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Proposal to amend the National Environmental Standards for Commercial Forestry (NES-CF)

Release of information

I would like the identified parts of this submission that have been **underlined and bolded** to be kept confidential and have stated below my reasons and grounds under the Official Information Act that I believe apply, for consideration by MBIE.

I would like identified parts of my submission, **namely my telephone and email**, to be kept confidential because it is unnecessary to include them to obtain the full understanding of Timberland's position and excluding them meets Privacy Act principles.

Introduction

1 This submission is made on behalf of Timberlands Limited (TL). TL manage Forestry Licences, Forestry Rights and freehold lands for Kaingaroa Timberlands (KT) in the central North Island. The total area of forest is more than 190,000Ha.

Change proposed	Position	Reason
Q10 re 6(1)(a) **Amend** 6(1)(a) to be more specific about the criteria for how councils can impose stricter rules than the NES-CF.	Support w revision	**Q10 Does the proposed amendment to 6(1)(a) enable management of significant risks in your region?** This question seems to be targeted at the regulator, however TL considers that a much more prescribed set of circumstances under which stringency could be used is more appropriate for meeting the intents of the NES-CF while also accommodating the need to address specific high risk sites. The intent of this revision is explained as being that the use of finer scale mapping will mean that evidence focuses on specific areas that meet a group of criteria (paraphrasing) – (1) the underlying and specific land factors that (2) have the potential to cause clearly identified effects, which are (3) likely to be significant off the site. The intent is that stringency provisions provide for more stringent rules for unusual or exceptional circumstances, not for widespread use, as a general risk - applying across an entire region - would more appropriately be dealt with by considering changes to the parent regulations so it could be assessed nationally. The proposed revisions enable councils to be more stringent only if: • it is required to manage the risk of **severe erosion** [define] from a commercial forestry activity in a **defined area** [define] that would have **significant adverse effects on receiving environments** [guidance] including the coastal environment, downstream infrastructure and property; and • **it can be demonstrated** [guidance] that the risk cannot be managed through the current rules in the NES-CF; and • an **underlying risk** [define] has been identified **within the defined area** through mapping at a 1:10,000 scale or using a 1m^2 DEM. The terms or phrases **in bold above** lack clarity and thus certainty. The RIS advises (para 41.) *MPI will provide guidance to ensure councils are clear about* • *the intent of the amended provision,* • *the type of evidence expected to demonstrate more stringent rules are required, and* • *the expectations for mapping affected land.* TL considers that to improve their certainty, defining **"severe erosion"**, **"defined area"** and **"underlying risk"** in the regulations Interpretation section would be helpful, and makes such suggestions above. TL considers that providing guidance for the other phrases identified in bold above would increase clarity.

Change proposed	Position	Reason
		Suggest using the following structure for this provision: **6 Relationship between rules and these regulations** *National instruments* (1) A rule in a plan may be more stringent than these regulations if the rule ~~gives effect~~ is required to— (a) ~~an objective developed to give effect to the National Policy Statement for Freshwater Management:~~ (a) – (i) manage the underlying risk of severe erosion from a commercial forestry activity in a defined area that would have significant adverse effects on receiving environments, including the coastal environment, downstream infrastructure and property, and (ii) it can be demonstrated that the current rules in the NES-CF do not manage that risk; The NES-CF regulations identify the significant majority of production-forest-related-risks that must be managed, and provide the mechanisms to address higher-consequence risks through the resource consent process. The circumstances in which stringency would have a valid place have not been clearly identified to date - where NES-CF rules have not anticipated an effect, to the extent that specific more stringent rules are required to address these. Several council plans proposing to use the stringency provision have not adequately justified their rules, evidenced by successful court challenge of rules, where the court concluded that **adequate reasons** were not provided, nor were **expert evidence and legal submissions adequately considered.** I.e. On evidence and process, the council more stringent rules were not supported with demonstrated reasons (in s32 or 42A reports). Proposed amendments would **require an assessment of evidence** for specific geologies and topographies and planting pattern, to **demonstrate the need** for a more stringent rule based on hazard risk, to support unusual or exceptional circumstances. This is consistent with a provision intended for focussed use and unusual circumstances. One factor that appears to be a possible contender for stringency is where multiple unrelated forestry parties would likely seek to harvest at the same time in a single catchment, (individual forest owner incentives are to harvest for their optimal age structure) resulting in a large proportion of a catchment being exposed to the risks faced in the window of vulnerability. In this case a spatially defined area could be subject to some – evidence based – temporal constraints. However, this circumstance could be dealt with in a resource consent through the Matters over which control is reserved (Regulation 70(4)(c)) or the Matters to which discretion is restricted (Regulation 71(2)(c)). (Noting that it is also not entirely clear how best to mitigate problems with the temporal distribution of harvest in a spatial sense, including what mitigation is actually possible in large events).

