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Forest Practices Code of British Columbia Act

FOREST ROAD REGULATION

[includes amendments up to B.C. Reg. 53/2000]

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Part 1 — Definitions and Application

Definitions

1 (1) In this regulation:

"angle of repose" means the angle at which a slope becomes stable;

"bridge" means a temporary or permanent structure carrying a road above a stream or other opening;

"clearing width" means the width required to be cleared of standing timber to accommodate road construction maintenance and use;

"culvert" means a transverse drain pipe or log structure covered with soil and lying below the road surface;

"cross-ditch" means a ditch excavated across a road at an angle and at sufficient depth to divert both road surface water and ditch water off or across the road;

"cross-drain culvert" means a culvert used to carry ditch water from one side of the road to the other;

"cut slope" means the face of an excavated bank required to lower the natural ground line to the desired road profile;

"ditch block" means a blockage that is

(a) located directly downgrade of a cross-drain culvert or cross-ditch, and

(b) designed to deflect water flow from a ditch into a cross-drain culvert;

"drainage system" means a system designed to control the flow of water within a road prism;

"endhaul" means the act of moving excavated material from one section of the road to another or to a disposal site, during road construction or modification, unless the modification consists of replacing or adding a stream culvert or a bridge, or providing structural repairs to a bridge or major culvert;

"fill slope" means the face of an embankment required to raise the desired road profile above the natural ground line;

"fisheries-sensitive zone" means a flooded depression, pond or swamp, but does not include a stream, wetland or lake, that either perennially or seasonally contains water, and that is seasonally occupied by a species of fish listed in the definition of "fish stream" in the Operational Planning Regulation;

"flyrock" means airborne rock displaced beyond the road prism by blasting;

"ford" means a dip in a road constructed to facilitate crossing a stream;

"inslope" means the act of shaping the road surface to direct water onto the cut side of the road;

"known" means, when used to describe a feature, objective or other thing referred to in this regulation as known,

(a) a feature, objective or other thing that is identified as a known feature, objective or thing in the forest development plan in which the road is proposed, or in the forest development plan in which the part of the forest development plan that is the road, is amended,

(b) a feature, objective or other thing that is identified in a silviculture prescription as a known objective, feature or thing, or

(c) a feature, objective or other thing that is not required to be identified in an operational plan, or if there is no operational plan, that is

(i) contained in a higher level plan, or

(ii) otherwise identified or made available to a person by the district manager or a designated environment official

at least 4 months before the road layout and design for which the information is required is submitted for approval;

"major culvert" means a stream culvert having a pipe diameter of 2 000 mm or greater, or a maximum design discharge of 6 m³/sec or greater;

"outslope" means the act of shaping the road surface to direct water away from the cut slope side of the road;

"overlanding" means placing road construction fill over unstripped organic soil, stumps or other vegetative materials for the purpose of distributing vertical loads over soft ground, whether or not the fill is supported by corduroy or geotextiles;

"permanent bridge" means a bridge whose expected life at its current location is greater than 15 years;

"person required to prepare a road layout and design" means a person required to obtain approval of a road layout and design under section 60 (1) of the Act and a district manager required to prepare one under section 60 (2) of the Act;

"qualified inspector" means a person who, in the opinion of the district manager, is qualified by training or experience to inspect bridges and major culverts and interpret the significance of the inspection results;

"qualified registered professional" means, with respect to an activity for which this regulation requires a qualified registered professional, a person who

(a) has appropriate education and experience to carry out the activity, and

(b) is a member of, or licensed by, a regulatory body in British Columbia that has the legislated authority to regulate its members or licensees performing the activity;

"road prism" means the area of the ground containing the road surface, cut slope, and fill slope;

"road subgrade width" means the width of the top surface of the road fill or excavated surface, before surfacing is applied;

"safe fish passage" means safe passage of fish through culverts for the purposes of spawning, rearing or migration;

"sidecast" means the act of moving excavated material onto the downslope side of the road during road construction;

"slash" means the residue left on the ground as a result of forest and other vegetation being altered by forest practices or other land use activities;

"snow road" means a road constructed of ice and snow;

"soil erosion field assessment" means a site assessment of the susceptibility of the soil to erosion along a proposed road location;

"soil erosion hazard" means the ranking of the potential for soil erosion as determined by a soil erosion field

assessment;

"stream culvert" means a culvert used to carry stream flow in an ephemeral or perennial stream channel from one side of the road to the other;

"temporary bridge" means a bridge whose expected life at its current location is 15 years or less;

"terrain stability field assessment" means an on-site assessment of the potential impact of road construction, modification or deactivation on terrain stability, carried out in accordance with procedures set out in the Ministry of Forests' publication, "Mapping and Assessing Terrain Stability Guidebook", as amended from time to time;

"waterbar" means a shallow ditch dug across a road at an angle to prevent excessive flow down the road surface and erosion of road surface materials;

"windrow" means an accumulation of fill or surfacing material left on the road shoulder as a result of grading operations.

(2) Words and expressions not defined in this regulation have the meaning given to them in the Operational Planning Regulation unless otherwise indicated.

[am. B.C. Regs. 183/98, s. 1; 466/98, s. 1; 53/2000, Sch. 1, s. 2.]

Workers Compensation Act prevails

2 If there is a conflict between the *Workers Compensation Act* or a regulation under that Act, and this regulation, the *Workers Compensation Act*, or the regulation made under that Act, prevails.

Section 54 of Act does not apply to range use

2.1 (1) In section 54 (1) of the Act, **"timber harvesting"** does not include operations authorized by a licence or permit under the *Range Act*.

(2) In section 54 (2) of the Act, **"developing natural resources other than timber"** does not include operations authorized by a licence or permit under the *Range Act*.

[en. B.C. Reg. 53/2000, Sch. 1, s. 3.]

Part 2 — Road Layout and Design

Exemptions from Act requirement for road permit and road use permit

2.2 (1) A person using a road on Crown land for a minor salvage operation is exempt from section 54 (1) of the Act if

- (a) the road has not been deactivated,
- (b) the road is not modified to allow the use, and
- (c) the road is used for a period of less than 60 days.

