

This document has been developed to provide information to employees who monitor harvesting and engineering activities with information specific to proper culvert installation techniques in the Kamloops Business Area. This document will also help facilitate training for staff and contractors with culvert installation and monitoring of work following installation.

Forest Planning and Practices regulation

Natural surface drainage patterns

39(1) If an authorized person constructs a road, a temporary access structure or a permanent access structure on an area, **the person must maintain natural surface drainage patterns on the area both during and after construction.**

SFI 2022 Forest Management Standard

Objective 3. Protection and maintenance of water resources:

To protect the **water quality** and **water quantity** of rivers, streams, lakes, wetlands, and other water bodies.

Performance Measure 3.1.3. **Certified Organizations** shall **meet** or exceed **all applicable** federal, **provincial**, state, and local water quality **laws** and meet or exceed best management practices.

Indicators:

1. Program to implement federal, state, or provincial water quality best management practices during all phases of management activities.
2. Contract provisions that specify conformance to best management practices.
- 3. Monitoring of overall best management practices implementation.**

FP innovations is a research agency who completes research on forest operations and provides reports to member companies. BCTS is a contributing member to FPI. Information completed by FPI innovations has been listed for reference by BCTS staff, the documents below have been developed by FP Innovations.

Erosion and Sediment control practices: Pages 61-71

<https://library.fpinnovations.ca/en/viewer?file=%2fmedia%2fFOP%2fADV9N5.PDF#search=erosion%20guide&phrase=false>

- Precautionary measures should be in place to keep sedimentation to a minimum and from sediment entering the stream. Aggregate is the preferred material for armoring the inlet and outlet of the culvert.
- It is preferable to armor the fill slopes completely to the road surface regardless of deep fills or length of slope.
- Ditches should not deliver ditch water directly into the aquatic environment.

Erosion and Sediment Management: youtube.com

<https://www.youtube.com/watch?v=MehilfgTOQo>

Supplemental Information from BCTS public EMS site: Culvert Installation and Monitoring

Environmental Field Procedure – 04 – Roads, Bridges and Culverts

<https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/bc-timber-sales/ems-sfm-certification/corporate/efp-04-roads-bridges-culverts.pdf>

- This Environmental Field Procedure (EFP) applies to all BC Timber Sales (BCTS) licensees, permittees, and contractors (LPC), including their employees, agents, and subcontractors, involved in permanent and temporary road, bridge and culvert construction, maintenance, inspection, and deactivation within the scope of the BCTS Environmental Management System (EMS). It describes procedures to reduce the risk of negative impacts of these field activities on the environment.
- The Schedule R and Schedule C in the Timber Sale License indicate the detailed or general road construction specifications. The specifications include the required ditch depths which would indicate the maximum depth and length of cross drain culverts. This should be discussed in the pre-work around expectations of roads after Timber Sale License is complete.
- Sump pits on inlet end of cross-drain culverts can be used when planning for sedimentation delivery and minimizing the impact on water quality. These sump pits will cause the cross-drain culvert to be slightly perched.

Sediment and Erosion Control Field Guide: Pages 2-7

<https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/bc-timber-sales/ems-sfm-certification/business-area/kamloops/ka-sediment-and-erosion-control-field-guide.pdf>

- Instructions for culvert installation on page 2.
- Standard sediment and erosion control plan showing proper locations for cross drain culverts as a best practice.
- Seeding and armoring best practice on pages 6 and 7.
- Great document for sediment control.

Depth of Cross Drain Culverts: Page 250 Canadian Steel Drainage Handbook https://cspi.ca/wp-content/uploads/2021/04/csp_complete_handbook_101.pdf

- Page 250 indicates how much fill should be placed on top of culvert during installation. This is based upon culvert size.
- Refer to the Inside Diameter and Minimum Cover portion of Table HC-1.

