

5.1 Mandatory Procedures & Best Practices

Following is a table that summarizes in approximate chronological order the mandatory procedures and best practices with respect to the construction of Forest Service roads. Links are provided to direct the reader to the location in the manual text where the tabular item is discussed.

Table 5-1 Road Construction

Results to be achieved:

- minimize the clearing width (FPPR s. [78](#))
- do not cause sediment transport through mass wasting processes that would have a material adverse effect on forest resources (FPPR s. [37](#), [38](#), [57](#), [59](#), [69](#), [70](#), [72](#), [106.2](#))
- maintain natural surface drainage patterns (FPPR s. [39](#))
- no construction of a road in a riparian management area (FPPR s. [50](#))
- no fan destabilization that would have a material adverse effect on forest resources (FPPR s. [54](#))
- protect stream channel and banks (FPPR s. [55](#))
- protection of fish passage and fish habitat (FPPR s. [56](#), [57](#))
- protection of water quality (FRPA s. [46](#), FPPR s. [59](#))
- no construction near licensed waterworks in community watersheds or springs in a community watershed (FPPR s. [60](#), [62](#))
- address general wildlife measures, and resource or wildlife habitat features (FPPR s. [69](#), [70](#))
- road is safe for industrial use (FPPR s. [72](#))

Legislation supported: FPPR sections [37](#), [38](#), [39](#), [40](#), [50](#), [54](#), [55](#), [56](#), [57](#), [59](#), [60](#), [62](#), [69](#), [70](#), [72](#), [76](#), [78](#), [84](#), [106.2](#): all road-related items

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| M1 | Road construction must be carried out in accordance with the road plan, subject to changes necessitated by site conditions and approved by the designer [see General Road Construction Practices]. |
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Legislation supported: FPPR section 78: minimize clearing width

B1 Minimize the clearing width, while accommodating the topography, user safety and operational requirements [Establishing Clearing Widths].

Legislation supported: FPPR sections 37, 38, 57, 59, 69, 70, 72, 106.2: do not cause sediment transport through mass wasting processes that will impact user safety or have a material adverse effect on forest resources

B2 Do not deposit debris resulting from grubbing and stripping within the clearing width in areas where the debris could have a material adverse effect on forest resources and other values [see Disposal of Debris].

B3 In areas of moderate to high landslide potential, remove all organic debris from within the road prism width [see Disposal of Debris].

B4 Locate disposal sites and place debris at a disposal site to ensure that activities do not cause a landslide, gully processes on the Coast, or uncontrolled erosion and sediment transport that have a material adverse effect on forest resources and other values [see Disposal of Debris].

B5 To maintain slope stability in areas having steep slopes or unstable (or potentially unstable) terrain, consider applying full bench and partial bench construction techniques [see Full Bench].

B6 Ensure that rock drilling and blasting techniques minimize the potential for landslides or slope instability [see Rock Excavation].

B7

Shut down road construction work before slope stability is in question, or landslides occur [see [Shutdown Indicators](#)].

Legislation supported: FPPR section [39](#): maintain surface drainage patterns

B8 To maintain surface drainage patterns, keep water in its own drainage area, unless moving it to another area is necessary to avoid unstable or sensitive soils [see [Maintaining Surface Drainage Patterns](#)].

Legislation supported: FPPR section [50](#): no construction in riparian management areas, except as provided

B9 B9. Do not locate borrow pits or disposal sites in a riparian management area [see [Location of Disposal Sites](#)].

B10 Ensure that there are no subgrade construction works within a riparian management area, unless otherwise exempted from this requirement by regulation [see [Riparian](#)].

Legislation supported: FPPR section [54](#): no fan destabilization on the Coast

B11 Ensure that road construction works do not cause fan destabilization on the Coast that will result in material and adverse effects on other resources [see [Fan Destabilization](#)].

Legislation supported: FPPR section [55](#): protect stream channel and banks

B12 Ensure that the disturbance to the stream channel and the stream bank at the crossing are mitigated to the extent that the original conditions are reasonably restored. Also, ensure that despite the works at the crossing, the stream banks above and below the crossing are protected. Ensure that the disturbance to the stream channel and the

stream bank at the crossing are mitigated to the extent that the original conditions are reasonably restored. Also, ensure that despite the works at the crossing, the stream banks above and below the crossing are protected [see [Culverts](#)].

