regulations that are occurring on private managed forest land.

These criteria are applied differently depending on whether a development permit application relates to an existing development or a new development.

Application Requirements

AP-AR1 Prior to construction or excavation, along with a development permit application submit a report, prepared by a qualified environmental professional, that analyzes the impacts of proposed development on aquifers in the development permit area.

Permit Guidelines

General

- AP1.** Plan and undertake development activities in a manner that complies with B.C. and federal government guidelines for best management practices, including
- [Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia](#) Government of British Columbia, 2014; and
 - [Natural Resource Best Management Practices](#) Government of British Columbia.
- AP2.** Follow B.C. and federal government best management practices for the protection of water quality and quantity in surface and groundwater hydrologic systems, including
- [Integrated Rainwater and Groundwater Management](#) Water Sustainability Action Plan for British Columbia, 2012;
 - [Land Development Guidelines for the Protection of Aquatic Habitat](#). Fisheries and Oceans Canada, 1993; and
 - [Stormwater Planning](#). Government of British Columbia, 2002.

Protection of Aquifers from Contamination and Depletion

- AP3.** Do not construct any septic tank, storage tank, drainage, irrigation or water system in any area identified as having unstable soils or water laden lands subject to degradation. The development permit may allow individual and low-density septic disposal systems only if there is adequate investigation and monitoring to assess the effects of the proposal on the groundwater regime and the steps taken to mitigate degradation.
- AP4.** Ensure sewage treatment and disposal methods meet the requirements of the most recent [Liquid Waste Management Plans](#).
- AP5.** Locate, design, construct and maintain buildings, structures and uses involving the transportation, storage or use of materials, chemicals, compounds or substances that could contaminate an aquifer or

Classifications of Aquifers

Groundwater levels are not declining everywhere across the province, but rather in localized areas where there is intensive groundwater withdrawal and urban development. The provincial map-based [aquifer classification system](#) categorizes aquifers based on their current level of development (use) and vulnerability to contamination, and ranks them to indicate their relative importance.

The classification system shows that some communities in B.C. are highly dependent on groundwater and particularly vulnerable to problems with water supply and groundwater contamination. These areas include the Lower Mainland, Okanagan, east coast of Vancouver Island and the Gulf Islands.

In addition to declining quantity, groundwater quality is also at risk in many urbanizing areas where contaminants from land uses may eventually enter aquifers in unacceptable quantities, causing public health threats and compromising long-term sustainability.

[Groundwater Bylaws Toolkit](#).
Okanagan Basin Water Board, 2009



Image 13: Landscape designs with native plant species reduce water demand for irrigation.

groundwater, including materials or substances used during land alteration and construction activities, to minimize the possibility of contamination.

- AP6.** Implement landscape approaches such as xeriscaping that minimize watering requirements, preserve native vegetation and use non-invasive plant species suited to the local climate.

Table 1: Aquifers in the Cowichan Valley Regional District (Source: Ground Water Aquifers, Ministry of Environment and Climate Change Strategy,

2019)

Aquifer Name / Number	Location Description	Electoral Area
Lower Cassidy	Cassidy	H*
Cassidy	Cassidy	H*
162	Cedar, Yellow Point, N. Oyster (Ladysmith)	H*
168	Ladysmith	H*
169	Saltair, South Ladysmith	G
170	Panorama Ridge, Chemainus	G
178	Skutz Falls, Lake Cowichan, Paldi	F
179	Sahtlam	E, F
180	Sahtlam	E, F
181	West Duncan	E
182	Paldi – Sahtlam	E, F
183	West Duncan	E
185	Deerholm, South Duncan	E
Lower Cowichan River A	Duncan	D, E
Lower Cowichan River B	Duncan	D
Lower Cowichan River C	Duncan	D
189	Honeymoon Bay & Mesachie Lake	F
190	Youbou	I
191	North Lake Cowichan	I
192	North Lake Cowichan	F, I
196	Deerholm / Duncan	B, E
197	Cowichan Bay / Cobble Hill	A, B, C, D, E

198	Cowichan Station / Duncan	B, D, E
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199	Cowichan Station	B, C, E
200	Cobble Hill / Duncan	B, E
201	Cobble Hill	B
202	Shawnigan Lake / Cobble Hill	B, C
203	Shawnigan Lake / Cobble Hill	B
204	Cobble Hill / Mill Bay	A, B, C
205	Cobble Hill / Shawnigan Lake	A, B
206	Mill Bay	A
207	Mill Bay / Shawnigan Lake	A, B
208	Spectacle Lake / Malahat	A, B
945	Northeastern shore of Cowichan Lake	F, I
946	Northeastern shore of Cowichan Lake	I
947	East shore of Mesachie Lake	F
948	West shore of Marble Bay, Cowichan Lake	I
949	East shore of Mesachie Lake	F
962	Ladysmith, BC	H*
964	Cassidy – Nanaimo Airport	H*

* Discrepancy with areas mapped in Area H. Area H mapped as per Electoral Area H – North Oyster/Diamond Official Community Plan, Bylaw 1497.

2 PROTECTION OF DEVELOPMENT FROM HAZARDOUS CONDITIONS

Development of land in areas subject to periodic damage by catastrophic natural events requires careful planning to minimize the risk and to mitigate the impacts of such events on communities and structures. The need for risk management is increased by the likelihood that climate change will magnify the severity and the frequency of wildfires and of flooding, particularly in natural floodplain areas. In addition, steep slopes in some parts of the region may be associated with unstable ground and present the risk of landslide. The three development permit areas (wildfire, flood and landslide) and associated guidelines described in this section provide an important means of addressing these risks in the approval of development permit applications.



Image 14: Potential for hazardous conditions must be anticipated and addressed by future development.

The use of appropriate precautionary measures during site and building design, construction and long-term maintenance can reduce the risk of a variety of hazardous conditions in addition to minimizing the high social and individual cost of event impacts. Hazardous conditions include such events as floods, mud flows, debris torrents, bank instability, erosion, groundwater seepage, land slip, rock falls, subsidence, avalanche and wildfire.

In some instances, catastrophic natural events may be causally related to one another: flooding may increase land instability and trigger mud flows and debris torrents; landslides on steep slopes, by destroying or damaging trees, may contribute to fuel loads for wildfire; and wildfire has the potential to influence both slope instability and disruption of hydrological conditions by destroying forests that lend stability to the terrain in addition to serving as natural filtration systems to regulate the flow of rainwater and stormwater.

Development Permit Areas

Mapping of areas susceptible to catastrophic natural events has been updated and made more accurate following a series of natural hazard risk assessments and updated floodplain mapping throughout the region.

This [map of natural hazard risk assessment study areas](#) shows the extent of natural hazard risk assessments completed by the CVRD. It is not a comprehensive inventory of natural hazards in the region; instead, it shows those areas where the risks from a specific hazard have been studied.

CVRD's Natural Hazard Risk Tolerance Policy

Risky locations make for difficult decision-making, and difficult decisions require careful assessments to ensure the decision-maker has the best information possible about levels of risk.

Recognizing the wide range of natural hazards across the region and growing levels of risk resulting from climate change and continuing growth, the CVRD in 2019 adopted a Natural Hazard Risk Tolerance Policy. The Policy establishes tolerance criteria for decisions made by the CVRD to protect public safety and minimize potential life loss. The CVRD recognizes the wide range of natural hazards across the region, the historic development patterns which may affect some communities, as well as the growing level of risk due to both climate change and continued growth. Therefore, the CVRD will apply the hazard acceptability thresholds and responses to inform planning, land use and decisions related to subdivision; construction of, addition to or alteration of a building or other structure; or land alteration as well as our management of infrastructure.

Distinction between existing development and new development under the policy can be reflected in exemptions and in different criteria for technical reports required.

Basis for Designation

Section 491 of the *Local Government Act* spells out the types of conditions a local government may set before granting a development permit to an applicant.

491(2) For land within a development permit area designated under section 488 (1)(b) [protection from hazardous conditions], a development permit may do one or more of the following:

- (a) specify areas of land that may be subject to flooding, mud flows, torrents of debris, erosion, land slip, rock falls, subsidence, tsunamis, avalanche or wildfire, or to another hazard if this other hazard is specified under section 488 (1)(b), as areas that must remain free of development, except in accordance with any conditions contained in the permit;
 - (b) require, in an area that the permit designates as containing unstable soil or water which is subject to degradation, that no septic tank, drainage and deposit fields, or irrigation or water systems be constructed;
 - (c) in relation to wildfire hazard, include requirements respecting the character of the development, including landscaping, and the siting, form, exterior design and finish of buildings and other structures;
 - (d) in relation to wildfire hazard, establish restrictions on the type and placement of trees and other vegetation in proximity to the development.
- (3) Conditions and requirements under subsection (2) may vary the use or density of land, but only as they relate to health, safety or protection of property from damage.

Justification for Designation

In order for an area to be included in a development permit area for protection from a natural hazard, it must have been the subject of recommendation, preferably supported by a technical report, by a qualified professional establishing a factual basis for the need for protection from hazardous conditions.

Applicants for development permits within the DPA for protection from hazardous conditions need to be prepared to support their application with a technical report, if required. The risk associated with hazardous conditions can vary greatly from one location to another within a relatively small area depending on such factors as the nature of the terrain, hydrological patterns in the area, past history of hazard events, impacts of past development and the type of work proposed.

Application Requirements

Unless an activity is exempt (see exemptions sections below for wildfire, flood and landslide), section 489 of the *Local Government Act* requires a development permit for protection from hazardous conditions to be approved by local government before:

- subdivision of land;
- construction of, addition to or alteration of a building or other structure; and/or
- alteration of land, including but not limited to clearing, grading, blasting, preparation for or construction of services, and roads and trails.

Existing Development

Existing development criteria take into consideration historic development on a property where the natural hazard may not have been known at the time of development. These criteria apply to structural alterations and additions to existing buildings and structures comprising, under the authorization of any single permit or multiple permits issued for the same building or structure within a 10-year period, less than a 25 percent increase to the existing gross floor area, as long as the addition is not on the part of the land that is most exposed to the natural hazard.

New Development

New development is defined to include:

- rezoning;
- subdivision as defined in section 455 of the *Local Government Act*;
- removal, alteration, disruption or destruction of vegetation;
- disturbance of soils;
- construction or erection of buildings and structures;
- creation of non-structural impervious or semi-impervious surfaces;
- flood protection works;
- construction of roads, trails, retaining walls greater than 1.2 m in height, public docks, public wharves and bridges;
- provision and maintenance of sewer and water services;
- development of drainage systems; and
- development of utility corridors; and structural alterations and additions to existing buildings and structures that do not qualify as existing development.

Hazards 101: Homeowner Tips for Understanding and Managing Natural Hazards in the CVRD

A useful first step for understanding the risks associated with different types of natural hazards in the Cowichan Valley Regional District as well as tips on how to anticipate and prepare for that risk would be a review of the [guide for homeowners](#) published by the CVRD on its website.

For fire in particular, the *Homeowner's FireSmart Manual*, B.C. edition, provides a wealth of advice about how to protect property and persons from the risk of uncontrolled wildfire.

The acceptability thresholds document describes the types of development applications that relate to natural hazard criteria. It can be found here:

https://www.cvr.bc.ca/DocumentCenter/View/97301/CVRD_HazardAcceptabilityThresholds

Best Management Practices for Protection from Hazardous Conditions

In addition to following the guidelines associated with each development permit area for protection from hazardous conditions, holders of development permits should adhere closely to best management practices published by the British Columbia and federal governments as well as those developed by organizations with relevant expertise. Some of the most pertinent best management practices are listed below:

Wildfire

[The Home Owner's FireSmart Manual](#)

Government of British Columbia

Flood

[Environmental Protection in Flood Hazard Management](#)

Fraser Basin Council, 2010

[Stormwater Planning](#)

Government of British Columbia, 2002

Landslide

[A Guide for Management of Landslide-prone Terrain in the Pacific Northwest](#)

BC Ministry of Forests, 1994

General

[Natural Resource Best Management Practices](#)

Government of British Columbia

Note the assurance process for development permit holders:

Hazard Assurance Statement Form:

<https://www.cvrld.bc.ca/DocumentCenter/View/96534/Hazard-Assurance-Statement-Form>

Hazard Assurance Guidelines:

<https://www.cvrld.bc.ca/DocumentCenter/View/96536/Hazard-Assurance-Guidelines>

[The Busyplace Creek Stormwater Management Plan](#) and the [Natural Hazard Risk reports](#) for flood, sea level rise and slope failure include additional recommendations for development in hazard areas.

There are three development permit areas for Protection of Development from Hazardous Conditions:

[DPA 5 – Wildfire Hazard](#)

[DPA 6 – Floodplain Hazard](#)

[DPA 7 – Landslide Hazard](#)

Development Permit Area 5: Wildfire Hazard



Image 15: Wildfire risks come with serious consequences.

Development Permit Area

Wildfire Hazard refers to those parts of electoral areas A, B, C, D, E, F, G, H, and I of the Cowichan Valley Regional District on Schedule U, UDPA5 Wildfire Hazard – Regional shaded light orange for area located within 200 m of moderate, high or extreme wildfire behaviour threat class areas.

Basis for Designation

These areas are designated development permit areas in order to establish guidelines for the protection of development from wildfire pursuant to section 488(1)(b) of the *Local Government Act*.

Justification for Designation

Cowichan Valley Regional District Central Zone Community Wildfire Protection Plan 2017 Update – submitted by B.A. Blackwell & Associates Ltd, June 25, 2019; Cowichan Valley Regional District North Zone Community Wildfire Protection Plan 2017 Update – submitted by B.A. Blackwell & Associates Ltd, November 20, 2018; Cowichan Valley Regional District South Zone Community Wildfire Protection Plan 2017 Update – submitted by B.A. Blackwell & Associates Ltd, September 28, 2018; and Cowichan Valley Regional District West Zone Community Wildfire Protection Plan 2017 Update – submitted by B.A. Blackwell & Associates Ltd, May 1, 2019 identified areas of the regional district with moderate, high or extreme wildfire behaviour threat classes. Once started, wildfires can move quickly and far. Dwellings and other structures can be ignited by sparks and embers that may travel up to 2 km, by extreme heat that can ignite materials from a distance of 30 m, or by direct flame spreading along flammable objects. In addition to adhering to the guidelines below, following [FireSmart](#) practices can greatly reduce the potential impacts of wildfires.

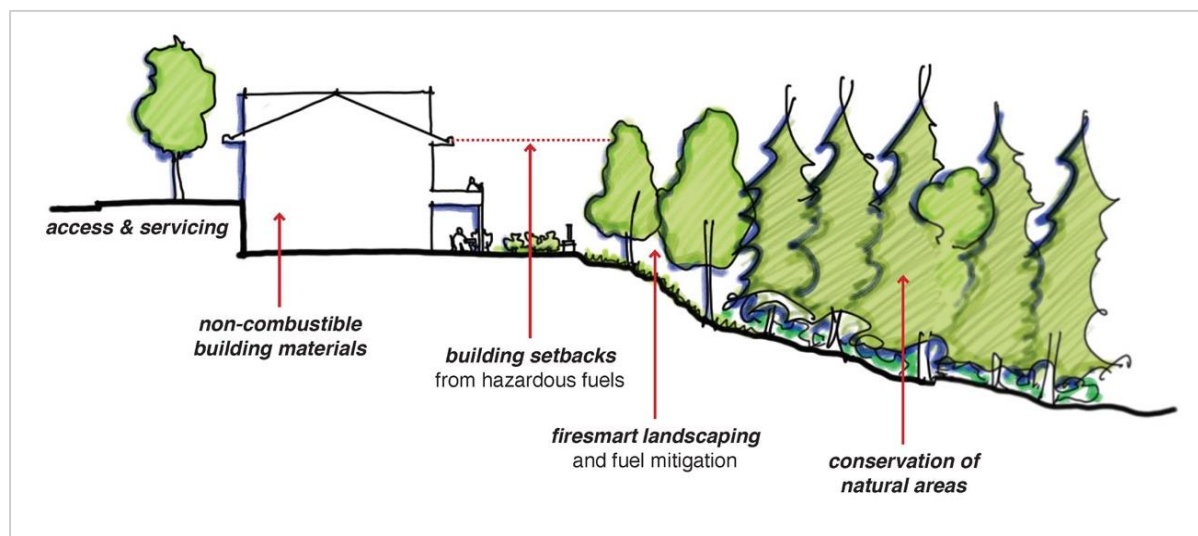


Figure 2-1: Designing with FireSmart practices in mind.