Change proposed	Position	Reason
Q11 & 12 re 6(4A) **Repeal** 6(4A) which enables councils' broad discretion to have more stringent rules to control aspects of afforestation.	Support	**Q11 Does the proposal provide clarity and certainty for local authorities and forestry planning?** **Q12 How would the removal of 6(4A) impact you, your local authority or business?** For those with sustained yield forests, it has little direct effect. The present 6(4A) provided unfettered discretion, making it inconsistent with the purpose of the remainder of the regulation. At the time this provision was added there was significant concern about large-scale carbon forestry plantings. This concern has diminished, and various other controls on carbon forestry are being put in place through other national-level direction (HPL) and other constraints on forest planting, such as through the ETS. The removal of 6(4A) clarifies the intents of stringency, set out as three subject areas in the pre-2023 regulations, namely: national instruments; matters of national importance; and unique and sensitive environments. 6(4A) thus covered an activity which is already addressed in those first three subject areas. It is unbounded, thus creating the potential for significant variation between councils as to how afforestation proposals would be dealt with, undermining the intent of a national instrument. The intent is to triage the forest harvest site during harvest planning to determine areas where mobilisation risk is: 1. low - to exempt these from (unnecessary) slash removal requirements, 2. high – to ensure that slash management is commensurate with the identified risk. Design options were to: • set a PA standard for removal of material on high-risk cutover or • require controlled resource consent where high mobilisation risk is identified.
Implementation		TL supports these implementation measures: Changes to regulation 6(1)(a) and 6(4A) will require some councils to make plan changes to align their more stringent rules with the new intent and wording. This can be done without a RMA Schedule 1 plan change via Section 44A. **Non-statutory implementation** Te Uru Rākau – NZFS will update NES-CF user guidance following amendment of the NES-CF. Guidance on new slash requirements may include industry and council workshops and webinars to get common understanding of intent and the practical issues in addressing slash risk, and of monitoring risk until it reverts to pre-harvest levels.

Change proposed	Position	Reason
Q13 – 19 re 69(5-7)	Support, with some revisions	**Q13. Do you support amendments to regulations 69(5-7) to improve their workability?** Yes. The current prescriptive standards are insufficiently targeted to genuine risk, thus requiring removal of slash where its presence would be preferable, and causing unnecessary cost. Implementation is unclear, making it difficult to measure compliance by foresters and regulators TL supports in principle the risk assessment approach proposed and the implementation of a slash risk assessment, for red and orange zone forests only and subject to the changes suggested in the specific comments on the draft assessment tool in Table 2 below. TL notes that meeting a prescriptive standard was the approach set out in 69(5) – (7) in the NES-CF 2023. Implementation of that standard lacked certainty and clarity for how to define and measure residual material, it increased costs, it required removal of slash from areas of low/no risk and its one-size-fits-all approach was a poor match for a risk that is spatially highly variable. The proposed approach of using a Slash Management Risk Assessment (**SMRA**) is preferred on the basis that it will tailor slash removal to areas of high risk. The preferred approach is to **add** a requirement for a SMRA, as part of the existing harvest management plan, carried out in accordance with requirements set out in a SMRA template. The preferred way to **incorporate the SMRA template is by reference**, as item 15 in Schedule 2. Because it is a new approach it is likely that it will require a few refinements to ensure it describes and covers all the relevant parameters. By incorporating it by reference it provides the latitude to make small improvements without triggering a whole regulatory review. **Amending** (reg 69(5)–(7)) for removal of slash on the forest cutover so it applies only to sites assessed as high mobilisation risk also involves **consequential changes to terms**, including 'residual material' and 'sound wood', and **removing** 'and debris management' from the title of reg 69. **Suggested drafting** for the replacement of 69(5) is: (5) On orange zone and red zone land (see regulation 63(2)(b)) slash from harvesting must be removed from any cutover area, unless it is unsafe to do so, to achieve slash levels at or below 15m^3 per hectare of **cutover**, if – (a) It is sound wood greater than 3m long with a 10cm SED (or 2m with a 15cm SED); and (b) The Land Use Capability extended legend for the cutover area identifies a severe potential erosion risk for these erosion types:

