

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of the Proposed Waikato Regional Plan  
Change 1 – Waikato and Waipa River  
Catchments (“Proposed Plan or PC1”)

**AND**

**IN THE MATTER** of submissions and further submissions by  
Hancock Forest Management (NZ) Limited and  
New Zealand Forest Owners Association Inc

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**STATEMENT OF REBUTTAL EVIDENCE OF SALLY STRANG ON  
BEHALF OF  
HANCOCK FOREST MANAGEMENT (NZ) LIMITED AND NZFOA**

**19 JULY 2019**

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## **1. INTRODUCTION**

- 1.1 My full name is Sally Barker Strang.
- 1.2 My experience and qualifications are set out in paragraphs 2.2 – 2.10 of my statement of evidence dated 15 February 2019, prepared on behalf of Hancock Forest Management (NZ) Limited (HFM NZ) and the NZ Forest Owners Association Inc (NZFOA), in respect of the Part A and Part B hearing considering Proposed Plan Change 1 – Waikato and Waipā River Catchments (PC1).
- 1.3 As noted previously I was a delegate to the Collaborative Stakeholder Group process representing forestry. I was a forestry representative on the working group that helped to develop the National Environmental Standards for Plantation Forestry (NES PF). I am also a member of the NES PF Stakeholder Working Implementation Group tasked with providing advice to the ministries for the one year review of the NES PF that is currently being undertaken.

## **2. SCOPE OF REBUTTAL EVIDENCE**

- 2.1 This statement of evidence is prepared in rebuttal of matters raised in the primary evidence of other witnesses on Block 3 topics, specifically:
- 2.1.1 Ms Helen Marr, on behalf of Auckland-Waikato and Eastern Region Fish and Game Councils (“**Fish & Game**”); and
- 2.1.2 Ms Deborah Kissick, on behalf of the Director-General of Conservation (“**DOC**”); and

## **3. MS MARR’S EVIDENCE**

- 3.1 In Section 7 of her evidence, Ms Marr raises a range of concerns relating to forestry. As outlined in Ms Marr’s evidence, through their original submission to PC1 Fish and Game sought that PC1:

- i. Amend rules 5.1.4.14 conditions 6 and 7 to remove the exclusion for forestry from complying with restrictions on clearing riparian vegetation in High Risk Erosion Areas (an amendment that was made to the Waikato Regional Plan prior to PC1, to give effect to the NES PF).
- ii. Require that no more than 50% of any sub-catchment be harvested in a 10 year period, unless 20 metre riparian buffers are put in place adjacent to permanent streams, wetlands and lakes, and
- iii. Require any area of forestry be replanted within 14 months of harvest.
- iv. Require that the harvest plan requirements include detail on the buffers, harvest and replanting regime for the forestry activity

3.3 Through Ms Marr's evidence Fish and Game are now seeking the following amended changes to PC1:

- i. Inclusion of a new rule in PC1... *'In the Waikato and Waipā Catchment, Plantation Forestry activities managed by the NES PF and required to produce a forestry earthworks management plan or a harvest plan, the plan must include identification of all waterbodies (regardless of size) within the affected area and must identify risks of mobilised sediment on all sites (not only those with a perennial river).'*
- ii. Inclusion of a new rule ....*'In the Waikato and Waipa Catchments the following activities associated with the harvest of plantation forest, occurring in any continuous 12 month period:*
  - 1. *Vegetation clearance which is within 20m on either side of the banks of a permanently or intermittently flowing river water body of greater than 50 metres in length per kilometre of that water body.*

*2. Vegetation that is within 20m of a lake or wetland*

*And any associated deposition of slash into or onto the beds of rivers and any subsequent discharge of contaminants into water or air are controlled activities (requiring resource consent) subject to the standards and terms as specified in Section 5.1.5'*

3.4 To address each of these matters I will firstly provide an overview of the NES PF, the intent of the ability to be more stringent provisions and then deal with each of the matters raised by Fish and Game separately.

**4. NES PF BACKGROUND AND ABILITY TO BE MORE STRINGENT**

4.1 The NES PF was developed over an eight year process with direct input throughout that process from a range of stakeholder interests, including representatives of both Fish and Game and DOC. The process also included three rounds of public consultation.

4.2 A stated intent of the NES PF was to improve national consistency in local authority plan rules relating to plantation forestry and to give certainty for those involved in the management of plantation forests. The NES PF regulations replaced a range of widely varying Regional and District Plan rules relating to plantation forestry. To continue to achieve the intent of that consistency it is desirable to avoid local variant rules around the country.

4.3 The NES PF through regulation 6 allows for Regional Plans to be more stringent in some circumstances, including to give effect to an objective developed to give effect to the National Policy Statement for Freshwater Management (NPS FM)<sup>1</sup>. The NES PF came into force in May 2018 well after the NPS FM came into force.

4.4 Having been involved in the NES PF development process I can confirm that the requirements of the NPS FM and the potential impacts of plantation forestry on water quality were absolutely front and centre in the thinking as the rules were developed, as evidenced by the significant number of regulations that relate to the effects of sediment on waterways. The rules

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<sup>1</sup> NES-PF regulation 6(1)(a)

themselves were developed through consideration of existing plan rules and resource consent conditions and with advice from relevant experts.

4.5 The ability to be more stringent provision in regulation 6(1) reflect the hierarchy of national documents under the Resource Management Act, in that a National Environmental Standard cannot take precedence over a National Policy Statement. However as outlined in the evidence of Dr Mitchell, the ability to be more stringent was intended to be applied under limited circumstances. An example could be if a particular water quality objective was identified for a waterway, forestry was demonstrated as a significant contributor of contaminants such that the water quality objective could not be met, and through assessment it was assessed that the controls under the NES PF were not sufficient to achieve that objective. It was not intended to be an unconstrained provision to add in any water quality related rules, without justification.

4.6 This is reflected in the guidance document *Resource Management (National Environmental Standards for Plantation Forestry Regulations 2017) Plan Alignment Guide, May 2018*, which states under section 4.1 (relating to regulation 6):

The RMA requires councils to demonstrate why a proposed rule needs to be more stringent than a NES in the context of each region or district through their section 32 evaluation. Section 32(4) states, in relation to new rules:

*“If the proposal will impose a greater or lesser prohibition or restriction on an activity to which a national environmental standard applies than the existing prohibitions or restrictions in that standard, the evaluation report must examine whether the prohibition or restriction is justified in the circumstances of each region or district in which the prohibition or restriction would have effect”*

When new rules are being introduced in a regional or district plan, the section 32 evaluation therefore needs to specifically consider whether a rule needs to be more stringent than the NES- PF. If a council considers that a more stringent rule than the NES-PF is justified, this should be clearly documented in the section 32 evaluation report.

4.7 In relation specifically to regulation 6(1)(a), referencing the NPS FM, the guidance document states:

The NPSFM was introduced in 2011 and substantially amended in 2014 and 2017. The definition of the NPSFM in the NES-PF includes the amendments made to date, and any changes that have legal effect when a future edition of the NPSFM is being used.

The provisions in the NES-PF are generally expected to be sufficient to give effect to the NPSFM. The NES-PF includes a range of provisions to manage sediment (e.g. minimum setbacks to waterbodies, requirements to install

*sediment control measures*, management plan requirements)<sup>12</sup> to maintain or improve water quality – a key objective in the NPSFM. The NES- PF also includes water quality parameters for sediment discharges in receiving waterbodies which are consistent with section 70 of the RMA, and requirements to manage slash to avoid adverse effects on receiving waterbodies.

However, under certain circumstances councils and their communities may go through the process of giving effect to the NPSFM and determine that more stringent rules are required to achieve an objective in their region relating to freshwater that gives effect to the NPSFM. This is most likely to relate to Objective A1 or Objective A2 of the NPSFM.

4.8 Fish and Game's submission and evidence asserts that in the Waikato Catchment additional rules over and above the NES PF are necessary, on the basis that forestry is a significant contributor to water quality issues in the catchment, that the NES PF provides insufficient provisions to safeguard water quality and that their proposed provisions appropriately address a deficit. I do not agree with that assertion and will address this in more detail below.

