



**The Environmental Effects of Plantation Forestry:
The Ngunguru Catchment, Northland, NZ:
A Discussion Document.**



The Environmental Effects of Plantation Forestry - The Ngunguru Catchment, Northland, New Zealand:

A Discussion Document

By Jenny Baker for the Environment and Conservation Organisations of NZ. Inc. (ECO)

With input and photographs from Wade and Jan Doak, Ngunguru.
With contributions from Grant Rosoman, International Forestry Campaigner, Greenpeace and Meg Graeme, Ecologist, Natural Solutions, Tauranga and maps from Elise Smith.

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Published by the Environment and Conservation Organisations of New Zealand Inc., Wellington.

ISBN 978-0-9597786-6-3

Citation: Baker, Jenny (2014) The Environmental Effects of Plantation Forestry: The Ngunguru Catchment, Northland, New Zealand: A Discussion Document. Wellington, Environment and Conservation Organisations of NZ Inc.

1. Acknowledgements

The study would not have been possible without the diligence and effort of Wade and Jan Doak who highlighted these community concerns to ECO and documented those in pictures, wrote endless letters and refused to let the matter rest.

Contributions were from Grant Rosoman, International Forestry Campaigner, Greenpeace, Meg Graeme, Ecologist, Natural Solutions, Tauranga. Elise Smith contributed maps and GIS skills. Shane Orchard collaborated during the early stages of this study and has completed a complementary study emphasising the Resource Management Act 1991 and the proposed National Environmental Standards and we thank him for his input.

Thanks go to the many other people who have given input to and/or have reviewed this study from various perspectives. The Environment and Conservation Organisations of NZ, ECO, is very grateful to Jenny Baker for coordinating this study.

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2. DISCLAIMER: ECO and Jenny Baker have taken on this task of developing this discussion document as a service to the community to enable all parties to explore the issues in relation to the impacts of exotic plantation forestry in one part of New Zealand. We hope this informs our national discussions on standards for plantation forestry. The intent is not to pillory but to explore, learn and develop an understanding of the relationship of forestry practice to the Forest Stewardship Principles, Criteria and New Zealand Standard. We stress that we have not had the resources to fully research this project and we thus may have got some things wrong. If readers spot errors, ECO would be grateful to be informed at eco@eco.org.nz

COVER PHOTOGRAPHS: Views from Moki Road Trig. Wade Doak 16/10/2010.

3. Introduction

For many years local people have held concerns over plantation forestry practices in parts of the Ngunguru catchment in Northland, New Zealand. The management of adverse effects from plantation forestry activities is difficult in the area due to a combination of factors including steep country, highly erodible soils, and periodic high rainfall events.

It is not unusual for forestry operations in Northland New Zealand to be located in sensitive catchments, on both the East and West Coasts. “Exotic Forestry covers 14% of the land area in Northland. Based on 2002 and 2007 census data, 2011 sampling, and the recently released Land Cover Database 3, the area in Exotic forest has steadily decreased from 171,000ha to 159,000 ha.” (Northland Regional Council State of the Environment Report 2012; 100).

Extensive planting of exotic (non-native) pines in the 1970’s and 1980’s on steep land seemingly gave little consideration as to how the logs were to be harvested and the environmental effects of that part of the rotation in particular. The Ngunguru Catchment provides an example of a high environmental risk site for forestry operations in a sensitive catchment.

This discussion document is a joint project between the Environment and Conservation Organisations of New Zealand Inc. (ECO) and Wade and Jan Doak of Ngunguru with contributions from Grant Rosoman, International Forestry Campaigner, Greenpeace and Meg Graeme, Ecologist, Natural Solutions, Tauranga.

ECO is the national alliance of not-for-profit organisations with a shared interest in the environment and conservation. Established in 1972, it had 59 member organisations when this study was published in 2014.

4. Background

Interest in this study arose in response to a combination of factors and issues including:

- Concerns of local people regarding the impact of forestry operations on receiving environments in their area and an approach to ECO about these impacts.
- Increasing concern in other areas of New Zealand (NZ) as the pine plantations of the 1980’s are being harvested and decisions made on the future of these often high environmental risk areas as they begin subsequent rotations or are retired from forestry and converted to other land uses.
- Concern around the flawed Emissions Trading Scheme, particularly the potential for cost liabilities for plantation areas if some of these areas are removed from production in subsequent plantation rotations, for instance in order to provide better riparian protection.

- Increasing awareness of long term biodiversity loss and ecological degradation issues and questions around how these may be addressed through ecologically sustainable approaches to land-use.
- Work on similar issues in the development of a new National Environmental Standard (NES) for Plantation Forestry by the Ministry for the Environment (MfE) and the Ministry of Primary Industry in collaboration with the forestry industry and other stakeholders. In 2013 this process was suspended, and instead, a process of looking at how else such nationally consistent standards could be achieved was handed to the Ministry of Primary Industry.
- Certifications in New Zealand of forests that were assessed by Assessors for certification under the Forest Stewardship Council Principles and Criteria, including Ngunguru forest block then managed by the company Hancocks.
- Ongoing refinement of the Forests Stewardship Council (FSC) guidelines and the September 2013 ratification of the FSC New Zealand Standards. ECO is represented on the NZ Environment Chamber of FSC.
- The Forest Owners' Association (FOA) also has guidelines, and ECO and other environmental organisations have been in dialogue with forestry industry organisations since the 1991 New Zealand Forest Accord was signed. In the light of all this, ECO considered that there was an opportunity to compare a case study of forest management practice with the FSC Principles and Criteria as a guide to the consideration of the implementation of the new FSC Standard and for the government's standards development process.

The initiative for this case study came from Wade and Jan Doak. The Doaks contacted ECO about their continuing concerns for the catchment and the broader issues around the sustainability of forestry as a long term land use. There has been a significant level of concern within their local community about the effects of forestry activities, particularly associated with sedimentation in the Ngunguru catchment (Figure 6). The appropriateness of management practices at individual sites, the need to address the cumulative effects of forestry as a land use in the catchment, and roading impacts are specific concerns.

Wade and Jan Doak are Ngunguru residents, having lived in the area for 42 years and are well known marine advocates, divers, writers and photographers. Over the past few years the Doaks have turned their attention to the land and the effects of land use on the marine environment. They have documented forestry practices and resultant effects and voiced their concerns to local authorities over many years. The Doaks conducted nine visits to the Ford Road plantation in the 2009-11 period in addition to conducting aerial photography. They have compiled an extensive photographic record of forestry activities that have adversely affected the environment, in particular storm water runoff, erosion, sedimentation, and the accumulation of slash in waterways. The Doaks have been active in bringing these issues to the attention of the forestry owners, managers, and the Northland Regional Council and have sought clarification over forestry practices and regulations.

5. Description of site

The Ngunguru catchment is situated 20km north east of Whangarei. There are four main forestry blocks in the catchment and each affect sub-catchments that drain to Ngunguru River and ultimately the Ngunguru estuary and the Tutukaka Coast (Figure 1). Some of the Glenbervie Forest managed by Rayonier also drains to the Kaipara and Whangarei harbours.

The Tutukaka Coast is one of NZ's highest rated coasts for biodiversity, scenic and amenity values. The Poor Knight's Marine reserve lies 20km NE of Tutukaka. In 2010 the *National Geographic Traveller* rated the Tutukaka Coast as one of the top three coastlines in the world. The rating highlights the environmental and ecological values of this coast but also notes the potential adverse effects of unplanned development (National Geographic Traveller, 2010) <http://travel.nationalgeographic.com/travel/coastal-destinations-rated/top/new-zealand-tutukaka-coast/>).

In the vicinity of the forest, on the river's North bank, are several recreational, ecotourism and environmental education operations: kayak tours through the mangroves, home stays, eco lodges and land owners intent on protecting and enhancing local biodiversity. It is in this area that the Doaks have been able to create a recent major publication richly illustrated with examples of local biodiversity (Bringing Back the Birdsong, Doak, W. and J., 2013). On the opposite South bank the effects of plantation forestry are in stark contrast.



Figure 1: Overview of major land uses in the Ngunguru catchment on the east coast of Northland

All four forestry blocks are *Pinus radiata* plantations, converted from sheep farming in the 1970s. Two of these are at Glenbervie and are former NZ Forest Service managed blocks on leased Crown land which are harvested by Rayonier. Another is Ngahere, situated adjacent to the Crawford Reserve and owned by Reyburn. The fourth block and the focus of this case study, is the holding owned by Mr. Langren Lee, managed by Carter Holt Harvey, and harvested by Hancocks (referred to as the Ngunguru Forest in this report).

The Ngunguru Forest has extensive riparian borders with the Ngunguru River and includes the forestry roads Marlin and Moki Roads. Part of the block also drains south into the Horahora catchment (Figure 2).

Most of the Ngunguru forestry block is classified in the proposed MfE Erosion Susceptibility Classification as having moderate erosion susceptibility and there are some areas of high erosion susceptibility. <https://www.mfe.govt.nz/laws/standards/forestry/erosion-susceptibility-classification.pdf> (Figure 3). This forestry block which was harvested between 2009 and 2011 has been managed by Hancocks Forest Management (NZ) Ltd over that part of the rotation.

At the time of writing, Hancocks is New Zealand's largest plantation forest manager:

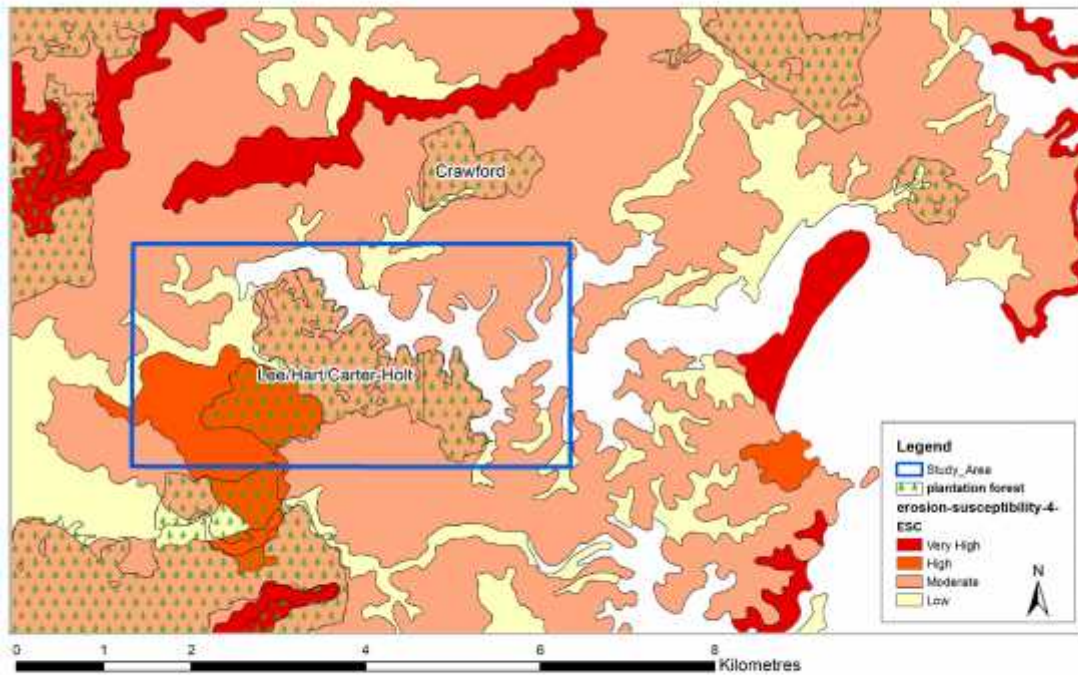
“Hancocks Forest Management (NZ) Ltd (HFM) is currently New Zealand's largest plantation forest manager, managing approximately 275,000 ha of plantation forest under management three investment entities (Taumata Plantation Ltd, Tasman Forests Ltd and Tiaki Plantation Company). HFM-managed forests in Northland Region extend from Te Kao in the far North down to Waipu, south of Whangarei. HFM's operations also cover all three districts in the Northern Region (Far North, Whangarei and Kaipara), with some forests spanning two districts. With management rights to approximately 47,200 hectares of forest in the region HFM is the largest forest manager in Northland. Of the total area, 10,100 ha or 21% is in reserves, riparian strips and non productive land.”

“For the year ending 30 June 2012, the HFM operation in Northland harvested 1.4m m3 of wood making up around 45% of Northland's total harvest volume for the same period. Harvesting operation(s) for the coming year are scheduled to be of a similar volume.” (Hancock Forest Management (NZ) Ltd, 2012)

Hancocks Timber Resource Group stated in their news release 29/01/2008:

“After an extensive audit, FSC confirmed certification for HFM's managed forests in Northland and Nelson, which were acquired in December 2006 from Carter Holt Harvey.” This transfer from Carter Holt Harvey to Hancocks means that some of the documentation such as the Assessment of Environmental Effects (AEE) was originally compiled by Carter Holt Harvey.

Hancocks Forest Management was represented on the FSC Standards Development Group for the NZ National Standard, so one can be confident that the company was aware of the FSC Principles and Criteria.



Erosion Susceptibility 4 Classes
 Plans, Ministry for the Environment (MfE)
 LICENSE: Creative Commons Attribution 3.0 New Zealand
 URL: <https://data.mfemta.govt.nz/erossusceptibility-3-0-new-zealand/>

14th January 2014. Drawn by Elise Smith

Figure 3: Erosion Susceptibility 4 Classes for Northland and Ngunguru study area. Drawn by Elise Smith, 14/01/2014



Figure 4: An aerial view of the Ngunguru Forest showing the Ngunguru River in the foreground and the Horahora catchment beyond and the extent of clear felling. Photo Wade Doak 2011

6. Study Objectives

This study aims to highlight and investigate some of the issues raised by the community and to compare the effects of forestry operations at the study site against the good practice Standards of the Forest Stewardship. Because of resource limitations, the study cannot provide a full assessment of many of the aspects of FSC Standards but it highlights areas where compliance should be further evaluated by FSC assessment and certifying bodies and /or by local authorities, the companies concerned and by researchers.

The specific objectives of the study are to:

- Gain an understanding of the environmental effects and management issues relevant to the study site.
- Gain familiarity and understanding of the new FSC NZ Standards so community stakeholders can engage in assessments and report concerns.
- Highlight any shortcomings for further investigation.
- Enhance environmental outcomes and suggest alternatives to large scale exotic plantation monoculture where such land use may not be appropriate.

7. Methods

The study uses a descriptive and comparative approach and the extensive photographic and written record compiled by the Doaks. For practical reasons, only a small selection of the Doak's photographs is able to be included in this document.

The Northland Regional Council regional plans and consent requirements are legal requirements and should be complied with. These are included in the discussion where relevant and are attached as Appendices.

The study notes the limitations of not being able to do further fieldwork due to information, resource and access constraints. However, it does highlight areas where vigilance is required and standards may have been breached and need further investigation and auditing.

8. Policy Context

8.1 Statutory requirements

This first rotation at Ngunguru Forest involved activities for which HFM required consents under the Resource Management Act 1991 and the Northland Regional Council Plans (NRC). These consents included two land use consents for earthworks and harvesting, a discharge permit and a water permit. The consents were granted in 2004, under the same plan that was operational in 2013. The consents were processed together as a combined resource consent application.

The Northland Regional Council (NRC) Water & Soil Plan August 2004 (RWSP) includes several rules and standards relevant to forestry activities. The key sections are:

- Rules 21, 22 – Stormwater
- Section 32 – Environmental Standards
- Rules 33, 34 – Land disturbance

The RWSP treats some aspects of forestry operations as ‘permitted activities’ (for example harvesting and related earthworks) provided certain criteria are met. The NRC reported in 2011 that permitted activity forest work is frequently non-compliant with the required conditions. In August 2011 NRC published a media statement urging foresters to comply with these permitted activity conditions (Appendix 1). Common problems included wood waste material (slash) finding its way into streams, and sediment discharges to waterways.

NRC refers to the development of a “Forestry Monitoring Protocol” document (NRC, pers. comm., October 2011) but this does not seem to have been progressed.

8.2 Guidelines for good practice

Considerable guidance is already available for New Zealand forestry operations in other existing non-statutory documents. These include the NZ Forest Owners’ Association Code of Practice and The New Zealand Forest Accord 1991. The Accord is an agreement not to clear or interplant within areas of land with existing indigenous forest or with species that are canopy species but immature (www.nzfoa.org.nz).

