Hancock Forest Management (NZ) Ltd

Environmental Management Systems Manual 2021

Contents

ASSOCIATED DOCUMENTS

Strategies and Work Programmes
Chemical Use Strategy
HFM NZ Research Programme

Policies and Procedures
Chain of Custody Procedure

Registers and databases
Environmental Legislation Summary
HFM NZ Approved Chemicals Register
HFM NZ Complaints Registers (held regionally)
HFM NZ Consents Register
HFM NZ Disputes Register
HFM NZ Health and Safety Environmental Incidents Database
HFM NZ High Conservation Value Areas List
HFN NZ Rare, Threatened & Endangered Species Register
HFM NZ Rare, Threatened and Endangered Species Sightings database
HTRG Summary of International Conventions and Agreements

Reports
Annual Chemical Use Report
Annual Reserves Management Report

1. Purpose and Overview

1.1 Purpose

The Environmental Management System (EMS) is a tool used to ensure the operations of Hancock Forest Management (NZ) Ltd (HFM NZ) are managed systematically and sustainably.

The EMS describes the key management systems to ensure compliance with legal requirements relating to environmental performance, the requirements of our parent company Hancock Natural Resources Group and the voluntary certification systems to which we are certified (FSC® and PEFC).

1.2 Scope

This EMS applies to all operations carried out within HFM NZ forests or managed by HFM NZ including:

- Planning
- Forestry Operations
- Harvesting
- Engineering
- Processing yards and logyards
- Alternative land use

2. Environmental Policy and Objectives

2.1 HFM (NZ) Environmental Policy

Our Commitment	Hancock Forest Management (NZ) Ltd is committed to the responsible stewardship of forests under our management. It is our goal to deliver optimal value to our investor clients, while protecting the future productivity of the land and ensuring that over time the environmental, cultural and community values of the forests we manage are maintained or enhanced.
Legal and other requirements	We will operate our business so that we meet or exceed all statutory environmental requirements, relevant Codes of Practice, industry best practice guidelines and agreements as described in the company EMS.
Treaty of Waitangi	We will conduct our business in accordance with principles of the Treaty of Waitangi that are relevant to our operations, as articulated through legislation.
Third party certification	We will seek to maintain third party certification and conduct our operations in accordance with the requirements of the organisations and standards to which we are certified (FSC®, PEFC and NZS AS 4708).
Resources	We will allocate sufficient resources to ensure the responsible stewardship of the forests under our management, and to further develop knowledge of plantation forestry through involvement in industry trials and research.
Training and development	We are committed to training and developing managers, employees and our contractors so as to ensure that all individuals working on behalf of Hancock Forest Management (NZ) Ltd are competent in meeting the company's environmental requirements.
Systems and practices	We will develop and implement best practice systems and management practices to ensure a systematic approach to forest management and the maintenance and enhancement of the soil, water, biodiversity, cultural, landscape amenity and community values of our forests.
Stakeholder Engagement	We will proactively engage with stakeholders and interested parties so as to ensure consideration of their views in forest management planning, promote constructive community relationships and increase awareness and understanding of our operations.
Continuous Improvement	We will undertake regular reviews of our forest management systems in light of new information, to strive for continuous improvement in our operations and forest stewardship outcomes.

2.2 Environmental Objectives

Environmental objectives are the long-term goals that HFM NZ sets itself and these arise from the Environmental Policy, Management Review decisions and regulatory requirements.

In addition to those key broad objectives set out in the HFM NZ HSE Policy, the following more specific goals are considered important to achieve a high standard of environmental performance:

To manage the estate in compliance with:

- All relevant legislation
- The Principles for Commercial Plantation Forest Management in NZ
- The NZ Forest Accord
- FSC® Principles and Criteria, the NZ FSC National Standard for Certification of Plantation Forest Management in NZ and all associated FSC requirements.
- NZS AS 4708 and associated PEFC and Responsible Wood requirements
- To identify and take into account environmental and social values when planning and undertaking operations so as to minimise impacts on the environment and the community.
- To identify and protect areas or significant ecological and scientific value within our managed forests and put in place processes to protect and where practical enhance identified values.
- To manage our forests sustainably and minimise adverse effects of forest operations on soil and water values.
- To minimise the impact of operations on archaeological and cultural sites.
- To minimise the impact of operations on amenity values (visual, noise and air effects) and neighbouring properties.
- To manage and use chemicals responsibly and seek to minimise the use of chemicals in our operations as far as practical.
- To capture and learn from environmental incidents through incident reporting, investigation and sharing of learnings.

3. Responsibilities, Communication and Reporting

3.1 Responsibilities

Key responsibilities relating to the EMS are summarised below.

General Manager

- Approve the HSE Policy
- Set overall direction for environmental compliance
- Approve reviews of the EMS

Environmental Manager

- Set overall direction for managing environmental compliance and stewardship programmes.
- Maintain oversight of the EMS, including initiating reviews and any necessary amendments.
- Develop and maintain the Environmental Strategy.
- Prepare and implement an annual Environmental Work Plan detailing goals and objectives for the coming year to achieve the strategy.
- Maintain processes to ensure compliance with regulatory requirements, codes of practice and industry guidelines.
- Maintain systems for tracking any changes to regulatory requirements and codes at a national level, and provide input as required to protect HFM NZ client's interests.
- Manage processes to maintain external certification (FSC® and PEFC).
- Provision of advice and training to staff to ensure full understanding of the EMS.
- Arrange annual audit of each HFM NZ region to check compliance with EMS.

Chief Operations Officer

- Ensure systems and resources are in place to achieve compliance with the EMS, Environmental Policy and regulatory requirements.
- Help drive continuous improvement in environmental performance of operations.
- Ensure consistency between regions and sharing of best practice to continue to improve our operations.

Area Managers

- Ensure operational staff within their Area have in place systems to ensure compliance with the HFM NZ Environmental Policy, EMS and relevant regulatory requirements, and are complying with those systems.
- Identify and addressing staff training needs.
- Help drive continuous improvement in environmental performance in their Area.
- Oversee Area HSE Committees.
- Ensure all environmental incidents in their Area are reported and investigated appropriately, any corrective actions are closed out and learnings are shared.

Operations Managers (Harvesting, Forestry, Engineering)

- Ensure staff have in place systems to ensure compliance with the HFM NZ HSE Policy, EMS and relevant regulatory requirements, and are complying with those systems.
- Identify staff training needs as required to achieve compliance with the EMS.

- Help drive continuous improvement of environmental performance in their area of responsibility.
- Ensure all environmental incidents in their area of responsibility are reported and followed up appropriately, and any corrective actions closed out.

Operations Foresters

- Plan and manage operations and Contractors in accordance with the requirements of the EMS and relevant regulatory requirements at all times.
- Ensure Contractors under their control have systems in place to comply with the EMS and relevant regulatory requirements.
- Audit operations for compliance and ensuring corrective actions arising from audits are addressed.
- Assist with incident investigations for environmental incidents, and manage close out of any corrective actions.

Environmental Foresters

- Provide advice and guidance to operations staff on environmental compliance matters.
- Maintain systems to ensure compliance with FSC, PEFC and regulatory requirements.
- In conjunction with operations staff, obtain the necessary Resource Consents and Heritage NZ Authorities are obtained in a timely manner to undertake planned operations.
- Coordinate stakeholder liaison with regional stakeholders including regulatory authorities, tangata whenua, community and environmental groups.
- Review and submit on any environmental regulatory changes affecting HFM NZ operations at a regional level, including Regional and District Plans.
- Assist with investigation of serious environmental incidents.
- Coordinate and deliver EMS training.
- Schedule and undertake Environmental Systems Audits for contractors within their region.

3.2 Communication and Reporting

The key means of communicating and reporting on environmental performance and issues are:

- 'Weekly briefs' and weekly management team conference calls: Includes reporting and discussion of any environmental issues, incidents and audit outcomes, and tracking completion of necessary corrective actions.
- Area HSE Committee Meetings: Held monthly to address health, safety and environmental issues arising in each area, implement national initiatives and drive continuous improvement.
- Board HSE Committee Reports and meetings: Individual client Board HSE Committee's receive quarterly HSE reports and hold six monthly HSE Committee Meetings. These are a key means for reporting significant health, safety and environmental issues through to the respective client Board HSE Committees, and ensuring concerns or directives from the Board relating to environmental performance are clearly communicated and addressed.
- Reports required by the EMS.
- Environmental Incident Reports and Incident Investigation Reports
- Social Impact Assessment Reports
- Audit Reports (in process, final and system audits)
- Internal EMS Compliance Audit Reports
- Environmental Alerts and environmental updates to contractors

- Newsletters
- Regional Contractor meetings
- Face to face communications between staff and contractors

HFM NZ has in place a Communications Plan for health, safety and environmental communications. A copy of this document can be found on the G Drive: G:\Health and Safety\Operations Files\H&S Communications\Communications Plan

4. Legislation, Regulations and Voluntary Commitments

4.1 Purpose

This section of the EMS describes the key legislation, regulations and voluntary commitments governing HFM NZ operations and the systems to ensure HFM NZ remains up to date with any changes to requirements.

4.2 Legal and Regulatory Requirements

4.2.1 Key Legislation and Regulations applying to HFM NZ operations

The following table lists all of the major statutes that have been identified as being relevant to HFM operations, and the staff member responsible for tracking changes to legislation and managing compliance where required.

STATUTE / REGULATION	**PERSON RESPONSIBLE**
Environmental Legislation	
Conservation Act 1997	Environmental Manager
Heritage New Zealand Pouhere Taonga Act 2014	
Soil Conservation & Rivers Control Act 1941	
Reserves Act	
Freshwater Fisheries Regulations 1983	
Wildlife Act 1953	
Resource Management Act 1991	
Climate Change Response (Emissions Trading) Amendment Act	
National Environmental Standards for Plantation Forestry	Environmental Manager
National Environmental Standards for Freshwater	Environmental Manager
Regional & District Plans	Environmental Foresters
General legislation governing forestry operations	
Biosecurity Act 1993	Technical Forestry Manager
Regional Pest Management Plans (under Biosecurity Act)	Environmental Foresters / Foresters
Fencing Act 1978	Foresters
Hazardous Substances & New Organisms Act 1996	Various – ref s.2
Forest & Rural Fires Act 1977 and regulations	Protection forester
Rural Fires District Regulations 1980 and regulations	Protection forester
Forests Act 1949 & subsequent amendments	Alternative Land Use Forester
Wild Animal Control Act 1977	Foresters responsible for Alternative Land Use & Protection.
NZS 8409:2004 Management of Agrichemicals	Foresters responsible for chemical management
Code of Practice for Fertiliser Use - Plantation Forestry User Guide	Foresters responsible for fertilizer application

HFM NZ maintains a summary of all of the key pieces of legislation relevant to forestry activities in the HFM NZ HSE Legislation Summary held on the G drive: (G:\Environmental\Environmental Resources\EMS\Associated Documents\Registers and Databases).

The NZ Environmental Code of Practice for Plantation Forestry also contains a further overview of the key pieces of legislation as they apply to plantation forestry.

4.2.2 National Environmental Standards for Plantation Forestry

The National Environmental Standards for Plantation Forestry (NES-PF) creates one nationally consistent set of regulations to manage the environmental effects of plantation forestry. It is a regulation made under the Resource Management Act 1991 (RMA).

The NES-PF regulations replace all equivalent rules in Regional or District Plan rules except where the NES-PF specifically allows plan rules to be more stringent.

The NES-PF regulations cover the following eight plantation forestry activities:

- afforestation (planting new forest)
- pruning and thinning-to-waste
- earthworks
- river crossings
- forestry quarrying
- harvesting
- mechanical land preparation
- replanting

The NES-PF also covers the following associated activities:

- slash traps
- indigenous vegetation disturbance
- disturbance of the beds or rivers or wetlands (includes timing constraints to avoid spawning times)

The NES-PF also contains a range of general provisions covering general effects of plantation forestry activities including:

- dust
- noise and vibration
- impacts on indigenous bird nesting
- fuel storage and refuelling

The NES-PF specifies the status of activities based on an underlying Erosion Susceptibility Classification (refer Section 5.2.3).

Where activities are permitted under the NES, the NES specifies a range of permitted activity conditions that must be complied with. HFM NZ has incorporated all of the operationally related conditions of the NES-PF into the relevant company Environmental Standards. These are indicated by bolded text in the Environmental Standards.

The NES-PF can be accessed from:

- The G drive (G:\Environmental\Environmental Resources\NES
- The NZ legislation website (www.legislation.govt.nz)

4.2.3 Regional and District Plan Requirements

As noted above the NES-PF prevails over equivalent rules in regional and district plans. The NES-PF allows for regional and district plans to be more stringent for a number of specific issues and activities, including:

- To give effect to the National Policy Statement for Freshwater Management
- To protect Outstanding Natural Features and Landscapes
- To protect Significant Natural Areas
- Activities in geothermal areas or karst (limestone cave) geology
- Activities within 1km upstream of the abstraction point of a community drinking water supply.

Regional and District Plan rules must be reviewed to identify any rules that apply over and above the NES-PF.

Activities that sit outside of the NES-PF core activities remain covered by regional and district plan rules. This includes burning, agrichemical application and management of historic sites.

4.2.4 Monitoring Changes to legislation

HFM NZ is notified of any significant changes to environmental legislation through various sources including:

- Subscription to the Thomson Reuters 'Your Environment' alert service which informs users of changes to legislation and recent case law.
- NZFOA Environment Committee
- NZIF notifications
- Stakeholder updates from government departments and Councils.

The Environmental Manager is responsible for reviewing any changes in legal requirements relating to environmental aspects, and updating the company systems to comply with changes as required.

Up to date copies of all legislation is accessed through the national legislation website www.legislation.co.nz.

The "Your Environment" alert service from Thomson/Brookers, details any proposed changes to regional plans and policies that have been notified by Regional and District Councils in New Zealand. The Environmental Foresters are responsible for reviewing these and identifying any plan changes that could potentially impact HFM NZ operations and where necessary undertaking submissions and appeals to seek practical outcomes for HFM NZ's clients operations.

Copies of all current relevant Regional and District Plans are accessed via regional and district council websites.

4.3 Voluntary Agreements

In addition to legislative requirements, HFM NZ operates under the following voluntary agreements:

- The New Zealand Forest Accord
- The Principles for Commercial Plantation Forest Management
- Forest Owners Association MOU with Federated Farmers

Although not legislation HFM NZ considers compliance with these agreements to be mandatory.

Copies of each agreement are attached as Appendix IV.

4.4 Certification

4.4.1 General

HFM NZ is certified to both FSC and NZS AS 4708 (endorsed by PEFC). Independent certification is a means for our customers and their customers to know that the logs that we sell them come from legally and responsibly managed forests. HFM NZ is certified to both FSC® and PEFC.

We are audited to both systems once a year by an accredited auditor.

The following is a brief background to both certification systems and where you can find useful information.

4.4.2 FSC® (Forest Stewardship Council®)

HFM NZ's operations in New Zealand have been continuously certified by FSC since 2004 (*FSC Certificate Number SCS-FM/COC-00066P).*

FSC is an independent not for profit organisation headquartered in Germany, founded to promote the responsible management of the world's forests.

All forests certified by FSC must comply with an international set of rules called the 'Principles and Criteria'. These have been translated into requirements specific to New Zealand in the NZ National Standard (*National Standard for Certification of Plantation Forest Management in NZ).*

The requirements of FSC cover the full range of forest management, including complying with the law, environmental requirements (water quality impacts, soils, biodiversity, chemical use etc.), social requirements (worker rights, indigenous peoples rights, stakeholder and community benefits etc.), alternative benefits of the forest beyond core forest products, and sound and economically viable forest management practices.

The current NZ National Standard for FSC can be found on the G drive:
G:\Environmental\Environmental Resources\Certification\FSC\Audit Standards

For further information about FSC visit their website www.ic.fsc.org or www.nz.fsc.org

PEFC (NZS AS 4708) Certification

PEFC (Programme for the Endorsement of Forest Certification) is international forest certification system available to the forest sector. Under PEFC, countries develop forest management standards appropriate to the natural, social, physical and economic conditions of those countries with input from local stakeholders. If both the standard and the standard setting process is able to meet the PEFC criteria, the standard is able to be endorsed by PEFC and therefore able to be recognised through a common internationally recognised branding system.

In New Zealand, Standards New Zealand oversaw a stakeholder managed process to adapt the Australian Forestry Standard to New Zealand. The resulting Standard, *NZS AS 4708 Sustainable Forest Management* was endorsed by PEFC in 2015.

HFM NZ became certified to NZS AS 4708 in 2017 (*Certificate Number SCS-NZS-001)*.

A copy of NZS AS 4708 can be found on the G drive:
G:\Environmental\Environmental Resources\Certification\PEFC\Audit Standards

For further information about PEFC visit their website www.pefc.org or pefcnewzealand.org.nz.

5. Operations Planning Processes

5.1 Purpose

The following section briefly describes the key operational planning processes used by HFM NZ and how environmental constraints are taken into account so as to manage environmental risks relating to clearfall harvesting and forestry operations.

This procedure applies to all operations planning undertaken for HFM NZ managed forests.

5.2 Risk Assessment Tools

5.2.1 Introduction

HFM NZ use a number of standard tools for planning and assessing risk in our operations. The following section provides a description of each of these and how they are accessed.

5.2.2 Stream Risk Classification

Stream classification is a tool used by HFM NZ to assess stream risk and to assign appropriate controls. The stream classification is indicated on Harvest Plan maps and referenced in the Harvest Plan text. The stream classification is a combination of a number indicating the stream size, and a letter indicating stream risk.

The stream number indicates the stream size at that location as per the following table.

Stream Type	Description
1	Very large river >30 m wide e.g. the Waikato River
2	Moderately large river 10-20m wide
3	Large stream 3-10m wide
4	Small perennial stream <3m wide that flows almost all year round
5	Ephemeral Stream – only flows following periods of heavy rainfall.

The letter following the number indicates the stream risk as either High (H), Medium (M) and Low (Low).

Stream Risk	Description
H	High Risk: High risk of unacceptable effects such as offsite debris movement, impacts on threatened species or neighbour impacts.
M	Medium Risk: Medium risk of unacceptable effects.
L	Low Risk: Low risk of unacceptable impacts. Small internal forest stream with low risk of debris movement.

If a stream has been indicated as high risk there will be more stringent requirements around how the operation is planned and managed.

A full description of the risk classification system and associated guidance is provided in ***Planning Guide 1: Guidelines for Planning Operations around Waterways*** attached as Appendix V.

5.2.3 Erosion Susceptibility Classification (ESC)

Erosion Susceptibility Classification or ESC is a system that was introduced through the NES-PF to indicate the underlying erosion potential of the land under plantation forest cover. The ESC is particularly relevant to harvesting and engineering operations. The ESC maps all of NZ into one of four erosion susceptibility classes:

ESC	Zone	Description
Low risk	Green Zone	Low erosion risk. Ground based logging country. All activities are permitted activities under the NES subject to conditions.
Moderate Risk	Yellow Zone	Moderate erosion risk. Land that is suitable for plantation forestry and will generally be ground base or straight forward hauler country. All activities are permitted activities under the NES subject to conditions.
High Risk	Orange Zone	High erosion risk. Suitable for ongoing use as production forestry but care is required when undertaking harvesting and earthworks to avoid causing erosion. Consents are required for earthworks on steeper slopes. Harvesting and replanting are permitted subject to conditions.
Very High Risk	Red Zone	Very high erosion risk. Marginal for ongoing use for production forestry. Extreme care is required when undertaking harvesting and earthworks. Consents required for harvesting, earthworks and replanting.

