



Ministry of Forests
and Range

FFT Access Standards

Effective: January 15, 2010

These standards apply, in addition to the [General Standards for Ministry Funded Programs \(FS 1001\)](#) for activities funded under the Forest for Tomorrow (FFT) Program.

CONTENTS

ARTICLE 1: DEFINITIONS	1	4.3	Information Sharing	13
ARTICLE 2: OBJECTIVES OF FFT ACCESS	3	4.4	Road Tenures	13
2.1 General	3	4.5	Restoration Plans	16
2.2 Key Processes or Assumptions	4	ARTICLE 5: ROAD WORKS		17
2.3 Condition of the Access	6	5.1	Implementation	17
2.4 Shared Benefits	6	5.2	Road Inspection	17
ARTICLE 3: ACCESS REQUIREMENTS	7	5.3	Road Restoration	18
3.1 Responsibilities	7	5.4	Road Surface Maintenance	22
3.2 Contractual and Legal Requirements	9	5.5	Road Structural Maintenance	25
3.3 Project Implementation	9	5.6	Road Treatment at Project End	25
ARTICLE 4: FFT ACCESS ADMINISTRATION	13	APPENDIX I – SAMPLE DOCUMENTS		32
4.1 General	13			
4.2 Road Maps	13			

ARTICLE 1: DEFINITIONS

In this document:

“**culvert**” means a pipe, arch or box, or a log structure, not greater than 6 m in span that is located below the surface of a road and is designed to carry water from one side of the road to the other;

“**discontinue and close**” means a formal notification by MFR that the ministry no longer administers a road as a forest service road, in accordance with section 121 (9) of the *Forest Act*;

“**ford**” means a natural or constructed shallow place in a stream where one can cross in a vehicle

“**forest resource**” means a resource or value associated with the forests of British Columbia, and includes: soils; visual quality; timber; forage and associated plant communities; water; fish; wildlife; biodiversity; recreation resources; resource features; and cultural heritage resources.

“**forest service road (FSR)**” means a road owned by the BC Ministry of Forests and Range (MFR), and as defined in section 1 of the *Forest Act*.

“**Global Positioning System (GPS)**” means a satellite navigation system that enables the receiver to compute position.

“hazard” (in general terms) means a source of potential harm, or a situation for causing harm, in terms of human injury; damage to health, property, the environment, and other elements of value; or some combination of these. (A landslide is one example of a hazard);

“industrial use” means access for harvesting, for tree planting requiring more than 12 months to complete, or silviculture treatments requiring transportation of machinery, in accordance with section 22.1 of the *Forest and Range Practices Act*;

“non-tenured road” means an existing forest road on Crown land that is not being used under any authorization by MFR;

“professional engineer” means the same as given in the *Engineers and Geoscientists Act*;

“risk” (in general terms) means the chance of injury or loss as defined as a measure of the probability and severity of human injury; an adverse effect to health, property, the environment, or other elements of value, or some combination of these;

“Road Permit” is a permit issued under section 115 of the *Forest Act* to authorize road construction and maintenance by someone who has a right to harvest timber.

“Road Use Permit” is a permit issued to an industrial user under section 115 of the *Forest Act* to authorize use of a forest service road.

“road prism” means the width bounded by the top of the road cut slope on one side and the toe of the road fill on the other side;

“road tenure means those licences or permits issued by MFR to authorize the construction and use roads, and includes Road Permits, Road Use Permits, cutting permits, special use permits and various timber harvesting licences that authorize road use;

“safe fish passage” means passage of fish through culverts for the purposes of spawning, rearing or migration.

“seasonal road maintenance” means to construct water bars, cross ditches and other elements to back up cross drain and stream culverts and otherwise better facilitate drainage as part of wilderness road level of maintenance;

“turnout” means a short auxiliary lane of sufficient width to provide space for safe passage of motor vehicles;

“wilderness road” means a road that is not being used by industrial users and is maintained to a lower standard as described in section 81 of the *Forest Planning and Practices Regulation*;

ARTICLE 2: OBJECTIVES OF FFT ACCESS

2.1 *General*

The objectives of FFT access are to provide a safe, cost effective and environmentally sound road or road network to fully meet the expected needs of any FFT project, including a project that requires harvesting, consistent with current forestry legislation and with proper consideration of information sharing with First Nations and other stakeholders. Elements for ensuring a successful access project include:

- suitable access planning, operational planning and field assessments by both Recipients and MFR district staff well in advance of field operations;
- utilization of appropriately skilled personnel (such as the Contracted Specialist) to monitor and carry out road activities, including assessments and prescriptions, and road construction, restoration, maintenance and deactivation works;
- deactivation of roads used for FFT access if they are no longer needed after FFT use is concluded, and the application of appropriate levels of inspections and maintenance until that time.

The following types of hazards can develop on roads:

- An unsafe road surface for hauling timber or processed timber products, or for transporting workers due to lack of proper brushing, grading or other surface maintenance treatments, or as a result of washouts or uncontrolled surface erosion;
- an unstable road prism or clearing width, or non-functioning road drainage system, that could result in a landslide or adverse gully erosion process;
- a non-functioning road drainage system that could result in sediment transport from the road prism and clearing width.

2.2 *Key Processes or Assumptions*

It is expected that any roads currently under permit or licence needed to access FFT areas for either harvesting or planting will be maintained by the permit or licence holder, who will have a road use agreement with the Recipient or Forestry Licence to Cut (FLTC) holder. Where the roads are otherwise non-tenured, the following processes apply.

In addition to the usual administrative work around issuing licences, permits, other authorities or exemptions, the MFR district's primary consideration for FFT access is that it must allocate appropriate staff time, or retain a Contracted Specialist (usual case) funded by FFT, to provide project oversight, carry out field operations, prepare plans/prescriptions and track and mitigate road liabilities in the areas of:

- access planning;
- road construction or restoration if there is no requirement for harvesting by BCTS or through a FLTC;
- structural maintenance on roads maintained by the Recipient;
- maintenance plans;
- deactivation prescriptions; and
- road inspections.

The FFT road access is needed for tree planting or silviculture treatments requiring transportation of machinery, as well as for harvesting, when such is required. The processes are summarized below, considering those needs.

If the MFR district takes over the management responsibility for an FFT project from a Recipient, any requirements identified in this document to be completed by the Recipient would become requirements that must be completed by the MFR district.

no FFT harvesting required or where the harvesting has been completed:

- if the site preparation consists of falling, piling and burning or similar mechanical treatments to destroy the timber, the Recipient may contract out the work and assumes any statutory responsibilities for maintenance of access under their Road Use Permit exemption while this work is carried out;
- Recipient responsibilities are limited to planning, consultation and surface road maintenance, the latter when carrying out mechanical site preparation, tree planting or silviculture treatments requiring transportation of machinery; the Recipient's statutory responsibility is limited to the transportation of machinery into and out of the areas to be rehabilitated, and tree planting that may require more than 12 months to complete (see *FRPA s. 22.1 (1) (b)*); the remaining activities are covered off through the Recipient agreement requiring the Recipient to operate in accordance with these Standards
- MFR district is responsible for road administration and remaining road operations on otherwise non-tenured roads that FFT uses, including road restoration, structural road maintenance, seasonal and wilderness road maintenance and road deactivation; these non-tenured roads are considered to be forest service roads, but the need to status and map the roads as such is waived to reduce the MFR district's administration work for short term, low risk access
- The MFR district will issue the Recipient a Road Use Permit exemption letter (see Appendix 1) to use these FFT forest service roads and the Recipient will be required to carry out surface maintenance while actively using the roads, all in accordance with *FRPA s. 22.1 (1) (d), (4) and (6)*

harvesting required:

- BCTS is given first right of refusal to harvest the area as an innovative timber sale licence (ITSL); if BCTS will undertake the work and complete the silviculture work as well, the FFT standards for access no longer apply; if BCTS will do the harvesting but not the silviculture work, the access is treated as an FFT access project with no harvesting once BCTS has completed the harvesting and associated operations. MFR district will undertake any coordination of FFT access requirements with BCTS, the Recipient and the MFR district;
- if BCTS will not do the harvesting, the Recipient will advertise a contract for the work, and the MFR district will normally issue a FLTC plus any Road Permit or Road Use permit, if applicable, for the timber removal
- where a single, short non-tenured road outside of the FFT area is to be used/restored or a new short segment of road needs to be constructed (to link the FLTC area to a tenured road), it is recommended to include this short road segment in the FLTC licence area rather than issuing a separate Road Permit (putting a tail on the FLTC boundary to incorporate the road clearing width area);
- either in the FLTC and Road Permit or by separate letter, the MFR district manager will exempt the FLTC holder from any road deactivation work so that access on any individual road or system is not inadvertently removed (see *FPPR s. 79 (2) (b)*); as with the no harvesting scenario, MFR district will carry out road deactivation.
- the FLTC holder will undertake road restoration for the roads not under tenure to another licensee, and any new construction in accordance with their FLTC or Road Permit;

- once the harvesting is complete, the FLTC holder will carry out seasonal road maintenance work on those roads used by the FLTC holder for the harvesting, authorized by the FLTC or Road Permit, in accordance with a plan developed by the Contracted Specialist/MFR district

2.3 Condition of the Access

When a FLTC holder or a Recipient moves out of an area for the season, the roads need to be treated in such a way that the road can be maintained effectively to a wilderness level of maintenance. When an FFT project or project phase has been completed, the road or road network may need to be deactivated, treated in such a way that the road can be maintained as a wilderness road for periods of inactivity, or returned to a condition similar to that at the outset of the road use if the road is needed for ongoing use by others.

2.4 Shared Benefits

To increase the efficiency of program delivery, there may be benefits in carrying out fish passage restoration projects or major drainage structure repairs at priority stream crossings on forest service roads serving FFT projects concurrently with other access-related activities for these FFT projects. These are issues that MFR would otherwise have to address at some future time. Such work could be partially or wholly funded by the program, depending on the immediate FFT need, and carried out as part of the remediation of the access. However, FFT's participation may be limited by the overall project return on investment (ROI).

ARTICLE 3: ACCESS REQUIREMENTS

3.1 Responsibilities

(a) MFR Responsibilities (for the purposes of the FFT program)

The MFR Forest Practices Branch is responsible for providing the applicable Provincial standards and procedures for FFT access in the areas of:

- Road administration;
- Collection of road data;
- Preparation of road inspection and maintenance reports; and
- Road works, including restoration, maintenance and treatment at project conclusion.

The MFR region is responsible for coordinating access projects within the region, including budget development, and for providing professional engineering resources to FFT access projects as applicable.

