

Recommended Environmental Development Permit Area Guidelines

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
Objective 1: Protect the existing integrity of ESAs				
X	X	X	Retain and protect ecosystem features and functions of identified ESAs.	<ul style="list-style-type: none"> Design development plans to protect ecosystem features such as established native vegetation, forest stands, marine and riparian vegetation, aquatic systems, natural landforms and habitat connectivity. In areas of greenfield development, maximize ESA protection. Consider alternatives (e.g., different massing, reduced building setbacks, relaxed parking standards, etc.) and requirements around habitat compensation before altering the boundaries of the ESAs.
X	X	X	Dedicate all ESAs to the City for park acquisition or protect via covenant.	<ul style="list-style-type: none"> Dedication of the ESA is the preferred mechanism for conveyance of the ESA to the City, however, this is at the discretion of the City and is reviewed on a site by site basis. Ensure covenants identify land use restrictions and long-term protection requirements.
X	X	X	Install temporary protective fencing around the ESA to prevent construction related impacts.	<ul style="list-style-type: none"> Install interlocked construction fencing along the edge of the ESA prior to any works. Ensure tree protection fencing is an appropriate distance from trees in the ESA and all other retained trees that could be impacted by the development, based on an arborist report.
X	X	X	Install permanent split rail wood fencing following construction along the ESA.	<ul style="list-style-type: none"> Install wood split rail fencing with at least two rails. Fence cannot be enclosed and must allow for wildlife passage. Post permanent signage on fencing to identify ESAs.

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
X	X	X	Protect and enhance critical habitat for federally and provincially listed species at risk.	<ul style="list-style-type: none"> Identify the presence of, or critical habitat for, any species at risk. Identify and implement specific measures and current best management practices to ensure protection of listed species.
X	X	X	Complete a survey for raptor and heron nests on and within 100m of the property.	<ul style="list-style-type: none"> Complete a survey of the property and surrounding area to identify any raptor or heron nest. If present, a management plan to protect these nests must be submitted.
X	X	X	Protect all trees, and associated understory vegetation, that do not pose a high risk.	<ul style="list-style-type: none"> Complete an arborist report to ensure the trees in the ESA are protected. The report must provide an inventory of all trees on and immediately adjacent to the property The arborist report must include a tree retention, removal and replanting plan that identifies trees and understory vegetation that will be retained. Only trees that are identified as posing a high risk by a certified Tree Risk Assessor can be removed or modified in the ESA Retain and protect established trees and understory vegetation where possible outside of the ESA to create continuous vegetated corridors.
X	X	X	Retain and protect dead standing wildlife trees that do not pose a risk to people or property.	<ul style="list-style-type: none"> Identify wildlife trees within striking distance of the property in the arborist report. They must be assessed by a certified Tree Risk Assessor and retained if not considered high risk. If a wildlife tree is a high risk, it should be reduced in height and retained if possible.
X	X		Ensure all new forest edges are established and treated to minimize risk.	<ul style="list-style-type: none"> Complete a windthrow assessment when new forest edges are created. Treatments should be included to reduce the risk of windthrow where possible. Complete a wildfire risk assessment for forests in the identified wildland interface. Treatments should be included to reduce the fire behavior potential in these areas.

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
		X	Site new development a minimum of 30 m from the natural high water mark of the ocean.	<ul style="list-style-type: none"> • This guideline does not apply to the repair, maintenance, renovation or reconstruction of existing residential homes that currently fall within 30m of the natural high water mark when accompanied by a QEP report that shows EDPA guidelines and senior legislation are being met. • Renovated or reconstructed structures/impervious areas (including pools) should not be sited any closer to the shoreline than existing permanent structures. • All development below the high water mark is under federal jurisdiction and will be referred to the Vancouver Fraser Port Authority for review.
Objective 2: Prevent development impacts to the ESA				
X	X	X	Locate development footprints as far away as possible from the ESA and minimize the footprint size of any development that is in proximity to ESAs.	<ul style="list-style-type: none"> • Explore alternative massing through the development process that maximizes the distance of structures and infrastructure from ESAs, protects watershed health, reconnects fragmented ecosystems, accommodates the preservation of wildlife corridors and avoids the creation of isolated habitat.
X	X	X	Establish transition areas to protect the ecological integrity of the ESA from the impacts of development.	<ul style="list-style-type: none"> • Provide as large a transition area as possible between structures, infrastructure, and impervious surfaces and the ESA. • Transition areas could be used to accomplish a variety of measures (e.g., Naturescape landscaping, tree planting and retention to increase site canopy cover, stormwater management, trails, etc.)
X	X	X	Prevent fragmentation or loss of ESAs by planning and locating roads and infrastructure appropriately.	<ul style="list-style-type: none"> • Minimize road, utility and other crossings of riparian ecosystems • Where crossings are necessary, design crossing corridors that are narrow and perpendicular to riparian areas. • Consider site servicing needs early on in the development process to avoid tree and vegetation loss and other impacts during construction process.