The ESC was introduced when the NES came into force in May 2018, so harvest plans produced after that date will include a description of the ESC.

The ESC is based on Land Use Capability mapping and is a general indicator of the erosion risk of the land you are working on.

On land that is assessed as very high risk (red zone) additional procedures apply (Refer Section 6).

5.2.4 Catchment Risk

Catchment Risk is a risk assessment process that was introduced by HFM NZ in 2018 to assess the overall risk of each catchment taking into account stream risk, catchment geology, catchment shape, the erosion susceptibility and downstream risk factors.

Any catchment that has been assigned 'high risk' has a high risk of erosion and debris movement and offsite effects. The harvest plan must indicate if the catchment has been assigned as a high risk catchment and the reason for that assessment. High risk catchments must have controls in place to manage those risks (refer section 6).

5.3 Resource and Woodflow Planning

5.3.1 Purpose

The following section describes the long-term planning processes and how environmental constraints are taken into account to manage environmental risks relating to clearfall harvesting.

This procedure applies to all Resource Planning undertaken for HFM NZ managed forests.

5.3.2 Procedure

5.3.2.1 General

The Resource Planning process includes:

- Long term Plan
- 5 year plan process
- Short term (1-2 year) operational woodflow schedule (forest ops)

Environmental constraints feed into the process at all steps of the process.

5.3.2.2 Long Term Planning

The long-term plan uses the Woodstock model to optimise harvest timing based primarily on crop age and target harvest age.

A number of constraints are fed into the model including catchment harvesting constraints (refer section 6.3.2).

When the long-term plan is run in Woodstock a file is generated which details any of the constraints that could not be achieved by the model. All breaches are then checked and if necessary the model adjusted (refer section 6.3.3).

5.3.2.5 Woodflow Scheduling

From the long term plan the detailed operational woodflow schedule is prepared for the coming 1-2 year period. As the schedule is developed it is reviewed by operational staff to identify practical issues and finer level adjustments. Any potential issues such as visual impacts, biodiversity, water quality, erosion impacts and constraints imposed by agreements with neighbours or the local community must be identified and addressed. Adjustments should then be made to the schedule to manage these issues.

When adjusting the timing of any harvest area with a catchment constraint applying, additional checks must be carried out to ensure that catchment constraints are not breached (refer section 6.3.4).

5.4 Obtaining Resource Consents

5.4.1 Purpose

All operations on HFM NZ managed lands must be carried out in accordance with the Resource Management Act. At the ground level, the rules that apply to operations are specified through the NES PF and Regional and District Plan rules. This section of the EMS sets out the processes to be followed to ensure the necessary rules are complied with, including compliance with permitted activity rules and obtaining resource consents in a timely manner to avoid delays to planned operations.

This procedure applies to all HFM NZ operations.

5.4.2 Responsibility

The Environmental Foresters are responsible for reviewing the 5 year plan, assessing the relevant rules that apply and managing the process to obtain any necessary resource consents (with input from operational staff) in time for the planned commencement of operations.

Personnel planning harvesting, engineering and forestry operations are responsible for ensuring operations are planned and managed so as to comply with resource consent, permitted activity conditions and other statutory requirements.

5.4.3 Procedure

The Environmental Forester will periodically review the 5 year plan, and identify through review of NES PF and Regional and District Plans the permitted activity rules and consenting requirements for operations to be undertaken in the forest.

The Environmental Forester will then prepare a work programme to obtain necessary consents in time for the first planned operations. In general, the process to obtain resource consents should be started one to two years prior to commencement of first operations in a block, unless problems or delays are anticipated in which case this should be commenced at least 3 years out.

The Environmental Forester will identify the information that will be required for the consent application including:

- Obtaining all operation details including engineering designs, harvest plans, reestablishment methods and restrictions
- Identifying all potentially affected parties (neighbours, tangata whenua, DoC, Fish & Game etc.) and initiating consultation with these parties to obtain feedback.
- For first harvest in a block or where no harvesting has taken place for some time an an SIA should be completed (refer Section 16).
- In conjunction with operations staff identifying all of the potential environmental effects of the operations and methods to avoid, remedy or mitigate those effects.
- Liaising with council staff to identify any further information requirements.

Where information is required from operational staff or external consultants, the Environmental Forester will liaise with these parties and arrange provision of this information.

The Environmental Forester will then prepare a draft resource consent application and Assessment of Environmental Effects, and circulate this to relevant operational staff for review and feedback. The draft application may also be sent to affected parties for comment.

Once feedback is obtained from all affected parties (where forthcoming) the consent is lodged with the Council, including details of consultation.

The Regional/District Council will generally issue a set of draft resource consent conditions. The Environmental Forester is responsible for reviewing the consent conditions and circulating them to relevant operational staff, to ensure they are appropriate for the operations and can realistically be complied with in the field. If consent conditions are not considered practical, the Environmental Forester will liaise with the council consents officer and seek necessary amendments to consent conditions.

Once the consent is granted, the Environmental Forester must:

- Notify relevant operational staff and provide a copy of the consent along with advice on any unusual consent conditions
- Place a master copy of the consent on the hard copy consents file
- Place an electronic scan of the consent in the 'Resource Consents' folder in the national environmental file directory *G:\Environmental\Operations Files\2. Consents, Heritage NZ Authorities & PA rules*
- Update the electronic Consents Register to include details of the consent
- Add any particular ongoing monitoring or reporting requirements to the Environmental Team Work Programme.

If the operation can be carried out as a permitted activity under the NES PF the Environmental Forester shall ensure notice is given to the relevant regional or district council as required by the NES PF notification requirements.

5.4.4 Records

Hard copy files

Information relating to Resource Consents is held on the following file locations:

Eastern Office	- Resource Consents File - Operations file (copy of consent)
All other offices	- 2668 – Forest Ref - R file - 2668 – RM file (Originals of consents only)

Electronic files

A register of all current resource consents and key permitted activity conditions is held in the folder:
G:\Environmental\Operations Files\2. Consents, Heritage NZ Authorities & PA rules

Background information relating to obtaining and administrating resource consents is held in the folder: G:\Environmental\Operations Files\Forest Files (sorted by region and forest).

5.5 Preparing a Harvest Plan / Work Prescription

5.5.1 Introduction

All harvesting, engineering and forestry operations carried out in HFM NZ managed forests must have a harvest plan or work prescription in place that identifies the environmental risks of the operation, and where appropriate specifies controls to avoid remedy or mitigate those risks to ensure compliance with:

- All legal requirements including resource consent conditions and permitted activity rules in Regional and District Plans, NES–PF and the Heritage NZ Pouhere Taonga Act
- The relevant HFM NZ Environmental Standards

Any person planning an operation and preparing a work prescription must have the appropriate knowledge, skill and experience. Trainees or new staff undertaking planning must be under the supervision and guidance of a designated experienced staff member.

The following procedure provides guidance for staff planning operations to ensure that all environmental risks and regulatory requirements are clearly identified and assessed at the planning stage, and appropriate controls are put in place to eliminate or mitigate unacceptable impacts on the environment.

Note: When referred to in this section, 'Planner' refers to the person planning the operation. For engineering and harvesting operations this will generally be the Harvest Planner. For forestry operations this will generally be an HFM NZ Forester.

5.5.2 Procedure for preparing a harvest plan or work prescription

5.5.2.1 Identification of Environmental Values and Risks

Prior to planning the operation, the planner must scope the intended operation and review available information to identify all known environmental issues and constraints including:

- NES PF rules, Resource consent conditions and Regional and District Plan requirements that must be complied with (seek advice from the Environmental Forester if required).
- Review of the relevant GIS layers to confirm the presence of any archaeological sites, Indigenous reserves, Forest Accord vegetation, rare threatened or endangered species, streams, wetlands, lakes, recreational use of the area etc.
- Any protected indigenous vegetation (Significant Natural Areas) and the associated protection rules (refer the reserves information in the stand layer, and SNA layers in GIS)
-
- Any archaeological sites or Wahi Tapu in the area and the associated protection requirements (eg Heritage NZ Authorities, agreements with landowners or tangata whenua)..
- Knowledge of geological or climatic constraints on the site including erosion risk mapping information (ESC, LUC and HFM NZ Geology and Soils Guides where available).
- Any prior agreements with lessors/joint venture partners, neighbours and the community.
- Neighbour water takes or boundary issues.
- Social Impact Assessments
- For Northland forests, any Kauri present (must comply with the Kauri Dieback Management Plan)

Through the planning process in the field, assess any additional environmental values or risks of the site including such things as:

- Topographical constraints.
- The true extent of archaeological sites, streams, wetlands, lakes, indigenous reserves, riparian vegetation, utilities etc.
- Erosion features.
- Neighbours boundaries and potential impacts e.g. fences.
- Potential visual impacts, refer to Planning Guide 2 Guidelines managing visual landscape impacts of operation.
- Access issues including legal or paper roads.
- Presence of utilities and structures (e.g. roads, bridges and culverts) both inside and outside the forest.
- Spreading of noxious weeds.

5.5.2.2 The planning process

Through the planning process the planner must:

- Consider alternatives and undertake an assessment of the likely impacts of the planned operation on the identified environmental, social and economic values.
- Consult with potentially affected parties such as neighbours (refer also section 14.0).
- Select the best plan taking into account safety, productivity, quality, environmental and social constraints, while ensuring compliance with mandatory requirements such as resource consent conditions, applicable rules and HFM NZ Environmental Standards for that type of operation.
- Identify specific additional controls required to manage identified environmental risks.

Guidance for planning operations on the HFM NZ managed estate are provided in the HFM NZ planning guide documents attached in Appendix V:

- HFM NZ Guidelines for Planning and Managing Operations around Streams
- HFM NZ Guidelines for Managing Visual Landscape Impacts of Operations

For further guidance on identifying environmental values and operational planning from an environmental perspective refer to Parts 2 and 3 of the NZ Environmental Code of Practice for Plantation Forestry (Recognising Environmental Values and Planning for Good Environmental Outcomes).

5.5.2.3 Assessment of Environmental Risk

Every operation must be assigned an Environmental Risk Rating by the Planner of the operation according to the environmental values/issues present and the risk to those values as follows:

- High Risk: Significant environmental values and /or potential issues present witha high risk of damage or disturbance to those values. The consequences of a poorly managed operation are significant.
- Medium Risk: Significant environmental values and/or potential issues present with a low risk of damage or disturbance to those values and/or less significant environmental issues present.
- Low Risk: No significant environmental values and/or issues are present. The risk of any adverse environmental effects is minimal.

The Matrix in Table 5.1 provides a guide to assessing the Environmental Risk.

The Environmental Risk rating must be clearly stated on the work prescription/harvest plan map as a guide to the overall level of risk, and is also used to determine the level of auditing required.

Table 5.1: Guide to Assessment of Environmental Risk Category

• **Values/issues associated with operation which includes consideration of:**Erosion Susceptibility Classification • Catchment risk classifications • Waterways, riparian vegetation and aquatic habitat • Archaeological and cultural sites/values • Downstream neighbour or community water supply • Rare, threatened or endangered species habitat or breeding area • Geothermal areas • Erosion-prone features (gully heads, earthflows or slips etc.) • Potential for slash and or sediment mobilisationFlood hazard areas • Protected Native vegetation including wetlands • Neighbours (fences, susceptible crops, stock) • Public utilities • Registered or protected reserve areas (e.g. Accord, SNA, QEII, Nga whenua Rahui, Biodiversity areas) •	**Values/Issues Present**	**Likelihood of Damage or Disturbance to Values**		
		Low risk of damage/ disturbance	**Moderate risk of damage/ disturbance**	**High risk of damage/ disturbance**
	No significant values/issues present	Low Environmental Risk	NA	NA
	Moderate values/issues present	Low Environmental Risk	Medium Environmental Risk	High Environmental Risk
	Significant values/issues Present	Medium Environmental Risk	High Environmental Risk	High Environmental Risk

5.5.2.4 The Harvest Plan or Work Prescription

The Harvest Plan or Work Prescription must clearly identify any specific and unusual aspects of the block, and clear direction as to how they are to be managed, over and above the HFM NZ Environmental Standards.

The Harvest Plan or Work Prescription must include:

- A map that clearly identifies the location and extent of all environmental issues and risks that the contractor must be aware of to undertake the operation.
- The Environmental Risk rating for the operation.
- The erosion susceptibility classification (ESC) as a separate map if more than one classification shows on a harvest area or a note on the map stating the zone (green, yellow, orange or red).
- Clear identification of any regulatory rules that apply to the operation: NES-PF rules, resource consents, regional or district plan permitted activity rules, Heritage NZ Authorities, NES-PF).
-
- Identify any registered drinking water supply located in the forest and within 1km downstream of the activity.
-
- Details of archaeological sites and instructions regarding operations in their vicinity.
- Instructions regarding slash management.
- Specific controls on setbacks from waterways, reserves etc. where more stringent than the generic Environmental Standards.
- Instructions relating to the protection of rare, threatened or endangered species habitat.
- Instructions relating to operations that could potentially impact on utilities.
- Reference to lease or relevant clauses of leases e.g. notification.
- Community agreements e.g. speed or timing restrictions.

Harvest Plans must be signed off by the planner, the Environmental Forester and delegated representatives from the harvesting and forestry teams.

5.5.2.5 Amendments to the Harvest Plan / Work Prescription

If the Contractor or HFM NZ Forester establishes that an amendment to operations plan/prescription is required, the following processes must be followed.

For significant changes:

- All intended changes to the plan/prescription must be documented on or attached to the 'Amendment to Operations Plan/Prescription' form attached in Appendix III.
- A check must be carried out that the proposed amendment is in accordance with the conditions of any Resource Consent or Heritage NZ Authority relevant to the operation or within thresholds in the NES PF. If not, then an application for change to consent conditions/authority will need to be lodged with Council/Heritage NZ.
- The HFM NZ Planning Manager or delegated representative must approve all intended changes. Changes to roads and landings should be signed off by the Planning/Engineering Manager.
- The HFM NZ Forester managing the operation notifies the Contractor of the decision to approve, modify or decline the proposed amendment. For major changes an updated work prescription will be provided.
- The completed form and any associated documentation must be filed on the relevant Operations File and with Council as required.

Significant changes include:

- relocation or omission of a planned road or landing

- changes to the method of harvest (ie hauler to groundbase or vice versa).
- significant changes to hauler setting boundaries
- construction of new stream crossings not shown on the harvest plan
- construction of new tracks not shown on the harvest plan in any land classified as red zone.

Minor changes to the harvest plan may be approved on site by the HFM NZ Forester responsible for the operation, but should also be documented via a file note and a signed note on the contractors harvest plan.

5.5.3 Documentation

An original copy of the harvest plan or work prescription, along with any amendments to the plan, results of operation audits and correspondence relating to the operation, are to be placed on the Operations File for that operation.

5.5.4 Associated Documents

- HFM NZ Guidelines for Planning and Managing Operations around Streams
- HFM NZ Guidelines for Managing Visual Landscape Impacts of Operations
- Parts 2 and 3 of the NZ Environmental Code of Practice for Plantation Forestry

6. Erosion and Debris Movement Risk Assessment and Mitigation Procedure

6.1 Purpose

This procedure provides a process for identifying and managing the risk of erosion and debris movement on forest land following harvest.

6.2 Background

Many of HFM NZ's forest were originally established to control erosion that was occurring under previous land uses. Plantation forest cover significantly reduces erosion risk during the growing period, however it is well understood that a period of risk exists following harvest, when erosion susceptibility returns to levels similar to that of pasture. This is due to combination of the breakdown of the roots of the harvested crop that were reinforcing the soil and removal of the tree cover that intercepts rainfall.

For radiata pine forests studies have shown that the period of greatest vulnerability is typically in the period 1 to 6 years following harvest, until the subsequent tree crop achieves canopy closure and full root occupancy. This is commonly known as the 'window or risk' or 'window of vulnerability' (refer Figure 6.1).

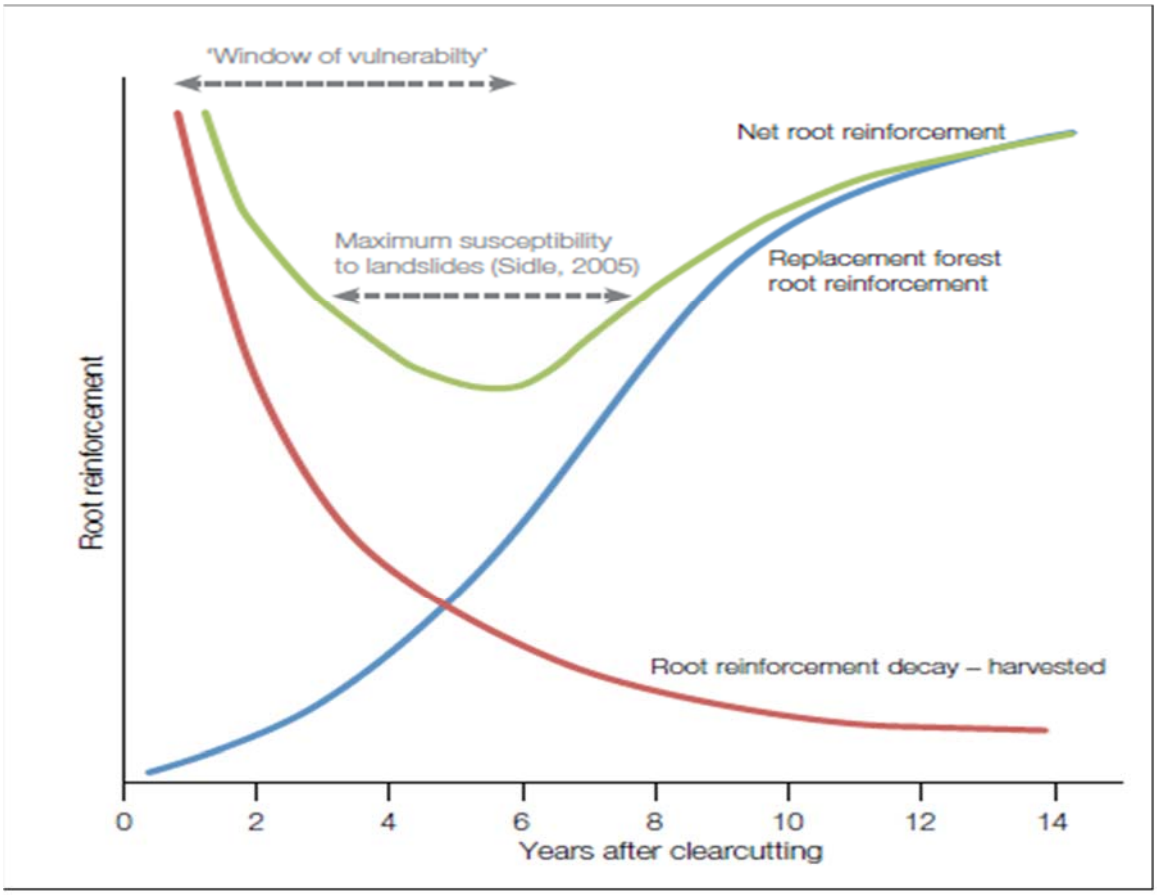


Figure 6.1: *Typical changes of forest vegetation root strength after harvest showing the 'window or risk' (source: Phillips et al, NZIF Journal, August 2015)*

Where forests are located on erodible geology there is a significant risk of accelerated erosion and associated debris movement, particularly if a high intensity rain event occurs during the window of risk following harvest.