4.9 Of note, a one-year review is currently being undertaken on the NES PF. A Stakeholder Working Implementation Group has been established to provide expert advice to the Ministry for Primary Industries who are leading the review. Both Fish and Game and DOC are represented on that group.

## **5. WATER QUALITY UNDER PLANTATION FORESTRY**

5.1 The key water quality issue raised by Fish and Game in relation to forestry relates to sediment. Fish and Game raise the concern that harvest activities associated with forestry can be a source of sediment in catchments and that forestry can result in significant pulses of sediment reaching waterbodies.

5.2 A significant number of studies of sediment loss from forestry operations have been reviewed and referenced through the PC1 process. These include a number of paired catchment studies to compare forestry with pastoral land use, which are important to assess relative losses relating to land use on similar topography, given that forestry typically occupies steeper more erosion prone hill country. A large number of studies are summarised in the Waikato Regional Council Technical Report 2012/02 *Diffuse sediment in Waikato waterways – sources, practices for reduction and policy options*, Helen Ritchie.

- 5.3 From a review of all of the studies Helen Ritchie concluded that *'pasture slopes generate 2-5 times more sediment than comparable forestry slopes, except during forest harvest periods. Harvest causes a rapid peak in sediment generation but with good practice in harvesting, sediment loss can return to preharvest levels within 1-2 years'*.
- 5.4 A study referenced by Ritchie and others is the Pakuratahi paired catchment study carried out by Hawkes Bay Regional Council, comparing a range of water quality parameters between two similar catchments, one in production forestry (Pakuratahi) and other drystock farming (Tamingimingi). The study took place over a period of 11 years including through harvest of the production forest and a number of storm events.
- 5.5 The Pakuratahi catchment was a steep cable logged catchment with planting right to the stream edge as was standard practice at that time, and cable logging over the waterway, so arguably representing the worst case scenario for forestry harvesting.

The annual sediment losses measured through the period of study are shown in the two graphs below.

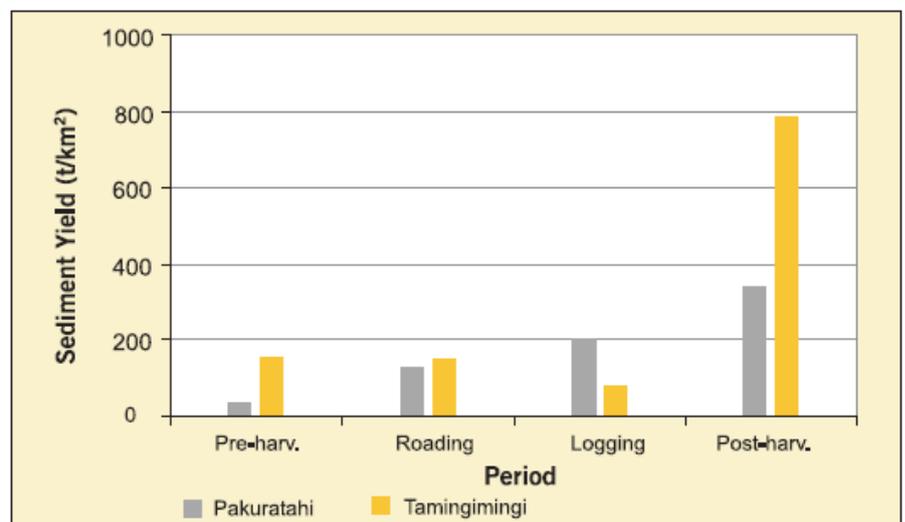


Figure 4. Suspended sediment yields for the pre-harvest period (Jan 1995 to Jun 1997), the road construction phase (Jul to Dec 1997), the logging phase (Jan 1997 to Dec 1999), and the post-harvesting period (Jan 2000 to Dec 2005).

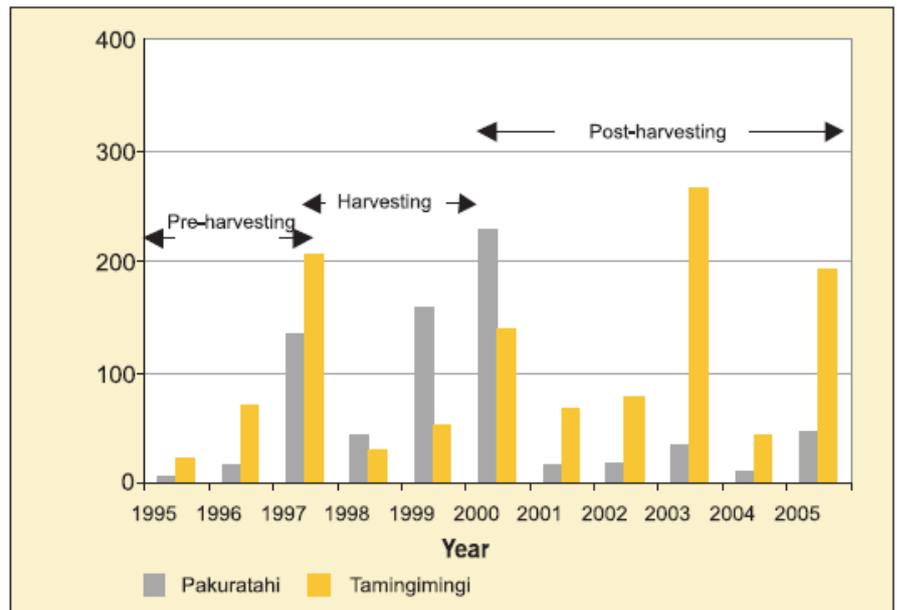


Figure 5. Annual suspended sediment yield for the Pakuratahi and Tamingimingi catchments from 1995 to 2005.

- 5.6 The results of this study are consistent with a range of other studies, that during the growing phase the forested catchment delivers significantly less sediment than similar land under farmland. During harvest the effects of road construction and removal of vegetative cover mean that there is inevitably an increase in sediment loss, however this settles down rapidly after harvest.
- 5.7 In the Pakuratahi study over the full 11 years including 2 years of harvesting, the total sediment loss from the forestry catchment was estimated to be 713 t/km<sup>2</sup> as compared to the farmed catchment being 1168 t/km<sup>2</sup>. During the pre-harvest growing phase the farmed catchment generated 3.7 times more sediment than the forested catchment. If measurements were taken over a full rotation (typically 28 years for radiata pine), the relative losses from the farmland would clearly be significantly higher than forestry.
- 5.8 Based on the range of study evidence reviewed for development of the economic model for the Healthy Rivers Waiora project, the modellers used an estimate of 78% for the reduced sediment losses that would be achieved by pine afforestation of farmed catchments in their economic model, taking into account the effects both during the growing phase and during harvest (*WRC Technical Report 2018/47 Description of the mitigation options defined within the economic model for Healthy Rivers*

*Wai Ora Project, Description of options and sensitivity analysis, 28 September 2015, section 6 Benefits of Afforestation).*

- 5.9 Fish and Game in their submission also refer to ‘excessive’ phosphorous losses from plantation forestry. Given that fertilising of pine forests with phosphorous is rare in the Waikato region, the only source of phosphorous would be legacy P from forests planted on former farmland and natural P levels in soil transported by sediment loss. A few studies have measured P losses from forestry, including a long term study of three adjacent catchments in the Purukohukohu experimental basin in the catchment to Lake Ohakuri on the Waikato River. The study areas is made up of three adjacent catchments, Puruwai (native forest), Puruki (former farmland planted in radiata pine in 1973) and Purutaka (sheep and beef grazing).
- 5.10 The table below is based on data reported in a paper by Cooper, Hewitt and Cooke in the NZ Journal of Forestry Science in 1987 reporting the total phosphorous and dissolved reactive phosphorous losses for the three catchments over the period 1972-1986.

