CONSTRUCTION STANDARDS FOR ACTIVITY IN WATERCOURSES AND
WETLANDS

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This document was created by the PEI Department of Environment, Labour and Justice in accordance with the Watercourse and Wetland Protection Regulations (Sections 4 and 5) to set out the standards that must be met by contractors licensed under the Regulations to complete certain activities in watercourses, wetlands and buffer zones without a Watercourse, Wetland and Buffer Zone Activity Permit.

GENERAL STANDARDS

1. The general standards are to be used for all of the subsequent specific activities undertaken by contractors licensed under the Regulations to complete certain activities in watercourses, wetlands and buffer zones without a Watercourse, Wetland and Buffer Zone Activity Permit.

2. All work must be guided and overseen by a person who holds a Watercourse, Wetland and Buffer Zone Activity Certificate and is employed by a holder of a Watercourse, Wetland and Buffer Zone Activity Business License.

3. Construction activities in aquatic and riparian environments must be conducted in strict compliance with the Prince Edward Island Environmental Protection Act, Watercourse and Wetland Protection Regulations, and the sections of the Fisheries Act, Fisheries and Oceans Canada, that address fish health and fish habitat, and any other Acts relevant to the activity being completed.

4. All reasonable measures and precautions must be taken to minimize the siltation of and prevent the destruction of watercourses and wetlands.

5. A spill kit which possesses a minimum of 190 litre petroleum product absorption capacity must be onsite at all times during the project. The contents of the kits must include a 45 gallon drum with removable cover, absorbent and containment booms, absorbent pads, blankets and particulate, and disposal bags and ties. It is the contractor’s responsibility to ensure that adequate petroleum product absorption capacity is available for any/all equipment mobilized at the work site.

6. All fuel, lubricants or other toxic chemicals must be stored a minimum of 30 metres from any watercourse or wetland.

7. The washing, refuelling, servicing of equipment and storage of fuel, equipment and other materials must occur a minimum of 30 metres from watercourses and wetlands to prevent any deleterious substance from entering the water.
8. Heavy equipment is to arrive on site in a clean, washed condition and is to be maintained free of fluid leaks.

9. Should a fuel or hazardous material spill occur, regardless of the size, the spill must be reported to the Environmental Emergency Response number at 1-800-565-1633. This Emergency Response number operates 24- hours a day, 365 days a year.

10. Activities are prohibited in marine conservation areas established by the Canadian National Marine Conservation Areas Act including the Basin Head Lagoon area.

11. Heavy equipment (other than tracked vehicles) is not permitted to operate in the following shoreline areas on PEI. Temporary closures may be in effect depending upon the condition of the shoreline. The Department must be contacted by phone at 368-5024 prior to undertaking work in these areas:

a. Brighton Shore, Charlottetown, area between the shore accesses of York Lane and Colonel Gray Drive, Lat/Long coordinates (46° 13' 50.9448", -63° 8' 50.6256", to 46° 14' 27.6252", -63° 8' 59.7588") Refer to Figure 1.

b. Langley Beach, Stratford (shore between Battery Point and Rosebank Point, Lat/Long coordinates 46° 12' 25.8552", -63° 7' 34.6368" to 46° 13' 13.1304", -63° 6' 55.0728") Refer to Figure 1.

c. Brooklyn, Prince County (shore along Wallace Dr., Dunroamin Ln, Vegabond Ln. and Adams Dr., Lat/Long coordinates 46° 46' 19.74", -64° 6' 49.3236" to 46° 46' 44.7564", -64° 6' 21.2256") Refer to Figure 2.

12. When erosion control techniques are being utilized they must adhere to the Construction Techniques for Erosion and/or Sedimentation Control specified later in this document.
13. Prior to commencing any activity under these standards, the contractor must fax the Department of Environment, Labour and Justice a completed notification form and have received back from the Department a faxed acknowledgement that the notification form has been received.

14. Construction activities must be stabilized as required (i.e. stabilized as work progresses, stabilized at the end of the workday, etc) to prevent sedimentation of any watercourse and/or wetland. Fill material and/or disturbed areas of the bank must not be left exposed for more than 12 hours.