Both erosion and debris movement can result in loss of productive area and significant degradation of the downstream environment (infilling of waterways, sediment loss and loss of habitat). Where houses or infrastructure are located within the downstream flood plain it can also present a risk to infrastructure and put human lives at risk. While management practices can mitigate some of the risk factors, it is not possible to completely eliminate the risk of either erosion or debris movement.

The purpose of this procedure is to assist HFM NZ staff to identify those areas within the estate with a high risk of erosion and debris movement, and in particular where such movement could have serious consequences, and put in place processes to ensure risks are mitigated risks as far as is practical.

6.3 Procedure

6.3.1 Identification of high risk areas

HFM NZ has two key tools for identification of high risk erosion and debris movement areas:

- Erosion Susceptibility Classification (ESC) mapping**:** ESC mapping carried out for the National Environmental Standard for Plantation Forestry (NES) is underpinned by Land Use Capability (LUC) mapping produced under the NZ Land Resources Inventory. Under the NES each LUC unit has been assigned to one of four risk classifications – Green (low), Yellow (medium), Orange (high) and Red (very high). The ESC risk assessment reflects the erosion risk of the land when being used for production forestry.

- Catchment risk assessments carried out by HFM NZ: All catchments in the HFM NZ estate have been mapped in the GIS system and assessed taking into account:
    - Erosion susceptibility (based on ESC and LUC descriptions)
    - Soil mapping
    - Catchment topography
    - Land cover (productive, native, wetlands etc.)
    - Potential for slash delivery to waterways based on topography
    - Presence of significant riparian vegetation or wetlands to mitigate risk
    - Potential for slash to move off site and any natural slash traps such as wetland areas
    - Stream order and ability to transport material (size and gradient)
    - Degree of base flow of the waterway and observed responsiveness to storm events
    - Downstream risks (houses, farms, highways, vulnerable infrastructure etc)
    - Sensitivity of the receiving environment (waterways with high biodiversity or recreation use).
    - Knowledge and observations of past erosion and slash movement events.

  Based on these factors each catchment has been assigned a risk rating of either low, medium or high. Catchment boundaries and overall risk assigned is available in the 'Water Catchment' layer in the company GIS mapping system.

For more detailed information about each catchment the overall Catchment Risk assessment is summarised in a spreadsheet located on the G drive:
G:\ \Environmental\Environmental Team Files\3. EMS (1053)\Catchment Risk Assessments

Any area of the estate that has been mapped as either of the following has been deemed to be a 'High Risk' of erosion and offsite debris movement.

High Risk:
- Red Zone under the NES PF or
- A High Risk catchment under the catchment risk assessment process

The following procedures provide further operational guidance to ensure appropriate controls are put in place to recognise and mitigate this risk.

6.3.2 Catchment Constraints

Each catchment that has been identified as a High Risk catchment has been considered individually and appropriate catchment clearance limits assigned to limit the area of the catchment that can be harvested within a given period.

The only High Risk catchments that are not assigned clearance limits are catchments that are either very small, or have a high proportion of native forest cover.

Limits have also been assigned to very large catchments with a high proportion of productive area regardless of the assessed risk, on the basis of potential impacts on water quality.

Catchment limits have been assigned as a percentage of area that can be harvested over a given period – generally 3 or 6 years.

6.3.3 Long Term Planning and Woodflow Scheduling

Catchment clearfall limits from the catchment risk assessment have been entered into the Woodstock forest estate model and constraints are imposed on the plan by defining the maximum areas that can be harvested in any specified period. When the long term plan is run in Woodstock a file is generated which details any of the constraints that could not be achieved by the model. This includes any breaches of the clearcut limits. Each of the clearcut limit breaches must be investigated and the long term plan adjusted to remove the breach.

In some instances there will be practical reasons to exceed the limit (e.g. very minor breaches or timing limits on harvest).

Any agreed breach of the catchment limits must be signed off by the Environment Manager.

6.3.4 Harvest scheduling

The harvest scheduling tool has a field that indicates any Harvest Area that has a catchment constraint applied. When adjusting the harvest schedule if the Harvest Area is indicated as having a catchment constraint, the timing of harvest can only be shifted once a check has been carried out to ensure the catchment limits will not be breached as a result of the change.

An Integrity Report is regularly run by RST which will identify and variances to plan for areas with catchment clearance limits, to ensure that catchment clearance limits are not inadvertently breached.

6.3.5 Harvest Planning

As part of the harvest planning process, Harvest Planners must check:

- The assigned Catchment Risk for all catchments in the harvest area, and if High Risk, the reason for assigning the catchment high risk (refer Forest and Land 'Water Catchment' layer).
- The Erosion Susceptibility Classification under the NES (refer Forest and Land 'NES Erosion Susceptibility' layer).
- Aerial photography and LiDAR mapping (where available) must also be checked as part of the planning process to identify any pre-existing erosion features.

Where any harvest area contains either a high proportion of Red Zone land, or a catchment described as High Risk, this must be a primary consideration in the planning process, to ensure risks are mitigated as far as possible.

This should include:

- Careful location of roads, landings and harvest tracking to avoid as far as practical any significant pre-existing erosion features that could be destabilised by earthworks.
- Avoiding side casting on slopes over 25 degrees (end hauling cut material to a secure location).
- Careful consideration of slash management and identification of non-slash disposal areas.
- Selecting the method of harvest to minimise earthworks and disturbance to steep slopes as far as possible.
- In High Risk catchments where offsite slash movement is an identified risk:
    - Consider the method of harvest to limit as far as practical hauling over high risk waterways contributing slash build up, particularly in areas where it will be difficult to remove from the waterway after harvest.
    - Ensure a clear plan is in place for managing slash that enters waterways
    - Review any pre-existing wind throw areas in high risk locations to assess the risk of slope failure delivering debris to waterways after harvest. If this is considered an issue it should be identified in the harvest plan.

Any harvest area that contains either a high proportion of Red Zone land, or a catchment described as High Risk must be:

- Assigned an overall Environmental Risk Rating of 'High' with text in the environmental notes clearly describing the reason for this (refer section 5.5.2).
- Signed off by the Area Manager

6.3.6 Engineering Operations

When constructing new infrastructure in red zone or high risk catchments, risk of slope destabilisation and earthworks failure must be a key consideration in the design and construction of the earthworks.

This should include:

- Giving careful consideration to the location of roads and landings to avoid as far as practical any pre-existing erosion features that could be destabilised by earthworks (eg undercutting of toe slopes or overloading vulnerable slopes with fill).
- Avoiding major fill construction on slopes over 25 degrees as far as practical

- Avoiding side casting on slopes over 25 degrees (end hauling cut material to a secure location).
- Giving careful consideration to the size and location of water controls on roads and landings to ensure stormwater is controlled and discharged to stable locations. The goal is to disperse flows at multiple smaller locations, rather than concentrating flows to one location increasing the erosive force.
- Ensuring the design, size and construction of stream crossings takes into account the risk of high flows and debris movement.
- Mulching or hydro-seeding of fill areas to speed up vegetative cover.

On land mapped as Red Zone, any new capital earthworks construction located on an area with a predominant slope over 25 degrees must have a full RoadEng design and be peer reviewed by a Senior Engineer (HFM NZ Engineering Manager or consultant engineer).

6.3.7 Harvesting Operations

When harvesting in Red Zone areas or catchments assigned High Risk, this must be clearly notified to the harvesting crew during the induction and hazard ID process prior to commencement, to ensure they have a full understanding of the risks involved during the job. Specific issues and their controls must be documented on the Induction and Hazard ID form for the Harvest Area.

During the operation key areas of focus must include:

- Ensuring there is a clear plan for the management of slash on landings to ensure birds nests do not build up in areas that could lead to slope failure.
- Ensuring there is a clear plan for the management of slash build up in waterways, to ensure that slash is proactively managed during the operation.
- Prompt removal of any slash from high risk areas during the operation and at the conclusion of operations in each area.
- Ensuring all water controls including culverts and fluming are not damaged and remain open and working during the operation.
- Careful consideration of the location of any new harvest tracking to avoid areas that could destabilise slopes.
- Prompt rehabilitation of any harvest and backline tracking as soon as it is no longer needed for the harvesting operation.
- Consideration of the installation of slash traps if there is a high risk of offsite slash movement.
- Minimising soil disturbance as far as practical.

In any Red Zone or High Risk catchment any new harvest tracking not shown on the harvest plan, must be signed off by the HFM NZ Harvesting Forester.

6.3.8 Replanting

When planning replanting of any area mapped as Red Zone under the NES or a catchment identified as High Risk, the area must be specifically reviewed by the Establishment Forester in consultation with the Environmental Forester, to assess the merits of replanting and to review replant boundaries.

Specific consideration should be given to:

- The risks and merits of replanting the area taking into account the observed effects of harvesting the current crop and any onsite and offsite risks associated with future harvest of the block.

- Retirement of any areas showing excessive erosion or unacceptable debris movement risk.
- In Red Zone areas consideration of:
    - Alternative species to replant to assist with soil stabilisation - longer rotation and/or coppicing species or species with slower root break down will reduce future risk.
    - Replant stocking rates – increased stocking rates will speed up the transition to canopy closure, slightly reducing the length of the window of vulnerability
- Creation of increased setbacks where this will assist to mitigate erosion or debris movement during future harvest.
- The method of establishment (eg use of spot releasing and oversowing, as an alternative to blanket desiccation).
- If suitable locations exist to trap debris (flood plains within the forest), consideration of planting alternative wind firm species to be retained as permanent cover to assist debris trapping during future harvest.

6.3.9 Post Operation Monitoring

Any areas that are mapped as Red Zone under the NES or any catchment identified as High Risk, must be monitored following harvest by the Environmental Forester:

- At least 6 monthly following harvest and following any major storm events, until 12 months following the final release operation.
- For red zone areas, annually thereafter and following any major storm events for a period of at least 6 years (requirement of the FSC NZ National Standard Indicator 6.7.14).

The monitoring process must be documented with photo points set up to monitor any erosion and catchment recovery.

7. Managing Environmental Requirements during Operations

7.1 Introduction

This section of the EMS summarises the key requirements that must be complied with when undertaking harvesting, engineering or forestry operations on HFM NZ managed lands to ensure compliance with HFM NZ and legislative requirements and to minimise impacts on the environment as far as practical.

7.2 Operations Induction and Hazard Identification

7.2.1 Introduction

All operations carried out on HFM NZ managed lands must have an induction and hazard identification completed prior to commencement, so as to ensure that all environmental risks and hazards in the block are clearly understood and suitable controls are in place to manage all risks, and understood by all personnel on site.

The HFM NZ Forester managing the operation is responsible for undertaking and documenting the induction and hazard identification with the contractor prior to commencing operations.

7.2.2 Procedure

Prior to commencing an operation the HFM NZ Forester responsible for the operation must carry out an induction with the contractor, to ensure a full understanding of the harvest plan or work prescription.

The induction process must include a comprehensive Hazard Identification process to identify all health and safety and environmental hazards present in the block as described in Section 4.2 of the Health and Safety Management Systems Manual.

All Environmental Hazards in the block, and their controls, must be clearly documented.

The Induction and hazard ID forms must be signed by the HFM Forester responsible the operation and the Contractor, with a copy kept by both.

The contractor must communicate the applicable requirements of the Work Prescription and the environmental hazard ID control plan to all of their direct employees and sub-contractors where applicable.

The Contractor retains the signed control plan. One copy must be kept on site or be available to the contractor at all times in a location known to the entire crew.

A copy of the completed Area Induction Form must be filed on the relevant Operations File.

The Hazard ID should be periodically updated by the contractor as any additional hazards become apparent on site during the operation as part of daily hazard ID processes. In particular a repeat Hazard ID should be carried out if weather or ground conditions deteriorate significantly at any point in the operation.

7.3 Contractor Requirements during Operations

The contractor is required to have systems in place during the operation to ensure compliance with the following requirements and ensure all staff members on site are aware of these requirements:

- Resource Consent(s): A copy of all relevant resource consents will be provided to the contractor, generally contained within the HFM NZ Environmental Management System Contractor's Summary or the harvest plan.
- Permitted activity rules: A copy of any applicable rules that need to be complied with (noting that these have been incorporated into the HFM NZ Environmental Standards).
- All HFM Environmental Standards relating to that operation (refer section 7.2.4). Again these will be provided to the contractor, and will generally be contained in the HFM NZ Environmental Management System Contractor's Summary.
- Harvest Plan or Work prescription requirements. The work prescription details site specific requirements and controls for a particular harvest area or operation, over and above the generic Environmental Standards.
- Specific controls identified during the Hazard ID process at the start of the operation.
- Relevant requirements of the EMS as summarised in the Environmental Management System Contractors Summary, including:

7.4 Environmental Standards

HFM NZ has developed a list of company Environmental Standards for each type of forestry operation.

HFM NZ Environmental Standards have been developed for:

- Harvesting Operations
- Engineering Operations
- Fuel and Oil Handling & Storage
- Waterway Crossings
- Mechanical Land Prep
- Agrichemical Application
- Burning
- Planting
- Pruning and Waste Thinning
- Fertiliser Application
- LTO Holders

When undertaking an operation, all of the Environmental Standards that relate to that type of operation must be complied with.

The Environmental Standards are attached as Appendix III.

8. Environmental Audit Procedure

8.1 Introduction

HFM NZ undertakes a hierarchy of routine auditing during and following operations to ensure operations are carried out in compliance with the work prescription, legal and company requirements and to identify any issues requiring remedial action. The following procedure sets out the process and recommended timing for undertaking audits of HFM NZ managed operations.

This procedure applies to all harvesting, engineering and forestry operations undertaken on HFM NZ managed forests.

8.2 Operations Audits

8.2.1 General

Auditing is required to be carried out by both the Contractor and HFM NZ Foresters. The appropriate frequency of auditing is based on the level of risk of the operation (type of operation and assigned Environmental Risk). The purpose of audits is to:

- Confirm compliance with the work prescription, legal requirements (including resource consent conditions and permitted activity rules) and any subsequent instructions from HFM NZ, and;
- Identify any corrective actions required, including engineering rehabilitation work.

The minimum frequency of environmental audits is detailed in the following sections.

8.2.2 HFM NZ audits of operations

The HFM NZ Forester managing the operations must audit the operation to confirm compliance. Where possible the final audit should be carried out with input from a representative of the contractor.

The minimum frequency of auditing of operations by the HFM NZ Forester is detailed in Table 5.1. Post-operation audits may be carried out in conjunction with the Contractor post operation audit and documented on the same form if preferred.

Table 5.1: Minimum Frequency of Environmental Audits by HFM NZ Forester

Operation	Environmental Risk	Minimum Frequency & Timing of audits	
		In process (Operations) audits	Post-operation audits
Harvesting	High and Medium	Monthly	On completion
	Low		On completion
Engineering Construction	High and Medium	Monthly	On completion
	Low		On completion
Forestry Operations	High		On completion
Aerial herbicide application	High		As soon as possible after the effects of the chemical are visible.

Active Quarries	All	6 monthly	When ceasing quarry operations
Superskids & Processing Yards	All	6 monthly	On completion of operations

The results of the audit and any necessary corrective actions must be documented using the HFM NZ Environmental Audit Forms appropriate to the operation and signed by the HFM NZ Forester managing the operation, and the relevant contractor if present.

The audit will include an assessment of the overall environmental performance of the operation.

The HFM NZ Forester managing the operation is responsible for:

- tracking and closing out any corrective actions arising from the audit
- signing off satisfactory completion of corrective actions
- passing on engineering requests to the Forest Engineer where required
- passing on handover management (e.g. landing management, areas to retire etc.) where required.

If the finished operation does not meet the required standard and the crew has moved, then the Contractor will generally be required to return at their own cost to complete any outstanding/unsatisfactory works.

One copy of the Audit Form must be retained on the appropriate Operations File, and a copy provided to the Contractor, as required. Confirmation of close out of corrective actions must also be filed on the Operations File.

The results of audits will be used as a component of Contractor performance assessments.

8.3 Environmental Systems Audits

The Environmental Forester undertakes Environmental Systems Audit of each contractor (and for harvesting each crew), at least once every two years. The audit will include assessment of the Contractors environmental systems to ensure compliance with the HFM NZ EMS including:

- Training
- Auditing
- Systems to ensure compliance with work prescriptions and HFM NZ Environmental Standards
- Reporting of incidents
- Management of fuels/oils and hazardous substances
- Understanding of FSC and NZS AS 4708
- Waste disposal

Contractors to be audited include:

Operation	Auditing type
Forestry	• agrichemical use and storage • hazardous substance storage including toxins • thinning to waste operations
Engineering	• earthwork contractors quarrying
Harvesting	• individual crews
Distribution	• principle contractors

The audit will be documented using the HFM NZ Environmental Systems Audit form and signed off by the Environmental Forester and Contractor. A copy will be provided to the HFM Forester managing the Contractor, and the relevant functional Operations Manager.

A copy of the audit is filed electronically on the G drive folder:
G:\Environmental\Operations Files\Auditing\Environmental Systems Audits (sorted by region and year).

8.4 Internal Environmental Audits

Internal Environmental Audits are carried out at least once every year to assess compliance of all HFM NZ operations with the EMS. This will generally be carried out regionally.

The purpose of the audit is to:

- Confirm compliance with the operational requirements of the HFM NZ Environmental Management System (EMS) and the relevant plan rules and resource consents
- Identify areas of potential improvement and areas of notable practice

The audit schedule will be managed by the Environmental Manager, ideally using a different combination of auditors each year drawn from the environmental and operations teams from different regions.

9. Management of Historic Sites and Wahi Tapu

9.1 Introduction

HFM NZ's forests contain a range of historic sites and wahi tapu arising from historic occupation and use of the land. Many of these sites are protected by law under the Heritage NZ Pouhere Taonga Act and the Resource Management Act (through rules in Regional and District Plans). Other sites are not legally protected, but require protection through agreement with landowners or tangata whenua, or are simply deemed worthy of protection by HFM NZ.

It is the goal of HFM NZ to protect sites as far as practical during operations, and to establish appropriate marking and replant boundaries to ensure their protection in future.

This procedure applies to the management of:

- All sites that meet the definition of an archaeological site under the Heritage New Zealand Pouhere Taonga Act 2014 (refer definitions section)
- Wahi tapu sites identified by tangata whenua as requiring protection
- Other historic sites not protected by legislation but recorded in the company GIS system and deemed worthy of protection for historic or cultural reasons

The procedure applies to all operations which could potentially damage or impact on historic sites and wahi tapu including earthworks, harvesting, planting, silviculture and spraying operations.

9.2 Procedure

9.2.1 Planning operations around historic sites

Whenever planning an operation in an area, the planner must review the GIS restrictions layer to identify all known historic sites in the area, including sites located just outside of the operation area that could be impacted.

Where first operations are taking place in a forest, even if no sites are recorded in the forest, advice should be sought from an archaeologist regarding the likelihood of any unidentified sites being in the area. The archaeologist will advise whether field work should be undertaken, and /or a precautionary Heritage NZ Authority applied for on the basis of the high potential for uncovering archaeological evidence while harvesting.