Change proposed	Position	Reason
		(i) Soil slip (ii) Rock fall (iii) Debris flow/avalanche (iv) Debris flow/and (c) The predominant slope of the cutover area exceeds 25 degrees, and (d) There is direct connectivity between the erosion feature and a waterway, such that mobilized debris could enter a waterway **Delete** reg 69(6) **Delete** the definition of "residual slash" from reg 69(7) but retain the definition of Sound wood. Guidance on accepted measurement techniques, e.g. the area over which averaging occurs (suggest 2Ha) is also required. TL requests **amendments** to reg 69 to require a slash mobilisation risk assessment (**SMRA**) for all forest harvests as part of the existing harvest management plan, and/or amend regulation 69(5) to require all slash above an identified size to be removed from the forest cutover. And that consequential changes to 66, schedule 2, and schedule 6 are made. • Amend regulation 66 (harvest plan) to also require a slash mobilisation risk assessment. • Amend Schedule 2 to add a slash mobilisation risk assessment template, incorporated by reference. • Amend Schedule 6, clause 4(4) to add the process required for a slash mobilisation risk assessment to the Harvest Plan requirements. Include specific reference in Schedule 6, clause 6(c) to the need for post-harvest monitoring until risk reverts to pre-harvest levels. A related implementation issue is the ESC scale (and the LUC transposition from aerial to digital maps) which can create inaccuracies when applied at a finer scale. The mapping scale constraints on minimum unit size means that complex ground features are expressed as composite units e.g. where easy country with finger gullies are one LUC unit. This can significantly overstate the risk and therefore activity status. Also, at times, unit boundaries vary from the ground topography e.g. terrace/scarp features can be slightly offset, meaning that an ESC boundary does not follow the ground feature. A process is in place whereby foresters can engage suitably qualified individuals to remap LUC units at an operational (1:5,000) scale, however getting these accuracy-improving revisions into the LUC database has not occurred and appears to be very unlikely to.

Change proposed	Position	Reason
		Many regional councils do accept the remapping and are applying the revised ESC, however this is not done by using an official NES CF process, leading to inconsistency. A clear process for councils to get revised mapping produced by a SQEP (subject to council approval) without the need to formally change LUC/ESC is a practical change that is still required, but needs some simple codifying to get inter-regional consistency
		Q14. Do you support: • **a site-specific risk-based assessment approach or** • **a standard that sets size and/or volume dimensions for slash removal?** Support a site-specific risk-based assessment approach, for the reasons set out above. A site-specific risk assessment creates a sensible drafting gate to determine whether slash restrictions should apply. If as a result of that assessment, it is concluded there is a high risk of slash mobilisation, then the forest owner should be able to choose between achieving the permitted activity residual slash standard in 69(5-7), or applying for a resource consent. That is standard RMA process. See Table 2 for detailed comments.
		Q15. Is the draft slash mobilisation risk assessment template (in attachment 2.2.1) suitable for identifying and managing risks on a site-specific basis? The proposed SMRA has potential, but improvements to its certainty and clarity would come from separating: • the **objective criteria** that determine the activity status - e.g. slope criteria, ESC/LUC, which could be in the replacement regulation at 69(5) – drafting suggestions below. • from the more **subjective harvest planning considerations**, which would be better addressed through prompts for the harvest plan schedule. A suggested reword to regulation 69(5) to (7) incorporates the more objective parts of the slash mobilisation risk assessment into the regulation, to provide a clear regulation for assessing activity status. TL considers that this is a clearer method for determining activity status than a risk assessment sitting outside of the regulations. These suggestions also include other minor changes to further clarify parts of regulation 69(5). *(5) On orange zone and red zone land (regulation 63(2)(b)) slash from harvesting must be removed from any cutover area, unless it is unsafe to do so, to achieve residual slash levels of or below ~~15~~30m³ per averaged 2 hectares of contiguous cutover where: –* 1 *The slash is sound wood greater than 3m long with a 10cm SED; AND*