(2) Despite subsection (1), a person is not exempt under that subsection if the district manager notifies the person that the district manager has reasonable grounds to believe that the use of the road will

- (a) materially affect the use of the road by others, or
- (b) adversely impact forest resources.

- (3) A person who is exempt under subsection (1) must, with respect to their use of the road,
- (a) notify any holders of road permits and road use permits for the road of the start date of road use at least 48 hours before the start of the road use,
 - (b) if the road is not subject to a road permit, road use permit, special use permit, cutting permit, or timber sale licence without a cutting permit, maintain the road as if they were using the road under the authority of a road permit, until they stop using the road for the minor salvage operation, and
 - (c) if the road is subject to a road permit, road use permit, special use permit, cutting permit, or timber sale licence without a cutting permit,
 - (i) contribute a reasonable amount for the routine maintenance of the road, and
 - (ii) pay for, or repair, damage to the road caused by their use.

[en. B.C. Reg. 53/2000, Sch. 1, s. 4.]

Exemption from district manager approval of road layout and design for construction

2.3 A person referred to in section 60 (1) of the Act who prepares a road layout and design is exempt from the requirement in that section to obtain the district manager's approval of the road layout and design if all the following requirements are met:

- (a) the road is wholly contained in a cutblock, and is authorized in a road permit, a cutting permit or a timber sale licence that does not provide for a cutting permit;
- (b) the road is located in a community watershed, and
 - (i) a soil erosion field assessment carried out in accordance with section 5 does not indicate a high or very high surface soil erosion hazard, or
 - (ii) soil erosion potential mapping carried out under section 12 of the Operational Planning Regulation indicates that the area does not have a high or very high soil erosion potential;
- (c) the road will not be in areas with a moderate or high likelihood of landslides as determined by a terrain stability field assessment under section 4 of this regulation;
- (d) the district manager does not give notice to the person before the commencement of the construction, requiring the road layout and design to be submitted for approval.

[en. B.C. Reg. 53/2000, Sch. 1, s. 4.]

Exemption from district manager approval of road layout and design for modification

2.4 (1) A person referred to in section 60 (1) of the Act who prepares a road layout and design is exempt from the requirement in that subsection to obtain the district manager's approval of the road layout and design, if the road layout and design is for a stream culvert that is not a major culvert, and either of the following applies:

- (a) the modification is not carried out in a community watershed, a fish stream or a direct tributary to a fish stream;
- (b) the modification is carried out in a community watershed, a fish stream or a direct tributary to a fish stream, and

- (i) the modification is of an emergency nature,
- (ii) timing windows and measures described in section 13 (1) (h) (i) are in place, or
- (iii) if no timing windows or measures are in place, the person
 - (A) in accordance with subsection (2), notifies a designated environment official of the proposed work, including the location of the work, the date the work is estimated to start and the potential impact on forest resources, and
 - (B) complies with subsection (4).

(2) A person notifying a designated environment official of the timing of the work under subsection (1) (b) (iii) must ensure that the notification is made as soon as practicable, and the timing is realistic bearing in mind all the circumstances.

(3) On receipt of a notice referred to in subsection (2), the designated environment official may give site specific direction setting out measures for the work, and the period of time during which the work may be done, to the person who gave the notice.

(4) The person giving the notice to the designated environment official under subsection (1) (b) (iii) must comply with the designated environment official's direction referred to in subsection (3), if the direction is given before the date the work is estimated, in the notice, to start.

(5) Subsection (1) does not apply if, before the commencement of a modification, the district manager gives notice to the person referred to in section 60 (1) of the Act that a road layout and design for the modification must be submitted for approval.

[en. B.C. Reg. 53/2000, Sch. 1, s. 4.]

Road layout and design reviews

3 (1) The district manager may, in a notice given to a person who submits a road layout and design for approval, require the person to refer the proposed road layout and design to resource agencies specified by the district manager, before approval by the district manager and for a period of time specified by the district manager.

- (2) A person who receives a notice under subsection (1) must
 - (a) comply with the requirements of the notice,
 - (b) review all written comments received during the period for review and comment, and
 - (c) make any revisions to the proposed road layout and design that the person considers appropriate.
- (3) A person who receives a notice under subsection (1) must submit with the proposed road layout and design
 - (a) a copy of each written comment received under subsection (2) in respect of the proposed road layout and design, and
 - (b) a summary of all revisions made to the proposed road layout and design under subsection (2).
- (4) If a road layout and design is referred to a resource agency, the agency may request that the person who received a notice under subsection (1) send one or more of the assessments that are related to the road layout and design to the resource agency within a reasonable time required in the notice, and the person must comply with the request.

Selecting road location

4 (1) A person required to prepare a road layout and design when identifying the road location for the purposes of section 6 (1) (a), must

(a) select and locate the road location in order to accomplish the objectives of higher level plans within the constraints of any approved operational plan, cutting permit, road permit or special use permit, and

(b) select stream crossings so that

(i) channel and bank disturbances at the crossing, or immediately upstream and downstream, can be prevented or mitigated, and

(ii) any bridge or culvert will be stable.

(2) A road must be located outside a riparian management area, except for crossings, unless in the opinion of the district manager,

(a) no other practicable option exists, or

(b) locating the road outside the riparian management area will create a higher risk of sediment delivery.

(3) A road in a community watershed must not

(a) be located within a 100 m radius upslope of a known community water supply intake, unless the district manager and designated environment official agree that the road may be located closer to the intake, or

(b) interfere with the known subsurface flow path of a drainage area that contributes to a spring.

(4) Subsection (3) (a) does not apply to a road servicing a known community water supply intake.

(5) Subject to subsection (8.1), before a person required to prepare a road layout and design carries out road construction or modification or deactivation, the person must carry out a terrain stability field assessment, if the area has

(a) a moderate or high likelihood of landslides, based on terrain stability hazard maps,

(b) unstable or potentially unstable terrain, based on reconnaissance terrain stability maps, if no terrain stability hazard mapping has been done,

(c) slope gradients greater than 60%, if no terrain stability hazard mapping or reconnaissance terrain stability mapping has been carried out,

(d) indicators of slope instability, or

(e) been identified by the district manager as requiring a terrain stability field assessment.