The Forest Stewardship Council (FSC) is an international body offering a certification-based incentive scheme for forestry operations to promote good practice within the industry. Through a comprehensive global process, FSC established Principles and Criteria and then set standards for forest and plantation management and wood product chain of custody certification reflecting best forest management. Assessments against the FSC Principles and Criteria for certification purposes are conducted by FSC accredited assessment for certification bodies. These are contracted by forestry managers or owners. FSC defines the procedures for assessment bodies to follow in their assessments.

The FSC Principles and Criteria are designed to address and identify and provide certification of good practice. FSC standards are also reviewed regularly and a review of international criteria was completed in 2006 and released as version (V5-0) (FSC, 2012). In addition, FSC Regional or National Standards may also be developed. These aim to translate the FSC Principles and Criteria to the specific conditions and context found in each country or region. A New Zealand-specific set of criteria was developed and a final version was submitted to FSC in February 2012 (Standards Development Group, 2012). The National Standard for Certification of Plantation Forest Management in New Zealand Approved Version 5.7.came into effect in September 2013. The Standards also refer to the NZ Environmental Code of Practice for Plantation Forestry:

“In New Zealand FSC certifications already apply to 55% of NZ’s planted forest estate, including some indigenous Forests (MAF 2009).” (Ministry for the Environment, 2010; 32) http://www.scsglobalservices.com/files/standards/fsc-std-nzl-01-2012_new_zealand_plantations_en_0.pdf

A comparison of management of the study site with this voluntary performance standard is made in Table 1.

The New Zealand Forest Owners’ Association (NZFOA) represents the owners of New Zealand’s commercial plantation forests (NZFOA, 2012). The NZFOA Code of Practice was first published in 1990 and was the result of three years of industry consultation on management issues and approaches. The Code covers many aspects of forestry operations with a focus on planning and implementing forest operations in a sustainable manner. Many potential management problems are the subject of risk mitigation and reduction advice. The Code also supports good management practice by providing tools and checklists for assessing management needs.

8.3 Proposed National Environmental Standard (NES) for Plantation Forestry

The Proposed National Environmental Standard (NES) for Plantation Forestry was drafted by the Ministry for the Environment under the Resource Management Act 1991 at the request of the forestry industry and in conjunction with some of the stakeholders. In September 2010 the Minister for the Environment released the *Proposed National Environmental Standard for Plantation Forestry: Discussion Document* (MfE, 2010). The need for the proposed NES was identified as to overcome inconsistencies in the management framework for plantation forestry. Related to these, issues reported by the industry included operational inefficiency, investment uncertainty, and re-litigation of the same issues across the country. Consequently the policy objective of the proposed NES was “*To provide a more consistent and appropriate plantation forestry management framework, while facilitating the sustainable management of natural and physical resource*” (Ministry for the Environment (MfE), 2010; vii).

Following the consultation phase, the proposed NES was the subject of a re-design phase which involved the establishment of several working groups to develop recommendations to address issues raised by submitters. Many issues had been raised including the suitability of the central policy objective, given that the Resource Management Act is an effects-based, not activities based, Act. As a tool under the Resource Management Act 1991 (RMA) any NES must deliver environmental outcomes consistent with the purposes of the RMA and also other legislation as appropriate and where possible. The main working group agreed with many submitters that the central policy objective for the proposed NES should focus on outcomes related to managing forestry resources in a sustainable way. This resulted in the main working group recommending a changed policy objective for the NES to: “*Bringing about the consistent and sustainable management of natural and physical resources, using good forestry practices*” (MfE, 2011p.7).

The establishment of clear statements about desired end states was seen as vital for assessing various aspects of the overall objective and for monitoring the effectiveness of the NES as a policy tool in the long term. To achieve these objectives, recommendations of the main working group included that an NES, although useful as a policy tool to address some issues, should not be seen as a stand-alone solution. Additional options within a potential package of policy tools designed to identify and support improved practice were recommended. These included the use of non-statutory mechanisms to target the uptake of good practice within the industry, and the potential for audited self-management and accredited operator systems to also be effective means of addressing some management issues and conveying expectations. These considerations have led to a revised document which was being further developed by MfE in conjunction with a regional council working group. This working group reported back and the Minister was briefed on the process in March 2013.

“Cabinet decided to defer further work on the proposed NES and review the need for it once the 2013 resource management and water reforms had been completed. Cabinet has asked the Ministry for Primary Industries to build on work done to date with forestry industry and stakeholders and identify tools over the next year that can help ensure consistency in planning and environmental outcomes. The minister will be reporting back to Cabinet on the NES in June 2014.” (Communication from MfE, April 2013).

9. Overview of the Ngunguru Forest management during the first rotation.

During the first rotation all operations were done in accordance with HFM NZ (Hancocks) Northland forestry specifications. These covered aspects such as erosion control, benching and compaction of landings, water controls, sediment traps, cross drains, and hydro-seeding of fill.

Documents used to provide information for this study include:

- Northland Regional Council Media Release. (Appendix 1.)
- Hancock’s Assessment of Environmental Effects (Appendix 2).
- Northland Regional Council Regional Water and Soil Plan 2004(RWSP) (Appendix 3)
- Memorandum of Understanding between Carter Holt Harvey and Te Waiariki and Ngati Wai (Appendix 4)

Much of the land is erosion prone and control of erosion and sediment discharges from the site are some of the main issues raised by the community. There have been two consent condition compliance audits completed by NRC to assess the effectiveness of operational procedures. One audit found full compliance (25/09/2009), and the other found minor non-compliance related to ineffective or poorly maintained sediment traps (10/06/2010). Hancocks reported that this was associated with a heavy rain event prior to the audit. Periodic heavy rain events which can occur throughout the year (including cyclone Wilma 2011) are characteristic of the locality and several have affected the harvest phase of the rotation. This is an example of a risk that must be planned for and mitigated for in the harvesting on such a site.



Figure 5: Sediment loads in the Ngunguru River and estuary after a rain event. Photo Judi Gilbert, 30/03/2007

10. Evidence for Management issues at Ngunguru Forest

Community feedback and the photographic records provided by the Doaks illustrate a number of potential management issues at the site. These focus on riparian management, including impacts on ephemeral water courses in gullies, effects of roading and activity scale effects.

Lack of setbacks from water bodies and associated erosion and sedimentation issues

Concerns include examples of environmental degradation related to a lack of mitigation measures particularly on riparian margins. These include reports of harvesting to riparian edges with no or inadequate protective borders and the accumulation of slash in waterways.



Figure 6: An example of a riparian margin in the Ngunguru Forest showing little effective setback from the Ngunguru River and the proximity of slash to the water body. Photo Wade Doak 31/01/2010



Figure 7: An example of a gully upstream of a wetland where retaining substantial indigenous vegetation would be appropriate. Photo Wade Doak.01/11/2010

Clearing of vegetation in gullies

Much of the Ngunguru Forest production area is in close proximity to the Ngunguru River which is a sensitive receiving environment. Rolling to steep hill-country topography intersected with small gullies is characteristics of the site (Figure 8). These gullies contain the headwaters of streams draining to the river and their health is critical to the overall health of the downstream environments. Quite often the headwaters are ephemeral. Appropriate management of these gullies is an important focus for managing erosion and sediment control from the site as they are significant conduits for sediment downstream. Appropriate management should include the protection of permanent undisturbed vegetated buffers as well as associated vegetation remnants to reduce bank erosion, enhance water quality (e.g. temperature) and help address effects of habitat loss and loss of connectivity.



*Figure 8: An example of a harvested block in Ngunguru forest where there seems to be no apparent buffer zone between clear-felled slopes and the Ngunguru River receiving environment and associated mangrove system.
Photo Wade Doak 16/10/2010*

Design of roading and construction methods, resulting in run-off and sedimentation (e.g., lack of sediment control ponds).

In August 2011 there was particular concern around the construction of a new ridge road at the highest point of the catchment with all drainage from this road being eastward toward the coast. Such roads on steep ridges act as water races with sediment loaded flow (Figure 9). A meeting was held at NRC on 05/09/11 to discuss this issue. Subsequently a site visit was arranged to the Ford Road area at which the Doaks, Tess Dacre and Franco Meyer (NRC) and Geoff Gower (Hancocks) were present.

Examples of suitable controls were discussed and these included side channelling, humping of the road at intervals to direct water across rather than down the road, and use of cut off ponds and discharge drains. The Doaks did not have the resources to re-inspect the large area to see how extensively such measures were implemented.

Other concerns include use of roading with no side channels, culverts or energy deflecting flumes. An apparent lack of sediment control ponds has been an additional concern raised by the Doaks, although it was noted that some were installed following contact with Hancocks, a local MP, and Council.

Problems with the maintenance of existing sediment control and storm water devices were also observed by the Doaks in their field visits to the site (Figure 10). This points to a lack of council monitoring and enforcement.



Figure 9: Example of a forestry road in Ngunguru forest showing potential run-off and sedimentation issues associated with road design and steepness. Photo Wade Doak. 28/08/2011



Figure 10: Example of a storm water control device in Ngunguru Forest. Shown here is a culvert pipe emptying into a sump located in an apparently unstable bank, indicating the need for continuous maintenance and monitoring for effectiveness. Photo Wade Doak.28/08/2011

Cumulative effects and other catchment scale effects associated with the extent of forestry in the catchment.

Cumulative effects and other catchment scale impacts especially relate to the Northland clay soils (mainly clay loams) present, steep terrain and periodic severe weather events characteristic of the area. The extent of forestry in the catchment and levels of exposure to periodic rain events are topics of concern within the local community. The likelihood that heavy rainfall events will occur more frequently with climate change is predicted by NIWA modelling based on the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment and is therefore a major issue to be considered (<https://www.niwa.co.nz/our-science/climate/information-and-resources/clivar/scenarios>).



Figure 11: The second rotation of new pine trees show extensive invasive species i.e. Pampas both amongst the plantation trees and along the riparian strip. Photo Wade Doak 28/03/2014

11. Comparison of Current Management with a Voluntary Performance Standard- FSC.

In this section a comparison is made between the management practice over the first rotation and the FSC Standards required. The FSC Standards for New Zealand were negotiated during the 2000s and finally ratified by the international body in September 2013, for full implementation by September 2014. Prior to that, compliance with the Principles and Criteria was required.

This is not a comprehensive evaluation and many Standards could not be assessed but areas which indicate non-compliance have been highlighted and questions are raised for further evaluation.

Table 1: Comparison of current management during the first rotation with a voluntary performance Standard: FSC

	FSC Standards	Current management Approach	Comments
<p>Sources (Across) and Key management issues for Ngunguru Forest (below).</p>	<p>FSC-STD-NZL-01-2012 New Zealand plantations http://www.scsglobalservices.com/files/standards/fsc-std-nzl-01-2012_new_zealand_plantations_en_0.pdf</p>	<p>Includes excerpts from Hancock’s Assessment of Environmental Effects (AEE) (Appendix 2)</p> <p>Northland Regional Council Plans (Appendix 3.)</p> <p>Regional Water and Soil Plan (RWSP)</p>	
<p>Setback of forestry operations from water bodies.</p>	<p>Indicator 10.2.1 A network of riparian zones shall be identified and protected within the management unit.</p> <p>Indicator 10.2.2. Riparian zones shall be identified on all water bodies that have permanent water when forested and where possible are a minimum of 10m each side of the watercourse.</p> <p>Indicator 10.2.3 Riparian zones with existing indigenous vegetation greater than 20m wide on average shall be identified and recorded.</p>	<p>No information provided on afforestation or replanting activities.</p> <p>Replanting a permitted activity with no conditions in The District Plan and RWSP</p> <p>RWSP: No planting setback limits but future harvesting of new crop within the riparian zone is a discretionary activity. Width of required Riparian zones dependent on dominant slope angle.</p> <p>Specific consent was granted by NRC for a Land Use Consent for vegetation clearance within riparian management zones (Ngunguru Forest) .</p>	<p>Riparian Zones lacking and in some places planting right to water’s edge. See photos.</p> <p>There was confusion as to what constitutes a riparian zone e.g.. NRC staff at one stage considered mangroves or wetlands could be included in a riparian zone setback (W.Doak pers. Comm.).</p> <p>The second rotation planting may indicate a policy change with wider (of unknown width) riparian margin on the South banks now observed .(pers. Comm.. W.Doak Feb .2014)</p>
<p>Riparian disturbance at harvest</p>	<p>Indicator 6.1.1 The forest manager shall systematically identify and assess the potential site specific environmental impacts (including on-site processing facilities) prior to commencement of all site disturbing activities carried out within the management unit appropriate to the scale and intensity of forest management unit.</p>	<p>The AEE notes: Where possible, new landings and associated roads will be constructed on ridges well away from any watercourses. New roads will be constructed outside of the riparian areas except where a road meets a crossing. Appropriate measures will be taken to avoid adverse environmental effects of such activities.</p> <p>Hancocks restricts the operation of any machine in or crossing a</p>	<p>Information contained in AEE indicates machinery use in riparian areas with no setbacks of operations from water bodies noted.</p> <p>“the gravel bed of some of the streams in the forest would allow machinery to operate within the water course</p>

	FSC Standards	Current management Approach	Comments
	<p>Indicator 6.1.2 This assessment process shall include consideration at a landscape level taking into account interaction with adjoining land, nearby habitats and downstream impacts.</p> <p>Guidance: Reference to the NZ Environmental Code of Practice for Plantation Forestry will assist this assessment process. The assessment should include consideration of the potential for the following:</p> <ul style="list-style-type: none"> Soil erosion. Water quality and hydrological impacts. Pesticide or fertiliser pollution (by runoff, spray drift or spillage). Community and recreation impacts. Damage to riparian/ stream buffer strips. <p>Indicator 6.1.3: The management plans and other relevant policies and procedures of the enterprise shall identify the actions to be taken to mitigate or reduce the environmental impacts identified as a result of the assessments.</p> <p>Indicator 6.1.4: Site specific assessments of the potential environmental impacts of forest operations shall be carried out prior to commencement of the activity on site, in a manner appropriate to the scale of the operations and the sensitivity of the site.</p> <p>Indicator 6.1.6: The outcome of this process shall be documented in a site specific work prescription or harvest plan.</p>	<p>watercourse except at designated crossing points (temporary or permanent).</p>	<p>without significant adverse effects.”(AEE p.22)</p> <p>Community impacts include smoke from burning slash, traffic dust and roading issues around harvest and pollen induced allergies.</p> <p>Pine pollen in rainwater collection tanks is also an issue.</p> <p>Mitigation actions not described fully in the Harvest Plan</p>

	FSC Standards	Current management Approach	Comments
	<p>Indicator 6.1.7: A record shall be kept to identify corrective actions where non compliance with prescriptions occurs.</p> <p>Indicator 6.1.12 The enterprise shall complete and document an assessment of the environmental impacts of any processing facilities within the Forest Management Unit under assessment</p> <p>Indicator 6.1.13. There shall be a procedure to review and evaluate potential environmental impacts and to record the specific actions taken to mitigate the impacts identified, on a site-by-site basis, prior to the commencement of site-disturbing operations.</p> <p>Indicator 10.2.5 L Riparian zones (indigenous or mixed species) bordering areas due for harvest shall be mapped and management plans to protect the biodiversity prepared before harvesting occurs.</p> <p>Indicator 10.2.6 Planting in new areas shall have riparian zones identified on maps before planting begins.</p> <p>Indicator 10.2.7 Meet requirements of 6.2 and 6.4.</p> <p>Indicator 10.2.8 No commercial planting shall be undertaken in Riparian Zones (10 metres either side of water bodies that have permanent water when forested) except under the following conditions:</p> <p>(i) The forest manager has a Decision Support System specified within the management plan that addresses temperature, sediment and nutrient conditions to maintain long term aquatic habitat, and/or</p> <p>(ii) Alternative species (other than radiata pine or Douglas-fir) may be grown in a riparian zone under a continuous canopy regime (coupe less than</p>		<p>A specific consent was granted by NRC for Land Use Consent for vegetation clearance within riparian management zones. (Ngunguru Forest)</p>