The primary objectives of designation of the development permit area for protection from wildfire hazard are to

- reduce the risk of wildfire in areas of high and extreme risk and increase capacity to contain wildfire events;
- prevent personal injury and property loss, protect structures from damage, ensure stable and accessible building sites, and ensure risks of predictable natural hazards are identified and mitigated;
- reduce the risk of post-fire landslide, debris flow and erosion; and
- conserve the visual and ecological benefits of forests throughout the regional district.

Permit Exemptions

Development permits are not required for the following activities in the stated electoral areas:

Electoral Area	Exemption:
A, B, C, D, E, F, G, H, I	Alteration of land Construction of, addition to or alteration of a single detached dwelling including accessory buildings and structures, provided that the home, yard/non-combustible zone and yard/zone 1 all have a low or moderate hazard score as described in the FireSmart score card, and that the score remains low or moderate over time

In addition, a development permit is not required for the following activities:

- gardening;
- installation of fences;
- removal of hazardous trees that present an immediate danger to the safety of persons or are likely to damage public or private property;
- construction of a trail across or through the development permit area; and
- agricultural activity.

Application Requirements

WH-AR1 If required by the Regional District, provide a risk assessment report prepared by a QEP with experience or training in conducting wildland fire risk assessments. Alternative measures to those listed in these guidelines may be accepted based on advice from a qualified professional.

WH-AR2 In the case of industrial subdivisions, provide a risk assessment report prepared by a qualified professional with experience or training in conducting wildland fire risk assessments. The report will assess the wildland fire risk and include recommendations to mitigate risk.

Permit Guidelines

Best Management Practices

- WH1.** During construction, implement [FireSmart](#) measures, including thinning of fuels in the surrounding area and providing firefighting equipment on site.
- WH2.** Ensure building design and construction is generally consistent with the highest current wildfire protection standards published by the [National Fire Protection Association](#) or similar organization.

Subdivision

- WH3.** In subdivision orientation and layout, provide adequate access for evacuation, emergency responders and fire protection for all parcels created through a subdivision process. A secondary access is required.

- WH4.** Incorporate fuel breaks (designed as roadways and/or buffer strips of cleared vegetation) between forested lands and subdivided parcels.

Site Design and Landscaping

- WH5.** Avoid locating buildings on the mid to upper portion of a property or at the crest of a hill, as these areas are typically at greatest risk in the event of wildfire.
- WH6.** Locate accessory buildings and structures a minimum of 15 m from the principal building(s) unless they are built to the same standard of fire resistance as the principal building(s).
- WH7.** Locate burn barrels and woodpiles a minimum of 15 m from the principal building(s).
- WH8.** Establish and maintain a non-combustible landscape within at least 1.5 m of the principal building(s). A larger non-combustible landscape of 10 m is encouraged.
- WH9.** Manage vegetation and combustible materials in accordance with FireSmart practices within at least 30 m of principal building(s). Recommended practices include
- spacing coniferous trees so that the canopies are at least 3 m apart; and
 - removing shrubs and small trees and pruning branches within 2 m of the ground.
- WH10.** Remove dead and dying trees prior to subdivision and annually after construction.

Building Design and Material

- WH11.** Use non-combustible materials or materials with a high resistance to fire for roof coverings. Class A UL/ASTM (American Society for Testing and Materials) fire-rated materials (e.g. metal, clay tile or class A rated asphalt shingle) are recommended.
- WH12.** Use tempered or multi-paned glass for doors and windows.
- WH13.** Use non-combustible or ignition-resistant materials such as stucco, metal siding, bricks, logs or heavy timber, or poured concrete for exterior wall finishes and decks. At a minimum, provide 15 cm of non-combustible surface between the ground and siding.
- WH14.** Sheath-in (skirt) the underside of balconies, decks, porches, manufactured homes and open foundations with fire-resistant materials.



Image 16: Building and design materials must be chosen thoughtfully.

- WH15.** Cap or screen chimney vents with spark arrestors 12-gauge (or better) metal mesh with openings of less than 13 mm.
- WH16.** Use closed eaves or screen eaves with 3 mm or smaller wire mesh.
- WH17.** Screen vents with wire mesh 3 mm or smaller or use ASTM ember-resistant rated vents.

Wildfire Risk in the CVRD

“Despite people’s familiarity with the term ‘wildland-urban interface,’ CVRD’s planners and Public Safety Division and provincial and local firefighting agencies in the Cowichan Valley continue to be challenged by the general perception from the public and visitors alike that interface fires are associated with B.C.’s interior, not Vancouver Island’s rainforests. All 18 fire departments in the expansive CVRD are volunteer-based. With nearly 90% of the lands in the region (excluding North Cowichan, which has a separate CWPP) rated with a high or extreme interface wildfire threat, concentrated efforts need to be continued by the CVRD, in combination with other levels of government and stakeholders, to ensure protection for life, property and ecological processes in the wildland urban interface.”

CVRD Community Wildfire Protection Plan,
2012 Update

Development Permit Area 6: Floodplain Hazard



Image 17: Flood events are anticipated to increase with climate change.

Development Permit Area

The following areas are designated a floodplain hazard development permit area:

- those parts of electoral areas F and I of the Cowichan Valley Regional District shaded light grey on Schedule U, UDPA6 Floodplain Hazard – Regional designated as floodplain in June 1984 by the Province of BC and mapped in the [Mapped Floodplains in BC \(Historical\) dataset](#).
- those parts of electoral area I of the Cowichan Valley Regional District hatched black on Schedule U, UDPA6 Floodplain Hazard – Regional (Youbou Lands).

Basis for Designation

These areas are designated development permit areas to establish guidelines for protection from flood and erosion, pursuant to section 488(1)(b) of the *Local Government Act*.

Justification for Designation

The Youbou Lands development site largely comprises an alluvial fan, part of which remains active, and protecting development from the possibility of flooding, erosion and associated accumulation of debris is necessary.

In 2019, Northwest Hydraulic Consultants conducted a [risk assessment](#) of the floodplains around the Cowichan Lake area of the Cowichan River. Modelling of flood levels was carried out for four scenarios, including a present day (baseline) scenario and increases in precipitation of 10, 20 and 40 percent to represent the range of climate projections.

Floodplains are typically adjacent to or overlap areas with high biological diversity and fisheries values and consequently are also likely to be included in Development Permit Areas 1 (Riparian Area Protection) and 2 (Sensitive Ecosystem Protection).

The primary objectives of designation of the development permit area for protection from flooding are to

- minimize development in floodplains and other areas known to be at high risk of flooding;
- mitigate impacts of flooding in already developed areas;
- prevent personal injury and property loss, protect structures from damage, ensure stable and accessible building sites, and ensure risks of predictable flood events are identified and mitigated; and
- maintain a natural riverine and floodplain regime and its contingent ecological, hydrological and aesthetic benefits.

Development in Floodplains

"In floodplain areas that are still undeveloped, these areas should be kept in a natural state and the land should remain undeveloped. Undeveloped land can be rehabilitated as riparian and aquatic habitat.

"Future urban development should be promoted in areas with low flood risk and a lower habitat sensitivity. Tools that help with the long-term planning are Flood Hazard Maps and Habitat Sensitivity Maps."

Risk Assessment of Floodplains and Coastal Sea Level Rise: Strategic Climate Risk Assessment for the Cowichan Valley Regional District. Northwest Hydraulic Consultants, 2019, p. 95.

Application Requirements

FH-AR1 Provide a risk assessment report prepared by a qualified professional with experience or training in conducting flood risk assessments. Alternative measures to those listed in these guidelines may be accepted based on advice from a qualified professional.

General Permit Guidelines

Development Design and Location

- FH1.** Ensure development
- a. is constructed in a location and manner that will maximize the safety of residents and property;
 - b. is located in the least hazardous part of the site;
 - c. is minimized in floodplain areas or where development may impede a natural floodway;
 - d. complies with flood construction requirements identified by a qualified professional in a preliminary assessment or detailed assessment report;
 - e. does not increase the risk or hazard to, or vulnerability of, other properties or structures;
 - f. does not include habitable space below the flood construction level specified by the qualified professional except in accordance with recommendations made by a qualified professional and in compliance with these guidelines;
 - g. in connection with renovations to any existing permanent structure, where reasonable, reduces flood hazard to the existing permanent structure by raising the habitable space to flood construction levels; and
 - h. does not include the installation of any mechanical equipment or electrical wiring below the flood construction level except in accordance with recommendations.
- FH2.** Implement structural and/or non-structural flood protection measures to mitigate the impacts of flooding within areas already developed.
- FH3.** Maintain potential debris flow and debris flood hazard areas and potential flood hazard areas free of development, or, if that is not possible, then
- a. undertake mitigation to reduce risk to an acceptable level (risk for both the subject property and any adjacent or nearby lands should be addressed); and
 - b. adhere to any conditions (for example, conditions relating to the permitted uses, density or scale of building) imposed as necessary to reduce potential hazard to acceptable levels, as determined by a qualified professional in a preliminary assessment or detailed assessment report.
- FH4.** Ensure proposed flood construction levels are clearly defined by a qualified professional, preferably supported by Geodetic Survey of Canada data.
- FH5.** Preserve natural riparian and floodplain regimes, siting development to allow normal creek processes (erosion and channel migration) and anticipated flooding to occur. Where appropriate, this should include actions such as grading of the site to deflect flood water and to allow for floodways or pooling of flood water.
- FH6.** Retain sites in their natural state, protecting riparian areas, preserving native vegetation and trees, and minimizing disturbance to vegetation to help preserve the natural hydrology of the site and reduce the environmental impact associated with new development.



Image 18: Homes are set back from the riverside; native vegetation is preserved along its banks.

Additional Permit Guidelines for Specific Areas

Youbou Lands

- FH7.** Submit with a development permit application in the Youbou Lands development permit area the following information:
- topographic mapping for the entire Youbou Lands site with a 1 m contour interval;
 - cross-sections of Cottonwood Creek, prepared by a B.C. Land Surveyor, taken at 100 m to 150 m intervals between the apex of the alluvial fan and Cowichan Lake shoreline;
 - the location of the 167.33 m contour interval on the ground, representing the calculated 1-in-200-year flood construction level; and
 - a report by a qualified engineer with experience in natural hazard assessment, management and mitigation, which will identify areas that will remain free of development, areas that may be used for development provided that specified engineering measures are employed, and areas that may be developed without constraint. These areas will be set out on a map in the report, with a different colour used to indicate each of these three categories. The CVRD will follow the recommendations of the qualified engineer in all subsequent phases of development. Where protective structures are proposed, the proponent will recommend an administrative process to maintain the structures through time, and the CVRD will have to approve of this arrangement in the course of processing the application, in order for the development permit to be issued.

Development Permit Area 7: Landslide Hazard



Image 19: Development at the toe-of-slope faces increased risk.

Development Permit Area

The following areas are designated as a landslide hazard development permit area, shaded dark red on Schedule U, UDPA7 Landslide Hazard – Regional:

- those parts of electoral area E of the Cowichan Valley Regional District, as identified in the report [Allenby Road Slope Hazard Overview Assessment](#) (McQuarrie Geotechnical Consultants Ltd, 2019) and “Slope Stability Hazard Assessment 3064-3070 Allenby Road” (Thurber Consultants Ltd, 1982);
- those parts of electoral area G of the Cowichan Valley Regional District (Saltair Bluffs);
- those parts of electoral area H of the Cowichan Valley Regional District as indicated in the reports completed by Ministry of Highways and Public Works (1979) and Hardy BBT Ltd (1991), including parcels containing land above the 300-foot (91.44 m) contour level of Woodley Range; and
- those parts of electoral area I of the Cowichan Valley Regional District as identified in the report [Debris Flow Runout Model: North Shore Cowichan Lake: LABS Model Results 2021 Rev2](#) (Stantec and Palmer, 2021), (Youbou Lands).

A technical report for the Saltair Bluffs in area G will be undertaken in spring 2020 by CVRD environmental services. A technical report for Cowichan Bay in area D will be undertaken in the modernization.

Basis for Designation

These areas are designated development permit areas to establish guidelines for the protection of development from landslide, pursuant to section 488(1)(b) of the *Local Government Act*.

Justification for Designation

The primary objectives of designation of the development permit area for protection from landslides are to

- manage development in steep slope areas in a manner that reduces the risk to life and property, prevents erosion and potential risks to down-slope property, prevents destabilization of slopes and protects the aesthetic quality of the slopes;
- ensure public safety and prevent damage to property from lands considered to contain or that exhibit hazardous conditions; and
- prevent erosion, if possible, in areas of steep slopes by leaving slopes uncleared, retaining areas of mature tree cover and preserving other natural features.

Land slippage and sloughing between Miller Road and Allenby Road resulted in the destruction of a building in December 1975. Incidence of soil creep has been evident since then, including small slides in 1979 and in December 1984, the latter case resulting in some structural damage to a building. Since 1975, several engineering studies, including those by Thurber Consultants (1979) and B.H. Levelton and Associates (1979 through 1984), have identified the potentially hazardous condition that exists in the area should the slope be developed without regard to drainage, slope stability or potential sloughing. Some vegetation removal has occurred on the slope face, which has further reduced stability.

A 1979 Ministry of Transportation report on the Woodley Range concluded that major portions of the area appear unsuitable for development due to the extreme shallow nature of the soils, moderate to steep complex topography and potential surface drainage problems. Since 1979, site-specific geotechnical reports, completed as part of development applications, have identified evidence of geotechnical instability and rockfall hazards. Multiple other reports have been undertaken since and are outlined in the figure below.

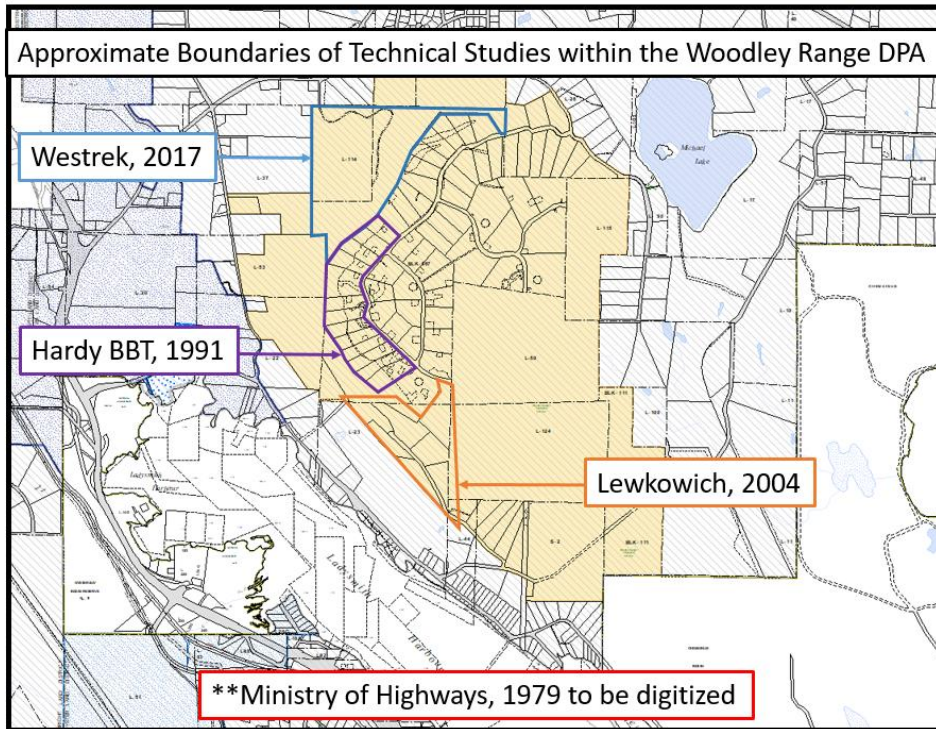


Figure 2-2 Approximate boundaries of technical studies within the Woodley Range DPA.