15. The holder of a Watercourse, Wetland and Buffer Zone Activity Business License is responsible for implementing Erosion and Sedimentation Control measures on all sites where the Licensee is carrying out construction activities.

CONSTRUCTION STANDARDS FOR SPECIFIC WATERCOURSE, WETLAND AND BUFFER ZONE ACTIVITIES

In addition to the previous general standards, the following standards are specific to the activities listed and must be followed when undertaking those activities:

**Shore Stabilization**

1. Shoreline stabilization activities must be carried out as follows:
   Shoreline stabilization can be carried out on shorelines of tidal water only. It may not be completed under the Contractor Licensing Program where the area at the base of the bank to be armoured is a wetland or sand dune.

2. The deposition of material or placement of construction shall not exceed 50 metres in length when measured following the natural contours of the shoreline.

3. The deposition of material or placement of construction shall not exceed 1 metre on the seaward side of the toe of the existing bank and the deposition of material shall not change the natural contours of the shoreline. The reclamation of eroded property is not permitted.

4. Trees in the buffer may not be cut or destroyed. Dead trees on the beach/shoreline may be removed to allow placement of shore stabilization material. Trees leaning over the bank above the shore stabilization material may be removed.

5. Shrubs may be cut or disturbed but the disturbance and cutting should be kept to the minimum required to complete the work. Areas with shrubs that are disturbed or cut must not be grubbed or converted to grass (no removal of stumps/roots and/or addition of fill material).
6. Contractors must use an existing access to the shoreline. The creation of a new access to the shoreline through excavation of the bank, including the creation of slipways and walkways, is not permitted under the Contractor Licensing Program. The footprint (width) of an existing access must not be increased.

7. A seasonally removable stairway, constructed of wood or metal and for pedestrian access to the shoreline, may be placed as part of the shore stabilization work.

8. If it is determined by the Licensed Contractor that work will be taking place within 200 metres of a shellfish lease:
   
   a. The Licensed Contractor must contact DFO Shellfish Leasing at (902)566-7849 to inform them of the work. DFO will then notify the lease owner of the work and any concerns will be brought to the contractors attention.
   
   b. If there are concerns from the lease owner, the contractor must inform the Department of Environment, Labour and Justice at (902)368-5024. If the concern(s) of the lease owner cannot be resolved by the Department over the phone an on-site meeting with the contractor will be arranged.
   
   c. When working within 200 m of any shellfish lease, working from the bank (no machinery or equipment on the beach) is always the preferred method.

9. Existing rock (naturally occurring sandstone on the shoreline) directly in front of the property and within 3 m of the toe of slope may be incorporated into the shore stabilization material.

10. Shoreline stabilization work may not be carried out in areas where bank swallows are nesting. If bank swallow nest holes are present, no work can be carried out between May 15 and September 1 and the contractor must contact Dale Thompson (368-5052) or Kevin Arsenault (854-7260) to arrange for a site inspection.

11. Acceptable methodologies include riprap construction, vertical retaining wall or gabion baskets.

12. For riprap construction:
   
   a. The material used for the shoreline stabilization structure must be clean, durable and uncontaminated. It may include rock, crushed concrete, concrete structures, concrete slabs or other such material. The material may not have protruding re-bar and cannot be construction rubble (i.e.: bricks & concrete/cinder blocks), organic matter (i.e.: plant material such as trees) or asphalt.
   
   b. The material used for the backfill must be clean and uncontaminated and may include common borrow, shale or gravel.
   
   c. The material used for shoreline stabilization must be securely installed to ensure it does not create a safety hazard.
d. Filter fabric is recommended behind the riprap to reduce undermining and loss of backfill material.
e. The exterior face of the stabilization material must be keyed (entrenched) into the beach profile to a depth of at least 0.6 metres to prevent undermining.
f. The stabilization material at the ends of the structure must be tied back into the existing bank. This will help prevent scouring around the ends of the structure that could lead to structural failure.
g. If riprap is being used, the slopes where the riprap is to be placed shall be graded to a gentle slope.