(6) Before a person required to prepare a road layout and design carries out road construction or modification or deactivation, the person must

(a) carry out an assessment to determine the riparian classes of those streams, wetlands and lakes, and

(b) identify fish streams in community watersheds

that are in or adjacent to the proposed road or road work.

(7) Subject to subsection (8.1), before a person required to prepare a road layout and design carries out road construction or modification, within an area that is a known scenic area, the person must carry out a visual impact assessment that demonstrates that the road work is consistent with the established visual quality objectives for that area.

(8) Subject to subsection (8.1), before a person required to prepare a road layout and design carries out road construction or modification, the person must carry out an archaeological impact assessment that meets the requirements of the minister responsible for the *Heritage Conservation Act* if the district manager is satisfied that the assessment is necessary to adequately manage and conserve archaeological sites in the area affected by the road or road work.

(8.1) Subsections (5) (a) to (d), (7) and (8) do not apply to a road modification, in relation to the repair of, or physical change to, an existing road, if the modification consists of replacing or adding a stream culvert or a bridge, or providing structural repairs to a bridge or major culvert, unless the person required to prepare the road layout and design knows, or could reasonably be expected to know, that the proposed work may contribute to slope instability, in which case subsection (5) (a) to (d) applies, but subsections (7) and (8) do not.

(9) A terrain stability field assessment required under subsection (5) must be carried out by a qualified registered professional.

(10) A stream, wetland or lake has the riparian management area made up of its riparian reserve zone and riparian management zone, whether or not the stream, wetland or lake or its riparian management area, riparian reserve zone or riparian management zone are identified, or are shown with the correct riparian classification, in an operational plan or road layout and design.

(11) For the purposes of subsection (10), a stream, wetland or lake is not shown with an incorrect riparian classification in an operational plan or road layout and design, by reason only that the law that applied to the plan or design at the time it was approved or given effect is subsequently changed, unless an enactment specifically provides otherwise.

[am. B.C. Regs. 183/98, s. 2; 466/98, s. 2; 53/2000, Sch. 1, s. 5.]

Soil erosion field assessments in community watersheds

5 Before a person required to prepare a road layout and design carries out road construction or modification within a community watershed, the person must carry out a soil erosion field assessment for all areas where road construction or modification is proposed, unless soil erosion potential mapping carried out under section 12 of the Operational Planning Regulation indicates that the area does not have a high or very high soil erosion potential.

Content of road layout and design

6 (1) A person required to prepare a road layout and design must ensure that it includes all of the following:

(a) a map showing the location of the road, as determined by a field traverse, with the road located on the map by reference to

(i) survey references,

(ii) any stream or lake crossings, and

(iii) any topographic features that may control road location;

(b) a map showing the boundary of any riparian management area in or adjacent to a proposed road other than at a crossing of a stream, wetland or lake;

(c) Repealed. [B.C. Reg. 53/2000, Sch. 1, s. 6.]

(d) the results of a road location survey, which includes plans, profiles and cross sections, if

(i) there is a moderate or high likelihood of landslides, based on a terrain stability field assessment,

(ii) Repealed. [B.C. Reg. 53/2000, Sch. 1, s. 6.];

(e) in accordance with section 4 (6), the riparian class of streams, wetlands and lakes, and the identification of fish streams in community watersheds;

(f) the location of known licensed domestic water supply intakes;

(g) actions, if any, that are necessary to adequately manage and conserve archaeological sites;

(h) the road design specifications;

(i) the drainage design specifications for the road;

(j) vegetation specifications;

(k) the actions, if any, that will be taken to adequately manage and conserve the known non-timber forest resources that may impact on or be impacted by the road location;

(l) measures referred to in section 8 (1) (g) and (h);

(m) the statements referred to in section 8 (4) to (6);

(n) with respect to a measure proposed under section (8) (1) (g) for an area with a moderate or high likelihood of landslides as determined by a terrain stability field assessment under section 4, either

(i) a statement made by a qualified registered professional, that the measure is the least likely measure to result in a landslide, or

(ii) an analysis made by a qualified registered professional, of the likelihood of a landslide, the nature of any remedial actions and the potential consequences of a landslide.

(2) The person required to prepare the road layout and design must ensure that

(a) a terrain stability field assessment required under section 4 (5) is prepared by a qualified registered professional, and

(b) a soil erosion field assessment required under section 5 is carried out by a qualified registered professional.

(3) Repealed. [B.C. Reg. 53/2000, Sch. 1, s. 6.]

(4) A professional forester, on behalf of the person referred to in subsection (1), must sign and seal a statement

(a) that the assessments under sections 4 (6) to (8) and 5 have been carried out, and

(b) that the road layout and design is consistent with the results and recommendations of those assessments.

(5) The road layout and design must contain the signature of the person who is required to prepare it or a person who has authority to sign on behalf of that person.

[am. B.C. Regs. 183/98, s. 3; 466/98, s. 3; 53/2000, Sch. 1, s. 6.]

Section Repealed

7 Repealed. [B.C. Reg. 53/2000, Sch. 1, s. 7.]

Road design

8 (1) A person required to prepare a road layout and design when determining the road design specifications for the

purposes of section 6 (1) (h) must address all of the following:

(a) road widths designed to accommodate the vehicle sizes and traffic volume contemplated under the operational plan, road permit or special use permit;

(b) clearing widths of the minimum required to accommodate the following:

(i) road prism;

(ii) user safety;

(iii) subgrade drainage;

(iv) subgrade stability;

(v) areas for the placement of slash, debris and other waste;

(vi) operation of equipment;

(vii) snow removal;

(viii) fencing and other structures that are ancillary to the road;

(ix) pits or quarries;

(x) landings;

(c) road alignments or other measures designed to provide for user safety;

(d) fill slope angles designed to not exceed the angle of repose of the soil or rock materials;

(e) cut slope angles designed to remain stable over the expected life of the road, unless

(i) sliding of soil particles or thin sheets of soil particles from the cutbank, or

(ii) sloughing of the cut bank

cannot reasonably be expected to contribute to slope failures;

(f) actions that will be taken to ensure that the road surface is above the water table during periods when the road will be in operation;

(g) measures to maintain slope stability if the road will cross areas with a moderate or high likelihood of landslides as determined by a terrain stability field assessment under section 4;

(h) measures to maintain water quality in a community watershed in areas with a high or very high soil erosion hazard as determined by a soil erosion field assessment under section 5.

