

Table 5-10 Mitigation and Monitoring during Construction and Determination of Significance

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Potential Effect and Determination of Significance	ID	Recommended Mitigation Measures
<p>Effects on marine mammals</p> <ul style="list-style-type: none"> • Magnitude = Small • Reversibility = Reversible • Geographic Extent = Immediate • Duration = Short-term • Frequency = Once 	MM1.	During all in-water works, a 100m exclusion zone will be established around the active work area for whales, dolphins, and porpoises, except killer whales where a 200m exclusion zone (EZ) applies.
	MM2.	A marine mammal observer (MMO) will be present to monitor for any marine mammals entering exclusion zones (EZ) during in-water works.
	MM3.	If a marine mammal is observed entering the EZ, stop work will be implemented. Construction activities will only resume once the individual(s) has been confirmed to have left the EZ, or has not been sighted for a duration of 30 minutes or has been d
	MM4.	The MMO will also monitor for pinnipeds and sea otters during project works. If there is a risk of harm to any marine mammal from direct contact, temporarily suspend work until there is no longer a risk of harm from direct contact or the individual has not been resighted for 30 minutes.
	MM5.	Project vessels will travel at less than 4 km/hr (2.2 knots) during cable installation.
	MM6.	If dolphins or porpoises are riding bow wave of boat, avoid sudden course changes. Hold course and speed, or reduce speed gradually.
<p>Effects on marine birds and their habitat</p> <ul style="list-style-type: none"> • Magnitude = Small • Reversibility = Reversible • Geographic Extent = Immediate • Duration = Short-term • Frequency = Once 	B1.	Avoid driving boat through large groups of either resting or feeding birds
	B2/MM5.	Project vessels will travel at less than 4 km/hr (2.2 knots) during cable installation.
	B3.	The DRAFT – Conservation Measures to Minimize Impacts to Migratory Birds During the Nesting Period (Parks Canada, 2021) will be followed, in addition to other guidelines ^{61,62,63} , to develop a management plan. The management plan will most likely include re-routing the cable outside a protective buffer zone. If this is not possible, alternative monitoring programs will be considered.

⁶¹ Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia (Government of British Columbia, 2013)

⁶² Guide for developing Beneficial Management Practices for Migratory Bird Conservation (Government of Canada, 2017)

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	B4.	Intertidal WUAs are to be planned during low tidal cycles and outside of key shorebird foraging times (i.e., outgoing tides) between July and September.
	B5.	<p>Additional mitigation measures will be completed for breeding seabirds and waterbirds (March through September) during landing construction and open ocean cable laying that follow the guidelines to avoid disturbance to seabird and waterbird colonies in Canada^[1], which include:</p> <ol style="list-style-type: none"> a. Maintain a sufficient distance to avoid disturbing nesting birds. Signs that birds are disturbed include adults displaying erect posture while sitting on their nests, increased vocalization and adult birds leaving their nests. b. Vessels to travel at steady speeds when close to seabird and waterbird colonies, moving parallel to the shore. c. Avoid any sharp or loud noises, do not blow horns or whistles, and maintain constant engine noise levels. d. Avoid pursuing seabirds or waterbirds swimming on water surface, including the avoidance of concentrations of these birds on the water. <p>^[1] Guidelines to avoid disturbance to seabird and waterbird colonies in Canada (Government of Canada, 2018)</p>
	B6.	<p>To reduce impact from noise and artificial lighting the following measures will be implemented:</p> <ol style="list-style-type: none"> a. Clearly delineate and enforce construction limits (e.g., snow fence, flagging tape) taking species and habitat into account. b. Stay within the construction limit, including staging areas. c. Use existing disturbed areas and right-of-ways whenever possible. d. Keep people, equipment and vehicle traffic to a minimum. e. Establish noise mitigation for machinery operation as appropriate (e.g., set decibel limits, use equipment with low noise emissions) f. Schedule work to avoid periods where there is high risk of displacement from noise disturbance. g. Limit construction activities to the time between dawn and dusk to avoid the

