The FITT initiative

This guide was published by FPInnovations – Feric's Forest Innovation and Technology Transfer initiative, based in Sault Ste. Marie. FITT provides forestry contractors and the forest industry in Northern Ontario with a range of services to help keep abreast of the latest innovations, working methods and developments in technology.

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This guide is part of a series that presents best practices to **reduce damage during partial cut operations** in the Great Lakes-St. Lawrence Forest Region of Ontario

Installing Water Crossings in Harvest Blocks

A Practical Guide for Forest Workers

If not installed properly, water crossings used during harvest operations risk damaging watercourses, which in turn can affect water quality and fish habitat.

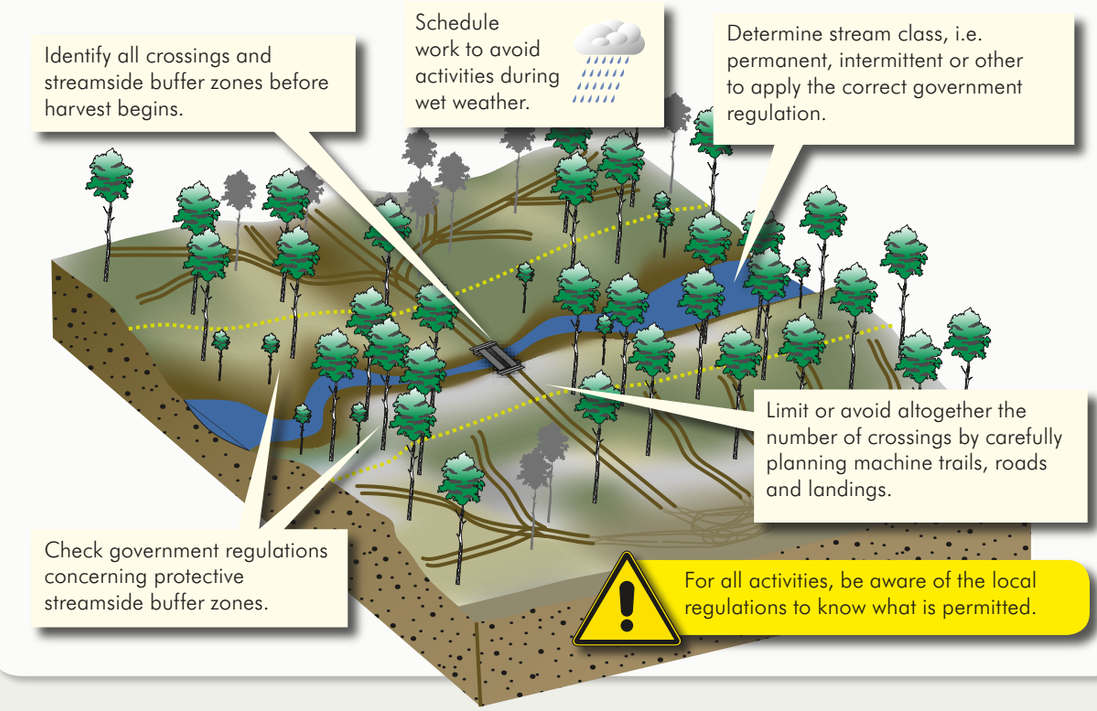
FPInnovations – Feric created this guide to help machine operators adopt best practices and thereby prevent damage to streams should water crossings be required.

Best Practices

Plan Your Work!

Choose a crossing location with the following characteristics:

- Narrow stream width
- Solid, stable stream bank and bed that can withstand possible damage
- Not associated with sensitive fish or wildlife habitat, e.g. a riffle or stick nests
- Located on flat ground and having a good bearing capacity