Change proposed	Position	Reason
		2 *The Land Use Capability extended legend for the LUC unit that the cutover lies within lists the 'potential erosion' as severe or above for any of the following erosion types:* a. *Soil slip,* b. *Rock fall,* c. *Debris avalanche,* d. *Debris flow, and;* 3 *The predominant slope of the cutover area exceeds 25 degrees, and;* 4 *There is direct connectivity between erosion features and a waterway, such that mobilized slash could ~~run out~~ enter into a waterway* The area over which residual slash is to be assessed is to increase clarity. The suggested 2 hectare area is based on the recommendation in the University of Canterbury report 'Short Report for Gisborne District Council: Review of Clearcut Limits and Post-Harvest Residues on Cutover', Rein Visser, August 2023. The size of material that must be removed is to reflect that a 2m length is usually shorter than what will hang up on obstacles, however a 3m length could. Guidance for clauses (c) and (d) is required to avoid subjectivity. See comments on the Slash Mobilisation Risk Assessment in table 2 below.
		Q16. Should a slash mobilisation risk assessment be required for green-zoned and yellow-zoned land? TL is unaware of evidence that these sites have slash mobilisation issues. Thus no. **If so, please explain the risks you see of slash mobilisation from the forest cutover that need to be managed in those zones?** Unaware of such risks.
		Q17. If a risk-based approach is adopted which of the two proposed options for managing high-risk sites, do you prefer: • **requiring resource consent or** • **allowing the removal of slash to a certain size threshold as a condition of a permitted activity)?** A combination of the above. The proposed revision to 69(5) sets out the circumstances under which a site provisionally assessed as high risk could manage slash in a way that would manage that risk sufficiently to meet PA thresholds, while also identifying the route to a consent should that be required. If as a result of that assessment, the conclusion is that there is a high risk of slash mobilisation, the forest owner should then be able to use the standard RMA process to choose between achieving the permitted activity residual slash standard established in 69(5-7), or seeking a resource consent.

Change proposed	Position	Reason
		Q18. For the alternative option of setting prescriptive regulations for slash management, is the suggested size and/or volume threshold appropriate? Any size and volume threshold provides a prescriptive limit. The questions are: 1 whether the parameters of those limits are striking the right balance to significantly mitigate risk while not imposing unnecessary cost or depriving the cutover site of the nutrients and biodiversity that slash decay provides, and 2 whether the rule design sets out meeting those as a permitted activity, and provides a route to a consented activity (likely controlled status) if the forester judges that they aren't going to meet them. TL engineering observations are that 2m slash is unlikely to hang up on obstacles if it is moved off site. Using a measurement for which assessment processes already exist (thus already in the forestry lexicon) is more useful – thus TL supports the use of SED rather than LED.
		Q19. Do you support the proposed definition of cutover to read "cutover means the area of land that has been harvested"? In essence yes, however the *land* hasn't been harvested, so support with revision. The trees on it have, so would suggest the following as being a more accurate statement. *Means the area of land* *on which harvest has occurred* ~~*that has been harvested.*~~ Cutover does not include the hard infrastructure in a harvest area. Referring to the land adjacent to cutover as part of the definition of cutover is …odd. It is unclear why this was included and as it reduces clarity and certainty TL considers it should be removed. For greater definitional clarity suggest replacing the current definition with the following, or words to like effect: **cutover** means the ~~land area~~ piece of land on which harvest has occurred ~~that has been harvested~~, ~~and any adjacent land between the harvested area and any land that would be covered by water during a 5% AEP event~~, but does not include: (a) water bodies or land that would be covered by water during a 5% AEP event; or (b) infrastructure in the harvest area (roads and landings). This provision is in the harvesting regulations; it is for the duration of harvest. Subsequent operation is replant, at which point the land is no longer cutover. Suggest clarifying this in guidance.