Where sites are present the Harvest Planner must:

- Seek advice from the Environmental Forester regarding the management requirements for known sites.
- Discuss the possible damage from planned operations with the Environmental Forester and clarify the need for a Heritage NZ Authority if damage may occur.
- Clearly mark archaeological sites on operational maps, and specify requirements for managing the sites in the operation work prescription (including any Heritage NZ Authority conditions).

The Environmental Forester must:

- Assess the quality of archaeological site survey information for the area. If previous surveys were not comprehensive and there is a high likelihood of encountering new sites

(e.g. coastal areas) consider arranging an up to date archaeological survey of the area prior to commencement of operations.

- Obtain advice from an archaeologist regarding the management of known archaeological sites in the area of the operation. If necessary arrange a site visit and site assessment report.
- In consultation with the archaeologist determine the need for a Heritage NZ Authority to complete the proposed operations.
- Consult with tangata whenua representatives regarding the management of historic sites of maori origin and wahi tapu.
- Arrange a site visit where required. Where a Heritage NZ Authority is required arrange for feedback to be provided, which may include a Maori Values Assessment.
- Where required, seek a Heritage NZ Authority at least four months prior to commencement of operations to avoid delays to operations.
- Provide advice to the HFM Forester regarding the management requirements for the known sites, including Heritage NZ Authority conditions.

9.2.2 Carrying out operations around known historic sites

Prior to commencing work in an area with identified historic sites or wahi tapu;

The Environmental Forester must:

- Arrange to have sites clearly marked in the field prior to commencement of operations.
- For harvesting operations co-ordinate the preparation of a plan for removing trees from the site with input from the archaeologist, tangata whenua, HFM forester and contractor. For more complex sites the falling plan should include a diagram of the site showing falling and extraction methods, direction of fall, machine access routes.
- Clarify any requirements for notification of iwi, on site supervision, pre-commencement blessings etc. and liaise with the HFM Forester to ensure this occurs.
- After completion of the operation, arrange Post Operation Audits of sites where required by a Heritage NZ Authority and submit to the Heritage NZ.

The HFM Forester responsible for the operation must:

- Through the induction and hazard ID process ensure the contractor has a clear understanding of the location of archaeological sites, and understands the requirements for carrying out operations around those sites including any Heritage NZ Authority conditions and agreements with tangata whenua.
- Document processes for management of the site in the site hazard ID form.
- Monitor the operations to ensure all conditions are complied with.
- Liaise with the Environmental Forester regarding timing of any site supervision, blessings etc. as required.

The Contractor must:

- Review the Work Prescription and ensure the location of archaeological sites and requirements for carrying out operations are clearly understood by all relevant operational staff.
- Ensure all archaeological sites shown on operations maps can be located in the field, and are clearly taped. If this is not the case notify HFM NZ to get sites marked in the field before commencing operations.
- Undertake all operations in accordance with the harvest plan, the Heritage NZ Authority and any further instructions from HFM NZ.
- If supervision of the operation or a site blessing is a requirement of the Heritage NZ Authority, notify the HFM Forester prior to the proposed commencement of operations in the area of the site.

- Notify HFM NZ immediately if a site is accidentally damaged, or if the correct procedures have not been followed.

9.2.3 Discovery of a suspected new historic site

The difficulty of locating archaeological sites under forest vegetation means that archaeological surveys often cannot locate all of the sites in a forest, and new sites are regularly discovered during operations.

In the event of finding a potential new site in the field the contractor must:
- Immediately stop work within 30m of the identified feature.
- Clearly tape or mark the site in the field with plastic tape or paint.
- Notify HFM NZ.
- Ensure all members of the crew are aware of the discovery and its location.
- Await further instructions from HFM NZ before recommencing work in the area.

The HFM NZ Forester responsible for the operation must:
- Notify the Environmental Forester as soon as possible that a site has been discovered.
- Provide instructions to the contractor regarding the management of the site and amend the Work Prescription, if necessary.

The Environmental Forester must:
- Arrange the site to be visited by the archaeologist to confirm that it is an archaeological site.
- If the site is confirmed as an archaeological site, arrange for the archaeologist to complete a site assessment and prepare instructions for completing operations around the site.
- If it is a Maori site, notify tangata whenua representatives and arrange a site visit as appropriate.
- In consultation with the archaeologist determine the need for a Heritage NZ Authority to complete the operations.
- Where required, seek an urgent Heritage NZ Authority to allow work to continue.
- Arrange for the new site to be entered into the GIS system.
- In the event that a site is discovered during harvesting, ensure the forester planning subsequent forest establishment operations is aware of the site, in case there is a delay in data entry into GIS.

9.2.4 Marking of historic sites in the field

9.2.4.1 Suspected New Site

Ideally tape around the full perimeter of the suspected site at waist height, using yellow 'historic site' tape. If historic site tape is not available, use an appropriate alternative but ensure that it is replaced as soon as is practicable with yellow 'historic site' tape. If the site is too large, tie tape around the perimeter trees, ensuring the extent of the site is clear.

If the site is found to be a natural feature, the tape must be completely removed to avoid confusion (preferably by the Environmental Forester or archaeologist).

9.2.4.2 Confirmed Sites

Confirmed sites must be clearly marked in the field, particularly prior to harvesting and earthworks operations using:
- Historic Site tape.

- White archaeological site marker posts.

On completion of harvesting the Environmental Forester will arrange for permanently marking of the site with white plastic archaeological site marker posts (note: yellow, white and unpainted fence posts have been used in the past). For significant sites such as Pa Sites, fencing may be advisable (discuss with Iwi representatives and the archaeologist).

9.2.5 Post-harvest Site Management

A final post-harvest management plan should be compiled by the Environmental Forester with input from Operational staff, tangata whenua and the archaeologist.

It is standard practice to retire any harvested historic sites from production with a minimum replant setback of 5m from the nearest site features or as required to avoid damage in future harvest. Occasionally it is appropriate to replant recorded sites however this may only be carried out under recommendation from the archaeologist and with agreement from tangata whenua for sites of maori origin.

Where sites have been retired, the Environmental Forester should liaise with forestry staff to arrange for wilding pine regeneration to be cleared during subsequent forestry operations such as thin to waste.

For more significant sites such as pa or urupa advice should be sought from tangata whenua and the archaeologist regarding ongoing management preferences.

9.3 Training

All contractor employees commencing work in forests with high concentrations of archaeological sites must have received archaeological site training prior to commencing work in the area. An appropriate induction should be conducted by the Environmental Forester and an archaeologist, where necessary and will cover:

- Requirements of the Heritage New Zealand Pouhere Taonga Act 2014.
- HFM NZ Management of Historic Sites and wahi tapu.
- Practical training on site, identifying typical historic features found in the area.

9.4 Records

All site locations are to be recorded in the GIS restrictions layer, including details of the site type, NZAA number and file in which site information is held.

On occasions archaeological sites or wahi tapu may be identified in the forest, details of which stakeholder groups such as tangata whenua may wish to remain confidential. In such situations a ‘silent file’ may be created. A restriction would be entered into GIS showing the site location and referencing a file held by the stakeholder group, with an HFM NZ contact name as liaison.

Record	Location	Responsibility	Retention
Site location	GIS Restrictions layer	GIS staff	
NZAA Site Record Form	2668-A file for the forest Kinleith – 0925 file series Tiaki – Historic Places File Electronic copies held on the G drive: G:\Environmental\ Operations Files\ Restrictions Information\ Archaeological sites	Environmental Forester	Archive
Field Visit Records	2668-H file for the forest G:\Environmental\ Operations Files\Forest Files	Environmental Forester	10 years
NZ Historic Places Trust Authorities	2668-H file for the forest G:\Environmental\ Operations Files\2. Consents, Heritage NZ Authorities & PA rules	Environmental Forester	Archive
Details of confidential sites	Silent file held by tangata whenua	Tangata whenua	Archive

10. Hazardous Substances Management

10.1 Introduction

HFM NZ is committed to managing the use and storage of hazardous substances so as to minimise impacts on the environment and comply with regulatory requirements and the requirements of independent certification.

The following procedure applies to all hazardous substances transported, stored or used on HFM NZ land.

10.2 General Requirements

The transport, storage and use of hazardous substances on HFM NZ land must be carried out in accordance with all relevant regulatory and company requirements including:

- NZS 8409:2004 Management of Agrichemicals
- All relevant regulatory controls including and controls arising from the EPA Environmental Protection Authority) approval for the substance
- Approved Code of Practice for Safety and Health in Forest Operations (refer ACoP Section 9)
- HFM NZ Environmental Standards
- FSC and PEFC requirements

All staff and contractors managing hazardous substances shall hold the appropriate qualifications for the use of that hazardous substance (refer section 18.2).

10.3 Approved Chemicals Register

Only chemicals on the HFM NZ 'Approved Chemicals Register' may be used on the HFM NZ managed estate.

A copy of the current Approved Chemicals Register is held on the G drive, in the folder G:\Environmental\Environmental Resources\ Chemicals.

If a forester wishes to use a chemical not currently on the Approved Chemicals Register, they must inform the Technical Forestry Manager and seek approval. The Technical Forestry Manager will undertake a full assessment of the chemical using all available information, to establish the level of hazard presented by the chemical, the relevant approvals for use in NZ (including EPA, FSC and PEFC requirements) and any conditions of those approvals. If the Technical Forestry Manager assesses that the chemical is acceptable for use in the HFM NZ estate, it will be added to the HFM NZ Approved Chemicals Register.

10.4 FSC Pesticides Requirements

10.4.1 Highly Hazardous Pesticides

Criterion 10.7 of the FSC Principles and Criteria requires the use of integrated pest management and silvicultural systems which avoid, or aim to eliminate, the use of chemical pesticides. FSC recognises that in certain circumstances the use of chemical pesticides may be the only feasible way of controlling a pest, weed or disease problem. In such instances the requirements of FSC are set out in the FSC Pesticides Policy (FSC-POL-30-001 V3-0 EN) summarised below.

FSC undertakes an assessment of all pesticides against a standard set of hazard criteria and publishes a list of all pesticides that are identified as highly hazardous. The list break highly hazardous pesticides into three categories:

- Prohibited
- Highly Restricted
- Restricted

The lists are regularly reviewed and updated. The current FSC Pesticides Policy and list of highly hazardous pesticides are both saved on the G drive in the folder G:\Environmental\Environmental Resources\Chemicals\FSC Requirements.

Prohibited pesticides must not be used within the HFM NZ managed forest estate, other than in an emergency (eg a biosecurity incursion managed by MPI). Under the FSC rules, use external to the estate such as at third party nurseries and export ports are not covered by the pesticides policy.

When undertaking use of highly restricted or restricted chemicals HFM NZ must first undertake an assessment of whether there is a less hazardous alternative.

If no feasible alternative exists there are several scenarios that must be followed:

1. Pesticides for which a current derogation is held by HFM NZ (1080 and Alpha-cypermethrin): Continue to operate under derogation until it expires, or is replaced by new national indicators. Application of these chemicals on the HFM NZ managed estate must be carried out in compliance with the conditions of the derogations, which includes a requirement that HFM NZ report annually on the volume of each chemical used on the estate, the methods used, and progress made toward reducing/eliminating the use of these chemicals. Copies of the current derogation approvals are held on the G drive G:\Environmental\Environmental Resources\Chemicals\FSC Requirements\Current FSC Chemical Derogations.

2. Pesticides previously listed including those with expired derogations: On expiry of current derogations an Environmental and Social Risk Assessment must be completed for the pesticide in accordance with the FSC Pesticides Policy.

3. All newly listed pesticides and pesticides not listed as highly hazardous: From 1 August 2020 an Environmental and Social Risk Assessment must be completed for all pesticides prior to their use in the forest, including those chemicals that have been added in the latest update to the FSC lists, and pesticides not currently listed.

10.4.2 Environmental and Social Risk Assessments

As outlined above the FSC Pesticides Policy requires Environmental and Social Risk Assessments (ESRAs) to be completed for all pesticides. The requirements for ESRAs are detailed in Annex 2 to the FSC Pesticides Policy.

In the long term:

- FSC will develop International Generic Indicators (IGIs) for the use and risk management of HHP's for each hazard group of HHP.
- The NZ FSC Standard Development Group will incorporate the IGIs into a national risk assessment and develop NZ specific thresholds and conditions for use
- Companies will be required to undertake ESRAs at a company level taking into account the IGIs and national requirements

In the interim period HFM NZ has completed ESRAs. These will be updated as international and national requirements come into place.

Copies of current ESRAs are saved in the folder G:\Environmental\Environmental Resources\Chemicals\ESRAs

The Environment Manager is responsible for keeping up to date with any changes to the FSC Pesticides Policy or highly hazardous chemicals list affecting HFM NZ operations, and notifying the Technical Forestry team and relevant operations foresters of any such changes.

10.2.3 NZS AS 4708 / PEFC Requirements

PEFC prohibits the use of all WHO Class 1a and 1b chemicals unless no other viable alternative exists.

NZ Forest Certification Association (NZFCA), as National Governing Body for PEFC in New Zealand, has approved a Directive creating an exemption to this ban for the use of 1080 by external parties in accordance with the Biosecurity Act.

A copy of the latest WHO Class 1a and 1b pesticides, and the NZFCA exemption are saved on the G drive (refer section 10.4 below).

10.3 Chemical Reduction Strategy

Criteria 6.6 of the FSC Principles and Criteria requires that *management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides*.

HFM NZ is required to implement a strategy to achieve this goal and report annually progress to achieving that goal.

Under current conditions in NZ the use of agrichemicals is an essential tool in the establishment and protection of plantation forests. However HFM NZ is committed to undertaking integrated pest management and continually assessing the chemicals we use, to minimise or where practical avoid the use of chemicals and to use the least hazardous formulations that are available and effective for each operation. The HFM NZ Chemical Use Strategy outlines the measures being taken to achieve these goals.

The following are key components to achieve the goal of reducing and ultimately eliminating chemical use:

- Contribution to industry research initiatives to seek alternatives to chemicals currently considered essential to plantation forest establishment and survival.
- Capturing and reporting on chemical use trends by region and monitoring of chemical use trends over time within and between regions.
- Training and upskilling foresters to ensure chemical prescriptions are optimally targeted to address the identified pest issues, and minimise total chemical use to achieve a free to grow crop.
- Development of best management practice guides for each type of chemical operation to maximise effectiveness and minimise chemical use
- Support for national bio-control projects to control key forestry weeds and providing practical assistance with release and monitoring in HFM NZ forests
- Undertaking practical field trials to continue testing application rates and alternatives.

HFM NZ will seek to minimise chemical use as far as practical and use the least hazardous formulations available whilst maintaining forest health and productivity.

Operations staff must record all chemical use on the estate in Forest and Land. The HFM NZ Technical Foresters will use this information to produce an annual report summarising the volume of chemical used on the HFM NZ managed estate and initiatives undertaken during the year to give effect to the Chemical Reduction Strategy.

10.4 Associated Documents

Document	**Location**
HFM NZ Approved Chemicals Register	G:\Environmental\Environmental Resources\Chemicals\ HFM NZ Approved Chemicals
FSC List of highly hazardous pesticides (FSC-STD-30-001a EN)	G:\Environmental\Environmental Resources\ Chemicals\FSC Requirements
Current FSC Derogations	G:\Environmental\Environmental Resources\ Chemicals\FSC Requirements\Current FSC Derogations
HFM NZ Chemical Use Strategy	G:\Environmental\Environmental Resources\ Chemicals\HFM Strategy and reports
HFM NZ training records	HR records
WHO Class 1a and 1b pesticides	G:\Environmental\Environmental Resources\ Chemicals\PEFC Requirements
NZS AS 4708 Interpretation of Requirement 5.6 Chemical Use (PEFC Exemptions)	G:\Environmental\Environmental Resources\ Chemicals\PEFC Requirements
Annual Chemical Use Report	G:\Environmental\Environmental Resources\ Chemicals\HFM Strategy and reports

11. Management of Indigenous Biodiversity Values

11.1 Introduction

HFM NZ's forests contain a wide range of indigenous biodiversity values, both within indigenous forest remnants and within the production forest.

HFM NZ is committed to managing our forests sustainably. We operate in compliance with legislation, certification requirements and voluntary agreements to which HFM NZ is a party. We strive to protect biodiversity values and to enhance them where practical.

The following information outlines the key processes used for management of indigenous biodiversity values in our forests.

11.2 External Requirements

HFM NZ currently manages approximately 34,000 ha of indigenous vegetation remnants (reserves) located within plantation forests managed by the company.

HFM NZ's protection and management of indigenous biodiversity is guided by a number of requirements including:

- The NZ Forest Accord: A joint Accord between the NZ Forest Owners Association and signatory ENGO's that protects indigenous reserves that meet the Accord definition from clearance and conversion to plantation forest. The Forest Accord is to be treated as though it has legal status. The NZ Forest Accord is attached in Appendix V.
- The Principles for Commercial Plantation Forest Management in New Zealand: A further joint Accord between the NZ Forest Owners Association and signatory ENGO's setting out agreed principals that will be adhered to in managing plantation forests, including requirements relating to management of biodiversity within plantation forests. The Principles for Commercial Plantation Forest Management are attached in Appendix V.
- Forest Stewardship Council (FSC): The FSC National standard includes requirements for the management of protected indigenous remnants, rare, threatened and endangered species and High Conservation Value areas.
- NZS AS 4708 (PEFC): NZS AS 4708 includes specific requirements for the maintenance and enhancement of biodiversity values, including a requirement to identify areas of 'Significant Biodiversity Values' within the forest.
- Regional and District Plans: Most Regional and District Plans contain rules regarding the protection of Significant Natural Areas (SNA) and in some instances indigenous vegetation in general. Many reserves in our forests have been identified and mapped as SNA. Where this is the case the plan will contain rules specifying the level of protection.
- National Environmental Standards Plantation Forestry (NES PF): The NES PF contains rules which protects Significant Natural Areas along with the protection of indigenous vegetation. As above areas in our forests have been identified and mapped as SNA.
- The Hancock Timber Resources Group Stewardship Principles include a commitment to maintain or enhance habitat diversity (refer Appendix II).
- Statement of National Priorities for Protecting Rare and Threatened Biodiversity on Private Land, MfE April 2007.
- Industry guides developed for the management of key species utilising production forests.

Operations staff should be familiar with the relevant requirements of the above documents.

11.3 Indigenous Reserves Management

11.3.1 Assessment of Ecological Values

An ecological assessment has been completed for all reserves within the managed estate including:

- identification and documentation of the predominant vegetation type
- assessment of the environmental values present, including fauna utilising the habitat
- any threats to the identified ecological values
- management recommendations to address any identified threats

This process was originally carried out by Wildland Consultants and the information has been updated and refined over time as new information comes available.

At the time of assessment each site was given an ecological classification (Category 1-5) using a system developed by Wildland Consultants. The ecological ranking system was assigned using a standardised process taking into account representativeness, diversity and pattern, naturalness, size and shape, rarity and special features, buffering and connectivity/distinctiveness and viability. The process of categorisation provides a hierarchy for relative ecological significance of each site and provides a tool for establishing priorities for management.

