Working in and Around Wetlands

Draft Standard Procedure for Applying the Environmental Mitigation Policy for B.C. Under the Water Sustainability Act

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BRITISH COLUMBIA
Ministry of Water, Land and Resource Stewardship

Introduction

This draft standard procedure provides procedural direction for applying the Environmental Mitigation Policy for B.C. (EMP)[1] to works in and around wetlands under the Water Sustainability Act (WSA). It is intended for use by applicants, Qualified Professionals (QPs) and Statutory Decision-Makers (SDMs) when preparing, reviewing, or issuing decisions on WSA applications.

Sections 16 and 17 of the WSA and Sections 19-21 of the Water Sustainability Regulation are aligned with the EMP, in that it allows the SDM to apply a hierarchical approach to minimizing impacts on environmental values (Figure 1). The sequential approach, which is intended to reduce impacts on environmental values, is:

1. **Avoid** impacting environmental values and components[2]
2. **Minimize** adverse impacts to values and components
3. **Restore on-site** values and components
4. **Offset** residual adverse impacts to values and components

This draft standard procedure has been developed to assist applicants and SDMs in considering and adhering to the environmental mitigation hierarchy by providing a standardized approach on how to demonstrate and meet the B.C. government's requirements for applying the EMP to works in and around wetlands for the purposes of WSA permitting. Without strong evidence to move from one step to the next, applications may be delayed or placed on hold. With the clear management direction provided in this standard procedure, it is expected that applications will move through the provincial permitting system more efficiently.

This standard procedure is being released as guidance for one year to test and seek feedback from users through implementation and engagement before making it a regulatory standard. To provide feedback on the draft standard procedure please fill out the form available at https://forms.office.com/r/G2ZPfVFDuy. If you would like to provide detailed review and feedback, please contact Wetlands@gov.bc.ca.

[1] https://www2.gov.bc.ca/gov/content?id=5E84522AFC644511A5DC2AF36B897A9D
[2] Refer to the Environmental Mitigation Policy for B.C. for definitions.

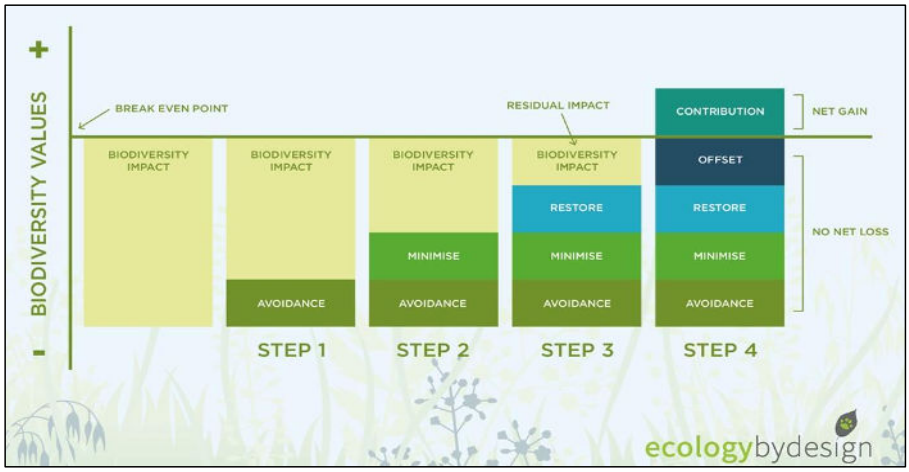

Figure 1. Applying mitigation hierarchy can help achieve conservation goals such as “no net loss” or “net gain" (Ecology by Design, 2022).

Important: A more detailed guidance document (the British Columbia Wetland Mitigation Guidance: Draft) has been developed in conjunction with this standard procedure and should be consulted for additional details and definitions as necessary.

To further support a WSA application for works in and about a stream related to wetlands, please refer to the Wetlands in B.C. website at gov.bc.ca/wetlands for additional resources.

Why is this standard procedure built for wetlands?

Wetlands are among the most biologically diverse, productive and important ecosystems. They are integral to ecosystem health and life forms in British Columbia. Wetlands play an important role in our natural environment by providing nature-based climate change resilience that mitigates extreme weather by storing water, regulating water flows and storing carbon. Wetlands serve as habitat for wildlife and species at risk and contribute to biodiversity, recreation and important spiritual and cultural values. Wetlands cover approximately 7 percent of B.C.’s landscape and provide habitat for roughly 80 percent of the province's wildlife species, supporting them at various stages of their life cycles.

The B.C. government is working to improve the management of wetlands and is aiming for “no net loss”, “net gain” and (in some circumstances) “no loss or impacts” on wetland functions.

B.C.’s categories of wetlands and management direction

The methods presented in this standard procedure apply to wetlands as defined under the WSA Section 1(1). In building this standard procedure, the B.C. government aimed to find a balance between wetland conservation objectives and economic, cultural and social needs. To help support this balance, wetlands have been placed into three categories (see Table 1), where the rigour of management direction increases as the rarity or the difficulty of effectively replacing or restoring the wetland increases.

While all wetlands are important and activities that result in wetland loss or degradation should be avoided wherever practicable, some wetlands require a higher level of management due to their rarity, irreplaceability, or the functions they provide. Wetlands are grouped into three categories: **High Value**, **Significant** and **Moderate**.