The MFR district is responsible for meeting the statutory requirements of the Forest and Range Practices Act for the wilderness level road maintenance while the Recipient is not using the road for tree planting or silviculture treatments requiring transportation of machinery. MFR district must also report any landslides that occur during its operations, in accordance with existing MFR regional standard operating procedures.

Should it become necessary for MFR district to undertake any works on behalf of the Recipient due to the emergency nature of the work or because of available equipment or expertise, the Recipient must cover off the applicable pre-approved costs incurred by the ministry.

It may be necessary to construct a new road for an FFT project. In such cases where BCTS is not responsible for harvesting, the road will either be:

- an FSR and constructed by MFR district where there will be no harvesting, or
- more likely, a Road Permit road or road constructed on the FLTC area under the authority provided in the FLTC and constructed by the FLTC holder

Roads must be constructed in accordance with a plan and specifications. The MFR district, utilizing in-house staff or contracted specialists as appropriate, is responsible for the following together with those as applicable depending on whether or not there is any requirement for harvesting:

- Reviewing access plans provided by Recipients;
- Providing to Recipients contacts for First Nations and other stakeholders for any information sharing processes;
- Determining tenures of existing roads, and confirming current permits and associated responsibilities;
- Deciding on future use of roads serving the FFT areas;
- Issuing Road Use Permit exemption letters to Recipients;
- Deactivating roads that are no longer required when FFT works are complete;
- Carrying out inspections of Recipient activities;
- Stockpiling culverts as well as delineators and other signs that the Recipients may use and replace during the life of the FFT project;

- Inspecting roads at project conclusion to confirm acceptability of road treatments; and
- Providing Recipients with completion certificates if their road works are acceptable.

no FFT harvesting required or where the harvesting has been completed:

- Carrying out field inspections of non-tenured roads, proposed Road Permit roads and non-industrial FSRs, detailing proposed road restoration works and cost estimates (where applicable), and preparing initial deactivation prescriptions and cost estimates (where applicable);
- Carrying out road restoration works on non-tenured roads (the types of works under restoration are re-activating a road that has been previously deactivated, upgrading the condition of an existing road that is in a state of disrepair, and minor surface improvements to facilitate the FFT operations);
- Carrying out structural maintenance of non-tenured roads;
- Preparing prescriptions for and carrying out seasonal treatments of roads at the conclusions of annual planting activities;

harvesting required:

- Liaising with BCTS where BCTS will undertake the harvesting under an IITSL, and FFT will undertake the reforestation works;
- Issuing a FLTC and Road Permits to the FLTC holder, unless the harvesting contractor declines to enter into the FLTC;
- Reviewing proposed restoration/construction plans and works by FLTC holders either under Road Permit or within the FLTC area;
- Reviewing proposed structural maintenance works by FLTC holders either under Road Permit or within the FLTC area;
- Preparing prescriptions for and approving seasonal treatments of roads at the conclusion of harvesting activities;

Where BCTS is responsible for administering harvesting, but not the reforestation requirements, BCTS is responsible for ensuring that the MFR district is advised when harvesting is complete.

(b) Recipient and FLTC Holder Responsibilities

The Recipient must share with MFR district any data that it has respecting access to the FFT project, including proposed access routes to the planting area and any specific information related to the location and condition of the road or road network.

no FFT harvesting required or where the harvesting has been completed:

The Recipient must initially determine the required access routes and specific road sections to provide this access, and this information must be provided to the MFR district ideally with one year firm detail and two further years approximate detail in advance of the planting work. The Recipient must contact any existing Road Permit, Road Use Permit or special use permit holders on the roads serving the FFT project, and come to an agreement with those permit holders as to the Recipient's share of the road maintenance costs while the FFT project is operational. The permit holder will normally carry out required restoration and routine maintenance work. If such an agreement becomes problematic, the Recipient must so advise the MFR district and request assistance in negotiating with the permit holder.

harvesting required:

The pre-planting timetable would normally shift to two years firm and one further year approximate detail where harvesting is required. However, the key to any timing determined locally for access planning is that if the access issues cannot be resolved / carried out in the allotted time, the Recipient

can divert the seedling order for the site. In addition, changes to the Treatment Plan may be required due to any additional non-plantable area associated with roads.

The Recipient will advertise and award the site preparation contract with a FLTC where so directed by the MFR district/FFT program, then request that the MFR district issue the necessary FLTC and Road Permits.

The FLTC holder (for harvesting work) and the Recipient (subsequent to harvesting) must contact any existing Road Permit, Road Use Permit or special use permit holders on the roads serving the FFT project, and come to an agreement with those permit holders as to the FLTC holder and Recipient shares of the road maintenance costs while the FFT project is ongoing. The permit holder will normally carry out required restoration and routine maintenance work. If such an agreement becomes problematic, the Recipient or FLTC holder (for harvesting) or Recipient (for silviculture) must so advise the MFR district and request assistance in negotiating with the permit holder.

The FLTC holder or Recipient, as applicable, must provide the MFR district Compliance and Enforcement staff with at least 5 days notice within the same operating season prior to commencing any industrial road use.

For roads that the Recipient will use under a Road Use Permit exemption, once any road restoration work has been completed and the Recipient has commenced operations, the Recipient is responsible for:

- road inspections, including bridges and culverts, during the period of road use, as well as
- surface maintenance and user/worker safety on the roads serving the FFT project

while they are using the roads for tree planting or silviculture treatments requiring transportation of machinery. Based on the foregoing, the Recipient is responsible for meeting the statutory requirements of the *Forest and Range Practices Act* for road maintenance while they are carrying out these activities.

As a result of the road inspections (or through any other process) on these non-tenured roads, should the Recipient find any structural problems during the period of road use, the Recipient must so advise the MFR district and request repairs. The Recipient has a duty of care to its employees to modify its use of the roads when problems arise so that users are not subjected to an elevated risk. In addition, the Recipient must report to the MFR district any landslides that occur during its operations, consistent with existing MFR regional standard operating procedures.

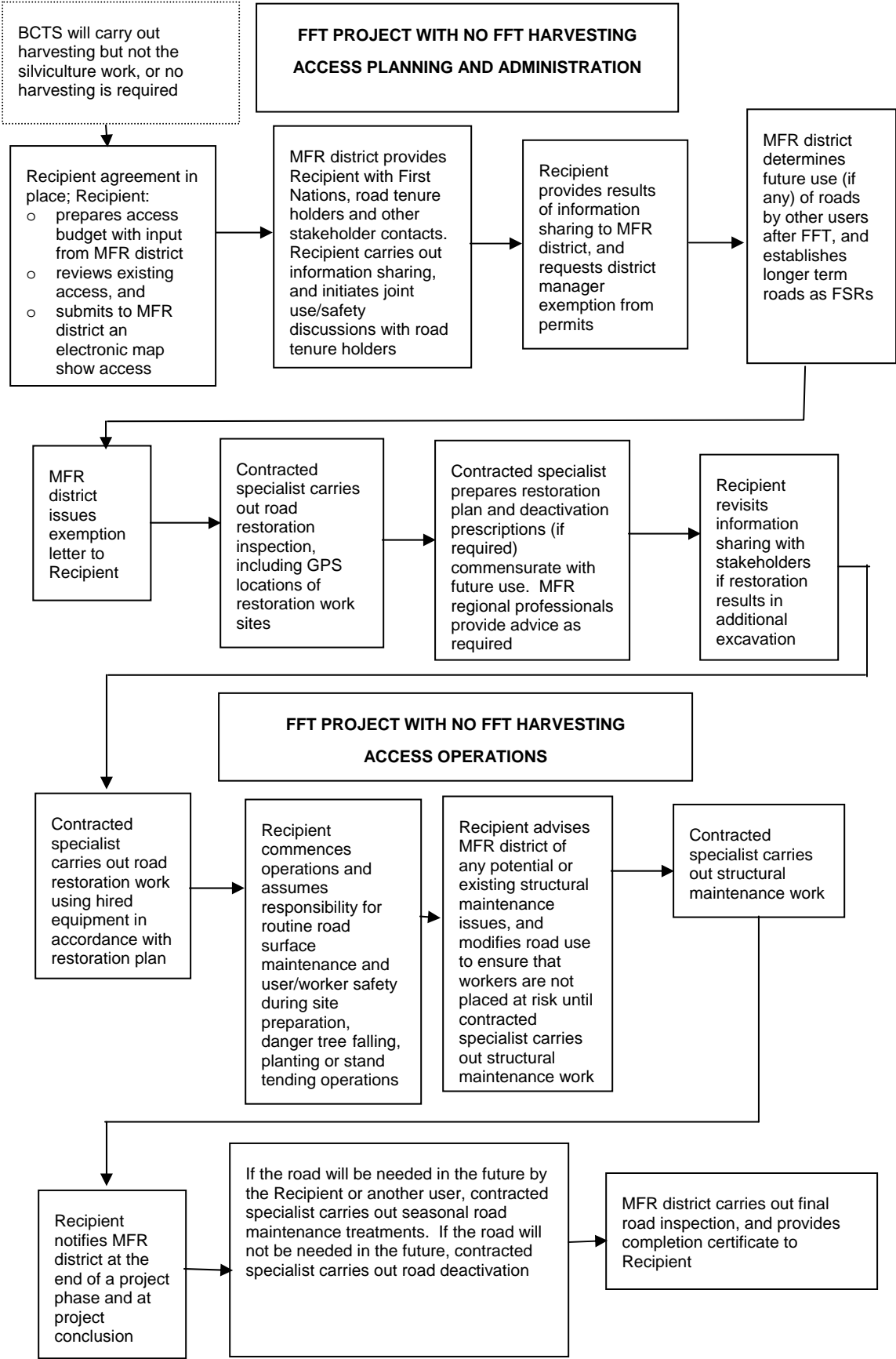
When harvesting work is complete, the FLTC holder must so advise the MFR district so that an inspection may be carried out and the FLTC holder relieved of its licence and permit obligations. When an FFT project is complete, the Recipient must advise the MFR district that the Recipient has met all of its road obligations.