	FSC Standards	Current management Approach	Comments
	<p>0.2ha) providing aquatic habitat is not compromised and</p> <p>(iii) Where provisions of the Climate Change Response Act 2002 or its regulations will result in a deforestation liability.</p> <p>Indicator 10.2.9 No earthworks shall be undertaken within riparian zones, except:</p> <ul style="list-style-type: none"> i) in association with designated stream crossings and ii) it is in maintenance of an existing road and iii) where a topographical constraint leaves no alternative for the formation of a road and iv) in emergencies such as fire fighting – access to water or fire breaks. In any of these exceptions the instream values are to be protected. <p>Verifiers</p> <ul style="list-style-type: none"> a) Earthworks within the riparian zone are recorded. b) Where earthworks or roading occurs in the riparian zone evidence is available to show how the in stream values are protected and how alternatives were considered. <p>Indicator 10.2.10 Weed and pest control and restoration shall be undertaken to protect terrestrial biodiversity in riparian areas.</p> <p>Verifiers</p> <ul style="list-style-type: none"> a) Weed and pest control is assessed and implemented when necessary to maintain the terrestrial biodiversity values of riparian zones particularly when harvesting is occurring adjacent to the riparian zone. 		<p>Weeds observed to be extensive in areas replanted after the first rotation see Fig.11 showing Pampas grass invasion.</p> <p>Wilding pines also grow on road banks and require removal at Council expense. Community have noted road blockages resulting from fallen pines.</p>

	FSC Standards	Current management Approach	Comments
	<p>b) Where necessary active restoration of cut lines or encroachments into riparian zones is undertaken as soon as practical after harvest operations.</p> <p>c) Where the riparian zone is recognized as a reserve under 6.2 or 6.4 then the requirements for maintenance, including weed and pest control, restoration and expansion are carried out.</p>		
<p>Erosion control issues due to steep slope and clay soils</p>	<p>(As listed in Indicators 6.5.1 – 6.5.4) see over on page 26.</p>	<p>The AEE notes: To ensure that the generation and discharge of sediment is minimised, relative to natural levels, all operations will be carried out in general accordance with Carter Holt Harvey’s Environmental Guidelines including any amendments.</p> <p>In addition, regarding sediment control, the AEE notes:</p> <p>This is mitigated by endeavouring not to deposit loose soil or debris into any permanent watercourse or leave it in a position where it may enter or be carried into a watercourse where it is likely to dam or divert a watercourse or give rise to significant levels of sedimentation. Loose soil generated during crossing installation will be appropriately stabilised. Areas of unstable fill that pose a significant erosion risk will be appropriately revegetated or otherwise stabilised.</p>	<p>Little practical assessment of retaining sediment on site or monitoring</p> <p>Two studies in the Whangapoua catchment, Coromandel, NZ, found that pine forestry activity and poor quality native forest in the headwaters were the major source of sediment to the Whangapoua Harbour (Gibbs,2006 and, Roddy 2010) The lack of stabilizing vegetation was a main reason for landslips on the steep hills.</p> <p>The AEE states : “The Land Use capability (LUC) Classification for all the Whangarei east forests range from IVe12 through to VIIe6 with the majority of the forest being VIe17.The topography ranges from rolling to moderately steep and predominantly the forests are strongly rolling. Although the land is strongly rolling, the seriousness of sheet erosion occurring is slight.”p.60.</p> <p>Compare this with proposed Erosion Susceptibility MfE Figure 3.</p> <p>Methods for stabilisation and revegetation plans and requirements for ground cover are unclear.</p>

	FSC Standards	Current management Approach	Comments
<p>Earthworks and Design of roading</p>	<p>Indicator 6.5.1 Forest, environment and/or harvest management plans and Decision Support Systems appropriate to the scale and intensity of operation shall be progressively prepared prior to the commencement of works to identify: The nature of the operation. Potential impacts. High risk areas. Methods to avoid remedy and mitigate impacts.</p> <p>Verifiers a) Indicators 6.5.1, 6.5.2 and 6.5.3 can be met if a resource consent for soil disturbance and/or vegetation removal has been obtained or the operation complies with the permitted activity requirements of Regional and District Plans and the council checks compliance to its satisfaction.</p> <p>Indicator 6.5.2 In high risk areas the forest manager operates a Decision Support System to guide forest management.</p> <p>Indicator 6.5.3 The forest manager shall have written guidelines sufficient to:</p> <p>6.5.1.1 Control erosion;</p> <p>6.5.1.2 Minimise forest damage during harvesting, road construction, and other mechanic disturbances;</p> <p>6.5.1.3 Protect water resources both within and outside the management unit.</p> <p>Indicator 6.5.4 The guidelines shall include, at a minimum specific provisions to protect water courses by specifying wetland, water source and streamside protection zones in which harvesting and other disturbance is prohibited and/or minimized.”</p>	<p>The AEE notes: Existing roads and tracks will be used wherever possible, however new roads and landings will be required to harvest some areas. Where existing roads can be used for harvesting they will need to be upgraded to logging truck specifications. Upgrading involves maintenance work to reshape and re-metal the road surface and to reform the water tables. Widening may also be required.</p> <p>Where possible, new landings and associated roads will be constructed on ridges well away from any watercourses. New roads will be constructed outside of the riparian areas except where a road meets a crossing. Appropriate measures will be taken to avoid adverse environmental effects of such activities.</p> <p>All earthworks are carried out in accordance with the contract schedule for the Forest Roading and Landing Construction and Maintenance Contract and to any site specific standards which are subject to change to address factors such as improved techniques, technology, or knowledge. All landings and roadways will have appropriate water tables and drainage control. Culverts will be placed at appropriate intervals for the soil type and slope along road lines and discharges from any culverts or drainage structures will, where practicable, be directed onto stable undisturbed areas or into silt traps and will, where required, be flumed over any fill material.</p>	<p>Steep ridge roads although away from water courses create other problems and become water races themselves without adequate mitigation (culverts, fluming, etc) and monitoring. See Fig. 10 and 11.</p> <p>Community comments include the effects of wind throw after storms where up rooted trees form holding ponds of water which can then form a slip.</p>

	FSC Standards	Current management Approach	Comments
Storm water management	<p>Indicator 6.5.2: In high risk areas the forest manager operates a Decision Support System to guide forest management.</p> <p>Indicator 6.5.3: The forest manager shall have written guidelines sufficient to:</p> <p>6.5.1.1 Control erosion</p> <p>6.5.1.2 Minimise forest damage during harvesting, road construction, and other mechanic disturbances; 6.5.1.3 Protect water resources both within and outside the management unit.</p> <p>Indicator 6.5.4 The guidelines shall include, at a minimum specific provisions to protect water courses by specifying wetland, water source and streamside protection zones in which harvesting and other disturbance is prohibited and/or minimised.</p>	<p>The AEE notes: Research undertaken by NIWA in Carter Holt Harvey Forest's monitoring such as in Tairua forest indicated that any effects on in-stream biota are short term, and adverse effects on habitat and species richness are more closely related to storms and adverse weather patterns than harvesting activity.</p> <p>In addition: There are a number of watercourses draining the Whangarei East Forests. These ephemeral and perennial streams drain into the Ngunguru Harbour and Horahora River and eventually end up in the Ngunguru Bay and Whangarei Harbour. (Hancock's) will endeavour to maintain water quality and minimise adverse effects through the continued use of appropriate best management practices and the monitoring requirements of its environmental management systems.</p>	<p>Comments from the community note the increase of "flash floods" during harvesting with reduced time from the commencement of heavy rain to flood effects.</p> <p>Also noted is the increased thickness of muddy sediment around tide lines. Residents use local tide lines for walking access</p> <p>No specific provisions particularly concerning wetlands in Harvest plan or AEE</p> <p>The RWSP Contains water clarity measures but it is unknown if these are monitored during harvest or rain events.</p>
Maintenance of erosion control and storm water management devices	<p>Indicator 6.5.1 Forest, environment and/or harvest management plans and Decision Support Systems appropriate to the scale and intensity of operation shall be progressively prepared prior to the commencement of works to identify.</p> <p>The nature of the operation. Potential impacts. High risk areas. Methods to avoid remedy and mitigate impacts.</p> <p>Verifiers a) Indicators 6.5.1, 6.5.2 and 6.5.3 can be met if a resource consent for soil disturbance and/or vegetation removal has been obtained or the operation complies with the permitted activity requirements of Regional and District Plans and the council checks compliance to its satisfaction. Indicator 6.5.2n high risk areas the forest manager operates a Decision Support System to guide forest management.</p>	<p>Council compliance audit (25/09/2009) identified a list of ongoing maintenance issues during and post harvest. These issues were addressed following audit.</p> <p>Council compliance audit (10/6/2010) identified that sediment traps party filled due to heavy rain. These were cleaned out following audit.</p>	<p>Some high risk areas (water-bodies and wetlands) were identified but methods to avoid, remedy and mitigate are not clear in the AEE.</p>

	FSC Standards	Current management Approach	Comments
	<p>Indicator 6.5.3 The forest manager shall have written guidelines sufficient to:</p> <p>6.5.1.1 Control erosion;</p> <p>6.5.1.2 Minimise forest damage during harvesting, road construction, and other mechanic disturbances;</p> <p>6.5.1.3 Protect water resources both within and outside the management unit.</p> <p>Indicator 6.5.4 The guidelines shall include, at a minimum, specific provisions to protect water courses by specifying wetland, water source and streamside protection zones in which harvesting and other disturbance is prohibited and/or minimised”.</p>		
Management of slash	<p>Indicator 8.2.10 Post-harvest monitoring shall be carried out to assess waste and damage effects to the site.</p>	<p>Little information provided in AEE on slash management;</p> <p>In addition the AEE notes: Where the stream bed allows, the permission of (Hancocks) Environmental Staff may be sought to allow a machine to enter a watercourse to remove fallen trees and other material that may block the watercourse or pose a risk to downstream structures. Such permission will be granted on a case by case basis in consideration with relevant consent conditions, Regional Provisions, and in-stream values.</p>	<p>Slash management Plan very limited: as stated in Harvest Management Plan: “Prone to high intensity rainfall events. Rated 4H Steep catchment however large wetlands allow water velocity to significantly reduce upon exiting estate Back pull away from \$H stream and wetland.”</p> <p>AEE Environmental monitoring: “we consider the scale and significance of any effect of our activities does not warrant extensive monitoring.”</p>
Vegetation clearance	<p>Indicator 6.10.1) Conversion of the following areas to plantation forestry shall not be permitted: Any area of 5 hectares or greater which has an actual or emerging predominance of naturally occurring indigenous tree species of any height. For the purposes of this clause an indigenous tree species is defined as any</p>		

	FSC Standards	Current management Approach	Comments
	<p>woody plant which ultimately forms part of the canopy of a naturally occurring forest or any indigenous tree species that attains a diameter at breast height of 30cm or greater.</p> <p>Any natural indigenous forest vegetation, including riparian of between 1 and 5 hectares in area with an average canopy height of at least 6 m which is practical to protect. This recognises that in some instances some small pockets of native vegetation within a plantation forest management area cannot practically be protected from disturbance. However, viable stands will be excluded from clearance and every reasonable effort made to ensure such areas are not damaged in subsequent forestry operations.</p> <p>Any vegetation recommended for protection in a survey report in the Protected Natural Areas Programme or classified as a Site of Special Wildlife Interest (SSWI) in a published report of the former Wildlife Service.</p> <p>Significant Natural Areas (Areas recognised as significant indigenous vegetation or significant habitats of indigenous fauna) as defined in an operative District Plan under the Resource Management Act 1991.</p> <p>Indigenous habitat of rare, threatened or endangered species.</p> <p>Geo-preservation Sites as listed in the Geo-preservation inventory.</p> <p>Wetlands (as defined in the Resource Management Act 1991).</p> <p>Dune lands where the primary vegetation is indigenous.</p> <p>Geothermal areas where there are indigenous plant communities adapted to geothermal conditions.</p> <p>Indicator 6.10.2</p>		<p>It is unclear whether significant gully areas are mapped. As photos show there are few indigenous remnants left in gullies.</p> <p>Areas for protection do not seem to be mapped clearly.</p>

	FSC Standards	Current management Approach	Comments
	<p>The following lands shall not be considered for conversion to plantation forest unless consultation is undertaken with interested parties to the National Initiative. Where resource consent is required under the Resource Management Act, consultation with the National Initiative can be undertaken by that process.</p> <p>High Country tussock scrublands or herb-fields as defined in MfE's LENZ publication and repeated in Annex 6.7.</p> <p>Coastal scrub and coastal herb fields with an indigenous plant content of greater than 30% within the area being considered.</p> <p>Guidance: The conditions in Indicators 6.10.1 and 6.10.2 for conversion in this indicator shall be considered with the requirements set in this criterion 6.10. That is:</p> <p>Entails a very limited portion of the forest; and Does not occur on high conservation value forest areas; and will enable clear, substantial, additional, secure, long term conservation benefits across the forest.</p> <p>Indicator 10.9.1 The plantation shall not occupy land converted from naturally occurring vegetation after 30 November 1994.</p> <p>Indicator 10.9.2 If the plantation was established after November 1994 on land with naturally occurring vegetation, there shall be adequate evidence that the current manager/owner was not directly or indirectly responsible.</p>		
<p>Biodiversity protection</p>	<p>Indicator 5.5 Forest management operations shall recognize, maintain and ,where appropriate , enhance the value of forest services and resources such as watersheds and fisheries</p> <p>Indicator 6.2 Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources.</p>	<p>The AEE notes: Areas of indigenous vegetation occurring within the Forest or on the periphery of the block and within the block will be protected in accordance with the provisions of the New Zealand Forest Accord, the Principles of Commercial Plantation Forestry, and Carter Holt Harvey's Environmental Guidelines and the Indigenous Reserves Strategy.</p> <p>Kiwi: Carter Holt Harvey has prepared a kiwi management plan for its forest estate. The plan involves various combinations of passive and active management to minimise forestry impacts on kiwi and to protect</p>	<p>A Kiwi Management plan was prepared by Carter Holt. Local volunteers in the Kiwi Coast Corridor and Land Care groups do most of the work</p>

	FSC Standards	Current management Approach	Comments
	<p>Indicator 6.4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.</p> <p>Indicator 10.1 The management objectives of the plantation, including natural forest conservation and restoration objectives, shall be explicitly stated in the management plan, and clearly demonstrated in the implementation of the plan.</p> <p>Indicator 10.5 A proportion of the overall forest management area, appropriate to the scale of the plantation and to be determined in regional standards, shall be managed so as to restore the site to a natural forest cover.</p> <p>Indicator 10.7 Measures shall be taken to prevent and minimize outbreaks of pests, diseases, fire and invasive plant introductions. Integrated pest management shall form an essential part of the management plan, with primary reliance on prevention and biological control methods rather than chemical pesticides and fertilizers.</p>	kiwi populations from predators, including dogs.	<p>No evidence of mapping or protection of representative samples e.g. The Totara predominating gullies that were characteristic of the area pre-plantation.</p> <p>Management Plan or monitoring for invasive species on cleared sites is not evident. These can be particularly prolific in Northland e.g. Pampas.</p>
Management of high conservation areas	<p>Indicator 9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.</p> <p>Indicator 9.3 The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.</p> <p>Indicator 9.4 Annual monitoring shall be conducted to assess the effectiveness of the</p>	No information provided on High Conservation Areas.	

