



Purpose: This guide is intended to assist BCTS clients and staff in recognizing wet weather and ground conditions that may impact worker safety, operations, environment and damage to road systems. The guide also provides suggested best practices and recommends operational shut down conditions.

The primary control mechanism to protect water quality is through the operational controls such as Environmental Field Procedures (EFPs) of the Environmental Management System (EMS). The EMS plays a significant role in maintaining water quality as it requires the licensees and contractors to manage erosion and sediment delivery into water features appropriately.

The following are related operational requirements identified in BCTS's EFPs #04 & #05 that apply to BCTS harvesting and road management activities:

- Operate during favourable weather and site conditions
- Implement strategies to minimize impacts to soil productivity and water quality
- Avoid excessive soil disturbance
- Utilize sediment control measures i.e. (silt fences, hay bales, rock armouring, swales, water bars or sediment ponds as appropriate)
- Clean introduced debris from ditches, streams and culverts on an on-going basis.



STOP WORK and contact your project supervisor and the BCTS representative if:

- You experience unfavourable weather or site conditions that could cause environmental damage.
- You observe conditions that have the potential for immediate environmental damage.

Environmental indicators for work shutdown & evacuation of the worksite for safety purposes include:

1. Sudden muddy water in creeks (especially in gullies)
2. Sudden lack of flow in creeks during wet weather
3. Cracks appearing in the soil
4. Sloughs $\geq 1\text{m} \times 1\text{m}$ occurring in the soil
5. Anchor stumps pulling out of wet soil
6. Landslides occurring in the general area, or sounds of landslides occurring
7. Sloughs in road cuts, especially during road construction or deactivation





Harvesting and Road Activities *Also refer to related requirements outlined in BCTS EFP #04 Roads, Bridges and Major Culverts & EFP #05 Harvesting*

Activity	Recommended Practices	Recommended Shut Down Conditions
Trail Construction (this includes pilot trails for during road construction)	<ul style="list-style-type: none"> ➤ Locate skid and pilot trails in areas that minimize excavation where possible (avoid steep cuts, seeps, and wet areas). ➤ Maintain drainage concurrently with skid trail or pilot trail construction by utilizing cross-ditches/swale, skid culverts/log bundles including wood puncheon at all seeps and water courses (NCDs and classified water courses). Highly erodible materials may require temporary rock armouring. Water bars may be necessary on steeper grades especially when rutting occurs. ➤ Install cross-ditches/swales and water bars during periods of inactivity. ➤ Utilize sediment control measures where necessary at key control points. ➤ Locate pilot trails in areas that minimize excavation and optimizes material use, where possible (avoid steep cuts, seeps, and wet areas). Where possible, do not deviate from pre-located road locations. ➤ In areas of significant wet ground, pre-construct this section with excavator (i.e. install geotextile, rock ballast etc.) may be necessary. ➤ Prior to any excavations on wet ground, consider utilizing techniques to minimize excessive disturbance such as using geotextile matting, puncheon, or rock ballast etc.). Have a plan prior to starting. ➤ Ensure that ruts are cross ditched to allow drainage; ➤ Maintain natural drainage concurrent with trail construction ➤ If surfaces become rutted to the extent that water begins to pool or road surfaces become saturated from a lack of drainage, install drainage control such as cross-ditches, swales and/or water bars. ➤ Back blade to remove ruts and hasten dry material when conditions allow 	<ol style="list-style-type: none"> 1. Ground based operations should cease if the following conditions develop: <ul style="list-style-type: none"> • Water is transporting visible siltation or sediment towards streams, • Excessive rutting of 15cm or greater depth is occurring. 2. Operations should be modified or suspended where there is abundant hill slope runoff i.e. during spring freshet or periods of high runoff from prolonged heavy precipitation. 3. Suspend operations if wet weather causes excessive erosion and rutting particularly to the extent where sediment flow is noticeable or when construction material (soils/parent material) losses its ability to hold its shape. <div data-bbox="1339 1008 1858 1401" data-label="Image"> </div>



Activity	Recommended Practices	Recommended Shut Down Conditions
Ground Skidding	<ul style="list-style-type: none"> ➤ Machine use should be limited to areas where excessive scour, rutting, or compaction is avoidable. This would generally restrict machine use from areas of moderately steep slopes as well as any localized areas of wet, soft, or very loose soils. This is intended to reduce the likelihood of concentrated or redirected drainage, as well as shallow subsurface water interception. ➤ Maintain drainage features clean out introduce debris concurrent with operations. ➤ Utilize sediment control measures where necessary at key control points. 	<ol style="list-style-type: none"> 1. Ground based operations should cease if the following conditions develop: <ul style="list-style-type: none"> • Water is transporting visible siltation or sediment towards streams, • Excessive rutting of 15cm or greater depth is occurring. 2. Operations should be modified or suspended where there is abundant hill slope runoff i.e. during spring freshet or periods of high runoff from prolonged heavy precipitation.
Cable Skidding	<ul style="list-style-type: none"> ➤ Fall, skid, and yard away from all streams and NCDs where practicable. ➤ Avoid cross-stream yarding and keep all riparian features clear of debris. ➤ Where possible, avoid excessive repetitive scouring. ➤ Maintain drainage features clean out introduce debris concurrent with operations. ➤ Utilize sediment control measures at key control points. 	<ol style="list-style-type: none"> 3. Suspend operations if wet weather causes excessive erosion and rutting particularly to the extent where sediment flow is noticeable or when construction material (soils/parent material) losses its ability to hold its shape.
Hauling and Road Use	<ul style="list-style-type: none"> ➤ Operate during favourable weather and site conditions ➤ If hauling during marginal conditions prolong haul window and minimize road damage by daily tending of the road surface. ➤ Utilize sediment control measures at key control points ➤ Minimize accumulation of moisture to road surface, install temporary waterbars (well skewed) and spot surfacing of short sections ➤ Operate during favourable weather and site conditions 	<ol style="list-style-type: none"> 1. Road use should be suspended if: <ul style="list-style-type: none"> • Road surface runoff is transporting visible siltation or sediment into streams, • Road surface becomes soupy • Ruts become sloppy and deformed Acceptable depth of ruts is subject to discretion depending on site conditions. In general, pick-up truck access should be un-impeded,
Road Maintenance, Deactivation	<p>Schedule road works required in fine textured soils during dry weather condition i.e.: summer/fall dry.</p>	<p>Material does not hold intended shape or achieve desired compaction when handled Proceed with grading only under dry or slightly damp conditions.</p>