		<b>Pasture</b>	<b>Pine</b>	<b>Native</b>
Total Phosphorous	Median	31	18	13
	Range	2-516	3-75	2-112
Dissolved reactive phosphorous	Median	12	8	3
	Range	0.5-216	0.5-28	0.5-21

*Table 1: Total phosphorous and dissolved reactive phosphorous (mg/m<sup>3</sup>) in stream water samples in three catchments in the Porukohukohu experimental basin, 1972-1986. (source: Land use impacts on streamwater nitrogen and phosphorous, Cooper, Hewitt and Cooke, NZ Journal of Forestry Science 17(2/3))*

- 5.11 As can be seen from the table study indicates phosphorous losses from the forested area, slightly higher than the paired native catchment, but significantly lower than the dry stock farmed catchment.
- 5.12 While the other two contaminants of interest (E.coli and Nitrogen) are not raised by Fish and Game, as would be expected studies generally show plantation forestry to be largely comparable to native forest for these two contaminants, due to a combination of the minimal fertilising taking place and lack of grazing animals.
- 5.13 In summary, forestry is a contributor of sediment to the Waikato River (as is the case for all land use) and for this reason the management of sediment losses is a major focus in the NES PF regulations. However on

the basis of the evidence I do not agree with Fish and Game's assertion that forestry is a 'significant contributor' to overall contaminants in the catchment. To the contrary, forestry has the lowest losses of contaminants of any productive land use in the catchment and this has been recognised through the Health Rivers process, with afforestation seen as one of the mitigation tools to achieve the Vision and Strategy.

- 5.14 I note that Fish and Game have supported the land use change rule in their submission which would indicate that they do recognise the benefits of plantation forestry as compared to any other productive land use.

## 6. PROTECTION OF WATERWAYS UNDER THE NES PF

- 6.1 A key concern raised by Fish and Game is that the NES PF only protects larger waterbodies, that smaller waterbodies are not required to be identified and that risks to those smaller waterbodies are not required to be identified and managed. This concern appears to relate specifically to Schedule 3 of the NPS 'Forestry earthworks management plan and harvest plan specifications' which identifies that 'the plan must identify the location of and mark on a map'.... '(b) rivers to their perennial extent'.
- 6.2 Of note 'rivers' has the meaning as under the Resource Management Act to include any continually or intermittently flowing body of freshwater'. Under the NES PF perennial river is defined as 'a river that is a continually or intermittently flowing body of freshwater, if the intermittent flows provide habitats for the continuation of the aquatic ecosystem'. Therefore the requirement to map under the NES PF extends well beyond large waterbodies, down to any waterbody that is not even permanently flowing but provides some level of aquatic habitat.
- 6.3 The practical reality is that when preparing harvest plans, harvest planners generally have no way of knowing exactly where the perennial extent ends (unless they plan mid-summer) and simply map all waterways that are present.
- 6.4 Aside from the words relating to mapping, the NES PF includes extensive provisions relating to the protection of waterbodies that make no distinction regarding size or importance. Examples of the NES PF provisions relating to waterway protection are included as **Attachment 1**.

## 7. MANAGEMENT OF RIPARIAN ZONES UNDER THE NES PF

- 7.1 Ms Marr in her evidence states that ‘essentially vegetation clearance for harvest in a riparian area remains a permitted activity (no consent is required). Council has little oversight and no ability to impose restrictions beyond receiving a harvest plan for forestry management as a permitted activity under the NES PF’.
- 7.2 Plantation forestry harvesting is a permitted activity under the NES PF in green, yellow and orange Erosion Susceptibility Classification (ESC) zones - as was the case under the Waikato Regional Plan prior to the NES PF. On red zone ESC harvesting is a restricted discretionary activity which is more stringent than the former Regional Plan. Forestry earthworks is either a permitted or restricted discretionary activity depending on ESC, slope and distance from waterways.
- 7.3 The NES PF introduces a range of permitted activity regulations many of which are similar in nature to the Waikato Region rules they replace. For the first time it included the requirement to notify the regional council of commencement of permitted harvesting and earthworks and submit a harvest plan and earthworks management plan. The NES PF provisions include a range of matters relating to riparian protection, and these are attached in **Attachment 1**.
- 7.4 To state that the council has little oversight is simply incorrect. The combination of notification and provision of a harvest plan ensure the Regional Council is now made aware of any new harvesting commencing in the region and can assess the potential risk to waterways posed by the proposed harvesting and earthworks. This can be used to prioritise their compliance monitoring inspections. Significantly under the NES PF, the regional council can for the first time charge the direct costs for any compliance monitoring of permitted activities, to parties undertaking a range of forestry operations including harvesting and earthworks. Any issues relating to non-compliance with the NES PF regulations can be readily addressed via the full range of enforcement provisions available under the Resource Management Act.
- 7.5 The proposal by Fish and Game to insert a new rule into the plan making any plantation forest harvesting within 20m either side of a permanently of

intermittently flowing waterbody a controlled activity, goes well beyond their original submission and will effectively over-ride the NES PF harvesting regulations without any assessment of whether it is required. The current situation is that there are very few plantation forest areas in the region without trees planted within 20m of waterbodies, as they were planted prior to any setback rules being in place (WRC or NES PF). This is particularly the case for farm forestry where forestry blocks are typically located in the least productive parts of farms in steep gullies and riparian zones. Therefore almost all harvesting would become a consented activity regardless of risk.

7.6 I note the 20m setback is significantly larger than the 1m setback proposed for fencing off livestock under Schedule C of the Proposed PC1, which was supported by Fish and Game in their submission. If this approach were adopted, a farmer undertaking new planting would be required to plant back 20m from an ephemeral waterway to enable permitted harvesting, but could fence to 1m and graze the 19m strip with cattle or other livestock. This seems completely at odds with the relative effects of the two land uses.

7.7 Given the extensive provisions within the NES PF to control effects of plantation forestry I strongly question whether the additional controls are necessary or could be justified. I also question whether such an approach would be consistent with the objectives of PC1 given it would create a further deterrent to retirement of pastoral land into plantation forestry, one of the key mitigations identified through the Healthy Rivers Process.

## **8. CATCHMENT CLEARANCE LIMITS AND FOREST REPLANT LIMITS**

8.1 Fish and Game also sought a requirement that PC1:

- Require that no more than 50% of any sub-catchment be harvested in a 10 year period, unless 20 metre riparian buffers are put in place adjacent to permanent streams, wetlands and lakes, and
- Require any area of forestry be replanted within 14 months of harvest.

- 8.2 With regard to catchment clearance limits, these are typically only applied in very high risk situations where there is an identified risk of erosion and debris movement. Fish and Game's submission asserts that forest conversions have led to large tracts of land being planted in short periods of time, leading to large scale harvesting causing accelerated erosion downstream and increases in the likelihood of river works necessary. Certainly there have well publicised events of forest debris movement in other parts of the country, but I would question where this has been the case within the Waikato Catchment.
- 8.3 The largest tracks of forestry in the catchment are in the Central North Island and have been in place for up to four rotations (planting commenced in the 1920's). I am not aware of harvesting in these forests having caused any significant downstream issues imposing cost on the Regional Council. To the contrary, the recent forest to farm conversions have highlighted the significantly higher runoff that occurs from farmland as compared to the equivalent area in cutover. Cutover typically has rough ground and a lot of woody debris both of which slows down runoff and allows a higher proportion to soak to ground. During the farm conversion process the land is smoothed off through cultivation to prevent ponding and enable grass seeding, which significantly increases the speed of runoff. Through both my job based in the South Waikato and as Chair of the Upper Waikato Catchment Committee I am aware of at least four significant events in recent years where increased runoff from converted farmland have led to significant downstream damage and costs to the Waikato Regional Council, and in one case the South Waikato District Council replacing a decades old road culvert that was now undersized due to upstream farm conversions. Within our forests we have also had to replace an up-size a number of old culverts due to the increased runoff from conversions causing storm damage.
- 8.4 On the basis of Fish and Games logic of needing catchment limits to account for increased runoff from harvesting, using the same logic farms should be required to retire at least that proportion of equivalent land in each catchment into woody vegetation.
- 8.5 Catchment clearance limits clearly have an economic impact to forest owners. A 50% limit as proposed would mean that up to half of a forest is deferred well beyond it's optimal harvest time resulting in less income in

the longer term and can also increase costs for smaller forests mobilising two harvesting efforts. This again would create a deterrent to afforestation of farmland.