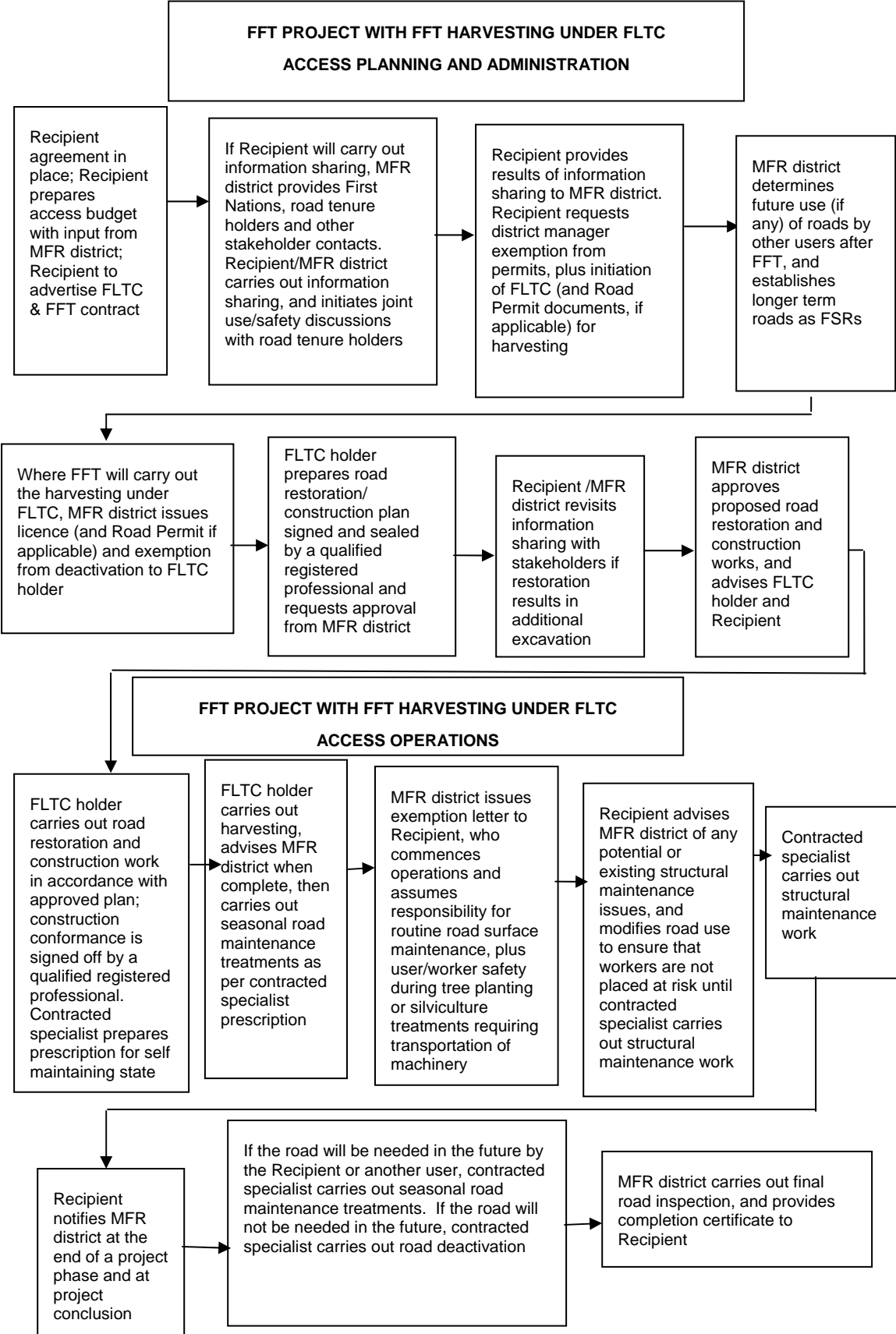
3.2 Contractual and Legal Requirements

All project component activities must be carried out in accordance with the *Forest and Range Practices Act* and its regulations respecting the maintenance of the roads. In addition, all works and processes must be consistent with any licence or permit requirements and the Recipient Agreement.

3.3 Project Implementation

The following are two flowcharts (one for FFT projects with no harvesting and one for FFT projects with harvesting) and a project tracking checklist that show the linkage between access project components, and some of the decision processes and submission requirements associated with the component stages. The checklist is a tool for each MFR district office to track project implementation, and record the information on the job file.





FFT Access Project Tracking Checklist

Use this checklist to track key actions/decisions by Recipients and MFR, and place it in the project file. Shaded areas require no infill on this checklist. [MR = MFR REGION; MD = MFR DISTRICT; CS = CONTRACTED SPECIALIST; RT = RECIPIENT; BCTS = BC TIMBER SALES; FLTC = FORESTRY LICENCE TO CUT HOLDER].

NOTE THAT MD MAY UNDERTAKE SOME OR ALL OF THE ACTIVITIES ATTRIBUTED TO THE CS or the RT

Sign and date the completed checklist at the conclusion of the project; RT to forward a copy of its signed checklist to MD.

Access Element	N/A ?	P.Eng required?	Done by (add ✓)
PLANNING AND ADMINISTRATION			

in all cases:

Recipient Agreement in place, together with project budget estimate			RT
Proposed access map prepared to MD standard and discussed with and submitted to MD (copy to MR)			RT
Determine future use of roads, and provide results to RT; establish long term roads as FSRs			MD

no FFT harvesting required:

Confirm that BCTS will not do silviculture work if they complete the harvesting			MD
Provide stakeholder contact information to RT			MD
Carry out stakeholder information sharing; share results with MD; request exemption			RT
Carry out detailed road inspections, locating potential work sites with GPS; prepare road restoration plan, preliminary deactivation prescriptions		<input type="checkbox"/> YES <input type="checkbox"/> NO	CS
Forward data on any unforeseen road works to RT			MD
Revisit information sharing process with stakeholders, if required			RT
Issue exemption letter to RT			MD

harvesting required:

Confirm whether BCTS will harvest the area, and if they will do silviculture work			MD/MR
If RT will carry out stakeholder information sharing, provide stakeholder contact information to RT			MD
Carry out stakeholder information sharing and share results			RT/MD
Request Road Use Permit exemption letter			RT
Carry out detailed road inspections and prepare preliminary deactivation prescriptions		<input type="checkbox"/> YES <input type="checkbox"/> NO	CS
Forward data on any unforeseen road works to RT			MD
Revisit information sharing process with stakeholders, if required			RT/MD
Advertise for harvesting where BCTS will not undertake that work			RT/MD
Issue FLTC and Road Permit to FLTC holder, if applicable. Advise FLTC holder that they are exempted from road deactivation requirements.			MD

Issue RUP exemption letter to RT, after FLTC holder has completed operations			MD
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ROAD RESTORATION, MAINTENANCE AND USE
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no FFT harvesting required or where the harvesting has been completed:

Before commencing work, provide 48 hours notice to community watershed purveyors			CS
Carry out road restoration work using hired equipment			CS
Commence FFT project operations; inspect and maintain roads during tree planting or silviculture treatments requiring transportation of machinery, advise MD of any structural maintenance issues; modify road use as required			RT
Carry out structural repairs, using hired equipment	<input type="checkbox"/> YES <input type="checkbox"/> NO		CS
Prepare maintenance plan for seasonal road maintenance treatments for periods of inactivity			CS
Carry out seasonal road maintenance treatments prescribed by CS, using hired equipment			CS

harvesting required:

Before commencing initial road works, provide 48 hours notice to community watershed purveyors			FLTC
Carry out road restoration work, plus any new road construction			FLTC
Commence harvesting operations; inspect and maintain roads, carry out any structural maintenance issues; modify road use as required			FLTC
Prepare prescription for seasonal road maintenance treatments for periods of inactivity			CS
Conclude harvesting operations and notify MD			FLTC
Carry out seasonal road maintenance treatments prescribed by CS			FLTC

in all cases:

Prepare plan for seasonal road maintenance treatments for periods of inactivity			CS
Notify MD at conclusion of seasonal operations related to tree planting or silviculture treatments requiring transportation of machinery			RT
Maintain road to a wilderness level while RT is inactive			MD
Re-open roads for successive RT activities			CS
Finalize all project operations, and notify MD			RT
Once FFT access will no longer be required:			RT
Field inspection of RT works after FFT work is completed			MD
Carry out road deactivation			CS
Issue completion certificate to RT			MD
SIGNED:	DATE:		

ARTICLE 4: FFT ACCESS ADMINISTRATION

4.1 General

As part of the overall FFT project plan, the Recipient must determine the location and extent of existing road access to the silviculture investment areas. This information normally is obtained using current map information supplemented by field reconnaissance and surveys. Each road or trail must be at or improved or built to one of the following levels:

- 2 wheel drive suitable for transportation of logs, processed timber products or machinery (usually roads built by or restored by the FLTC holder or those currently being maintained by a road tenure holder or MFR)
- 4 wheel drive (usually roads on which access for tree planting or silviculture treatments needs to be restored prior to the commencement of the FFT project)
- ATV (usually non-bladed trails that service the actual planting sites from the junctions at the nearest roads)

4.2 Road Maps

Roads are originally established by the Recipient on a road map using existing spatial information. The road map must be at a scale of 1:20,000, and contain UTM coordinates on the axes. Mapping submissions may be PDF files derived from a hard copy map. Generally, no further map data will be required. Note that for new road construction, a plan must be prepared in accordance with the requirements of the MFR district.

4.3 Information Sharing

The Recipient must carry out all necessary First Nations and other stakeholder information sharing, and provide MFR district with the results of the information sharing. MFR district will assist the Recipient in identifying local stakeholders and providing contact information.

4.4 Road Tenures

If a road is an **existing forest service road with no existing Road Use Permit holder (maintainer)**:

no FFT harvesting required:

- MFR district, through its contracted specialist, will carry out required road restoration to a standard that will enable the Recipient to carry out its tree planting or silviculture treatments requiring transportation of machinery safely and address environmental issues
- MFR district will provide an exemption letter to exempt the Recipient from any Road Use Permits to use and maintain the road during its tree planting or silviculture treatments requiring transportation of machinery (see Appendix I attached)
- for those roads that will be deactivated at the conclusion of the FFT project, MFR district will follow any local access planning processes, then discontinue and close the road at that time;

harvesting required:

- MFR district will provide a Road Use Permit to the FLTC holder to maintain roads required for harvesting during the period of the harvesting
- FLTC holder will carry out required road restoration to a standard that will enable the FLTC holder to carry out its harvesting and address environmental issues
- for those roads that will be deactivated at the conclusion of the FFT project, MFR district will follow

any local access planning processes, then discontinue and close the road at that time; if the decision is not to deactivate the road, there will be no change to the road tenure

If a road is an **existing forest service road with a Road Use Permit in place** where the permit holder is responsible for carrying out the road maintenance:

no FFT harvesting required or where the harvesting has been completed:

- normally, no work will be carried out by MFR district or the Recipient; for such roads, a Recipient must enter into an agreement with the road use permit holder regarding restoration work in accordance with the approved plan, as well as joint road use and safety issues;
- if no road use agreement can be worked out between the Recipient and the Road Use Permit holder, MFR district may consider issuing a Road Use Permit to the Recipient, and shifting the maintenance responsibilities to the Recipient for the duration of the Recipient's tree planting or silviculture treatments requiring transportation of machinery.

harvesting required:

- normally, no work will be carried out by MFR district, the FLTC holder or the Recipient; for such roads, the FLTC holder (during harvesting) or Recipient (subsequent to harvesting) must enter into an agreement with the Road Use Permit holder regarding restoration work in accordance with the approved plan, as well as joint road use and safety issues;
- if no road use agreement can be worked out between the FLTC holder/Recipient and the current Road Use Permit holder, MFR district may consider issuing a Road Use Permit to the FLTC holder/Recipient, that shifts the maintenance responsibilities to the FLTC holder/Recipient for the duration of the harvesting, and the tree planting or silviculture treatments requiring transportation of machinery.