High-Value Wetlands are rare geographically and functionally and are often irreplaceable. **No loss** is the management direction for these features, meaning that impacts on these wetlands are unlikely to be supported except where necessary for the public good. Where rare or at-risk ecological communities are present, restoration or offsetting cannot adequately compensate for losses. Vernal pools in Garry Oak ecosystems are classified as High-Value Wetlands because they are rare, threatened and essential habitat for multiple species at risk. Restoration or offsetting cannot compensate for the impact on these features.

Significant Wetlands play a critical role in watershed function and are difficult to replace once impacted. For example, swamps may take more than 100 years to become established, while bogs and fens can take thousands of years to form. Alkali wetlands are rare and provide essential habitat for many species, including species at risk. Estuary wetlands support a disproportionate amount of biodiversity and are used by approximately 80 percent of coastal wildlife. Due to the difficulty of restoring or creating these wetlands, higher offset ratios are required, with the goal of achieving a **net gain in wetland function** where impacts occur.

Moderate Wetlands include all remaining wetlands on the landscape. Although generally more common, they still provide valuable hydrologic, ecological, and water quality functions. Given the extensive historical loss of wetlands throughout the province (greater than 85 percent), the management objective for Moderate Wetlands is to ensure that impacts do not result in a net reduction of wetland function **(no net loss of wetland function)** through appropriate compensation or offsetting.

Table 1. B.C. Wetland Categories and Management Direction

Wetland category	Criteria for category	Management direction
High-Value Wetlands	• At risk ecological wetland community with conservation rank of S1, S1S2, S2 (critically imperiled, imperiled) as determined by the B.C. Conservation Data Centre species explorer[3] • Vernal pools in Garry Oak ecosystems	**No loss** The loss of, or impact to, these features and their functions is not likely supported.
Significant Wetlands	• Mature swamps in the South Coast region and Vancouver Island • Bogs and fens (in the South Coast, Vancouver Island, Thompson Okanagan, Kootenay, Cariboo regions) • Alkali wetlands • Estuary wetlands • Designated internationally important sites (Ramsar[4])	**Net gain** in wetland function These wetlands provide critical watershed functions. Where impacts are unavoidable, the management objective is to achieve a net gain in wetland function, resulting in more of these functions on the land base.
Moderate Wetlands	• All other wetlands not listed above	**No net loss** in wetland function These wetlands are valuable to watershed health and have already been significantly reduced across the land base. Any impacts must be offset to avoid further loss of these wetlands and the functions they provide.

[3]https://www2.gov.bc.ca/gov/content?id=DB888ABF936D478295BC87C99B5CA4DC
[4]https://www.canada.ca/en/environment-climate-change/corporate/international-affairs/partnerships-organizations/important-wetlands-ramsar-convention.html

The standard procedure

Reminder: This standard procedure document provides a standardized approach on how to demonstrate and meet the provincial requirements of applying the EMP for works in and around wetlands under the WSA. Without strong evidence to move from one step to the next, applications may be delayed or put on hold. If the clear management direction provided in this standard procedure is followed, it is expected that applications will move through the provincial WSA permitting standard procedure more efficiently.

Step 1. Avoid

To comply with this step, you must meet one of the conditions listed below. If practicable avoidance measures have not been demonstrated, there may be requests for additional information, delays to project review, or the application may be put on hold.

A Qualified Professional (QP) is required for all steps of this standard procedure unless otherwise stated.

Does the project propose work in or around wetlands?	
Unsure	If **unsure**, identify if wetlands are present using the simple steps found in Appendix 1, Preliminary Wetland Identification and Boundary Screening. Then continue following the steps of **No** or **Yes** based on outcomes of the identification.
No	If there is **no** wetland(s) present, no further action for wetlands is required. **Note:** The statutory decision-maker (SDM) may require you to submit ortho imagery and/or photo evidence with your application.
Yes	If all proposed works occur outside of the outer wetland perimeter under fully saturated conditions (or at high-water mark), work can continue with no further WSA review required for wetland features. **Note:** The outer perimeter can be determined by an applicant without a QP. To determine the outer wetland perimeter, please refer to Appendix 1. **Note:** You must submit ortho imagery with development designs and photo evidence with your application to the SDM.

If the project is within the wetlands outer perimeter under fully saturated conditions (or within the high-water mark) the applicant must determine the category of wetland at the project site (Table 1).

→ If you have a **high-value wetland,** please contact the SDM under the WSA to discuss options before moving to the next step.

→ If you have a **significant** or **moderate** wetland, continue through this standard procedure.

To be at this step, a wetland that has been categorized as either significant or moderate is on the project site. As part of your application, you must complete Appendix 2. Submission requirements for . This information is used to demonstrate that impacts cannot be avoided. You can now move to Step 2.

Important: If there are any other streams as defined by the WSA on the project site, the WSA still applies to those features.

Step 2. Minimize

To move to this step, works are proposed in a wetland and avoidance is not achievable. The applicant has completed the submission requirements for avoidance in Appendix 2.

The next step is to delineate the boundaries of the wetland using the draft standard, B.C. Wetland Identification and Delineation Manual[5] (RISC, 2025), to determine the amount of wetland being impacted.

