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Environment

Updates to NS Watercourse Alterations Standard
since October 1, 2014

Version 2 of the NS Watercourse Alterations Standard is effective June 1, 2015. The table below explains the differences between the first and second versions. The changes clarify statements that were unclear or out-of-date.

Original Language (Version 1 – effective October 1, 2014)	New Language (Version 2 – effective June 1, 2015)
2.2 (s) "watercourse slope" means: the vertical drop from the upstream control to the downstream control divided by the length between these two points and is usually expressed in percentages or degrees. Slope= ((A-B)/L)*100 where, A is the upstream control, located at the thalweg elevation of the existing watercourse at the proposed culvert inlet. B is the downstream control, located at the thalweg elevation at the first natural undisturbed riffle located at a distance of 3 times the culvert diameter plus a minimum of 3.5 m downstream of the culvert outlet. L is the distance between A and B. ((B – A) / L) * 100 Where, in the case of a known culvert diameter: B = the watercourse bed thalweg elevation at the first natural undisturbed riffle upstream from the proposed culvert inlet location. If there are no identifiable riffles, then survey 60m upstream at 5m intervals. A = the watercourse bed thalweg elevation at the nearest natural undisturbed riffle located at a distance 3 times the culvert diameter plus a minimum of 3.5m downstream of the proposed culvert outlet location. If there are no identifiable riffles, then survey 120m downstream at 5m intervals. L = the distance between A and B. Where, in the case of an unknown culvert diameter: B = the watercourse thalweg elevation 30m upstream from the proposed culvert inlet location where the watershed size is less than 2.5km^2. Where the watershed size is greater than 2.5km^2 60m upstream should be surveyed A = the watercourse bed thalweg elevation 30m downstream from the proposed culvert outlet location where the watershed size is less than 2.5km^2. Where the watershed size is greater than 2.5km^2 120m downstream should be surveyed. L = the distance between A and B.	2.2 (s) "watercourse slope" means: the vertical drop from the upstream control to the downstream control divided by the length between these two points and is usually expressed in percentages or degrees. Slope = ((A-B)/L)*100 where, A is the upstream control, located at the thalweg elevation of the existing watercourse at the proposed culvert inlet. B is the downstream control, located at the thalweg elevation at the first natural undisturbed riffle located at a distance of 3 times the culvert diameter/width plus a minimum of 3.5 m downstream of the culvert outlet. L is the distance between A and B.

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3.4 (g) Bypass pump intakes must be screened in accordance with the *Freshwater Intake End-of-Pipe Fish Screen Guideline*, (Ottawa, ON: Department of Fisheries and Oceans Canada, 1995) (as updated from time to time).	3.4 (g) The intake for a pump must be screened to prevent the entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.
4.1 e) A culvert must have an energy dissipation pool at its outlet. f) An energy dissipation pool must be stabilized to prevent scour and erosion, ~~and the downstream control riffle elevation must be stabilized to prevent wash-out~~. g) The center line of a dissipation pool must align with the center line of a culvert barrel. h) The width of the bed of the dissipation pool must be 2 times the culvert diameter/height. i) The length of the bed of the dissipation pool must be 3 times the culvert diameter/height plus a minimum of 3.5m to create a stable 2:1 slope to the downstream control riffle elevation. j) The dissipation pool must be a minimum of 1 m deep. k) ~~The width of the downstream control must be equal to the width of the natural stream bed at that location~~. ~~l) The elevation of the downstream control must be 20% greater than the culvert's outlet invert elevation (up to a maximum of 0.4m).~~	4.1 e) A culvert must have an energy dissipation pool at its outlet. f) An energy dissipation pool must be stabilized to prevent scour and erosion. g) The center line of an energy dissipation pool must align with the center line of a culvert barrel. h) The width **at the bottom of the energy dissipation pool** must be at least 2 times the culvert diameter/width. i) The length **at the bottom of the energy dissipation pool** must be at least 3 times the culvert diameter/width. j) The **energy** dissipation pool must be a minimum of 1 m deep. **k) A stable slope not exceeding 2 horizontal to 1 vertical from the bottom of the energy dissipation pool to the elevation of the natural streambed must be constructed.** **l) The energy dissipation pool outlet must not disturb the downstream control riffle.** **m) The energy dissipation pool outlet elevation must be equal to the natural streambed elevation.** n) **The width of the energy dissipation pool outlet must be equal to the width of the natural stream bed at that location.**