

Expert Conference – Forestry

Topic: Proposed Southland Water and Land Plan – Southland Regional Council





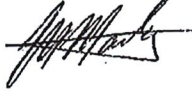
Date of conference: 29 November 2021

Venue: Remote AVL

Facilitator: Anne Leijnen

Recorder: Isabelle Harding

Attendees

Name	Employed or engaged by	Signature
Dr Greg Burrell	Southland Regional Council	
Hamish Fitzgerald	Rayonier NZ	
Dr Chris Phillips	Rayonier NZ	
Sally Strang	SWEL	
Graeme Manley	SWEL	

For ease of reference throughout this JWS, all experts had some relevant expertise in Forestry except the following:

- 1 Dr Burrell is an expert in freshwater ecology and water quality, including landuse impacts on freshwater ecosystems. He is not an expert in forest management or practice.

Environment Court Practice Note

- 2 All participants confirm that they have read the Environment Court Consolidated Practice Note 2014 and in particular Section 7 (Code of Conduct, Duty to the Court and Evidence of an expert witness) and Appendix 3 – Protocol for Expert Witness Conferences and agree to abide by it.

Experts' qualifications and experience

- 3 These are set out in each experts' statement of evidence.

Purpose of expert conference

- 4 The purpose of the conference is to assist the Court by responding to a series of questions, agreed by the experts as the conference progressed, relating to Forestry, and associated issues that the court may wish to consider when determining the appeals. For each question, the experts state matters on which they agree and on which they do not agree, with reasons.

Participants

- 5 This JWS is limited to those Forestry experts that have an interest and took part in the discussion.

Attachments to this JWS

- 6 List of questions for the Forestry experts

Conference outcomes

- 7 The Planning conference identified a number of technical questions to form the basis of the agenda for the Forestry experts. An outcome of this Forestry conference is the answering of these questions. These are attached.

Attachment: Questions to Forestry Experts:

Cultivation definition

1. ***What are the practical and operational implications associated with having to undertake windrowing parallel to contour when the slope is greater than 10 degrees¹? In what situations may this be unsafe?***

The key limitation is safety. To windrow across the slope requires a machine to drive across the slope which is more hazardous and unstable on steeper slopes.

The slope, ground conditions, soil makeup and weather conditions all influence the maximum slope that a machine can operate on. Depending on variables, the slope a machine can operate on is generally between 10 and 15 degrees. On steeper slopes, the safe operating practice is to drive up and down the slope, which means the windrows form in that direction. In addition for some crops, the windrows must follow the direction of the stumps of the previous crop to allow planting to take place in the old crop lines.

Stick raking/windrowing

2. ***Is stick raking/windrowing any different in terms of risk of sediment loss to other cultivation or slopes above 20 degrees?***

As a general principle, as slope increases, the potential for erosion increases. However, there are many factors that will contribute to how much erosion occurs and whether the eroded sediment reaches waterways. The risk of sediment run-off from stick raking is at the lower end of land preparation techniques. In comparison to agricultural cultivation and other forestry land management activities, stick raking is very low with regards to erosion risk. This reflects the low level of soil disturbance. In addition, stick raking occurs in a forestry cutover and the stabilising effects of the old stumps, roots and slash further reduce the potential for erosion and sediment loss.

Cultivation is essentially disturbing and breaking up the soil profile, stick raking does not do this. Stick raking is not cultivation.

3. ***What are the risks from sediment runoff from stick raking? How significant are these risks compared to other forestry and cultivation activities?***

Stick raking is a low-risk activity in terms of sediment run-off. In comparison to other plantation forestry activities (i.e earthworks, road construction, landing construction) it is low risk (See Question 8 below). In comparison to agricultural cultivation, stick raking is significantly lower risk.

4. ***What are the most effective measures to mitigate the risk of sediment runoff from stick raking?***

The most effective mitigation measure is to not disturb the soil. Good practice ensures that not all the branches are moved leaving a layer of fine material on the surface that helps to protect the soil from rain. This also acts as surface roughness elements to capture soil and material that may be moved by rain which forms barriers at the micro level. The preference where the slope permits is to put a windrow across the slope. If the slope is too steep to place windrows across the slope, you need to have a sediment barrier at the base of the slope, usually a windrow.

Reference for compliance with NES-PF, subpart 7, mechanical land preparation, Regulation 74, subclause 2.

¹ As per paragraph c. in the definition of cultivation in Environment Southland's tracked change relief.

5. Are the NES-PF controls for mechanical land preparation (including stick raking) considered to be effective in reducing the risks from sediment runoff?

Yes.

6. Are there circumstances in the Southland region that justify a more stringent approach than the NES-PF in relation to stick raking?

No. Southland has some of the lowest risk geology in NZ. Based on MPI's analysis of the landcover database, 96% of Southland's forests are on land with an erosion susceptibility classification under the NES-PF of low or moderate erosion risk.

7. Will application of the control in the NES-PF result in a reduction in sediment loss during stick raking/windrowing relative to what would occur under controls in Rule 25?

Expected to get the same result. The only difference would be the need to get a resource consent and the time and money involved in obtaining this. Following the NES-PF will produce the same result more efficiently.