- 8.6 With regarding to the 14 month planting time limit, Fish and Game offers no justification for this but presumably it relates to slope stability concerns. In extremely erodible geology such as in Gisborne where the trees are essential to maintain slope stability then it is desirable to replant promptly to minimise the 'window of risk' that occurs after harvest as the roots of the previous crop start to break down. But this is only a situation in the worst of the worst geology that is unstable under anything but tree cover. Such land will be classified as red zone under the NES PF. In the majority of the Waikato forestry land is classified as green, yellow and orange zone, and the land is not prone to major slope failure under either farmland or cutover.
- 8.7 Aside from the need for such a limit, the limit proposed is impractical. To manage weed issues it is necessary to have a fallow period following harvest to enable weeds, and in particular wilding pines from the cones of the previous crop, to germinate and grow so that they can be controlled with herbicide. Failure to do this will lead to major problems with wilding infestation that is very difficult to manage. In our HFM operations, planting takes place typically May through to August. Our standard practice is that any blocks harvested after the end of October are held over until the following planting season, which means there could be a period of up to 22 months between harvesting and replant. For farm woodlots without proper systems in place the period can be longer. From a water quality perspective I would question what negative effect this is having, given that it is the equivalent of locking up a farm paddock and leaving it fallow.
- 8.8 On this basis I do not believe that either of the additional conditions proposed by Fish and Game are either justified or necessary.

## **9. MS KISSICK'S EVIDENCE**

- 9.1 DOC did not submit on forestry in either their submissions or further submissions however in Ms Kissick's evidence she has now sought that a new rule be added to Schedule 1 requiring that forestry be set back 20m from all waterbodies. A key practical problem with this suggestion is that

Farm Environment Plans apply to farms not forestry. With regard to the general principal I would again question the justification for this additional setback for the reasons already outline above relating to Fish and Games submission.

## **10. SUMMARY**

- 10.1 In summary I do not agree with Fish and Game and DOC's assertions that forestry is a significant contributor of contaminants to the Waikato River and additional forestry rules are required over and above the NES PF. Forestry has the potential to generate sediment at harvest time however the results of numerous studies confirm that forestry generates less sediment overall than equivalent farmland and has the least impact on water quality of all productive land uses. This was well canvassed through the CSG process and for this forestry was not a focus of discussions other than the issues of both preventing further loss of forestry and the need for further forestry planting. This was also well understood by Waikato Regional Council staff and the Technical Advisory Group, and pine afforestation of farmland was seen as a potential mitigation measure to achieve PC1 objectives.
- 10.2 With regard to forestry practices, sediment control is a key focus of the NES PF regulations which are monitored and enforced by the Waikato Regional Council. I consider that there is no merit in adding Waikato Region-specific forestry rules over and above the NES PF. To do so is not justified or necessary. Further, it would result in inconsistency between regions which the NES PF was designed to overcome.
- 10.3 The NES PF is currently under review and that would be the appropriate place to make any changes to the forestry rules to maintain consistency. As noted above both Fish and Game and DOC are represented on that review process.

- (ii) upstream of any river that could affect the water quality at the abstraction point (in the lake):
- (iii) up-gradient of any groundwater that could affect the water quality at the abstraction point (in the lake).

Regulation 6(1)(a): amended, on 1 May 2018, by regulation 5 of the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018 (LI 2018/63).

## 7 **Material incorporated by reference**

Schedule 2 lists the documents and electronic tools incorporated by reference in these regulations and their URLs (where available).

## **Part 2** **Regulation of plantation forestry activities**

### Subpart 1—**Afforestation**

## 8 **Functions for this subpart**

The functions of regional councils and territorial authorities under sections 30 and 31 of the Act, in relation to this subpart, are as specified in the following table:

<b>Provision</b>	<b>Local authority with functions in relation to activity concerned</b>
Regulations 10, 11, 12, and 17(1)	Regional council and territorial authority
Regulations 9(1), 13, 14(1) and (2), 15(1) to (4), 16(1), and 17(2)	Territorial authority
Regulations 9(2), 14(3), 15(5) and (6), 16(2), and 17(3) and (4)	Regional council

## 9 **Permitted activity**

### *Territorial authority*

- (1) Afforestation is a permitted activity if regulations 10, 11, 12, 13, and 14(1) and (2) are complied with.

### *Regional council*

- (2) Afforestation is a permitted activity if regulations 10, 11, 12, and 14(3) are complied with, in any—
  - (a) green, yellow, or orange zone; or
  - (b) red zone where the land proposed for afforestation is 2 ha or less in any calendar year.

**10 Permitted activity condition: notice**

- (1) The relevant regional council and territorial authority must be given written notice of—
  - (a) the location where the afforestation will occur and the proposed setbacks (including a description of how these were calculated); and
  - (b) the dates on which the afforestation is planned to begin and end.
- (2) Notice under subclause (1) must be given at least 20 and no more than 60 working days before the date on which the afforestation is planned to begin.

**11 Permitted activity condition: wilding tree risk and control***Calculator*

- (1) A wilding tree risk calculator score must be—
  - (a) applied to any land on which afforestation of a conifer species is proposed; and
  - (b) calculated in accordance with the wilding tree risk guidelines by a suitably competent person; and
  - (c) completed no more than 6 months before notice is given under regulation 10.
- (2) In subclause (1), **suitably competent person** means a person with—
  - (a) tertiary qualifications in silviculture and forest ecology and at least 2 years' experience in the field of silviculture; or
  - (b) at least 5 years' experience in silviculture that includes forest establishment.
- (3) Afforestation of a conifer species must not be carried out in an area with a wilding tree risk calculator score of 12 or more.
- (4) The relevant regional council and territorial authority must be given a copy of the wilding tree risk calculator calculation sheet and score required under subclause (1) at the same time as notice is given under regulation 10.

*Control measures*

- (5) All wilding conifers resulting from the afforestation activity must be eradicated at least every 5 years after afforestation where established in wetlands or significant natural areas—
  - (a) on the same property on which the afforestation activity occurs; and
  - (b) on any other adjacent properties under the same ownership or management as that of the property on which the afforestation activity occurs.

Regulation 11(5): amended, on 1 May 2018, by regulation 6 of the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018 (LI 2018/63).

**12 Permitted activity condition: significant natural areas and outstanding features and landscapes**

Afforestation must not occur within a significant natural area or an outstanding natural feature or landscape.

**13 Permitted activity condition: visual amenity landscapes**

Afforestation must not occur within a visual amenity landscape if rules in the relevant plan restrict plantation forestry activities within that landscape.

**14 Permitted activity condition: setbacks**

*Territorial authority*

(1) Afforestation must not occur—

- (a) within 10 m of the boundary of an adjoining property that is not owned by the owner of the plantation forest or the land it is located on (unless that adjoining property is also plantation forest); or
- (b) except in the case of a dwelling located on the same property as the proposed plantation forestry to be afforested, within the greater of—
  - (i) 40 m of a dwelling; and
  - (ii) a distance where the forest species when fully grown would shade a dwelling between 10 am and 2 pm on the shortest day of the year, except where topography already causes shading; or
- (c) within 30 m of the boundary of land zoned in a district plan as a papakāinga or an urban area; or
- (d) within 10 m of a significant natural area.

(2) Afforestation must not occur where a plantation forest tree, when fully grown, could shade a paved public road between 10 am and 2 pm on the shortest day of the year, except where the topography already causes shading.