A brief summary of the five categories is provided in the table below

Category	Description
Category 1	Areas are representative examples of indigenous vegetation or wildlife habitats on particular land types within a bioclimatic zone, in an ecological district. They contain some of the largest, best quality, or only remaining examples of indigenous vegetation or wildlife habitat in an Ecological District.
Category 2	Areas are also good quality representative examples of vegetation and/or wildlife habitat (c.f. C1) which complement Category 1 areas, and existing protected natural areas. They may include: Relatively small areas with vegetation types or plant taxa under-represented or unrepresented in protected natural areas or Category 1 areas; Relatively large areas with features which are represented in protected areas or Category 1 areas, but which are nevertheless worthy of protection; and/or Sites containing vegetation types which, would once have been more common in the Ecological District and are unrepresented in protected natural areas or Category 1 sites but which have been degraded by weed invasion or animal damage, or similar.
Category 3	Include sites that are: Often smaller than Category 1 or 2 sites with interesting or special features, even though the ecological unit(s) is usually in a lower quality condition; and/or Relatively large areas which are highly modified.
Category 4	Include natural areas which contain features represented in the previous categories. These areas are often smaller and may be considerably modified, but are nevertheless significant.
Category 5	Very small areas of indigenous vegetation; that may be highly degraded, dominated by exotic species or contain no significant ecological features.

The results of the ecological assessments are summarised in the Wildlands Consultants reports for each region. Full details of the methodology used in the assessment and categorisation process is provided in the report Ecological Assessment of Natural areas in Carter Holt Harvey Plantation Forests (*Wildlands Consultants Contract report 313, 2000*).

A further source of information is SNA mapping undertaken by Regional and District Councils.

All reserves on the HFM NZ managed estate are shown in the Stand Layer in GIS, which includes the boundary of the reserve and key information relating to each reserve (name, number, habitat type, vegetation, category, any threatened species present and whether the reserve has any legal protection such as under the RMA or covenants).

More detailed information regarding the reserve can be found in the Wildlands report for the forest region.

11.3.2 Planning and managing forestry operations adjacent to reserves

Where large areas of indigenous vegetation reserves are present, particularly vegetation remnants that were reserved at the time of planting the production forest, the vegetation within the reserve will have important ecological values.

As described in section 11.2 indigenous reserves may have formal protection through a number of means. When planning operations adjacent to reserves it is important that all relevant values and protection requirements are understood and complied with.

As a general rule, reserves categorised as Category 1-4 and any vegetation identified as SNA or HCV should be protected as far as practical from the impacts of operations. It is recognised that it is not always possible to absolutely protect reserve areas, particularly when harvesting the adjacent stand. If the reserve cannot practically be protected from damage, consult with the Environmental Forester to confirm whether a resource consent or other approvals is required.

Some reserves provide habitat for rare, threatened or endangered species. If this is the case it will be identified in the reserve information in the stand layer. When planning operations around reserves containing rare, threatened or endanger species seek advice from the Environmental Forester.

11.3.3 Reserve Restoration

HFM NZ undertakes an annual programme of active restoration of indigenous reserve areas. Prioritisation of reserves for proactive management is undertaken taking into account:

- The requirements of FSC as specified in the current National Standard for Certification of Plantation Forest Management in NZ.
- The requirements of NZS 4708 and associated guidance.
- Alignment with the National Priorities for Protecting Rare and Threatened Biodiversity on Private Land, MfE April 2007 which identifies as priorities:
  - Indigenous vegetation associated with land environments that have less than 20% remaining in indigenous cover.
  - Indigenous vegetation associated with sand dunes and wetlands
  - Indigenous vegetation associated with “originally rare” terrestrial; ecosystems.
  - Protecting habitats of acutely and chronically threatened species.
- Alignment with implementation of HFM NZ threatened species management plans

- The degree of threat to the reserve values
- Co-ordination with community or Department of Conservation (DOC) projects.

Timing of operations will often be coordinated with adjacent forestry operations such as operational pest control, or forestry or harvesting operations, to minimize cost and maximise effectiveness i.e. scheduling animal control operations or weed spraying to coincide with the same operations in the adjacent production forest, or undertaking wilding pine control in conjunction with adjacent harvesting operations.

The Reserves Management Programme is updated annually for each region as part of the annual budget development process.

11.4 Rare, Threatened and Endangered Species Management

11.4.1 Identification of Rare, Threatened and Endangered Species Habitat

The NZ National Standard for Certification of Plantation Forest Management in NZ specifies requirements for the management of rare, threatened and endangered species. Under the standard, rare, threatened and endangered species are defined as:

- Any species listed in either of the following two publications or their updates under the specified categories:
- IUCN Red List of threatened species – critically endangered, endangered or vulnerable.
- NZ Threat Classification System (2007) – Nationally critical, nationally endangered or nationally vulnerable.

HFM NZ environmental staff have completed a review to identify all rare, threatened and endangered species known or suspected to be utilising the plantation forest. The review has been carried out utilising:

- Advice from DOC and other local experts
- Review of information from previous ecological reports (SNA reports, Wildlands reports etc.)
- Threatened species studies by DOC or universities
- Any anecdotal or documented confirmed sightings of rare, threatened and endangered species list

The information has been used to prepare a register of all rare, threatened and endangered species utilising HFM NZ forests. The register identifies the species as being:

- Confirmed presence – permanent resident
- Confirmed presence – temporary / migratory presence
- Potential presence (for those species considered likely or possibly presence, but not yet confirmed in the forest).

The register identifies the source of information and the known or estimated location and range of each species within HFM NZ forests. A copy of the register is held on the G drive (refer section 11.8 below)

Where the species has a permanent stable habit location and the specific location has been confirmed by survey, the habitat area is identified in the indigenous reserve information in the Stand Layer of Forest and Land.

The register will be reviewed and updated annually or following:

- Publishing of any revised threatened species classification list
- Any new information coming to light about rare, threatened or endangered species populations within the HFM NZ managed forest estate.

HFM NZ has provided a Rare, Threatened and Endangered Species Guide to operations staff and contractors to assist with the identification of rare, threatened and endangered species utilising our forests. Staff and contractors are encouraged to report any sightings of rare, threatened and endangered species through to the Environmental Team.

Sightings are recorded in the Rare, Threatened and Endangered Species Sightings Database stored on the G drive (refer section 11.8).

Sightings are used to build up a picture of how and where rare, threatened and endangered species are utilising the forest and will assist with management decision making. This information is reported through to relevant national biodiversity organisations periodically.

11.4.2 Management of Rare Threatened and Endangered Species

Management Plans are being progressively developed for all rare, threatened and endangered species confirmed to be either permanently resident within HFM NZ managed forests or dependant on habitat within the forest for a significant part of their lifecycle.

Priorities for preparation of Management Plans will be based on threat status and imminence of forestry operations that could potentially affect the identified habitat of rare, threatened and endangered species (including harvest directly adjacent to indigenous reserves containing rare, threatened or endangered species).

Where harvesting is planned in an area that could potentially impact rare, threatened or endangered species, a Management Plan must be prepared prior to commencement of harvesting, unless they are a species covered by an industry protocol.

Industry Guides are progressively being developed at a national level, providing guidance for the overall approach for management of species in NZ forests. To date guides have been prepared for Falcon, North Island Brown Kiwi and Longtailed Bats (refer G:\Environmental\Environmental Resources\Industry Guides\Indigenous fauna guides)

Where site specific issues affect the approach to management, a site or forest specific Management Plan will be prepared.

Preparation of Management Plans will take into account:

- Advice from the Department of Conservation and other local experts
- Advice from the NZ FOA threatened species website
- Relevant recommendations or findings from studies of the particular species (in particular those undertaken in the plantation forest environment)
- The requirement for plant or animal pest control where the rare, threatened or endangered species present is being significantly impacted by pests present, and if pest control can practically be undertaken.
- An evaluation of the benefits of expanding an area of reserve at the time of harvest where necessary to secure the viability of a population of rare, threatened or endangered species dependant on that habitat for survival

- The need to manage or restrict any public access or recreational use of the area that could impact on the rare, threatened or endangered species present (within the bounds of legal or other formal agreements requiring the provision of public access).

Management Plans will be periodically reviewed and updated as new information comes to light, .

11.5 High Conservation Value Areas

FSC requires the identification and management of reserve areas meeting the FSC criteria for High Conservation Value (HCV).

HFM NZ has completed an assessment of all of the reserves on HFM NZ land in consultation with relevant stakeholders including Wildland Consultants, Department of Conservation, relevant Regional Council staff and in the case of cultural sites, the tangata whenua for the area, so as to identify reserves that meet the HCVF criteria. The current list of HCV areas is documented in the HFM NZ HCV Register, and summarised in the HFM NZ Public Summary document.

HFM NZ will review the list annually or as new information comes to light about either reserves, or interpretation of the FSC HCV definitions.

For each HCV area a management plan has been developed to protect, and where practical enhance, the particular values that define the site as HCV. In accordance with FSC requirements annual monitoring is undertaken to confirm the condition and any threats to the HCV values.

11.6 Significant Biodiversity Values

NZS AS 4708 requires that forest managers identify 'Significant Biodiversity Values' within the defined forest area. Based on the definition in the standard, the following is considered as Significant Biodiversity Values on the HFM NZ managed estate:

- Areas identified by Regional or District councils as being significant indigenous vegetation or significant habitats of indigenous fauna under Section 6(c) of the Resource Management Act.
- All reserves classified as Category 1-3 and wetlands classified as Category 4
- High Conservation Value Forests under FSC
- Populations of rare, threatened or endangered species as identified in the HFM NZ Rare, Threatened and Endangered Species register.

Areas of Significant Biodiversity Value are managed using the processes described in this section.

11.7 Research

Knowledge of biodiversity values, and in particular the use of plantation forests by threatened species continues to evolve over time. HFM NZ is committed to improving understanding of species within our forests and how our operations impact and interact with those values. HFM NZ along with other forest managers has contributed to research to better understand biodiversity values in our forests including the NZ Bush Falcon, Long-tailed bats and post storm event stream recovery processes. HFM NZ will continue to support and encourage such research as appropriate projects come to light.

11.8 Associated Documents

Document	Location
HFM NZ Rare, Threatened and Endangered Species register	G:\Environmental\Environmental Team Files\ 2.Biodiversity\RTE Species\HFM RTE species lists
HFM NZ Rare, Threatened and Endangered Species guide	G:\Environmental\Environmental Team Files\ RTE Species\Field Guide
Wildlands ecological assessments and related reports	G:\Environmental\Environmental Team Files\ 2.Biodiversity\Wildlands Reports
HFM NZ HCVF Register and related management plans and monitoring reports	G:\Environmental\Environmental Team Files\ 2.Biodiversity\Reserves Management\HCVF
HFM NZ Stewardship Projects – project plans, budget development, reports etc.	G:\Environmental\Environmental Team Files\ 2.Biodiversity\Stewardship Projects
HFM NZ Threatened Species sightings register	G:\Environmental\Operations Files\ 7.Threatened species sightings
Industry threatened species guides	G:\Environmental\Environmental Resources\Industry Guides\Indigenous fauna guides

12. Retirement and Restoration of Cutover Areas

12.1 Introduction

Areas of cutover are periodically retired from the productive estate, most commonly in riparian areas where the crop was planted too close to streams, on steep or inaccessible areas deemed to be infeasible to replant, or in order to increase setbacks off reserve areas or boundaries.

The following procedure describes the processes to be followed and issues to be taken into account when assessing replanting areas and considering areas for retirement from production.

12.2 Procedure

12.2.1 Planning

When planning replanting operations, the HFM NZ forester will review the existing productive area boundary taking into account the following considerations:

Safety issues:

- Whether replanting and future harvesting operations can be carried out without exposing workers to unacceptable health and safety hazards.

Environmental considerations:

- Whether the impacts of harvesting of either the previous crop (or anticipated effects of harvesting the future crop) will result in unacceptable environmental effects. Possible issues that may lead to a decision not to replant include activation of severe erosion, or unacceptable impacts on water bodies or confirmed significant habitat for rare, threatened and endangered species. When considering this issue, it is also necessary to consider the potential effects of not replanting which in some environments (such as severely erosion prone country) may result in greater negative impacts.

Riparian setbacks:

- As a minimum, replanting will not be carried out:
    - within 5m of perennial waterways < 3m wide
    - within 10m of perennial waterways > 3m wide
- Where previously planting was carried out to the stream edge the riparian margin will be retired (refer HFM NZ Guidelines for Planning Operations around waterways).
- Compliance with the NZ FSC National Standard provisions.

Economic considerations:

- The predicted economic return from harvesting of the next rotation, taking into account experiences from harvesting the previous crop.
- Emissions Trading Scheme (ETS) implications of retiring the area – whether retirement of the area in question could create a 'gap' resulting in carbon liabilities being incurred. Deforestation, with significant associated liabilities, can be triggered by relatively minor changes to the planted boundary. The rules applying to interpretation of gaps should be consulted so that if necessary retirement can be implemented without invoking deforestation. Any retirement of land that could trigger ETS liabilities must be approved by the Area Manager, and signed off by the RST Manager and Finance Manager.

Landowner wishes:

- For lease and joint venture situations – the wishes of the landowners. In these situations where decisions are being made to retire areas from production the lease or joint venture partner will be consulted, involved in the decision making process and made fully aware of any deforestation related cost implications attributable to them.
- In situations of overplanting onto a neighbours land, if on agreement with the landowner the area had been harvested, the land would generally not be replanted by the HFM NZ managed investor (subject to any site specific agreements reached with the landowner).

If taking into account all of the above considerations, the outcome is that an area of land is not suitable for ongoing productive land use, the forester will:

- Revise the productive area boundary, and specify the revised productive area boundary on the work prescriptions for re-establishment operations (herbicide application, mechanical land preparation and replanting.
- Arrange for the productive area boundary to be amended in the GIS database. In GIS the retired areas will be assigned a land type "retired cutover".

In regions with large annual harvest volumes and multiple staff managing harvesting and forestry operations it is recommended that a formal process of handover be followed using the Harvesting to Forestry handover form or similar process to clearly document harvest issues.

12.2.2 Management of Retired Cutover Areas

Where retired areas are intended to be managed as reserve, a plan should be developed for restoration of those areas to indigenous forest cover. Restoration is primarily through the process of natural regeneration. Effective native cover is expected to take five years for a shrub hardwood canopy to fully occupy the site and 10-15 years for emergent kanuka and other tree species.

Any ongoing management of these areas (such as wilding pine or weed control) should wherever possible be carried out in conjunction with operations on the adjacent productive area. Where that is not practical the Environmental Forester should be notified, so as to include management of these areas in the annual Reserves Management Programme.

13. Planning and Managing Ground Based Animal Pest Control Operations

13.1 Purpose

The purpose of this procedure is to ensure the safe and effective management of animal pest control operations so as to ensure:

- safety of all personnel and members of the public utilising the forest
- effective management of any possible hazards to staff, contractors, members of the public, domestic animals and non-target species
- compliance with all applicable legal and regulatory requirements
- avoidance of legal liability or reputational damage to HFM NZ or our clients

13.2 Scope

This procedure applies to all ground based animal pest control on HFM NZ managed land using trapping, shooting and manually applied Vertebrate Toxin Agents (VTA's).

The procedure covers all ground based animal pest control operations undertaken for and with the approval of HFM NZ. The procedure excludes pest control carried out under the Biosecurity Act by TbFree NZ on HFM NZ managed land.

13.3 Procedure

13.3.1 General Approvals

Prior to planning of any animal pest control operations it is essential to ensure that the necessary legal approvals are in place.

For VTA application this will include:

- Ensuring a District Health Board VTA approval is in place for the operation if required. A VTA approval is required for some VTA's (including 1080 and cyanide) in any water supply catchments or where there is a risk to public health. If unsure contact the local District Health Board for advice.
- Reviewing the applicable Regional Plan to determine whether any rules apply. In many instances application of VTA's is a permitted activity subject to permitted activity conditions which must be complied with.
- Ensuring the proposed VTA is approved for use on HFM NZ land. The HFM NZ Approved Chemicals Register lists all chemicals currently approved for use on HFM NZ managed land. If the proposed VTA is not on the list contact the Technical Forestry Manager or Environmental Manager for advice.

The HFM NZ planner organising the operation must ensure all of the necessary VTA approvals and resource consents are in place prior to commencement of the operation.

13.3.2 Block Risk Assessment and Approval Process

Each pest control operator must be assigned to a clearly defined block or blocks. Prior to planning the block a risk assessment must be undertaken to assign the block as Low, Medium or High risk.

Issues that would elevate the risk of the block include:

- Likely public access to the area (controlled or uncontrolled)
- Presence of public roads or public access easements adjacent to or within the block
- Neighbouring activities
- Access by domestic animals (livestock or pets)
- Presence of threatened species or any vulnerable non-target indigenous species

A Risk Assessment Guide is provided in Table 13.1.

Based on the risk assessment all potential risks must be assessed and the appropriate pest control methodology put in place to manage those risks.

For High Risk operations alternative methodologies must be considered to reduce the assessed risk down to Medium e.g. changing from VTA application to traps or shooting, or applying a setback (buffer) off high risk boundaries.

All operations that remain a final assessment of High Risk must be approved by the Area Manager (refer section 13.3.3).

Whenever pest control is to be carried out on non-freehold land, the landowner must be consulted and agreement obtained in writing prior to undertaking the operation.

Whenever pest control is to be carried out within an area under easement to another party, that party who holds the easement must be consulted and agreement obtained in writing prior to undertaking the operation.

Vertebrate toxin application must not be undertaken within areas under a public access easement.

13.3.3 Pest Control Work Prescription

An animal pest control work prescription must be prepared for each block including a map showing:

- a clearly defined boundary of the operation
- all roads and waterways
- any neighbours and their contact details
- any public roads, paper roads or easements
- any issues or hazards relevant to the operation
- any specified buffers off boundaries or other high risk areas

The work prescription must clearly document:

- the method of pest control to be used
- all identified hazards and the methods to be used to control those hazards
- Any relevant restriction on the operation arising from the VTA approval or any Regional Plan rules
- Any specific notification or signage requirements over and above standard protocols
- For VTA application, the required withholding period during which access must be restricted following completion of the operation

The following parties are authorised to sign off animal pest control work prescriptions:

Assigned Risk	Work prescription sign off
Low Risk	Authorised HFM NZ Forester
Medium Risk	Forestry Manager
High Risk	Area Manager

13.3.4 Qualifications, licenses and permits

All operators undertaking manual animal pest control operations in HFM NZ forests must hold the necessary licenses and permits. This will include the following.

For all operations:

- An HFM NZ license to operate, contract or permit
- A current driver's license

For VTA application the following qualifications are required for handling and use of a number of VTA's (including 1080, cyanide and pindone):

- A Controlled Substance License
- An Approved Handler Certificate

For shooting operations:

- A firearms license

13.3.5 Engagement and Induction of Pest Control Operators

An **Animal Pest Control Operator Engagement Form** (Appendix III, Form 13) must be completed prior to any new operator commencing operations in any HFM NZ managed forests, and annually thereafter.

Prior to commencement of the operation the operator must be provided with the block work prescription and an induction must be completed by the HFM NZ Forester responsible for the operation to ensure all risks and controls are clearly understood. The induction must be documented using the **Animal Pest Control Operator Induction Form** (Appendix III, Form 14).

13.3.6 Neighbour Notification

Prior to undertaking any animal pest control operation all neighbours identified as being potentially affected by the operation must be notified by way of a letter and/or phone communication. The communication must be documented and retained by the pest control operator and reported to HFM NZ on request.

The HFM Forester responsible for the operation must periodically check notifications and file them. For any new operators the notifications must be checked prior to commencement of first operations. Thereafter they should be checked quarterly.