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
X	X	X	Include design strategies that will reduce the potential for bird-window collisions.	<ul style="list-style-type: none"> Design buildings and glass to reduce the potential for bird collision Refer to current best management practices for design options and strategies. Reduce the amount of glass and the transparency and reflection of glass
X	X	X	Minimize light pollution towards the ESA.	<ul style="list-style-type: none"> Use light reduction techniques including only installing outdoor lighting where necessary, directing light away from the ESA, reducing spill lighting, and installing International Dark-Sky Association approved lighting fixtures for outdoor applications.
X	X	X	Schedule development activities to minimize risks to the ESA.	<ul style="list-style-type: none"> Plan construction activities during appropriate reduced risk timing windows for fish and wildlife. Time all development activity to avoid bird breeding windows. Undertake construction activities around aquatic habitat during favourable weather and low water conditions.
X	X	X	Prevent the introduction and spread of invasive species on site during clearing and construction.	<ul style="list-style-type: none"> Follow best management practices to eradicate invasive species on site and prevent their spread. An invasive species management plan may be required to ensure construction will not cause the spread of invasive plant species.
X	X		Implement design standards for safe wildlife crossings where new roads are required through an ESA.	<ul style="list-style-type: none"> Considerations should include culverts under roads, bump outs, speed control measures, education signage, fencing and naturalization of medians.
X	X		Monitor activities during construction to avoid impacts and encroachment into ESAs.	<ul style="list-style-type: none"> Develop and implement an environmental monitoring plan, if applicable. Complete and submit monitoring reports to the City as appropriate.

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
	X		Design all culverts and bridges over fish bearing and potentially fish-bearing watercourses to be fish passable.	<ul style="list-style-type: none"> • Incorporate clear span bridges or open-bottomed crossings whenever feasible. • Incorporate fish baffles or other best management practices to support fish passage in any enclosed crossing.
		X	Locate and design new development to avoid requirements for shoreline erosion protection	<ul style="list-style-type: none"> • For areas where erosion protection measures are required, consider the implementation of natural measures and engineered approaches that achieve a naturalized state. • New shoreline stabilization and protection structures beyond the high watermark are not supported for the purpose of extending lawns or gardens or to provide space for additions to existing structures, new outbuildings, or pools.
		X	Locate docks, private floats and wharfs to prevent impacts to shoreline habitat.	<ul style="list-style-type: none"> • Locate structures in previously disturbed areas. Avoid disruption to native vegetation, slopes and shoreline habitats. • Construct docks in accordance with the Vancouver Fraser Port Authority guidelines and permitting process.
Objective 3: Mitigate stormwater impacts and restore natural hydrology				
X	X	X	Preserve and restore natural drainage patterns	<ul style="list-style-type: none"> • Avoid or mitigate changes to natural drainage patterns including surface and groundwater volumes and flows, and rates of infiltration and recharge. • Locate development away from recharge/discharge areas including wetlands. • Maintain or enhance base flows to nearby watercourses. • Complete a comprehensive drainage and stormwater management plan for the site that incorporates green infrastructure wherever appropriate. • A hydrological assessment may be required for some sites.

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
X	X	X	Direct rainwater and surface run-off towards green stormwater management infrastructure.	<ul style="list-style-type: none"> • Incorporate green infrastructure wherever appropriate such as bioswales, rain gardens or stormwater ponds as part of site stormwater management plans. • Identify monitoring and maintenance needs for green infrastructure features.
X	X	X	Meet the requirements of applicable Integrated Stormwater Management Plans.	<ul style="list-style-type: none"> • Refer to and ensure all stormwater management is consistent with the recommendations in the most current ISMP. • If no ISMP is available, incorporate current best management practices for stormwater management from Metro Vancouver and senior agencies, including standards for retention and detention. • Consider alternate development form, design standards, and efficient transportation planning to reduce overall impact of urban development on watershed health.
X	X	X	Minimize impervious surfaces on the property and promote natural infiltration.	<ul style="list-style-type: none"> • Minimize impervious surfaces on site and incorporate absorbent landscaping. • Encourage the permeability of grassed and landscaped areas by protecting and re-using native topsoil, preventing compaction during construction, aerating or loosening compacted soils, and incorporating admixtures to improve permeability. • Minimize the length of culverts and incorporate open bottom designs to allow for infiltration where appropriate.
X	X		Provide access for maintenance of stormwater drainage features	<ul style="list-style-type: none"> • Ensure that maintenance vehicles are able to access stormwater infrastructure while maintaining the integrity of the ESA.
	X	X	Incorporate principles of beaver management.	<ul style="list-style-type: none"> • Where beavers are known to be active, ensure that worst case scenarios for flooding are planned for. • Ensure adequate protection of setbacks to account for beaver-influenced ponding/wetlands.