	FSC Standards	Current management Approach	Comments
	measures employed to maintain or enhance the applicable conservation attributes.		
Cultural impacts	<p>Indicator 3 Indigenous peoples' rights. The legal and customary rights of indigenous peoples to own, and manage their lands, territories maintained, and resources shall be recognised and respected.</p> <p>Indicator 3.1 Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.</p> <p>Indicator 3.2 Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.</p> <p>Indicator 3.3 Sites of specific cultural, ecological, economic or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognised and protected by forest managers.</p> <p>Indicator 3.4. Indigenous peoples shall be clearly compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations commence.</p>	<p>A Memorandum of Understanding (MoU) is in place between Te Waiariki/Ngati Wai and Carter Holt Harvey.</p> <p>The AEE also notes: (Hancocks) will work with tangata whenua and its consultant archaeologist to identify any archaeological sites or sites of significance within a forest. Should a previously undiscovered archaeological site be uncovered during operations then any operation in the immediate vicinity of the site will cease until an authority to damage, destroy, or modify an archaeological site is obtained from the New Zealand Historic Places Trust, as prescribed in the Historic Places Act 1993.</p> <p>(Hancocks) will continue to consult with the tangata whenua of the Whangarei East Forests area over its operations in their rohe especially with regard to the location of and protection of sites of significance to the tangata whenua.</p>	<p>The MoU is very limited. Its focus is on Wahi tapu sites and archaeology</p> <p>No indication of "free and informed consent"</p> <p>Cultural Impact Report not included in documents.</p> <p>Does not address contemporary cultural and indigenous concerns around employment and social aspects. The effects of sedimentation on kaimoana and local employment are two areas which could be included in such assessments</p>
Social impacts	<p>Indicator 4 Community relations and workers rights. Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities.</p> <p>Indicator 4.1. The communities within, or adjacent to, the forest management areas should</p>	<p>The AEE notes: The nature of the operation and the management techniques used makes it unlikely that the activities covered by this application will pose a risk to the neighbourhood, the wider community, or the environment.</p>	<p>People in the community who communicated with us disagreed with this.</p>

	FSC Standards	Current management Approach	Comments
	<p>be given opportunities for employment, training and other services.</p> <p>Indicator 4.2 Forest management should meet or exceed all applicable laws and/or regulations covering health and safety of employees and their families.</p> <p>Indicator 4.3 The rights of workers to organize and voluntarily negotiate with their employers shall be guaranteed as outlined in Conventions 87 and 98 of the International Labour Organisation (ILO).</p> <p>Indicator 4.4 Management planning and operations shall incorporate the results of evaluations of social impact. Consultations shall be maintained with people and groups (both men and women) directly affected by management operations.</p> <p>Indicator 4.5. Appropriate mechanisms shall be employed by resolving grievances and for providing fair compensation in the case of loss or damage affecting the legal or customary rights, property resources, or livelihoods of local peoples. Measures shall be taken to avoid such loss or damage.</p>	<p>The AEE asserts that:</p> <p>The main issue raised at the public consultation was the state of Ngunguru Ford Road.</p> <p>All concerns were with regard to the quality, upgrade, and maintenance of roads that were proposed to be used for logging.</p> <p>The activities for which consent is sought occur within the forest boundaries and are unlikely to significantly affect any of the forests neighbours. However, (Hancocks) will continue to liaise with its neighbours and respond to concerns raised by its neighbours on a case by case and operation by operation basis.</p> <p>The AEE also asserts: Given the nature of the activities for which consent is sought and the fact that the activities covered by this application are part of ongoing forestry operations (Hancocks) does not expect our proposed activities to significantly change the area's aesthetics.</p>	<p>People in the community who communicated with us disagreed with this. And we do find this improbable, given the landscape impacts of forestry and the impacts of harvesting on both land and water.</p>
Monitoring	<p>Indicator 8.1.1</p> <p>The forest manager shall maintain a monitoring plan that describes;</p> <p>Elements to be monitored</p> <p>Monitoring indicator (s) for each element</p> <p>Rationale for the selection of each element and monitoring procedures</p>	<p>No specific monitoring for environmental effects of the activities covered in the resource consent application.</p> <p>The AEE notes: Hancocks consider s the scale and significance of any effect of our activities does not warrant extensive monitoring.</p> <p>The NRC State of the Environment Report ,2007 p.302: 'Compliance monitoring for forest harvesting roading and stripping is done once or twice a year based on the activities. For example harvesting is usually monitored in winter, while stripping is monitored in summer. Compliance monitoring for quarrying is one or two times a</p>	<p>There does appear to be some monitoring, but it is not as frequent as the FSC requirements could intend.</p>

	FSC Standards	Current management Approach	Comments
	<p>Consistent and replicable monitoring procedures</p> <p>The frequency and intensity of monitoring, consistent with the nature of monitoring indicators, management activities, environmental sensitivity of the site, assessed risks, stakeholder concerns, performance history and changing environmental conditions and relevant baseline info.?</p> <p>Indicator 8.2.6 The forest manager shall be able to identify any significant environmental impacts of harvesting and is aware of the social impacts of operations and avoid or mitigate these where they are negative.</p> <p>Indicator 8.2.7 Environmental and social impacts of forest operations, including health and safety, shall be monitored.</p>	<p>year, while compliance monitoring for earth works and bridge culverts construction depends on the activity but is usually once or twice while the work is being carried out and final inspection at completion of the work.'</p>	

12. Regional and Local Authority Compliance Aspects.

FSC Indicator 1.1.3 states that relevant statutes and regulations shall be implemented. Therefore the current management setting is also defined by the relevant Regional Plan and resource consent requirements. Under this regulatory context many potentially high impact activities are permitted subject to conditions. These include harvesting, mechanical land preparation, cultivation, earthworks, quarrying and river crossings. The major discrepancies noted were around requirements for erosion control and the maintenance of storm water and sediment control devices. Overall there was little evidence of additional voluntary environmental protection measures in place over and above the minimum regulatory requirements although specific attention to kiwi protection was noted.

The need for diligence in inspecting, monitoring and maintaining erosion and sediment control devices has been frequently noted in other studies and management guidelines (FSC, 2010; Maryland Department of the Environment Maryland Department of Natural Resources and the State Soil Conservation Committee, 2005; NZFOA, 2007). These include measures taken to protect against soil loss, to trap sediments already mobilised, and methods to control storm water runoff.

The length of time a harvested area remains exposed is also critical (Maryland Department of the Environment Maryland Department of Natural Resources and the State Soil Conservation Committee, 2005; MfE & NZARM, 2001).

Our study noted an absence of over sowing or re-vegetation efforts despite this being a condition of the resource consent (over sown with a suitable vegetative groundcover, within 3 months).

The need for regular attention to these requirements highlights the value of frequent monitoring for consent compliance and other issues, and regular review of operational practices. NRC State of the Environment Report 2007.p.302 states:

“Compliance monitoring for forest harvesting, roading and stripping is done once or twice a year based on the activities. For example harvesting is usually monitored in winter, while stripping is monitored in summer. Compliance monitoring for quarrying is one or two times a year, while compliance monitoring for earthworks and bridge/culvert construction depends on the activity but is usually once or twice while the work is being carried out and a final inspection at the completion of the work.”

There was monitoring but we judge that on the basis of the evidence to have been sometimes inadequate and insufficiently frequent. The inadequacy or infrequency of monitoring activities and compliance with FSC Standards by the operator, FSC assessors or regulator was apparent in this study. A more robust and frequent monitoring programme is necessary both to demonstrate compliance with consent requirements and to give the community an adequate level of assurance that good management practices are in place (Indicator 1.1.4).

NRC has recognised that in practice, forestry operations are often non-compliant with the conditions of many of the permitted activities in the Regional Plan practice (see Appendix 1: NRC Media Release). This situation is of concern and illustrates that the level of trust placed in forestry operators to meet those conditions may be an issue. Diligent and effective management procedures

are required for the “permitted-activity-with-conditions” approach to be a successful means of addressing adverse effects. An increased level of permitted activity monitoring and enforcement activities would appear warranted in the region, in addition to education-based approaches to compliance. It also highlights the unsuitability of such activities being determined as “permitted activities” when non-compliance is likely and effects can be highly significant. As a minimum, such activities need to be redefined in the regional plans as discretionary. The council must have the ability to charge for monitoring.

Erosion and Sediment Control

Attention to erosion and sediment control features strongly in all forest industry guidelines and are also amongst the main concerns of the local community. These concerns are particularly relevant to Ngunguru Forest which is one of the many Northland forestry operations in close proximity to sensitive estuarine and marine environments. The effects of sedimentation (including both suspended sediment and deposition effects) are substantial in the New Zealand marine environment and are well documented (Morrison et al., 2009). In the local context the Ngunguru/Tutukaka Coast is one of New Zealand’s highest rated coasts for biodiversity, scenic and amenity values with the Poor Knights Marine Reserve directly offshore. Sediment plumes have been reported almost reaching the Poor Knights Islands in extreme events (Wade Doak, pers.comm).

Increased sediment inputs can have a number of impacts on biodiversity. Sediment can restrict light transmission in the water column, which consequently affects primary production. Sediment also smothers marine plants and animals, and clogs the feeding structures of suspension-feeding animals and the gills of fish.

Wade Doak reports that he used to film juvenile snapper and other juvenile fish species underwater and at night in the Ngunguru River but is no longer able to because of sediment. This work was interrupted significantly by the influx of thick, viscid sediment. An octopus family he was filming died after a rainfall event, their “nest” inundated with thick sediment.

The concern around sediment yields in relation to plantation forestry has been the subject of some research in various parts of the country. Hicks & Harmsworth (1989) looked at changes in sediment yield during logging at Glenbervie Forest (adjacent to this case study forest) and found sediment rates from storm events during the harvesting period of were up to 40 times more than yields from similar storms prior to harvesting. However Fahey & Marden (2000) compared sediment yields from a forested and a pasture catchment in Coastal Hawkes Bay and reported that pasture catchments can yield three to four times more suspended sediment than a plantation forest catchment before harvest. Sediment yields need to be compared over the entire life of a plantation forest, not just when the trees are standing. The comparison also needs to be made with well managed farmland with good riparian protection.

Sediment yields during the harvesting period are typically the biggest influence on overall yield of sediment from a forest over a full rotation (Fahey & Marden, 2000). Actual sediment yields may therefore be greatly influenced by harvest planning, management practices and weather at the time of and following harvest. For example, O’Loughlin et al. (1980) compared methods of harvesting by skidder and by hauler near Reefton and found very much higher yields from skidder operations. In

locations where extreme weather events may be expected, provisions to cope with these are a necessary aspect of effective harvest planning which ideally starts at the afforestation or replanting stage.

The sources of sediment during harvesting and post harvesting include all forms of ground disturbance such as those resulting from harvesting methods, tracking, skid sites, landslides and channel bed scouring, road bank cuttings, and side casting (NZFOA, 2007). Although the interactions and variables are complex, the severe vulnerability of the land post-harvest is a major issue. The period of increased risk may last several years depending how soon vegetation cover is established and how well erosion controls are implemented and maintained.

The FSC Standards contain many management recommendations to address erosion and sediment control issues, especially in relation to earthworks, harvesting, waterways crossings and mechanical land preparation. Earthworks and other ground disturbing activities may involve operations on steeper or more erosion prone terrain because of marginal land planted in the past (NZFOA, 2007). Such situations involve greater environmental risks and require a high standard of management planning and implementation to achieve effective erosion and sediment control. Avoidance of particularly high risk areas through controls on afforestation and/or replanting will be essential in the future. In some situations it is appropriate to leave pine trees un-harvested and allow them to die out and be superseded by the native understory.

Minimum requirements include that earthworks should be stable or stabilised using recognised engineering and vegetative techniques, and that correctly designed and sited sediment traps, cut-off devices, and waterway crossing structures must be installed. Runoff and sediment control structures must be maintained in effective operating condition throughout the period of work on a given site and remain in place until the site is decommissioned. Machinery must be kept out of water bodies and riparian margins, and every reasonable effort made to avoid damage to native vegetation, protected riparian strips, historic and heritage sites. Other options to minimise soil disturbance, compaction and erosion must also be considered and these include many aspects of operational planning such as the choice of harvesting and land preparation methods, design of roading and waterway crossings, leaving an undisturbed buffer zone around identified protected areas, considering use of enlarged riparian areas, and working in appropriate weather conditions for the site and environmental risks present.

All of these considerations are relevant to the Ngunguru Forest given the presence of erodible soils, moderate to steep slopes and a sensitive receiving environment. In evaluating these aspects of management during the current rotation several topics were identified for attention. In addition to the groundcover reestablishment and maintenance issues discussed above these include reported lack of effective cut-off devices and sediment ponds in some areas (W. Doak, pers. comm.). Riparian strips are also absent or minimal for many waterways and a lack of native vegetation remnants was also noted in locations such as gullies where they might be expected. A lack of setbacks between forestry operations and estuarine boundaries is also a feature of the site layout and includes areas of steep ground immediately above the receiving environment. This poses questions about what the appropriate setback should be in these situations, especially where failure to protect the foot of the slope and or waterway banks could lead to heightened erosion risk, and where riparian setbacks

could mitigate sedimentation effects from slopes above. An additional aspect is whether the management of slash from such slopes is suitable.

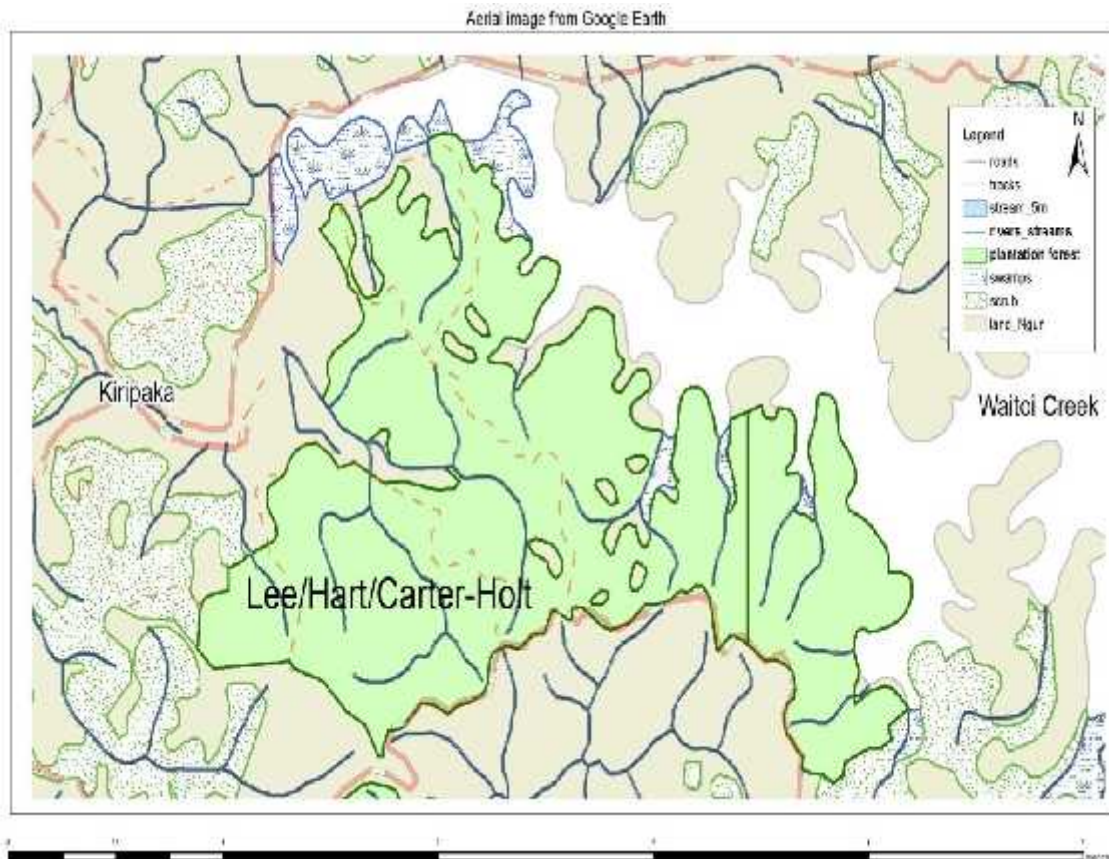


Figure 12: Ngunguru – location of Lee / Hart / Carter-Holt forestry. Drawn by Elise Smith, 28/05/2012

In assessing the effectiveness of riparian setbacks in controlling adverse effects, a critical aspect is the nature of the waterway classifications used and how these translate to management requirements and practices. Observations in the field demonstrate that many waterways are not the subject of effective riparian setbacks and community feedback indicates that more substantial setbacks are required.

The type and quality of vegetation within the setback is also critical in terms of arresting sediment and needs to include a range of species with different functions.

The implementation of effective setbacks is a multi-dimensional issue which involves considerations at the planting or replanting stage and during harvest planning and operations. In addition to the area that may be set aside from production, attention to many other aspects of forestry operations is important to limit damage to riparian areas. These include the choice of harvesting methods and practical options for hauling away, and whether machine free zones and other controls on disturbance and damage can and are being implemented. Such harvest issues need to be identified early in the operational planning to ensure adequate riparian setbacks are established along the length of permanent waterways and are maintained throughout the forestry cycle.

The protection of receiving environments is an important part of the FSC Principles and Criteria and Standards. A detailed site specific management approach is needed to control erosion at the source

by successfully retaining sediment on site. (Maryland Department of the Environment Maryland Department of Natural Resources and the State Soil Conservation Committee, 2005; MfE & NZARM, 2001). More stringent management requirements are needed in areas of higher erosion susceptibility. This would require appropriate management practices or constraints on land use to be identified for these areas. In addition the cumulative effects of combinations of land use activities in any one catchment presents further difficulties that need to be considered. In Northland many dairy farms were developed on drained wetlands; the synergistic effects of dairy intensification and forestry development in the same catchment are largely unknown.

The findings from this study indicate that scale issues are an important aspect of appropriate land use, particularly where large percentages of land within a catchment are exposed to elevated erosion risk through the choice of land uses. Community concerns related to forestry in the region are important since plantation forestry accounts for around 14% of land use by area and are often located in sensitive catchments with elevated erosion risk.