(2) Without limiting subsection (1), a geometric road design must be carried out, based on the road location survey data referred to in section 6 (1) (d).

(3) The person required to prepare the road layout and design must ensure that the measures referred to in subsection (1) (g) and (h) are prepared by a qualified registered professional.

(4) A qualified registered professional must sign and seal a statement that the terrain stability field assessment referred to in subsection (1) (g) was carried out and that the proposed measures to maintain slope stability referred to in subsection (1) (g) are included in the geometric road design.

(5) The measures referred to in subsection (3) must state whether or not the resulting road construction or modification work requires a written statement from a qualified registered professional under section 12 (1) (c)

based on the complexity of the proposed work, or because the extent and nature of the work actually carried out leading up to completion is not readily discernible after completion.

(6) The person referred to in section 11 (2) (c) or (4.1) (c) must provide a statement that the person has reasonable grounds to believe that leaving or placing stumps, roots and embedded logs in the road prism will not significantly increase the risk of a failure of the road subgrade.

[am. B.C. Regs. 183/98, s. 4; 466/98, s. 4; 53/2000, Sch. 1, s. 8.]

Drainage design

9 (1) A person must specify designs and measures for all of the following:

- (a) crossings of fish streams that will provide safe passage for fish;
- (b) bridges, culverts and fords that will maintain surface drainage patterns;
- (c) bridges and culverts that
 - (i) are structurally secure, and
 - (ii) will prevent or mitigate channel and bank disturbance;
- (d) culverts, that remain structurally sound even when debris cannot pass through the culvert during minimum design peak flow;
- (e) culvert inlets and outlets that will provide protection from soil erosion and mass wasting for flows at design peak flow;
- (f) culverts that will maintain stability of the stream channel on all streams;
- (g) cross-drain culvert location and ditching that will prevent ditch water accumulation and accelerated ditch erosion;
- (h) new bridges, their approaches, and stream culvert structures that will meet the peak flow criteria set out in the following table:

	Minimum design peak flow
All stream culverts	100 year return period
Permanent bridges	100 year return period
Temporary bridges	50 year return period

(i) management of anticipated debris for new bridges, their approaches and stream culverts.

(2) Despite subsection (1) (h) if the components of a bridge that are vulnerable to damage at times of peak flow are removed at times of risk, the bridge must be designed to pass expected flows for the seasons of use.

(3) Despite subsection (1) (h), stream culverts in community watersheds must be designed to pass the 100 year return peak discharge without the stream surface rising above the top of the culvert inlet, unless a professional engineer has designed inlet and outlet protection measures.

[am. B.C. Reg. 53/2000, Sch. 1, s. 9.]

Requirements for designs of bridges, culverts, etc.

10 (1) A person required to prepare a road layout and design must ensure that a professional engineer has taken design responsibility for the following:

(a) cattle guard fabrication, and the construction or modification of

(i) retaining walls greater than 1.5 m high, and

(ii) other specialized structures the design of which falls within the practice of professional engineering as defined in the *Engineers and Geoscientists Act*;

(b) bridges, unless

(i) the bridge is single span, between 6 m and 12 m centre to centre of bearings, and a professional engineer or professional forester has determined that all of the following apply:

(A) a professional forester has taken, is taking, or will take design responsibility;

(B) the bridge is located outside the wetted perimeter at design high water;

(C) the channel is historically stable with erosion resistant banks;

(D) the bridge superstructure will be non-composite;

(E) the bridge substructure

(I) bears on the original ground, an excavation below original ground or a shallow ballast layer that assures full bearing of the substructure unit, and

(II) consists of cribs up to and including 4 m high, or consists of sills or pads up to and including 1.5 m high;

(F) the person preparing the design is preparing it based on standard drawings, tables, charts and other tools that

(I) are prepared by a professional engineer,

(II) individually and together reproduce the specific structure to be used at the site, including member size and connections, and

(III) are referenced in the road layout and design, or

(ii) the bridge is less than 6 m in span centre to centre of bearings, and the requirements in subparagraph (i) (B) to (F) apply;

(c) major culverts.

(1.1) A professional engineer must provide a structural analysis of portable bridge superstructures that are being reused at a new site, unless

(a) the bridge superstructure was originally designed by a professional engineer,

(b) the bridge superstructure will be reused at the new site to carry the original design loads or lighter loads, and

(c) a qualified inspector carries out an inspection of the bridge at the new site before the first use of the bridge and is unable to detect any damage or deterioration in the bridge.

(2) A design for a bridge must

(a) be in accordance with the requirements of

(i) the Canadian Standards Association, Design of Highway Bridges, CAN/CSA-S6, and

(ii) the Canadian Foundation Engineering Manual

in effect at the time the design is done, and

(b) take into account logging trucks with unbalanced loads and off-centre driving.

[am. B.C. Reg. 53/2000, Sch. 1, s. 10.]

Part 3 — Construction and Modification

Road site preparation

11 (1) A person required to construct or modify a road in compliance with section 62 (1) of the Act must do all of the following when clearing the clearing width:

(a) fell all standing trees within the clearing width and fell any danger trees that have the potential to reach the proposed road surface;

(b) in areas where felled trees could reach streams or lakes

(i) directionally fell trees away from the stream or lake, unless that is the only practicable way the timber can be felled, and

(ii) use felling and yarding methods that prevent the stream bank from destabilizing;

(c) remove from within the road prism width

(i) stumps, roots, embedded logs, topsoil, and

(ii) soils that are not capable of supporting the road and applied vehicle loads.

(2) Despite subsection (1) (c), the person may leave or place stumps, roots and embedded logs in the road prism, if

(a) the stumps, roots and embedded logs are outside the road subgrade width on the downhill side,

(b) the area is not assessed as having a moderate or high likelihood of landslides, as determined by a terrain stability field assessment under section 4, and

(c) the person has prepared a statement in accordance with section 8 (6).