*Regional council*

(3) Afforestation must not occur—

- (a) within 5 m of—
  - (i) a perennial river with a bankfull channel width of less than 3 m; or
  - (ii) a wetland larger than 0.25 ha; or
- (b) within 10 m of—
  - (i) a perennial river with a bankfull channel width of 3 m or more; or
  - (ii) a lake larger than 0.25 ha; or
  - (iii) an outstanding freshwater body; or
  - (iv) a water body subject to a water conservation order; or
  - (v) a significant natural area; or

- (c) within 30 m of the coastal marine area.

## 15 Controlled activity

### *Territorial authority*

- (1) Afforestation is a controlled activity if regulation 10 is not complied with.
- (2) For the purpose of subclause (1), control is reserved over the information on the activity required to be given in the notice under regulation 10(1).
- (3) Afforestation is a controlled activity if regulation 13 is not complied with.
- (4) For the purpose of subclause (3), control is reserved over the effects on the visual amenity values of the visual amenity landscape, including any future effects from plantation forestry activities.

### *Regional council*

- (5) Afforestation is a controlled activity if regulation 10 is not complied with and the afforestation is in any—
  - (a) green, yellow, or orange zone; or
  - (b) red zone where the land proposed for afforestation is 2 ha or less in any calendar year.
- (6) For the purpose of subclause (5), control is reserved over the information on the activity required to be given in the notice under regulation 10(1).

## 16 Restricted discretionary activity

### *Territorial authority*

- (1) Afforestation is a restricted discretionary activity if regulation 11, 12, or 14(1) or (2) is not complied with.

### *Regional council*

- (2) Afforestation is a restricted discretionary activity if—
  - (a) regulation 11, 12, or 14(3) is not complied with and the afforestation is in any—
    - (i) green, yellow, or orange zone; or
    - (ii) red zone where the land proposed for afforestation is 2 ha or less in any calendar year; or
  - (b) it is in any red zone and the land proposed for afforestation is more than 2 ha in any calendar year; or
  - (c) the land proposed for afforestation is undefined in the erosion susceptibility classification.

### *Relevant local authority for afforestation within significant natural area or outstanding natural feature or landscape*

- (3) If the land proposed for afforestation is within a significant natural area or an outstanding natural feature or landscape, a resource consent for the activity is

**21 Controlled activity: regional council**

- (1) Pruning and thinning to waste is a controlled activity if regulation 20 is not complied with.
- (2) Control is reserved over—
  - (a) the effects on hydrological flow:
  - (b) methods used to minimise erosion and the deposit of slash:
  - (c) the effects on ecosystems, fresh water, and the coastal environment:
  - (d) the effects on downstream infrastructure and property:
  - (e) the information and monitoring requirements.

Subpart 3—**Earthworks**

**22 Functions for this subpart**

The functions of regional councils and territorial authorities under sections 30 and 31 of the Act, in relation to this subpart, are as specified in the following table:

Provision	Local authority with functions in relation to activity concerned
Regulation 23	Territorial authority
Regulations 24 to 35	Regional council

**23 Permitted activity: territorial authority**

Earthworks are a permitted activity.

**24 Permitted activity: regional council**

- (1) Earthworks are a permitted activity if regulations 25 to 33 are complied with and the activity is as specified in subclause (2).
- (2) The earthworks may be—
  - (a) in a green or yellow zone; or
  - (b) in an orange zone with a land slope of less than 25 degrees; or
  - (c) in an orange zone with a land slope of 25 degrees or more and, in any 3-month period, comprise—
    - (i) side cutting to a height of 2 m to 3 m over a continuous length of no more than 100 m; and
    - (ii) the deposition of less than 500 m<sup>3</sup> of spoil or fill; or
  - (d) in a red zone and, in any 3-month period, comprise—
    - (i) side cutting less than 2 m deep over a continuous length of no more than 50 m; and
    - (ii) the deposition of less than 100 m<sup>3</sup> of spoil or fill.

- (2A) Earthworks referred to in subclauses (3) and (4) are exempted from the requirements in subclause (2)(c) and (d) and are a permitted activity if regulations 25 to 33 are complied with.
- (3) The earthworks may be maintenance and upgrade of existing earthworks in any erosion susceptibility classification zone if the volume moved in any 3-month period is less than 5 000 m<sup>3</sup>.
- (4) The earthworks may be forestry road widening or realignment in any erosion susceptibility classification zone if—
- (a) the volume moved in any 3-month period is less than 5 000 m<sup>3</sup>; and
  - (b) where earthworks will be undertaken on a slope of more than 25 degrees, cut and fill road construction is used that involves—
    - (i) construction of a forestry road heading on the same grade as the road, but below the road formation height, to provide a bench below a forestry road to contain and stabilise the fill slope road and create a stable base; and
    - (ii) keying and compacting the fill to the bench; and
  - (c) spoil material is end-hauled to a safe containment area in any circumstance where—
    - (i) earthworks will be undertaken on a slope of more than 35 degrees; or
    - (ii) spoil cannot be benched in a manner that retains stability; and
  - (d) a record of any forestry road widening or realignment is maintained, and the record is available for inspection by the relevant council.

Regulation 24(1): amended, on 1 May 2018, by regulation 8(1) of the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018 (LI 2018/63).

Regulation 24(2A): inserted, on 1 May 2018, by regulation 8(2) of the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018 (LI 2018/63).

## **25 Permitted activity conditions: notice**

- (1) If earthworks involve more than 500m<sup>2</sup> of soil disturbance in any 3-month period, the relevant regional council must be given written notice of—
- (a) the place where earthworks are to be carried out; and
  - (b) the dates on which the earthworks or road widening and realignment are planned to begin and end.
- (2) Notice under subclause (1) must be given—
- (a) at least 20 and no more than 60 working days before the date on which the earthworks or road widening and realignment are planned to begin; or
  - (b) a minimum of 2 days before the date on which any earthworks that are required for salvage operations are planned to begin; or

- (c) annually, in the case of ongoing earthworks.
- (3) The council may request a copy of the forestry earthworks management plan and a copy must be given within 5 working days of the date by which the plan must be in place in accordance with regulation 27(2)(c) or (d).

Regulation 25(3): replaced, on 1 May 2018, by regulation 9 of the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018 (LI 2018/63).

**26 Permitted activity conditions: sediment**

Sediment originating from earthworks must be managed to ensure that after reasonable mixing it does not give rise to any of the following effects on receiving waters:

- (a) any conspicuous change in colour or visual clarity;
- (b) the rendering of fresh water unsuitable for consumption by farm animals;
- (c) any significant adverse effect on aquatic life.

**27 Permitted activity conditions: forestry earthworks management plan**

- (1) A forestry earthworks management plan is required for all earthworks that involve more than 500 m<sup>2</sup> of soil disturbance in any 3-month period.
- (2) A forestry earthworks management plan must—
  - (a) identify the environmental risks associated with the earthworks and provide measures to avoid, remedy, or mitigate the adverse effects of the activity on the environment; and
  - (b) contain the details required by Schedule 3, but, if earthworks are to be undertaken without harvesting activities, there is no need to include the details required by clause 5 of that schedule or regulation 66; and
  - (c) be in place at least 20 working days before the earthworks begin; and
  - (d) if the earthworks are required for a salvage operation, be in place 2 days before the earthworks begin.
- (3) The forestry earthworks management plan must be provided to the relevant council on written request. The council may request that the forestry earthworks management plan be provided annually.
- (4) Material amendments to the forestry earthworks 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) In subclause (4), **material amendment** means any significant change to the location of forestry roads, forestry tracks, or landings, or changes to the matters required by subclause (2)(a) that would significantly change the methods used to manage environment effects.

- (6) If a forestry earthworks management plan is required under subclause (1), earthworks must be carried out in accordance with the plan.

## 28 Permitted activity conditions: operation

- (1) Earthworks in any orange or red zone that are not required for harvesting within 12 months must be stabilised within 20 working days of their completion.
- (2) Soil disturbance in ephemeral flow paths must avoid accelerated erosion, obstruction, or diversion of water flow.
- (3) In this regulation, **ephemeral flow path** means the route that water from intermittent rainfall events follows, if—
- (a) the flow path is an entrenched dry gully greater than 1 m deep; or
  - (b) there is evidence of a channel within the valley system where overland flow occurs from time to time; or
  - (c) there is evidence of erosion (such as gully erosion or headward gully erosion) associated with short-term water flow from time to time within the valley system; or
  - (d) there is evidence of an active bed activated by rain events.