B13 Use culvert outlet protection where discharge velocities and energies at the outlets of culverts, conduits or channels are sufficient to erode the immediate downstream reach [see [Culverts](#)].

Legislation supported: FPPR sections [56](#) and [57](#): protection of fish passage and fish habitat

B14 Ensure that any culverts constructed on a fish stream do not impede fish passage or harmfully alter fish habitat [see [Culverts on Fish Streams](#)].

B15 Ensure that roads on fans are constructed to account for identified hazards on a fan [see [Fan Destabilization](#)].

Legislation supported: FRPA section [46](#): protection of the environment and FPPR section [59](#): protection of water quality

B16 To minimize sediment delivery to streams, do not discharge the water conveyed in ditches and cross-drain culverts directly into streams [see [Maintaining Surface Drainage Patterns](#)].

B17 For snow and winter roads, do not mix soil with snow in the riparian management area of stream crossings [see [One-Season](#)].

B18 Ensure that debris is placed at disposal sites so as to protect against sediment transport that will have a material adverse effect on forest resources and other values [see [Disposal of Debris](#)].

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| B19 | When constructing permanent roads, minimize the placement of snow, ice, and frozen material in the road fill [see Winter Construction]. |
| B20 | <p>When constructing fords, consider:</p> <ul style="list-style-type: none"> • armouring ditches with non-erosive material; • directing runoff into sediment basins or other sediment trapping devices; and • capping the road surface with erosion-resistant material on either side of the ford for an appropriate distance <p>[see Ford Construction]</p> |
| B21 | To minimize sediment transport away from the road prism and disposal sites, consider using sediment control techniques [see Sediment Control]. |
| B22 | Ensure that roads on fans are constructed to account for identified hazards on a fan [see Fan Destabilization]. |
| B23 | Surface the subgrade with pit-run gravel or crushed rock aggregate where subgrade material is highly erodible and needs to be protected from water or wind action [see Surfacing]. |
| B24 | Determine when forest road operations are to be shut down because the works are causing, or may imminently cause, environmental damage [see Shutdown Indicators]. |
| <p>Legislation supported: FPPR sections 60, 62: no construction near licensed waterworks in community watersheds or springs in a community watershed</p> | |
| B25 | Unless there is an exception in accordance with FPPR, ensure that the road is constructed so as not to damage a licensed waterworks and to achieve at least 100m distance from any such waterworks or springs in community watersheds [see Licensed Waterworks]. |

Legislation supported: FPPR sections 69, 70: general wildlife measures, and resource or wildlife habitat features

B26 Ensure that a road is constructed in accordance with any general wildlife measures that may be in place (as identified in the road layout process), and the construction activities do not damage and resource or wildlife habitat features [see Wildlife].

Legislation supported: FPPR section 72: roads and structures are safe for industrial users

B27 Construct turnouts and widenings at locations and to specifications in accordance with the road design to allow safe passage of expected vehicles types on single lane roads [see Turnouts].

B28 Should a ford become unsafe for traffic during high water, take measures to warn and exclude users for that period [see Ford Operating Constraints].

Legislation supported: FPPR section 76: culvert materials

B29 Ensure that any permanent culvert materials are fabricated in accordance with the current Canadian Standards Association specifications [see Road Drainage].

Legislation supported: FPPR section 40; revegetation

B30 To minimize surface soil erosion after road construction on all soils exposed that are subject to weathering, cover them with grass and legume vegetation [see Soil Erosion].

Legislation supported: FPPR sections 37, 38, 39, 40, 50, 54, 55, 56, 57, 59, 60, 62, 69, 70, 72, 76, 78, 84, 106.2: all road-related items

B32

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| | Ensure that the necessary steps in the road construction processes were undertaken and issues addressed [see Project Tracking Checklist] |
| M2 | The Coordinating Member must sign (and seal as appropriate) the Road Project Assurance Statement (PDF) . |
| B33 | Ensure that there is a field inspection to monitor the completeness of the professional certification and to incorporate as-built information into the applicable data base [see General Road Construction Practices]. |
| B34 | For those roads identified as becoming FSRs after construction: <ul style="list-style-type: none"> • ensure that a BCTS engineering technician carries out a minimum of a final field inspection of those roads built by a TSL holder under road permit to confirm the suitability of the road construction; and • similarly, ensure that a District engineering technician inspects roads built by others [see General Road Construction Practices] |

In the above table of chronological events:

- **M** = Mandatory procedures
- **B** = Best practices