(3) Despite subsection (2) (a), a person may leave or place stumps, roots and embedded logs in the road prism within the road subgrade width, if

(a) the requirements of subsection (2) (b) and (c) are met,

(b) the road will be

(i) permanently deactivated within 5 years after construction, or

(ii) permanently deactivated more than 5 years, but not more than 10 years, after construction, if the person has reasonable grounds to believe, on the basis of assessments carried out more than 5 years after construction and at times the person considers appropriate, that the road is not likely to be at risk due to decomposition of the stumps, roots and embedded logs until the next assessment, and

(c) any deactivation prescription and deactivation works will incorporate measures to remove stumps, roots and embedded logs that may reasonably be expected to fail and de-stabilize the road fill.

(4) Despite subsection (1) (c), a person may use stumps and logs as retaining structures under or against the fill,

if

- (a) they are used for the purposes of measures prepared under section 8 (3) to provide slope stability, and
- (b) the road will be permanently deactivated in accordance with subsection (3) (b) and (c).

(4.1) Despite subsection (1) (c), a person may invert stumps so that the root mats of the stumps support the fill material and may place corduroy or puncheon within the subgrade width to assist in supporting the required vehicle loads, if

- (a) the area is not assessed as having a moderate or high likelihood of landslides,
- (b) either the road fill is naturally stable or the road is designed and constructed so as to cause the fill to be stable, and
- (c) the person has prepared a statement in accordance with section 8 (6).

(5) Subsections (1) (c) and (2) to (4.1) do not apply to overlanding or snow roads.

(6) A person who constructs or modifies a road in compliance with section 62 (1) of the Act must dispose of slash and debris by one or more of the following methods:

- (a) scattering;
- (b) piling and burning;
- (c) burying;
- (d) endhauling.

(7) A person must not deposit slash, debris or erodible soil into a lake, wetland, stream, fisheries-sensitive zone or marine-sensitive zone, if the deposit is capable of

- (a) damaging fish habitat, or
- (b) causing the water to fail to meet its known water quality objectives.

(8) A person must not deposit slash and debris in a manner that would increase the likelihood of slope failure.

[am. B.C. Regs. 183/98, s. 5; 53/2000, Sch. 1, s. 11.]

Subgrade construction or modification

12 (1) A person required to construct or modify a road in compliance with section 62 (1) of the Act must comply with all of the following when constructing or modifying the subgrade of the road:

- (a) build drainage systems, whether temporary or permanent, concurrently with subgrade construction and ensure that the drainage systems are fully functional to accommodate surface and subsurface drainage runoff during the construction period;
- (b) ensure that the construction is carried out in general conformance with requirements of the road layout and design;
- (c) ensure that a qualified registered professional signs and seals a statement that construction or modification work resulting from measures referred to in section 8 (1) (g) and (h) has been carried out in general conformance with the road layout and design, if such a statement is required by the road layout and design under section 8 (5);
- (d) in rock work, use only rock drilling and blasting techniques that

- (i) are scheduled and selected to minimize disturbance to known forest resources and existing improvements,
 - (ii) minimize fly rock, and
 - (iii) reduce the potential for landslides or slope instability;
- (e) locate borrow pits, quarries, waste areas and endhaul disposal sites in areas where eroded soil materials or other harmful materials will be prevented from entering streams;
- (f) keep equipment fueling or servicing fluids controlled or contained to avoid damage to forest resources;
- (g) if the construction or modification of the subgrade is being carried out on an area that has a moderate or high likelihood of landslides, as determined by a terrain stability field assessment under section 4, carry out a construction survey that identifies, in the field, the road centre line location and the limits for slope construction, unless
 - (i) a qualified registered professional inspects the road construction or modification and signs and seals a statement referred to in paragraph (c), in which case the construction survey is not required, or
 - (ii) the modification is replacing or adding a stream culvert or a bridge, or providing structural repairs to a bridge or a major culvert;
- (h) if the road being constructed or modified is a snow road, minimize ground disturbance by using clean compacted snow and ice as fill material;
- (i) protect fill, that might otherwise erode, if the fill is located on the active flood plain of a stream;
- (j) not cross the stream with equipment at more than one location within the clearing width, unless authorized by the district manager;
- (k) not place the wheels or tracks of ground-based equipment within 5 m of a stream bank, unless
 - (i) required for habitat restoration work,
 - (ii) at a designated crossing site, or
 - (iii) in the opinion of the district manager,
 - (A) no other practicable option exists, or
 - (B) locating the road more than 5 m from the stream bank will create a higher risk of sediment delivery to the stream;
- (l) remove gravel or fill from riparian management areas identified in an operational plan only with the prior approval of the district manager, who must not approve the removal without first consulting a designated environment official;
- (m) not fuel or service equipment within the riparian management area of a stream or wetland, or within 30 m of a lakeshore identified in an operational plan, unless
 - (i) the equipment is hand held, or
 - (ii) the fuelling or servicing is
 - (A) required for carrying out fire fighting activities,
 - (B) required to move broken down equipment, or

(C) authorized by the district manager.

(2) A person required to construct or modify a road in compliance with section 62 (1) of the Act, who constructs or modifies, as part of the road,

(a) a retaining wall that is more than 1.5 m high, or

(b) another specialized structure, the design of which falls within the practice of professional engineering as defined in the *Engineers and Geoscientists Act*,

must ensure that a professional engineer signs and seals a statement that the structure is in general conformance with the design drawings and specifications prepared by a professional engineer.

(3) A person may modify the road layout and design to address unforeseen site conditions.

(4) A person must not modify a road layout and design under subsection (3) if the modification may adversely affect other forest resources, unless authorized to do so by the district manager.

(5) At the completion of the subgrade construction or modification, any borrow pits, quarries, waste areas, and endhaul disposal sites must be left in a stable condition.

(6) Without limiting subsections (1) to (5), a person required to construct or modify a road in compliance with section 62 (1) of the Act in a community watershed must do all of the following:

(a) notify water licensees or their representatives, and designated environment officials of the start date of road construction or modification at least 48 hours before the start of road construction or modification;

(b) ensure that rock that is from a known acid generating rock formation is not used for road construction or modification;

(c) ensure that road construction or modification does not cause the quality of water to fail to meet the known water quality objectives.