13. For vertical retaining wall construction:

a. Acceptable construction materials are heavy timber or heavy concrete blocks.
b. Timber materials may be untreated or pressure treated with preservatives. All treated wood must be air dried for a period of at least 6 months prior to construction. Touch-up painting of cut ends should be carried out away from the water and allowed to dry for a minimum of one week prior to being used. Creosote treated materials cannot be used. All vertical walls must be tied into each other and also tied into the bank material. Ties into the bank material must be secure such as large dead men imbedded deep into the bank.
c. The exterior face of the wall must be keyed (entrenched) into the beach profile to a depth of at least 0.6 metres to prevent undermining.
d. Filter fabric is recommended behind the wall to prevent the backfill material from escaping.
e. The ends of the wall structure must be tied back into the existing bank. This will help prevent scouring around the ends of the structure that could lead to structural failure.

14. For wire gabion basket construction:

f. Wire baskets must be filled with clean stone material that is larger than the mesh size.
g. When more than one tier is used, the wire baskets must be terraced (stair-like) and tied together to add stability to the structure.
h. The lower row of the wire baskets must be keyed (entrenched) into the beach profile to a depth of at least 0.6 metres to prevent undermining.
i. Filter fabric is recommended behind the wire baskets to prevent the backfill material from escaping.
j. The backfill material behind the wire baskets must be compacted to help prevent future washouts.
k. The ends of the gabion structure must be tied back into the existing bank. This will help prevent scouring around the ends of the structure that could lead to structural failure.

15. Any holes or ruts greater than 0.5 feet in depth created on the beach area and/or shoreline which may present a safety hazard to the general public must be filled in and levelled at the end of each working day during the project.
16. Whenever practical, as much work as possible must be carried out from the top of the existing property bank to restrict the use of heavy equipment on the shoreline or beach. Trees in the buffer zone must not be cut down to accomplish this. When the presence of trees prevents working from the top of the bank, working from the shoreline may be utilized as long as:

a. there is no shellfish lease within 200 m of the work site,
b. the shoreline area is not a wetland (such as salt marsh) or a sand dune and
c. the shoreline is stable enough so that repeated trips of equipment in the area does not create large holes and ruts.

17. Where practical, the closest shoreline access point to the project location must be used to access the beach or shoreline when work cannot be carried out from on top of the property bank. If private access routes are to be used, landowner permission must be obtained prior to commencement of work. It is the licensed contractors responsibility to repair any damage resulting from accessing the site.

18. Heavy equipment must not operate on a beach or shoreline within 500 m of where piping plovers are present. No work may be carried out from April through September if piping plovers are present within 500 m of the work site. Contractors must contact the Island Nature Trust at 902-892-7513 to determine the piping plover status prior to conducting the work.

19. Contractors must ensure that all work is stabilized as required to prevent sedimentation of any watercourse or wetland prior to leaving the construction site.

20. Any unstable material (i.e. imported backfill material, disturbed area of bank/slope, etc) must be stabilized (i.e. covered with fabric and rock) as work progresses. Unstable material/disturbed areas must not be left exposed to the elements.

**Landscaping in a Buffer Zone**

Landscaping within a buffer zone must be carried out according to the following procedures:

1. No infilling of any part of a watercourse, wetland or sand dune is permitted.
2. The time frame for normal planned work is between May 1st and November 30th.
3. Landscaping may only be completed between December 1st and April 30th where the work is an emergency and must be completed to forestall further damage to the buffer zone and adjacent watercourse or wetland.
4. No trees and shrubs may be cut or otherwise destroyed.
5. A type #1 silt fence must be installed along the perimeter of the watercourse boundary or wetland boundary and must remain in place until all barren soil has been seeded and stabilized.
6. The disturbed area is to be graded to a stable slope. Large amounts of soil, earth, or other
material may not be either added or removed. This means that soil at a depth in excess of 30 cm may not be either added or removed.

7. All barren soil exposed by landscaping and grading carried out between May 1st and September 30th must be seeded and stabilized.

8. All barren soil exposed by landscaping and grading carried out between October 1st and November 30th must be seeded (weather conditions permitting) and completely covered with hay or straw mulch;

9. All barren soil exposed by emergency landscaping and grading carried out between December 1st and April 30th must be completely covered by a layer of hay or straw mulch.