Change proposed	Position	Reason
Repeal 10A and 77A (require afforestation and replanting plans). Repeal Schedule 3 (sets out the requirements for these plans).	Support in part	**Q20. Do you support the proposed removal of the requirement to prepare afforestation and replanting plans?** Afforestation and replanting plans duplicate the regulatory requirement for many issues relating to afforestation and replanting through other standards. These 2023 management plan provisions - set out in Schedule 3 - require a level of documentation of future forest effects that cannot be realistically known, thus imposing an unreasonable imposition. Councils derive some value from simple afforestation plans, particularly knowing where the forest will be – I.e. a shape file is useful. A very trimmed down version of Schedule 3 is therefore supported. Support the significant simplification of the contents of afforestation plans, so that they do not duplicate what is already the subject of other regulations (eg. wilding calculations), and only cover what can reasonably be known. To that end Revise 10A and Schedule 3 to: **10A** (3) An afforestation management plan must include ~~all forest planning~~ the requirements set out in Schedule ~~3 that apply to the afforestation activity.~~ ~~(4) Amendments to the afforestation management plan must be documented and dated, and the relevant council must be advised that an amendment has been made. The amended plan must be made available to the relevant council on request~~. (5) Afforestation activities must be carried out in accordance with the afforestation management plan. **Schedule 3** 1. replace 1(g), (h) and (i) with: (g) the name of the road used for forest access and ~~the rural number of the entry point:~~ ~~(h) the forest name or property location identifier:~~ ~~(i)~~ the cadastral and map references, or GIS polygon reference. 2. remove 2(f), (g), (h), (i), (k), (l), (m), (n) and modify 2(j) the afforestation area boundary ~~and the areas in which afforestation and replanting is occurring~~: and 2(k) the forest species to be afforested ~~or replanted~~: 3 remove 3, 4 and 6 4 Revise 5 to state: The information required by clauses 1 ~~to 4~~ and 2 must be submitted in a GIS-compatible format, if requested by the relevant council. Support the removal of a requirement to prepare replanting plans.

Change proposed	Position	Reason
Remove the undefined term "woody debris" from all forest planning requirements in Schedules 4, 5 and 6.	support	Support for the reasons given - the term is uncertain and has unclear policy intent in this regulatory context. 1. 'woody debris' is undefined and is only used in the schedules. It is a colloquial and expansive term that includes debris not associated with forestry activities, thus beyond the scope of these regulations. 2. Defined terms in the regulations, including 'slash', cover what woody debris means for forestry activities.
Amend wilding tree risk and control regs 11(4)(b) and 79(5)(b) to simplify wording and link the required activity to the notice requirement.		The current provision decouples the calculation sheet from the assessment sheet that should be submitted (i.e., it does not introduce the new requirement sought to provide both the assessment and the calculations underpinning it). Clarifying the wilding conifer regulations 11(4)(b) and 79(5)(b) will make the intent clear and implementation easier for both foresters and councils.
Amend 71A(b) to state that low-intensity harvesting is permitted if "any relevant forest planning requirement is complied with".	support	TL supports this correction for the reasons given
Q21. Do you support the proposed minor text amendments Yes and support amending regulation 11(4) and defining /refining the definition of the four listed below.		
11(4) Wilding tree risk control	Support	Support amending regulation 11(4) to: "The relevant regional council and territorial authority must be given the following at the same time as notice is given under regulation 10: *a) the score required under subclause (1) and the calculations used for the final wilding tree risk calculator score and supporting evidence for each calculation* This does not address a more fundamental issue with the wildling tree risk permitted activity regulations (79) which apply to all land and species regardless of risk. This overreach/ capture of v low risk activities (creating unnecessary work for foresters and regulators) could be reduced by introducing a species/region drafting gate, so that reg. 11(4) only applies where there is an actual wilding risk. I.e. Changes to make the calculator less subjective are helpful, but the new approach potentially exacerbates the overreach by replacing the calculator with a more detailed system that does not screen out non-risk sites and species.