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		<p>illumination of adjacent habitat (e.g., schedule activities to begin either one half hour before/after ECCC official sunrise schedule for that day/period). If construction timing restrictions are not possible:</p> <ul style="list-style-type: none"> h. Use down shielding or directional lighting to avoid light trespass into bird habitat. i. To the extent practicable, use low intensity energy saving lighting and consider the use of motion or heat sensors to minimize illumination. j. Avoid the use of bright white light, such as metal halide, halogen, fluorescent, mercury vapour and incandescent lamps.
<p>Effects on marine invertebrates</p> <ul style="list-style-type: none"> • Magnitude = Small • Reversibility = Reversible • Geographic Extent = Immediate • Duration = Short-term • Frequency = Once 	I1.	If Northern abalone are encountered in the Project Study Area during pre-construction surveys, a SARA permit will be obtained (See Table 2-2 for applicable permit) to salvage and relocate Northern abalone or the landing will be re-routed to avoid them.
	I2.	Salvage epifaunal invertebrates (e.g., crabs, urchins, sea stars, sea cucumbers) and relocate them to suitable adjacent habitat outside of the Project footprint (See Table 2-2 for applicable permit).
	I4.	Post-construction dive surveys will be conducted to collect video documentation of the final subtidal split pipe assembly and to provide evidence no Northern Abalone individuals were harmed during construction.
	I5.	The EM will inspect boats operated in <6 m water depth before departure from site for the presence of European green crabs and larvae and euthanize any identified. The inspection will include the interior and exterior of the boats, as visible from above water.
	I6.	Additionally, anytime boats are removed from the water, they will be hosed down with freshwater to prevent the potential spread of European green crabs.
<p>Effects on fish and fish habitat</p> <ul style="list-style-type: none"> • Magnitude = Small • Reversibility = Reversible 	F1.	The EM under the direct supervision of a QEP, will survey areas with suitable forage fish (e.g., Surf Smelt) spawning habitat for the presence of forage fish spawning prior to and during construction. Accepted methods of surveying intertidal spawning forage fish will be used.

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	F3.	Pre-construction marine surveys will be conducted from the HWM to a depth of –10m CD to confirm the possible presence of Northern Abalone. If sensitive habitat is identified, the QEP (or QEP delegate) will determine a route of least impact. Split pipe will be installed using a float and lower method which is less impactful to the seabed than the pull method. A post-construction video survey will be completed.
	F4.	Environmental monitoring and marine mammal monitoring will be conducted during all Project activities that may result in potential or adverse effect to fish and fish habitat.
	F5.	All excavations will be backfilled and graded smooth prior to inundation on the flood tide. No trapping or stranding of fish will occur.
	F6.	In-water works, undertaking and activities will be limited so as not to diminish the ability of fish to carry out one or more of their life processes (e.g., spawning, rearing, feeding, or migrating).
	F7.	Observed aquatic invasives will be reported to https://www.dfo-mpo.gc.ca/contact/invasive-species-especies-envahissantes-eng.html 1-888-356-7525, AISPACIFIC@dfo-mpo.gc.ca
<p>Effects on marine sediment and water quality degradation</p> <ul style="list-style-type: none"> • Magnitude = Small • Reversibility = Reversible • Geographic Extent = Immediate • Duration = Short-term • Frequency = Once 	WQ1.	In the marine environment, visual monitoring for turbidity plumes will be conducted by the EM during construction activities below the HWM.
	WQ2.	In the event that sediment plumes are observed within a 50 m compliance zone, turbidity will be measured and compared to the BC WQG. Should the measured turbidity exceed applicable WQGs, work will be stopped and will not resume until turbidity returns to below WQGs. Additional ESC measures will be implemented if required to reduce water quality impact. Materials, including polyethylene plastic, silt fencing, tarps, and weed free straw mulch or wattles, will be available on-site for use as prescribed by the EM to reduce erosion and sediment transport and for use during emergency unexpected weather changes.