Once delineated, develop a mitigation plan outlining how impacts are minimized. Information on any impacts after the mitigation plan has been developed must be identified. Submission requirements for minimization can be found in Appendix 3. Required information for a mitigation plan can be found in Appendices 4 and 5. Based on the outcomes of the above information, the application can follow the steps below.

[5] https://www2.gov.bc.ca/assets/download/98AB936A88014BF88B33B1D0FBBEB512

Can impacts to the wetland(s) be minimized to prevent significant adverse impacts?

No	If the outcome of the mitigation plan indicates there are predicted significant adverse impacts to the wetland after all practicable minimization measures are considered, continue to Step 3. Restore on-site of the standard procedure.
Yes	If the outcome of the mitigation plan indicates there are no predicted significant adverse impacts to the wetland after all practicable minimization measures are considered, submit your application with the avoidance checklist, minimization checklist, delineation report, and mitigation plan.

Step 3. Restore on-site

This step requires all the information required in Step 1. Avoid and Step 2. Minimize to be completed which outline impacts to on wetlands cannot be avoided and that all measures to minimize the magnitude, duration, frequency and reversibility of impacts have been considered.

Restore On-site only applies when there are temporary residual impacts to a wetland(s) after all reasonable and practicable avoidance and minimization measures have been taken. On-site restoration can be used to return the project site to pre-project conditions. Impacts are only eligible for on-site restoration if the restoration activities can occur within a two-year timeframe from the date of disturbance. Any impacts in place for longer than two years are considered permanent impacts that require an offset (see below).

Can the wetland(s) be restored on-site?

Are the impacts temporary in nature?	**Yes** – Continue through the Restore On-site steps below. **No** – Move to Step 4. Offset

Restore on-site steps

1. Perform the British Columbia Wetland Ecosystem Service standard procedure[6] (WESP-B.C.) assessment to determine what functions the wetland(s) provide
2. Perform a wetland impact assessment to determine what functions and how much wetland is being impacted by the project. See Appendix 5 for required information

3. Develop a mitigation plan that describes the proposed project, baseline conditions at the impact site and potential temporary or permanent impacts

To ensure timely project review, all information from Step 1. Avoid and Step 2. Minimize are required in addition to a WESP-B.C. assessment, impact assessment and mitigation plan with all pertinent information

Figure 2. Alkali wetland in interior B.C. Photo Credit, J. Straka, 2022.

Step 4. Offset

In the context of wetland mitigation, offsetting is the action taken to compensate for wetland impacts **after** all appropriate and practicable mitigation measures related to avoidance, minimization and on-site restoration have been considered and incorporated into the project design and if residual impacts are predicted to remain.

To compensate for lost wetland function, an impacted wetland is replaced at another location (onsite or offsite) at a minimum size ratio of 1:1, such that there will be no net loss or net gain in wetland functions in the locale (for example, watershed, sub

[6] https://bcwfwatershedteam.ca/wetland-ecosystem-services-standard procedure/

watershed, et cetera), depending on the wetland category and associated management direction. Offset ratios for permanent impacts are available in

Table 2 below and vary depending on the offsetting method used. Offset ratios are higher for significant wetlands due to the uncertainty of restoration success and rarity of these wetland types. If the applicant is unable to achieve a no net loss or net gain in wetland function through wetland creation, re-establishment, rehabilitation or preservation, a wetland offset payment as an offset method can be explored.

Have all practicable mitigation measures related to avoidance, minimization and on-site restoration been considered and incorporated?

Next, the applicant must:

Create an offset plan including requirements laid out in Appendix 6. Offset plan outline. More details on methods, locations and options can be found in Sections 7, 8 and 10 of the British Columbia Wetland Mitigation Guidance: DraftB.C.WMG.

Commented [JW1]: What does this stand for? Will need to be spelled out on first use. Also might be good to provide where it can be found.

Use the wetland category determined in Step 1 to identify offset ratios (outlined in Table 2 below). These ratios are to be used to ensure no net loss or net gain in wetland function and inform the offset plan.

An offset plan may be complicated and require significant information, including information required in Steps 1, 2 and 3 of this standard procedure. Appendix 6 provides an offset plan outline that details the required information.

Reminder: Rigor of management direction increases as wetland rarity or difficulty of effective replacement/restoration of the wetland increases.

Table 2. **Function** Offset Ratios for Significant and Moderate Wetlands.

Compensation Type	Significant Wetlands	Moderate Wetlands
Creation and restoration Restoration includes both re-establishment and rehabilitation	4:1	2:1
Preservation Note: Only used in conjunction with Creation/ Restoration	4:1 Preservation + 2:1 Creation/Restoration	3:1 Preservation + 1.5:1 Creation/Restoration

Summary

Together, the steps outlined above provide a standardized approach for applying the environmental mitigation hierarchy to works in and around wetlands under the Water Sustainability Act. When used in conjunction with the British Columbia Wetland Mitigation Guidance: Draft, this approach can support improved predictability in permitting outcomes and improve management of B.C.’s wetlands.

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Appendix 1. Preliminary wetland identification and boundary screening

This appendix provides a **screening-level method** to determine whether wetlands are likely present on or adjacent to a project site and to identify the **approximate outer wetland perimeter** for the purpose of applying the standard procedure Step 1 (Avoid).