Change proposed	Position	Reason
		TL thus recommends consequential amendments to regulation 79: When replanting in the same location with the same species, the activity is permitted under regulation 79(4).If there has been no change to the surrounding land use the calculation is redundant and should not be required. Amend regulation 79(5) as follows: *Regulation 79(5) The relevant regional council and territorial authority must be given the following no more than 8 months before replanting is carried out at the same time as notice is given under regulation 78A:* *a) the score required under subclause (1) and the ~~calculation sheet used to provide that score~~ calculations used for the final wilding tree risk calculator score and supporting evidence for each calculation.*
Define "severe erosion"		**Severe erosion** means potential erosion described in the Land Use Capability Extended Legend as severe or greater. Added to address certainty/clarity issues with the proposed changes to 6(1)(a)
Define "defined area"		**Defined area** means spatially defined at a 1:10,000 scale, or using a $1m^2$ DEM. Added to address certainty/clarity issues with the proposed changes to 6(1)(a)
Define "underlying risk"		**Underlying risk** means that inherent in the geology, independent of vegetative cover or land use.

Table 2: Comments on Proposed Risk Indicator

Proposed Risk Indicator	Proposed Outcome	Comment on Draft Slash Mobilisation Risk Assessment
1 ESC rating	Green = low slash risk (no further action) Yellow = low slash risk (no further action) Orange = Further assessment required. Red = Further assessment required ~~high slash risk – resource consent~~	TL proposes that ESC green or yellow zone are set as being low risk in reg. 69(5) with no slash mobilisation risk assessment required. This would mean no need to refer to SMRA on green or yellow zone harvest plans. Red zone should not automatically go to resource consent, as this is not an automatically linked effect. Some red zone forests have no slash mobilisation risk (e.g. sand and pumice country forests).
2. Orange zone LUC unit erosion rating	LUC unit **dominant erosion type**: • Surficial erosion→ (sheet, wind, scree) - Low slash risk (no further action required) • Fluvial erosion → (rill, tunnel gully, streambank) - Low slash risk (no further action required) • Gully erosion - Further assessment required • Mass movement erosion - Further assessment required	This assessment should apply to red and orange zoned land. Needs clarification on how this relates to LUC extended legend descriptions to confirm: • Whether actual or potential erosion is to be used • Which dominant erosion type (first descriptor? or all types listed?) • Which erosion severity would trigger further assessment (moderate or severe?) TL proposes that the assessment applies to: • potential erosion • all listed erosion types that are severe or above TL considers that gully erosion is not generally a source of slash movement risk. Even large amphitheatre gullies (crushed sedimentary geology) are not associated with rapid mass movement/large scale slash mobilisation.
3. Mass movement erosion type	LUC unit **dominant erosion type**: • Earthflow - Low risk – no further action • Slump - Low risk – no further action • Rockfall - Further assessment required • Soil slip - Further assessment required • Debris flow/avalanche - Further assessment required	These criteria are supported subject to the comments above, on how the assessment is applied. I.e. some are objective, and can thus be used as an activity status screening tool. Others are more subjective thus should form part of the harvest planning assessment, but not be encoded in regulation 69.

Proposed Risk Indicator	Proposed Outcome	Comment on Draft Slash Mobilisation Risk Assessment
3a. Gully erosion	Gully erosion, not established - Low risk (no further action required) Gully erosion, established - Further assessment required	Gully erosion is generally not associated with large scale slash mobilisation. Although trees may topple from the top edge of gullies, gullying is not a direct source of high speed entrained material, thus it should also be listed as low risk – no further action. This includes established gullies.
4. Slope. Measured by predominant slope - </> X degrees from horizontal) for each part of the harvest area. Measurement options: • field measurement using a clinometer or app • GIS, using topographic map or LiDAR data	<25 degrees – low risk - no further assessment >25 degrees – ~~medium risk –~~ further assessment required. ~~>30 degrees – high risk – further assessment required.~~	TL supports 25 degrees as a suitable slope threshold for requiring a risk assessment. Some geology (e.g. Greywacke) is stable well above 25 degrees, however for simplicity it makes sense to have one threshold. There seems to be no advantage in having more than one slope threshold. Some guidance in defining "predominant" slope, to ensure it is reliably representative, would be useful.
5. Direct connectivity of the erosion feature to a stream or river Is the slope >25 degrees connected to a waterway so that a landslide on the slope could run out into the waterway?	No – Low risk, but further assessment on direct proximity required (go to criteria 6). Yes – High risk. Further assessment required (Go to criteria 7).	If this criteria is to be used as an activity status drafting gate, comprehensive guidance will be required on how it is to be applied e.g. how to use LiDAR images that show the behaviour of previous erosion features and demonstrate that these connect/do not connect to the watercourse at the bottom of the slope. In regions where Landcare's erosion susceptibility model is available it could be used, noting that it models land susceptibility to landslip and connectivity to watercourses, but does not directly model debris flow or avalanche, and is not available for the whole country.
6. Direct proximity to other values on a neighbouring property located below slopes >25 degrees that could be	No – low risk – no further assessment Yes – high risk – further assessment required	This should be part of the harvest planning analysis, not the within-regulation threshold test.