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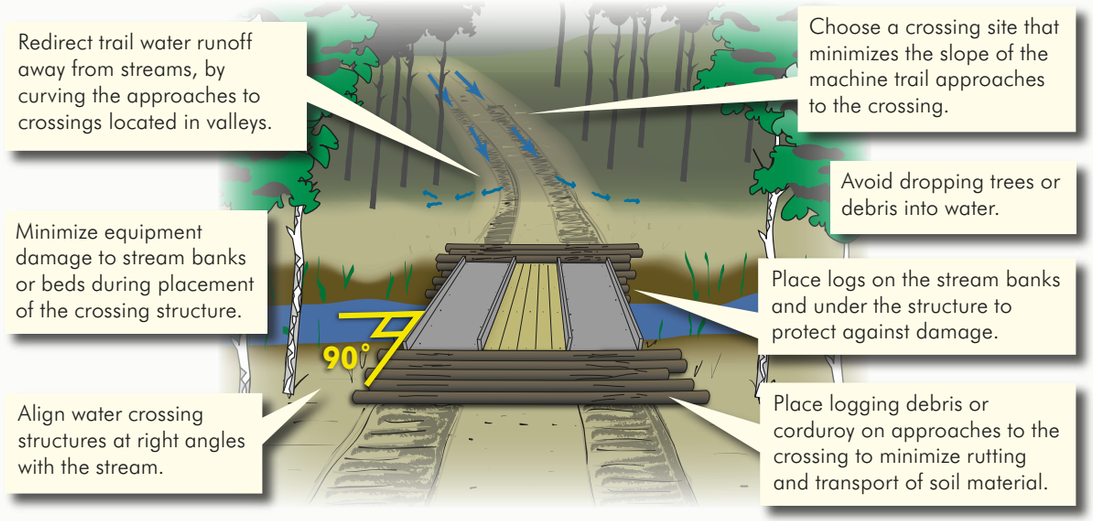
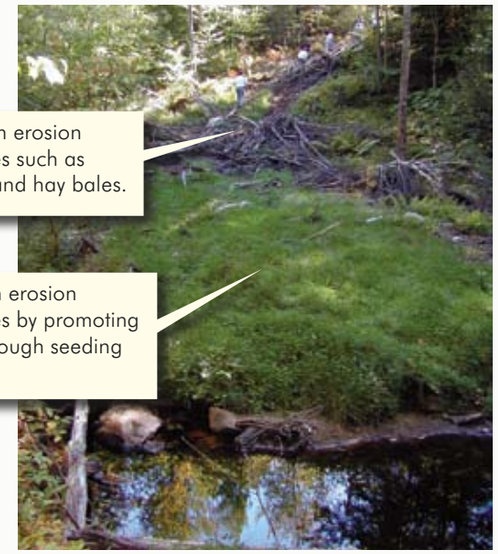
Construction and Installation



Decommissioning

- Immediately remove crossings when no longer required.
- Remove any pooled water in machine trails or install barriers to stop movement. Employ water bars or off-takes.
- Stabilize exposed mineral soils at the crossing site and on approaches.
- Additional information can be found in the companion guide Controlling Soil Erosion on Skid Trails and Landings.



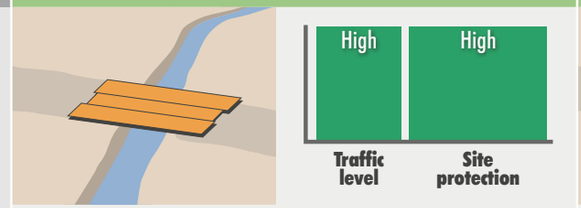
Choice of Structure

Factors to consider

- Type and size of equipment (skidder vs. forwarder)
- Number of anticipated crossings
- Stream class and characteristics (width, firmness of bed and banks, etc.)
- Season of use
- Structures in use in nearby similar operations. Consider creating a fleet or pool of structures that may be shared with other operations.
- Method of transportation of the structure to the crossing site

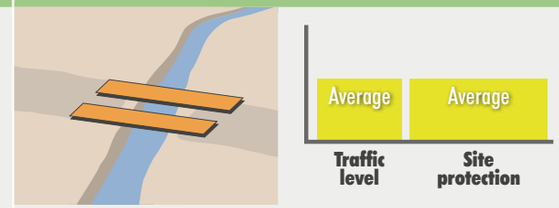
In winter operations:
Snow fills and brush may be used for temporary crossings on intermittent streams.

Full deck bridge



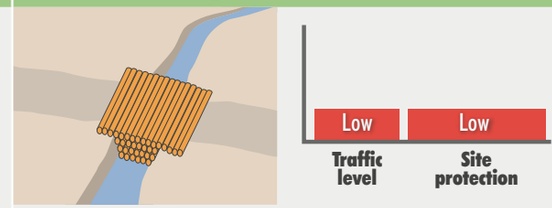
- Crossing types include steel or wood timber/log bridge and steel or high-density polyethylene arch
- Fully covered deck that helps protect stream
- Typically, the largest structure option so may be difficult to transport to the crossing site
- May be available in sections that can be transported to the site

Partial deck bridge (planks)



- Usually made of steel or wood timbers
- Popular, with many designs available
- Since open decking can allow material to enter the stream, logs can be placed between planks
- Easy to transport

In-stream crossings



- Crossing types include pipe bundles, small round culverts and log bundles
- Machinery or crossing structure material is in contact with the streambed
- Must be used with streams with stable stream beds and banks
- May not be approved in all jurisdictions, but possibly used on intermittent or ephemeral streams

Note:
Fords can be used when a very low number of machine crossings are required.