

GOAL 4 - PROTECT THE NATURAL ENVIRONMENT

To protect the natural environment, environmentally sensitive and natural hazard areas are identified and policies to support their protection and enhancement are provided. Environmentally sensitive areas consist of waters and lands that are sensitive to human presence or land development including freshwater systems, sensitive ecosystems and nesting trees. Environmentally sensitive areas are not only important to the ecology of an area but also enhance the character and livability of communities by providing opportunities for passive recreation. Furthermore, environmentally sensitive areas may also stimulate tourist-related activities.

The natural environment is recognized as essential to continued prosperity. Development is encouraged to respect the natural environment and recognize the inter-connected character of natural systems.

Freshwater Management

Arrowsmith Benson - Cranberry Bright contains recharge areas for both the Nanaimo and Englishman River drainage systems; two of Vancouver Island's most important freshwater sources. The Nanaimo River and its associated creeks, lakes and wetlands are valued not only as sources for irrigation and domestic water but also for their fish and wildlife habitat, and recreational opportunities.

Significant groundwater recharge areas and aquifers are also located in Arrowsmith Benson - Cranberry Bright, including the Cassidy and South Wellington aquifers. These aquifers are of particular concern to the Regional District of Nanaimo and the adjoining Cowichan Valley Regional District, as they are known to contain significant quantities of quality groundwater.

The protection of the quantity and quality of the surface and groundwater systems is a growing concern for water users including residents dependent on well water, water districts and the Regional District. Surface and groundwater systems are inter-linked through complex bi-directional recharge mechanisms. What happens on the surface may have a direct impact on the quantity and quality of groundwater. Quantity is reduced when water is withdrawn at a faster rate than it is replenished or when it is diverted through surface water bodies. Quality is compromised by the introduction or presence of natural or synthetic contaminants into the system. Both the quantity and quality of surface and groundwater are impacted by the manner in which land is used; therefore, land use and development must be carefully planned to minimize impacts on these resources.

Management of water is principally the responsibility of the Ministry of Environment, Lands and Parks. The following policies are intended to complement the provincial responsibilities for water management by guiding land use and servicing decisions to reduce long term negative impacts on the quantity and quality of water resources.

(Remote watercourses including rivers, streams, lakes, marshes and swamps were identified by air photo analysis, which has a number of limitations. For example, abandoned logging roads and trails are often indistinguishable from streams, and heavy vegetation hides smaller streams. Consequently, the mapping of watercourses in Arrowsmith Benson – Cranberry Bright is intended as a general guide which will be updated and refined as new information becomes available.)

Objectives:

- *Preserve* the quantity and quality of the surface and groundwater systems for domestic, agricultural, fisheries, wildlife and recreational needs in cooperation with landowners and local and provincial water authorities.
- *Establish* limits to total impervious surface area and to maintain pre-development flow regimes.

Policies:

- 1) Known watercourses including rivers, streams, lakes, marshes and swamps are as shown on Map No. 3, Inventory of Natural Environmental Features, Sheet 1 of 1.
- 2) Developments which would have a negative impact on the quantity or quality of surface or groundwater will be discouraged.
- 3) The Regional District may require development approval information within the Plan Area for zoning amendment or temporary use applications. Development approval information will consist of a hydrological impact assessment certified by a professional engineer with experience in hydrologic analysis and/or a Riparian Area Assessment pursuant to the Riparian Area Regulations conducted by a Qualified Environmental Professional. The impact assessment will identify the long-term impact of the application on fish habitat, the surface and groundwater resources of the watershed, and adjacent properties and aquifers. The assessment must specify the necessary measures to ensure that viable fish habitat and receiving waters would not be negatively impacted, including channel stability and flow maintenance. The special objective that justifies this requirement for development approval information within the Plan Area is to preserve the quantity and quality of the surface and groundwater systems for domestic, agricultural, fisheries, wildlife, and recreational needs in cooperation with landowners and local and provincial water authorities.¹
- 4) The Approving Officer will be requested to require subdivisions to maintain the hydraulic regime of the land and prevent the intrusion of contaminants into surface or groundwater systems.
- 5) The dredging, filling or channeling of any watercourse including rivers, streams, lakes, marshes or swamps, will not be supported unless undertaken, supervised or approved by the Provincial Ministry of Environment, Lands and Parks or the Federal Department of Fisheries and Oceans.
- 6) Freshwater and Fish Habitat Protection² development permit areas will be established. (See Appendix A – Development Permit Areas.)³
- 7) The Regional District will assist senior levels of government in ensuring that developments conform to policies and regulations intended to protect fish habitat and surface and groundwater quantity or quality.⁴
- 8) Appropriate watercourse protection and enhancement programs will be encouraged and supported.

