Many forestry operations require tracks.
• Ground based harvesting extraction tracks are needed for tractors, skidders, forwarders and shovel logging.
• Establishment – tracks are built for planting access, pest control, fire protection, and for future operations.
• Mechanised felling.
• Two stage tracks between hauler and processing landing.
• Access for backline cable logging mobile tail holds – for bulldozers or excavators.

A number of factors affect the risk of sedimentation from track construction and use:
• Track location proximity to water bodies.
• Construction technique.
• Stormwater controls.
• Maintenance.
• Post-harvest rehabilitation.
• Soil type.
• Topography (slope, vegetation cover).
• Rainfall.

Improperly constructed, maintained or rehabilitated tracks can become a channel for water, creating a long-term sediment source. The use of tracks permanently compacts soil which can limit site productivity.
**Where and when to use**

1. Construct tracks for operations that improve access, productivity and safety.

**Where not to use**

1. When maintenance of stormwater control is difficult. For example, downhill harvesting, especially in steeper, confined gullies, may result in tracks and stormwater run-off converging, leading to sediment concentrating in the gully floor. Post-harvest rehabilitation is much harder to manage if tracks are poorly located.
2. Where tracks are readily erodible (unless the erosion can be managed with erosion and sediment controls). For example, in lightly structured soils, and gully floors that show signs of periodic wetness. Tracks should not be constructed in wetlands. Note the presence of any wetland vegetation (e.g. sedges or other vegetation that thrives in wet soils).
3. Where necessary, “no-tracking areas” should be defined in operational plans and prescriptions.

**Design**

1. Consider using machinery with low ground pressure.
2. Limit the number of tracks. For ground-based harvesting, if possible, space tracks greater than 60 m apart, except where they converge to main haul tracks.
3. Limit tracks near to rivers. Consider that a lower gradient track parallel to a river may be a lower risk option than steep tracks heading cross-contour to the river.
4. Recognise that wet areas may be unsuitable for a track. Consider using logging slash or log corduroy if tracks have to cross through wet areas.
5. Set track construction standards to provide clear guidance.
6. Consider gently out-sloping tracks (no more than 1 – 4% otherwise logs will roll off the track). These help direct stormwater off the track and reduce soil erosion.

**Construction**

1. Discuss the planned track locations and construction requirements with the contractor. Tracks should ideally be constructed prior to starting harvest.
2. Consider stabilisation options at the time of construction for harvesting tracks such as thatching (placement of slash) and corduroy, especially when potential problems are foreseen, such as erodible soil or wet weather. Use corduroy on high impact areas such as access onto landings, approaching stream crossings or where other methods are not working. Corduroy significantly lowers the machine’s ground pressure (by spreading the weight across a wider area) and creates a barrier between the soil and subsurface. Purposefully placed slash is good for stabilisation, plentiful and effective. It also reduces machinery ground pressure.
3. Construct tracks to reduce site disturbance:
   a. Manage stormwater control.
   b. Limit stumping.
   c. Keep tracks to a minimum, but safe, width.
   d. Any river crossings on tracks require a minimum 450 mm internal diameter culvert.
Tracks
4.1 Track Construction and Use

**Maintenance**

1. Prepare a routine maintenance plan including heavy rainfall response measures.
2. Have a regular inspection programme for tracks that require ongoing maintenance.
3. Check tracks after a heavy rain event.
4. Start maintenance when problems are first identified, well before track failure.
5. Maintain stormwater and sediment control measures (e.g. water tables, water bars, cut-outs and sediment traps). Drain or re-establish clogged drainage points.
6. Maintain cut banks and fills, and remove any spoil that has led to a stormwater control issue or that impedes access.
7. Maintain when there has been significant deterioration such as where:
   a. The track’s natural drainage points have blocked and stormwater is not being discharged off the track.
   b. Mud is being discharged with run-off into sensitive areas or dedicated setbacks.
8. Use slash to help bind/protect the soil and reduce rutting. It also lowers machinery ground pressure by spreading the machine’s weight across a wider area.
9. Ensure the tracks are rehabilitated once harvesting has been completed.

**Other methods**

Locate gully crossing points at suitable sites.

National Environmental Standards for Plantation Forestry
Particular relevant provisions for tracks are Regulations 23 – 35.
Tracks
4.1 Track Construction and Use

Examples

Tracks in gullies need to be carefully managed to avoid increased risk of sedimentation.

Backline harvest track, similar to other types of tracks, cut-outs are required.
Tracks
4.1 Track Construction and Use

Extensive tracking.

Maintained track with stormwater controls.
Tracks
4.1 Track Construction and Use

Poorly maintained track – lacking stormwater controls.

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Other Practice Guides in this series
- 4.1 Track Construction and Use
- 4.2 Track Rehabilitation

Visit: https://docs.nzfoa.org.nz/forest-practice-guides/to view all guides