(7) If a person who is constructing or modifying a road finds a previously unidentified fisheries-sensitive zone, the person must modify or stop the construction or modification that is in the immediate vicinity of the fisheries-sensitive zone to the extent necessary to refrain from damaging it.

[am. B.C. Regs. 466/98, s. 5; 53/2000, Sch. 1, s. 12.]

Drainage construction

13 (1) A person required to construct or modify a road in compliance with section 62 (1) of the Act must do all of the following when constructing the drainage system for the road:

(a) construct bridges, culverts, fords and ditches that are necessary to maintain surface drainage patterns;

(b) install bridges, culverts or fords at all crossings of permanent or seasonal streams;

(c) ensure that the drainage system

(i) intercepts surface or subsurface drainage from the cut slope,

(ii) drains ditches and controls ditch erosion,

(iii) prevents ponding of water where road stability may be compromised,

(iv) prevents water from being directed onto potentially unstable slopes or soil material,

(v) minimizes the amount of sediment entering streams, and

- (vi) meets the requirements of any design approved by the district manager;
 - (d) ensure that any stream and cross-drain culverts are structurally sound, functional, and stable;
 - (e) prevent road embankment and waste materials from interfering with waterflow at culvert inlets and outlets;
 - (f) at culvert outlets protect fill that is unstable or susceptible to erosion with erosion-resistant materials or drainage structures;
 - (g) construct bridges and culverts to prevent or mitigate stream bank disturbance and to avoid adversely affecting downstream water quality;
 - (h) construct crossings in fish streams
 - (i) in accordance with timing windows and measures that are provided in writing by a designated environment official in order to adequately manage and conserve aquatic resources, and
 - (ii) at a time and in a way that provides safe fish passage and protects fish habitat at the crossing and immediately upstream and downstream of the structure;
 - (i) install ditch blocks immediately downstream of all cross-drain culvert inlets, except where ditch water converges at the culvert inlet;
 - (j) use geotextile filter fabrics to prevent migration of fine particles on gravel surfaced log stringer bridges and log culverts;
 - (k) construct a catch basin or other sediment control device adjacent to cross-drain culverts if sedimentation may adversely affect improvements and forest resources;
 - (l) construct fords and approaches of erosion-resistant materials capable of withstanding the intended traffic;
 - (m) provide bridge or culvert material storage and equipment turnaround sites outside riparian management areas identified in operational plans if the normal clearing width cannot accommodate the sites;
 - (n) fabricate all permanent bridge and culvert materials according to the standards of the Canadian Standards Association in effect at the time of the approval of the road layout and design by the district manager;
 - (o) after construction of a bridge that is described in section 10 (1) (b) (i), ensure that a professional forester or professional engineer signs and seals a statement that the entire bridge is in general conformance with the design drawings and specifications;
 - (p) after construction of a bridge that is described in section 10 (1) (b) (ii), ensure that the person responsible for preparing the design signs a statement that the entire bridge is in general conformance with the design drawings and specifications;
 - (q) after construction of a major culvert or a bridge other than one referred to in paragraph (o) or (p), ensure that a professional engineer signs and seals a statement that the entire bridge or culvert is in general conformance with the design drawings and specifications.
- (2) During and at the completion of construction activities, the person responsible for the construction or modification of the road must
- (a) obtain and retain any pile driving records and, for new materials, mill test certificates, in-plant steel fabrication drawings, concrete test results, compaction results, and other pertinent field and construction data, and

(b) prepare as-built drawings and retain them for the life of the structure.

[am. B.C. Reg. 53/2000, Sch. 1, s. 13.]

Road surfacing

14 A person required to construct or modify a road in compliance with section 62 (1) of the Act must apply surface materials that will

(a) allow the road to carry the design wheel loads if it could not do so otherwise during the periods of use, or

(b) minimize the surface erosion of the road if it would otherwise have adversely affected adjacent streams, wetlands, or lakes.

Revegetation

15 (1) A person required to construct or modify a road in compliance with section 62 (1) of the Act, or to deactivate a road under section 64 of the Act must, in the first growing season after completion of construction, modification or deactivation, apply seed in accordance with vegetation specifications approved as part of the road layout and design to all exposed soil that will support vegetation in all of the following areas:

(a) inactive borrow pits;

(b) waste areas;

(c) road cuts;

(d) fill slopes;

(e) other disturbed areas within the clearing width.

(2) Areas seeded under subsection (1) must be revegetated to the satisfaction of the district manager within 2 years of the completion of construction, modification or deactivation.

(3) Seeding under subsection (1) after deactivation activities have been completed must be compatible with measures to grow trees in accordance with section 25 (1) (k).

(4) The district manager may authorize a person to revegetate using different processes and within different time periods than are specified in subsections (1) and (2), if satisfied that the different process or period adequately manages and conserves the forest resources.

Part 4 — Maintenance

Bridge and major culvert inspection, evaluation and maintenance

16 (1) A person required to maintain a road under section 63 of the Act must ensure that a qualified inspector carries out an inspection of bridges and major culverts, and makes a record of the inspection, at least once every 3 years after they are constructed, unless

(a) a longer period is specified by a professional engineer as part of the inspection record, in which case it must be produced within that longer period, or

(b) the stringers or any portion of the structural components of the bridge substructure are untreated wood, in which case the inspection must be carried out at least once every 2 years after construction.

(2) Without limiting subsection (1), a person must ensure that a person who is qualified as set out in that subsection carries out an inspection of, and produces an inspection record concerning, a bridge or major culvert

(a) after the occurrence of an event that may cause damage to the structure, and

(b) more often than is required under subsection (1) and at a level of frequency that a professional engineer determines in writing to be adequate for the continuing safe use of the bridge, if an inspection detects structural defects or if the defects are otherwise evident.