If a road is an **existing road under licence, cutting permit, Road Permit or special use permit:**

no FFT harvesting required or where the harvesting has been completed:

- normally, no work will be carried out by MFR district or the Recipient; for such roads, the Recipient must enter into an agreement with the licence/permit holder regarding restoration work, as well as joint road use and safety issues;

harvesting required:

- normally, no work will be carried out by MFR district, the FLTC holder or the Recipient; for such roads, a FLTC holder (during harvesting) or Recipient (subsequent to harvesting) must enter into an agreement with the licence/permit holder regarding restoration work, as well as joint road use and safety issues;

If a road is an **existing road that is non-tenured:**

no FFT harvesting required:

- for those roads that will remain in use for forest management purposes after the completion of the FFT project, MFR district will establish the road as an FSR; otherwise, MFR district will not establish the road as an FSR (however, by carrying out works on such a road, MFR district has accepted responsibility for the road as an FSR and will deactivate the road at the completion of the FFT project)
- MFR district, through its contracted specialist, will carry out required road restoration to a standard that will enable the Recipient to carry out its project works safely
- MFR district will exempt the Recipient from requiring a Road Use Permit so the Recipient can

use the road during the life of the FFT project

harvesting required:

- for those roads that will remain in use for forest management purposes after the completion of the FFT project, MFR district will establish the road as an FSR; otherwise, MFR district will:
 - where the road is part of the FLTC area, ensure that the FLTC describes any required authorities,
 - where the road is not part of the FLTC area, issue a Road Permit to the FLTC holder for road restoration, use and maintenance for the duration of the harvesting work, and
 - deactivate the road at the completion of the FFT project.
- the FLTC holder will leave the road in a stable, self-maintaining condition (in accordance with a prescription for seasonal road maintenance treatments prepared by the Contracted Specialist) such that it can be readily maintained to wilderness road level after harvesting is completed; MFR district will cancel the Road Permit at that time;
- MFR district will exempt the Recipient from requiring a Road Use Permit so the Recipient can use the road during the life of the FFT project

4.5 Restoration Plans

For those roads requiring restoration work by the MFR district, the contracted specialist may be required to spatially locate individual works sites such as drainage structures using GPS instrumentation.

All GPS data must be captured in such a manner to yield positional accuracy results that are plus or minus 10 meters in x, y. Existing roads are to be submitted as single line strings (centerline). Each section from tie to tie point, (road intersections) is to be a discreet line string. All roads must intersect with a connecting road at a noded point.

For those roads requiring restoration work by the FLTC holder, the FLTC holder must carry out sufficient planning and mapping to address its statutory and contractual obligations.

ARTICLE 5: ROAD WORKS

5.1 Implementation

Works that are required to be carried out on roads that will serve as FFT access until silviculture investments are complete are:

no FFT harvesting required or where the harvesting has been completed:

- detailed initial road inspection (including GPS locations of specific drainage structures or other works sites, restoration report and deactivation prescriptions) – carried out by MFR district, through its contracted specialist
- road restoration – carried out by MFR district, through its contracted specialist
- road structural maintenance – carried out by MFR district, through its contracted specialist
- routine road surface maintenance – carried out by the Recipient while carrying out tree planting or silviculture treatments requiring transportation of machinery, and MFR district at other times
- road treatment at FFT project conclusion – carried out by MFR district, through its contracted specialist, or by Recipient, depending on treatment

Any professional assessments or designs needed for the above activities will be carried out by MFR district, either by utilizing MFR's regional professional engineers or qualified consultants recommended by the regional professionals. In the latter case, the regional professional engineers will also assist in drafting the terms of reference for any professional contracts, and reviewing the reports/designs for acceptance.

harvesting required:

- road construction/restoration – carried out by the FLTC holder in accordance with statutory and contractual requirements
- road structural maintenance – carried out by the FLTC holder during harvesting activities, and by MFR afterwards
- routine road surface maintenance – carried out by the FLTC holder during harvesting activities, by the Recipient while carrying out subsequent tree planting or silviculture treatments requiring transportation of machinery, and MFR district at other times
- road treatment at FFT project conclusion – carried out by MFR district, through its contracted specialist, or by Recipient, depending on treatment

Any professional assessments or designs needed for the above activities will be carried out by or on behalf of the FLTC holder during harvesting activities and by or on behalf of MFR district afterwards in accordance with the process described above in the no-harvesting part.

5.2 Road Inspection

Once the Recipient has determined its access needs for tree planting or silviculture treatments requiring transportation of machinery, MFR district, through its contracted specialist, will undertake a detailed field inspection of the roads that are expected to provide access to the FFT project.

Inspection records must ensure that key road elements are covered and any deficiencies noted. Where major problems exist, it is recommended that photographs be taken to accompany the inspections records. Information on the following items should be recorded on the FFT Road Inspection Report (see Appendix I attached) when an inspection is carried out:

- structural integrity of the road prism
- drainage systems

- road and bridge surfaces
- safe fish passage at stream crossings
- road safety

This inspection may be done as part of or in conjunction with a joint site visit with the Recipient to ensure that the restoration plan is compatible with the Recipient's expectations of access.

no FFT harvesting required or where the harvesting has been completed:

MFR district, through its contracted specialist, will prepare a restoration plan based on the inspection report information as well as a deactivation prescription, and will also prepare a cost estimate for the restoration and deactivation work to be checked by the Recipient against its ROI calculation for the FFT project. Based on positive results of the ROI calculation, MFR district, through its contracted specialist, will proceed to restoration of some or all of the proposed road access. Otherwise, a negative ROI figure may result in selecting some alternative access options (helicopter, ATV) or in deletion of some of the planting sites from the program.

harvesting required:

The Recipient, with assistance from the Contracted Specialist, will incorporate the estimated access costs related to harvesting into its ROI calculation for the FFT project. MFR district, through its contracted specialist, will prepare a deactivation prescription, and will also prepare a cost estimate for the deactivation work to be checked by the Recipient against its ROI calculation for the FFT project. Based on positive results of the ROI calculation, the contract for the harvesting will proceed, and the roads will be restored or constructed, as required. A negative ROI figure may result in re-evaluation of the access requirements and the viability of the overall project.

5.3 Road Restoration

(a) Overview:

no FFT harvesting required or where the harvesting has been completed:

Road restoration work is the responsibility of MFR district, and may include both surface and structural maintenance activities to improve the condition of the access. The program's objectives are that, consistent with the proposed lifespan of the road, the restoration work:

- provides the Recipient with timely 4 wheel drive truck access to FFT projects
- meets safety requirements associated with the implementation of FFT project operations, which include use by equipment, service and crew vehicles supporting the Recipient's tree planting or silviculture treatments requiring transportation of machinery
- protects the structural integrity of the road prism and cleared area
- ensures that drainage systems are functional
- minimizes the transport of sediment from the road and its effects on other forest resources
- ensures that safe passage for fish is provided at stream crossings

Based on the restoration plan, MFR district, through its contracted specialist, will carry out any required restoration work on those non-tenured roads required for access to the FFT project, using hired equipment on an hourly basis, directed by an equipment supervisor hired/retained by MFR district using an FS21 Engineering Equipment Rental Agreement (see Appendix I). This equipment will be selected using MFR's Engineering Equipment Suppliers list of available equipment, on the basis that the total equipment rental cost for any one road project will not exceed \$50,000.

In keeping with government's objectives, the FFT program will encourage First Nations engagement in delivery of on the ground activities. Where qualified First Nation contractors are available and prices

can be negotiated comparable to tendered contracts, MFR district and the Recipient are to target 25% of their investment schedules to First Nations proponents, subject to their:

- meeting the eligibility requirements, and
- negotiation of competitive pricing for the hired equipment hourly rates.

harvesting required:

Road restoration work is the responsibility of the FLTC holder, and may include both surface and structural maintenance activities to improve the condition of the access. The program's objectives are that, consistent with the proposed lifespan of the road, the restoration work:

- provides the FLTC holder with suitable access for log or chip removal, and following harvesting, provides the Recipient with timely 4 wheel drive truck access for tree planting or silviculture treatments requiring transportation of machinery
- meets safety requirements associated with the implementation of FFT project operations, which include use by equipment, service and crew vehicles supporting the operations of the FLTC holder and the Recipient
- protects the structural integrity of the road prism and cleared area
- ensures that drainage systems are functional
- minimizes the transport of sediment from the road and its effects on other forest resources
- ensures that safe passage for fish is provided at stream crossings

(b) General Requirements:

Restoration work will normally involve some or all of the following:

- brushing of the road clearing width to achieve vegetation control and to provide safe sight distances;
- removal of snags and leaning or overhanging trees that are a safety concern for road users;
- cleaning and grading ditches;
- cleaning and repairing culverts (including restoring fish passage) and fords;
- stabilizing road cut and fill slopes, landslides, rockfalls, and other sites of significant hazard;
- repairing of minor scours and washouts;
- repairing and grading the running surface of the road;
- repairing or replacing bridges;
- repairing or replacing cattle guards; and
- repairing or replacing damaged or missing signs.

(c) Detailed Road Restoration Standards:*Brushing*

Brushing is to be carried out when one of the following conditions occurs:

- The sight distance (the distance at which oncoming vehicles can be seen) and/or the usable road width are dangerously impeded or reduced. For example, potential hazards exist where brush limits visibility at the inside of a curve or at bridge approaches
- The useable road width is dangerously reduced to the point that vehicles cannot safely pass each other at road widenings or turnouts.
- Drainage systems are functioning below acceptable levels and roadside vegetation is a major contributing factor.

Manual methods for removing trees, brush, and other vegetation may include the use of axes, machetes, sandvik axes, chainsaws, or gasoline- or air-powered circular saws. These methods are labour-intensive and require close supervision to ensure good production and worker safety.

Mechanical methods may include the use of crawler tractors, graders, hydro-axes, hydro mowers or attachments for graders, front-end loaders, and excavators. The higher cost of operating mechanical equipment is usually offset by increased brushing productivity and user safety when compared to manual brushing and vegetation control methods.