10. No heavy equipment is permitted to enter a watercourse, wetland or sand dune.

Federal Wharf Repairs

Wharf repair work carried out on property under federal jurisdiction must be executed in accordance with the following requirements:

1. The work must be carried out as per the environmental protection requirements of the federal department of agency having jurisdiction and/or the contracting authority.

2. All reasonable precautions must be taken by the contractor to prevent construction and/or demolition debris from entering the watercourse or wetland.

3. If the work has potential to impact wetlands or sand dunes, the contractor must contact the Department of Environment, Labour and Justice for approval.

4. Only cured and dried treated timber is to be used in the work. All pressure treated wood must be air dried off site for a period of at least 6 months prior to construction.

5. Field treatment of end cut timber with chemical preservatives should be carried out away from the watercourse and allowed to dry for a minimum of 1 week prior to being used in the work. Caution must be exercised for the field treatment of in-situ timber materials to prevent the release of any chemical preservatives into the watercourse.

6. All fresh concrete must be placed in forms and cured for at least 5 days prior to form removal.

7. All reasonable precautions must be taken to prevent chemical form release agents, concrete mix and slurry from entering the watercourse.

8. Drums used for dock flotation must be clean and sealed before placement in the water.

9. Styrofoam must be suitably protected from any sources of physical damage or deterioration.

10. Waste products including creosote or pressure treated wood products that cannot be reused must be disposed of in a provincially approved manner.

11. The contractor must notify the Environment Division prior to the removal of any salvageable stockpiles of creosote or pressure treated timbers from the construction site to determine if a permit from that Division is required.

12. Any salvageable stockpiles of creosote or pressure treated timbers that remain at the construction site must be stored a minimum of 500 metres from any dwelling or well and a minimum of 100 metres from any watercourse or wetland.
Operation of Heavy Equipment on the Shoreline

Operation of heavy equipment on a beach or shoreline must occur in accordance with the following:

1. Vehicle traffic must be confined to the existing access points and beach area where the work is located, and any disturbances to adjacent sand dunes or beaches must be avoided.
2. Where practical, the closest shoreline access point to the project location must be used to access the beach or shoreline when work cannot be carried out from on top of the property bank. If private access routes are to be used, landowner permission must be obtained prior to commencement of work. It is the licensed contractors responsibility to repair any damage resulting from accessing the site.
3. Only the immediate area of the beach or shoreline at the work location may be disturbed.
4. Any holes and tracks, greater than 0.5 feet in depth, created on the shoreline during the work must be filled, levelled or back dragged before the next high tide or before the contractor leaves the site for the day.
5. Sand dunes can only be crossed at existing non-vegetated access points with a distance length of 30 metres or less. Old access points that are longer than 30 metres in length or have grown up with vegetation must not be utilized.
6. The washing, refuelling, servicing of equipment and storage of fuel and other materials shall not occur within 30 metres of the coastline and/or watercourse / wetland boundary to prevent any deleterious substance from entering the water.
7. Parking or storage of heavy equipment is not permitted on sand dunes, the beach or shoreline or within 30 metres of a watercourse boundary or wetland boundary.
8. Timing of work must not coincide with periods of increased sensitivity for shellfish (i.e. spatfall) if the work is to be carried out within 200 metres of a lease. This period of sensitivity is between June and August.
9. Heavy equipment must not operate on a beach or shoreline within 500 m of where piping plovers are present. Contractors must contact the Island Nature Trust at 902-892-7513 to determine the piping plover status prior to operating on the beach or shoreline.
10. Seaweed may be repositioned on the beach/shoreline but may not be removed from the beach/shoreline for disposal. Seaweed removal requires a separate permit.
11. Washed up animals may be buried on the beach when requested by Provincial Government. Prior to burying any animal washed up on the beach, contractors must contact the Forests, Fish and Wildlife Division at 902-368-4700 for instructions on burial.
12. Existing slipways may be repaired by grading and/or adding additional clean fill material. The footprint of the existing slipway must not be increased and no poured concrete or asphalt is permitted.
13. Existing floating docks may be seasonally installed/removed. New floating docks require a separate permit.
14. Contractors must use an existing access to the shoreline. The creation of a new access to the shoreline through excavation of the bank, including the creation of slipways and walkways, is not permitted under the Contractor Licensing Program. The footprint (width) of an existing access must not be increased.