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
	X		Assess options to daylight culverts that connect to natural streams.	<ul style="list-style-type: none"> Complete a feasibility study of daylighting or restoring any sections of a stream that is currently channelized or runs through a culvert, especially for connected watercourses with potential or existing fish habitat, or where other opportunities for green infrastructure exist.
	X		Maintain and enhance ditches.	<ul style="list-style-type: none"> Protect setbacks and improve ecological function through restoration. Avoid or minimize culverting for driveway crossings whenever possible. If culverting cannot be avoided, incorporate special design considerations to enhance in-stream ditch habitat and allow for infiltration. If ditches with no headwater or groundwater input require removal, they should be replaced with green infrastructure or a combination of green and grey infrastructure.
Objective 4: Prevent erosion or pollution from entering ESAs				
X	X	X	Minimize the alteration of natural grades, and impacts associated with the deposition of fill or removal of soils.	<ul style="list-style-type: none"> Maintain the natural grade of the land If terrain is subject to marine flooding, consideration will be given to changes in natural grade provided design results in a naturalized new grade that improves existing shoreline habitat If terrain has been altered, re-create natural grades as much as possible and restore it to a native plant community. Implement erosion and sediment control measures to ensure exposed soils do not impact ESAs.

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
X	X	X	Prevent the release of sediment-laden water and pollutants into ESAs.	<ul style="list-style-type: none"> • Develop an Erosion and Sediment Control (ESC) and spill response plan to prevent the release of sediments and other pollutants into ESA and the City's drainage system from demolition and during and post construction. • A Construction Environmental Management Plan will be required for major developments. • Incorporate stormwater infrastructure features to minimize the long-term pollution impacts from surface run-off to ESAs associated with the development.
X	X		Install stabilization measures to steep or unstable slopes including stream banks.	<ul style="list-style-type: none"> • Incorporate appropriate measures to protect existing habitat from unstable slopes associated with current or historic development activity. • If there are steep and/or unstable slopes or streambanks on or adjacent to the site, a geotechnical assessment may be required (refer to development requirements for hazard lands).
Objective 5: Restore and enhance the natural function of ESAs				
	X	X	Restore and enhance watercourses and riparian habitat	<ul style="list-style-type: none"> • Restore watercourses that have been degraded or altered from their natural alignment. • Maintain and improve riparian habitat by implementing appropriate measures that provide shade to moderate water temperatures, support leaf litter and insect drop, stabilize streambanks, maintain water quality, and support instream habitat needs through channel complexing with natural materials (e.g. root wads, logs), where appropriate.

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
X	X	X	Design all landscaping and restoration works to incorporate native plants complementary to the habitat types of adjacent ESAs.	<ul style="list-style-type: none"> • Provide a landscape plan for the areas outside of the ESA that incorporates Naturescape principles, including selecting species that are climate change adaptable. • Avoid planting bear attractants in or near areas frequented by people and incorporate other measures to reduce human-bear conflict. • If trees are fallen on site, retain large native stems on the forest floor for habitat, where appropriate.
X	X	X	Restore all disturbed and degraded areas within the ESA.	<ul style="list-style-type: none"> • Develop a restoration and enhancement plan for the ESA. This plan must include maintenance and monitoring needs for a three to five year period. • Where loss of habitat is unavoidable, or necessary to accommodate other community needs, provide compensation to offset the loss as part of the restoration and enhancement plan. • For shoreline areas, remove non-native features including fill, structures, contaminated materials, where possible
X	X	X	Eradicate invasive plant species from within and adjacent to ESAs	<ul style="list-style-type: none"> • Identify all invasive plant species on site and develop an invasive species management plan for their eradication, restoration and monitoring measures. • Dispose of all invasive plant material at an appropriate facility.
Objective 6: Minimize the impact from the public in ESAs				
X	X	X	Design trails to be low impact and avoid sensitive habitat areas.	<ul style="list-style-type: none"> • Trails in ESAs must be as narrow as possible, surfaced with pervious materials and located to protect slope stability. • Locate trails to avoid the cutting of mature trees. • Stream crossing should be avoided and where necessary be perpendicular to the stream and designed to restrict access to the stream.

Forest ESA	Riparian ESA	Marine ESA	Development Guideline	Measures
X	X	X	Install education signage where there is existing or improved public access.	<ul style="list-style-type: none"> Where the public interfaces with ESAs, provide education signage indicating the environmental sensitivity of the ESA and any restoration works that have taken place.
X	X	X	Restrict access to sensitive areas by people and dogs.	<ul style="list-style-type: none"> Install restrictive fencing along the edges of ESAs and sensitive natural features as necessary to prevent degradation.
		X	Address impacts associated with improved public access to the shoreline	<ul style="list-style-type: none"> Public access in the form of trails or walkways should be developed as part of a comprehensive access, transportation and/or recreation network plan. Public access improvements must not result in fragmentation or net loss of shoreline ecological functions and should be restricted or prohibited in extremely sensitive areas.