In 2020, Stantec Consulting Ltd. in association with Palmer Environmental Consulting Group carried out an assessment of the risks associated with various types of landslides (debris flows, debris floods) on the steep slopes above Youbou and Lake Cowichan. Stantec, in association with Palmer, conducted debris flow and debris avalanche runout modelling to better discretize the encounter probability map and refine the hazard component of risk to the residents of the North Shore of Cowichan Lake.

In the community of Saltair, the marine foreshore bluffs consist of steep slopes and complex topography generally unsuitable for urban development. The bluffs have been created by wave action eroding away at the glacial material of the backshore. There is limited beach material protecting the bluffs. The bluff and foreshore are low in gravel and high in silt and clay. Particularly, when vegetation is removed at the edge of bank, it is susceptible to further wave action, which may result in land slippage, sloughing or soil creep. The placement of buildings and structures and the clearing of vegetation near the edge of the Saltair Bluffs could increase the rate of erosion and add to the risk of land slides.

Permit Exemptions

A development permit is not required for the following activities:

- non-structural repairs or renovations (including roof repairs or replacement) to a permanent structure provided that such repairs or renovations do not increase the gross floor area of the permanent structure;
- replacement or repair of an existing deck, provided that the location and dimensions do not change;

- c. construction of an accessory building of less than 25 m² located outside any potential slope hazard area and at least 10 m away from the crest of any steep slope, and provided that no removal of trees or placement of fill will be required;
- d. buildings and structures located more than 30 m from the high-water mark of the ocean;
- e. removal of hazardous trees; and,
- f. routine maintenance of existing landscaping and lawn areas, or planting of vegetation, except for the planting of trees within 10 m of the top of a steep slope.

Application Requirements

LH-AR1 Submit a report prepared by an engineer or geoscientist that indicates whether, if recommendations are followed, the site may be used safely for the intended development over the projected life of the development. The applicant must submit a development permit application, which at a minimum includes:

- a. a written description of the proposed project;
- b. reports or information as listed in the relevant development permit guidelines; and
- c. information in the form of one or more maps, as follows:
 - i. location/extent of proposed work;
 - ii. location of ocean high tide mark;
 - iii. location of other watercourses;
 - iv. topographical contours;
 - v. location of slopes exceeding 25 percent grade;
 - vi. location of lands subject to periodic flooding;
 - vii. percentage of existing and proposed impervious surfaces;
 - viii. existing tree cover and proposed areas to be cleared;
 - ix. areas of known sensitive or rare native plant communities;
 - x. existing and proposed buildings;
 - xi. existing and proposed property parcel lines;
 - xii. existing and proposed roads, vehicular access points, driveways and parking areas;
 - xiii. existing and proposed trails;
 - xiv. existing and proposed stormwater management works, including retention areas and drainage pipes or ditches;
 - xv. existing and proposed erosion mitigation and bank alterations;
 - xvi. existing and proposed septic tanks, treatment systems and fields; and
 - xvii. existing and proposed water lines and well sites.

- LH-AR2** Identify any lands that are subject to rock fall, sloughing or soil creep, or to damage from rock fall, sloughing or soil creep originating on or off the property. No permanent structures will be located on these lands unless the hazard can be adequately mitigated. Where applicable, the applicant must provide a report certified by a professional engineer with experience in geotechnical engineering which includes
- a hydrogeological report containing an assessment of the suitability and stability of the soil for the proposed project, including information on soil depths, textures and composition;
 - a report on the safety of the proposed use and structures on-site and off-site, indicating that the land may be used safely for the use intended; and/or
 - a stormwater management plan, which includes an assessment of the potential impact of the development on the groundwater resource.
- LH-AR3** Where applicable, the applicant must provide an environmental impact assessment, certified by a QEP, assessing any impacts of the project on watercourses and lands in the area.

Permit Guidelines

- LH1.** Construct works to protect development from the hazards as recommended in the assessment report.
- LH2.** Roads and driveways should be located as far as possible from the edge of a bluff or from the ocean shoreline.

Adapting Design to Natural Contours

- LH3.** Design all development to minimize alteration to steep slopes and to reflect the site rather than altering the site to reflect the development.
- LH4.** On sloping sites: design sites and buildings to step down with the natural grade of the site to minimize cuts and fills, retaining walls, artificial embankment of grade or extensive regrading; avoid large unbroken building masses that are unsuitable for sloped conditions.

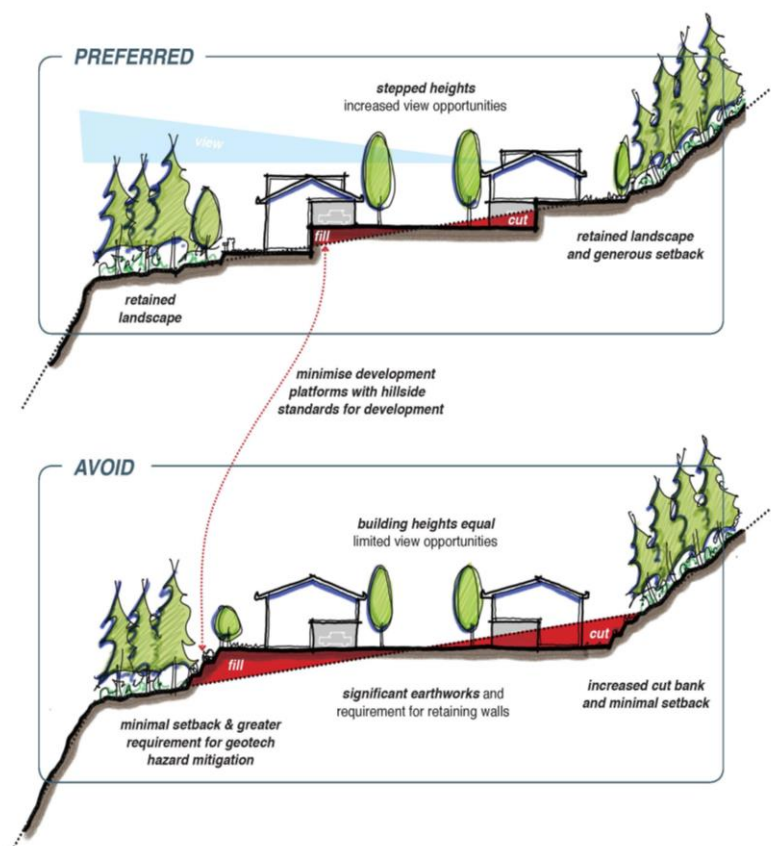


Figure 2-3: Developments should accommodate grade transitions within building design.

- LH5.** Avoid or minimize terracing and design landscaping to follow the natural contours of

the land.

Development Near Steep Slopes

- LH6.** Keep potential slope hazard areas free of development, or, if that is not possible, then
 - a. undertake mitigation measures to reduce risk to an acceptable level (risk for both the subject property and any adjacent or nearby lands should be addressed); and
 - b. adhere to conditions (for example, conditions relating to the permitted uses, density or scale of building) imposed as necessary to reduce potential hazard to acceptable levels, as determined by a QEP in a preliminary or detailed assessment report.
- LH7.** Avoid construction of structures, pathways/trails, driveways, utilities, drainage facilities, septic fields, swimming pools, hot tubs, ponds, landscaping or other uses at or near the top or base of steep slopes. A minimum 10 m buffer area from the top or base of any steep slope should be maintained free of development except as otherwise recommended by a qualified professional. On very steep slopes, this buffer area should be increased.

Base of Slope Development

- LH8.** Do not undercut the base of slopes for building, landscaping or other purposes except in accordance with the recommendations of a qualified professional and a permit issued under this section.
- LH9.** For homes at the base of slopes, construct bedrooms on the downslope side of the home.
- LH10.** Design development to avoid the need for retaining walls, particularly to minimize cutting of the uphill slope. Large single plane retaining walls should be avoided. Where retaining walls are necessary, smaller sections of retaining wall should be used. Any retaining structures in steeply sloped areas must be designed by a qualified professional.

Vegetation, Fill, Landscaping

- LH11.** Site preparation should minimize the need for vegetation clearing. In order to control erosion and to protect the environment, the development permit may specify the amount and location of tree and vegetative cover to be planted or retained.
- LH12.** Maintain and/or reinstate vegetation on the slopes and within any buffer zone above the slopes in order to filter and absorb water and minimize erosion.
- LH13.** Do not place fill, including yard clippings, excavated material, sand or soil, within 10 m of the top of slopes or along pre-existing drainage channels.
- LH14.** Reinforce and revegetate disturbed slopes, especially where gullied or where bare soil is exposed. Planting should be done in accordance with the recommendations of a landscape architect or registered professional forester.

- LH15.** Select native species, including trees, shrubs and other plants, for any new planting, and plant and/or retain tree cover in the amount/location specified by the development permit. [*Gardening with Native Plants*](#), a publication of Habitat Acquisition Trust, includes a comprehensive list of native plant species.

3 PROTECTION OF FARMING



Image 20: Protection of our land resources is fundamental to the protection of farming.

Agriculture is a central component of the Cowichan Valley's economy and culture, thanks in large part to the mildest year-round climate in Canada, a lengthy history of farming activity from colonial times to a 21st century influx of innovative entrepreneurs, and strong community support. Cattle farming has been a mainstay of the Valley's agricultural scene ever since the establishment of the Cowichan Creamery in 1895—more farms are devoted to cattle production than to other activity—but the Cowichan Valley today features one of the most diverse ranges of agricultural activity, large and small, in the country. And with climate change predicted to have a significant impact on regional temperature and precipitation patterns in years to come, further changes in the makeup of Cowichan Valley farming may be expected as new agricultural activities become feasible and some existing ones face greater challenges.

One of the keys to ensuring the future stability of agriculture lies in protecting farm land from conversion to other uses. Only about 10% of the area of the regional district is capable of agricultural production. Agricultural land has always been in relatively short supply in British Columbia and under threat from development pressures. Provincial government efforts to secure a healthy future for the farming industry included the 1970s establishment of the agricultural land reserve and the 1990s enactment of the *Farm Practices Protection (Right To Farm) Act*, which protects farms from nuisance claims as long as their farm operations comply with land use regulations and adhere to normal farm practices.

The importance ascribed to agriculture through these legislative initiatives continues in the *Local Government Act* provision, in section 488(1)(c), for designation of development permit areas for protection of farming. Section 491(6) lists the types of requirements that may be included in such protection: screening, landscaping, fencing and siting of buildings or other structures, in order to provide for the buffering or separation from farming on adjoining or reasonably adjacent land.

[Normal Farm Practices and Environmental Protection](#)

In order to qualify for protection under the *Farm Practices Protection (Right to Farm) Act*, and hence for protection under development permit area guidelines, a farm operation must not only be in the agricultural land reserve but must also be conducted in accordance with normal farm practices. A normal farm practice means a practice that is conducted in a manner consistent with “proper and accepted customs and standards” and any standards prescribed by the Lieutenant Governor in Council.

One such set of standards is the [Code of Practice for Agricultural Environmental Management](#), a provincial regulation that was developed to ensure agricultural practices are consistent with the protection of clean water and clean air. The regulation specifies clear requirements for the storage of and use of manure, other nutrient sources (such as fertilizers) and agricultural material. In a region such as the Cowichan Valley with many riparian areas, sensitive ecosystems, and aquifers and other groundwater sources critical to the supply of domestic water, adherence to the best management practices incorporated in the Code is of critical importance.

Although the Protection of Farming development permit area guidelines are restricted in their scope to addressing potential threats to agricultural land from encroaching development, the Code of Practice for Agricultural Environmental Management comes into play in other development permit areas where protection of water quality, fish habitat and other biodiversity concerns are a central issue.

There is one development permit area for Protection of Farming:

[Development Permit Area 8 – Protection of Farming](#)

Development Permit Area 8: Protection of Farming

Development Permit Area

Protection of Farming includes all areas shown on Schedule U, UDPA8 Protection of Farming – Regional shaded light green and identified as Protection of Farming. For clarity, this includes all land in areas A, B, C, D, E, F, G (excluding the Gulf Islands), and I adjacent the Agricultural Land Reserve boundary and Agriculture Designation and extends 30m into the non-agricultural lands.

Basis for Designation

These areas are designated development permit areas for the protection of farming, pursuant to section 488(1)(c) of the *Local Government Act*.

Justification for Designation

Protection of agricultural lands and productive soils is vital for the sustainability of the Cowichan Valley's agriculture industry. Non-farm uses located close to agricultural land can lead to land use conflicts.



Figure 3-1: Protection of farming guidelines in the Cowichan Valley Regional District.

Landscape buffers between farms and surrounding lands can reduce potential conflict (e.g. visual, noise, dust and odour impacts), control the spread of invasive species and help protect agricultural productivity.

The primary objectives of designating the Protection of Farming development permit area are to buffer and separate development from farming on adjacent land with screening, landscaping, fencing and siting of buildings on development sites in order to

- minimize the impact of urban encroachment on agricultural land;
- minimize conflicts between farm and non-farm uses in agricultural areas; and
- promote the sustainability of farmland and farm operations.

Permit Exemptions

Development permits are not required for the following activities:

Electoral Area	Exemption
A, B, C, D, E, F, G	Alteration of land
	Addition to or alteration of existing buildings or structures on land designated for agricultural use
	Addition to or alteration of existing buildings or structures located farther than 30 m from the boundary of a parcel of land designated for agricultural use
	Construction of an accessory building or structure with a gross floor area of less than 10 m ²

In addition to the exemptions set out in the table above, no development permit under this section is required for the subdivision of land that is within 30 m of the Agricultural Land Reserve in the following situations:

- lot line adjustments or where subdivision does not result in the ability to construct a new dwelling unit; and
- the subject land is separated from the Agricultural Land Reserve by a dedicated road that is at least 20 m wide.

Application Requirements

PF-AR1 Ensure development and formal approval of a buffer maintenance plan by a registered landscape architect, registered professional biologist or registered professional agrologist with experience developing landscape maintenance plans.

PF-AR2 Unless an activity is exempted, section 489 of the *Local Government Act* requires a development permit subject to protection of farming guidelines to be approved by local government before

- subdivision of land; and
- commencement of construction of, addition to or alteration of a building or other structure.

Permit Guidelines

Landscape Buffers

PF1. Install continuous landscape and fencing buffers between non-agricultural uses and lands designated for agricultural use in accordance with the 1993 Agricultural Land Commission Landscape Buffer Specifications and the B.C. Ministry of Agriculture Guide to Edge Planning, including but not limited to the following:

- locate the landscape buffer on the non-agricultural lands;
- establish a minimum width of 15 m for the landscape buffer;
- design the landscape buffer to protect agriculture from negative impacts of drainage, pathways or driveways; and
- install the landscape buffer after alteration of land or construction of buildings and structures.

- PF2.** Ensure plant layout, spacing and support are in accordance with the [Landscape Buffer Specifications](#) and the [Guide to Edge Planning](#).
- PF3.** No commercial or industrial buildings should be located within 15 m of the boundary of the ALR.

Vegetation

- PF4.** Retain existing native vegetation, including all healthy and mature trees, to create the landscape buffer.
- PF5.** Do not plant invasive plant species included on the Coastal Invasive Species Committee [Priority Invasive Plant List](#), and remove those already growing in the landscape buffer.
- PF6.** Plant species that will not grow tall enough to shade farm crops and are not likely to harbour insects or diseases harmful to nearby farm crops.

Subdivision

- PF7.** Design subdivisions on lands adjacent to lands designated for agricultural use to minimize potential conflicts between agricultural and non-agricultural uses by
 - a. laying out residential subdivisions to allow for at least 30 m separating habitable buildings from the lands designated for agricultural use;
 - b. generally avoiding locating road endings in close proximity to land designated for agricultural use unless the roads have been designated as part of a major road network;
 - c. prohibiting new single-family residential lots larger than 0.10 ha along the boundary of the ALR;
 - d. prohibiting half roads and half cul-de-sacs along the boundary of the ALR; and
 - e. designing the road pattern in such a way to direct urban traffic away from routes used by farmers to move equipment.
- PF8.** On parcels adjacent to land designated for agricultural use, locate buildings and structures as far away from the land designated for agricultural use as is reasonably possible in subdivisions that have not been laid out as described in the previous guideline.
- PF9.** On land designated for agricultural use, site non-agricultural uses, such as residential uses, to minimize the impact on existing or potential agricultural use of the land by the following methods:
 - a. locate non-agricultural buildings and structures in areas with lower agricultural potential, as determined by a report prepared a qualified environmental professional, or close to the fronting public road;
 - b. cluster non-agricultural buildings and structures to limit their total footprint; and
 - c. locate driveways to limit their encroachment on the agricultural land and to minimize the total amount of impervious surface.
- PF10.** Road patterns in subdivisions must be designed in such a way to direct urban traffic away from routes used by farmers to move equipment.