As a minimum the notification must clearly identify the date and location of the operation, the method to be used and the operators contact details. An example **Neighbour Notification template** is available (Appendix III Form 15).

For VTA application there may be specific notification requirements within the VTA Approval and/or Regional Council rules. The HFM NZ Forester managing the operation is responsible for reviewing these additional requirements and ensuring notification requirements are complied with.

The pest control operator must recall all notifications in the **HFM NZ Neighbour Notification Record** (Appendix III Form 16).

13.3.7 VTA Waste Disposal

All VTA waste containers and used product must be removed from the forest and disposed of to an approved waste disposal facility.

Any carcasses disposed of within the forest must be buried in a hole at least 100m from any boundary, public road or recreation area, and must be buried sufficiently deep to allow a coverage of at least 500mm of compacted fill over the carcasses.

13.3.8 Monitoring

Monitoring of the operation to ensure adherence to the Work Prescription and all associated permits and approvals must be carried out periodically and documented using the **Ground Based Animal Pest Control Operator Audit Form** (Appendix III Form 17). This will either be carried out by the HFM NZ Forester responsible for the operation, or another staff member or contractor assigned to carry out the monitoring.

For VTA application being carried out under a VTA approval **Daily Operation Sheets** must be completed and handed in each week to the person who holds the VTA approval for the operation.

It is the responsibility of the forester managing the operation to ensure all necessary inductions and approvals have been carried out for each operator in accordance with this procedure.

The Forestry Manager is responsible for ensuring this procedure is followed for the operations in their region.

Table 13.1: Risk Assessment Guide

Risk	Risk Factors present	Controls
Low	Situations where there is low risk of impacts to members of the public or non-targets species: • No external property boundaries • No public roads, paper roads or public access easements within or bounding the operation • No shooting, trapping or VTA application to be carried out within 200m of a neighbours boundary, public road or public access easement • No access by domestic animals vulnerable to harm by the pest control method (e.g. trapping or VTA) • No recreation access or recreation access can be easily controlled • No threatened species present	Standard procedures in accordance with the Animal Pest Control Procedure Operation supervision by qualified personnel. **Work prescription signed off by authorised forester**
Medium Risk	Situations where there is potential for impacts on neighbours and members of the public that can be managed through notification and control processes. Includes but is not limited to: • VTA application, shooting or trapping to be carried out within 200m of a neighbours boundary or public road • Low potential for uncontrolled access by members of the public or domestic animals (cats, dogs, stock) • Threatened species present that could be impacted by the pest control method being used (shooting, trapping, VTA)	As above plus: Notification procedures. Use of approved methodology to avoid impacts on threatened species (DOC protocols. **Work prescription signed off by the HFM NZ Forestry Manager**.
High Risk	Situations where there is a high risk of impacts to neighbours or members of the public. If an issue arose there is a high likelihood it would lead to prosecution or significant difficulties with an external party. Includes but is not limited: • Within 200m of a boundary of a high risk neighbour (e.g. neighbour opposed to VTA use, uncontrolled domestic pets accessing the forest, schools etc.) • High risk of uncontrolled access to the area by members of the public • Reserves containing known threatened species particularly sensitive to the poison being applied.	Consider modifying the methodology through the choice of control to reduce the risk to Medium. **Work prescription signed off by the Area Manager.**

14. Stakeholder Engagement

14.1 Introduction

Stakeholder consultation and engagement is an essential component of responsible forest management. HFM NZ is committed to engaging proactively and constructively with key stakeholders in the planning and management of our operations.

This section of the EMS is intended to provide guidance to staff planning and undertaking operations, regarding the appropriate stakeholder engagement processes to be followed.

14.2 Why Engage With Stakeholders

Stakeholder consultation is required by a number of legal and voluntary processes that HFM NZ operates under, in particular:

- **The Resource Management Act (RMA):** HFM NZ's operations in our forests are carried out in accordance with rules in Regional and District Plans, either as permitted activities or under resource consents. While the RMA does not specifically require a consent applicant to consult, the Council is required to take into account the views of affected parties and therefore it makes sense to undertake consultation with affected parties and to document and include their views as part of the consent application to avoid significant delays in processing the application. Some permitted activity rules also include a requirement to notify affected parties (e.g. agrichemical application).

- **Heritage NZ Pouhere Taonga Act**: When operations could damage or destroy historic sites an Authority is required from Heritage NZ. For sites of Maori origin, consultation is required with Tangata Whenua as part of the application process, to obtain their views and if necessary a Maori Values Assessment to be completed.

- **FSC Certification:** The FSC Principles and Criteria require engagement with stakeholders in relation to a number of provisions, but most notably principles 2, 3, 4 and 9.

- **PEFC Certification**: NZS AS 4708 requires companies to have systems in place to ensure proactive stakeholder engagement including preparation of a Stakeholder Engagement Plan (Criterion 2: Stakeholders).

- **HTRG Stewardship Principles:** The HTRG Stewardship Principles (Appendix II) include a specific commitment to undertaking consultation with people and groups directly affected by management operations, and that appropriate responses and mechanisms shall be employed to improve communication and address areas of concern (section 1c).

- **Principles for Commercial Plantation Forest Management:** The Principles (attached as Appendix V) to which HFM NZ is bound via our membership of NZ Forest Owners Association, includes a requirement to consult on management operations that impact on significant public use, environmental and amenity values of plantation forests and neighbouring areas.

In addition to all of the above, proactive consultation and engagement with stakeholders just makes good sense. It enables us to:

- Gain local knowledge and get a better understand the impacts of our operations on the local community that we may otherwise not be aware of, to refine our plans to achieve better outcomes.
- Identify areas that require protection that we may otherwise not have known about (unrecorded historic sites, wahi tapu, presence of threatened species etc).
- Identify and address issues that could lead to conflict, delays, complaints and disputes that all impact negatively with HFM NZ.
- Establish and strengthen relationships with landowners, tangata whenua, neighbours and key stakeholders in the local community that can help in a multitude of ways as operations are undertaken.

14.3 Key Consultation Principles

A number of principles for good consultation have developed out of case law under the RMA which are a useful guide. These include:

- Consult early: When consulting over a consent or planned operations affecting external parties, engage with them early in the planning process to enable sufficient time to sort out any issues that arise and, if necessary, enable plans to be modified.
- Be transparent: Be open about what you want to achieve, what scope we have to modify plans, and what aspects cannot realistically be changed. Don't raise false expectations.
- Be open minded: Remain open to people's views and how they can be taken into account in planning a better operation.
- Two-way process: Consultation is both about both providing information and gathering views. The primary purpose of consultation is to gather views of affected parties, so ensure the process enables all views to be gathered, recorded and given consideration.
- Ongoing: Consultation is a means to building relationships with affected parties and facilitating ongoing engagement. It shouldn't be considered a tick the box one off exercise, and ideally ongoing communication should be maintained during and after operations are completed.
- Agreement is not always essential: Consultation does not mean that all parties have to agree, and in some situations that is unrealistic. It is expected all parties will make a genuine effort. While agreement may not be reached on all issues, point of difference should become clearer and more specific.

14.4 Who to Engage With

Due to the nature of our operations the range of stakeholders to be consulted with can be very broad. Stakeholders are typically grouped into 'affected parties' and 'interested parties'. Interested parties are those people with an interest in an issue or aspects of our operation but are not directly affected. Affected parties are people who will experience an effect from the proposed operations (e.g. traffic passing neighbour's houses, dust, noise, damaged fences, impacts to roads etc.)

Stakeholders have been identified in the Lands Database where all contacts are classified into groups. Those contacts that are classified as stakeholders and neighbours are deemed affected while all others are classified as interested parties. A further list of stakeholders is held by each office administrator which is used when distributing newsletters and other communications. This stakeholders lists have a tab identifying them as either affected or interested parties.

The expectation is that all affected parties must be consulted prior to any operations taking place. However for the reasons identified above it is helpful to ensure that interested parties are also identified and included in consultation and engagement processes.

Stakeholders that should be consulted include the following parties:

- **Tangata whenua:** Tangata whenua consultation is required under a number of legislation including the RMA and Heritage NZ Pouhere Taonga Act as described above. Tangata whenua will typically have an interest in a wide range of aspects of forest operations including cultural issues (historic sites and wahi tapu), impacts on water quality and biodiversity and in some instances wider issues such as community impacts and employment, cultural or biodiversity initiatives.

  HFM NZ has established relationships with tangata whenua organisations in all regions in which we operate via iwi authorities and at a local level, hapu and marae. Key organisation contacts are kept in the Land Database and are linked where appropriate to particular forests or operating regions.

  In the case of lease holder or forestry right forests with Maori landowners, these landowners will have an interest in our operations both as landowners and tangata whenua.

  In some instances multiple iwi or hapu groups may have an interest in an area in which case all will need to be consulted with.

- **Landowners and forest agreement partners:** HFM NZ manages non-freehold forests under a range of tenure mechanisms including leases, joint ventures and forestry rights. Ongoing engagement with these individuals or organisations is the responsibility of the Land Managers with assistance from Area Managers and staff. Typically communications take place at least annually during the growing phase through forest reports, but with more intensive consultation in the period leading up to and during harvesting until the forest is re-established, or handed back in the case of expiring agreements.

- **Neighbours:** Where operations will directly impact a neighbour, consultation must be carried out well ahead of the planned operations. This includes:
  - Road line salvage, engineering and harvesting operations directly adjacent to the forest boundary.
  - Aerial spraying or pest control operations requiring shooting or application of toxins (refer Regional Plan rules for notification requirements for application of agrichemicals).

  Whenever the operation could cause significant disruption to a neighbour such as access to their property or damage to boundary fences, aim to consult well ahead of the planned operations to obtain their input and agreement, and enable fine tuning of the timing and plan to minimise negative impacts on their operations. Issues such as damage to fences can result in significant disruption and ill-will if not well managed.

  As a courtesy, direct neighbours to forests should be kept informed of operations, and in particular who they should contact if an issue should arise. The Forest Owners Association, Federated Farmers and Farm Forestry Association have a signed a Memorandum of Understanding (MOU) that provides good practice guidance for management of relations with neighbouring farmers. A key aspect of the MOU is good communication to ensure people are kept informed, including during the growing period when no specific operations are taking place, to ensure any issues such as weeds and

boundary fence damage can be managed. A copy of the Federated Farmers MOU is attached as Appendix VIII and all operations staff should be familiar with it.

- **Neighbouring communities:** Before commencing operations for the first time in a forest it is important to consider the wider community that could be impacted and how to communicate with them. Typically this should be carried out via a Social Impact Assessment, (refer to chapter 12 Social Impact Assessment Procedure) which may result in development of a consultation plan.

  A judgement will need to be made as to how far afield from the forest HFM NZ will seek to consult. As a general rule consultation regarding the impacts of forestry operations would be carried out with those people directly affected by planned operations as a result of noise, dust or visual effects. This would typically be the direct neighbours and any communities within the direct vicinity of the forest.

  Impacts from log truck movements will obviously extend significantly further. For low traffic volume district roads where harvesting has not previously taken place, or has not taken place for a considerable time, the effect can be significant. As a general rule of thumb, for low volume rural roads some form of consultation should be undertaken with road residents out to the point where the road meets an arterial route or state highway. In such instances a community meeting or letter drop should be considered to inform road residents of the timing of planned operations, likely truck numbers and who to contact should an issue arise. Consultation should include the school bus operators using the route. Where trucks will pass by a rural school, consider inclusion of the school in the Share the Road programme (if it is not already).

  Ensure consultation is undertaken not just prior to commencement of operations, but that some means of ongoing communication such as an annual community meeting or letter drop is maintained to keep people informed.

- **Regional and Local Government:** HFM NZ forests fall within the boundaries of four Regional Councils, twelve District Councils and one Unitary Authority. HFM NZ staff routinely consult with these organisations in relation to regulatory and compliance issues, obtaining resource consents and through processes of developing regional and district plans. Staff also take part in regional forestry forum and in some instances catchment committees, as a means of staying informed and providing input into issues affecting forestry.

  The Environmental team is responsible for day to day communications with local authorities and regional councils. Operations staff should also liaise regularly with District Council engineering staff regarding the forward harvesting intensions to enable councils to plan ahead for upgrade and maintenance of district roads which generally requires several years notice.

- **Recreation Users:** Many of our forests are used by a wide range of recreation users such as walkers, fishermen, hunters, horse riders, and in some instances permanently based recreational operations such as mountain bike parks or motorbike trails. Harvesting of these forests will inevitably result in significant disruptions to recreational users. While all recreational use of forests has been established on the basis of the environment being a working forest, and therefore inevitably disruption will occur, proactive communication can help to manage expectations and enable forward planning to minimize the inevitable disruption.

- **ENGO's:** ENGO's (Environmental Non-Government Organisations) will often have a particular interest in our forests and operations, in particular in relation to biodiversity, soil and water issues. For resource consents relating to harvesting and earthworks activities, consultation is typically required with local representatives of the Fish and Game New Zealand (in relation to potential impacts on fish or game bird habitat), and Forest and Bird (in relation to wider biodiversity issues). Other national level ENGO's such as Green Peace, ECO, EDS and WWF also have an interest in forestry issues and in particular forest certification.

  Typically engagement with ENGO's at a local level is the responsibility of the Environmental Foresters, while national level engagement is led by the Environmental Manager.

- **Government Ministries and Crown Entities:** The key ministry that HFM NZ staff liaise with directly in relation to day to day operations is the Department of Conservation (DOC). DOC are a significant neighbour to HFM NZ managed forests and have an interest in the management of biodiversity within the forests. HFM NZ staff consult regularly with regional DOC staff in relation to boundary and access issues, consents, management of biodiversity, fire management and plant and animal pest control. DOC contact details are within the Land Database however DOC contacts can change reasonably regularly so it is recommended staff talk to the local Environmental Forester for advice on the appropriate person to contact at DOC.

  Other ministries that HFM NZ consults with regularly include Land Information NZ, Ministry for Primary Industries, Ministry for the Environment and Ministry for Business Innovation and Employment.

  HFM NZ staff also liaise with representatives from various Crown Entities including NZ Transport Agency (in relation to operations affecting state highways), Heritage NZ Pouhere Taonga (in relation to operations around historic sites), Environmental Risk Management Authority (hazardous substances) and WorkSafe (workplace health and safety regulator).

In all instances key stakeholders and their contact details are recorded in the Land Database.

Due to the sheer numbers involved, HFM NZ has not attempted to keep an up to date list of all neighbours to our forests. Neighbours details, where identified, are recorded in the 'contacts' layer in Forest and Land. Where the owners details for a neighbouring property are not recorded in the HFM system, the RST team have access to external databases such as Terraview or Land online for identifying the landowners details.

14.5 Planning For Engagement

Consultation needs will vary from year to year depending on the location of operations and issues arising. By necessity engagement includes both planned and structured engagement (such as prior to commencement of operations in a forest) and an element of ad hoc engagement as particular issues arise from time to time.

It is the responsibility of the Area Manager with assistance from operations managers, Land Managers and the environmental team, to develop a general plan for consultation and engagement of stakeholders in their region.

Key resources for planning of engagement include:

- The long term plan
- Annual budget
- Historic knowledge of community demographics, issues, past disputes etc
- Complaints/disputes
- Requirements to obtain resource consents or Heritage NZ Authorities
- Existing relationships/projects/issues
- Planned ongoing engagements such as community consultative group meetings
- SIA processes

As a general rule the engagement plan should take into account operations planned in the coming 5 year period.

14.6 Methods of Engagement

A range of communication and consultation methods can and should be considered. Depending on the stakeholders involved, community demographics and size of groups, appropriate forms of communication might include:

- Community meetings/hui
- Face to face discussions
- Letter/email
- Provision of reports
- Phone calls
- Community newsletters/letter drop
- Attendance of HFM staff at landowner's AGM's or scheduled Trust meetings

Consider the circumstances and what is the most appropriate and effective way to interact with stakeholders. Generally for initial contact with key stakeholders such as landowners, tangata whenua face to face meetings are recommended. For general ongoing updates on operations, forest reports, newsletter or email are an efficient way of keeping people up to date.

Field trips to the forest help build understanding of HFM NZ and forestry operations for key stakeholder groups.

14.7 Records

As far as practical all communications with external stakeholders should be recorded and kept on the appropriate file. This should include:

- minutes of meetings
- emails
- records of phone calls/ conversations
- records of any agreements

All significant communications or agreements must be loaded into the Land Database and a document or file note. As a general rule any documentation that may need to be accessed by staff (current or in future) must be uploaded into the Land Database (meeting minutes, legal opinions, field trip records, letters containing agreements etc.).

15. Complaints and Disputes Resolution Procedure

15.1 Introduction

It is HFM NZ's intention to proactively manage relationships with stakeholders so as to avoid situations that progress into complaints or disputes. However despite the best intentions such situations will inevitably arise from time to time. It is HFM NZ's goal to manage all complaints and disputes ethically and proactively so as to achieve timely and mutually acceptable solutions wherever practical, and to avoid creating ill-will with HFM NZ stakeholders and risk to the business of HFM NZ or compromising the values or reputations of our clients.

The following procedure applies to all complaints and disputes with external parties or stakeholders, relating to HFM NZ operations.

As a general guide a 'complaint' is considered to be any material expression of discontent from a third party, relating to HFM NZ's forests or the performance of HFM NZ's staff or operations or issues arising from forests under management. Complaints may be received by a range of means (verbal, written, phone call, email etc.).

A 'dispute' is a disagreement or argument about something more substantial that cannot be resolved promptly or easily that could potentially result in further action such as negative media publicity, complaints to FSC or NZS AS 4708, claims for costs or legal action.

15.2 Procedure

15.2.1 General

All external complaints to the company must be responded to and dealt with in a timely manner.

The complaint will be referred to the appropriate HFM NZ staff member depending on the nature of the complaint. That person will be responsible for ensuring the complaint is investigated and followed up in a timely manner. As a guide complaints should be followed up:

- by phone within 48 hours
- acknowledged in writing within 10 working days

All complaints must be recorded in a Complaints and Calls Register held in each Area office, including details of response and close out where required.

Any justified complaint relating to environmental issues must also be recorded as an Environmental Incident.

Any significant complaint must be reported to the Area Manager and reported in the Weekly Brief.

It is the responsibility of the Area Manager to oversee the management of complaints and disputes relating to operations in their region.

It is the responsibility of the General Manager to oversee the management of complaints or disputes against HFM NZ at a national level.

15.2.2 Disputes Management

It is important that disputes are managed proactively at the earliest opportunity so as to avoid unnecessary escalation.

In the event of a potential dispute developing with an external stakeholder the following steps should be followed.

Disputes must be reported to the appropriate Manager. All significant disputes must be reported to the Area Manager and General Manager, and reported via the Weekly Brief. Disputes must be investigated to determine the underlying causes of dispute. Confirm:

- The party in dispute (in the case of groups, who they represent).
- Any other parties involved, or potentially affected by the dispute
- Identify the issue(s) in dispute and the effect it potentially has both on the party and on HFM NZ or our client.
- Enter the dispute into the HFM NZ disputes database

Managing disputes can be challenging. Disputes need to be managed carefully and are best dealt with quickly to prevent problems compounding and escalating.

If possible resolve the dispute. It is best to resolve it positively. This may mean negotiating an outcome or resolving the grievance through compromise.