Site chipping or mulching should be used to minimize the fire hazard and increase the rate of decomposition. Mulch material can often be left in the ditch line as it will usually flush out and through cross drain culverts.

Brushing projects can create several hazards that must be taken into account during operations:

- Accumulated cut vegetation can plug culvert intakes and should be cleaned by hand concurrently with the brushing operation.
- Accumulated vegetation can plug ditch lines and should be either cleaned by hand or by a follow-up machine concurrent with brushing operations.
- Serious physical injury or equipment damage can occur when debris being cut by a machine shatters and flies in unpredictable directions. Appropriate roadway control (such as warning signs) should be used during operations.

Dangerous Tree Removal

All snags and leaning or overhanging trees that are a safety concern for road users or workers are known as “dangerous trees” and are defined by the Workers’ Compensation Board of BC (WorkSafeBC), [Occupational Health and Safety Regulation](#) . Section 26.11 of that regulation also **requires** that such trees must be felled; this is usually accomplished by hand falling.

Ditch and Culvert Repairs

One of the most critical aspects of any road restoration project is maintenance of the drainage system. Depending on the life of the road for the FFT project, the following types of works usually help to minimize the likelihood of clogged or damaged drainage systems which can potentially cause road washouts:

- Clean and grade ditches.
- Replace or repair ditch blocks, small culverts, flumes and rip rap, head walls, and spillways, particularly during and after major storms and after yarding and loading operations.
- Shape and grade off-take ditches to drain away from the road prism.
- Clean and repair culvert inlets, outlets, catch basins, trash racks, flumes, and transition areas from the ditch line to catch basins.

The primary function of road side ditches is to collect moisture from the road surface and the road base, directing the water to suitable discharge locations.

The following steps will be carried out as appropriate for the life of the road:

- Ditch maintenance will normally be limited to removing rock falls and any slumping or raveling material, while maintaining as much grass cover or other low vegetative cover as is practicable.
- For those roads that will remain in service beyond the life of the FFT work, clean and grade ditches to keep them clear of obstructions that might seriously impede drainage flow. Debris that is hindering the flow of water should be removed. However, grass or low vegetation lining the ditches is desirable to minimize scour and sediment transport.
- Ensure that ditch water can enter culverts freely and directly. Ditches should be free of large pools of standing water to prevent saturation and weakening of the road subgrade, which can result in surface rutting.
- Keep the ditch elevation below the level of the subgrade to ensure the free drainage of the road base. The ditch gradient must be sufficient to maintain a continuous flow.
- When cleaning ditches, do not undermine ditch slopes, cutbanks, road shoulders, and culvert catch basins, and do not block the ends of culverts.

Material excavated during ditch cleaning that is unsuitable as surfacing or sidecast should be hauled to a designated spoil site. Ditches must be unobstructed by tall vegetation, so that maintenance equipment operators can prevent damage to culvert ends while they are cleaning the ditches.

A critical element with closed bottom culverts is their propensity for hindering fish passage, particularly over time. Culverts must be assessed and appropriate actions taken to restore fish passage. This may require reconstruction of the culvert or modification of the site by backwatering or through baffle or weir installation to achieve passage flows.

Culvert maintenance operations must be carried out at a time and in such a way as to minimize the potential for sediment transport to streams, and include:

- cleaning and repairing culverts and ancillary drainage works (including outlet scour holes, the inlet settling basin, debris barriers and trash racks) to provide for flow of water; during cold weather operations, hot water generators, steam generators, or compressed air may be required to thaw culverts to provide for flow;
- replacing cross-drain culverts, flumes, and rip rap;
- installing additional cross-drain culverts and ditch blocks where required (usually evident where standing water or scour is observed in the bottom of the ditches).

If an existing cross drain culvert cannot be unplugged in place, consideration should be given to removing and cleaning it, and then re-installing the culvert. Irreparable culverts must be replaced.

Road Subgrade

Road subgrade restoration is necessary to ensure that the road system will fulfill its designed function until deactivation. The measures that might be suitable, depending on the remaining life of a road, are:

- stabilizing the road cut and fill slopes, repairing minor scours and washouts;
- removing loose rocks and stumps, or other unstable materials that present a hazard to road users;
- cleaning up slides, slumps, rock falls, and other sites where potential hazards are evident; and implementing professional measures to stabilize the site (if materials generated by the work cannot be otherwise used or sidecast on site, they should be removed and disposed of in designated disposal sites);
- correcting the potential failure of approach fills at stream crossings.

For roads that will remain in service beyond the FFT project, additional measures may include:

- repairing chronic soft subgrade areas and problematic frost sections by excavating and replacing the weak soils with suitable granular material, including use of geosynthetics where appropriate;

- replacing or repairing the running surface if the road has chronic problems with ruts, potholes, and a broken surface that renders the road unable to support design loads;
- relocating the road (may require an approved road layout and design);

Road Surface (Grading)

Roads must be graded to prevent water from standing or running down the road in wheel ruts or because of a lack of crowning, to maintain structural integrity or help protect the subgrade from damage. Grading to remove wash-boarding or pothole formation can also help reduce the costs of maintenance for those vehicles using the road, and can improve the safety of road users.

Road grading must take place when moisture conditions are suitable, and not when the road is either too wet or too dry. Grading material over the banks or into ditches must be minimized, as this material is difficult to retrieve.

5.4 Road Surface Maintenance

(a) Overview:

Prior to the Recipient commencing operations on non-tenured roads, they should be jointly inspected by the Recipient and the Contracted Specialist to assess their condition for future comparison to a final treatment by the Recipient (see section 5.6 (b)).

no FFT harvesting required or where the harvesting has been completed:

Routine road surface maintenance is the responsibility of the Recipient while carrying out the following FFT project operations:

- site preparation;
- planting; and
- stand tending, including brushing, thinning, etc.

At other times, while the road is active, MFR district will be responsible for this routine road surface maintenance at a wilderness road level until the responsibility can be transferred to another user, whether it be the Recipient or another industrial user.

This type of maintenance incorporates regular inspections, and both regularly scheduled and remedial works carried out to ensure that road users can operate safely and forest resources are suitably protected.

harvesting required:

Routine road surface maintenance is the responsibility of the FLTC holder during harvesting operations. At the conclusion of the harvesting process, the FLTC holder is required to carry out those seasonal road maintenance activities as directed by the MFR district in a maintenance plan prepared by the Contracted Specialist. After harvesting is complete and when the Recipient is not carrying out tree planting or silviculture treatments requiring transportation of machinery, but the road is still active, MFR district will be responsible for this routine road surface maintenance at a wilderness road level until the responsibility can be transferred to another user, whether it be the Recipient or another industrial user.

(b) General Requirements:

Brushing of the road clearing width must be carried out to achieve vegetation control and to provide safe sight distances.

Grading must be carried out to facilitate traffic and provide proper road surface drainage.

Ditches must be cleaned and graded as necessary so that there is no serious impediment to water flow.

Other required works may include the maintenance/repair of stream culverts, bridge surfaces, signs, cattle guards, and fences, as well as snow ploughing.

(c) Detailed Routine Surface Maintenance Standards:

Brushing

This work consists of cutting all vegetative growth, including trees and other vegetation on roadway surfaces and roadsides. In addition to the following, ensure that any dangerous trees that may reach the road surface are felled.

Brushing is required when one of the following conditions occurs:

- Usable road width may be reduced to the point that vehicles cannot safely pass each other at road widenings or turnouts, or brush dangerously impedes sight distance at the inside of a curve or at bridge approaches or where heavy snow loads, on roadside trees, may cause the trees to bend over the road surface, both restricting use of the road and creating a safety hazard. In addition, where snow removal is an issue, brushing must be sufficient to accommodate snow placement beyond the road shoulder without impeding sight distance.
- Drainage systems are functioning below acceptable levels and roadside vegetation is a major contributing factor.

Grading

Roads must be graded to improve vehicle efficiency and ensure user safety. A properly graded road will also reduce the chance of sediment transport from the road surface. As such, roads must be graded before the surface:

- reaches severe stages of washboarding or pothole formation
- begins to trap water in windrows or ruts (windrows can result in water flowing down the road, scouring the surface, and causing a washout when it reaches a dip in the road).

Grading, including the shaping of the road shoulders, should take place only when moisture conditions are suitable, and not when the road is either too wet or too dry. Preferably, no windrows should remain after the final pass; at the very least, those that do remain should be breached to provide for drainage. Surfacing material should not be graded over the banks or into ditches, as this material is difficult to retrieve onto the road.

Where roads are required for winter operations, snow must be removed from all or part of the traveled way, including turnouts, when the road becomes unsafe for the FFT operations. Gravel or other surfacing material must not be bladed off the road, and snow removal must be restricted to the usable road surface having roadbed support, including turnouts. Keep drainage ditches, drainage dips and culverts functional during periods of melt.

Ditch and Cross Drain Culvert Maintenance

The following types of maintenance works must be carried out where required to minimize the likelihood of clogged or damaged drainage systems which can potentially cause road washouts:

- clean and grade ditches; care must be taken to prevent undercutting of the cut slopes—a practice that will reduce their stability.
- clean and repair culvert inlets, outlets, catch basins, trash racks, flumes, and transition areas from the ditchline to catch basins.
- replace or repair ditch blocks, small culverts, flumes and rip rap, head walls, and spillways, particularly during and after major storms.

Particular care must be taken to minimize sediment when maintaining roads near fish streams or streams that are within domestic or community watersheds.

Installation of additional cross-drain culverts may be required to reduce ponding of water or scour in ditches.

Ditches must be kept unobstructed by vegetation, so that operators of maintenance equipment can see the drainage structures.

Stream Culvert Maintenance

In addition to the guidelines for maintenance related to fish habitat set out in the [Fish-stream Crossing Guidebook](#), stream culvert maintenance must be carried out to ensure that a structure maintains its capability to convey stream flow. Such works include:

- repairing damaged inlets and outlets;
- repairing armouring around inlets and outlets to reduce sediment transfer, particularly in community watersheds; and
- removing debris blocking or obstructing culvert inlets;

Before beaver dams are removed, the Ministry of Environment must be contacted for permission and advice. Installation of beaver protection devices should also be considered.

Bridge Surface Maintenance

The maintainer must repair or protect parts of the bridges and approaches that do not directly affect structural integrity, including:

- repairing and replacing bridge signage including delineators;
- keeping the waterway opening free of logs and debris;
- resetting nails protruding from running planks;
- replacing missing or damaged running planks;
- repairing or replacing damaged guardrails or curbs; and
- minimizing pot holes on bridge approaches.