This appendix is intended for **early project planning** and **avoidance screening**. It does not replace formal wetland delineation where impacts are unavoidable.

Step 1: Online research and desktop pre-screening
Before going to the site, check existing mapping to see if a mapped wetland exists:

- B.C. Wetland Explorer Tool
- Canadian National Wetland Inventory B.C.
- B.C. Freshwater Atlas / local government mapping
- Google Earth

More tools are available at Wetlands tools and resources[7]. Although mapping resources are not definitive, a mapped presence strongly suggests the presence of a wetland.
Wetland presence indicators on maps or air photos:

- Dark or mottled vegetation
- Pools, channels, or beaver influence
- Low-lying or depressional land
- Bands of shrubs between forest and open ground

In cases of drought or ephemeral (temporary) wetlands, indicators may not be as apparent. Ideally, check across multiple years of imagery. If any indicators appear, continue to Step 2 (Field screening).

Step 2: Field screening - The following is adapted from the Nova Scotia Wetland Identification Checklist.

Check areas where water is likely to collect

☐ Near low spots or topographic depressions
☐ On flat lands near streams or rivers that experience flooding
☐ Near the coast
☐ Along lake, stream, or pond shorelines
☐ In wide, flat areas with little or no slope
☐ In heavy or clay soils
☐ On large expanses of bedrock near the surface
☐ In groundwater discharge areas (for example, seeps or springs)

[7] https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/ecosystems/wetlands-in-bc/wetlands-tools-resources

Look for signs of flooding near the surface

- ☐ Water table is close to the soil surface (water seeps into a shallow hole)
- ☐ Dark, water-stained leaves cover large ground areas
- ☐ Silt lines or water marks near the base of tree trunks
- ☐ Tree trunks flared at the soil surface
- ☐ Tree roots are shallow or exposed above the soil surface
- ☐ Uneven ground such as pits and mounds
- ☐ Debris lines (sticks, leaves, soil) at the base of plants or trees
- ☐ Recently flattened non-woody vegetation
- ☐ Areas lacking shrubs or trees
- ☐ Areas where crops fail after tilling and seeding

Look for water-loving plants

- ☐ Peat moss or sphagnum moss carpets
- ☐ Sedges (grass-like plants with triangular stems)
- ☐ Cattails, skunk cabbage, reed canary grass
- ☐ Ferns and rushes (solid, round stems with brown flowers)
- ☐ Dominant trees or shrubs such as black spruce, willows, labrador tea, red-osier dogwood, alder, willow, dogwood, or scrub birch

Look for the following soil characteristics

- ☐ Highly organic soils (dark brown or black; peaty, fibrous, or mucky)
- ☐ Sulphureous or rotten egg smell (hydrogen sulfide present)
- ☐ Very wet soils (water can be squeezed out)
- ☐ Water accumulates in a shallow soil pit
- ☐ Grey, grey-blue, or grey-green subsurface soils
- ☐ Red or orange blotches in subsurface layers

Wetlands do not need surface water year-round. Many are seasonally saturated but still function as wetlands. If water is present or seems to clearly influence the site, continue to Step 3.

Simple rule of thumb for non-experts: If most of the plants you see are species that “like wet feet”, you are likely in a wetland.

Step 3: Estimate the wetland boundary

The wetland edge is not necessarily where the water stops; it is where wetland conditions stop heavily influencing vegetation. Vegetation transitions often provide the clearest and most repeatable boundary signal, especially for non-professionals (Tiner, 2012 & 2016).

A practical way to find the boundary of a wetland is to walk from the wet area outward and ask: “Where do wet-loving plants give way to dry-site plants?”

The transition zone, where cattails/sedges or other wetland indicators give way to upland grasses, upland trees or shrubs, is your approximate wetland boundary. Visually, this often appears as:

- A sharp change in plant height or density
- A colour shift (lush, dense, dark green vegetation shifts to lighter green)
- A change from soft, spongy ground to firm ground
- Shrubs thinning and upland species taking over

This is often described as the “green zone”, commonly used by land managers to recognize riparian and wetland edges without technical equipment (Ambrose et al., 2009, Fitch et al., 2009).

Flag this line with GPS points or flagging tape and take photos of the vegetation change at the “edge” of the wetland.

Step 4: Document what you observed
At minimum, record:

- Date and season
- Photos of vegetation and wet areas
- Notes on dominant plants
- Sketch or GPS track of the approximate boundary
- Any mapped wetland overlaps

Step 5: Does any work occur within this boundary?

Yes: WSA authorization may be required; consult ministry guidance on next steps.
No: Document and retain records.

Appendix 2. Submission requirements for avoidance

This appendix defines the information required to demonstrate that **wetland impacts cannot be avoided**, allowing the proponent to continue from Step 1 (Avoid) to Step 2 (Minimize).

The four submission requirements outlined below are to be answered if you cannot meet the conditions in Step 1 (Avoid) of this standard procedure. The additional best management practices provided below can be used to support submission requirement #1.

Note: Before continuing to gather this information, confirm you do not have **high-value wetlands** on the site. If you do have **high-value wetlands**, please reach out to the WSA statutory decision-maker (SDM) on the file before continuing. Remember that impacts on high-value wetlands are not aligned with provincial management direction and are not likely to be approved.