When managing disputes the following steps should be followed:

- Identify any relevant background or history contributing to the dispute.
- Confirm the appropriate staff member(s) to manage the dispute and the strategy for dealing with the dispute. For significant disputes the strategy should be documented and including identification of staff responsible for managing the dispute, key actions and the processes for communicating with the party in dispute.
- Where necessary, obtain legal advice regarding the company position to guide the strategy development.
- Where possible arrange to meet with the party in dispute (ideally with two or more staff present), to discuss in good faith and attempt to reach resolution of the matter. If this is not achievable attempt to reach agreement on the process to be followed to manage and progress the dispute. This may involve senior management.
- If the dispute needs to be resolved and it cannot be resolved directly between the parties, consideration should be given to involving a mutually agreed third party or mediator.
- In some situations it may not be possible to achieve a mutually acceptable outcome, and the parties must 'agree to disagree'. If this is the case if possible ensure that both parties are clear on the position reached, rather than withdrawing and leaving the situation unresolved.
- Monitor and periodically review the strategy until it is agreed the dispute has been closed out, or no further action is appropriate.

Where there is the potential for the dispute to become the subject of media comment, the Area Manager will contact the HFM NZ media liaison and brief them of the situation.

15.3 Records

In all dispute situations, all correspondence with the party in dispute must be documented on the appropriate file for the party in dispute (including phone conversations, meeting records, letters and emails). Copies of all significant documents must be uploaded into the Land Database.

Details of all significant disputes must be entered into the HFM NZ Disputes Register held on the G Drive.

16. Social Impact Assessment Procedure

16.1 Introduction

HFM NZ manages significant plantation forest estates throughout New Zealand. The Company recognises that its business is important to the communities in which we operate and that our operations and business decisions can impact both positively and negatively on the community.

Social Impact Assessment is a pro-active management tool to identify the social consequences of HFM NZ operations or business decisions, and to ensure identified impacts are managed to minimise negative impacts and, where practical, maximise positive impacts.

The following procedure provides guidance to HFM NZ staff on when and how to conduct a Social Impact Assessment (SIA) in order to proactively identify and manage the social impacts of HFM NZ operations on the communities in which we operate.

Area Managers will be responsible for ensuring SIA's are completed as appropriate for operations and management decisions within their region.

The General Manager will be responsible for ensuring SIA are completed in relation to national level management decisions.

16.2 Procedure

16.2.1 When a Social Impact Assessment is required

A Social Impact Assessment (SIA) is required when planning any operations or making any business decisions that could materially impact the communities in which we operate, including staff and contractors that work for HFM NZ.

The level of SIA will be appropriate to the scale of the activity or change proposed, and the numbers of people affected.

The following is intended as a guide as to when an SIA is required and the scale of SIA required.

1. Management Decisions that could result in potentially significant social impacts

Where a management decision is being made that will potentially have significant impacts on communities, employees, contractors or other stakeholders, a full SIA will be undertaken. Examples include significant changes to operations, management practices or levels of staffing. Findings will be incorporated into an SIA report, including a description of parties affected, positive and negative impacts, measures to manage impacts and any proposed monitoring. The results of the SIA will be incorporated into the decision making process.

2. Significant change in the scale of operations or commencement of harvesting in a new area.

When planning routine harvesting operations that will result in a significant change in the impacts on a particular area or community, an SIA process must be incorporated into the planning process. This is to occur prior to commencement of first operations in a forest, and in particular first rotation forests where communities may not have experienced harvesting operations previously. The SIA process should include consultation with the local community, neighbours, iwi and other stakeholders. The results of this consultation should be incorporated into an SIA report outlining issues raised and any agreements reached to mitigate negative impacts or maximise positive impacts. Any findings or agreements through this process must be incorporated into relevant operations management plans.

3. Routine planning of harvesting and forestry operations.

In the routine planning of forest operations any social impacts will be identified as an integral part of the planning process. The planning process must include a consideration of any potential impacts on forest neighbours and the community. Any identified controls should be noted in the planning process and incorporated into the work prescription for the operation. A formal report is not required.
In some cases further social impacts may be identified during the course of operations. In such situations any further controls or actions required should be documented, communicated to the contractor and filed on the Operations File. Communications from external parties should be recorded on the Complaints Register.

4. Periodic review of social impacts for steady state operations

As a general rule social impact assessment is generally not required where activities are steady state and ongoing, unless concerns are being raised by community stakeholders or have in the past been raised. In such situations and SIA would be considered to assess the concerns.

16.2.2 Social Impact Assessment Procedure

i. The SIA process should incorporate the following steps:

ii. Identification of a project team to carry out the SIA. The project team will decide on the appropriate scale of the SIA required.

Gathering relevant background information on community demographics and identification of all parties who could be potentially affected by the operation or business decision being assessed. These parties could include:

- Tangata whenua
- Neighbours
- Members of the community and/or community groups
- Employees and contractors
- Forest agreement partners and their shareholders
- Other parties that hold rights to the land e.g. farm leaseholders, telecommunication companies, license holders etc.

iii. Develop a consultation plan to gather information from potential affected parties. This step could be undertaken through a process of individual or group consultation, incorporating information gathered through discussion and targeted meetings. Where smaller groups of stakeholders are affected it will be feasible to meet with all affected

parties. For larger communities of interest it will be necessary to identify stakeholder representatives such as elected representatives of forest shareholders, community groups, iwi authorities etc. In some situations a letter drop seeking feedback, or survey may be considered appropriate.

iv. Implementation of consultation plan to identify potential impacts on affected parties. This process will require provision of sufficient clear information for parties to understand the change or proposal so as to be able to provide informed feedback. All impacts including both negative and positive impacts should be identified and documented, identifying the parties impacted and the anticipated duration of impact.

Consideration should also be given to cumulative impacts of operations, for example the combined impacts on affected parties of multiple forestry operations occurring in adjacent forests (e.g. traffic movements, employment impacts etc).

v. Identification of potential methods to mitigate negative impacts and maximise positive impacts. For each identified impact, identify potential methods to avoid or mitigate negative impacts, and maximise positive impacts. Again this step should be carried out with input from affected parties through the consultation process, to ensure all possible methods have been considered.

vi. Re-assessment of the project plan or business decision, taking into account the outcomes of the SIA process alongside other considerations, so as to as far as practical maximise positive outcomes and mitigate negative impacts.

vii. Documentation of findings and outcomes in an SIA report. The SIA report should summarise:

Identified potentially affected parties

- Processes used to gather information
- Identified impacts and duration
- Potential measures to mitigate negative impacts and maximise positive impacts, the decision reached, agreed measures to manage those impacts and any ongoing monitoring required.
- Proposed methods for ongoing monitoring such as the activity proceeds such as:
  - ongoing periodic consultation with key stakeholder representatives
  - monitoring of complaints or comments
  - monitoring of contractors to ensure compliance with specific instructions arising from the SIA (e.g. speed or time limits)
  - survey of key stakeholders.

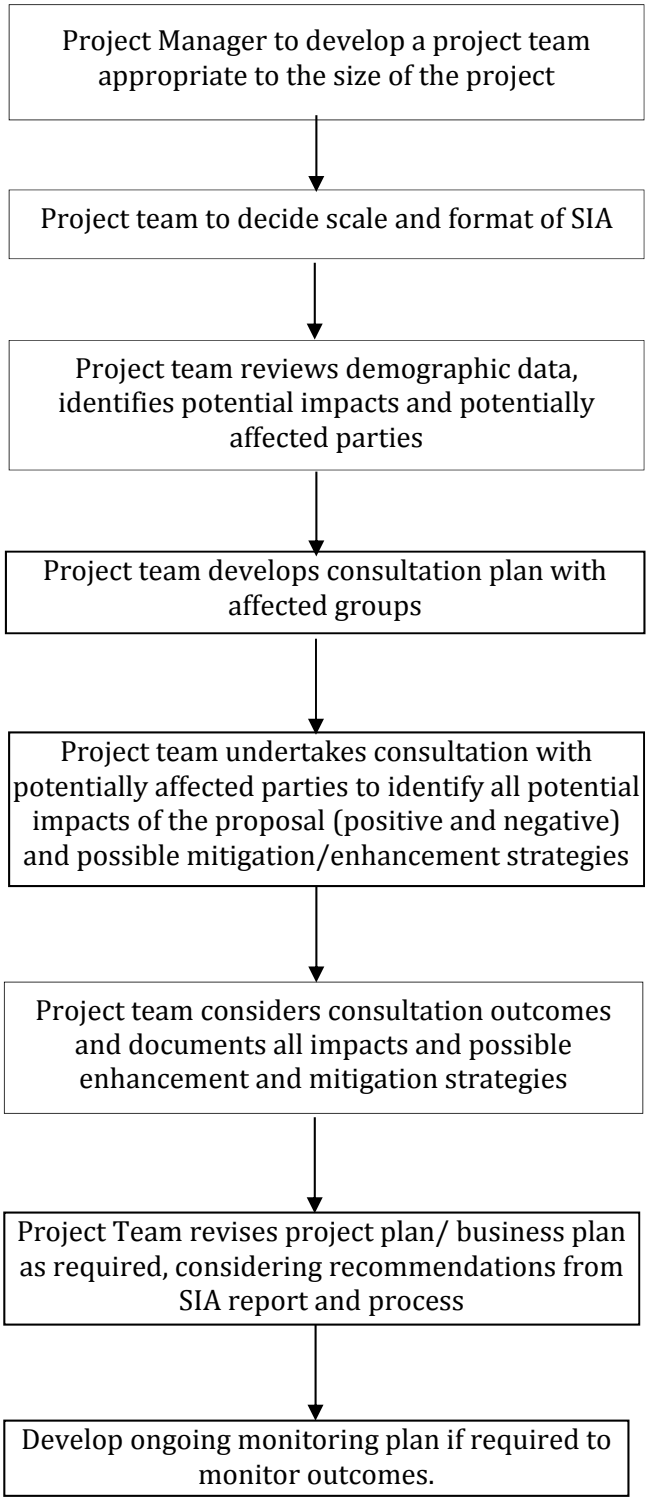
An SIA report template has been developed to help structured thinking (attached in Appendix III). This is a guide only and sections can be added or deleted as appropriate. Where practical the SIA report should be communicated back to affected parties.

viii. Incorporation of SIA outcomes into management plans. Where mitigation measures have been identified and agreed with affected stakeholders it is critical that they are incorporated into relevant management plans and processes to be given effect to.

ix. Implementation of the SIA.

Figure 16.1: SOCIAL IMPACT ASSESSMENT PROCESS

Process Flow Chart



Notes

- Proactive process
- Occurs prior to final business decision

Consider:

- Nature of issue
- Time available
- Data available
- Resources available

16.3 Resources

Resource	Location
Social Impact Assessment Report Template	EMS Appendix III
Social Impact Assessment Reports	G:\Environmental\Operations Files\ Social Impact Assessment
HFM NZ Staff Trained in Social Impact Assessment	Bill McCallum, Ian Jenkin, Henry Tibble, Les Russell, Sally Strang,

17. Environmental Incident Management Procedure

17.1 Introduction

It is important that Contractors and staff report all Environmental Incidents so that appropriate follow up action can be taken to minimise the impacts on the environment. Reporting and investigation of incidents can also enable learnings to be shared to prevent a reoccurrence.

The following procedure details the processes for reporting and follow up of environmental incidents.

17.2 Definition of Environmental Incident

An environmental incident is any event that results in:

- A breach of regulatory requirements
- A significant breach of HFM NZ environmental standards
- Significant adverse effect to the environment
- Damage to an external stakeholders property
- A breach of FSC or NZS AS 4708 requirements

Examples of Environment Incidents include:

- Chemical or oil spillage/loss (blown hoses, accidental spills, split drums, leaking equipment etc.) As a general guide the following should be reported:
  - Any spill that reaches a waterway or wetland
  - Any fuel and oil spills to land greater than 10 litres
  - Any spill of concentrated chemical to land
  - Any spill of mixed chemical to land greater than 10 litres
- Any breach of resource consent conditions or Regional Council or District Council Plan rules.
- Any material breach of the FSC Principles and Criteria or NZS AS 4708 Standards
- Any unauthorised damage to protected areas such as archaeological sites, native vegetation, wetlands etc.
- Damage to neighbours property (e.g. damaged fences, sprayed crops, damage to DOC reserve).
- Material breaches of the HFM Environmental Standards.
- Significant erosion or earthworks failures and in particular any failure that results in discharge to a waterway.
- Justified complaints from external stakeholders relating to environmental issues.

17.3 Procedure

17.3.1 Internal Reporting

All Environmental Incidents must be reported by the Contractor or HFM NZ staff member responsible for that operation, or in the case of non-operational incidents (such as erosion) the staff member who discovers the incident.

Major incidents that require remedial action or involve a significant breach of regulatory requirements must be reported immediately by phone to HFM NZ, and followed up with written

details within 48 hours. All other environmental incidents should be reported within five working days.

All significant incidents must be reported in the weekly brief and discussed at the weekly management team conference call. Incidents that have relevance to other operations and Regions will be circulated using an Environmental Green Alert.

Environmental Incidents occurring in the month will also be reviewed at the monthly Area HSE Committee Meeting.

17.3.2 Incident Database

The HFM NZ staff member responsible for the operation must ensure the incident is entered the incident into the HFM Incident Database.

The database works on a 'one over one' basis. Each manager is responsible for reviewing entries by their reports and ensuring the quality of database entries including:

- That all incidents are being entered
- Quality of data being entered
- Reviewing the actions associated with each incident and ensuring they are appropriate and addressing the root cause of the incident
- Confirming the closure of the incident once all corrective actions have been completed.

The following table summarises the delegated authorities to close out incidents in the Incident Database:

Incident Type	**Authority to close out**
General Incident	Manager of person who entered the incident (one over one)
Breach of resource consent	General Manager
Enforcement action (Infringement, Abatement Notice, prosecution)	General Manager

Further information on use of the database and delegated authorities can be found in the 'Help' tab in the Incident Database itself.

17.3.3 External Reporting

Where an incident involves a significant breach of regulatory requirements it is important that this is reported proactively to the appropriate regulatory body as soon as practical.

Prior to reporting any incident to an external party, the Environmental Manager and Area Manager will review the incident and reach agreement on whether the incident is to be reported and if so, the process for reporting, and an action plan if necessary to mitigate the potential for action against the company.

The following incidents would generally be considered serious enough to be reported to the relevant Regional or District Council:

- Breaches of resource consent conditions or Regional and District Plan rules.
- Significant spills of fuel/oil or chemical to land, and any spill that reaches a waterway.
- Earthworks failures or storm damage resulting in significant impacts on a water course.

Where an incident involves damage to an archaeological site, the incident must be reported to the Historic Places Trust and tangata whenua representatives.

17.3.4 Incident Investigation

All reported incidents that either have, or could have, caused significant environmental damage are to be investigated. The HFM NZ staff member responsible for the operation will lead the investigation with assistance from the relevant Environmental Forester where required.

As a minimum the investigation should include:

- Establishing and documenting what happened, including locations, date, time and people involved.
- Interviewing all parties involved.
- Using incident investigation techniques to determine the underlying causes of the incident.
- Identifying corrective actions to prevent a reoccurrence.

An Environmental Incident Report template is attached in Appendix II and can be obtained electronically from the EMS Folder on the G Drive (G:\Environmental\Environmental Resources\EMS).

The HFM NZ staff member responsible for the operation in which the incident occurred is responsible for tracking and closing out any corrective actions identified in the initial incident report and subsequent investigations.

Close out of corrective actions from significant Environmental Incidents will also be tracked and reported through monthly Area HSE Committee Meetings.

17.4 Chemical and Fuel/Oil Spill Response Procedure

In the event of a spill of a hazardous substance, fuel or oil:

- The first priority is safety of people. If the spill involves an unknown chemical or a known hazardous chemical, isolate the area and only appropriately trained people wearing the required PPE are to enter the area. If the spill can be contained by carrying out work outside the immediate hazard area (such as using a digger to build a bund downstream), then this should be done.
- In all other situations take immediate action to contain the spill and in particular to protect any waterways.
  - Close off valves or shut down leaking machinery
  - Use a spade or excavator to contain the spill by digging a trench, trap or bund
  - Use spill kits, earth, sawdust or bark to contain liquid
  - Transfer ponded liquid into an empty drum or other suitable vessel

- As soon as the spill has been contained report the incident to HFM NZ.
- Clean up all contaminated material including soil and spill kit material, and dispose of this material to an authorised facility.
- Where a major clean-up is required advice should be sought from the Environmental Forester who will where appropriate involve the Regional Council.

All contractors transporting, using or storing agrichemicals or bulk fuel or oil in the forest must have available to them appropriate spill response kits suitable for dealing with the type of spill that could potentially occur.

This could include off the shelf spill kits (pads, booms, leak plugging material etc.) along with other means for controlling and containing spills should they occur (shovel, excavator, bark/sawdust etc.)

All staff must be trained in spill response procedures.

18. Environmental Training

18.1 Introduction

HFM NZ is committed to training managers, employees and our contractors so as to ensure that all individuals working on behalf of HFM NZ have the necessary knowledge and skills to meet required environmental performance and ensure compliance with the HFM NZ EMS.

It is the responsibility of each HFM NZ Manager to identify training needs of their direct reports and arrange for this training to be undertaken.

It is the responsibility of the Environmental Manager to develop a programme for provision of periodic EMS training to all relevant staff.

It is the responsibility of Operations Managers to ensure Contractors under their management have undertaken the minimum level of training required by the EMS.

18.2 Minimum Training Requirements

18.2.1 HFM NZ staff

All HFM NZ operational staff should undertake as a minimum:

- Training in the implementation of the EMS
- An appropriate Environmental Unit Std (17772 or equivalent)

Foresters planning or managing the application of agrichemicals must hold a current Growsafe Introductory and Approved Handler Certificate, (or be under supervision by a staff member with these qualifications until they become certified).

18.2.2 Contractors

All contractors working for HFM NZ are required to meet the following minimum training requirements:

Operation	Function/Role	Training Required
Harvesting	All staff (within 6 months of commencing work) At least one person readily available to each crew (e.g. foreman and one backup)	17772 Demonstrate Knowledge of Environmental Requirements in Forest Operations 6964 Apply Environmental Management for harvesting trees
Engineering	All staff (within 6 months of commencing work) At least one person readily available to each crew (e.g. foreman and one backup)	17772 (as above) or 20616 Demonstrate knowledge of earthworks in relation to the environment

Operation	Function/Role	Training Required
Forestry Operations	Mechanical Land Prep staff	17772 Demonstrate Knowledge of Environmental Requirements in Forest Operations
	For each crew undertaking planting, thinning, pruning etc. at least one person readily available to each crew (e.g. foreman).	17772 Demonstrate Knowledge of Environmental Requirements in Forest Operations
Agrichemical Application	Ground application Crew Manager	Current Growsafe Introductory Certificate or higher.
	Ground application staff	All personnel must have received on the job training on the safe handling of the agrichemicals they are using and be deemed competent.
	Aerial Application Pilot	The pilot must hold: • an Approved Handler Certificate • a valid Pilots Chemical Rating and • a current annual Agricultural Rating check.
	Aerial Application ground crew	Current Growsafe Introductory Certificate or higher.

NOTE: All contractor employees commencing work in forests with high concentrations of archaeological sites must have received archaeological site training prior to commencing work in the area.