- PF11.** A disclosure statement in the form of a restrictive covenant under 219 of the Land Title Act must be included on the titles of all newly created lots located partially or entirely within the DPA. The covenant should specify that the lot is located near a farming area and that the following impacts are to be expected:
- a. noise from farm operations at various times of the day, including devices used to deter wildlife;
 - b. farm odours and chemical sprays;
 - c. unappealing aesthetic appearances of fields and equipment;
 - d. light from greenhouses; and that the following restrictions apply;
 - e. the vegetated buffer is to be maintained; and
 - f. no habitable structures shall be built within 30 meters of the ALR agricultural boundary.

4 FORM AND CHARACTER

The form and character—or overall “look and feel”—of development is important in enhancing the livability of communities. Guidelines in this section address factors such as exterior design, accessibility, security, connectivity within the neighbourhood and larger community, and high-quality standards in building and landscape design. The guidelines have been created to identify, reflect and strengthen the best qualities of Cowichan Valley communities and direct the “look and feel” of future development.

While basic principles of good design are applicable to all development, individual communities throughout the region have unique contextual qualities and, accordingly, distinct patterns and characteristics of development. The form and character DPAs respect and capture these differences while at the same time supporting a standard of quality.

A Deeper Exploration of Form and Character: Three Community Design Charettes

Additional in-depth village design studies and associated design guidelines should be considered—where applicable—within the design development:

- Cobble Hill Village – Community Design Charrette: Village Toolkit “Keep It Rural” (July 2017);
- Cowichan Bay Village Development Guide: Directions for Place-keeping and Place-making (July 2018); and,
- Shawnigan Village Charrette Report (February 2020).

Cobble Hill

Future development should be made to be complementary and compatible with the existing scale and character of the historical rural village centre in Cobble Hill. Design should reference, respect and retain heritage qualities that exist in Cobble Hill, using traditional and local materials to offer contemporary interpretations.

Colour should create a welcoming and interesting village centre. Infill housing is encouraged with adaptive uses on the ground level, allowing for fully accessible ground floor units that can be used as needed for residential (e.g. age in place), office or retail space. Designs should consider interior spaces to “spill out” into the front setback area as a means to program and activate street fronts.

Natural materials, such as wood, brick, stone, concrete, exposed heavy timber and steel, are appropriate in Cobble Hill. Vinyl siding is not in keeping with the character.

The tradition of brightly coloured buildings in agricultural settings continues to resonate with the residents today.

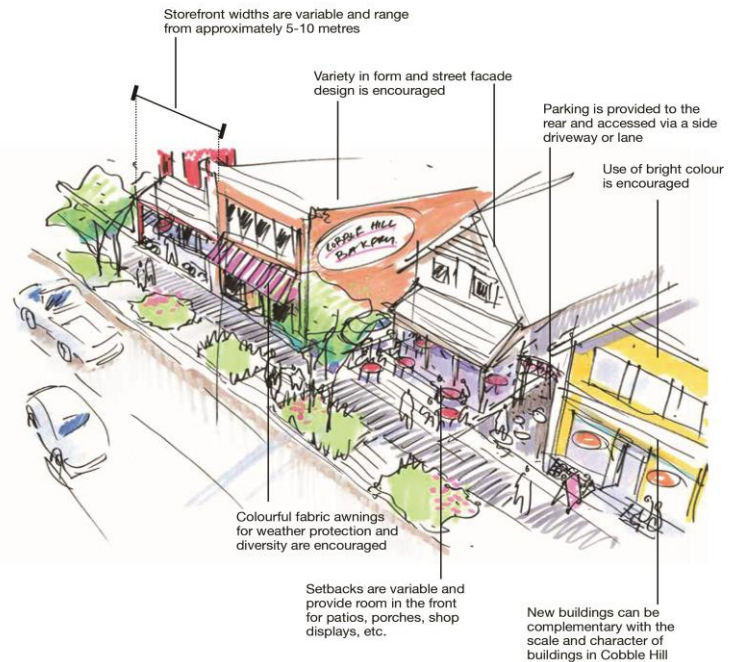


Figure 4-1: Cobble Hill commercial design principles.

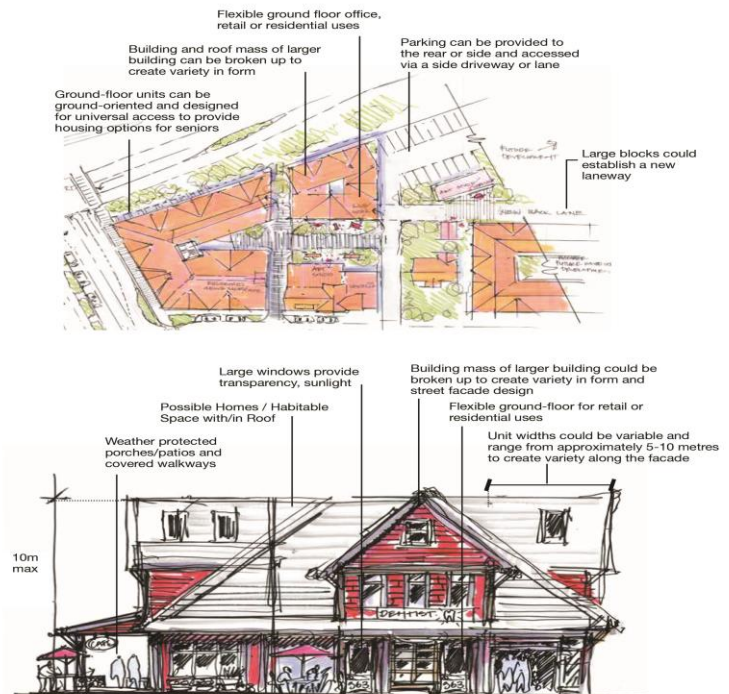


Figure 4-2: Cobble Hill design principles for flexible ground level use.

Shawnigan Lake

The small-scale character and form of Shawnigan Lake Village is fundamental to retaining its unique sense of place. Single building form and limited height in redevelopment will be key ingredients.

Buildings will follow a cottage or west coast design theme to fit into the existing character of the village. If multiple properties are assembled, new buildings or alterations will maintain the “fine grain” of the existing village defined by individual shopfronts not greater than 8 metres and building frontages not greater than 25–30 m. Portals, or breaks in continuous buildings for views or access to the lakefront, are required between/through larger developments.

As part of the Good Shawnigan Lake Neighbours program, the CVRD also requires the form and massing of any additional units to be integrated into the form and character of the block and requires that drawings are completed to illustrate the proposal.



Figure 4-5: Form and character in Shawnigan Lake.

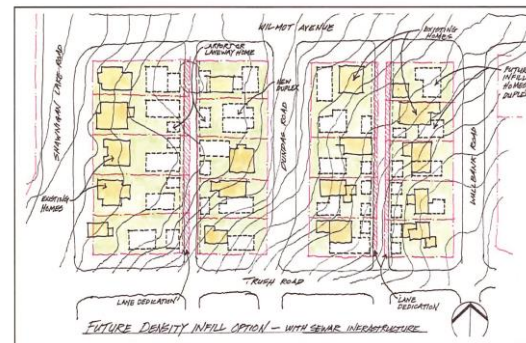


Figure 4-6: Residential infill in Shawnigan Lake.

Glazing should be maximized and use only clear, untinted glass. Storefront windows should have a minimum height of 2.5 m and no obstruction, such as metal bars, signage, coolers or shelving units should be placed on or against the inside face.

Recessed entries shall be well-lit and well-defined. Special treatment of these entries is encouraged, such as a special doorframe or mosaic tiles to identify the uniqueness of the store or business.

Upper level windows should be sized and spaced to relate to the vertical rhythm of the storefronts or businesses at ground level.



Figure 4-7: Commercial façade composition.

Form and Character Development Permit Areas

There are four development permit areas for Form and Character:

- [Development Permit Area 9 – Intensive Residential Development](#)
- [Development Permit Area 10 – Multi-family Residential Development](#)
- [Development Permit Area 11 – Commercial and Mixed-use Development](#)
- [Development Permit Area 12 – Industrial Development](#)

Each of the four form and character DPAs includes a description of:

- the types of development to which it applies as well as activities that are exempted from the requirement to obtain a development permit;
- guidelines that applicants for development permits are expected to follow during development; and
- application requirements (if any) that developers are expected to meet before submitting an application for development.

Intensive and multi-family residential development share some similar characteristics, but intensive residential development typically comprises single detached houses on smaller lots, whereas multi-family residential development typically includes buildings containing three or more residential units.

Each development permit area is described both in text (under the heading “Area”) and through their associated coloured shading on a map of the region. When one DPA overlaps with another on the map, the guidelines for both DPAs apply to any development that is not specifically exempted.

General guidelines define a standard of development and apply to development applications in all form and character DPAs, except where otherwise indicated as exempt.

Basis for Designations

Section 488(1)(e) and (f) of the *Local Government Act* authorizes an official community plan to designate development permit areas to establish objectives for the form and character within four specific uses: intensive residential, multi-family residential, commercial and industrial.

Section 488(1)(d) also authorizes the designation of development permit areas for the revitalization of an area in which a commercial use is permitted, for example in conjunction with initiatives to promote a mix of uses that preserve and enhance village character.

The commercial and mixed-use development DPA addresses both commercial development under section 488(1)(f) and revitalization of commercial areas with mixed uses under section 488(1)(d).

Under section 491 of the *Local Government Act*, guidelines governing the character of an intensive residential development may be more detailed than for the other three categories

described in section 488(1)(e) and (f) and may include landscaping and the siting, form, exterior design and finish of buildings and other structures.

Permit Exemptions

Pursuant to section 488(4) of the *Local Government Act*, a development permit is not required for the following:

- a. construction of, addition to or alteration of single detached dwellings on parcels larger than 450 m²;
- b. addition to a single detached dwelling of up to 10 m² in gross floor area;
- c. construction of an accessory building or structure with a gross floor area of up to 10 m²;
- d. maintenance and/or repair of improvements including similar (e.g. “like for like”) replacement of roofing, siding, windows and/or doors, including reconstruction of buildings destroyed by natural disaster and/or fire;
- e. internal renovations that do not affect the external appearance of a building or increase the floor area;
- f. external renovations that do not require a building permit and do not affect the form and character of the building or site;
- g. industrial or commercial uses where additions or renovations are not visible from the public realm;
- h. alterations undertaken solely for the purpose of ensuring an existing building meets building code and safety requirements (e.g., fire exits, ramps, etc.);
- i. works authorized by a temporary use permit;
- j. subdivisions; and,
- k. alteration of land.

Application Requirements

FCG-AR1 Prior to site design, conduct an analysis to identify significant on-site and off-site opportunities and constraints, including built and natural elements (e.g., structures, slopes and drainage, significant landscape features, etc.)

FCG-AR2 Provide a site grading and sediment and erosion control plan that includes the following information:

- a. Pre-development and post-development topography at maximum 1 m intervals with cadastral mapping. This topography should extend a minimum 30 m outside the subject property(s);
- b. All elevations along property lines where changes in slope will occur;
- c. The slope of the parcels, noting the minimum grade on the parcels and parcel dimensions;
- d. The proposed building envelope based on the anticipated type of house construction as per the zoning regulations;
- e. Proposed grades at the corners of the building envelope of each proposed parcel;
- f. Estimated amount of fill to be brought in or removed from the property or estimated amount of material to be relocated within the property;
- g. Existing grades on all adjacent parcels to the proposed subdivision;
- h. Retaining walls that will be needed including extent of walls and elevations of top and bottom walls;

- i. The protection measures that will be in place during construction to protect existing trees and shrubs proposed to be retained. The protection measures are to extend to the furthest extent of the drip line and the finished grade of the parcel shall not vary from the natural grade around the drip line more than 20 centimetres vertically, unless an arborist report indicates to the satisfaction of the CVRD that a greater variance will not harm the trees and shrubs;
- j. Any other items that in the opinion of the design engineer are critical to the parcel grading of the development; and
- k. Sediment and erosion control measures that will be implemented during site preparation and build-out. These measures should include retaining all eroded soils, protecting natural features, controlling surface runoff, preventing the release of deleterious substances, stabilizing disturbed slopes and restoring disturbed areas upon completion of development.

FCG-AR3 Include a comprehensive site plan with each application that

- a. includes the following information:
 - i. location and dimensions of proposed buildings and setbacks to existing parcel lines, rights-of-ways, easements and covenants;
 - ii. location of existing and proposed driveways, lanes, pathways, retaining walls and/or other covered entryways;
 - iii. location and dimensions of all vehicle parking;
 - iv. location of all water features, including streams, wetlands, ponds, ditches on or adjacent to property;
 - v. location of all existing and proposed water lines, sewer lines and stormwater features;
 - vi. stormwater management infrastructure and impermeable surfaces;
 - vii. above ground services, equipment and exterior lighting details;
 - viii. elevation drawings that include the following information:
 - a) coloured front, rear and side elevation drawings;
 - b) height measurements for all buildings;
 - c) exterior finish and material details; and
 - d) parcel cross section;
- b. considers context for building and landscape design; and
- c. demonstrates how development is sensitive to neighbourhood character (built and natural) and surrounding uses. The comprehensive site plan should include
 - i. contour (elevational) information that illustrates site terrain and the presence of any steep slope conditions;
 - ii. shadow impact studies—illustrating equinox shading at 10 a.m., 12 noon and 2 p.m.—for buildings within designated Settlement Nodes;
 - iii. a grading and drainage plan that illustrates how rainwater is managed on site;
 - iv. location and design (in plan, section and elevation) of proposed fencing; and,
 - v. a written summary of proposed measures to
 - a) reduce GHG emissions; and
 - b) increase water and energy conservation as prepared by a registered professional.

Permit Guidelines

Designing in Context

- FCG1.** Design infill development to complement the scale and character of adjacent development.
- FCG2.** Grading at the perimeter of a subdivision should generally resolve to existing grades on adjacent properties without the use of significant cut and fill and retaining walls unless it can be shown that this is consistent with the planned future grading of the adjacent property;

Preserving Views

Views of attractive topographical features are a factor in the original location of communities and contribute significantly to the sense of place and well-being of residents.

- FCG3.** To preserve local character-defining views
 - a. ensure building placement and orientation protect significant water (e.g. Cowichan bayshore, Shawnigan lakeshore), mountain (e.g. Mt. Tzouhalem) and island views from streets, parks and other public areas; and,
 - b. reflect rather than obscure significant natural topographic features by, for example, designing buildings to step up hillsides using terraces that connect with the walkway or street.

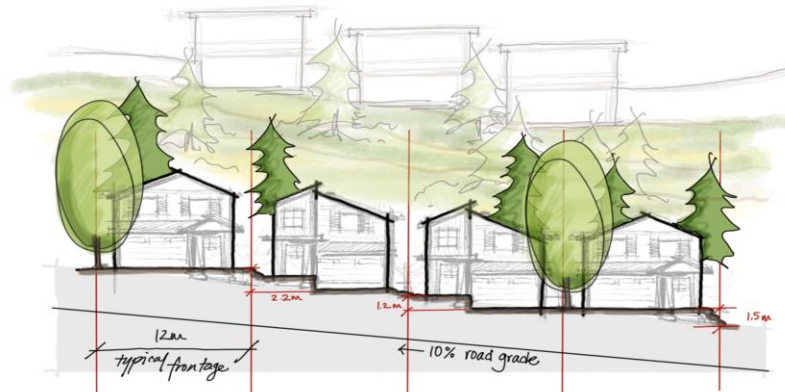


Figure 4-8: View preservation guidelines.