(3) An inspection record of a bridge or major culvert under this section must include all of the following:

(a) the date of the inspection;

(b) an assessment of the condition of the components of the structure;

(c) a recommendation for any repairs that may be required and a schedule for those repairs;

(d) the date of the next scheduled inspection;

(e) the length of time a bridge has been at its current site;

(f) whether a bridge was designed and constructed to be at the current site for no more than 15 years.

(4) A person required to maintain a road under section 63 of the Act must retain a copy of the inspection record for one year beyond the actual life of the structure at the site.

[am. B.C. Regs. 183/98, s. 6; 53/2000, Sch. 1, s. 14.]

Follow up to inspection of bridge and major culverts

17 (1) A person required to maintain a road under section 63 of the Act must if, as a result of an inspection under section 16, the qualified inspector is of the opinion that the bridge may have structural deficiencies,

(a) correct the deficiencies,

(b) close, remove or replace the bridge before users or downstream improvements and forest resources are placed at risk,

(c) restrict traffic loads to a safe level, or

(d) ensure that a professional engineer evaluates the bridge according to the requirements of the Canadian Standards Association, Design of Highway Bridges, CAN/CSA-S6, as amended up to the date of the evaluation.

(2) For those bridges that are reported under section 16 (3) as being designed and constructed to be at the current site for no more than 15 years that are now expected to be at their current site for more than 15 years,

(a) a person required to maintain the road under section 63 must ensure that a professional engineer evaluates the bridge to determine if the bridge meets peak flow criteria, including any debris considerations, for a 100 year return period, and

(b) if the professional engineer determines that the bridge does not meet peak flow criteria, including any debris considerations, for a 100 year return period, the person required to maintain the road must

(i) modify the bridge and its approaches in accordance with the Act and regulations to meet peak flow criteria, including any debris considerations, or

(ii) remove or replace the bridge.

(3) If a professional engineer determines that a bridge is unable to carry its original design load, the person required to maintain the road must place a sign on each bridge approach stating the actual capacity of the bridge.

Road inspection and maintenance

18 (1) A person who maintains a road under section 63 of the Act must inspect the road and repair the road to ensure that

- (a) the structural integrity of the road prism and clearing width are protected,
- (b) the drainage systems of the road are functional,
- (c) the transport of sediment from the road prism and its effects on other forest resources are minimized,
- (d) safe passage for fish is provided at fish stream crossings constructed or modified after June 15, 1995, and
- (e) the road can safely be used for purposes referred to in section 54 (1) or (2) of the Act.

(2) Road maintenance inspections under subsection (1) must be carried out at a frequency that takes into account

- (a) the risk to fish streams caused by the road's proximity to the streams, and
- (b) the risk to the users of the road with respect to
 - (i) the frequency and type of road use, and
 - (ii) the amount of precipitation to which the road is subject.

(3) If the person required to maintain the road under section 63 of the Act, or the district manager, is of the opinion that there are deficiencies in the road, the person required to maintain the road must remedy the deficiencies by the earliest of the following:

- (a) a time that is reasonable taking into account the risk to the road, its users, and the environment;
- (b) a time specified in an inspection record prepared by the person;
- (c) a time determined by the district manager.

(4) For the purposes of subsection (1) (c), road maintenance activities in a community watershed must not cause the quality of water to fail to meet the water quality objectives established by the Ministry of Environment, Lands and Parks.

[am. B.C. Reg. 53/2000, Sch. 1, s. 15.]

Part 5 — Deactivation

Designated environment official may set timing windows and measures governing road deactivation

19 For road deactivation prescriptions that do not require the approval of the district manager, the designated environment official may specify timing windows and measures required to adequately manage and conserve aquatic resources that apply to deactivation works in and around stream crossings.

Road deactivation objectives

20 (1) A person who prepares a road deactivation prescription under section 64 of the Act must ensure that the prescription provides for or addresses all of the following requirements, and a person who carries out road deactivation work, whether or not pursuant to a prescription, must ensure that the deactivation work provides for or addresses all of the following requirements:

- (a) stabilization of the road prism and clearing width;
- (b) restoration or maintenance of the surface drainage patterns, and control of subsurface drainage, consistent with natural drainage patterns;
- (c) the types of vehicle usage referred to in the forest development plan under section 18 (1) (n) (v) of the Operational Planning Regulation, and integrated resource management and user safety objectives for that vehicle usage;
- (d) deactivation at a level commensurate with the period of time during which regular use of the road is to be suspended, and with the risk to other forest resources;
- (e) deactivation works in community watersheds that do not cause the quality of water to fail to meet the known water quality objectives;
- (f) safe fish passage and protection of fish habitat at stream crossings immediately upstream and downstream of the stream crossing structure, and the timing and description of the work to achieve these objectives;
- (g) minimization of the impact of silt and sediment transport on other forest resources;
- (h) timing windows and measures for deactivation works in and around stream crossings developed and made available by a designated environment official, if the person is exempted under subsection (2) from obtaining the district manager's approval for the prescription;
- (i) in the case of permanent deactivation, future vehicle access, if the provision of that access
 - (i) does not adversely affect forest resources, and
 - (ii) can be accommodated without additional expenditure.

(2) A person who is required to prepare a deactivation prescription under section 64 of the Act is exempted from obtaining the district manager's approval for that prescription, unless

- (a) timing windows and measures for deactivation works in and around stream crossings have not been developed and made available by a designated environment official, or the deactivation work will not be carried out in accordance with those terms and conditions,
 - (a.1) the road will be permanently deactivated, and there are existing pipe culverts at stream crossings along the road,
- (b) the road is in an area of moderate to high likelihood of landslides, as determined by a terrain stability field assessment under section 4,
- (c) the person will carry out semi-permanent deactivation for a road, and the district manager has advised that permanent deactivation is precluded under section 64 (11) (a) of the Act, or
- (d) the district manager notifies the person in writing that approval of a deactivation prescription is required.

(3) Without limiting subsection (1), a qualified registered professional must

- (a) prepare a prescription for deactivation work to reduce the likelihood of landslides in areas that have a moderate or high likelihood of landslides as determined by a terrain stability field assessment under

section 4, and

(b) if specified in the prescription, sign and seal a statement that the deactivation work was carried out in general conformance with the prescription.