## 29 Permitted activity conditions: setbacks

- (1) Earthworks must not occur within 10 m of—
- (a) a perennial river; or
  - (b) wetlands larger than 0.25 ha; or
  - (c) lakes larger than 0.25 ha; or
  - (d) an outstanding freshwater body; or
  - (e) a water body subject to a water conservation order.
- (2) Earthworks must not occur within 30 m of the coastal marine area.
- (3) The setbacks in subclause (1) do not apply—
- (a) if the earthworks are for the construction and maintenance of a river crossing, a sediment or water control measure, or a slash trap or debris retention structure; or
  - (b) if the earthworks within the setback will result in less than 100 m<sup>2</sup> of soil disturbance in any 3-month period, and are not within 5 m of the water body; or
  - (c) during the maintenance and upgrade of existing earthworks.

## 30 Permitted activity conditions: fill and spoil

### *Fill*

- (1) Fill must contain no more than 5% (by volume) of vegetation and wood.

*Spoil*

- (2) Spoil must not be deposited—
- (a) where it may cause failure of the deposited material or the underlying land; or
  - (b) over slash or woody vegetation; or
  - (c) into a water body, coastal water, or a significant natural area; or
  - (d) onto land in circumstances that may result in the spoil or sediment entering water.

**31 Permitted activity conditions: sediment and stormwater control measures**

- (1) All disturbed soil must be stabilised or contained to minimise sediment entering into any water and resulting in—
- (a) the diversion or damming of any water body; or
  - (b) damage to downstream infrastructure, property, or receiving environments including the coastal environment.
- (2) Stormwater, water run-off, and sediment control measures must be installed and maintained.
- (3) Batters, cuts, and side cast construction must use methods that maintain stability.
- (4) The minimum stormwater culvert internal diameters for any forestry road or forestry track are—
- (a) 325 mm internal diameter in any green, yellow, or orange zone with a land slope of less than 25 degrees;
  - (b) 375 mm internal diameter in any orange zone with a land slope of 25 degrees or more in any red zone.

**32 Permitted activity conditions: stabilisation**

- (1) Exposed areas of soil, except firebreaks, that may result in sediment entering water must be stabilised as soon as practicable after completion of the activity, but no later than the last day of the autumn or the spring, whichever is sooner, after completion of the activity.
- (2) Suitable measures for stabilisation include—
- (a) seeding;
  - (b) vegetative cover, mulch, or slash cover;
  - (c) compacting, draining, roughening, or armouring by the placement of rock or the use of other rigid materials.

**33 Permitted activity conditions: roads, tracks, and landings**

- (1) Forestry roads, forestry tracks, and landings must be managed and aligned to—

- (a) divert water run-off and disperse water flows to stable ground and away from constructed fill; and
  - (b) minimise disturbance to earthflows and gullies.
- (2) In this regulation, **earthflow** means rapid flowing of soil and underlying weathered material on slopes of between 10 and 20 degrees that is characterised by—
- (a) an overthrust bulging dome at the toe, a depressed, fissured, and disrupted centre upslope, and slipping or slumping at the head; and
  - (b) prominent transverse cracks, particularly in the upper region of the movement.

#### **34 Controlled activity: regional council**

- (1) Earthworks are a controlled activity if the earthworks are in an area and of a volume specified in regulation 24, and regulation 25 is not complied with.
- (2) Control is reserved over the information on the activity required by the notice under regulation 25(1).

#### **35 Restricted discretionary activity: regional council**

- (1) Earthworks are a restricted discretionary activity if the earthworks are in an area and of a volume set out in regulation 24, and any provision of regulations 26 to 33 is not complied with.
- (2) Earthworks are a restricted discretionary activity in—
  - (a) any orange zone with a land slope of 25 degrees or more where the threshold specified in regulation 24(2)(c) is exceeded; and
  - (b) any red zone where the threshold specified in regulation 24(2)(d) is exceeded; and
  - (c) any zone where the earthworks are the maintenance and upgrade of existing earthworks and exceed the threshold in regulation 24(3); and
  - (d) any zone where the earthworks are for forestry road widening or realignment and exceed the thresholds and standards in regulation 24(4); and
  - (e) any area where the land is undefined in the erosion susceptibility classification.
- (3) Discretion is restricted to—
  - (a) the timing, location, and duration of the activity;
  - (b) the effects on ecosystems, fresh water, and the coastal environment;
  - (c) the effects on vegetation in the riparian zone;
  - (d) the method of stabilising soil disturbance;
  - (e) the method of sediment retention and run-off management;
  - (f) stormwater control measures;

*Restricted discretionary activity: regional council*

- (3) Forestry quarrying is a restricted discretionary activity in any green or yellow zone, or in any orange zone except in earthflow terrain, if regulation 54(3) or (4) or 56(1) is not complied with.
- (4) Forestry quarrying is a restricted discretionary activity in any—
  - (a) red zone:
  - (b) earthflow terrain in any orange zone:
  - (c) area of land that is undefined in the erosion susceptibility classification.

*Matters to which discretion is restricted*

- (5) For the purpose of subclause (3) or (4), discretion is restricted to—
  - (a) the timing, location, and duration of the activity:
  - (b) the area and volume of forestry quarrying:
  - (c) the disposal of fill and overburden:
  - (d) the method of stabilisation of disturbed soil, fill, and overburden:
  - (e) stormwater control:
  - (f) sediment retention and run-off management methods:
  - (g) the effects on ecosystems, fresh water, and the coastal environment:
  - (h) the effects on vegetation in the riparian zone:
  - (i) measures to rehabilitate land:
  - (j) the dimensions of cut and fill:
  - (k) the preparation and content of a quarry erosion and sediment management plan:
  - (l) the information and monitoring requirements.

Subpart 6—Harvesting

**62 Functions for this subpart**

The functions of regional councils and territorial authorities under sections 30 and 31 of the Act, in relation to this subpart, are as specified in the following table:

<b>Provision</b>	<b>Local authority with functions in relation to activity concerned</b>
Regulation 64(1) and (2)	Regional council and territorial authority
Regulations 63(1) and 70(1) and (2)	Territorial authority
Regulations 63(2) and (3), 64(3), 65 to 69, 70(3) and (4), and 71	Regional council

**63 Permitted activity***Territorial authority*

- (1) Harvesting is a permitted activity if regulation 64(1) and (2) is complied with.

*Regional council*

- (2) Harvesting is a permitted activity if regulations 64 to 69 are complied with and the harvesting is in any—
- (a) green, yellow, or orange zone; or
  - (b) red zone that is not of Land Use Capability Class 8e, where it involves no more than 2 ha of harvesting in any 3-month period.
- (3) Harvesting where a minimum of 75% canopy cover is maintained at all times for any given hectare of plantation forest land (low-intensity harvesting) is a permitted activity in all erosion susceptibility classification zones if regulations 64 to 69 are complied with.

**64 Permitted activity conditions: notice***Territorial authority and regional council*

- (1) The relevant regional council and territorial authority must be given written notice of—
- (a) the place where harvesting will be carried out; and
  - (b) the dates on which the harvesting is planned to begin and end.
- (2) Notice under subclause (1) must occur—
- (a) at least 20 and no more than 60 working days before the date on which the harvesting is planned to begin; or
  - (b) a minimum of 2 days before the date on which harvesting required for salvage operations is planned to begin; or
  - (c) annually, in the case of ongoing harvesting operations.

*Regional council*

- (3) After notice is given under subclause (1), the council may request a copy of the harvest plan and a copy of the harvest plan must be given within 5 working days of the date by which the plan must be in place in accordance with regulation 66(2)(c).