Minor Bridge Repairs
Minor bridge repairs must occur in accordance with the following:

1. Repairs permitted under this section shall be limited to:
   a. decking and support replacement;
   b. erosion control and slope protection on abutments; and
   c. grading of approach roads.
   d. replacement of existing clear span bridges

2. The time frame for normal planned work:
   a. decking and support replacement is between May 1st and November 30th.
   b. erosion control and slope protection on abutments; and grading of approach roads is year round.

3. Minor bridge repairs for erosion control and slope protection on abutments and grading of approach roads may only be completed between December 1st and April 30th where the work is an emergency and must be completed to forestall further damage to the buffer zone and adjacent watercourse or wetland.

4. Timing of all work must not coincide with periods of increased sensitivity for fish (i.e. spawning and egg incubation) or shellfish (i.e. spatfall) if the work is to be carried out within 200 metres of a shellfish lease.

5. Repair work on the upstream and downstream ends of the approach roads must be stabilized with wingwall riprap such as stone or concrete.

6. If riprap reinforcement or armouring is required to stabilize eroding areas around abutments, large clean, angular rocks must be placed into the eroding area at a similar slope as the stream bank to maintain a uniform bank slope and natural stream alignment. The cross-sectional area for water passage under the bridge must not be decreased by the riprap placement.

7. Approaches on both the upstream and downstream ends of the bridge must be riprapped with stone or concrete to prevent erosion.

8. During the grading of approach roads within 30 metres of a watercourse boundary or wetland boundary a type #1 silt fence must be installed along the perimeter of the boundary. The silt fence should remain in place until all barren soil has been stabilized with a minimum 1 inch thick hay or straw mulch or other effective barrier (i.e. hay bales).

9. Any disturbance or destruction of any part of a watercourse or wetland that occurs during the project must be repaired immediately.

10. No heavy equipment is permitted to enter or ford the watercourse or wetland.

11. Where ditch run outs are constructed along the approach roads to a bridge, they must not be constructed within the buffer zone.

12. Any construction debris or other debris generated during the project must not enter the watercourse. If any materials enter the watercourse they must be immediately removed and disposed of in a provincially approved manner.

13. The width of the grubbed zone should be no more than the total width of the roadway, fill embankments and ditches.

14. Creosote treated timbers must be air dried for a minimum of 12 months before being installed in the watercourse.

15. All barren soil exposed by landscaping and grading carried out between May 1st and September 30th must be seeded and stabilized.

16. All barren soil exposed by landscaping and grading carried out between October 1st and
November 30th must be seeded (weather conditions permitting) and covered with a minimum 1 inch thick hay or straw mulch.

17. All barren soil exposed by work carried out between December 1st to April 30th must be covered with a minimum 1 inch thick layer of hay or straw mulch.

18. Heavy equipment shall not be operated outside the roadway fill embankments and ditch area in a manner that causes disturbance to the watercourse banks or wetland.

19. Sediment barriers, such as silt fences or hay bales, must be placed along the toe of the slope of the fill material used to construct the approaches to the structures.

20. Existing clear span bridges may be replaced with similar clear span bridge structures. No disturbance of the streambanks and/or watercourse or increase in footprint over the previous structure is permitted.

**CONSTRUCTION TECHNIQUES FOR EROSION AND/OR SEDIMENTATION CONTROL**

The following sections deal with construction techniques for erosion and/or sedimentation control related to any of the activities performed in previous sections of this document. All of the activities must include appropriate erosion and/or sediment control measures. It is the responsibility of the contractor to determine which of the erosion or sediment control techniques is appropriate for their project.

1. General techniques for all check dams:

   a. Check dams must be installed before the construction phase of an activity begins.
   b. Check dams must be constructed so that the centre of the dam is at least 15 centimetres lower than the elevation at which the ends of the dam where they tie into the existing ground. This may be accomplished with a notch in the centre of the dam.
   c. Check dams must be embedded into the bottom and banks of the ditch to prevent undercutting and run-around.
   d. Check dams should be spaced as per Figure 3 below titled “Distance Between Check Dams”.