Sign Maintenance

Sign maintenance includes cleaning, replacing, and reconditioning signs, posts, and markers that currently exist or are the maintainer's responsibility to install. These may include radio frequency call signs, information signs, kilometer markers, traffic control signs and bridge delineators, where road use requires such items.

Sign maintenance includes regular hand brushing around them to ensure they are fully visible.

Maintaining Fences

Range fences that have been damaged as a result of activities on the road must be repaired or replaced. The Range Section in the MFR district office of MFR can advise on acceptable fence construction specifications and practices.

Maintaining Cattle guards

Cattle guard maintenance includes:

- keeping rails, fences, posts, and gates in good condition to ensure that the cattle guard fulfills its function.
- repairing broken welds or members promptly.

Winter maintenance

The removal of snow should be generally discouraged. However, where it is necessary to do so, to facilitate safe use of the roads when snow is on the road, the maintainer must:

- remove snow from all or part of the travelled way, including sufficient turnouts for safe and efficient use for timber transportation.
- restrict snow removal to the usable road surface having roadbed support, including turnouts.
- wing back or breach snow banks to facilitate drainage at a sufficient number of locations to reduce water flow along road surfaces during periods of melt.

and must not undercut cut slopes or blade surfacing material off the road.

Road Shut Down criteria

The maintainer must cease vehicle traffic on the road or sections of the road that exhibit any or all of the following:

- rutting to the point that there is mixing of subgrade material with surfacing material (this can occur during thawing of the road or during periods of road saturation).
- damage to the subgrade is occurring
- surfacing material is eroding due to flowing water on the road

and must not resume use until the road is able to support vehicle loads and sedimentation has abated.

5.5 Road Structural Maintenance

(a) Overview:

no FFT harvesting required or where the harvesting has been completed:

The MFR district, through its contracted specialist, will carry out any required structural maintenance of the non-tenured roads serving FFT projects during the life of the FFT project. Generally, MFR district will inspect the affected road sections as a result of information provided by the Recipient.

harvesting required:

The FLTC holder will carry out any required structural maintenance of the roads serving FFT projects during the harvesting of the area, where there is no other permit holder responsible for the work. When harvesting is complete (see *Road Treatment at Project End*), the FLTC holder will

- carry out those seasonal road maintenance activities as directed by the MFR district in a maintenance plan prepared by its Contracted Specialist; and
- ensure that the road is inspected and repaired such that the condition of the road is suitable for Recipient operations, and at least as good as when the FLTC holder began its operations

(b) General Requirements:

Structural maintenance is necessary to ensure that the road subgrade and drainage structures will fulfill their designed functions until deactivation. Measures may include:

- repairing the road subgrade and drainage structures where problems are occurring
- road modifications (may require a road design)
- cleaning up slumps and rockfalls and other sites of significant hazard, and stabilizing the site where necessary.

(c) Detailed Structural Maintenance Standards:

Repairs to the road subgrade and drainage structures are normally specific to the element at risk and its shortcomings. As such, the detailed site specific requirements must be detailed by MFR district, through its contracted specialist, together with any professional engineering input, prior to the works being carried out.

5.6 Road Treatment at Project End

(a) Overview:

Options are available to deal with roads at the conclusion of the tree planting or silviculture treatments or the harvesting portions of the FFT project, based on the district’s determination of future needs for the roads.

no FFT harvesting required; at the conclusion of tree planting or silviculture treatments requiring transportation of machinery:

Future Road Use	Actions to be Taken
No future use is contemplated	contracted specialist to prepare deactivation prescription for the road, and district to deactivate at conclusion of FFT work.
Further use is required, but not immediately	district engineering officer to establish the road as an FSR; contracted specialist will prepare and execute a seasonal road maintenance plan.
Further use is required soon after completion of FFT work	district engineering officer to establish the road as an FSR; Recipient to return the road in a state that is at least equivalent to when the Recipient commenced work on the FFT project

At the conclusion of the FFT project, the Recipient must notify MFR district that the project is complete, and that the Recipient has addressed all of its road responsibilities. The MFR district will carry out an inspection of the roads serving the project, and MFR district will provide the Recipient with:

- a completion certificate (see Appendix I attached) if satisfied with the Recipient’s road works; or
- a remediation order to properly complete its road obligations, if not satisfied with the Recipient’s road works.

harvesting required; at the conclusion of the harvesting:

Future Road Use	Actions to be Taken
No future use of a road is contemplated (a particular road is not needed for planting access)	Proceed as per instructions shown below for roads that are not required immediately. MFR district will carry out all required road

	deactivation at the conclusion of the FFT project.
Further use of a road is required but not immediately	Contracted specialist to prepare a seasonal road maintenance plan. The FLTC holder will carry out those seasonal road maintenance works and ensure that the condition of the remainder of the road is at least as good as when the FLTC holder began operations. The FLTC holder will carry out such works prior to leaving the area, and as a condition for terminating the FLTC and its obligations. MFR district must ensure that FLTC holder is relieved of any obligations to deactivate roads that were utilized under their Road Permit or FLTC

At the conclusion of the harvesting portion of the FFT project, the Recipient must notify MFR district that the harvesting is complete, and that the FLTC holder has addressed all of its road responsibilities. The MFR district will determine whether or not an inspection of the road is required by the district, and upon being satisfied that the road works have been properly carried out, terminate the FLTC, and advise the Recipient and FLTC holder accordingly. At the conclusion of the silviculture portion of the FFT project, the Recipient must notify MFR district that the project is complete, and that the Recipient has addressed all of its road responsibilities. The MFR district will carry out an inspection of the roads serving the project, and MFR district will provide the Recipient with:

- a completion certificate (see Appendix I attached) if satisfied with the Recipient’s road works; or
- a remediation order to properly complete its road obligations, if not satisfied with the Recipient’s road works.

(b) General Requirements:

Deactivated Road

For roads maintained by the Recipient that the MFR district has determined will not be required when the Recipient concludes operations on an FFT project, MFR district, through its contracted specialist, will deactivate the roads. The intent of road deactivation is to place a road in a self-maintaining state that will indefinitely protect adjacent resources at risk. Road deactivation requirements typically include removing bridges and stream culverts, stabilizing the road prism, and, at the MFR district’s discretion, barricading the road surface width in a clearly visible manner to prevent access by motor vehicles (other than all-terrain vehicles).

Environmentally Maintained Road

For roads maintained by the Recipient that MFR district has determined will be left as wilderness roads when the Recipient suspends or concludes operations on an FFT project, MFR district, through its contracted specialist, will construct cross ditches and water bars, and take other actions as required to provide environmental protection while the road is a wilderness road (according to a plan drawn from the **deactivation prescriptions** described below and with hired equipment as per restoration and deactivation

works). Until such time as the Recipient continues operations or until another user is made responsible for maintenance, MFR district, through its contracted specialist, will carry out inspections and road maintenance.

Final Surface Treatment

At the conclusion of the FFT project, for those roads that have been maintained by the Recipient that MFR district has determined will be required for continuing access by others, the Recipient must return the road to a state that is at least equivalent to when the Recipient commenced work on the FFT project (as described in the initial assessment of the road (see section 5.4 (a)).

(c) Detailed Road Deactivation Standards:

The decision to deactivate roads is made by the district manager, who identifies the roads as being candidates for road deactivation because there is no future use required, or to reduce risk, or the cost of deactivating plus eventually reactivating these roads is less than the cost of carrying out maintenance to a wilderness road level of maintenance over the period of expected closure.

For roads maintained by the Recipient that MFR district has determined will no longer be required for use once the FFT project is completed, MFR district, through its contracted specialist, must deactivate the road so as to place the road in a self-maintaining state, to meet the following objectives:

- stabilizing the road prism and clearing width.
- maintaining natural surface drainage patterns on the area within the road right-of-way and in adjacent or connected areas affected by the works both during and after construction.
- minimizing the impact of silt and sediment transport on other forest resources.
- in a fish stream, providing for safe fish passage and protection of fish habitat immediately upstream and downstream, and ensure the timing and description of the work are also aimed at achieving those objectives.

To achieve these objectives, MFR district, through its contracted specialist, will carry out the works as required by a deactivation prescription and in accordance with statutory requirements.

Deactivation Prescription

Deactivation work must be carried out in accordance with an approved deactivation prescription. A deactivation prescription is a written document that clearly communicates the objectives and the works to be performed. A deactivation prescription must:

- define the objectives of the planned deactivation work, the vehicle access requirements (if an exemption under legislation has been granted to permit access by motor vehicles), and the techniques to be performed by station; and
- report special requirements (e.g., worker safety issues and other important requirements explained below).

A terrain stability professional must carry out a terrain stability assessment and prepare a road deactivation prescription if any of the following apply:

- terrain stability mapping indicates that the road is located on terrain that is unstable or potentially unstable;
- terrain stability mapping has not been done, and the road is located on terrain with slopes greater than 60%;
- the road is located on terrain where there are indicators of slope instability;
- the areas down slope or upslope of the road (or adjacent to or connected to it) contain elements at risk of damage or loss from a landslide, and the road crosses areas having a moderate or high likelihood of landslide occurrence;
- the road crosses areas where the product of the likelihood of a landslide occurring within a given period of time, and the likelihood it will reach or affect the site occupied by a specific element of

concern, is greater than low.

Following are the types of deactivation prescriptions:

Type 1 deactivation prescription: *The road traverses gentle terrain with no landslide hazard. There are a few crossings of S6 streams and some cross-drain culverts on the road. The risk of damage to adjacent resources is low or minimal. Deactivation measures are limited to water management techniques (such as installation of cross-ditches or waterbars and back-up of some stream culverts) and revegetation of exposed soils using a suitable grass seed and legume mixture.*

- The prescription requirement is a 1:5000 scale topographic map (or other suitable scale) showing the locations of recommended actions (and corresponding to the chainages of field markings) suitable for communication of the required works to field crews (and review and acceptance by the MFR district).

Type 2 deactivation prescription: *The road traverses gentle to moderate terrain with no landslide hazard. There are culvert and bridge crossings of S5 and S4 streams, and cross-drain culverts along the road. Deactivation measures may include water management techniques (such as installation of cross-ditches or waterbars, removal or back-up of cross-drain culverts, and removal or back-up of stream culverts) and other measures such as repair of bridges and revegetation of exposed soils using a suitable grass seed and legume mixture.*

- The prescription requirements are a 1:5000 scale map (or other suitable scale) showing the locations of the actions corresponding to the chainages of field markings, and a tabular summary (spreadsheet) to accompany and complement the map. The tabular summary will provide more detailed information such as general site conditions, the size of existing culverts and bridges, sediment transport hazards and consequences, and methods to control sediment transport, including the measured chainages along the road and the corresponding actions. In this case, the prescription must clearly identify the fish streams and the timing windows for working in and about a stream.