**65 Permitted activity conditions: sediment**

Sediment originating from harvesting must be managed to ensure that after reasonable mixing it does not give rise to any of the following effects in the receiving waters:

- (a) any conspicuous change in colour or visual clarity;
- (b) the rendering of fresh water unsuitable for consumption by farm animals:

- (c) any significant adverse effect on aquatic life.

#### 66 Permitted activity conditions: harvest plan

- (1) A harvest plan is required for all erosion susceptibility classification zones.
- (2) A harvest plan must—
  - (a) identify the environmental risks associated with the earthworks and provide operational responses to those risks that avoid, remedy, or mitigate the adverse effects of the activity on the environment; and
  - (b) contain the details required by Schedule 3, but, if harvesting activities are to be undertaken without earthworks, there is no need to include the details required by clause 4 of that schedule or regulation 27; and
  - (c) be in place at least 20 working days before harvesting begins, except where the harvesting is a salvage operation; and
  - (d) if the harvesting is a salvage operation, be in place before harvesting begins.
- (3) In the case of any orange or red zone, a harvest plan must be accompanied by a forestry earthworks management plan that contains the details required by Schedule 3 or a combined plan that contains all the details required by that schedule.
- (4) The harvest plan must be provided to the relevant council on written request. The council may request that the harvest plan be provided annually.
- (5) Material amendments to the harvest 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.
- (6) In subclause (5), **material amendment** means any significant change in harvest regime, such as changing from ground-based to hauler, or changes to the matters required by subclause (2) that would change the methods used to manage environmental effects.
- (7) Any harvesting activities must be undertaken in accordance with the harvest plan.

#### 67 Permitted activity conditions: ground disturbance

- (1) Harvest systems must be planned and located to achieve butt suspension wherever practicable.
- (2) Disturbed soil must be stabilised or contained to minimise sediment entering into any water and resulting in—
  - (a) the diversion or damming of any water body; or
  - (b) degradation of the aquatic habitat, riparian zone, freshwater body, or coastal environment; or
  - (c) damage to downstream infrastructure and properties.

- 68 Permitted activity conditions: disturbance of margins of water bodies and coastal marine area**
- (1) Trees must be felled away from any water body or riparian zone during harvesting, except where it is unsafe to do so, to minimise disturbance to the margins of water bodies and to the coastal marine area.
  - (2) If the exception in subclause (1) applies, trees must be felled directly across the water body for full-length extraction before de-limbing or heading.
  - (3) Full suspension tree harvesting in a manner that lifts the entire tree above the ground must be achieved across rivers of 3 m or more in width.
  - (4) Harvesting machinery must not be operated, except where subclause (5) applies,—
    - (a) within 5 m of—
      - (i) a perennial river with a bankfull channel width less than 3 m; or
      - (ii) a wetland larger than 0.25 ha; or
    - (b) within 10 m of—
      - (i) a perennial river with a bankfull channel width of 3 m or more; or
      - (ii) a lake larger than 0.25 ha; or
      - (iii) an outstanding freshwater body; or
      - (iv) a water body subject to a water conservation order; or
    - (c) within 30 m of the coastal marine area.
  - (5) Harvesting machinery may be operated in the setbacks required by subclause (4) only if—
    - (a) any disturbance to the water body from the machinery is minimised; and
    - (b) the harvest machinery is being operated—
      - (i) at water body crossing points; or
      - (ii) where slash removal is necessary; or
      - (iii) where essential for directional felling in a chosen direction or extraction of trees from within the setbacks in subclause (4).
  - (6) When harvesting occurs within or across a riparian zone, all disturbed vegetation, soil, or debris must be deposited to avoid it entering into water, and to avoid—
    - (a) diversion or damming of any water body or coastal water;
    - (b) degradation of any aquatic habitat or riparian zone;
    - (c) damage to downstream infrastructure or property.
- 69 Permitted activity conditions: slash and debris management**
- (1) Slash from harvesting must be placed onto stable ground.

- (2) Slash from harvesting that is on the edge of landing sites must be managed to avoid the collapse of slash piles.
- (3) Slash from harvesting must not be deposited into a water body or onto the land that would be covered by water during a 5% AEP event.
- (4) If subclause (3) is not complied with, slash from harvesting must be removed from a water body and the land that would be covered by water during a 5% AEP flood event, unless to do so would be unsafe, to avoid—
  - (a) blocking or damming of a water body:
  - (b) eroding river banks:
  - (c) significant adverse effects on aquatic life:
  - (d) damaging downstream infrastructure, property, or receiving environments, including the coastal environment.

## 70 Controlled activity

*Controlled activity: territorial authority*

- (1) Harvesting is a controlled activity if regulation 64(1) or (2) is not complied with.

*Matters over which control is reserved*

- (2) For the purpose of subclause (1), control is reserved over the information on the activity required by the notice under regulation 64(1).

*Controlled activity: regional council*

- (3) Harvesting is a controlled activity—
  - (a) in any green, yellow, or orange zone if any provision of regulations 64 to 69 is not complied with:
  - (b) in any red zone not of Land Use Capability Class 8e where it involves more than 2 ha of harvesting in any 3-month period.

*Matters over which control is reserved*

- (4) For the purpose of subclause (3), control is reserved over—
  - (a) the preparation and content of the harvest plan and the forestry earth-works management plan (if required):
  - (b) the type and method of harvesting:
  - (c) the timing, location, and duration of harvesting (including in relation to fish spawning):
  - (d) measures to address effects of harvesting on water quality, vegetation in the riparian zone, wetlands, and the coastal marine area:
  - (e) measures to minimise soil erosion during and after harvesting:
  - (f) measures to contain and remove slash:
  - (g) the information and monitoring requirements.

## Subpart 8—Replanting

### 76 Functions for this subpart

The functions of regional councils and territorial authorities under sections 30 and 31 of the Act, in relation to this subpart, are as specified in the following table:

Provision	Local authority with functions in relation to activity concerned
Regulation 79	Territorial authority and regional council
Regulations 77(1), 78(1), and 81(1) and (2)	Territorial authority
Regulations 77(2), 78(2) and (3), 80, and 81(3) and (4)	Regional council

### 77 Permitted activity

*Territorial authority*

- (1) Replanting is a permitted activity if regulations 78(1) and 79 are complied with.

*Regional council*

- (2) Replanting is a permitted activity if regulations 78(2) and (3) and 79 are complied with and the replanting is in any—
- green, yellow, or orange zone; or
  - red zone where the land proposed for replanting is 2 ha or less in any calendar year.

### 78 Permitted activity conditions: setbacks

*Territorial authority*

- (1) Replanting must not occur in any area closer than the stump line to an adjacent significant natural area.

*Regional council*

- (2) Replanting must not occur—
- within 5 m of—
    - a perennial river with a bankfull channel width less than 3 m; or
    - a wetland larger than 0.25 ha; or
  - within 10 m of—
    - a perennial river with a bankfull channel width of 3 m or more; or
    - a lake larger than 0.25 ha; or
    - an outstanding freshwater body; or
    - a water body subject to a water conservation order; or

- (c) within 30 m of the coastal marine area.
- (3) Replanting must not occur in any area closer than the stump line to an adjacent—
- (a) perennial river; or
  - (b) wetland; or
  - (c) lake; or
  - (d) coastal marine area; or
  - (e) significant natural area.