- FCG4.** To protect water views, very tall buildings will be generally discouraged on the waterfront, with the preference being for lower buildings near the water, rising in height gradually as the distance from the water increases.
- FCG5.** Where new construction could potentially block views from an existing development, orient and scale buildings to minimize impacts and/or retain views.
- FCG6.** Use building massing and landscape design to enhance and frame views.

Framing Space

The relationship between private and public spaces is an important design consideration in planning a community that encourages a sense of well-being and safety. Achieving such an objective requires development to consider how buildings frame public space(s) as a means to activate and enhance the public realm. The following guidelines aim to promote positive interactions between buildings and open spaces, with particular attention to transitions between private and public spaces.

FCG7. Site buildings to support strong street definition by minimizing front yard setbacks while sensitively transitioning to neighbouring building setbacks.

FCG8. Consider [Crime Prevention Through Environmental Design](#) (CPTED) principles in all designs, and balance the reduction of crime and nuisance opportunities with other objectives to maximize the enjoyment of the built environment. Measures to promote safety include providing appropriate lighting and clear sightlines for pedestrians.

FCG9. Design private and semi-private open spaces to optimize solar access.

FCG10. Locate and orient buildings to the public street (e.g. “front”) to create and enhance active frontages.

FCG11. Design secondary buildings—and the outdoor spaces between buildings—for specific uses (e.g. passive recreation, outdoor seating and/or food production) to optimize comfortable and functional amenity spaces.

FCG12. Locate and orient buildings to maintain privacy and avoid direct visual access (e.g. overlook) into adjacent properties.

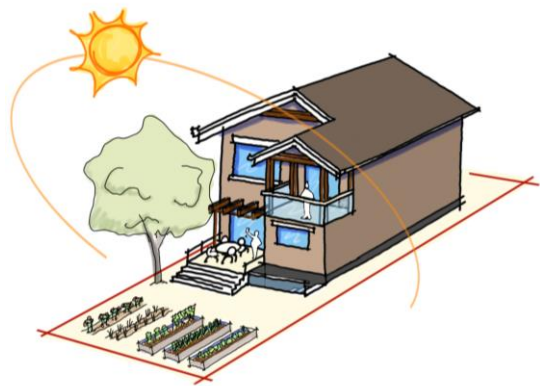


Figure 4-9: Optimize solar access

Quality and Connectivity of Pedestrian Spaces

FCG13. An environment that feels welcoming, comfortable and safe to pedestrians is a central quality of any neighbourhood. The following guidelines are intended to facilitate safe pedestrian access, to reduce conflict between pedestrians and vehicles, and to prioritize pedestrian movement, safety and comfort through the integrated planning of public pathways, sidewalks, bicycle paths, parking areas, roads, publicly accessible plazas and parkland.

FCG14. The road network design will promote connectivity for pedestrians, cyclists and vehicles. Dead end, cul-de-sac streets will not be supported unless deemed necessary due to topographical features.

FCG15. Where applicable, design sites and locate development to complement the creation and connection of continuous and publicly accessible walkways that celebrate the

character of local communities (e.g. waterfronts and shorelines, ridgelines, riparian corridors, etc.).

- FCG16.** Provide barrier-free pedestrian walkways to and from primary destinations, including building entrances and public sidewalks, parking areas, storage areas, garbage enclosures and amenity areas.
- FCG17.** Design shared open spaces to be publicly accessible and enhance pedestrian connectivity to adjacent properties, public areas and parks.
- FCG18.** Connect pedestrian walkways and/or trails with existing public sidewalks, pedestrian routes and crosswalks where opportunities arise.
- FCG19.** Configure development within larger parcels to accommodate pedestrian connections among/between and beyond individual building sites.
- FCG20.** Where feasible, maintain consistency of materials for pedestrian pathways and indicate pedestrian priority with paving treatments and/or materials.
- FCG21.** Integrate quality pedestrian facilities (e.g. well-designed walkways, benches, planters and bike racks) within public realm designs.
- FCG22.** Design walkways/pathways to be accessible to persons with accessibility challenges (such as mobility, sensory or cognitive disabilities), bicycles, scooters and strollers, with even, non-slip surfaces and grades less than 5%.

Cars and Parking

The following guidelines are intended to reduce potential conflicts between pedestrians and automobiles—particularly considering the design of vehicle access and parking—and to further support pedestrian movement, safety and comfort.

- FCG23.** Where underground parking is impractical or otherwise not feasible, encourage the location of surface parking at the rear and/or side of buildings to further promote quality pedestrian realm design along active frontages.
- FCG24.** Locate loading and servicing areas at the side and/or rear of buildings to avoid pedestrian conflict along active frontages.
- FCG25.** Provide off-street parking and servicing access from the rear lane, where one exists, to free the street for uninterrupted pedestrian circulation and boulevard landscaping.
- FCG26.** Separate pedestrian walkways from parking areas with raised and/or landscaped features and, where walkways and parking areas share space, use design features (e.g. different colours, materials and/or textures) to clearly indicate that pedestrians have priority.

FCG27. Design parking structures, parking access areas and associated components (doorways, ramps, screening treatments, etc.) as an extension/extension of adjacent building architecture.

General Permit Guidelines | Building Architecture, Materials and Colours

FCG28. Retain and enhance local character through the thoughtful use of vernacular architectural styles and elements, including but not limited to

- a. roof forms (e.g. pitched roofs that shed rain, gables, cornices and varied roof lines and heights);
- b. indoor/outdoor relationships (e.g. porches, porticos, verandas and patios; and
- c. structural elements (e.g. post and beam).



Figure 4-10: Buildings should be parked and serviced from the rear lane.

FCG29. Detail architectural expression with materials and colours that reflect local context, are durable and weather well over time, including but not limited to the following:

- a. local and natural materials such as cedar shingle, wood or plank finishes, stone finishes, stone-clad foundations or materials that replicate the appearance of natural materials; and,
- b. traditional application and/or building techniques (wherever possible), including board and battens, clapboard, shingles, shakes, stonework and/or wood finishes (e.g. door/window trim work, eaves and soffit, railings and balusters and/or triangular gable crowning an entrance supported by columns).

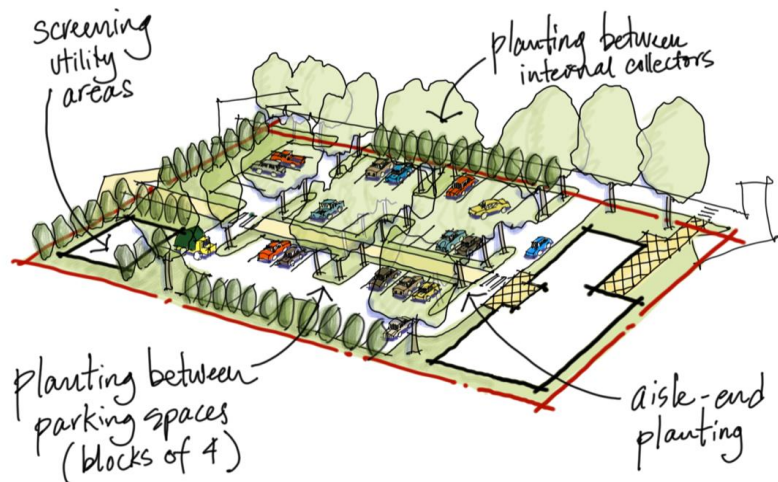


Figure 4-11: Support pedestrian movement, safety and comfort in parking areas.

FCG30. Employ a combination of two or more building materials and avoid the use of vinyl.

FCG31. Choose colour schemes inspired by the diverse natural palette of the Cowichan Valley landscapes (e.g. forests and agricultural valleys, lakeshores and oceanfronts) and select complementary accent colours and wood trim to emphasize architectural features. In the special case of coastal villages, rich, vibrant colours are preferred over pastels and neon colours, which are generally inconsistent with west coast seaside vernacular.

FCG32. Locate and size windows in proportion with the building scale. Large or continuous areas of curtainwall glazing create monotonous façades are contrary to rural character and are discouraged.

FCG33. Design and locate windows to prevent bird mortality from window strikes.

Orientation and Massing

Massing (the three-dimensional form) and articulation (how the parts fit together) of architecture are tools that can reduce the apparent size of large buildings and help ensure the sensitive transition to adjacent buildings and open spaces. It can also provide visual interest for pedestrians. New development should consider the scale of its neighbours and avoid abrupt transitions in height and massing between adjacent buildings.

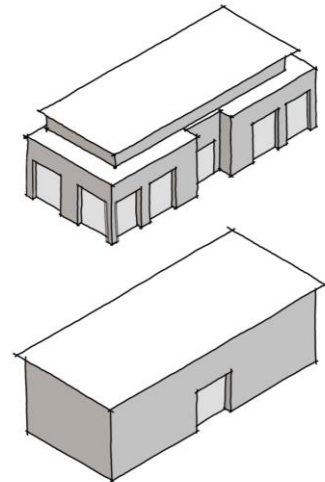


Figure 4-12: Massing is articulated in multiple volumes.

FCG34. Ensure massing of larger buildings is composed of multiple volumes to reduce visual impact on pedestrian areas. Ensure articulation of building mass includes horizontal (minor) setbacks and stepbacks (along upper storeys) to provide visual interest. Balconies and/or cantilevered upper floors can help to break up massing while promoting passive surveillance of public spaces (e.g. “eyes on the street”) and/or weather protection.

FCG35. Buildings over three storeys high should be articulated and oriented in a manner that maximizes solar access to public spaces. Shadowing of major pedestrian areas and parks should be avoided where possible.

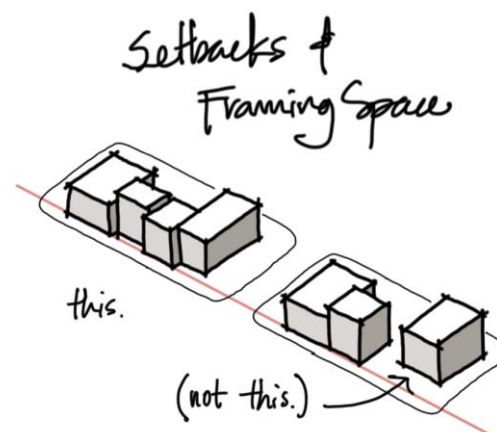
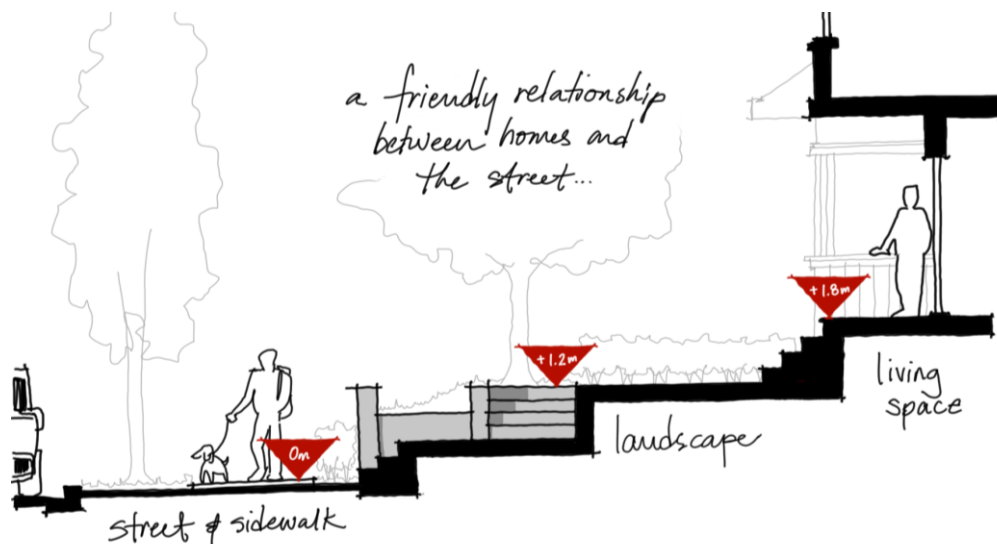


Figure 4-13: Frontages should be constructed to minimum setbacks and break up massing to distinguish smaller units.

Relationship of Buildings to the Street

Create active and safe shared spaces through orientation of primary building entrances, windows, porches/balconies to the public realm, sidewalks and other shared open spaces.

- FCG36.** Orient buildings to activate public spaces (e.g., streets) with a strong preference for ground-oriented multifamily forms (e.g. individual “front doors” for each unit) and active uses at street level. Encourage building frontages constructed to minimum setbacks to support more active pedestrian edges.
- FCG37.** Design entrances to be visible and clearly identifiable from the fronting public street; utilize structural elements (e.g. canopies and entry porticos) to create inviting and sheltered “front doors.”
- FCG38.** Where appropriate, use stepped massing to transition and improve the relationship between developments of differing scale. Adjacent building heights should not be greater than one-and-a-half storeys higher than existing adjacent development, with additional storeys terraced back with a minimum stepback of 3 m.
- FCG39.** Design street-facing residential units to utilize a layering of elements—including but not limited to street-facing entries, stairs, stoops, porches, patios and landscape elements—to create transitions between the public (e.g., street, sidewalk), semi-public (e.g., walkway, ramp, stair), semi-private (e.g., stoop, balcony) and private areas to allow for casual views of parks, open spaces and parking areas. In semi-urban areas, design entry to ground-level residential units to be no more than 1.8 m above the grade of adjacent public sidewalks and walkways. In areas with public sidewalks, design the outdoor space of a residential unit to be raised no more than 1.2 m above adjacent public sidewalks, with a “front stair” pedestrian connection.



FCG40 Figure 4-14: Relationship of residential entries to public sidewalks and walkways in elevation.

oid extensive blank walls (over 5 m in length and including retaining walls) along the street. Where required as a function of an internal program (e.g., for privacy, merchandising, etc.), blank walls should provide visually interesting surface treatments (e.g., varied materials/textures, murals, green walls or vines).

- FCG41.** Minimize the use of retaining walls. Where necessary, retaining walls that exceed 1.2m in height should be terraced and planted to reduce visual impact.

FCG42. Design the portions of buildings that are visible from public roads in a manner similar to and of a similar quality as the main façade with welcoming features such as picture windows, entrances, architectural features and landscape. Where no reasonable alternative to a concrete firewall exists in certain areas, patterned, toned concrete with architectural treatment, embossed designs or similar finishes in other materials will be the minimum requirement.

FCG43. Rooftop mechanical equipment should be screened from public view by parapets or other architectural roof design features. Box in chimneys and avoid exposed flues.

General Permit Guidelines | Landscape Architecture

Protect and Enhance the Urban Forest

Forests provide economic, social and environmental benefits. In addition to consideration of defining landscape character, enhancement of the urban forest will support the sustainable health and well-being for Cowichan Valley communities.

FCG44. Tree retention:

- a. Where possible, retain existing mature and native trees and protect their root systems in all new development.
- b. Conduct pre- and post-development tree surveys.

FCG45. Tree planting:

- a. Where space permits, plant landscaped areas, boulevards and setback areas adjacent to streets with trees with appropriate soil volumes to ensure longevity.
- b. Irrigate all areas with planted trees.
- c. Include in all development fronting a public street a landscaped area fronting the public road.
- d. Space street trees no further than 10 m apart, and ensure they are at least 2.5 m tall at the time of planting.
- e. Plant additional trees, particularly if existing trees cannot be preserved, to maintain and expand the urban forest canopy.
- f. Plant trees along street frontages to create a mature treed boulevard streetscape.

Taking Care of Our Urban Forests

The trees that grow in our communities, whether planted along boulevards or in parks or remnants of natural forest, play an important role both ecologically and in enhancing the quality of life of the community's residents.

Broadly defined, the urban forest includes a community's trees and shrubs and the soil in which they grow. The benefits it provides, in addition to scenic beauty, are wide-ranging and include shade and privacy, a buffer against noise, habitat for a variety of bird and other wildlife species, reduction in energy consumption by shading and cooling homes, and carbon sequestration through absorption of carbon dioxide. Care of the urban forest is a central component of community planning.

FCG46. Create landscapes that provide for and/or enhance habitat value for birds, pollinators and other species using plants that provide food and nutrients and/or incorporating structural/grading improvements (e.g., animal hibernacula, pools).

Functional Use of Landscapes – Screening and Buffering

Designs should be prepared by a professional with experience in the planning, design and implementation of high-quality landscape designs.