Type 3 deactivation prescription: *The road is located on a mid-slope and traverses steep terrain and areas having a moderate to high likelihood of landslides. There may be visual indicators of road fill instability, surface soil erosion, and previous road fill washouts along the road.*

- This is a complex project, involving deactivation prescriptions for unstable terrain and the services of a Terrain Stability Professional. The deactivation prescription would include a 1:5000 scale map showing the locations of the actions corresponding to the chainages of field markings, a tabular summary (spreadsheet) to accompany and complement the map, and a detailed letter or report. The prescription should clearly identify the timing windows for working in and about streams. The prescription should also specify the need for any professional field reviews during the deactivation work.

Deactivation Works

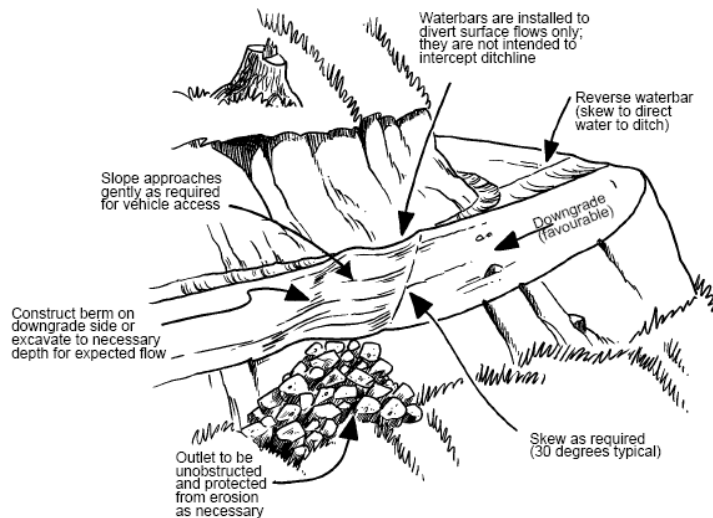
In accordance with the deactivation prescription, mandatory requirements for road deactivation include:

- removing all bridge and log culvert superstructures and all stream pipe, pipe-arch, and box culverts, and restoring channel and bank stability as required;
- removing bridge and log culvert substructures, if the failure of these substructures would have a material adverse effect on downstream property, forest resources, or other social and economic values;
- stabilizing the road prism or the clearing width of the road if stabilization (through water management, road fill pullback, and revegetation techniques) is necessary to reduce the likelihood of a material adverse effect on forest resources and other social and environmental values; and
- subject to District Manager exemption, barricading the road surface width in a clearly visible manner to prevent access by motor vehicles (other than all-terrain vehicle) using the installation of the most appropriate of the following barriers:
 - gate;

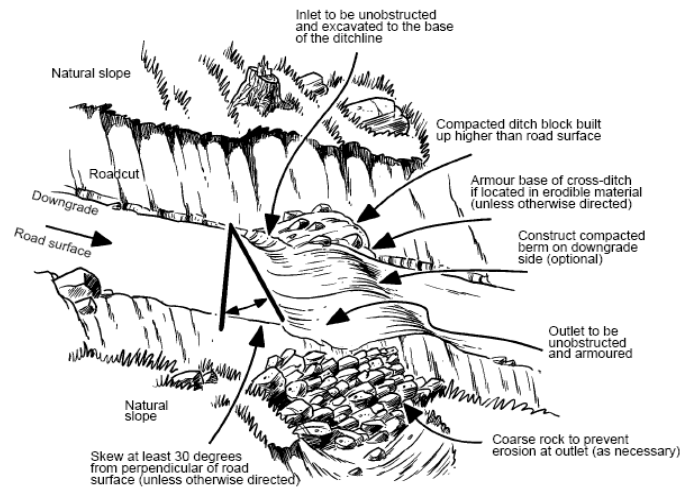
- a soil or rock berm;
- concrete blocks;
- an excavation; and
- other suitable barrier.

To assure drainage and stability, the following practices may be employed in the appropriate locations:

- constructing water bars along the road as shown below to intercept water on the road surface and convey it onto stable slopes below the road, in the following situations:
 - there is surface flow on the road grade (road scour)
 - relatively steep road grades
 - throughout with steep grades, and surface erosion is expected
 - upgrade of a switchback to keep water off steep road grades at the switchback



- constructing cross ditches as shown below to back up cross drain and stream culverts, or to divert ditch water where there are insufficient cross drains and convey it onto stable slopes below the road:



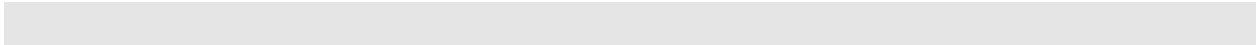
- removal of stream culverts

- drains
- swales
- armoured fords
- insloping/outsloping road surfaces
- pullback of road or slope material

To control surface soil erosion and sediment transport, all exposed soils that will support vegetation must be seeded. This should be undertaken in the first growing season.

Warning signs must be erected during the period of road deactivation activities. Before the activities begin, hazard-warning signs should be installed at appropriate locations to warn potential users of the road of the hazards that can be expected on the whole road or at a particular location.

MFR district, through its contracted specialist, will carry out any required deactivation work on those non-tenured roads required for access to the FFT project, using hired equipment on an hourly basis, using an FS21 Engineering Equipment Rental Agreement (see Appendix I). This equipment will be selected using MFR's Engineering Equipment Suppliers list of available equipment, on the basis that the total equipment rental cost for any one road project will not exceed \$50,000.



APPENDIX I – SAMPLE DOCUMENTS

FFT ROAD INSPECTION REPORT

STANDARD ROAD USE PERMIT EXEMPTION LETTER

FFT ROAD PRESCRIPTION

FS21 ENGINEERING EQUIPMENT RENTAL AGREEMENT

COMPLETION CERTIFICATE

APPENDIX I

FFT ROAD INSPECTION REPORT

Forest Region		Forest District		
Date: Y M D	FFT Project #	Road Identifier from Map		
GPS Co-ordinates at Start of Road:				
Inspection Items: mark with an X if applicable and note station(s)				
<i>X?</i>	<i>Inspection Items</i>	<i>Station(s)</i>	<i>Remedial work required (if any):</i>	<i>Est. Cost</i>
Structural Integrity:				
	Tension cracks			
	Cut slope failures			
	Fill slope failures			
	Slides or mass land movements			
	Shoulder slumps			
	Frost boils			
	Subgrade unable to support wheel loads			
	Washouts			
	Bridge exhibiting structural distress			
	Other (specify)			
Road Surface:				
	Trees growing within road subgrade			
	Existing waterbars and cross ditches			
	Insufficient road surface material			
	Potholes			
	Washboard			
	Rutting from vehicle wheels			
	Road surface erosion			
	Sediment transport from road prism			
	Other (specify)			
Bridge Surface:				
	Waterway opening contains logs and debris			
	Running planks missing or damaged			
	Rails and curbs damaged			
Drainage Systems:				

Forests for Tomorrow (FFT) Access Standards

	Inadequate no./size of cross drain culverts			
	Culverts plugged			
	Culverts washed out			
	Culvert and/or ends damaged			
	Insufficient fill over culverts			
	Ditch line sloughing			
	Fish passage restricted			
	Other (specify)			
Road Safety:				
	Sight distances inadequate			
	Dangerous trees			
	Traffic control signs			
	Other (specify)			
TOTAL ESTIMATED COST				

APPENDIX I

STANDARD ROAD USE PERMIT EXEMPTION LETTER

File: xxxxxxxxxxxx

Dear _____:

Under the authority granted the Minister in Section 22.1 (4) of the *Forest and Range Practices Act*, this will confirm your exemption from requiring a Road Use Permit for the duration of your use of the forest service roads serving the _____ FFT area, as shown on the attached map.

The legislation provides that although you have been exempted from the permit described above, you are responsible under the regulations for the maintenance of those roads that are not currently maintained by an industrial user for the duration of your use.

This exemption is granted subject to the following condition(s):

1. the exemption applies to your use of the roads when you are carrying out site preparation, danger tree falling as required by the Workers' Compensation Board of BC (WorkSafeBC), in Occupational Health and Safety Regulation (Sec. 26.11), planting or stand tending, including brushing and thinning; at other times, you are not responsible for road maintenance.
2. In accordance with section 22.1 (7) of the *Forest and Range Practices Act*, you must give any holder of a Road Permit or a Road Use Permit (with maintenance responsibilities) at least five clear days of notice of your commencing to use their road(s).
3. If required by the permit holders in (2) above, the exemption holder must pay for road use in accordance with section 22.3 of the *Forest and Range Practices Act*.
4. Where there are posted signs indicating a two-way radio system for use on a road maintained by another user, the posted radio frequency must be used in the prescribed manner. The Recipient must make arrangements with the road maintainer to obtain the necessary equipment or to use the frequency.

Yours truly,
District Manager
_____ Forest District

cc Compliance and Enforcement

Attachment(s): see map

APPENDIX I



Ministry of
Forests and Range



**ENGINEERING EQUIPMENT
RENTAL AGREEMENT**

CONTROL NO.

THIS AGREEMENT made this _____ day of _____,

FILE NO.: _____

BETWEEN:

EES CLIENT NO./IDENTIFIER _____

HER MAJESTY THE QUEEN in right of the Province of British Columbia, as represented by the Minister of Forests

AND _____
(Name)

(Ministry Location)

(Business Address)

(Address)

(City, Province) (Postal Code)

(herein called the "Province")

(Phone No.) (Cellular Phone No.)

(Fax No.) W.C.B. Registration No.)

(herein called the "Contractor")

WHEREAS:

- A. The Province requires the use of certain equipment from time to time for work on various projects.
- B. The Contractor has agreed to rent to the Province on an "as and when" required basis, certain equipment on the terms and conditions contained herein.

Accordingly, the parties agree as follows:

1. Equipment and Rental Rate

- (a) The Contractor will supply to the Province, when requested, the following equipment (the 'Equipment') at the all found rates [drawn or adapted from the current *Equipment Rental Rate Guide*, referred to as *the Blue Book* published by the B.C. Road Builders and Heavy Construction Association shown below. Use Schedule A when needed for additional equipment.

Make & Type of Machine	Serial No.	Year	Rated Size	Attachments & Crew	Hourly
		& Model	& Capacity		
[\$]					

- (b) If the Province orders in writing any of the Equipment to be on standby, the Province will pay the applicable standby rate for the Equipment so indicated on Schedule A.

and shall, at the Contractor's expense, carry out all necessary and appropriate maintenance and repairs to the Equipment.