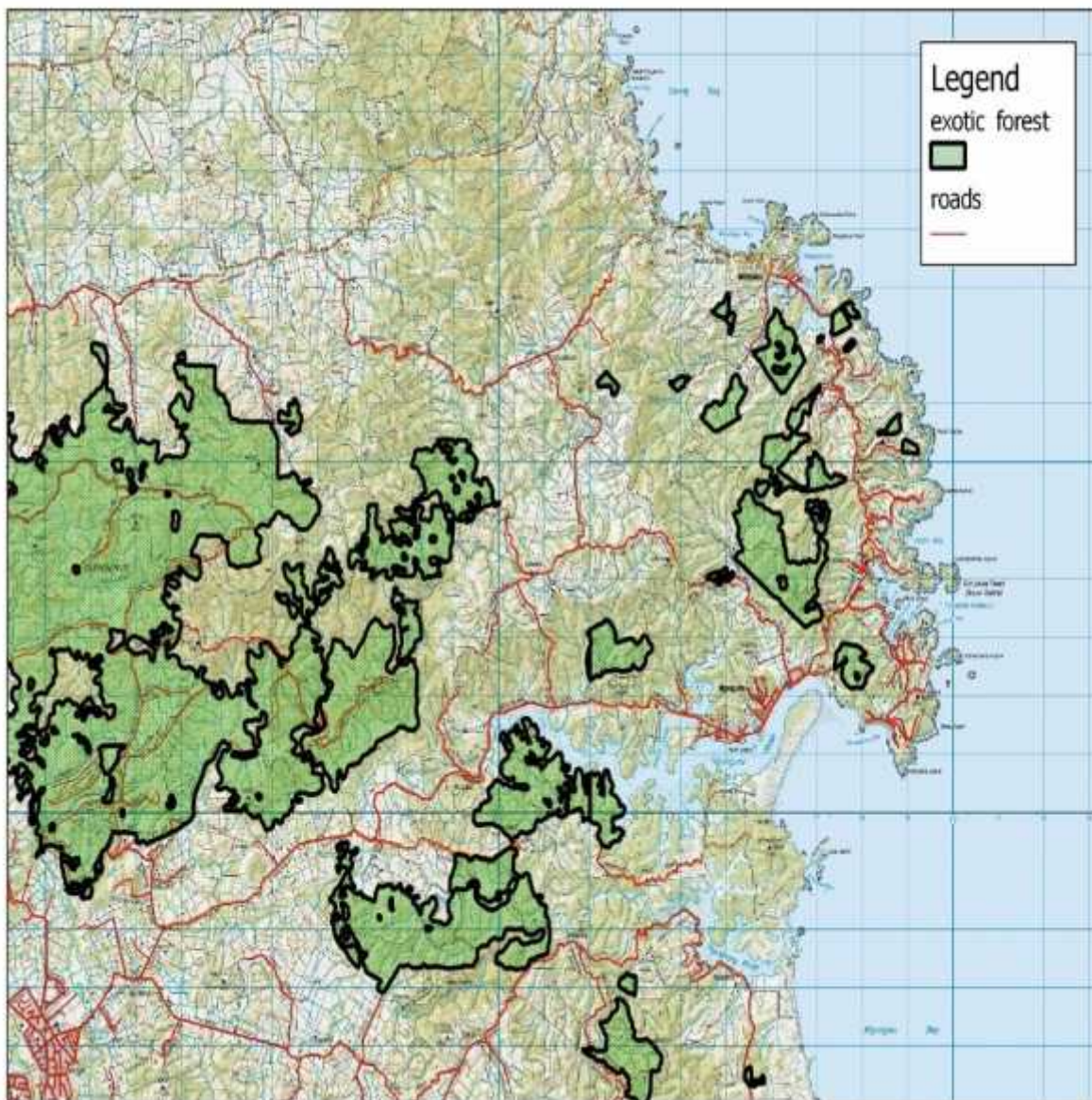
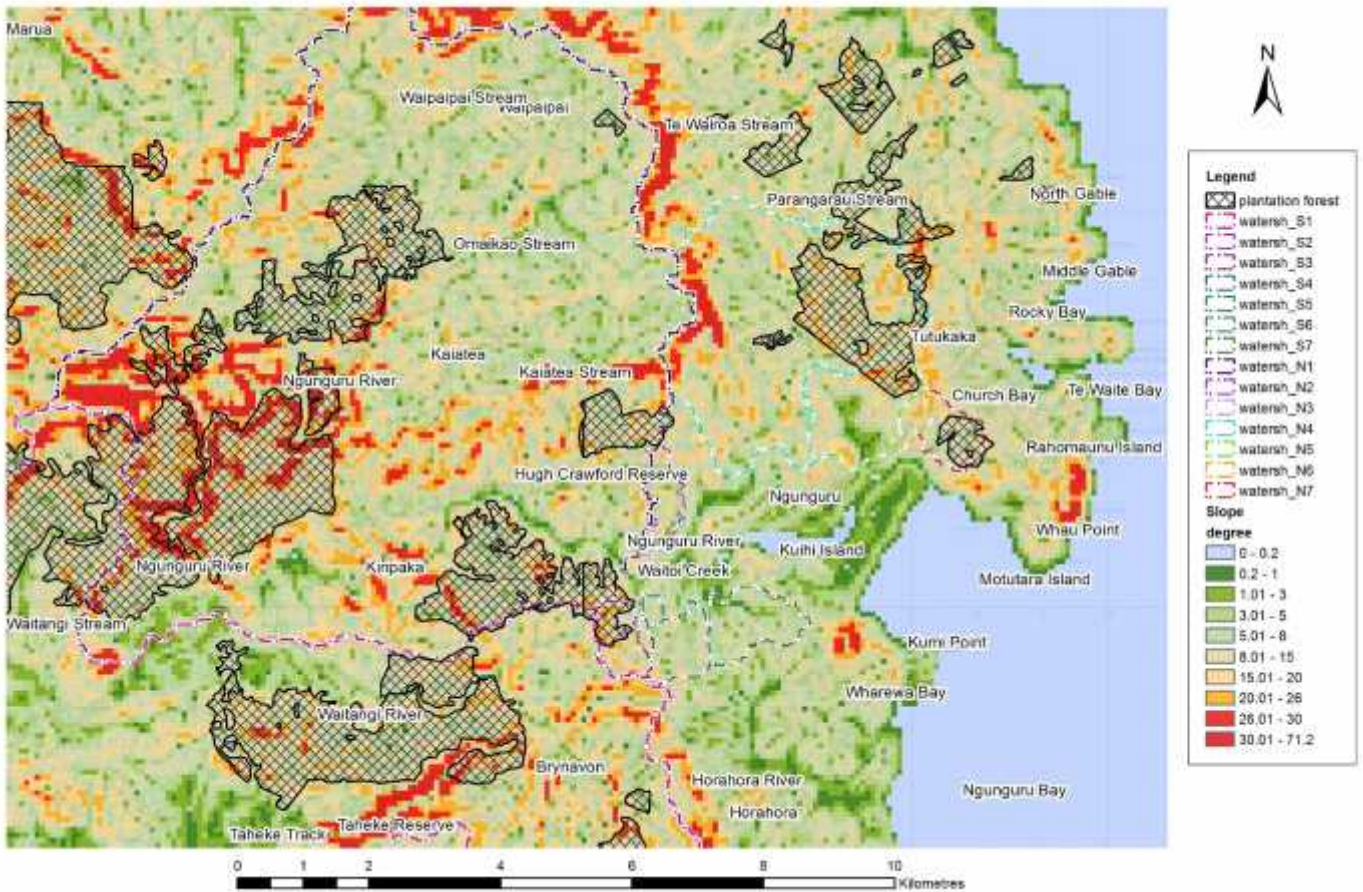


Figure 13: Plantation Forestry blocks in the East Whangarei region and Ngunguru catchment.



17th February 2014. Drawn by Elise Smith

Figure 14: Slope angles, and location of exotic forests in the vicinity of the Ngunguru catchment. Drawn by Elise Smith, 17/02/14

Vegetation remnants and management of gullies

Identifying, mapping and protecting areas containing important environmental values should be addressed before forestry operations commence in the area. Protection and restoration of indigenous vegetation remnants is one of the key practical measures that can be undertaken to reduce impacts on biodiversity. Such remnants are valuable for the ecosystem services they provide. In particular they provide refuge and critical linkages for mobile species and seed sources and are therefore an important aspect of mitigation for impacts on species which may be displaced by forestry operations.

13. Comparison against FSC Standards

The New Zealand FSC Standards require considerable attention to riparian zone management and erosion control as well as attention to much broader landscape and ecosystem level considerations. Assessments utilise the NZ environmental code of Practice for Plantation Forestry.

Principle 6: Environmental Impact: Forest management shall conserve biological diversity and its associated values, water resources, soils and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

Criterion 6.1

Assessment of environmental impacts shall be completed appropriate to the scale, intensity of forest management and the uniqueness of the affected resources and adequately integrated into management systems. Assessments include landscape level considerations as well as impacts of on-site facilities. Environmental impacts shall be assessed prior to commencement of site disturbing operations

Principle 10:

Plantations shall be planned and managed in accordance with Principles and Criteria 1-9 and Principle 10 and its Criteria. While Plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

Criterion 10.1

The management objectives of the plantation, including natural forest and restoration objectives shall be explicitly stated in the management plan, and clearly demonstrated in the implementation of the plan.

The FSC Principles are fundamentally holistic, long term and ecosystem based. The emphasis on systems and processes contrasts markedly with many forestry operations assessments which are often prone to silo thinking and box ticking without attention to interrelationships, scale and time.

The FSC national standard was developed with active involvement of Hancocks and their approval of it. It would therefore be expected they would be in full compliance with its requirements.

What follows is a summary list of examples of possible breaches of the FSC indicators. This is drawn from Table 1. We seek comments and any corrections that readers may have, since inevitably, given our resource constraints, we have omitted some information and may have made mistakes.

This list follows the numerical order of the indicators:

Indicator 1.1.4 Where legal non-compliances are identified corrective action shall be implemented.

Indicator 6.4 No evidence of the protection of representative samples of existing ecosystems within the landscape e.g. gully habitats with Totara predominating.

Indicator 6.5 Guidelines to control erosion and protect water resources are not comprehensive.

Indicators 7.2, 10.8 Regular assessment, reassessment and revision of management plans do not appear to be a feature of this operation. However, more adequate riparian margins appear to have been established on the South bank of the river on the second rotation planting. (W. Doak, pers. comm. Dec 2012.)

Indicators 8.1, 8.2, and 8.5 there is a lack of monitoring and assessment reports e.g. water clarity measures (as required by RWSP) and establishment of vegetation cover within time frames. No certainty of conditions being maintained e.g. roading sediment traps. The forestry operators “consider the scale and significance of any effect of our activities does not warrant extensive monitoring”. (AEE)

Indicator 10.5.12 there seems to be little comment on the establishment of invasive species post harvest and pest and weed control plans particularly wilding pines and the establishment of exotic invasive species in cleared areas. Extensive invasion by Pampas grass was observed amongst the small trees of the second rotation and riparian areas. See Figure 11

Indicator 6.9.5 states that: “in the absence of a species being identified in the regional pest management strategy, the forest manager shall remove ‘wildings’ in adjoining properties before seed production (with certain provisions)”

Indicators 10.2.1, 2.3 Riparian zones and setbacks are absent or inadequate in many places at time of first rotation.

Indicator 10.6 Improvement in soil structure and fertility and prevention of soil degradation does not appear to be a consideration in these forests Hancocks and Carter Holt Harvey asserts that plantation forestry “...improves soil fertility, structure and stability...” (AEE). The cumulative effects of successive rotations are not addressed.

Other important areas which have not been part of this study and for which we lack information include: spraying and the use fertiliser, (both applications are related to the health of receiving waters); the effects on the Horahora catchment (the southern drainage of this forestry catchment) which are largely unknown to us. With very little public access, the Horahora catchment is (or was) a pristine catchment out of view.

There seems to have been little consideration or assessment of social impacts other than impacts on neighbours adjacent to forestry operations. Smoke from fires burning slash and the health affects of allergy inducing pine pollen as well as impacts on roads and logging traffic have been local concerns. (W.Doak, pers. comm. March 2014.)

The broader issues of employment, health and safety and local social and economic benefit need to be addressed but are outside the scope and resources of this study.

FSC Principle 3: Indigenous Peoples’ Rights. The legal customary rights of indigenous peoples to own, use and manage their lands territories and resources shall be respected.

Criterion 3:1 Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.

Criterion 2:2 Local communities with legal or customary tenure use or rights shall maintain control, to the extent necessary to protect their rights or resources, over forest operations unless they delegate control with free and informed consent to other agencies

Indigenous rights and the principle of “free and informed consent” are an important part of FSC assessments and in this regard the Memorandum of Understanding between the forestry operators and Ngati Wai and Te Waiariki appears to be limited and focuses on identification of wahi tapu sites and archaeology. There is no assessment of contemporary social and cultural impacts. It is another essential area which our study was not able to address. It was put to ECO by Maori reviewers that the lack of assessment of contemporary cultural and social impacts was an unacceptable omission and that such assessments should be made by the affected communities and, in particular, by mana whenua.

It is impossible for community stakeholders working in a voluntary capacity to fully assess such indicators with lack of resources and access to sites but these concerns need to be fully considered and appropriate auditing and evaluation carried out by the relevant authorities, certifying bodies and affected communities.

14. Future Forests

Land use needs to be matched to land capability and to long term land use rather than short term financial gain over one rotation. Early identification of the issues and values of the area and the risks involved in protecting these values will determine future land use and the choice of management tools. If plantation forestry continues over successive rotations the problems learnt from the first rotation and the linkages between harvesting and reestablishment need to be made to ensure ongoing viability. Continuous, robust monitoring and review and adaptive management techniques that recognise cumulative effects are needed in order to improve environmental outcomes.

The very high biodiversity, amenity and recreation values of this area combined with the high risk forestry operations taking place on steep erosion prone land, with high rainfall events warrant a serious reassessment as to the long term ecological sustainability and economic viability of pinus radiata- only plantation forestry in the area.

Some of the issues which need to be considered in such a reassessment include:

- Under the present industrial low value commodity model, large scale clear felling is needed for cost efficiency. “If we grow only a commodity product, what will be the effect on both a possible future reduction in sale value and an increase in the cost of harvesting and transportation? That will impact particularly on those forests in the back blocks, planted on hard hill sites where a lot of energy is required to remove and transport logs to a processing point.” (Perley, 2009 p.44).
- Even with best management practices there remains a large window of vulnerability and risk for several years post harvest making these areas prone to storm damage, slips and erosion. “When harvest time comes, every ecosystem built up over 20 years or more is lost due to the annihilation of the countryside; whether it is track formation, skid site

earthworks or the dragging of the trees, forestry is destroying the land its soils and waterways.”(Little, quoted in Hawkes Bay Today, May 24,2012)

- The issue is not just about soil stability or erosion but ultimately about soil fertility and carbon levels that will ensure the long term productivity of the region. “Pines deplete vital topsoil nutrient reserves. Pine litter accumulates acidic mor-humus of which derivatives leach into the soil, effectively enabling pines to raid the soil’s mineral nutrient stores. Pines assimilate nitrogenous compounds by decomposing Mull/Moder humus types deposited by previous nutrient-cycling plant associations, thereby reducing a soils organic nutrient and water storage capacity....Both pine and eucalypts raid a soil’s capital or capacity to sustain other tree crops. Their fast growth comes at a price and their rotations’ sustainability is questionable on many NZ soils where existing pine and eucalyptus plantations should not be clear-felled and ‘rotated’ ” (Janssen, 2006 p.124).
- The effects of climate change in terms of both mitigation and adaptation.

FSC Principles 5:

Forest management operations shall encourage the efficient use of the forest’s multiple products and services and ensure economic viability and a wide range of environmental and social benefits.

Criterion 5.1

Forest Management should strive towards economic viability, while taking into account the full environmental, social and operational costs of production and ensuring the investments necessary to maintain the ecological productivity of the forest.

Criterion 5.2

Forest management and marketing operations should encourage the optimal use and local processing of the forest’s diversity of products.

Criterion 5.4

Forest management should strive to strengthen and diversify the local economy, avoiding dependence on a single forest product.

Criterion 5.5

Forest management operations shall recognize, maintain and, where appropriate enhance the value of forest services and resources such as watersheds and fisheries.