FCG47. Utilize landscape design to buffer developments in a manner that ensures screening of potentially unsightly uses:

- a. where appropriate (and in consideration of FireSmart principles and native ecosystems), use screen walls and/or landscape buffers (e.g., berms, shrub beds, hedges and/or trees) to manage transitions and/or conflict between incompatible uses (e.g., industrial / commercial and residential uses, materials storage, and/or parking).
- b. design buffers to complement neighbourhood character and landscape setting (refer to “Materials Selection – Hardscapes and Softscapes” below).
- c. landscape buffers should be used to reduce the visual impact of service areas and surface parking, including
 - i. planting between internal collectors (not used for direct access to parking stalls) and aisles that provide direct access to parking stalls;
 - ii. planting at the end of aisles;
 - iii. planting between each block of four parking spaces; and
 - iv. planting around utility kiosks, containers and/or dumpsters.

FCG48. Minimize noise spillover to adjacent parcels through a combination of site design (e.g., building siting), screen walls and/or landscape buffers.



Image 21: Landscape berms (illustrated in white) serve as excellent visual and noise buffers.

FCG49. For development visible from the Trans-Canada Highway or major network roads

- a. screen and landscape entrances, building peripheries, parking and pedestrian areas and open space areas; and

- b. consider use of a landscaped berm between 0.75 m and 1.5 m high as a visual and noise barrier along the Trans-Canada Highway.

FCG50. Along the Trans-Canada Highway

- a. provide a landscaped buffer at least 3 m in width;
- b. where possible, retain existing forest vegetation as the buffer; and
- c. provide limited gaps in the buffer to allow for visual recognition of the uses of land, subject to consideration of the quality of the proposed building design and landscaping.

FCG51. Screen loading areas with adequate landscaping and/or physically separate loading areas from parking and pedestrian areas. Screen utility boxes, vents and outdoor storage facilities from adjacent public areas.

FCG52. Landscape all public areas, including entrances, building peripheries, parking and pedestrian areas, and open space areas.

FCG53. Soften the appearance of large buildings through the layered planting of trees and shrubs within garden beds and/or planters.

FCG54. Define clear transitions between public areas (e.g., street, sidewalk), semi-public (e.g., walkways, ramp, stairs), semi-private (e.g., stoop, balcony) and private (e.g., entry) to enhance both the privacy of residences and the pedestrian experience through the use of

- a. landscape terracing (e.g., grading, retaining);
- b. structures (e.g., fences, pergolas, trellises);
- c. low fencing and hedging to delineate private and public spaces; and
- d. changes in surfacing materials.

FCG55. Mitigate potential conflicts between residential and non-residential uses through appropriate design features such as physical separation of uses, noise and visual barriers, landscaping and fencing, and mechanical systems to mitigate air quality impacts.

FCG56. Where industrial lands adjoin residential uses or designations, create a treed buffer at least 8 m in width between the industrial use and adjoining residential parcels, preferably located within the industrial lands. Ensure the buffer is densely vegetated to reduce noise and visual impacts. For industrial uses with potential for significant noise, smell or visual impacts, a minimum width of 20 m is recommended for the landscape buffer.

FCG57. Use landscaped berms, no more than 1.5 m in height, as a visual and noise barrier separating industrial uses and public roads.

Materials Selection – Softscapes & Hardscapes

The material and quality of landscapes in public and private spaces play important roles in defining the character of a community. Material selection (plants and construction materials) and high-quality landscape design will enhance landscape performance, visual character and aesthetic quality while reinforcing a positive, green image of the Cowichan Valley.

FCG58. Landscape designs and materials selection should complement surrounding natural context (e.g. plantings that enhance habitat value), enhance the pedestrian experience (e.g. durable surfaces, seasonal interest, shading, etc.) and strengthen a sense of local identity (e.g. use of native plantings and hardscape materials).

FCG59. Landscape designs should aim to create a seamless transition between the built environment and the natural environment by using local and/or locally adapted materials.

FCG60. Where feasible, landscape designs should extend/expand buffering (e.g. protection) of ecologically sensitive areas.



Image 22: Landscape designs should avoid formal landscape patterns and give preference to native species.

FCG61. Softscapes:

- Design plant materials (size) and planting densities to meet and exceed the [Canadian Landscape Standards](#).
- Consider opportunities for seasonal interest (e.g., colourful foliage and/or flowering at various times of the year).
- Design for structural diversity in plant palette composition, including combinations of groundcovers, shrubs of various heights and trees. For instance, plant a mixture of native deciduous and evergreen species of varying ages and heights to replicate natural “layered” plant communities and encourage biodiversity. Plant smaller shrubs, perennials and groundcovers beneath taller trees and shrubs.
- In landscape design, consider aesthetic qualities, plant suitability and soil volumes to ensure “right plant, right place” and to maximize growth to maturity of plants and trees.
- When selecting plants for landscaping, give preference to species native to the region and eradicate invasive species. The [Habitat Acquisition Trust publication Gardening with Native Plants](#) contains a comprehensive list of native plant species. Invasive species in the Cowichan region are listed in the priority plant list produced by the Coastal Invasive Species Committee.
- Minimize bark mulch and gravel in favour of planted areas and topsoil.
- Avoid the use of synthetic turf and use a high-quality topsoil mix of a type and amount consistent with the Canadian Landscape Association Standard.

- h. Where appropriate, mimic natural forms when planting new vegetation, avoiding geometric plantings and other formal landscape patterns.

FCG62. Hardscapes:

- a. Select materials to reflect an extension of overall functional design and emphasize local, natural, climate-appropriate materials.
- b. Ensure landscape construction prioritizes robust, durable and easily maintained materials.
- c. Design retaining walls with natural-looking textures and natural colours.
- d. Choose colours that complement the Cowichan Valley's natural setting and associated palette.

General Permit Guidelines | Special Considerations

Public Art

The Cowichan Valley is home to a thriving artistic community, and public art provides an opportunity to celebrate public space and create a sense of place.

FCG63. Explore opportunities for the inclusion of public art in public and semi-public open spaces, especially plazas.

FCG64. Carefully and collaboratively choose historical references within public art, in consultation with local societies and/or experts, as appropriate.

Lighting

Lighting is essential to wayfinding and safety at night. Equally important is the scale, intensity, quality, location and direction of lighting so as to avoid negative impacts associated with glare and other forms of light pollution.

FCG65. Avoid excessive illumination of the night sky or glare or light trespass onto adjacent properties and roads:

- a. Avoid lighting that illuminates streams, wetlands, lakes and other natural areas; and
- b. Light fixtures should utilize “cut-off” (zero intensity at or above an angle of 90°) luminaries that direct light downwards to minimize glare. Exceptions may be made for signage and/or architectural lighting (e.g., enhancing special features or aesthetic qualities).

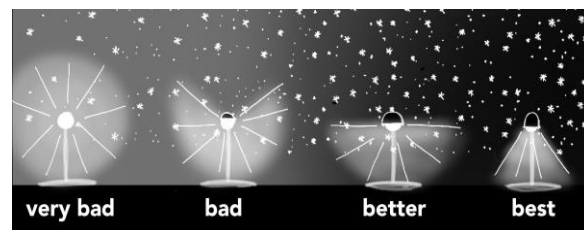


Figure 4-15: Ideal lighting reflectance and direction.

FCG66. Provide sufficient lighting for all building entrances, walkways, driveways, parking areas and loading areas to ensure clear orientation, personal safety and site security, including allowing for overlook from adjacent buildings. Design the scale and intensity of lighting to its setting and application:

- a. lighting design should prioritize pedestrian-scaled lighting while ensuring vehicular access and parking is sufficiently lit for safe manoeuvring;
- b. warmer light sources (<4000k) are strongly encouraged; and

- c. design outdoor lighting to enhance the overall architectural, heritage and design character of development.

Waste Management

Management of garbage and recycling must be integrated in overall building and landscape designs to mitigate negative impacts to form and character.

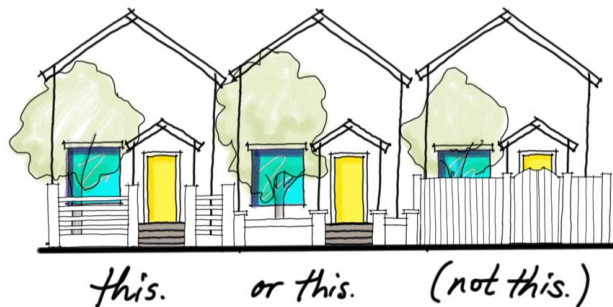
FCG67. Locate garbage/recycling areas and other similar structures out of public view in areas that mitigate noise impact and do not conflict with pedestrian traffic.

FCG68. Locate garbage and recycling bins in screened enclosures that are coordinated with the overall design while providing clear access to refuse/recycling areas.

Fences

Notwithstanding the fencing regulations in the zoning bylaw, fencing design should provide a level of privacy to the development but not present an unfriendly solid wall to the public street.

FCG69. Ensure fencing facing an active public area allows for visual access / passive surveillance. Fence heights should not exceed 1.2 m in height and should be transparent and/or semi-transparent.



FCG70. Supplement fencing along the street edge with low-profile landscape plantings.

Figure 4-16: Ensure fencing maintains visual access from and passive surveillance to active public areas.

FCG71. Construct fences of wood, stone, brick, ornamental metal work or suitable alternative materials of similar appearance as a complement to overall building and landscape designs and materials.

Signage

FCG72. Avoid unnecessary signage. Use the minimum size and number of signs needed to inform and direct pedestrian and vehicular traffic. Ensure signs clearly identify uses and shops but are scaled to pedestrians rather than automobile traffic moving at speed limits.

FCG73. In commercial areas, consolidate multiple signs, when required, into a multi-tenant sign located at the main entrance. Third-party signs advertising goods or services not available on the subject lands are not permitted.

FCG74. Ensure signage complements overall building and landscape designs and is in keeping with their general scale, architectural detail, material and character.

Conceal mounting hardware and wiring that is not integral to the character of the sign design.

FCG75. Where necessary, free standing signs should be:

- limited to no more than one free-standing sign per parcel;
- low-profile and 5 m or less in height, except where a site is lower than the adjacent road surface, in which case variations should be kept to a minimum; and,
- mounted on a heavy stone or exposed aggregate base and/or framed with heavy timber (rather than post-mounting them) and designed with associated decorative landscaping.



Image 23: Free standing signs should carry a low profile, framed with heavy timber.

FCG76. Keep sign lighting to a minimum and directed only at the sign, to prevent excessive illumination, glare and light trespass. Where signs must be illuminated, use external lighting sources or low-intensity internal sources.

FCG77. The following types of signs should be avoided:

- moving signs or signs with moving images or text;
- signs with temporary and changeable lettering (unless clearly required due to the nature of the business activity); and,
- backlit, neon, fluorescent or flashing signs or signs incorporating scrolling LED lighting or strip lighting.



Image 24: Backlit signs should be avoided in favour of raised or recessed letters that may be externally lit.

FCG78. Individually mounted, raised or recessed letters, symbols, border and framing are preferred.

Heritage

FCG79. Use interpretative signage and plaques to commemorate heritage sites, buildings and features.

FCG80. Design new buildings and structures to be compatible in form, character, exterior design and finish with existing historic buildings (e.g. the Masthead Restaurant and Cowichan Bay Shipyard) as defined by scale, massing, roof forms, materials and colours.

FCG81. Retain or reuse heritage features and elements when redeveloping buildings with significant heritage features.

Development Permit Area 9: Intensive Residential Development

Intensive residential development includes single detached houses on smaller lots and may include semi-detached dwellings depending on the varying definitions of intensive residential development.

Development Permit Area

DPA 9 Intensive Residential Development establishes objectives for the form and character of intensive residential development in electoral areas A, B, C, D, E, F and I, as seen on the Schedule U, UDPA9 Intensive Residential Development – Regional shaded in bright purple.

In areas A, B and C, it applies to single-family detached dwellings on parcels less than 0.074 ha.

In area D, this applies to semi-detached or single detached dwellings on parcels less than 500 m² in size that are not included in the Marine Village (lands adjacent to the natural boundary of the ocean).

In area E, DPA 9 applies to lands in the Allenby Road area zoned for residential use with a maximum dwelling density standard equal to or greater than 12 units/ha and to the R-6 zone on Culverton Road.

In area F, this applies to lands zoned CD-1, Paldi Comprehensive Development and MR-1, Mixed Residential.

In area I, this applies to those lands known as ‘Youbou Lands’.

Where this development permit area overlaps with other DPAs, all applicable guidelines must be considered. In addition, all development must comply with the general form and character guidelines listed at the beginning of Part 5.

Basis for Designation

These areas are designation development permit areas pursuant to section 488(1)(e) of the *Local Government Act*.

Justification for Designation

Cowichan Valley communities aim to provide for future residential growth that is sustainable and considers both the historic character of each community as well as contemporary priorities such as adaptability to climate change, water and energy conservation, community cohesion and connectivity, accessibility and safety. Intensive residential development is located in lower-density residential neighbourhoods, primarily in areas serviced with lanes, close to neighbourhood-scale amenities (services, parks) and where gentle densification is most appropriate. Development permit guidelines help maintain the historic character of neighbourhoods and enhance their livability.

The guidelines for intensive residential development are intended to ensure that residential infill development occurs in a manner that is sensitive to the existing built form by

encouraging new development to consider local characteristics and incorporate high-quality design into the siting configuration, landscaping treatments and overall building aesthetics.

The guidelines will enable the regional district to ensure that new intensive residential development

- provides a healthy, safe and livable environment for residents;
- fits with and relates to its context, and is compatible with surrounding land uses;
- minimizes environmental impact;
- provides safe vehicular and pedestrian access;
- ensures a “friendly face” along residential frontages and secondary edges, where applicable, with a comfortable relationship to the street;
- is compatible with surrounding land uses;
- supports the social and environmental goals of the regional OCP; and
- is constructed to high standards, both materially and aesthetically.

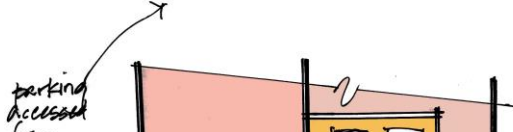
Permit Guidelines

- IR1.** Due to the close proximity of individual dwellings to one another, pay careful attention to the siting of buildings and arrangement of windows to protect inhabitants’ privacy while maintaining individual access to sunlight, air and open space. Landscape buffers may be integrated but should not act as a spatial barrier between the two dwellings.
- IR2.** Arrange dwelling units on the site to facilitate social interaction, build a sense of community and create defensible space by
- a. ensuring building entrances face each other and/or open space common to all units within a cluster;
 - b. providing for visual surveillance of open space common to all units within a cluster; and
 - c. providing patios, porches or verandas adjacent to common areas.

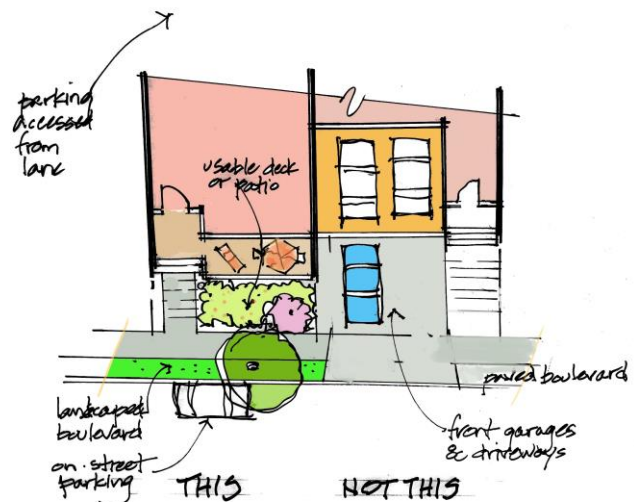
IR3. Ensure all dwelling units have direct access to a larger pedestrian network including parks, trails and roadside pathways.

IR4. Design garages and/or accessory units to be secondary to the primary form of the home and recessed behind the front façade of the principal dwelling.

IR5. Cluster driveways, parking and service areas together and screen them from view rather than segregating them among individual dwelling units.