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	WQ3.	Intertidal work will occur during an appropriate tidal cycle to allow working in the dry (e.g., when site is dewatered by a low or falling tide).
	WQ4.	Ensure vessels are not operating in shallow water resulting in direct, physical disturbance to habitat from prop scour. This can lead to sediment resuspension, increased turbidity, and sedimentation of habitat, algae and sessile organisms and should be avoided.
	S1.	All crew members will be trained in spill response procedures and will be familiar with the location and contents of spill kits. In addition to spill kits, five-gallon buckets, shovels, tarps, and poly sheeting will be available on site for any potential emergency clean-up of contaminated soil required in the intertidal zone.
	S2.	Effort will be made to use biodegradable hydraulic fluid in equipment dedicated to working on, near or above water when logistics allow.
	S3.	Any fuelling or maintenance of equipment (e.g., splice case filling, lubricating equipment) will be conducted with secondary containment, such as a drip tray, and will occur a minimum of 30 m from watercourses and the marine environment, when possible (not applicable to vessels).
	S4.	All fuelling should be performed by two qualified personnel. All fuelling hoses must have an automatic shut-off valve.
	S5.	Land based equipment operations below the HWM will be limited as much as possible to reduce the potential introduction of deleterious substances into the marine environment. Equipment will only operate below the HWM in out of water tidal conditions.
	S6.	The cable laying vessel will be registered with Western Canada Marine Response Corporation (WCMRC).
	S7.	In the event a spill exceeds the quantity outlined in the Spill Reporting Regulation of the Environmental Management Act, the WCMRC, BC Spill Reporting Hotline, and CCG dispatch will be notified. Resources on site will be used to contain the spill to the extent possible.
	S8.	All equipment will be inspected by the EM prior to entering site and will be kept in good working order and free of leaks, excess grease, oil, soil, and invasive plant species.

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	S9.	Equipment inspections will be completed and documented daily by operators prior to use.
	S10.	Each piece of equipment, including all vessels will be equipped with a spill response kit suitable to address the volume of hazardous fluids contained in the equipment.
	S11.	Equipment will have secondary containment in place (i.e., drip trays) when not being operated.
	C1.	Equipment used to excavate in areas of suspected or confirmed contamination will be thoroughly cleaned prior to leaving the contaminated area.
	C2.	All potentially contaminated material will be backfilled in the location it was excavated. Sod will be removed carefully prior to excavation and replaced post excavation to minimize soil erosion and migration (Refer to Table 5-8)
	C3.	No excess contaminated soil is anticipated, however, if encountered the soil will be tested and disposed of at an appropriate facility.
Effects to air quality and GHG emissions <ul style="list-style-type: none"> • Magnitude = Small • Reversibility = Reversible • Geographic Extent = Local • Duration = Short-term • Frequency = Once 	AG1.	Idling of construction equipment and vehicles will be minimized.
	AG2.	Machinery and equipment will be maintained in good working order to minimize emissions.
Effects to terrestrial wildlife, vegetation, and soil <ul style="list-style-type: none"> • Magnitude = Small • Reversibility = Reversible • Geographic Extent = Immediate • Duration = Short-term • Frequency = Once 	B7.	Vegetation clearing and construction may occur within the nesting period for breeding birds (mid-March to late August). Regardless of timing, a pre-disturbance nest surveys will be conducted where possible to follow the Guidelines to Avoid Harm to Migratory Birds ⁶⁴ . A SOP for bird surveys is in Appendix J. A pre-construction wildlife habitat feature (e.g., den, burrow, hibernaculum) survey will also be conducted by the EM.
	B8.	The EM will conduct a nest sweep of year-round (e.g., Bald Eagle, Osprey, and Great Blue Heron) and migratory bird species. Please see Appendix J for details.

⁶⁴ Environment and Climate Change Canada. (2022) Guidelines to Avoid Harm to Migratory Birds. Accessed at <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html>

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	B9.	If a nest or wildlife habitat feature is identified during pre-disturbance surveys or during construction, the EM will stop work. Work will not proceed until a nest management plan is developed. Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia, and a Guide for developing Beneficial Management Practices for Migratory Bird Conservation will be applied to nest management procedures.
	B10.	Pipe ends will be covered, and equipment will be kept mobile on a daily basis to proactively prevent bird nesting in equipment during nesting season (late March to mid-August).
	B11.	A bald eagle management plan will be created as a companion document to the CEMP. This plan will be created based upon Best Management Practices and Rural Land Development in BC. A QEP experienced with Bald Eagle behaviour will conduct a behavioural watch pre-construction and during construction to note any signs of disturbance.
	WI1.	A stop work will be implemented if wildlife is observed on site and poses any risk to the construction crew or is at risk of being disturbed by construction activities. Work will not resume until wildlife has retreated to a distance considered safe by the EM.
	WI2.	In the event that wildlife appears to be injured, abandoned, or in distress a BC conservation officer will be immediately notified at the BC Report All Poachers and Polluters Hotline (RAPP) (1-877-952-7277). The BC RAPP will advise on the appropriate management strategy. In addition, any bird mortalities, injuries, or illness will be reported to 1-866-431-BIRD (2473) .
	WI3.	Any driftwood shifted to accommodate construction will be returned to its original location post construction to maintain habitat potential. Post-construction, each landing site will be restored to pre-construction conditions as much as possible. No hazardous obstacles which could harm wildlife will be left (i.e.: open excavations, standing pools of water).
	WI14.	Prior to the start of construction, the EM will complete a survey of the workspace to determine the presence of amphibians. During construction,