Given this FSC framework and vision, what are the possibilities for this region and the future of the Ngunguru Catchment? The Tutukaka coast has the potential to be classified as a UNESCO Biosphere Reserve. The World Wildlife Fund has a major landscape connectivity project called Reconnecting Northland along with the local Kiwi Coast Corridor linking kiwi protection groups from Whangarei to the Bay of Islands (Doak, 2013, p.198). What therefore are the implications for future land use in these catchments?

Some possibilities, alternatives and opportunities that could be implemented now with political, industry and community will, include but are not limited to:

- The retirement of steep land to permanent indigenous forest creating linkages and corridors (e.g. such projects as initiated by Native Forest Restoration Trust and QE II National Trust) including conversion of previous plantations in high risk areas to native forest.
- The mapping and planting of adequate riparian zones.
- Higher value timbers and multiple species which are amenable to smaller scale operations within farmland. The landscape becomes a mosaic rather than a continuous monoculture.
- Combinations of exotic hardwoods and exotic conifer softwoods (as well as other species) with site specific qualities (root strength, wind shear, growth rate, etc.) and suitability for erosion control.
- Encourage continuous cover forestry of both indigenous and exotic species where smaller areas of the catchment are harvested at any one time.
- Increase the percentage of the catchment under closed canopy forest.
- Grow the economic value from non harvest uses of indigenous forest both regenerated and planted stands. Such benefits would include climate change sinks, biodiversity stores, hydrology and soil stability, honey production and native forest-compatible tourism and recreation.
- Grow productive indigenous nursery crops such as Manuka for honey and oil and edible fungi where these can be harvested sustainably.
- Consideration of a forest as a system rather than a factory and the valuing of the ecosystem services provided by forests above “stumpage” timber values.
- Incorporation of Mataranga Maori principles and the spiritual and medicinal values of Rongoa Maori as promoted by Nga Uri o te Ngahere Trust (www.ngaheretoa.co.nz)
- The establishment of private trusts for restoration provide working models for replication e.g. Long Bush Ecosanctuary (www.longbushreserve.org).
- The success of long term total catchment restoration models such as Whaingaroa Harbour Care (Raglan) provides guidance for the enhancement of harbours and estuaries (www.harbourcare.co.nz).
- The development of eco-tourism and environmental education opportunities along with eco system restoration as seen in the nearby Pataua catchment (www.tahibeach.com).

15. Conclusion

The discussion must continue to provide positive solutions and there are numerous areas needing further research. Alongside the compliance and stewardship codes offered by such organisations as the Forest Stewardship Council there must be education and assistance to community stakeholders to understand forest ecosystems and processes and the Standards and processes associated with these, in order to ensure compliance, accountability and ever improving environmental outcomes.

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17. Appendices

APPENDIX 1. NORTHLAND REGIONAL COUNCIL MEDIA RELEASE

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Putting Northland first

Number of pages: 03

Date: 16 August, 2011

FORESTERS URGED TO LIFT GAME ON SEDIMENT

The forestry industry is being urged to lift its game to ensure harvesting and earthworks meet rules designed to protect the environment from harmful sediment discharges.

The Northland Regional Council says while there's generally a high level of compliance with forestry-related resource consent conditions in Northland, the same cannot be said for 'permitted activities'.

Council rules allow some aspects of forestry (mainly harvesting and related earthworks) to be done without resource consent as 'permitted activities', provided certain criteria are met.

"Unfortunately, our experience is that most of the permitted activity work done in Northland is currently non-compliant, much of it significantly so," the council's Environmental Monitoring Officer – Land Use, Franco Meyer says.

Mr Meyer says the most common mistakes involve slash/wood waste material finding its way into streams and sediment discharges to water.

He says Northland is home to more than 200,000 hectares of exotic forestry and the industry is one of the region's economic successes of recent years, continuing to grow and perform strongly despite the lingering effects of global recession.

"However, like many other industries, forestry can pose risks to our environment which is why in Northland, there are a number of rules and regulations governing the way it is carried out."

Key among these are the Resource Management Act and sediment control rules under the Northland Regional Council's Water and Soil Plan.

Mr Meyer says because sediment is a natural substance, few people realise just how bad a pollutant it can actually be.

"It affects downstream water quality and eventually winds up in our harbours where it can smother shellfish and other marine life."

He says inadequate sediment control can also pose physical risks to downstream properties, especially when earth dams result and/or logs go down waterways.

MORE

MEDIA RELEASE



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Mr Meyer says problems with non-compliance are being exacerbated due to the current high demand for wood and good wood prices.

“With increasingly large amounts of timber expected to come on stream in Northland in the next few years, the non-compliance rate with permitted activity rules is an unwelcome situation both the council and the industry are keen to improve on.”

Mr Meyer says it’s vital that both parties address this issue, especially when it’s anticipated that more than 50 percent of the logging done in the region in the next five years will be under permitted activity rules.

He says the scale of forestry work means that potential adverse effects when things go wrong can be quite substantial.

“Northland’s geography and heavy, localised rainfall events mean that we can’t afford to take chances and suitable sediment controls must be in place at all times.”

However, Mr Meyer says as the Northland Regional Council investigates many sediment and erosion incidents, it is apparent that many people are unaware that such controls are even needed.

“Northland is by no means unique in this regard and staff from both the Auckland Council and Waikato Regional Council recently confirmed it’s an issue they’re confronting too. However, with so much of our region being covered in exotic forestry, this is a real problem for Northland and one we’re keen to help upskill people on.”

He says the regional council already runs sediment control workshops, but plans to offer industry-specific training later this year on forestry guidelines for earthworks and harvesting.

Mr Meyer says if people are about to embark on logging, they should seek advice from the regional council on the relevant rules before starting work.

“Ignorance of the rules is no defence and that doesn’t just apply to the person doing the work. If you as landowner allow a logger to do substandard work on your property, you are liable too...you can’t co-opt out of your liability.”

Mr Meyer says that in general, the council far prefers education over enforcement but can – and does – prosecute alleged offenders, who risk criminal convictions, fines of up to \$500,000 and two years’ jail.

MORE

MEDIA RELEASE



Page 3

He says permitted activity rules for forestry can be found on the council’s website via:
www.nrc.govt.nz/RWSP

Alternatively, people can email him at: FrancoM@nrc.govt.nz

ENDS

Caption for image slugged ‘inadequate sediment controls Waipu area – 20110600’:

Northland Regional Council Monitoring Officer Tim Senington stands in a Northland stream so blocked with forestry slash and sediment it is barely recognisable as a water body.

Further information:

- **Riaan Elliot, Monitoring Senior Programme Manager, Northland Regional Council
Ph: (09) 438 4639**

Appendix 2: Carter Holt Harvey Forests Assessment of Effects on the Environment for Whangarei East Forestry Blocks. July 2004.

Assessment of Effects on the Environment

Application for a Resource Consent for forestry operations in the Whangarei East Forests.

1.0 Background

Carter Holt Harvey's Whangarei East Forests comprise of Whanui, Ngunguru, Williams and Waikaraka Forests. These are freehold lands owned and managed by Carter Holt Harvey. For the purposes of this application Whanui, Ngunguru, Williams and Waikaraka Forests will be referred to as the Whangarei East Forests, unless site-specific details require otherwise.

The Whangarei East Forests comprise 2,661.2 hectares of which 1,803.6 hectares are stocked forest with the balance, 857.6 hectares, in non-productive land (roads, reserves, unplantable).

1.1 Legal Description

Appendix 1 sets out the legal descriptions of Whangarei East forests.

1.2 Resource Consent

Carter Holt Harvey is seeking a consent for 25 years for the purposes of forestry operations within the Whangarei East Forests.

This resource consent application is for a land use consent pursuant to Section 105 (1)(b) of the Resource Management Act 1991. The consent is to allow for ongoing forestry operations including but not limited to:

- The construction, maintenance, and removal of temporary and permanent culverts and/or bridges;
- Earthworks associated with the maintenance, upgrade, and construction of roads, firebreaks, and landings;
- Aerial and ground application of agrichemicals;
- Harvesting operations including harvesting of production species in riparian areas;
- The winning of aggregate form pits and/or a quarry.

The area for which consent is sought is shown on the map in the appendix 2.

1.3 Consents Required

A consent will be required for those forestry activities captured under the Northland Regional Council Revised Proposed Water and Soil Plan, 1993.

The activities covered by this resource consent application are consistent with forestry activities in the Northern Region and, on a larger scale, throughout New Zealand. It is therefore considered appropriate that the Council process this application on a non-notified basis.

2.0 The Fourth Schedule

The Fourth Schedule of the Resource Management Act sets out those matters to be included in an assessment of effects on the environment. The following addresses the matters that should be included or considered in an assessment of effects on the environment and includes a discussion of the management techniques used to minimise sediment generation as required by the Information Requirements of the Revised Proposed Regional Water and Soil Plan. The section headings correspond to the Fourth Schedule of the Resource Management Act.

2.1 Matters that should be included in an assessment of effects on the environment:

Description of the proposal

Proposed Activities

As set out above, as part of ongoing forestry operations, Carter Holt Harvey is seeking resource consent to undertake forestry and associated operations to the extent required by the rules in the Plan. The operations requiring consent include; road and landing construction, harvesting within riparian areas, earthworks, culvert/crossing installation, aerial application of agrichemicals, and the construction and use of quarries/pits.

A consent term of 25 years is sought because of the varying age classes of trees in the Whangarei East forests. Twenty five years should be sufficient time necessary to complete operations.

Planning

The basic philosophy behind Carter Holt Harvey's operations is to ensure that all operations are carried out in a logical, practical and economically viable manner, while ensuring an appropriate level of environmental performance is maintained, and that any adverse environmental effects are avoided, remedied, or mitigated. To this end, Carter Holt Harvey endeavours to undertake its operations, where practicable, in accordance with best management practices derived from:

- Regional or District Council Guidelines; and
- Industry Guidelines, including Carter Holt Harvey's Environmental Guidelines.

The guidelines referred to above are documents produced by various parties dealing with aspects of forestry operations. In some instances the guidelines will not be applicable or appropriate to the specific situation and may contain differing methods of addressing the same issue. In all cases, the documents are guidelines, not standards, and are subject to review and change. Where referred to in this AEE, Carter Holt Harvey will use such documents as a reference base only.

Earthworks – Roads and Landings

Whangarei East Forests are a predominately first rotation plantation forest; however, there are areas which have been replanted in the last five years, with an infrastructure of planting and management roads. Existing roads and tracks will be used wherever possible, however new roads and landings will be required to harvest some areas. Where existing roads can be used for harvesting they will need to be upgraded to logging truck specifications. Upgrading involves maintenance work to reshape and re-metal the road surface and to reform the water tables. Widening may also be required.

Where possible, new landings and associated roads will be constructed on ridges well away from any watercourses. New roads will be constructed outside of the riparian areas except where a road meets a crossing. Appropriate measures will be taken to avoid adverse environmental effects of such activities.

All earthworks are carried out in accordance with the contract schedule for the Forest Roding and Landing Construction and Maintenance Contract and to any site specific standards which are subject to change to address factors such as improved techniques, technology, or knowledge. All landings and roadways will have appropriate water tables and drainage control. Culverts will be placed at appropriate intervals for the soil type and slope along road lines and discharges from any culverts or drainage structures will, where practicable, be directed onto stable undisturbed areas or into silt traps and will, where required, be flumed over any fill material.

Harvest Systems

Combinations of ground-based and cable hauler systems will be used to harvest the block. Generally ground-based systems will be used on gentler terrain (up to 22 degrees) with cable systems on steeper areas, (see appendix 2 for maps).

Quarry

Over the next 25 years, plantation areas will be harvested and replanted. It is proposed to use the existing quarry to supply material for road construction and maintenance works associated with these forestry operations in the four blocks, which make up Whangarei East Forests. The quarry is located within the Whanui Forest in the catchment of the Taheke River on Sec 13 Blk XI Whangarei SD Map Reference Q07:417:099. Appendix 3 shows the Quarry Management Plan.

It is proposed that the quarrying operation will continue in a staged manner following the currently developed face towards the southeast. The quarry activity will not be visible to the closest neighbours, but there may be distance views from the North.

All faces in the quarry will be kept to a maximum height of 15 metres and all benches will have a width of at least half the height of the face above it. The quarry will be fenced from the roadside and have signs erected warning of the dangers within. There will be lockable gates for entry to the quarry area, at the quarry boundary.

The hours proposed for the operation are between 5am and 7pm Monday to Saturday inclusive and Sunday and public holidays as required. The operation will run on an intermittent basis controlled by the demand for roading and maintenance metal within the forest.

There is a second quarry located on Moray Road in the Ngunguru forest. This quarry is currently not in use but may be used for construction, upgrade, and maintenance in the Ngunguru forest in conjunction with the existing Whanui quarry.

Time frame for Activities

Consent is sought for 25 years beginning in the summer of 2005. Preparatory works (road and landing construction/upgrade) will be undertaken to facilitate harvesting and will continue for the duration of the consent. The current plan is to continue road line salvage and associated

construction operations and harvesting although the plan is subject to change dependant on factors such as market conditions.

Repealed:

Where it is likely that an activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:

Exotic plantation forestry carried out in accordance with best management practices is unlikely to have a significant adverse effect on the environment. Plantation forestry has social and economic benefits while improving soil fertility, structure, and stability, and improved water quality relative to many other rural land uses.

Carter Holt Harvey identifies the most efficient and effective way to access and harvest areas of the forest. As a rule, Carter Holt Harvey establishes its roading infrastructure as far as possible from any watercourse, that is, ridge top roading. However, Carter Holt Harvey will use existing forest infrastructure as the basis for access to operational areas.

Where the activity includes the use of hazardous substances and installations, an assessment of any risks to the environment which are likely to arise from such use:

The definition of hazardous substances established under the Hazardous Substances and New Organisms Act 1996 is extremely broad and potentially captures a wide range of substances and mixtures in common use, including those not commonly thought of as hazardous. The regulations, which will establish the thresholds for hazardous substances, have yet to be set. However, in the interests of practicality, we have limited our consideration to the obvious and accepted potentially hazardous substance – fuels and agrichemicals.

All herbicide spraying is carried out in general accordance with the Agrichemical Users Code of Practice, Manufacturers Guidelines, and Carter Holt Harvey Guidelines. The management of the operation in general compliance with internal guidelines minimises the risk that the use of these substances may pose.

Where the activity includes the discharge of any contaminant, a description of the mitigation measures (safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual of potential effect:

It is Carter Holt Harvey's understanding that resource consents are not required to discharge contaminants into the environment associated with forestry activities.

2.3 An assessment of the actual or potential effect on the environment of the proposed activity:

As with any activity, the forestry operations within the Northland Regional Council area have the potential to adversely affect the environment. These effects can be separated into the following categories:

- Physical effects, ie effects on the area's water and soil resources
- Cultural effects

- Aesthetic effects

These are discussed in (g) below.

Physical Effects

Activities that cause disturbance to the soil have the potential to increase sediment generation and the discharge of that sediment to watercourses. To ensure that the generation and discharge of sediment is minimised, relative to natural levels, all operations will be carried out in general accordance with Carter Holt Harvey's Environmental Guidelines including any amendments.

Activities that cause disturbance to the bed of a watercourse have the potential to increase bank and bed erosion and significantly increase the discharge of sediment to the watercourse. Poorly installed crossings can obstruct the free flow of water, restrict fish passage, and pose a significant risk during storm events. To minimise the risk of adverse environmental effects arising from the installation, maintenance, or removal of crossings, all operations will be generally carried out in accordance with best management practices and Carter Holt Harvey's Environmental Guidelines, where practicable.

The following principles will also be employed for operations within the Whangarei East Forests.

Machinery in a Watercourse

As a rule, Carter Holt Harvey restricts the operation of any machine in or crossing a watercourse except at designated crossing points (temporary or permanent). The gravel bed of some of the streams in the forest would allow machinery to operate within the watercourse without significant adverse effects. However, Carter Holt Harvey's restriction on machinery in a watercourse will generally apply. Where the streambed allows, the permission of Carter Holt Harvey Environmental Staff may be sought to allow a machine to enter a watercourse to remove fallen trees and other material that may block the watercourse or pose a risk to downstream structures. Such permission will be granted on a case by case basis in consideration with relevant consent conditions, Regional Provisions, and in-stream values.

Control of Sediment at Source

Loose soil or debris from earthworks associated with the installation, maintenance, or removal of a crossing has the potential to generate sediment. This is mitigated by endeavouring not to deposit loose soil or debris into any permanent watercourse or leave it in a position where it may enter or be carried into a watercourse where it is likely to dam or divert a watercourse or give rise to significant levels of sedimentation. Loose soil generated during crossing installation will be appropriately stabilised. Areas of unstable fill that pose a significant erosion risk will be appropriately revegetated or otherwise stabilised.