Avoidance submission requirements

1. Provide the SDM with an image of all proposed development overlayed on recent aerial imagery, showing where work in and around wetlands and streams are proposed to occur.
2. Provide information that outlines how the project has been designed to avoid impacts during all stages of development (see Avoidance Best Management Practices below). This information must include a rationale for any “No” answers.
3. Describe any restrictions to reorientating the project footprint to avoid wetlands.
4. Provide a comparative cost-benefit analysis between a project redesign that preserves the wetland and the project costs of site remediation and/or wetland offsetting.

Avoidance Best Management Practices checklist

Yes	No	Not Applicable (N/A)	Planning and Siting Considerations
			Can the project avoid all impacts to wetland function and size?
			Are there alternative project sites that would avoid impacts to wetlands?
			Prioritize avoiding impacts to significant wetlands if multiple wetlands are present on site.
			Relocate the building or access point on the property.
			Use existing disturbances, upgrade existing roadways, paths, or trails with new culverts or bridges to facilitate the project.
			Group structures together to reduce project footprint and avoid impacts to wetlands.
			Reduce or shift building footprint through vertical construction, approaches such as underground parking and use of innovative design.
			Reroute roads and utilities around wetlands and buffers.
			Attach utilities to bridges rather than trenching.
			Consolidate above-ground and below-ground utilities and route them around wetlands.
			Narrow access roads and driveways, using pullouts as needed to facilitate traffic flow.
			Share access roads/driveways to limit the number of wetland crossings.
			Use bridges or spans across wetlands rather than culverts.
			Incorporate wetlands into open/green space of the development.
			Integrate existing vegetation into landscaping to prevent clearing.
			Work with existing topography rather than grading.
			Route piping around wetlands.
			Could an easement from a neighbour provide access to upland areas that would allow the project to be built further from wetlands?

			Identify contributing drainage areas for each wetland for use in evaluating how wetland hydrology modifications can be avoided.
			Has a geomorphologist or engineer indicated that the project needs to be sited in a specific area due to safety or other siting constraints?
Yes	**No**	**Not applicable (N/A)**	**Construction and operations considerations**
			Have you established buffers around wetlands to avoid indirect impacts?
			Position trails outside wetlands and buffers, or within the outer 25% of the buffer zone.
Avoidance notes:			

The content in this table has been adapted from avoidance and minimization checklists and best management practices from the Department of Ecology, State of Washington (n.d.), New Hampshire Department of Environmental Services (2019 & 2024), Vermont Agency of Natural Resources (2021) and Cox and Cullington (2009).

Appendix 3. Submission requirements for minimization

These four submission requirements are to be answered to ensure all practicable measures for minimizing impacts to wetland(s) have been considered. The additional best management practices list provided below is not exhaustive but can be used to support submission requirement 2. To ensure you have considered minimizing impacts to wetlands, you must complete this checklist and supply the following information.

Minimization submission requirements

1. Provide the SDM with information from Step 1. Avoid)
2. Provide a mitigation plan that outlines all practicable measures are employed to minimize impacts using the checklist below as guidance
3. Provide information on impacts predicted to remain after minimization.
4. Provide a plan that outlines how impacts, if any, will be addressed (restore on-site or offset).

If the outcome of this checklist indicates **you have met all requirements** (all answers are "yes") and there are no temporary or permanent impacts to the wetland, submit your application with the avoidance checklist, delineation report and mitigation plan.

If the outcome of this checklist indicates you have **not** met all the requirements and there are temporary or permanent impacts to the wetland (any "no" answers) continue to Step 3 of the standard procedure.

Yes	No	Not applicable	Planning and siting considerations
			Has the project minimized all impacts to wetland function and size?
			Prioritize minimizing impacts to significant wetlands if multiple wetlands are present on site.
			Reduce size and number of bridge supports placed in wetlands or wetland buffers.
			Design bridge spans to encompass adjacent upland zones, enabling wildlife passage during floods.
			Expand structures into uplands rather than into wetlands.

			Minimize the amount of impervious surfaces, such as roads, parking lots and other paved areas, and retain as much natural soil cover as possible.
			Break up impervious cover with natural vegetation to prevent surface water connectivity.
			Use permeable paving materials such as gravel or crushed stone for access infrastructure where possible.
			Position unavoidable crossings at the wetland's narrowest point or use existing access routes to reach uplands.
			Use existing disturbances, upgrade existing roadways, paths, or trails with new culverts or bridges to facilitate the project.
			Route crossings through previously disturbed areas.
			Minimize crossing widths to essential dimensions only. Omit road shoulders and sidewalks at wetland crossings where safe to do so.
			Group linear corridors to reduce fragmentation.
			Specify culvert dimensions that maintain hydrologic connectivity.
			Install permeable fill or culverts between wetlands to preserve hydrologic connectivity.
			Position trails outside wetlands and buffers, or within the outer 25% of the buffer zone.
			Plant tall screening vegetation at the outside edge of buffers to improve shielding between development activities and sensitive areas. Do not use invasive plant species.
			Do not clear wetlands or their buffers unless it is in preparation for permanent impacts.
			Retain as much vegetated and natural soil cover as possible.
Yes	**No**	**Not Applicable (N/A)**	**Construction and operations considerations**