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		the EM will complete amphibian sweeps along the workspace daily. Efforts may be made to keep amphibians out of the workspace using amphibian exclusion fencing.
	V1.	Prior to any disturbance or vegetation clearing, the EM will inspect the area for noxious weeds plant species designated as provincially or regionally noxious pursuant to Schedule A of the BC <i>Weed Control Regulations</i> . Noxious plants will be flagged by the EM, and if possible, left undisturbed. If removal is necessary to accommodate construction, the EM will ensure removal and disposal occurs in accordance with recommendations by the BC Invasive Species Council to reduce the risk of spreading seeds or cuttings.
	V2.	To prevent the spread of terrestrial invasive species, all equipment (mini excavator, skid steer and light duty trucks) will be visually inspected by the EM prior to entering landing sites and must be free of excess soil and any plant species or seeds.
	V3.	No trees will be removed as a part of vegetation clearing and thus cable re-alignment will occur as required.
	V4.	Instead of disposing of cleared vegetation, expected to consist of primarily shrubbery, foliage, and woody debris, it will be retained and dispersed on areas disturbed by excavation to serve as wildlife habitat and minimize soil erosion.
	V5.	Previously vegetated areas disturbed during excavation activities above the HWM will be seeded with a suitable reclamation seed mix approved by the property owner and covered with weed free straw (or equivalent erosion control matting) on an as needed basis. Reseeding will be attempted immediately post landing site construction, however, if the ground is frozen or snow covered, it will be completed at a later date.
	V6.	Any disturbed habitat features (e.g., driftwood, large woody debris) will be restored to its initial pre-disturbance state.
	SE1.	Trenching will be performed as per Table 4-2 and will be a maximum of 1 m wide and 0.6 m deep. The entire work corridor accommodating the trench, adjacent spoil piles and equipment access will not exceed 3 m width. BC1 Call shall be notified and consulted prior to work.

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	SE2.	Preventative measures during intertidal and upland construction will be undertaken such that surface waters flowing towards the work area will be diverted using methods such as berms, ditches, sandbags, and silt fencing.
	SE3.	ESC materials such as polyethylene plastic, silt fencing, tarps, and weed free straw mulch or wattles will be available on-site for use as prescribed by the EM to reduce erosion and sediment transport and for use during emergency unexpected weather changes.
	SE4.	Appropriate ESC measures will be undertaken to minimize sediment laden water from upland work areas reaching below the HWM.
	SE5.	The EM will communicate with the Construction Supervisor if stop works need to be considered during heavy precipitation events due to ESC concerns.
	CS1.	Any potentially contaminated material excavated will be returned to the same location as excavated. If stockpiles exist temporarily, they will be covered overnight to prevent contaminated run-off. Sod will be removed carefully prior to excavation and replaced post excavation to minimize soil erosion and migration (Refer to Table 5-8)
	CS2.	Equipment used to excavate in areas of suspected or confirmed contamination will be thoroughly cleaned prior to leaving the contaminated area. All equipment used in areas with potential contamination will be cleaned thoroughly before leaving the area.
	CS3.	No excess contaminated soil is anticipated, however, if encountered the soil will be tested and disposed of at an appropriate facility.
Impacts to Indigenous Peoples and Rights <ul style="list-style-type: none"> • Magnitude = Small • Reversibility = Reversible • Geographic Extent = Immediate • Duration = Short-term • Frequency = Once 	Appendix G	Archaeological Management Plan (AMP)