Culvert Installation

Culvert crossings are required to provide access to harvest areas prior to or during an operation. They can be divided into two main types; temporary and permanent. Temporary crossings are usually required to allow harvesting machinery and logs to cross a watercourse within an operational area. They are required for the duration of the operation and, as such, are removed once the operation is completed or as soon as practicable thereafter. Permanent crossings are usually associated with access roads and, as such, are not removed once harvesting is completed.

Cultural Effects

There are 41 known archaeological sites in Whangarei East Forests. A copy of the NZAA site forms are attached in appendix 4.

Carter Holt Harvey Forests will work with tangata whenua and its consultant archaeologist to identify any archaeological sites or sites of significance within a forest.

Should a previously undiscovered archaeological site be uncovered during operations then any operation in the immediate vicinity of the site will cease until an authority to damage, destroy, or modify an archaeological site is obtained from the New Zealand Historic Places Trust, as prescribed in the Historic Places Act 1993.

Carter Holt Harvey will continue to consult with the tangata whenua of the Whangarei East Forests area over its operations in their rohe especially with regard to the location of and protection of sites of significance to the tangata whenua.

Aesthetics

Given the location of the forests, the history of forestry activities, the ongoing nature of forestry activities and nature of the activities for which consent is sought, Carter Holt Harvey does not expect its proposed activities to significantly change the area's aesthetics.

Recreation

The Whangarei East Forests are only used for non motorised recreation users. Permits are issued year round for horse riders and permits are also given to the odd group of trampers. All permit users receive a newsletter which notifies them of any areas they need to stay out of, i.e. operational sites. Williams block has an archery club situated in the forest.

Operations within the areas covered by this application do have the potential to disrupt and impact on recreational activities. However, most of the approved recreational use of the forest occurs outside normal operational hours and naturally tends to relocate to non-operational areas. Signage is used to warn people of operations within areas used for recreation.

Carter Holt Harvey does not expect its proposed activities to significantly affect the lawful recreational activities occurring in the forest.

An identification of those persons interested in or affected by the proposal, the consultation undertaken, and any response to the views of those consulted:

Carter Holt Harvey's forests are a major contributor to the rural character and landscape of the area.

Neighbours

Two public meetings were scheduled for Monday 17th and Wednesday 19th May 2004 at the Tamaterau and Glenbervie Hall. One hundred and fifty invites were distributed via a mail drop but only 15 RSVP forms were received, see appendices 6. Only two people were interested in attending the meeting to be held at Tamaterau Hall, therefore, this meeting was cancelled and I went and meet with these two people individually at their homes. Fifteen people attended the Glenbervie Hall consultation. The presentation, minutes and attendance list are attached with in appendix 5.

The main issue raised at the public consultation was the state of Ngunguru Ford Road. Issues within the Northland Regional Council's jurisdiction included the use of chemicals, sediment, and monitoring, refer to minutes in appendix 5. The answers given to the questions asked and the presentation given covered most peoples concerns.

Since the public meeting calls have been received form various neighbours surrounding the forest. All concerns where with regard to the quality, upgrade, and maintenance of roads that where proposed to be used for logging.

The activities for which consent is sought occur within the forest boundaries and are unlikely to significantly affect any of the forests neighbours. However, Carter Holt Harvey will continue to liase with its neighbours and respond to concerns raised by its neighbours on a case by case and operation by operation basis.

Tangata Whenua

Carter Holt Harvey has historically consulted with Te Waiariki /Ngati Korora/Ngati Taka Hapu/Iwi (referred to as Te Waiariki from hereon in) and Ngatiwai Trust Board (referred to hereon in as Ngatiwai) when discussing forestry operations in Whangarei East. Consultation has continued with Te Waiariki and Ngatiwai Trust Board. Northland Regional Council brought to the attention of Carter Holt Harvey that there where other groups which also should be consulted with, specifically Ngati Kahu.

Carter Holt Harvey has had several meetings with Te Waiariki and Ngatiwai to discuss their concerns over this resource consent application. The majority of the concerns outlined to us consisted of harvesting around cultural sites, archaeological sites, and around streams. Carter Holt Harvey, Te Waiariki and Ngatiwai have agreed to a MoU which outlines the relationship and expectations of each other. We have also agreed to a set of protocol and procedures, see appendix 6, for working through any issues raised, specifically cultural sites.

Two meetings have been held with Ngati Kahu who is interested in pursuing a MoU. Carter Holt Harvey will work with Ngati Kahu to develop this relationship. A copy of the AEE and other information including maps has been given to Ngati Kahu for their information and we have asked them to comment. Comments have yet to be received.

CONTACT DETAILS FOR CONSULTED TANGATA WHENUA		
Te Waiariki	Ngati Kahu	Ngati Wai
Mitai Paraone-Kawiti Chairperson Te Waiariki / NgatiKorora / Ngati Taka Hapu / Iwi Resource Management Unit PO Box 1091 Whangarei Ph (09) 430 3358 Mobile 021 232 9251	Waimarie Bruce Secretary Ngatikahu O Torongare / Te Parawhau Trust Board PO Box 1749 Whangarei Ph (09) 438 3489 Fax (09) 435 0597 Mobile 027 250 7346	Hori Parata Secretary Resource Management Unit Ngatiwai Trust Board PO Box 1332 Whangarei Ph (09) 430 0939 Fax (09) 438 0182 Mobile 027 230 3469

Department of Conservation

Carter Holt Harvey has an ongoing relationship with DoC and meets on a regular basis. DoC has been sent a copy of the AEE in draft form. We have agreed with DoC to setback a minimum of 20 metres from the Nunguru River edge when replanting in the future. Other

items of interest to DoC were the presence of Kiwi in the area which is covered in 2.2 (c) Kiwi and the significance of reserve areas.

Where the scale or significance of the activity's effect is such that monitoring is required, a description of how, once the proposal is approved, effects will be monitored and by whom:

Environmental Monitoring

The effects of plantation forestry on the environment have been well researched. The activity is one that has been undertaken throughout NZ since the turn of the century. Carter Holt Harvey's extensive monitoring programmes in its other forests combined with the research of organisations such as NIWA indicate that the effects of forestry are minor particularly when compared with other land use practices.

As a result of the information available to Carter Holt Harvey, we consider the scale and significance of any effect of our activities does not warrant extensive monitoring. Carter Holt Harvey will continue to audit its operations to ensure adherence to prescriptions, guidelines, and consents but does not propose to specifically monitor the environmental effects of the activities covered by this application.

Infrastructure Monitoring

Although the proposed activities are relatively insignificant, Carter Holt Harvey monitors all of its structures as part of its regular maintenance schedule. Consistent with this, Carter Holt Harvey will maintain each crossing to ensure that it is open and working at all times as far as is practicable. Crossing approaches will be maintained throughout the life of the crossing.

Matters that should be considered when preparing an assessment of effects on the environment:

Any effect on those in the neighbourhood and, where relevant, the wider community, including any socio-economic and cultural effects:

As stated above, Carter Holt Harvey does not believe that the activities for which consent is sought will have more than minor effects.

Any physical effect on the locality, including any landscape and visual effects:

For the reasons given above, Carter Holt Harvey does not expect its proposed activities to significantly change the area's aesthetics nor generate any visual effects beyond the boundary of the forest.

Any effects on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:

Soils and Slope

The Land Use Capability (LUC) Classification for all of the Whangarei East forests, range from IVe12 through to VIIe6 with the majority of the forest being VIe17. The topography ranges from rolling to moderately steep but predominately the forests are strongly rolling.

Although the land is mainly strongly rolling the seriousness of the sheet erosion occurring is slight. The Ngunguru forest is made up of Marua clay loam, Rangiora clay, clay loam and silty clay loam, Wharekohe sandy loam, and silt loam while Williams and Waikaraka are both made up of Marua clay loam with pockets of Omaiko gravely silt loam. Whanui also consist predominately of Marua clay loam.

Existing Vegetation

The Whangarei East Forests are mainly a first rotation plantation forest. The canopy vegetation is mature *Pinus radiata* with an understory of indigenous fern, scrub, and some exotic weed species. Grass species and gorse (*Ulex europeae*) dominate disturbed or exposed areas depending on the soil type.

Indigenous Flora and Fauna

Areas of indigenous vegetation occurring within the Forest or on the periphery of the block and within the block will be protected in accordance with the provisions of the New Zealand Forest Accord, the Principles of Commercial Plantation Forestry, and Carter Holt Harvey's Environmental Guidelines and the Indigenous Reserves Strategy.

Kiwi

Carter Holt Harvey has prepared a kiwi management plan for their forest estate. The plan involves various combinations of passive and active management to minimise forestry impacts on kiwi and to protect kiwi populations from predators, including dogs.

Kiwi surveys were undertaken in Carter Holt Harvey forests in Northland in April-June 2004. The main objective of the surveys was to determine relative abundances of North Island kiwi in and adjacent to the main areas of indigenous forests managed by Carter Holt Harvey. Some additional data were collected in order to assist in decision-making regarding site-specific management. These data included records of other threatened biota present, levels of dog control, logistical feasibility of kiwi management, and level of community and DOC interest in each particular area.

Two sites in Whangarei East was surveyed; Whanui and Ngunguru. Calling rates averaged 0.38 per hour and a total of only five birds (two pairs) were identified, all in indigenous forest in the Brynavon-Paua Road area. Only one individual was detected on Carter Holt Harvey estate, the remaining two pairs being on an adjacent property at Brynavon. There has been considerable subdivision around this area in recent years and dogs were conspicuous during each visit. At one station on Mangahui Road, barking dogs could be heard from eight separate locations, some of them within a kilometre of the two kiwi pairs detected.

No calls were heard during the one night of survey in Ngunguru, which covered the most extensive indigenous remnants in this forest. Despite widespread shrub land and forest remnants in this area, kiwi is now scarce in the Ngunguru Ford Road area. Only one of two experienced residents who live at two separate sites along Ngunguru Ford Road has heard a kiwi call in the last year (G. Coulston pers. comm.) and there is a report of kiwi probes near the base of Ngunguru Sandspit (B. Gilbert pers. comm.). As with Whanui, there has been considerable subdivision in this area recently.

Aquatic Habitat

Research undertaken by NIWA in Carter Holt Harvey Forest's monitoring such as in Tairua forest indicated that any effects on in-stream biota are short term, and adverse effects on habitat and species richness are more closely related to storms and adverse weather patterns than harvesting activity.

Watercourses

There are a number of watercourses draining the Whangarei East Forests. These ephemeral and perennial streams drain into the Ngunguru Harbour and Horahora River and eventually end up in the Ngunguru Bay and Whangarei Harbour. Carter Holt Harvey will endeavour to maintain water quality and minimise adverse effects through the continued use of appropriate best management practices and the monitoring requirements of its environmental management systems.

Any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural, or other special value for present or future generations:

Given the nature of the activities for which consent is sought and the fact that the activities covered by this application are part of ongoing forestry operations Carter Holt Harvey does not expect our proposed activities to significantly change the areas aesthetics nor generate concern beyond those identified in 1(h) above.

Any discharge of contaminants into the environment, including any unreasonable emission of noise and options for the treatment and disposal of contaminants:

The issue of discharges is addressed in 1(f) above

The rural locality, the proximity of residential properties, and the hours of operation means that noise generated by our ongoing operations does not appear to be unreasonable.

Any risk to the neighbourhood, the wider community, or the environment through natural hazards or the use of hazardous substances or hazardous installations:

The nature of the operation and the management techniques used makes it unlikely that the activities covered by this application will pose a risk to the neighbourhood, the wider community, or the environment

APPENDIX 3. NORTHLAND REGIONAL COUNCIL REGIONAL WATER and SOIL PLAN 2004 (RWSP)

32. ENVIRONMENTAL STANDARDS FOR LAND DISTURBANCE ACTIVITIES

The environmental standards that follow are referred to in the rules set out in Sections 33 and 34.

32.1 GENERAL ENVIRONMENTAL STANDARDS

1. The short-term visual clarity of any permanently flowing river or wetland shall not be reduced by more than 40%, after reasonable mixing, due to sediment or sediment laden discharge originating from the site of the land disturbance activity.

2. The short-term visual clarity of any lake or coastal waters shall not be reduced by more than 20%, after reasonable mixing, due to sediment or sediment laden discharge originating from the site of the land disturbance activity.

Note: See Appendix 1 for explanation on the measurement of visual clarity.

3. No vegetation, slash, soil, earth, rock, or any other debris shall be allowed to enter or shall be placed in a position where it could readily enter, or be carried into, a river, lake or wetland, that may result in:

Diversion or damming; and/or

Bed or bank erosion; and/or

Adverse effects on ecosystems that are more than minor.

4. No vegetation, slash, soil, earth, rock or any other debris shall be allowed to enter or shall be placed in a position where it could enter and have more than minor adverse effects within the Coastal Marine Area.

5. All practicable measures shall be taken to avoid creating erosion features such as sheet wash, slips, slumps, rills and gullies, wind erosion, blow outs and stream bank erosion and to mitigate the effects of existing erosion features.

6. The activity shall not interfere with or destroy any waahi tapu, as defined in the Definitions, urupa or any other sites known to the local iwi which are of spiritual or cultural significance to Maori, which have been identified to the Council. Should archaeological remains or features be uncovered the activity shall cease and the Council notified as soon as practicable. Also as soon as practicable the Council will then notify the appropriate tangata whenua entity. The activity shall not be recommenced without the authority of the New Zealand Historic Places Trust.

Note: (i) Rule 32.01.06 complements the duties and obligations imposed on all persons by the *Historic Places Act* 1993 in respect of archaeological sites. The *Historic Places Act* 1993 (Section 10) makes it an offence to destroy, damage or modify or cause to be destroyed, damaged or modified the whole or part of an archaeological site, knowing or having reasonable cause to suspect that it is an archaeological site.

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(ii) The Department of Conservation is the holder of the records of the New Zealand Archaeological Association. The existing records are subject to ongoing review and new records are continually being added. The Department of Conservation should be consulted to determine whether there are any known archaeological sites in a particular area.

(iii) Rule 32.01.06 does not abrogate the responsibility of people to satisfy themselves prior to commencement of work as to the location of waahi tapu etc. and their need to consult with tangata whenua with interest in the area. The Council can provide lists of local contacts.

7. To prevent erosion where vegetation clearance results in areas of exposed soil, these areas shall be revegetated as soon as practicable in the spring or autumn immediately following, to achieve an 80% ground cover within 24 months of the operation being completed.

8. No storage, mixing of fuels, oils, agrichemicals or other similar substances shall take place in the Riparian Management Zone.

9. All vegetation shall be felled away from any water body unless, for safety reasons, it is impractical to do so.

10. There are no more than minor adverse effects on aquatic life.

11. The activity shall not take place within any indigenous wetland and, where the activity involves the taking, use, drainage or diversion of water, the activity shall not cause any change to the seasonal or annual range in water level of any indigenous wetland to an extent that may adversely affect the wetland's natural ecosystem.

12. Any adverse effect on the ability of any downstream water users to take water to meet their authorised needs is minimised.

32.2 ENVIRONMENTAL STANDARDS FOR EARTHWORKS

1. Where earthworks result in areas without vegetation cover, these areas shall be revegetated as soon as practicable in the spring or autumn immediately following, to an 80% ground cover within 24 months of the operation being completed. Where the operation is not finished but will need to stop for the winter months, any bare area must be over sown with a temporary cover or mulched in autumn or there must be contingency measures in place, to minimise soil loss.

2. Batters and side castings are to be stabilised by appropriate measures such as compacting, seeding, drainage and/or other methods of stabilisation to avoid slumping of upslope land and movement of soil offsite such that it can enter a water body or the Coastal Marine Area.

3. Roding and tracking shall be adequately maintained at all times or revegetated when no longer in use, to avoid or minimise erosion and sediment discharges to any adjacent water bodies or the Coastal Marine Area.

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4. All earthworks shall incorporate stormwater controls including water tables, grade control structures and cut-off drains and any other runoff control measures necessary to prevent scour from channelled water and to prevent sediment discharges.

32.3 ENVIRONMENTAL STANDARDS FOR LAND PREPARATION

1. Mechanical preparation of land, with the exception of subsurface drainage, shall be carried out parallel to the contour, where feasible. Where it is physically not possible to carry out land preparation parallel to the contour due to slope, sufficient runoff control measures shall be provided to prevent gully and rill erosion.
2. Windrows of slash shall be parallel to the contour to reduce sediment runoff.