![Distance Between Check Dams](image)

**Figure 3 - Distance requirements between check dams**

e. Regular inspections are necessary to ensure that sediment does not accumulate to an elevation of more than half of the height of the dam. The accumulated sediment must be removed prior to reaching this level.

f. Before the removal of the check dam, all accumulated sediment must be removed and disposed of in an area where it:
   i. cannot re-enter any watercourse;
   ii. and is outside the buffer zone.

g. Check dams must be removed when they are no longer needed or when the ditch becomes permanently stabilized with vegetation.

2. Additional stone check dam requirements:
   a. Stones must have a minimum dimension of approximately 50 millimetres.
   b. Stones must be packed tightly.

3. Additional straw bale check dam requirements:
   a. Straw bales must be bound with wire or string.
   b. Straw bales must be keyed in with a trench.
   c. Straw bales must be placed tightly together and secured by driving 2 wooden stakes through each bale, deep enough to anchor them.
   d. Loose straw must be wedged between any cracks or openings.
   e. A small amount of fill must be placed on the upslope side of the bales as shown in Figure 4.

4. Techniques for Sediment Traps:
   a. Sediment traps must be constructed prior to initial grubbing and excavation of a work
site and shall remain in use until the disturbed area is protected against erosion by permanent stabilization.

b. The average length of the trap shall be at least twice the average width of the trap.

c. The trap must be excavated to a maximum depth of 1 metre to reduce the frequency of clean out, and shall be sized large enough to handle the expected flows. The side slopes must be no steeper than 1:1. The maximum depth of the sediment trap from the bottom of the trap to the top of the spillway must not exceed a depth of 1.3 metres.

d. The outlet of the sediment trap must be riprapped.

5. Silt Fences/barriers:

a. Type I Silt Fences
   i. Silt fences shall be installed up-slope of the watercourse and wetland boundaries.
   ii. A trench 100 millimetres in width and 100 millimetres in depth shall be excavated on the up-slope side of the fence. The silt fence must be keyed into the substrate.
   iii. Excavated soil in the trench shall be backfilled and compacted over the silt fence.
   iv. All silt fences/barriers or parts thereof that are damaged shall be repaired immediately.
   v. Refer to Figure 5 for proper installation and construction of a silt fence.

![Figure 5 - Silt fence construction](image)

b. Straw Bale Barrier
   i. An excavated trench 10 cm deep and the width of the straw bale must be created for the bales. Excavated soil should be compacted against the upslope side of the bale as shown in the diagram below.
   ii. Bales must be bound with wire or string and be placed lengthwise in the trench.
   iii. Bales must be secured by driving 2 sturdy wooden or steel stakes through each bale, deep enough into the substrate to anchor them securely.
   iv. Loose straw must be wedged between any cracks or other openings.
   v. Bale barriers that are damaged shall be repaired immediately.
   vi. Refer to Figure 4 for proper installation and construction of a straw bale barrier.
6. Re-vegetation:
   
a. Seeding
   i. Seeding must be carried out as soon as possible or within 24 hours of completing surface preparation.
   ii. Seeding shall be completed on topsoil.
   iii. On steep areas, such as road side slopes, the seed must be covered with mulch or an erosion control mat to ensure that the seed remains in place during its germination period.

b. Mulching
   i. Hay or straw mulch must be applied uniformly as soon as possible or within or within 24 hours of completing surface preparation.
   ii. Mulch must not be so wet, decayed or compacted that it inhibits even and uniform spreading.
   iii. Mulch shall be applied at a rate as such that the ground is 100% covered and repaired/ re-mulched as required, until the area has stabilized.
   iv. Where the mulch is at risk of being blown or washed away, the mulch must be crimped into the surface.

7. Soil Stabilization Blankets (i.e. jute mats, burlap & woven straw blankets)
   a. Stabilization blankets must be stapled securely to the soil.
   b. Stabilization blankets must not be stretched.
   c. In ditches or channels, the blankets shall be laid out in the direction of flow. On steep slopes, the mat shall be laid out with its length extending from the top to the bottom of the slope.
   d. Stabilization blankets must be inspected regularly and repaired as required until the area has stabilized.