Reference for compliance with NES-PF, subpart 7, mechanical land preparation, Regulation 74.

As a general comment it is desirable for the industry to maintain a consistent set of regulations via the NES-PF.

Critical source areas and setbacks²

8. What are the likely practical implications and costs associated with identifying 'critical source areas'³ within a plantation forest ()?

The concept of critical source areas is associated with farming activities. It is not to date a concept that has been used in forestry.

In forestry we can define where the most important areas for sediment generation are, which are not landscape features, as indicated by the Southland Plan definition of critical source areas.

In plantation forestry, potential sediment generating areas are often unrelated to landscape features and are generally in the following order of risk:

- Construction of earthworks,
- Roads and landings,
- harvest tracks,
- haul paths,
- other areas of bare exposed soil,
- covered material/stick raked areas
- sprayed areas

These risks in plantation forestry are managed through the harvest and earthworks plan and the erosion and sediment control plan. Stick raking is managed through a work prescription which falls outside the NES.

9. How effective are the following measures likely to be in terms of mitigating the risks from erosion and sediment runoff:

² Questions 6 to 8 relevant if Rule 25 applies to stick raking.

³ As per definition of critical source areas in Environmental Southland's tracked change relief.

- a. ***Establishing sediment detention when stick raking is undertaken in identified critical source areas⁴?***

The definition of critical source areas from the Plan appears to have been developed for farming. Stick raking will not be undertaken in the most significant sediment generating areas for forestry, as these are defined above (earthworks). Undertaking sediment controls in critical source areas as defined in the definition in the Plan will be ineffective because the most important areas to control in a plantation forestry setting are the roads, landings and earthworks.

- b. ***Graduated setbacks for all water bodies based on slope⁵?***

The NES-PF has graduated setbacks based on the type and size of the waterway (Regulation 74 (8)). The distances are the same in the NES and the Plan but the Southland Plan setbacks are based on slope. With sediment capture by a buffer it is the outer part of the buffer that is the most crucial because that is where most of the trapping happens. There is little need for a graduated buffer in terms of slope for stick raking due to the low risk it poses with respect to sediment generation.

10. ***What are the likely practical and operational implications associated with:***

- a. ***Establishing sediment detention when stick raking is undertaken in identified critical source areas?***

Refer above.

- b. ***Graduated setbacks for all water bodies based on slope?***

Refer above.

Herbicide spraying

11. ***What are the risks from sediment runoff associated with herbicide spraying within a plantation forest? How significant are these risks compared to other cultivation activities that physically disturb the soil?***

Very low. The activity of herbicide spraying is physically not disturbing the soil at all, hence has a low risk of generating sediment. Following spraying, plant material remains intact and forms a mulch and continues to capture sediment alongside the remaining debris on the cutover.

12. ***What, if any, mitigation measures can be used to manage the risks of sediment runoff from herbicide spraying within a plantation forest?***

None.

Critical source areas and setbacks⁶

13. ***How effective are the following measures likely to be in terms of reducing the risks from erosion and sediment runoff:***

⁴ As per Environmental Southland's tracked change relief for Rule 25.

⁵ As per Environmental Southland's tracked change relief for Rule 25.

⁶ Questions 11 and 12 relevant if amendments to the definition of cultivation not accepted.

- a. ***Establishing sediment detention when herbicide spraying is undertaken in identified critical source areas within a plantation forest⁷?***

As noted in the answers to question 11 above, herbicide spraying presents a very low risk in terms of erosion, less so than stick raking. Therefore, the same answers as those given in response to question 9 and 10 apply.

- b. ***Graduated setbacks for herbicide spraying within a plantation forest to all water bodies based on slope⁸?***

From a sediment discharge point of view, the level of risk from sediment discharge does not warrant additional setbacks based on slope. We understand there are rules in the Regional Plan governing aerial chemical application from point of view of protecting waterbodies.

14. What are the practical and operational implications associated with:

- a. ***Establishing sediment detention when herbicide spraying is undertaken in critical source areas (as per Environmental Southland's tracked change relief for Rule 25)?***

As per question 8, the most significant source areas for sediment generation in forestry are earthworks, forestry roads and landings which is managed through erosion and sediment control plans (as required by the NES-PF).

By its nature, herbicide application makes no difference to the potential sediment delivery from earthworks. A requirement to establish sediment detention in critical source areas for herbicide spraying is unnecessary.

- b. ***Graduated setbacks for herbicide spraying all water bodies based on slope (as per Environmental Southland's tracked change relief for Rule 25)?***

Answered in question 13 (b) above.

Supplementary question:

The question was raised, "what are the processes for documenting and checking compliance with the NES-PF rules for land prep?" It was confirmed that harvesting and earthwork plans, and associated erosion and sediment control plans are required under the NES-PF, must be available to the Council and can be monitored for compliance. These requirements do not apply to mechanical land prep due to the low-risk nature of that activity however there are regulations (Regulation 74) that cover these activities and the Council can monitor compliance.

⁷ As per Environmental Southland's tracked change relief for Rule 25.

⁸ As per Environmental Southland's tracked change relief for Rule 25.