32.4 ENVIRONMENTAL STANDARDS FOR PLANTATION FORESTRY

1. Where practicable and safe to do so, all trees shall be directionally felled or pulled back from any river, lake, indigenous wetland or the Coastal Marine Area. The removal of any tree that has been felled into any river, lake or indigenous wetland shall be undertaken so as to minimise damage to the bed and/or banks.

Note: Where a tree has entered an indigenous wetland, it may be more appropriate to leave it in place rather than remove the tree if doing so will cause excessive damage.

2. During forest harvesting operations, all stem butts shall be raised above the ground when cable logging through the Riparian Management Zone. That is, when hauling the operation shall be undertaken in such a manner so as to minimise damage to remaining riparian vegetation.
3. Machines from ground harvesting operations shall not operate within 5 metres of the bed of a river, lake, indigenous wetland or the Coastal Marine Area other than at a designated crossing or on existing roads or tracks or to assist with directional felling or to lift the stem butt out of any river, lake, indigenous wetland or the Coastal marine Area ('Turning' or 'screwing' of machines shall not occur within 5 metres of the bed of a river, lake, indigenous wetland, or the Coastal Marine Area).
4. Harvesting in or adjacent to the Riparian Management Zone shall be undertaken in such a way as to minimise disturbance of riparian edge vegetation (other than plantation forestry species being harvested that has formed part of the riparian vegetation).
5. Where soil disturbance within the Riparian Management Zone results from harvesting an 80% ground cover shall be achieved within 12 months of the operation being completed.
6. During the period 1 May to 30 September inclusive, the vegetation disturbance activity shall not result in more than 10% of the activity being disturbed to the extent that mineral subsoil (B₃ Horizon or deeper) is exposed. Operations on sand soils are excluded.

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Note: A discretionary activity consent is required for the harvest of any trees planted after the date this Plan became operative where those trees are within 5 metres of a water body or the Coastal Marine Area. Consent may be refused for a discretionary activity, or it may be granted with or without conditions.

⁵ The Plan became Operative on 28 August 2004

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33. RULES FOR LAND DISTURBANCE ACTIVITIES

33.1 PERMITTED ACTIVITIES

The following land disturbance activities are permitted activities:

1. Vegetation clearance that is not on erosion prone land, and is not in a Riparian Management Zone, is a permitted activity, provided that:

- (a) The Environmental Standards in Section 32 are complied with; and
- (b) Vegetation clearance by burning does not take place on peat soils, nor on any contiguous area in excess of 5 hectares on other soils.

2. Vegetation clearance on erosion prone land that is not in the Riparian Management Zone, is a permitted activity, provided that:

- (a) The Council is notified at least 15 days prior to the vegetation clearance being undertaken;
- (b) The Environmental Standards in Section 32 are complied with;
- (c) The area of vegetation clearance is less than 5 hectares in any 12 month period unless the clearance is plantation forestry;
- (d) Vegetation clearance by burning does not take place on peat soils; nor any contiguous area in excess of 5 hectares on other soils;
- (e) The site of the activity will be re-established in woody vegetation within 24 months from the start of the vegetation clearance operation;
- (f) Ground based methods of vegetation clearance are only undertaken during the period 1 October to 30 April inclusive, unless it is on sand country; and
- (g) There are no more than minor adverse effects on soil conservation.

3. Any earthworks that are not in a Riparian Management Zone, are a permitted activity, provided that:

- (a) The volume moved or disturbed is less than 5,000 m³ in any 12 month period where the activity is not undertaken on erosion prone land;
- (b) The volume moved or disturbed is less than 1,000 m³ in any 12 month period and the surface area of the soil exposed is less than 1,000 square metres where the activity is undertaken on erosion prone land;
- (c) There are no more than minor adverse effects on soil conservation beyond the property boundary; and
- (d) The Environmental Standards in Section 32 are complied with.

4. Any land preparation that is not on erosion prone land, and that is not in a Riparian Management Zone, is a permitted activity, provided that:

- (a) The Environmental Standards in Section 32 are complied with; and
- (b) There are no more than minor adverse effects on soil conservation.

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Note: On land having a slope of greater than 15 degrees particular care needs to be taken to ensure there are no more than minor adverse effects, and reference should be made to the Council for guidance.

Explanation (For Rules 33.01.01 – 33.01.04): *Land use activities on nonerosion prone land should, as a general rule, be able to be undertaken with minimal adverse effects. There are however, certain combinations of geology, soils and slope which are more susceptible to erosion as a result of land disturbance activities, so environmental standards are required to be complied with in order to avoid or minimise potential adverse effects.*

33.2 CONTROLLED ACTIVITIES

The following land disturbance activities are controlled activities:

1. Any earthworks which are not located in the Riparian Management Zone; and

(1) Are not located on erosion prone land and the volume moved or disturbed is greater than 5,000 m³ in any 12 month period; or

(2) The earthworks are associated with the harvest of plantation forestry on erosion prone land with a slope of less than 26 degrees or where the soils are sand soils; and the volume moved or disturbed is greater than 1,000 m³ in any 12 month period and/or the surface area of the soil is exposed is greater than 1,000 m²;

are a controlled activity, provided that:

(a) The Environmental Standards in Section 32 are complied with; and

(b) There are no more than minor adverse effects on soil conservation beyond the property boundary.

Matters Subject to Control

The matters over which the Council will exercise control are:

(1) The adequacy of sediment and runoff control measures.

(2) The location and extent of any earthworks.

(3) The adequacy of site rehabilitation and revegetation measures to control sediment discharge and adverse effects on soil conservation.

(4) Information and monitoring requirements.

An application for a controlled activity under Rule 33.02.01 need not be notified in accordance with ss.94.1(c) of the Act if the written approvals of those who the Council considers to be adversely affected by the activity have been obtained unless:

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1. The Council considers it unreasonable in the circumstances to require every such approval to be obtained; or

2. The Council considers in accordance with Section 94(5) that special circumstances exist to require notification.

In making a decision about whether for the purposes of s.94 of the Act any person is adversely affected by the granting of a resource consent, the Council may take into account effects on the following:

(a) Any landowner/occupier whose property may be adversely affected through any earth movement associated with the activity (refer also to Rule 22.02.01);

(b) The Department of Conservation where there is a known historical feature or area of significant indigenous vegetation or significant habitats of indigenous fauna as defined in Appendix 13B, at or near the site of the activity; and/or

(c) The local Iwi where there is a known site of spiritual or cultural significance.

33.3 DISCRETIONARY ACTIVITIES

The following land disturbance activities are discretionary activities:

1. Any earthworks, that are not located in the Riparian Management Zone that are not permitted, controlled or non-complying activities are

discretionary activities.

2. Any vegetation clearance, that is not located in the Riparian Management Zone and is not a permitted, or non-complying activity is a discretionary activity.

3. Any land preparation, that is not located in the Riparian Management Zone which;

(a) is undertaken on erosion prone land; or

(b) does not comply with Rule 33.01.04,

is a discretionary activity.

33.4 NON-COMPLYING ACTIVITIES

The following land disturbance activity is a non-complying activity:

1. Any activity which takes place within a significant indigenous wetland identified

34. RULES FOR LAND DISTURBANCE ACTIVITIES WITHIN

THE RIPARIAN MANAGEMENT ZONE

The criteria for determining the Riparian Management Zone are shown in Figure 7, which is repeated at the end of this section for convenience.

34.1 PERMITTED ACTIVITIES

The following land disturbance activities within the Riparian Management Zone are permitted activities:

1. Grazing or access of stock is a permitted activity, provided that:

(a) The Environmental Standards in Section 32.01 are complied with; and

(b) Stream bank vegetation, excluding grass, is only removed where:

(i) it impedes flood flows; or

(ii) it causes stream bank erosion; or

(iii) it is a pest plant; and

(iv) it does not contribute to shading of the water; or

(v) it is not necessary to prevent stream bank erosion.

***Explanation:** Grazing in the Riparian Management Zone can reduce the effectiveness of the vegetation in that area to trap nutrients and sediments, and therefore to reduce the volumes of contaminants entering the water body. Animal excreta directly discharged into this sensitive area is more likely to be carried into streams during rain. Where stock are able to enter the water, more immediate pollution of the water can occur.*

Where stock browse the stream bank vegetation, particularly during drought conditions when feed may be low, important sources of food and shade for aquatic habitats may be lost. Rises in temperature due to loss of shade are likely to contribute to the degradation of water quality.

Where cattle have access to stream banks and stream beds, there can be considerable disturbance of earth and stream sediments, which may destroy or modify aquatic habitats.

2. Vegetation Clearance within the Riparian Management Zone is a permitted activity, provided that:

- (a) The Environmental Standards in Section 32 are complied with; and
- (b) The Vegetation;
 - (i) impedes or is likely to impede flood flows; or
 - (ii) causes or is likely to cause stream bank erosion; or
 - (iii) is a plantation forest planted prior to this Plan becoming operative; or

⁶ The Plan became Operative on 28 August 2004.

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(iv) is a plantation forest planted after this Plan became operative and the clearance is outside a setback of 5 metres from a water body; or

- (c) The vegetation clearance:
 - (i) is the minimum necessary to give effect to the permitted activity rules in this Plan; and
 - (ii) does not exceed 200 m² in total; or
 - (iii) it is the minimum necessary for track and road maintenance.

3. Earthworks in the Riparian Management Zone are a permitted activity, provided that:

- (a) The Environmental Standards in Section 32 are complied with;
- (b) The earthworks are the minimum necessary;
 - (i) to give effect to the permitted activity rules in this Plan; and
 - (ii) the area of exposed soil is less than 200 m² and the volume of earth disturbed is less than 50 m³; or
 - (iii) for track or road maintenance;
- (c) Following the completion of any earthworks those parts of the Riparian Management Zone that are not required for the permitted activity are reinstated to a stable contour and revegetated as soon as practicable; and
- (d) As a result of the earthworks in the Riparian Management Zone there are no adverse flooding or drainage effect on any property owned or occupied by another person.

4. Land preparation in the Riparian Management Zone is a permitted activity, provided that:

- (a) The Environmental Standards in Section 32 are complied with; and
- (b) The activity takes place outside a setback of 5 metres from the water body and the dominant slope is less than 15 degrees.

34.2 CONTROLLED ACTIVITIES

There are no controlled activities for land disturbance activities within the Riparian Management Zone.

34.3 DISCRETIONARY ACTIVITIES

The following land disturbance activities within the Riparian Management Zone are discretionary activities:

1. Any activity which cannot comply with, or is outside the scope of, the permitted rules, or is not a non-complying activity, is a discretionary activity.

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2. The burning of waste vegetation within the Riparian Management Zone is a discretionary activity.

***Explanation:** The Riparian Management Zone plays an important role in protecting and enhancing the water quality of adjacent water bodies. The clearance of shade-giving shrubs and trees can be detrimental to stream life, particularly where the stream is shallow and slow moving. Where vegetation is cleared, mitigation measures such as replanting in species and densities appropriate to that Riparian Management Zone may be required.*

Burning of any vegetation as a land preparation method is not a technique that the Council encourages. In the Riparian Management Zone, burning would remove any protective vegetation including that on the stream banks, leaving the banks and channel most vulnerable to erosion.

34.4 NON-COMPLYING ACTIVITIES

The following land disturbance activity within the Riparian Management Zone is a non-complying activity:

- 1. Any activity which takes place within a significant indigenous wetland identified in accordance with Appendix 13B is a non-complying activity.**
- 2. Vegetation clearance by burning in the Riparian Management Zone is a non-complying activity.**

34.5 PROHIBITED ACTIVITIES

There are no prohibited activities for land disturbance activities in the Riparian Management Zone.

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FIGURE 7: RIPARIAN AND FOREDUNE MANAGEMENT ZONE

Note: (i) Figures (7A) and (7B) define land adjacent to water bodies and the Coastal Marine Area except where that land comprises sand dunes.

(ii) Figure (7C) defines the Riparian Management Zone in relation to the foredune.

(iii) These figures are not to scale

(iv) Contact the Council should you require any assistance with the practical application of these diagrams.

FIGURE 7A: RIPARIAN MANGEMENT ZONE

FIGURE 7B: RELATIONSHIP BETWEEN THE RIPARIAN MANAGEMENT ZONE AND THE COASTAL MARINE AREA

Note: If the top of the bank cannot be identified it should be taken from the beginning of the vegetated area.

Flood Flow

Dominant Slope

Bank Full Edge

FIGURE 7C: RIPARIAN MANAGEMENT ZONE IN RELATION TO THE FOREDUNE

The Riparian Management Zone is the land between the bed of the river, lake, or indigenous

wetland or the Coastal Marine Area and a distance measured inland from the bank full edge

of the water body or from the top of the bank adjacent to the Coastal Marine Area of:

5 metres where the dominant slope is less than 8 degrees

10 metres where the dominant slope is between 8 – 15 degrees

20 metres where the dominant slope is greater than 15 degrees

Where the dominant slope is 0 degrees or less there shall be no Riparian Management Zone.

Notwithstanding the above where the land adjacent to the Coastal Marine Area is unvegetated or vegetated sand dunes, the Riparian Management Zone in this instance is the

land between the Coastal Marine Area and the bottom of the leeward side of the foredune.

MHWS

Incipient

Dune

Foredune Hinddune

Coastal Marine Area Riparian Management Zone

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Appendix 4: Memorandum of Understanding: Procedures and policies for CHH and Waiariki/Ngatiwai

The below policies and procedures falls within the principals outlined in the MoU between Te Waiariki/Ngatiwai and Carter Holt Harvey and are there to provide direction on expectations for each party.

Te Waiariki/Ngatiwai will commit to:

- Comply with CHHF Health and Safety work rules
- Produce a Cultural Impact Assessment
- Undertake site visit when required
- Provide recommendations and discussions
- Sign off on completed OPID
- Provide an induction and cultural protection to contractors working in the forest.

Carter Holt Harvey Forests (CHHF) will commit to:

- Provide Te Waiariki/Ngatiwai with a copy of CHHF health and safety work rules
- Employ an archaeologist with input from Te Waiariki/Ngatiwai
- Accompany Te Waiariki/Ngatiwai in and out of the forest
- Provide a copy of maps to Te Waiariki/Ngatiwai
- Provide planners with a copy of Te Waiariki/Ngatiwai CIA
- Provide Te Waiariki/Ngatiwai with a draft copy of the harvest plan
- Organise a meeting between CHH, Te Waiariki/Ngatiwai, and Harvest Planner
- Produce a site specific harvest plan for working around known and unknown archaeological sites
- Follow CHHF Historic Places Management procedure
- Notify Te Waiariki/Ngatiwai when harvesting is complete
- Provide free access by permit
- Involve Te Waiariki/Ngatiwai in discussions regarding replanting boundaries
- Pay upon receiving an invoice on expenses agreed upon before work commences.
- Sign off on completed OPID

Cultural impact assessment (CIA)

- To be provided for each OPID before the harvest plan is carried out (approximately 2 years before harvesting)
- A max of two people on site to carry out field work
- Te Waiariki/Ngatiwai to comply with CHHF health and safety work rules
 - High visibility clothing
 - Steel cap boots
 - Helmet
 - No persons under the age of 16 shall enter the forest.
- The CIA will consist of:
 - A description of known archaeological sites
 - Other sites of significance including streams
 - Recommendations
 - Potential risk of finding sites and priority of sites
- The CIA site visit will be carried out within one month of request and a report will be completed within one month of site visit, unless agreed otherwise. (Note CHHF will not pay for research)
- CIA will form part of the Historic Places Trust application

Te Waiariki/Ngatiwai presence onsite during operational procedures

- No people shall be onsite during salvage, engineering, and harvesting unless people have the appropriate forestry tickets due to Health and Safety requirements.

- Te Waiariki/Ngatiwai may enter the site before and after the operational work or during, periodically, with prior approval from CHHF.
- A max of one person on site

NOTE: CHHF will follow Historic Places Management procedure and produce a site specific harvest plan for working around known archaeological sites with the involvement of Te Waiariki/Ngatiwai.

Post Harvest

- Max two people walk over cutover on high risk sites (risk determined in CIA)
- Comply with CHHF health and safety work rules
- CHHF to notify Te Waiariki/Ngatiwai and inspection will take place within one month of notification
- Replanting boundaries will be discussed
- If access is required it will be by 12 monthly permit (free) which can be renewed at the end of each year
- Both parties signoff on a site completion form.