(4) Repealed. [B.C. Reg. 466/98, s. 6 (b).]

(5) For the purposes of subsection (1) (d), the prescription must provide for one of the following types of deactivation:

(a) temporary deactivation if the regular use of the road is to be suspended for less than 3 years and the road is not a type referred to in paragraph (b);

(b) semi-permanent deactivation if

(i) regular use of the road is to be suspended for more than one year but less than 3 years, and either the road is in a remote location accessible only by air or water or in an area that has a moderate or high likelihood of landslides as determined by a terrain stability field assessment under section 4, or

(ii) regular use of the road is to be suspended for more than 3 years;

(c) permanent deactivation if the road will no longer be used by the person required to deactivate it under section 64 of the Act.

(6) A person who deactivates a road in a community watershed must notify water licensees or their representatives, and a designated environment official, of the start date of deactivation work at least 48 hours before the start of deactivation work.

[am. B.C. Regs. 466/98, s. 6; 53/2000, Sch. 1, s. 16.]

Modification of deactivation prescription for unforeseen site conditions

21 (1) A person who deactivates a road under section 64 of the Act must not modify a prescription prepared in accordance with section 20 (3) and (4) unless the change is agreed to by a person authorized in those subsections to prepare such prescriptions.

(2) To address unforeseen site conditions on a road deactivation project, a person who deactivates a road in accordance with section 64 of the Act may modify a prescription, originally approved by the district manager, without the authorization of the district manager if the person has reasonable grounds to believe that the change will not adversely impact forest resources.

(3) A person who deactivates a road under section 64 of the Act must not modify a prescription, originally approved by the district manager, without the authorization of the district manager if the change is expected to adversely impact forest resources or impact proposed future access objectives on the deactivated road.

Hazard warning

22 Before commencement of road deactivation activities, the person who is required to deactivate the road under section 64 of the Act must erect a sign at a location or locations, containing information

(a) sufficient to warn users of the road of the hazards that may be expected due to deactivation, if the road is open to traffic, and

(b) sufficient to warn potential users of the road that the road is closed to traffic, if that is the case.

[en. B.C. Reg. 53/2000, Sch. 1, s. 17.]

Inspection and remedial work after temporary or semi-permanent deactivation

23 A person responsible for maintaining the stability of the area that has been temporarily or semi-permanently deactivated must, while the road is deactivated,

- (a) carry out inspections of the area, at frequencies commensurate with the risk to the road, its users, and adjacent forest resources, to assess the adequacy of bridges, culverts and ditches, and the need for further drainage work, road surfacing and revegetation, and
- (b) remedy inadequacies found as a result of the inspections in paragraph (a) to satisfy the requirements of section 20 (1) and the requirements of any prescription.

[en. B.C. Reg. 53/2000, Sch. 1, s. 18.]

Section Repealed

24 Repealed. [B.C. Reg. 53/2000, Sch. 1, s. 18.]

Permanent deactivation

25 (1) A person who carries out permanent deactivation on a road must do so in accordance with any deactivation prescription that is required to be prepared or approved by the district manager, or modified under section 21, and must do all of the following:

- (a) remove bridge and log culvert superstructures;
- (b) if failure of a bridge or log culvert substructure would affect downstream values, remove the bridge or log culvert substructure;
- (c) to (j) Repealed. [B.C. Reg. 53/2000, Sch. 1, s. 19.]
- (k) in addition to revegetation requirements under section 15 (1), carry out measures, including the localized re-use of topsoils, to grow trees for soil erosion control purposes
 - (i) in areas that are not part of the net area to be reforested, but where trees can be reasonably expected to grow, and
 - (ii) using commercial species if practicable.

(2) The district manager may exempt a person from subsection (1) (k) if satisfied that the future use of the area may be incompatible with measures to grow trees.

[am. B.C. Reg. 53/2000, Sch. 1, s. 19.]

General wildlife measures in wildlife habitat areas

26 A person carrying out road construction or modification in a known wildlife habitat area must carry it out in accordance with general wildlife measures that are

- (a) established for application within the wildlife habitat area, and
- (b) made available to the person by the district manager or designated environment official at the time the wildlife habitat area is made known.

Transition for road layout and design or deactivation prescriptions

27 (1) In this section "**road layout and design or deactivation prescription**" means a road layout and design or deactivation prescription that is subject to section 2.3, 2.4, 6 (1) (n), 23 or 25 (1).

(2) Despite any other provision of this regulation, if a road layout and design or deactivation prescription

(a) is prepared by the district manager and put into force before July 1, 2000, or

(b) is submitted to the district manager for approval before July 1, 2000,

the road layout and design or prescription must comply with either

(c) this regulation and the Administrative Remedies Regulation as they were on March 1, 2000, or

(d) the following provisions:

(i) this regulation as it was on March 1, 2000 except for sections 2.3, 2.4 and 6 (1) (n);

(ii) sections 10 (1), 23, 24 and 25 (1) of this regulation as they were immediately before March 1, 2000;

(iii) the Administrative Remedies Regulation as it was immediately before March 1, 2000.

(3) Until July 1, 2000, a road layout and design or deactivation prescription that is submitted to the district manager for approval or put into force by the district manager must indicate whether it is in accordance with subsection (2) (c) or (2) (d).

(4) If a road layout and design or deactivation prescription indicates it is in accordance with subsection (2) (c), this regulation and the Administrative Remedies Regulation, as they were on March 1, 2000, apply.

(5) If a road layout and design or deactivation prescription indicates it is in accordance with subsection (2) (d), the following apply:

(a) this regulation as it was on March 1, 2000 except for sections 2.3, 2.4 and 6 (1) (n);

(b) sections 10 (1), 23, 24 and 25 (1) of this regulation as they were immediately before March 1, 2000;

(c) the Administrative Remedies Regulation as it was immediately before March 1, 2000.

[en. B.C. Reg. 53/2000, Sch. 1, s. 20.]

Note: *this regulation replaces B.C. Reg. 172/95*

[Provisions of the *Forest Practices Code of British Columbia Act*, R.S.B.C. 1996, c. 159, relevant to the enactment of this regulation: sections 198, 203, 204 and 213]