





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.

Note: Under the NES-PF tracks do not include soil disturbances caused by machinery passes.

This guide is provided as a reference document and does not constitute a statutory obligation under the Resource Management Act 1991 or the National Environmental Standards for Plantation Forestry.

Please refer to the 'how to use' section of the introduction at <u>http://docs.nzfoa.org.nz/forest-practice-guides/</u> for advice on how to use this guide.







A Where and when to use

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

B 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. Postharvest 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. Tracks in wetlands require resource consent.
- 4. Where necessary, "no-tracking areas" should be defined in operational plans and prescriptions.

🖸 Design

- 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.
- 2. 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*.
- 3. 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.

- 4. Set track construction standards to provide clear guidance.
- 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

- 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*.







B 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.

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.









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Maintained track with stormwater controls.

Tracks 4.1 Track Construction and Use

Extensive tracking.









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Poorly maintained track – lacking stormwater controls.









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Tracks 4.1 Track Construction and Use



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