			Delineate construction limits on plans and mark wetlands/buffers with high-visibility fencing in the field; maintain fencing throughout construction.
			Implement and maintain erosion control and construction stormwater/runoff best management practices for the duration of the project.
			Direct any untreated runoff away from wetlands without impacting wetland hydrology and dewatering the wetland.
			Route downspouts to vegetated areas or rain gardens rather than paved surfaces.
			Confine construction staging and material storage to areas outside of wetlands and buffers.
			Use low-pressure tires or tracks to minimize soil compaction.
			Limit equipment access routes to reduce soil compaction footprint.
			Monitor site conditions during construction and adapt methods as needed. Cease work immediately if operations cause surface ruts or excessive disturbance from saturated soils; modify approach by waiting for drier conditions, changing equipment, or deploying mats.
			Implement measures to prevent the introduction and spread of invasive species during construction activities.
			Clean equipment off-site before entry to prevent invasive species introduction.
			Source clean fill and mulch materials to avoid invasive species contamination.
			Backfill trenches completely to prevent wetland drainage; install clay plugs if dewatering risk exists and monitor for hydrologic changes.
			Replace excavated material in its original order to preserve soil structure.

			Place geotextile fabric or geogrids beneath temporary fill to facilitate their removal.
			Use removable crane mats rather than constructed pads.
			Where possible, remove bridge pilings or cut to two feet below grade and backfill with native soil.
			If mobile equipment is being used, remove it from wetlands/buffers outside work hours.
			Prohibit fuel storage and refueling in wetlands/buffers; apply spill prevention best management practices (BMPs) for stationary equipment.
			Exclude all concrete operations (mixing, testing, storage, or disposal) from wetlands and buffers.
			Orient lighting away from wetlands.
			Locate noise-generating activities (commercial or industrial) away from wetlands.
			Schedule construction during dry or frozen conditions to minimize impacts.
			Observe regional terms and conditions and timing windows for work in and around wetlands to ensure the lowest risk to fish and wildlife species and habitat. Timing windows and terms and conditions vary based on regional differences in fish and wildlife species and habitat and geography.
			Time mitigation plantings to appropriate seasonal windows.
			Use signage, fencing and buffers to protect the wetland from adjacent land uses and unwanted access.
			Maintain new plantings until they're self-sustaining and competitive with weeds.
			Prohibit dumping of yard waste and debris in wetlands and buffers.
Minimization notes:			

The content in this table has been adapted from avoidance and minimization checklists and best management practices from the Department of Ecology, State of Washington (n.d.), New Hampshire Department of Environmental Services (2019 & 2024), Vermont Agency of Natural Resources (2021) and Cox and Cullington (2009).

Appendix 4. Required mitigation plan information

Project overview

a. Provide the regulatory context of the mitigation plan, what the requirements and expectations for the plan are and what the plan will address
b. Describe the project, including high-level elements of the project, type of development, previous activities at the site and authorizations to date.
c. Provide the location and provide maps of the development site and all proposed activities. Include longitude and latitude of the site in decimal format
d. Identify First Nations territories in which the impact (and offset if applicable) are proposed to occur
e. Clearly identify boundaries of the impact assessment area. The assessment area may extend outside the project footprint where necessary to include off-site wetlands that may be subject to indirect impacts
f. Identify responsible parties. Provide the name of the applicant and the preparer of the mitigation plan. Provide the name of the preparer of the wetland delineation and construction plans if different from the preparer of the mitigation plan
g. Describe if the project is proposing temporary or permanent impacts and any indirect impacts (if applicable). For permanent impacts, identify the location of the offset site, distance between the development site and offset site and watershed code for the development site and offset site
h. Provide the information developed in Step 1 and Step 2 of this standard procedure, which outlines all practicable measures that were explored to avoid impacts and used to minimize impacts to the wetland(s)

Project site description

Describe the development site by providing information on each item below.

1. Historic and current land use
2. Existing wetlands and associated wetland categories (reference and attach wetland delineation report).
   a. Area of each wetland based on field delineation methods described in the British Columbia Wetland Identification and Delineation Manual and date of delineation.
   b. Class of each impacted wetland based on the Canadian Wetland Classification System, reported in hectares. The Canadian National Wetland Inventory (CNWI)

B.C. Supplement (2024) and "Land Management Handbook 52, Wetlands of British Columbia: A Guide to Identification" (Mackenzie and Moran, 2004) Regional LMH guides[8] such as LMH 78 classification resources may be used where applicable

c. Hydrology sources, soil and vegetation of any wetlands proposed to be impacted
d. Functions provided by each wetland being impacted (attach WESP-B.C. report)
e. Describe any other aquatic resources at the site such as streams or lakes
f. Known cultural or heritage resources on the development site
g. Any portion of the site within a mapped 100-year floodplain