Proposed Risk Indicator	Proposed Outcome	Comment on Draft Slash Mobilisation Risk Assessment
impacted by a landslide or debris flow: ➢ roads, bridges ➢ dwellings and other buildings ➢ SNAs ➢ lake, wetland, estuary		
7 Connectivity to downstream infrastructure (roads, bridges, settlements) and sensitive areas such as beaches and fisheries used by people. Mark on the harvest plan, for sites where a high-risk slope connects to a waterbody (5 above) whether there are any of the following downstream: Roads, Bridges, Settlements, SNAs, beaches and fisheries used by people.	No - Medium risk – Determine mitigation measures to manage risk Yes - High risk – **Remove slash from slope and/or seek resource consent to manage risk** *(TBC on outcome of consultation)*	This appears to be the logical end step to the risk assessment. The physical conditions that could give rise to slash mobilisation have been determined along with the downstream infrastructure, values, and sensitive sites that warrant action to manage the risk. 6 (proximity) and 7 (connectivity) could be merged so that direct and indirect risks to downstream infrastructure and values are considered together. This would simplify the number of steps in the assessment process.
8 Rainfall – high intensity or extended rainfall is strongly correlated with increased susceptibility to landsliding; strong flood flows will mobilise and transport slash in waterways HIRDS is an online tool that can estimate the magnitude and frequency of high intensity rainfall at any point in New	Thresholds will vary according to a site. Although an individual harvest planner can learn a lot about site risk from HIRDS (and already uses this for planning infrastructure) it would be difficult to set a national threshold that is meaningful for slash mobilisation risk. Harvest planners should consider expected accumulated and event rainfall during the period of the window of vulnerability, and use it with soil, slope and connectivity information to assess slash management needs on the cutover.	Footnote 11 of the table notes "*areas across New Zealand have different susceptibilities to rainfall-induced landslide due to different geology, topography, physiography and land cover, therefore, the amount of rainfall required to trigger landslides varies across the country*". It is unclear how the variability described above, compounded by the differing effects created by rain intensity, rain duration and the antecedent ground conditions (soggy or dry) could be used in a mobilisation risk assessment. TL considers that setting a national threshold that is meaningful for slash mobilisation risk would be more than difficult.

Proposed Risk Indicator	Proposed Outcome	Comment on Draft Slash Mobilisation Risk Assessment
Zealand. It estimates high intensity rainfall at ungauged locations for a range of return periods and event durations.		When faced with highly variable circumstances such as this, for which no clear criteria or a calibrated model exist, the value of well-informed expert judgement becomes apparent.
9. Catchment factor to signal how mobilised material from a single site may contribute to cumulative harm. This is a function of: – size of harvest site – proportion of catchment within window of vulnerability	Melton's Ratio (R) is an index of catchment ruggedness. It is one index that gives a useful indication of which catchments have the potential to generate debris flows and their runout fans. Catchments with a Melton's Ratio (R) > 0.5 are capable of generating debris flows.	As with 6, 7 and 8, this could *help inform* harvest planning decisions regarding site risk to off-site factors, but Melton's ratio is dependent on the size of the catchment assessed, and what other exacerbating or mitigating effects could occur between the harvested catchment and the possible downstream effect. I.e. it is of subjective assistance, but should not be used directly as part of regulation 69.
10. Slope features that indicate increased risk	These features indicate increased risk: • gully with headwall • slope break • gully that could intercept and channel landslide to waterway • convex slope • convergent slope These features indicate decreased risk: • concave slope • divergent slope	As with 6, 7, 8 and 9, this could *help inform* harvest planning decisions regarding site risk to off-site factors but should not be used directly as part of regulation 69. as its use requires interpretation.