**79 Permitted activity conditions: wilding tree risk and control**

- (1) A wilding tree risk calculator score must be completed—
- (a) for any land on which replanting of a conifer species will occur, if that conifer species is different from the trees most recently harvested on the land; and
  - (b) in accordance with the wilding tree risk guidelines by a suitably competent person; and
  - (c) no more than 6 months before replanting described in paragraph (a) is carried out.
- (2) In subclause (1), **suitably competent person** means a person with—
- (a) tertiary qualifications in silviculture and forest ecology and at least 2 years' experience in the field of silviculture; or
  - (b) at least 5 years' experience in silviculture that includes forest establishment.
- (3) Replanting of a conifer species must not be carried out if it is—
- (a) a different species from the trees most recently harvested on the land proposed for replanting; and
  - (b) in an area with a wilding tree risk calculator score of 12 or more.
- (4) Subclause (3) does not apply if the trees most recently harvested on the same land proposed for replanting had a wilding tree risk calculator score—
- (a) completed in accordance with subclauses (1)(b) and (2); and
  - (b) the same as or higher than that of the species proposed to be replanted.
- (5) A copy of the wilding tree risk calculator calculation sheet and score required under subclause (1) must be given to the relevant regional and territorial authority on request.
- (6) Wilding conifers established in wetlands and significant natural areas must be eradicated—
- (a) before replanting begins, if the wilding conifer has resulted from the previous harvest:

Name of document or electronic tool	URL
N.; O'Donnell, C.F.J.; Sagar, P.M.; Scofield, R.P.; Taylor, G.A. 2017	
9 Fish Spawning Indicator	<a href="http://www.mpi.govt.nz/growing-and-producing/forestry/overview/national-environmental-standards-for-plantation-forestry/fish-spawning-indicator/">http://www.mpi.govt.nz/growing-and-producing/forestry/overview/national-environmental-standards-for-plantation-forestry/fish-spawning-indicator/</a>
10 New Zealand Freshwater Fish Sampling Protocols (Joy, David & Lake, 2013)	<a href="https://www.niwa.co.nz/static/web/New_Zealand_Freshwater_Fish_Sampling_Protocols.pdf">https://www.niwa.co.nz/static/web/New_Zealand_Freshwater_Fish_Sampling_Protocols.pdf</a>
11 DIN 4150-3:1999-02 Structural vibration – Part 3: Effects of vibration on structures	
12 ISO 4866:2010 Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures	
13 Introduction to monitoring freshwater fish. Version 1.1. Grainger, N.; Goodman, J.; and West, D. Department of Conservation 2013	<a href="http://www.doc.govt.nz/Documents/science-and-technical/inventory-monitoring/im-toolbox-freshwater-fish/im-toolbox-freshwater-fish-introduction-to-monitoring-freshwater-fish.pdf">http://www.doc.govt.nz/Documents/science-and-technical/inventory-monitoring/im-toolbox-freshwater-fish/im-toolbox-freshwater-fish-introduction-to-monitoring-freshwater-fish.pdf</a>
14 A revised methodology to survey and monitor New Zealand mudfish. Ling, N.; O'Brien, L.K.; Miller, R.; Lake, M. 2013: Department of Conservation, Wellington (unpublished)	<a href="http://www.doc.govt.nz/Documents/science-and-technical/inventory-monitoring/im-toolbox-freshwater-fish/im-toolbox-freshwater-fish-a-revised-methodology-to-survey-and-monitor-new-zealand-mudfish.pdf">http://www.doc.govt.nz/Documents/science-and-technical/inventory-monitoring/im-toolbox-freshwater-fish/im-toolbox-freshwater-fish-a-revised-methodology-to-survey-and-monitor-new-zealand-mudfish.pdf</a>

Schedule 2 item 5: replaced, on 1 May 2018, by regulation 18 of the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018 (LI 2018/63).

### Schedule 3

## Forestry earthworks management plan and harvest plan specifications

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A forestry earthworks management plan must include the information set out in clauses 1, 2, 3, 4, and 6.

A harvest plan must include the information set out in clauses 1, 2, 3, 5, and 6.

A combined forestry earthworks management plan and harvest plan must include all the information set out in this schedule.

## 1 Person and property details

The person and property details are—

- (a) the plan date:
- (b) the name of and contact details for the land owner or their agent:
- (c) the name of and contact details for the forest owner (if different):
- (d) the name of and contact details for the harvest and earthworks managers (if different):
- (e) the contact details for service—postal address, email, contact phone(s):
- (f) the region and district in which the forest is located:
- (g) the name of the road used for forest access and rural number of entry point:
- (h) the forest name or property location identifier:
- (i) the cadastral and map references, or GIS polygon reference.

## 2 Map

The plan must include a map or maps that include and show—

- (a) a scale not less than 1:10 000:
- (b) the computer freehold register, the date, and a north arrow:
- (c) the harvest area boundary:
- (d) the external property boundaries within 200 m of the harvest and earthworks area:
- (e) the contour lines at less than or equal to 20 m intervals:
- (f) the erosion susceptibility classification (NESPF overlay map):
- (g) the proposed harvesting method (hauler or ground-base, or other) and arrows showing extraction directions to the skid or landing:
- (h) the proposed forestry road locations, and landing or skid locations:
- (i) any on-site risk areas as identified under clause (3).

## 3 Water and on-site areas

### *Water on site*

- (1) The plan must identify the location of and mark on a map—
  - (a) wetlands larger than 0.25 ha and lakes larger than 0.25 ha:
  - (b) rivers to their perennial extent:
  - (c) rivers where the bankfull channel width is 3 m or more:
  - (d) any outstanding freshwater body or water body subject to a water conservation order:
  - (e) the coastal marine area:

(f) any setbacks.

*Downstream risks*

(2) The plan must,—

(a) for sites with a perennial river, identify the risks downstream of the operation, should slash or sediment be mobilised, to any—

(i) public roads and other infrastructure:

(ii) downstream properties and show the location of dwellings:

(iii) downstream river, lake, estuary or sea:

(b) identify any registered drinking water supply, including drinking water sources for more than 25 people within 1 km downstream of the activity:

*On-site risks*

(3) The plan must identify the location of and mark on a map any features that are to be protected during the operation, including significant natural areas.

*Forestry infrastructure*

(4) The plan must identify the location of and mark on a map any—

(a) existing roads, tracks, landings, firebreaks, and river crossings:

(b) proposed new roads, tracks, landings, firebreaks, river crossings (permanent and temporary), and fuel storage and refuelling sites:

(c) proposed end-haul deposit sites:

(d) slash storage areas.

#### 4 Forestry earthworks management plan

The plan must—

(a) identify the area to which the plan applies:

(b) describe the scope of work covered by the earthworks and whether it is for maintenance, upgrade, road widening, realignment, or new works:

(c) indicate the anticipated construction time for forestry earthworks and stabilisation:

(d) describe clearly the management practices that will be used to avoid, remedy, or mitigate risks due to forestry earthworks that have been identified on the map, including the proposed erosion and sediment control measures to be used and the situations in which they will be used, in sufficient detail to enable site audit of the management practices to be carried out:

(e) include the following for earthworks management:

(i) water run-off control measures:

(ii) sediment control measures during construction and during harvest:

- (iii) the method used to manage excess fill for large-scale cut and fill operations, and if end haul, the proposed disposal location:
- (iv) methods used to stabilise batters, side cast, and cut and fill:
- (v) post-harvest remedial work (timing and methods).

## 5 Harvest plan

The plan must include—

- (a) the harvesting method, whether ground-based or hauler, or any other method, and the hauler system type:
- (b) the planned timing, duration, intensity, and any proposed staging of the harvest:
- (c) the management practices that will be used to avoid, remedy, or mitigate risks due to forest harvesting on features identified under clause 3(3) and mapped, including the slash management and procedures for—
  - (i) avoiding instability of slash at landing sites:
  - (ii) keeping slash away from high-risk areas (no-slash zones):
  - (iii) slash management in the vicinity of waterways, including identifying any areas where it would be unsafe or impractical to retrieve slash from water bodies:
  - (iv) measures to ensure that slash is not mobilised in heavy rain events (5% AEP or greater) and contingency measures for such movement, including requirements for slash removal from streams and use of slash traps:
- (d) any operational restrictions to—
  - (i) minimise damage to indigenous vegetation:
  - (ii) avoid damage to downstream and adjacent infrastructure and properties.

## 6 Management practices for maintenance and monitoring

The plan must include—

- (a) the proposed routine maintenance and monitoring processes:
- (b) the proposed heavy rainfall contingency and response measures, including—
  - (i) specific triggers or thresholds for action; and
  - (ii) post-event monitoring and remedial works:
- (c) the post-harvest monitoring of residual risks, and the corrective action processes.