The diagram illustrates a residential building with a red upper section and a yellow lower section. The yellow section has three windows. A blue car is parked in front of the yellow section. A green area with a pink bush is in the foreground. A black arrow points from the text 'parking accessed from lane' to a small parking area behind the building. Another black arrow points from the text 'usable deck or patio' to a small area on the roof of the yellow section.



Development Permit Area 9: Intensive Residential Development

Development Permit Area 10: Multi-family Residential Development

Multi-family residential development includes a wide range of higher-density housing forms, including multiplexes, row-houses, townhouses, low-rise apartments and high-rise apartments.

Development Permit Area

Development permit area 10 establishes objectives for the form and character of multi-family residential development in areas A, B, C, D, E, F and I, as seen on the Schedule U, UDPA10 Multi-family Residential Development – Regional shaded in yellow. The multi-family residential development guidelines apply to all multi-family development for properties currently zoned for multi-family residential and containing multi-family residential uses.

In areas A, B and C, it applies to a building or cluster of buildings consisting of three or more dwelling units, including a condominium, townhouses, apartment buildings and a seniors' congregate care house.

In area D, it applies to a building containing three or more dwelling units.

In area E, this applies to parcels zoned for multi-family uses within 200 m of the centre line of the Trans-Canada Highway and parcels within the Koksilah Business Park are excluded.

In area F, it applies to a building containing three or more dwelling units and includes a condominium, townhouses and/or apartments.

In area I, DPA 10 applies to a building containing three or more dwelling units including a condominium, townhouses and/or apartments.

Where this development permit area overlaps with other DPAs, all applicable guidelines must be considered. In addition, all development must comply with the general form and character guidelines listed at the beginning of Part 5.

Basis for Designation

These areas are designation development permit areas pursuant to section 488(1)(f) of the *Local Government Act*.

Justification for Designation

Certain neighbourhoods and areas have been designated for multi-family development to accommodate the demand for housing choice, increased affordability and living close to amenities and services. The multi-family DPA guidelines ensure successful integration of these housing types into their neighbourhoods.

Guidelines for multi-family housing provide a means to enhance neighbourhoods and create sensitive transitions in scale and density by addressing issues such as privacy, landscape retention and neighbourliness.

New development should recognize and respect local scale and patterns of development with the following objectives:

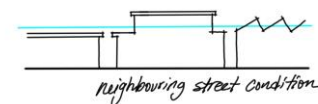
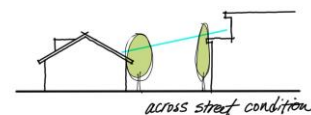
- ensure social spaces and support for active living (through provision of amenity spaces and indoor-outdoor relationships);
- avoid shadow/shading impacts to public parks and priority pedestrian realm; and
- encourage high quality materials and design.

Permit Guidelines



Image 25: Multi-family residential includes higher-density housing, ie; multiplexes, row-houses, townhouses, and low- and high-rise apartments.

MR1. Where multi-family residential development includes more than one building, design each building to have a distinct building form that complements the other buildings using common architectural and landscaping elements and complementary colours and materials. The use of multiple material types is encouraged to provide visual variety and interest.



MR2. Where a proposed building would be taller than adjacent development, a podium feature similar in height to an abutting building (or buildings) should be considered to provide transition in scale. Where a building exceeds four storeys in height, all storeys above the podium should be setback 3 m to create a comfortable street environment.

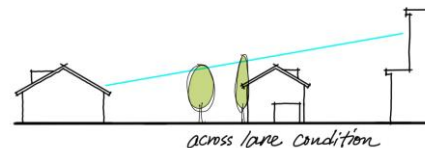


Figure 4-19: If a proposed building would be taller than adjacent development, upper floors should step back to provide transition in scale.

- MR3.** Ground-floor residential units should have private pedestrian access to the street at grade, thereby enhancing a street's function, liveliness and appeal.
- MR4.** Notwithstanding heritage considerations for the preservation of townsite housing forms, and where buildings are repeated along a street, avoid overly repetitive forms and/or "mirroring" of semi-detached units. Consider varying rooflines (e.g. gables, hips and dormers) and architectural elements such as balconies, arbours and trellises to provide visual interest.
- MR5.** Ground floors of buildings within areas designated Village Core will have ceilings of at least 3.6 m in height to facilitate conversion to commercial uses in the future.
- MR6.** Design multi-family developments to accommodate sustainable modes of transportation through
 - a. provision of end-of-trip facilities, such as bike parking and/or safe storage of alternative transportation/mobility equipment (bikes, mobility scooters, etc.);
 - b. provision of electric vehicle charging stations; and
 - c. internal circulation and/or upgrades to adjacent rights-of-way to accommodate alternative transportation (e.g., multi-use pathways, separated bike lanes, etc.).

Area-specific Permit Guidelines

The guidelines below apply only to the areas listed. The multi-family residential guidelines above apply to each of those areas as well.

Area B: Shawnigan Village Design Guidelines

- MR7.** Design sites and locate buildings and structures to complement the development of a continuous public walkway along the lake shoreline and provide pedestrian access walkways to connect upland areas with a lakeside walkway.

Area D: Cowichan Bay Marine Village Design Guidelines

- MR8.** Design buildings to incorporate weather protection (e.g. protective overhangs) above windows, walls and pedestrian walkways, preferably extending over roughly half of the sidewalk.
- MR9.** Connect indoor and outdoor environments using balconies and overlooks on the waterside of Cowichan Bay Village.
- MR10.** Use boardwalks, landscaping, seating and other streetscape elements to separate public from private areas.
- MR11.** Mitigate potential conflicts between residential and non-residential uses through appropriate design features such as physical separation of uses, noise and visual barriers, landscaping and fencing, and mechanical systems to mitigate air quality impacts.

- MR12.** Maximize public views of all areas of the waterfront. Avoid blocking water views where physical access to the water is restricted and/or prohibited (e.g. around industrial uses).
- MR13.** Consider views from both the water and the street of Cowichan Bay Village when designing buildings, boat shelters and floating structures.
- MR14.** Where fences are necessary for the safety or security of marine industrial uses, use visually permeable and/or transparent fencing or screening to avoid blocking views.

Development Permit Area 11: Commercial and Mixed-use Development

Commercial use refers to buildings used for commercial purposes only, while mixed-use buildings typically accommodate retail on the ground floor with office and/or residential above.

Development Permit Area

Development permit area 11 establishes objectives for the form and character of commercial development in areas A, B, C, D, E, F, G, H and I as seen on the Schedule U, UDPA11 Commercial Mixed-use Development – Regional shaded in red. The commercial development guidelines apply to all commercial development for properties that are currently zoned for commercial and mixed uses.

In area E, this applies to lands zoned for commercial and mixed uses within 200 m of the centre line of the Trans-Canada Highway, parcels within the Koksilah Business Park and the area zoned C-1 on Cowichan Lake Road.

In area H, DPA 11 applies to the area bordering the Regional District of Nanaimo along the Trans-Canada Highway known as ‘Commercial/Institutional’, and all parcels zoned for tourist commercial in the Yellow Point area.

In area I, this development permit area includes those parcels designated as Waterfront Commercial.

Where this development permit area overlaps with other DPAs, all applicable guidelines must be considered. In addition, all development must comply with the general form and character guidelines listed at the beginning of Part 5.

Basis for Designation

These areas are designated development permit areas pursuant to section 488(1)(f) of the *Local Government Act*, and for the revitalization of an area in which a commercial use is permitted pursuant to section 488(1)(d).

Justification for Designation

The visual quality of commercial areas is important to residents, as is accommodation of pedestrians in commercial areas with significant vehicle traffic.

DPA 11 encourages a wide range of developments that can support both commercial-only use and mixed-use (e.g., retail, office, residential), preserving affordable forms of commercial development and allowing for people to move into higher-density, higher-amenity neighbourhoods.

New development should recognize and respect local scale and patterns of development with the following objectives:

- produce streetscapes defined by attractive buildings and landscaping;
- transition extensive areas of surface parking to more pedestrian friendly and amenity-rich neighbourhood commercial;

- provide an attractive, comfortable, safe environment for pedestrians as well as vehicular traffic;
- establish building forms, site planning principles and landscape standards appropriate to quality urban spaces thus avoiding the appearance that characterizes some 'strip plaza' type developments; and
- reflect multi-family residential design guidelines for mixed-use residential development.

Permit Guidelines



Image 26: Commercial buildings are used for commercial purposes only; mixed-use buildings accommodate retail on the ground floor with office and/or residential above.

- CM1.** Design shop fronts to have prominent entrances, narrow frontages and largely transparent store fronts so that internal uses are visible from the street. These shops may extend onto a terrace or public area.
- CM2.** Buildings should incorporate architectural features and variation to avoid the appearance of long, blank façades and to reduce apparent building mass.
- CM3.** Where commercial uses are located on the ground floor of a building, provide a maximum amount of glazing on the ground level of the street-facing façade to create visual interest.

- CM4.** To assist with public wayfinding, business entrances should be well defined through signage and architectural design features.
- CM5.** Where residential uses are located in a mixed-use building (e.g. commercial and/or industrial uses combined with residential uses within the same building), locate residential uses on the upper floors of the building.
- CM6.** Where developments include a mix of residential and commercial uses, differentiate the entrances architecturally, with separate, ground-level residential entrances being less prominent.
- CM7.** Provide continuous weather protection with building overhangs, covered walkways and canopies.
- CM8.** Cluster parking areas in groups of no more than 20 spaces, with landscaping. Use pervious materials.
- CM9.** Publicly accessible office, recreational, and/or customer service areas should incorporate quality materials such as natural wood, stone, and glass.
- CM10.** Where permitted, drive-thru facilities should be located at the side or rear of the building, except where such siting will conflict with adjacent residential uses, in which case alternate orientations may be considered.

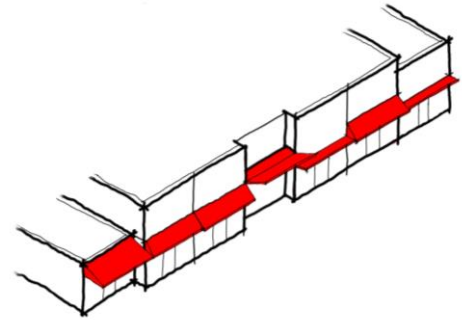


Image 27: Awnings of individual storefronts provide continuous weather protection.

Area-specific Commercial and Mixed-use Permit Guidelines

The guidelines below apply only to the areas listed. The commercial and mixed-use guidelines above apply to each of those areas as well.

Area A: Mill Bay Village Design Guidelines

- CM11.** Within Mill Bay Village, where possible, provide pedestrian access walkways to connect upland areas with an oceanfront walkway.
- CM12.** Along Barry Road in Mill Bay Village, design buildings to contribute to a pedestrian-oriented village-like character with ground floor commercial storefronts, building entries oriented towards Barry Road and the façades of tall buildings stepped back from the street with each storey.
- CM13.** Along Barry Road in Mill Bay Village, incorporate under-building/underground parking for commercial and mixed-use buildings.

Area B: Shawnigan Village Design Guidelines

- CM14.** Design sites and locate buildings and structures to complement the development of a continuous public walkway along the lake shoreline and provide pedestrian access walkways to connect upland areas with a lakeside walkway.

Area D: Cowichan Bay Marine Village Design Guidelines

- CM15.** Design buildings with protective overhangs above windows, walls and pedestrian walkways, preferably extending over roughly half of the sidewalk.
- CM16.** Connect indoor and outdoor environments using balconies and overlooks on the waterside of Cowichan Bay Village.
- CM17.** Use boardwalks, landscaping, seating and other streetscape elements to separate public from private areas.
- CM18.** Maximize public views of all areas of the waterfront, especially for areas where public access is not safely possible (i.e., around industrial uses).
- CM19.** Consider views from both the water and the street of Cowichan Bay Village when designing buildings, boat shelters and floating structures.

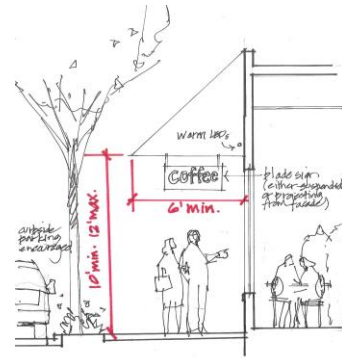


Image 28: Overhangs should extend over roughly half of sidewalks.

Area I: Youbou Lands Design Guidelines

- CM20.** Owing to the history of the core of the Youbou Lands site as a major industrial sawmilling operation, the form and character of proposed commercial buildings may reflect this industrial heritage in their design. While the intent is not to replicate the form of previous buildings, appropriate design cues and materials from that era may be proposed.

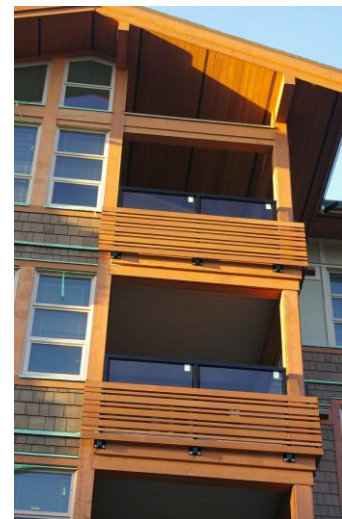


Image 29: Balconies provide private outdoor space that may overlook active public spaces and views beyond.

Development Permit Area 12: Industrial Development

Industrial use refers to buildings and sites used for assembling, storing, transporting, distributing, wholesaling, testing, servicing, repairing or salvaging goods, materials or things.

Development Permit Area

Development permit area 12 establishes objectives for the form and character of industrial development in electoral areas A, B, C, D, E, F, H and I as shown on the Schedule U, UDPA12 Industrial Development – Regional shaded green. The industrial development guidelines apply to all industrial development for properties that are currently zoned for industrial uses.

In area E, this DPA applies to lands zoned for industrial uses within 200 m of the centre line of the Trans-Canada Highway, the area zoned I-2 on Rowe Road and lands designated industrial within the Koksilah Business Park.

In area F, this DPA applies to lands zoned I-3, Light Industrial 3.

In area H, this DPA applies to the area bordering the Regional District of Nanaimo along the Trans-Canada Highway known as 'Commercial/Institutional' and the lands zoned I-2 on Brenton-Page Road (Ladysmith Harbour).

In area I, this DPA applies to those lands known as 'Youbou Lands'.

Where this development permit area overlaps with other DPAs, all applicable guidelines must be considered. In addition, all development must comply with the general form and character guidelines listed at the beginning of Part 5.

Basis for Designation

These areas are designated development permit areas pursuant to section 488(1)(f) of the *Local Government Act*.

Justification for Designation

Management of visual and environmental impacts of industrial developments is important to the well-being of area residents and to environmental values such as clean air and water.

The intention is to ensure industrial uses maintain high aesthetic standards and protect environmental values.

Industrial development should respect and accommodate neighbourhood and environmental values through:

- visual and noise buffering; and
- high aesthetic design standards.

Permit Guidelines

- ID1.** Large expanses of highly reflective treatments and glazing (e.g. mirror glass) should be avoided on exterior walls to prevent heat and glare impacts on adjacent properties and roads.
- ID2.** Where feasible, avoid outdoor storage. Where it is unavoidable and permitted in the implementing zoning bylaw, screen it from the view of adjacent non-industrial parcels.
- ID3.** Encourage the use underground instead of overhead wiring.
- ID4.** Incorporate existing mature trees into the landscape design.
- ID5.** Design vehicle access points, circulation patterns and parking layouts in such a way as to reduce impacts upon roads and adjacent parcels and to allow delivery trucks to manoeuvre without having to block or back onto an adjacent road or a pedestrian route.

Area-specific Industrial Permit Guidelines

The guidelines below apply only to the areas listed. The industrial guidelines above apply to each of those areas as well.

Area D: Cowichan Bay Marine Village Design Guidelines

- ID6.** Design buildings with protective overhangs above windows, walls and pedestrian walkways, preferably extending over roughly half of the sidewalk.
- ID7.** Connect indoor and outdoor environments using balconies and overlooks on the waterside of Cowichan Bay Village.
- ID8.** Use boardwalks, landscaping, seating and other streetscape elements to separate public from private areas.
- ID9.** Maximize public views of all areas of the waterfront, especially for areas where public access is not safely possible (i.e., around industrial uses).
- ID10.** Consider views from both the water and the street of Cowichan Bay Village when designing buildings, boat shelters and floating structures.
- ID11.** Where fences are necessary for the safety or security of marine industrial uses, use transparent fencing or screening to avoid blocking views.