2. Fuel, Lubricants, Maintenance, Parts and Repairs

The Contractor shall, at the Contractor's expense, supply all fuel, lubricants and parts for the Equipment

3. Worksite and Point of Hire, Mobilization and Demobilization

- (a) The Point of Hire shall be mutually agreed to between the Province and Contractor, and shown on the *Project Time Report (Daily)* FS472, or the *Project Time Report (Bi-Weekly)* FS472A.

Forests for Tomorrow (FFT) Access Standards

- (b) The equipment shall be used at a location (the Worksite) subsequently determined by the Province, and shown on the *Project Time Report (Daily)* FS472, or the *Project Time Report (Bi-Weekly)* FS472A.
- (c) The Province shall determine the cost to be paid for mobilization and demobilization for each piece of equipment per project. The amount to be paid shall be shown on the *Project Time Report (Daily)* FS472, or the *Project Time Report (Bi-Weekly)* FS472A. The cost shall include the loading, transporting and unloading of equipment from the Point of Hire to the Worksite and return to the Point of Hire.

- (d) The Contractor shall pay and agree to the cost of transporting the Operator and Crew to and from the Worksite.

4. **Supervision of Work and Worksite**

Any use of the Equipment at the Worksite shall be under the direction of an agent designated by the Province.

In signing this Agreement, the Contractor certifies that he/she understands the Additional Conditions appearing on the reverse of this form, and on any attachment hereto.

IN WITNESS WHEREOF the parties have executed this Agreement as of the day and year first above written.

PROVINCE

CONTRACTOR

SIGNED AND DELIVERED on behalf of the Province by an authorized representative of the Province

SIGNED AND DELIVERED by or on behalf of the Contractor (or by an authorized signatory of the Contractor, if a corporation)

(Authorized Representative/Spending Authority)

READ TERMS ON REVERSE SIDE

(Contractor or Authorized Signatory)

Forests for Tomorrow (FFT) Access Standards

5. Termination of Agreement

- (a) Unless otherwise agreed, the term of this Agreement shall end on March 31 of the year following the date this Agreement is signed.
- (b) The Province may, at its sole discretion, terminate this Agreement upon 24 hours notice. Payment by the Province of all monies then due and owing to the Contractor for the use of the Equipment under this Agreement shall discharge the Province from any and all liability to the Contractor under this Agreement.

6. No Obligation to Proceed

- (a) If the Province requests the Contractor to provide Equipment for a specific project, the Contractor shall have the right to elect whether or not to so proceed, and the Contractor shall not be liable for breach of this Agreement if the Contractor elects not to proceed.
- (b) The Province shall not be obliged to request Equipment at any time, and the Province shall not be subject to any liability for breach of this Agreement if the Province decides not to do so.

7. Payment of Invoices

- (a) Contractor shall submit written invoices in a form acceptable to the Province on a monthly basis or at other times as designated by the Province.
- (b) Invoices shall be based on the actual hours the Equipment is operated, plus an amount for mobilization and demobilization, plus standby time where applicable, as recorded on Daily Time Reports initialed by the Contractor's operator and certified correct by the Province, multiplied by the applicable rates and subject to any deductions as may be otherwise provided in this Agreement.
- (c) Under no circumstances shall the Province be obliged to pay charges in excess of \$100,000 under this Agreement.
- (d) Subject to performance and observance by the Contractor of the conditions set forth in this Agreement, the Province shall pay the amount of monies due to the Contractor in accordance with the Province's payment practices and the *Financial Administration Act*.
- (e) Interest less than \$5.00 will not be paid. No interest will be paid unless and until an account is overdue by at least 61 days. The overdue period shall be calculated from the date the Province approves payment or the date the invoice is received (whichever is the later) to the date the cheque is printed by the Ministry of Finance.

8. Contractor's Indemnification and Insurance

- (a) The Contractor shall indemnify and save harmless the Province, its employees and agents, from and against any and all losses, claims, damages, actions, causes of action, costs and expenses that the Province may sustain, incur, suffer or be put to at any time either before or after the expiration or termination of this Agreement, where the same or any of them are based upon, arise out of or occur, directly or indirectly, by reason of any act or omission of the Contractor or of any agent, employee, officer, director or subcontractor of the Contractor pursuant to this Agreement, excepting always liability arising out of the independent negligent acts of the Province.
- (b) All Equipment hired by the Province must be insured by the Contractor against loss or damage.
- (c) The Province shall not be responsible for loss or damage occurring to the Equipment, regardless of how, when or where the damage occurs and, in signing this Agreement, the Contractor relieves the Province and its employees from any and all responsibility for such loss or damage.
- (d) The Contractor, in the event of any loss or damage, shall take reasonable steps to prevent further loss, including removal of the Equipment.
- (e) The Contractor shall provide, maintain and pay for Comprehensive General Liability insurance protecting the Province and the Contractor from and against any and all claims which may arise out of the Contractor's operation and handling of the Equipment during the rental period:
 - (i) The amount of such insurance shall be not less than \$2,000,000 inclusive of any one occurrence.
 - (ii) The Contractor shall provide the Province with evidence of such insurance prior to the commencement of Work under this Agreement, and such evidence shall be in the

form of a completed Province of British Columbia Certificate of Insurance.

9. Miscellaneous

- (a) The Province certifies that the Equipment, Materials and associated accessories and Crew are for the use of and are being acquired by the Province with Crown funds, and are therefore not subject to the Goods and Services Tax.
- (b) The Contractor shall do the following:
 - (i) At its own expense, obtain Workers' Compensation Board compensation coverage for itself, all workers and any shareholders, directors, partners or other individuals employed or engaged as a result of this Agreement,
 - (ii) Comply with all the requirements of the *Workers' Compensation Act* and Regulations, and pay all assessments and levies made thereunder, and
 - (iii) Upon request by the Province, provide proof of such compliance.
- (c) The Contractor shall, in connection with this Agreement:
 - (i) Establish and maintain accurate books of account and records (including supporting documents) to the satisfaction of the Province, and when requested, permit the Province, at any time during normal business hours, to copy and audit any one or more of the books or account or records (including supporting documents), and
 - (ii) Permit the Province, at all reasonable times, to inspect and copy any findings, data, specifications, drawings, working papers, reports, documents and material, whether complete or otherwise, that have been produced, received or acquired by the Contractor as a result of this Agreement.
- (d) By mutual agreement of the parties, this Agreement may be amended in writing.

10. Drilling and Blasting Requirements

- (a) A blaster must be licenced with the appropriate class, under the Workers' Compensation Board, to carry out the work. The Contractor must produce evidence of the licence upon request of the Province.
- (b) The drilling equipment associated with this Work is hired at the rental rate shown in clause 1, which shall include driller/licensed blaster, a helper, support vehicles, drill steel, bits, grinders, blasting agent loading attachment as required, powder magazine and/or day box, blasting mats, signs, warning signal horns, tools, blasting machine and miscellaneous items required in the loading and blasting phase of the Work.
 - (i) The full rate shown in clause 1 will be paid for the hours that the Equipment and Crew are drilling and positioning, and when loading a blasting agent using the compressor;
 - (ii) One-half of the full rate will be paid for the hours loading explosives which do not require the compressor, and/or when the Crew and drilling equipment are required by the Supervisor to remain on-site but are not able to work.
- (c) The Contractor shall promptly remove all unused, damaged or deteriorated explosives or detonating devices, and shall remove any undetonated explosives upon completion of the Work.
- (d) A blasting log recording the loading details, including a diagram of the blast pattern, and post-site examination must be available upon request at the blast site. Upon completion of the project, the blasting log, if requested, will be given to the Province.
- (e) The Contractor shall ensure that all Equipment and operations comply with the *Motor Vehicle Act*, the *Motor Carrier Act* and all other applicable Federal Acts, including the *Explosive Act (Canada)* and all Regulations pursuant to these Acts.
- (f) The Contractor shall:
 - (i) Provide all explosives and detonators at cost plus 10%. The cost shall include PST, but not GST, and
 - (ii) Submit to the Ministry copies of the supplier's invoice(s) for the explosive materials actually used on the project, to verify the Contractor's costs.
- (g) The Contractor shall use only rock-drilling and blasting techniques which minimize disturbance to forest resources and existing improvements, minimize fly rock and reduce the potential for landslides or slope instability.

PROCEDURES FOR COMPLETING AND USING THE EQUIPMENT RENTAL AGREEMENT

FS 21 Engineering Equipment Rental Agreement

- The FS21 may be used for one or more pieces of equipment owned by a particular supplier.
- The EES Client Number/Identifier field refers to existing MFR Client Number or Key Identifier assigned in the BC Bid System.
- The equipment is listed in Clause 1(a) on the front page of the FS21 and on Schedule A if additional space is needed.
- Rates must be negotiated for each project and for each piece of equipment, using as a guideline the rates set out in the annual *Equipment Rental Rate Guide*, referred to as *the Blue Book* published by the B.C. Road Builders and Heavy Construction Association.
- If during a project, the Province requires a piece of equipment to be on standby, a new Schedule A is used to list the equipment and show the agreed-to standby rate (\$/hr). The Schedule A is dated, signed by both parties, and attached to the FS21.
- If during the life (term) of the FS21, a particular supplier wishes to add additional pieces of equipment to the list already provided and shown in clause 1(a), the additional equipment may be added to Schedule A.
- **The Worksite, Point of Hire, cost of Mobilization, and Demobilization, referred to in clause 3, are shown on the time cards. See Time Cards FS472 and FS472A for more details.**
- Clause 5 deals with termination of the agreement.
- Clause 6 simply describes that just because an agreement is signed, there is no obligation, by either party, to use the equipment listed in the agreement.
- Clause 10 describes payment for drilling and blasting operations and payment of explosive materials.

APPENDIX I

**FORESTS FOR TOMORROW (FFT) ACCESS
COMPLETION CERTIFICATE**

RECIPIENT NAME		FILE NO.
FFT PROJECT NAME AND LOCATION		PROJECT NO.
RECIPIENT'S ADDRESS		
DESCRIPTION OF ROAD WORK (CHECK APPLICABLE BOXES) <input type="checkbox"/> ROUTINE SURFACE MAINTENANCE <input type="checkbox"/> ROAD FINAL SURFACE TREATMENT		MINISTRY COST ESTIMATE FOR ROAD WORK (TO BE COMPLETED ONLY ON MFR COPY OF THIS CERTIFICATE)
This is to certify that, as of _____, 20____, the work has been carried out to the Province's satisfaction in accordance with the FFT Access Standards.		
DATED THE _____ DAY OF _____, 20_____.		MINISTRY REPRESENTATIVE'S SIGNATURE

1 COPY TO RECIPIENT; 1 COPY TO MFR DISTRICT (INCLUDING COST ESTIMATE)