¹ Bylaw No. 1148.04, adopted January 23, 2007

² Bylaw No. 1148.07, adopted December 7, 2018

³ Bylaw No. 1148.04, adopted January 23, 2007

⁴ Bylaw No. 1148.04, adopted January 23, 2007

- 9) Community stewardship of groundwater resources will be encouraged by supporting appropriate initiatives to educate the community about the importance of groundwater resources and methods of protection.

Sensitive Ecosystems

A variety of plants and animals are known to inhabit Arrowsmith Benson - Cranberry Bright. For example, numerous small tracts of riparian forests (vegetation associated with wetlands or gullies) are contained in the Nanaimo and Englishman River watersheds. The Plan Area also contains Vancouver Island marmot habitat, a rare species of marmot found only on Vancouver Island. However, existing information on sensitive ecosystems is limited primarily to the eastern section of Arrowsmith Benson - Cranberry Bright. The mapping of sensitive ecosystems will be updated and refined, as new information becomes available.

Objectives:

- To *preserve* and *protect* environmentally sensitive ecosystems and the nesting trees of protected species.

Policies:

- 1) Known, sensitive ecosystems are as shown on Map No. 3, Inventory of Natural Environmental Features, Sheet 1 of 1.
- 2) Where new development proposals are being considered, applicants will be encouraged to investigate the feasibility of using the following measures to protect sensitive ecosystems:
 - a) dedication or sale for park purposes;
 - b) dedication or sale to a private land trust for conservation purposes (e.g. Nature Trust of British Columbia, Nature Conservancy of Canada);
 - c) registration of a restrictive covenant for conservation purposes with the Regional District, the Province, or a non-governmental organization eligible to hold conservation covenants; or
 - d) creative development techniques including clustering or density averaging in combination with covenant protection.
- 3) The Regional District may require development approval information within Sensitive Ecosystems, Development Permit Areas for zoning amendment or temporary use applications. Development approval information will consist of an impact assessment which identifies the necessary actions to ensure the protection of the following:
 - a) soil stability,
 - b) natural vegetation or ground cover,
 - c) wildlife and fish habitat,
 - d) plant and animal corridors,
 - e) quantity and quality of surface and groundwater, and
 - f) sensitive ecosystems on adjacent lands.

The special objective that justifies this requirement for development approval information within Sensitive Ecosystems, Development Permit Areas is to preserve and protect environmentally sensitive ecosystems.

- 4) The Regional District may require development approval information for zoning amendment or temporary use applications for lands with known nesting trees for eagle, peregrine falcon, gyrfalcon, osprey, heron, burrowing owl and other species protected under Section 34 of the *Wildlife Act*. Development approval information will consist of a site plan identifying the location of the nesting trees. This information will be referred to the Ministry of Environment, Lands and Parks for comment. Protective measures pursuant to regional criteria for nest tree protection may be required by the Ministry. The special objective that justifies this requirement for development approval information for lands with known nesting trees is to preserve and protect species protected under the *Wildlife Act*.
- 5) Sensitive Ecosystem development permit areas will be established. (See Appendix A – Development Permit Areas.)
- 6) Community stewardship of environmentally sensitive areas will be encouraged.

Natural Hazard Areas

Natural hazard areas are lands susceptible to flooding, erosion, landslip, or avalanche or that would pose a threat to surrounding lands should their natural conditions be altered. They consist primarily of steep slopes and floodplains. Such areas may be unsafe for use or development.

The protection of natural hazard areas and adjacent lands is encouraged.

Objectives:

- To *protect* residents from loss of property or personal injury due to the development of natural hazard areas.

Policies:

- 1) The Regional District may require development approval information within floodplains or lands of slope for rezoning, subdivision or the temporary use of land. Slope is defined as a vertical incline of 0.3 metres or more measured over a horizontal distance of 1.0 metre with no significant and regular break of 15 metres or more, measured horizontally. Development approval information will consist of a geotechnical impact assessment prepared by a professional engineer with expertise in geotechnical engineering that certifies the following:
 - a) the land may be used safely for the intended development over the projected life of the development, taking into account adjacent land uses; and
 - b) measures regarding the siting and design of structures or works, placement of fill, and maintenance and planting of vegetation as specified in the assessment, can and will be undertaken to ensure the development and its associated land uses are able to safely withstand the hazard.

The special objective that justifies this requirement for development approval information within floodplains or lands of slope is to protect residents from loss of property or personal injury due to the development of natural hazard areas.