5 ENERGY AND WATER CONSERVATION; GREENHOUSE GAS EMISSIONS REDUCTION

Climate change has already had a significant impact on the Cowichan Valley's ecosystems, resource base and economy. As the change accelerates, so too will the local impacts be magnified. A concerted community response will be required in order to adapt to the effects of climate change, more efficiently use and conserve natural resources impacted by climate change, and take practical steps to reduce the community's emissions of greenhouse gases, such as carbon dioxide and methane, that contribute to and magnify climate change by absorbing and emitting radiant energy. The development permit area guidelines in this section are designed to help achieve those objectives.

The near-term regional impacts of climate change (to the year 2050) are expected to include an increase in mean annual temperature of 1.6 degrees Celsius, more winter and less summer precipitation, and less snowpack. These changes, in turn, will be accompanied by a range of impacts that will have widespread effects on the region and are to some extent addressed by the guidelines attached to other development permit areas—for example, an increased risk of flooding and wildfire; a significant rise in sea level; the introduction of more invasive species, pests and diseases affecting native ecosystems; and more (and more prolonged) summer drought.

The Cowichan Valley Regional District is already a study in extremes where precipitation is concerned: the west coast is one of the wettest areas of British Columbia and will become gradually wetter; the east coast of Vancouver Island, where most of us live, is one of the driest coastal areas of the province and, along with the expectation of summer drought and loss of snowpack, there will be growing demand for water by a growing human population. Conservation of our potable water resource is therefore a priority.

Stormwater is associated with flooding, erosion and pollution—including

Practising Low Impact Development

Low impact development is an approach to land development or redevelopment that both minimizes negative impacts of stormwater and avoids unnecessary waste of rainwater. It does so by managing runoff close to its source, conserving rainwater for beneficial uses and promoting the natural movement of water in an ecosystem or watershed. Characteristics of low impact development include

- protecting natural features that catch and retain water, such as wetlands, streams and forest corridors;
- disturbing land as little as possible when laying out streets and lots;
- reducing the size of building footprints;
- emphasizing cluster developments where appropriate; and
- minimizing the extent of paved areas, for example by reducing parking lot stall size or by using pervious materials for surfacing.

Examples of stormwater best management practices include

- rain gardens;
- vegetated swales—marshy tracts of low land;
- absorbent landscapes;
- large canopy trees;
- green roofs;
- flow-through rain planters; and
- infiltration trenches.

noxious manufactured substances and organic wastes and sediments—and is known for its negative effects on slope stability (e.g. landslide hazard), fish habitat and water quality.

We distinguish rainwater from stormwater because rainwater is understood as a precious resource to be well managed, whereas stormwater is seen as a negative force to be mitigated: the guidelines are intended to manage rainwater and to avoid the generation of stormwater.

The *Local Government Act* recognizes the singular importance of including climate change as an appropriate subject for a development permit area, providing authorization in section 488(1)(h), (i) and (j) for a local government to establish objectives to promote energy conservation, water conservation and the reduction of greenhouse gas emissions.

Under section 491(9) and (10) of the *Local Government Act*, a development permit for these purposes may

- include requirements respecting the following in order to provide for energy and water conservation and the reduction of greenhouse gas emissions:
 - a. landscaping;
 - b. siting of buildings and other structures;
 - c. form and exterior design of buildings and other structures;
 - d. specific features in the development; and
 - e. machinery, equipment and systems external to buildings and other structures.
- establish restrictions on the type and placement of trees and other vegetation in proximity to the buildings and other structures in order to provide for energy and water conservation and the reduction of greenhouse gas emissions.

There is one development permit area for Energy and Water Conservation; Greenhouse Gas Emissions Reduction:

[Development Permit Area 13 – Energy and Water Conservation; Greenhouse Gas Emissions Reduction](#)

Development Permit Area 13: Energy and Water Conservation; Greenhouse Gas Emissions Reduction

Development Permit Area

Development permit area 13 includes those parts of electoral areas A, B, C, D and E of the Cowichan Valley Regional District shaded teal on Schedule U, UDPA13 Energy and Water Conservation; Greenhouse Gas Emissions Reduction – Regional for the conservation of energy and water and the reduction of greenhouse gas emissions. This DPA applies to all parcels in Multi-family, Commercial/Mixed-use, and Industrial developments in electoral areas A, B, C, D and E, and additionally to those parcels in Intensive Residential developments in electoral area D.

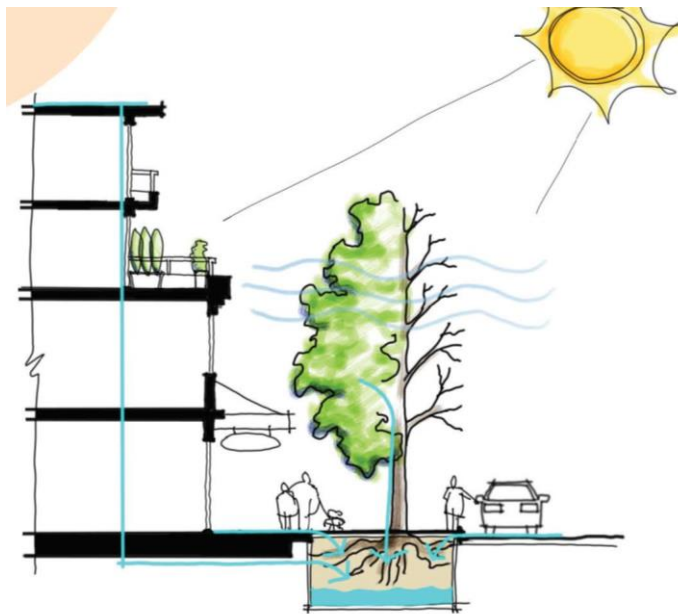


Figure 5-1: Solar shading is an important green building principle.

Basis for Designation

These areas are designated development permit areas pursuant to section 488(1)(h), (i) and (j) of the *Local Government Act*.

Justification for Designation

Natural water supplies are of vital importance throughout the Cowichan Valley. In addition to the potential of climate change to exacerbate drought conditions, overuse of water for human purposes can have serious ecological consequences such as causing streams to run dry and be unable to support aquatic ecosystems. The impacts of wells and water licences, for both domestic and industrial uses, on groundwater and surface water supplies are of significant concern. Additional pressures on water supplies are anticipated with population increases and reductions in runoff to lakes and streams resulting from lower snowpack.

The Cowichan region's west coast includes some of the wettest ecosystems in B.C., and some of the driest ecosystems in coastal B.C. exist on the region's east coast. This means that the part of the regional district with the least water has the highest demand and highest potential for changes to natural hydrology due to land use changes.

Energy use and greenhouse gas emissions can be measured through the Community Energy Emissions Inventory (CEEI), which tracks energy use from buildings, transportation and waste in all B.C. communities. The contribution of transportation to greenhouse gas

emissions is several times higher than that from buildings because a major source of energy for buildings is electricity rather than fossil fuels. On-road transportation accounts for almost three-quarters of the greenhouse gas emissions in the CVRD.²

Deforestation is also a significant source of greenhouse gas emissions in the Cowichan Valley. Natural ecosystems such as forests, wetlands and grasslands act as “carbon sinks” by absorbing carbon dioxide from the atmosphere, thus mitigating the effect of human-caused greenhouse gas emissions. Disruption of those ecosystems by timber harvesting and wildfire results in significant amounts of carbon being released back into the atmosphere, as does the conversion of wetlands to agricultural and other uses.

The establishment of a development permit area for energy and water conservation and reduction of GHG emissions has three related objectives:

- to reduce energy and water consumption in new buildings;
- to reduce costs associated with ongoing operation and maintenance of buildings; and
- to promote innovation in building design and development.

Application Requirements

Unless an activity is exempted, section 489 of the *Local Government Act* requires a development permit subject to protection of these guidelines to be approved by local government before:

- subdivision of land;
- commencement of construction of, addition to or alteration of a building or other structure; and
- alteration of land or a building or other structure on that land.

- EW-AR1** Provide a rainwater management plan to include the following information:
- a. analysis of the pre-development and post-development natural hydrological conditions including peak flows;
 - b. recommendations on low impact development features that should be applied at the subdivision and parcel scale;
 - c. specifics on the type, design and location of on-site drainage works required to meet the criteria; and
 - d. specifics on the type, design and location of off-site drainage works required if on-site works cannot sufficiently meet the criteria specified above.

Permit Guidelines

Energy Conservation and GHG Emission Reduction

- EW1.** Support sustainable energy and water management through site and landscape design.
- EW2.** Opportunities for passive heating and cooling and natural lighting should be considered early in the planning and design process to create buildings that have energy savings and emit less greenhouse gas (GHG) emissions.

² CVRD, Cowichan Region *State of the Environment Report*, 2014 Update, p. 8.

EW3. Buildings should be designed to maximize natural light and ventilation for all residential units while considering microclimates which may impact the building.

EW4. Develop landscape designs that support passive temperature regulation, for instance

- a. by planting deciduous trees on the southern and western facing sides of a building to maximize the warming effect of solar radiation in winter months and the cooling effect of shade in the summer;
- b. accommodating windbreaks (perpendicular to the direction of winter prevailing winds) to reduce heat loss in winter, for instance by locating evergreen trees so they block winter winds without blocking solar access; and
- c. reducing wind impacts through the consideration of landscape retention for buffering and windbreaks.

Site Design, Building Siting and Orientation

Best Management Practices for Energy and Water Conservation and Reduction in GHG Emissions

[Developing Permit Areas for Climate Action: A Guide for Energy Conservation, Water Conservation and GHG Emissions Reduction](#)

(B.C. government, 2011) provides a multiplicity of links to best management practices for strategies for energy and water conservation and GHG reduction for each of the following areas:

- Landscaping: planting for passive gain and cooling; windbreak planting; creating alternative transportation routes; tree planting and paved areas planting.
- Siting buildings and other structures: site selection; site layout; solar orientation and wind exposure.
- Form and exterior design: built form and exterior design of buildings.
- Specific features: permeable and reflective surfaces and shared amenities.
- Machinery, equipment and external systems: exterior lighting; alternative transportation; on-site energy generation; district energy systems and waste management.
- Water conservation: landscaping; specific features and machinery, equipment and external systems.

Building orientation can help reduce energy use and greenhouse gas emissions. Positioning and orientation of buildings to take conditions such as sun, wind and natural topography into account can reduce GHG emissions resulting from mechanical heating and cooling.

EW5. On south-facing slopes, site buildings with the long axis running east to west, to provide maximum solar access and opportunities for planting vegetation to manage solar gain.

EW6. Orient buildings to maximize passive ventilation and cooling from prevailing breezes.

EW7. Integrate with the natural terrain and minimize cuts and fills, retaining walls, artificial embankment of grade or extensive regrading, to the greatest extent possible.

- EW8.** Consider local opportunities for alternative energy such as ground-source geothermal, solar heating and photovoltaic and wind power generation.
- EW9.** Where opportunities exist, combine vehicle access driveways (e.g. shared access among multiple parcels) to minimize the extent of impervious surfaces and removal of natural vegetation.
- EW10.** Enable opportunities for alternative transportation links such as pathways and trails.

Building Form, Materials and Colour

The physical form and exterior design of buildings and structures can influence the amount of energy saved and reduction of greenhouse gas emissions.

- EW11.** Provide south-facing windows to maximize winter solar gain and natural light.
- EW12.** Maximize natural ventilation by locating window openings on opposing or adjacent walls.
- EW13.** Use window overhangs and/or fixed operable shading devices to control solar gain by blocking high-angle summer sun and allowing entry of low-angle winter sun.
- EW14.** Where feasible, minimize the use of low albedo (heat-absorbing) surfacing materials to reduce heat island effect (i.e., use lighter-coloured, more reflective materials).
- EW15.** Reduce the heat island effect of a building's roof and heat transfer into the building by using green roofs (which also buffer rainwater flows), Energy Star-rated or high albedo roofing material or other appropriate roofing treatments and materials.
- EW16.** Minimize greenhouse gas emissions by selecting low-carbon, durable building materials. Building detail, material and colour should support energy-efficient buildings with low GHGs.

Machinery, Equipment and Systems External to Buildings

Energy consumption and greenhouse gas emissions can be reduced by incorporating innovative technologies for energy generation and distribution.

- EW17.** If practical, use onsite renewable energy generation to supply electricity, heating and cooling to buildings and other structures, water pumps, sewage pumps and/or electric vehicle charging stations. Possible sources include geothermal energy, wind turbines, tidal energy, air-source (heat pumps), biomass, bio-gas, wastewater effluent and solar energy (collectors and/or photovoltaic [PV] panels).
- EW18.** Install energy-efficient (i.e. solar powered, timer or sensor controlled) exterior lighting systems.
- EW19.** Install on-site electrical vehicle-charging stations, preferably using on-site energy generation.

Rainwater Management

EW20. Minimize the use of impervious surfaces and/or incorporate rainwater management strategies where surface runoff is captured. Where feasible, use pervious surfaces for landscaping, driveways and parking areas.

EW21. Install rainwater management measures:

- to prevent impacts of runoff from development into riparian areas, roadways and adjacent areas using onsite low-impact development techniques. Examples include landscaping measures, rain gardens, rainwater collection systems, naturalized ponds, "grass-crete" and bioswales;
- to retain natural drainage features;
- to maintain the site's discharge hydrography from a five-year peak flow event;
- to maintain or improve water quality from the development site;
- to mimic natural rates in the storage and release of larger rainfall events (30 to 60 mm);
- to include alternative overflow escape routes; and
- to restore hydrological cycle and drainage features previously impacted by development.



Image 30: Design rainwater management measures, including collection systems such as rain barrels.



Image 33: Engineered wetlands help avoid waste of rainwater and to absorb contaminated runoff.



Image 33: Pervious, landscaped surfaces and light reflective surfaces minimize heat absorption.

EW22. Design rainwater management infrastructure, such as infiltration systems and constructed wetlands, with species that require minimal irrigation and/or enhance natural habitat.

EW23. Angle driveways across a slope's gradient to reduce runoff.

EW24. Design slopes of cut and fill banks to withstand erosion and allow for revegetation, with slopes not exceeding 1:2. At property edges, slopes should not exceed 1:3.



Image 33: A home is carefully built into the hillside, preserving mature vegetation.

- EW25.** Implement measures to manage erosion and sedimentation during site preparation and construction; minimize soil disturbance and replant disturbed areas with native plants upon completion of activities.
- EW26.** Retain existing native vegetation and mature trees and implement measures such as protective fencing to protect those features during site preparation and construction.
- EW27.** When trees must be removed, leave stumps in place to stabilize soil until alternative vegetation is established.
- EW28.** Remove and/or manage invasive plants during site preparation and construction.
- EW29.** Preserve native vegetation using measures such as
 - a. planting only non-invasive plant species suited to the local climate and that require minimal irrigation;
 - b. using techniques such as xeriscaping; and
 - c. eradicating invasive plant species.
- EW30.** Provide all landscaping with a method of irrigation suitable to the continued maintenance of planted materials. Use or manage stormwater and building water discharge on site for irrigation, using measures such as
 - a. maximizing pervious surfaces;
 - b. incorporating bioswales, rain gardens and naturalized ponds; and
 - c. maximizing the use of topsoil or composted waste for finish grading increase infiltration and water holding capacity.
- EW31.** Install an automated irrigation system that conserves water by using the minimum amount needed for the species planted.

Best Management Practices for Rainwater Management

Government of British Columbia, 2014. [Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia](#). Section 3.7: Guidelines for Water Management.

Fisheries and Oceans Canada, 1993. [Land Development Guidelines for the Protection of Aquatic Habitat](#). Section 4: Stormwater Management.

Water Sustainability Action Plan for British Columbia, 2012. [Primer on Integrated Rainwater and Groundwater Management for Lands on Vancouver Island and Beyond](#).

Government of British Columbia. [Stormwater Planning: A Guidebook for British Columbia](#)