Appendix 5. Impact assessment information

Impact assessment

a. Identify the area (in hectares) of impacts proposed for each wetland
b. Perform a WESP-B.C. assessment, which will provide a description of wetland functions
c. Identify the type of impacts for each wetland, including temporary, indirect and permanent impacts on size and function and show impact areas on a map
d. Describe all sources of hydrology that will be affected, including potential changes to inflow or outflow resulting from the development
e. Describe soils of each wetland being affected, including classification, texture, colour, structure and organic matter content
f. Describe vegetation of each wetland being affected, including dominant plant species and the indicator status for each dominant species
g. Describe vegetation within 10 metres of each wetland being affected
h. Provide a list of invasive plants and their distribution and extent in each wetland
i. Describe any potential impacts on at-risk plants or ecological communities
j. Identify any wildlife, including amphibians, that are known to use the wetlands being impacted
k. Describe species at risk that are known to occur in the area, potential for habitat on the site and how the project may affect the habitat
l. Check for any recovery strategies that identify avoidance of wetland impacts for species at risk

[8] https://www.for.gov.bc.ca/hre/becweb/resources/classificationreports/regional/index.html

Appendix 6. Offset plan outline

An offset plan must be developed when permanent wetland impacts are proposed. It includes each component in the mitigation plan described in Appendix 4 and specific details on the plan to offset those impacts using the recommended outline below.

A. Offset site description
B. Baseline conditions of the offset site
C. Offset plan/design
D. Goals, objectives and performance standards
E. Monitoring plan

Comprehensive information on developing an offset plan is found in the British Columbia Wetland Mitigation Guidance: Draft, including additional steps not described in this standard procedure.

Offset site description

Provide the following information for the offset site:

1. Site location and ownership[9]
2. Rationale for site selection (consult British Columbia Wetland Mitigation Guidance: Draft for guidance). Identify each factor considered when selecting the offset site(s). Describe watershed needs, onsite alternatives if applicable and how the selected site meets requirements of establishing a self-sustaining wetland ecosystem
3. List of required authorizations and status of obtaining each authorization
4. Wetland designs are often constrained by landscape features, utilities, public use, or future land use in the surrounding areas. Each constraint must be described in detail. If there are no constraints, that should be stated

[9] Applicants should demonstrate for the proposed offset sites that the title is clear and does not have encumbrances that could reduce the value of the parcel for offset, such as timber or mineral rights. Easements and rights-of-way must be disclosed and considered in relation to their impact. If site is on Crown land, prior authorization is required.

Baseline conditions of the offset site

Describe conditions at the offset site prior to offset activities occurring.

1. Historic and current land use, including any existing structures, roads or other developments on the site
2. Existing wetlands at the offset site, including the area of each wetland (based on field delineation methods described in the British Columbia Wetland Identification and Delineation Manual) and the functions the wetland provides based on a completed WESP-B.C. assessment. Where appropriate, classification may also utilize the Canadian National Wetland Inventory (CNWI) B.C. Supplement (2024) and "Land Management Handbook 52, Wetlands of British Columbia: A Guide to Identification" (Mackenzie and Moran, 2004) and Regional LMH guides[10] such as LMH 78 to describe plant associations
3. Describe the existing vegetation on the site, including a list of species, dominant species, community types and community structure
4. Identify any invasive plants and their distribution and extent
5. Describe the soil, including texture, colour and structure. The soil profile should be described to a depth that is appropriate for the proposed design. Typically, a depth ranging from one to two metres below the ground surface is necessary. Describe the soil texture for each horizon. If soil information is provided for less than two metres, then state the justification
6. Identify existing uses of the site by wildlife, including any threatened and endangered species habitat
7. Describe the surrounding land within 150 metres, including a description of likely future land use
8. Describe any other aquatic resources at the site, such as streams or lakes
9. Identify known cultural or heritage resources on the development site

Offset plan and design

Detailed descriptions and written specifications should be provided, including: functions that the offset wetland provides and which functions will be increased to meet the no net loss or net gain in wetland function (and how they will be increased); project boundaries; construction methods, timing and sequencing;, sources of water; hydrologic connections to existing wetlands or water bodies; methods for establishing vegetation; plans to

[10] https://www.for.gov.bc.ca/hre/becweb/resources/classificationreports/regional/index.html

control invasive plants; and the proposed grading plan, including elevations and slopes, soil management and erosion control measures.

Wetland functions are identified for the impacted wetland by performing a WESP-B.C. assessment during the impact assessment. This assessment will identify various wetland functions and assign a value of “low”, “moderate” or “high” relative to other wetlands in the same Ecoprovince (if applicable).

To demonstrate no net loss or net gain in wetland function, the applicant should provide area-based offsetting at a ratio of 1:1 through wetland creation or re-establishment. The remaining offsetting obligations can be fulfilled by improving function(s) at the offset site by maintaining any function assessed as “high” and increasing “low” or “moderate” functions to “moderate” or “high” at the appropriate ratio, as identified in Table 2.

This approach can be simplified to:

> **Function:**
> All high-ranked functions must be maintained and all offset requirements must be met by upgrading lower-ranked functions (low → moderate, moderate → high or low → high).
> OR
>
> **Area:** The wetland area will be increased by at least the applicable offset ratio through creation or re-establishment and all “high” ranked functions identified at the impacted site will be maintained at a “high” level at the offset site.

Area-based offsetting may be used alone or in combination with function-based offsetting, provided the overall offset requirements are met.

This approach can be expressed by:

> **Required Functional Gains = (of High Ranked Functions) × (Offset Ratio)**

For example, an impacted moderate category wetland with 5 higher ranked functions, 3 moderate ranked functions and 9 lower functions needs to be offset at a no net loss ratio of 2:1. The applicant must maintain the 5 high ranked functions and increase 5 other functions from low to moderate or moderate to high to end up with 5 new higher ranked functions. Alternatively, the applicant can increase the function of the wetland by increasing the size of the wetland by 2 times while maintaining the high ranked functions or a combination of those approaches. Note that increasing a function from a low

function category to the high function category would count towards 2 functional improvements.

Example of function offset:

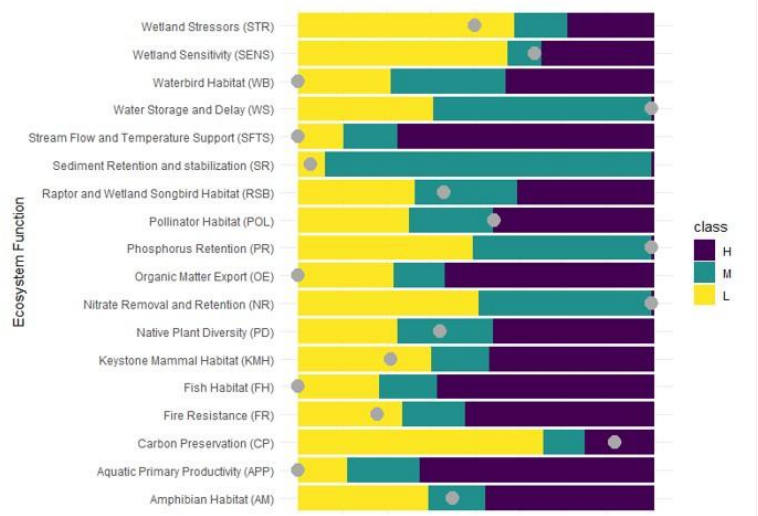
Input / Output	Value	Consideration
Number of High functions	5	Must be maintained
Number of Moderate functions	4	Eligible for upgrade
Number of Low functions	9	Eligible for upgrade
Offset Ratio	2	for example, for 2:1
Required additional higher functions	5	Original High functions + 5 new higher functions
Available Upgrade Capacity	13	Moderate + Low functions
Meets functional requirement?	Yes	Compliance check

The SDM may consider a combination of the different offset options mentioned above if increased function or size (or both) is not practicable.

Function indicators in the WESP-B.C. provide thresholds for different levels of each of the 18 functions of a wetland, categorizing them as low, moderate or high. The applicant can use these thresholds, which are found within the WESP-B.C. field assessment questions, to inform the offset plan to increase any given function.

For example, to increase the sediment retention and stabilization function from low to moderate, the offset wetland could increase the length of the waters flow path, increase the percentage of sedges and rushes that form tussocks, decrease bare ground around the wetland, or increase the depth of the wetland, as well as other strategies that are part of the WESP assessment questions. This list of strategies is not exhaustive, but it provides an example of how one could increase a particular function. Questions about specific functions can be found in the WESP-B.C. supplementary information.

Table 4. A WESP output identifying wetlands functions and score. The grey dot shows where the impacted wetland scores relative to other wetlands in the same Ecoprovince and which functions could be increased from low to moderate or moderate to high.



Commented [JW2]: This requires alt-text containing the text on the graph as the image doesn't have readable text.

Grading plans should show existing and proposed contours. Contour intervals are typically 25 centimeters but must be no greater than 50 centimeters. Microtopographic variation can be shown in a typical cross section rather than detailing these features on the grading plan. The plan should show representative cross sections that indicate existing and proposed elevations.

Planting plans should show a list of plant materials, including common and scientific names of each species, the size of each plant, the source of all plants and proposed seed mixes, descriptions of protective measures such as fences, specifications for any measures to promote successful establishment of the plants and details for proposed habitat features.

Either the drawing or the written plan must describe erosion control measures, including the deadline for removing any temporary erosion control measures. Temporary erosion control devices should be removed as soon as the site is stable and within three years of planting. No plastic netting shall be used.

A Qualified Professional (QP) shall be on site to monitor all stages of construction to ensure compliance with the mitigation plan and field-fit aspects of the design when appropriate to meet mitigation goals. This must be stated clearly in the plan.

Goals, objectives and performance standards

Project goals should be clearly stated and include the size of the offset site, the functions the wetland will provide to meet no net loss or net gain in wetland function and the class of wetlands to be restored or created.

The objectives should be clearly stated for each goal. Goals often have more than one objective that identifies the features or services proposed to achieve the goal. A minimum of one objective must be provided for each goal.

A list of performance standards must be provided for each objective. These are the conditions that should be present to demonstrate progress and success in meeting the objectives and outline the criteria that will monitored. See Section 10 for guidance on performance standards.

Monitoring plan

Post-implementation monitoring is required to track progress towards achieving performance standards and any contingency measures needed to ensure that the objectives will be met. Monitoring should occur for a minimum of five years following construction and longer post-construction monitoring periods may be required for more complex works. The mitigation plan must include details about monitoring, including the function parameters to be monitored (plant survival, aerial cover, water levels, et cetera), monitoring methods, the schedule for monitoring each parameter, a map of planned sample locations or description of how sample locations will be identified during each monitoring event and dates for reporting monitoring results. Monitoring reports must be submitted to the regulator by December 31 of each year of the monitoring period unless otherwise approved by the permitting agencies.