Key contractor representatives will receive informal training from HFM NZ on the implementation of the EMS as it relates to their operations

Contractors must have training systems in place to ensure all crew members have received sufficient environmental training to ensure compliance with the HFM NZ EMS, Work Prescription and Resource Consent requirements.

18.3 Training Records

HFM NZ staff training records are held by the Human Resources Manager.

Contractors are required to maintain records of staff training to demonstrate compliance with the training requirements specified above.

19. Monitoring

19.1 Introduction

HFM NZ aims to actively monitor, audit and review procedures, processes and management systems to improve understanding of the environmental and social impacts of HFM NZ's forestry operations to provide information to inform the company to achieve continuous improvement in environmental performance.

It is the responsibility of the Environmental Manager with input from Environmental Foresters and Area Managers, to identify monitoring needs and maintain and implement the Environmental Monitoring Programme

19.2 Procedure

The Environmental Team will undertake an annual review of the monitoring programme, generally timed to coincide with budget preparation. The programme may be amended from time to time during the year, as projects arise.

The primary driver of the monitoring programme is to improve understanding of the environmental and social impacts of our forestry operations, at a local and landscape level.

The monitoring programme will also incorporate any requirements of resource consent conditions and certification requirements.

The goal of the monitoring programme is to improve understanding of the effects of our plantation forestry operations and the effectiveness of measures to mitigate impacts on the environment, and to overtime address gaps in knowledge about the effects of plantation forestry to promote continuous improvement.

Some of the factors that may be taken into account in developing and prioritising new elements of the monitoring programme are:

- Community or stakeholder concerns or programmes
- Requirements of the FSC Principles and Criteria/NZS AS 4708 Standards and FSC/NZS AS 4708 audit outcomes
- Monitoring being undertaken by others in the forest industry, or by the industry collectively, to achieve synergies
- Monitoring being carried out by District or Regional Council

The current annual Monitoring Programme is held on the G Drive (G:\Environmental Team Files\Monitoring.

20. Document Control

20.1 General

Documents must be controlled so that the most up-to-date document is always being used. All procedures, check sheets, registers and other documents contained within the EMS will be controlled.

20.2 Procedure for Control of Copies of the EMS

The most recent up to date version of the EMS will be available at all times on the HFM NZ Information Hub on Sharepoint. If hardcopy documents are required the Environmental Forester will provide these upon request.

20.3 Environmental Files and Records

Each Area Office maintains environmental records relating to forests in that area following the HFM NZ filing system. A list of all environmental files is provided in the Environmental File List.

In particular the following key records are kept relating to Environmental Information:

Resource consents and associated documentation

- Copies of all consents and Resource Consent Register:
- G:\ Environmental\Operations Files\2. Consents, Heritage NZ Authorities & PA rulesBackground correspondence relating to consents: G\Environmental\ Operations Files\ Forest Files

Archaeological Site Information and Heritage NZ Authorities

Information relating to archaeological sites is held on the:

- GIS Restrictions layer
- Hard copy files:
  - 2668 A file – NZAA records and detailed site information.
  - 2668 H file – Heritage NZ Authorities, site visit records, harvest plans, archaeological surveys etc.
- Electronic files
  - G:\Environmental\Operations Files\5. Restrictions Information\Archaeological Sites

Operations Files

Operations Files are set up for each planned operation (harvesting and forestry). The file contains all information relating to that operation including:

- Relevant correspondence from external parties.
- Operations Work Prescription.
- Post-Operations Checklist.
- Any amendment to the Operations Plan.
- Results of Audits.
- Earthworks Request relating to the operation

General Files

Environmental Files are held in the Central Filing system at the Eastern Office, and in the Environmental Files at the Northern and Central Area offices.

The minimum length of time any hard copy file must be archived is recorded on the file.

All electronic files are saved in the G:\Environmental directory:

- Environmental Resources
- Environmental Team Files
- Operations Files

21. Management Review

21.1 Procedure

A Management Review of the EMS will be undertaken at least once every two years.

The Environmental Manager is responsible for initiating the review of the EMS, arranging the review process and implementing changes to the EMS arising out of the review. The review will involve a selection of Operational Staff involved in implementing the EMS.

The following are to be addressed if relevant to the period being reviewed:

- Any issues arising from FSC and/or PEFC Audits
- Any systematic failures identified through Environmental Operations Audits and Systems Audits
- Issues identified through incident investigations
- Any requests for changes to the EMS
- Continuous improvement opportunities

22. Definitions

Archaeological Site: An archaeological site is defined in the Heritage New Zealand Pouhere Taonga Act 2014 as any place in New Zealand, including any building or structure (or part of a building or structure), that was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand. For example these are physical sites.

Complaint: Any material expression of discontent from a third party, relating to HFM NZ's forests or the performance of HFM NZ's staff or operations or issues arising from forests under management. Complaints may be received by a range of means (verbal, written, phone call, email etc.).

Dispute: A disagreement or argument about something more substantial that cannot be resolved promptly or easily that could potentially result in further action such as negative media publicity, complaints to FSC/PEFC, claims for costs or legal action.

Significant Biodiversity Values: Significant Biodiversity Values is a term used in NZS AS 4708 requiring the forest manager to identify Significant Biodiversity Areas and undertake measures to protect such values. A full definition of Significant Biodiversity Values is given in the standard.

On the HFM NZ managed estate the following areas have been identified as meeting the definition of Significant Biodiversity Value:

- Areas identified by Regional or District councils as being significant indigenous vegetation or significant habitats of indigenous fauna under Section 6 (c) of the Resource Management Act.
- All reserves classified as Category 1-3 and all wetlands classified as Category 1-4
- High Conservation Value Forests under FSC
- Populations of rare, threatened or endangered species as identified in the HFM NZ Rare, Threatened and Endangered Species register.

Significant Natural Area: Areas identified for protection by Regional and District Councils under Section 6c of the Resource Management Act. These areas may either be mapped (typically in District Plans) or the plan may contain criteria which describe Significant Natural Areas. The management and protection of these areas is generally covered by rules in Regional or District Plans. Significant Natural Areas is the most commonly used terminology however some regions and districts use their own terminology to describe such areas.

Wahi tapu: The Heritage New Zealand Pouhere Taonga Act 2014 defines a wahi tapu as a place sacred to Maori in the traditional, spiritual, religious, ritual, or mythological sense. These are not physical sites.

Appendix I: Hancock Timber Resources Group (HTRG) Stewardship Principles

HANCOCK TIMBER RESOURCE GROUP
ENVIRONMENTAL STEWARDSHIP PRINCIPLES

ENVIRONMENTAL STEWARDSHIP GOALS

Hancock Timber Resource Group's (HTRG) environmental stewardship principles provide guidance to all sectors of HTRG on matters relating to the sustainability of our worldwide forest management operations. The principles seek to:

- Integrate social, environmental, and economic considerations when making investment and management decisions.
- Be applicable and relevant to daily operations.
- Ensure commitment to forest certification programs, such as Sustainable Forestry Initiative® (SFI), Forest Stewardship Council® (FSC), Programme for the Endorsement of Forest Certification (PEFC) or other credible programs.
- Provide the foundation for compliance with relevant international conventions, laws, Equator Principles, the Principles for Responsible Investment (PRI), and other credible programs which provide a benchmark for HTRG and our stakeholders to evaluate social and environmental issues.

At HTRG, we practice a land stewardship ethic that integrates the growing, managing, and harvesting of trees for useful products in a way that maintains and enhances community, economic, and natural resource values.

PRINCIPLES

HTRG makes the following stewardship commitments:

1. Comply with all laws
2. Promote responsible environmental, social, and governance practices
3. Protect and enhance productivity
4. Maximize the economic value of timberlands, inclusive of social and environmental factors
5. Maintain and/or enhance biodiversity
6. Protect special sites
7. Maximize utilization of sustainable forest resources
8. Promote continuous improvement of sustainable forestry
9. Maintain an awareness of climate change impacts on forests and society
10. Provide the necessary resources to allow the implementation of these principles

1. Comply with all laws

HTRG will comply with all applicable local, state, provincial and federal laws, statutes, and regulations.

2. Promote responsible environmental, social, and governance practices

a. Responsible practices:

HTRG is committed to sustainable forestry practices that are socially, environmentally, and economically responsible and will promote these practices with other forest landowners through organizations such as local forestry associations and environmental groups to develop understanding and improve practices over time.

b. Addressing scenic quality by limiting adverse aesthetic impacts of forest harvesting:

In areas where scenic vistas represent a significant public concern, HTRG will plan and execute land management, timber harvesting, and regeneration operations in ways that consider adverse visual impacts to the landscape and mitigate impacts where appropriate.

c. Committed to social and community values:

HTRG is committed to maintaining and enhancing the social and community values of its clients' properties.

The legal and customary rights of local and indigenous peoples with respect to the forestland shall be recognized and respected.

Forest management operations shall maintain and/or enhance the long-term social and economic well-being of forest workers and local communities. HTRG will hire and contract locally to the extent it is reasonable and prudent in light of local capacity, capability, and skill sets; cost considerations; and any legal obligations. Appropriate dialogue shall be maintained with people and groups directly affected by management operations and appropriate responses and mechanisms shall be employed to improve communication and address areas of concern.

d. Continuation of opportunities for traditional recreation:

HTRG manages public access for recreational purposes. Within the framework of local customs and regulations, we consider responsible and ethical uses of our lands to include activities such as hunting, fishing, hiking, bird-watching, canoeing, berry picking, etc. Some of these activities are allowed on a fee basis;

others (often depending upon local custom) are available at no charge to the public.

e. Management of environmental risks:

HTRG is committed to maintaining a high standard of environmental performance throughout its forest and land-based operations and incorporates environmental risk management requirements and controls within all operations. Environmental risk is controlled and mitigated through the use of appropriate environmental procedures, including, but not limited to acquisition due diligence procedures, third-party forest certification systems and audits, attention to industry standards, changing legislation, and regulations; property security procedures, vendor contract language, and vendor inspection procedures.

f. Committed to responsible governance practices:

HTRG is committed to corporate practices that adhere to the Equator Principles, Principles for Responsible Investment (PRI), and the international conventions that apply to business practices in the countries in which we operate. HTRG is also committed to hiring skilled staff who will implement sustainable forest management practices that meet or exceed local regulations.

3. Protect and enhance productivity

a. Soil productivity:

Soils are the basic building blocks of every forest. Maintaining and/or improving the health of the physical, chemical, and biological properties of forest soils is fundamental to sustainable forest management. HTRG management practices are designed to prevent degradation of these properties and to enhance them where and when possible.

b. Long-term forest productivity:

Where planting of trees or seedlings is employed and HTRG has control over the decision to reforest, HTRG will promptly reforest all final harvest, subject to other overriding environmental and operational considerations, such as weather or necessary site protection measures.

HTRG utilizes natural regeneration where silviculturally appropriate or specifically designated for environmental or sensitive area protection or management. When used for management purposes, natural regeneration is assessed to determine whether adequate stocking has been achieved.

c. Forest health and productivity:

Long-term forest health and productivity are protected from economically or environmentally undesirable wildlife, pests, disease, and other damaging agents. HTRG will cooperate with governmental organizations to protect forest health and productivity and work with research programs, where practical, to develop integrated pest management strategies and controls.

d. Responsible use of forest chemicals:

Herbicides, fertilizers, and other forest chemicals used responsibly are useful tools in achieving forest growth, environmental, and financial objectives. HTRG is committed to minimizing chemical use. Forest chemicals will be used only after evaluating other methods of achieving management objectives such as use of integrated pest management. Forest chemicals will be applied using the best available technology to ensure the efficacy of the chemical without compromising personal safety or environmental health. HTRG will meet or exceed all laws and label requirements related to forest chemical application.

4. <u>Maximize the economic value of timberlands, inclusive of social and environmental factors</u>

HTRG is committed to maximize the economic value of our clients' assets through stewardship activities that align with best practices employed across the sector. Whether it is forest management, water filtration, habitat preservation, recreation, or other ecosystem services, we strive to develop revenue streams reflecting best stewardship principles.

5. <u>Maintain and/or enhance biodiversity</u>

a. ***Maintenance or creation of a healthy balance of forest age classes:***

HTRG implements practices that work toward diversifying forest age classes. We recognize that creating diversified age classes is a long-term goal and progress may need to be measured over decades. A diversity of forest age classes plays an integral role in maintaining the long-term health and productivity of our forests. Among the benefits derived are improved wildlife habitat; continuity of forest production; decreased risk to market fluctuations; reduced ecological stresses; increased future management options; diverse aesthetics; and public assurances.

b. Conservation of water quality, wetlands, and riparian zones:

Ample supplies of clean water are central to our economic and environmental well-being. Upland forests, forested wetlands, and riparian zones greatly influence the quality and quantity of surface and groundwater supplies. Among the important functions provided by managed forests wetlands and riparian zones

are filtering of sediments; nutrient removal and transformation; groundwater recharge; and aquatic and upland wildlife habitat.

Governmental statutes, SFI® or FSC®, PEFC, local best management practice (BMP) guidelines, and HTRG-specific practices are used to ensure that our forest management activities continue to protect and enhance water quality, wetlands, and riparian zones.

c. Maintenance and enhancement of biological diversity:

HTRG is committed to the conservation and promotion of biological diversity, ***including a diversity of animal and plant species, wildlife habitats, and ecological community types and conservation of threatened and endangered species*** and wildlife habitats, at the stand and landscape scales. HTRG has programs in place to protect known sites associated with at-risk species and communities as well as a programs to ensure that threatened and endangered species are protected in accordance with applicable state, provincial, and federal laws.

d. Participate, where suitable, in community and cooperative habitat enhancement programs:

HTRG is knowledgeable about credible conservation planning and priority-setting efforts and where practicable, aligns conservation efforts with partners to maximize biodiversity outcomes while building cooperative working relationships.

6. <u>Protect special sites</u>

a. Protection of special sites:

HTRG identifies and manages forests and lands that are geologically, historically, or culturally significant. Areas possessing unique characteristics are managed primarily for the unique characteristics. Where possible (e.g., United States), strategies are evaluated for moving such lands into public or conservation group ownership as part of HTRG's Sensitive Lands Program.

b. Pre-acquisition screens for environmental issues:

Prior to the acquisition of property for a client, HTRG screens the property for areas of geological, historical, or cultural significance; at-risk species; environmental hazards; and other environment issues. Potential environmental concerns are reviewed, and then necessary technical expertise is enlisted to identify corrective measures. If a concern cannot be addressed, we may choose not to acquire a particular tract of land. If the land is acquired, information is

used to develop plans and manage the property within HTRG's stewardship principles.

7. Maximize utilization of sustainable forest resources

a. Continuous flow of timber, pulpwood, and other forest products:

Sustainability of a productive managed forest depends upon a healthy functioning environment and a robust economy. Regular flow of products from a forest region creates the income streams and future enhancement of value that ensures the continued viability of the forest environment, forest-dependent economy, and public support. HTRG utilizes a variety of tools to ensure a continuous flow of forest products including detailed field inventory information and sophisticated growth modeling techniques which inform development of long-term property management plans.

b. Maximum utilization of forest resources:

HTRG will employ appropriate processes and practices to minimize waste and ensure efficient utilization of trees harvested. Merchandizing all merchantable portions of each tree into its highest value will ensure maximum value, reduced costs, and minimal waste.

c. Improvement of the overall quality of the timber resource as a foundation for more value-added opportunities:

HTRG manages its lands to maintain and enhance the quality, value, and growth of our working forests. Various harvest techniques, including even age harvests, thinning, or single tree selection cuts, are performed to produce the highest quality crop trees, hasten growth, and optimize future value. These harvest methods provide a continuous yield of fiber-based and solid wood products.

d. Appropriate valuation and monetization of ecosystem services:

HTRG recognizes ecosystem services provided by working forests including fish and wildlife habitat, clean water and air purification, sequestered carbon, wetland restoration, and recreation. Most ecosystem services are undervalued in our economic system and once destroyed are costly to replace. Our approach is to identify and evaluate ecosystem services when opportunities exist and use such information to participate in ecosystem services markets including wetland and carbon mitigation banking, water quality trading, conservation banking, and recreational access.

8. Promote continuous improvement of sustainable forestry

HTRG seeks creative and innovative methods to promote continual improvement in the practice of sustainable forestry and monitor, measure and report performance in achieving the commitment to sustainable forestry.

9. Maintain an awareness of climate change impacts on forests and society

a. Forest mitigation and adaption:

Working forests make significant, positive contributions to mitigating the negative effects of global climate change. Working forests and harvested wood products absorb and sequester carbon and provide a renewable alternative to fossil fuels. Failure to respond to climate adaptation may diminish forests mitigation capacity, while compromising delivery of clean water and other critically important ecosystem services.

b. Greenhouse gas (GHG) accounting:

HTRG is committed on lands which it manages to accounting for the amount of greenhouse gases emitted to or removed from the atmosphere using an appropriate reporting period and operational boundary.

10. Provide the necessary resources to allow the implementation of these principles

HTRG is committed to providing the necessary financial and human resources to facilitate implementation and continual improvement of these environmental stewardship principles.

DEFINITIONS

Forest Stewardship: The active management and protection of our clients' timberland investments in a way that maintains and enhances economic, community, and natural resource values.

Sustainable Forest Management: Management of today's forests with full consideration and concern for the perpetual productivity and ecological health of the forest and associated ecosystems.

Appendix II: HFM NZ Environmental Standards

1. Pruning and waste thinning
2. Fuel and Oil Management
3. Earthworks
4. Waterway crossings
5. Agrichemical Application
6. Harvesting
7. Mechanical Land Prep
8. Planting
9. Burning
10. Fertiliser
11. LTO Holders

HFM NZ Environmental Standards

1. Pruning and Waste Thinning

Hancock Forest Management®
A Division of Hancock Timber Resource Group, A Manulife Asset Management Company

The following standards apply to all pruning and waste thinning operations in HFM NZ managed forests.

The rule denoted in bold is a requirement of the National Environmental Standard for Plantation Forestry regulations (NES).

General

1. Pruning must be carried out in accordance with the work prescription
2. **Pruned branches and thinning's must not be deposited into any waterway, and must be removed from the immediate flood plain where there is a risk of it mobilising in a 1 in 20 year flood and causing damage downstream.**
3. Pruned branches and thinning's must be removed from all roads, boundary fences, neighbouring properties and water tables.
4. Place thinning and pruning slash behind the first row of trees within the stand boundary.
5. If damage to water control structures occurs, it must be reinstated before leaving the site.
6. Where practical and safe to do so, fall trees away from restricted areas identified in the work prescription e.g. indigenous vegetation, protected riparian strips, archaeological sites, constructed recreation tracks etc.
7. All environmental incidents (breaches of resource consent conditions, work prescription requirements, oil spills, damage to boundary fences etc.) must be reported to HFM NZ within five working days.
8. All rubbish and waste material must be removed from the site.

Remember your safety is always the highest priority. If you believe that complying with these standards means that you cannot undertake the job safely, stop and discuss the situation with your supervisor.

If you cannot comply with these Environmental Standards or the work prescription requirements, notify the HFM NZ Supervisor managing your operation prior to commencing the operation.

HFM NZ Environmental Standards

2. Fuel and Oil Management

Hancock Forest Management®

A Division of Hancock Timber Resource Group, A Manulife Asset Management Company

The following standards apply to all operations in HFM NZ managed forests.

The rule denoted in bold is a requirement of the National Environmental Standard for Plantation Forestry regulations (NES).

General

1. **Fuel and oil storage, and refuelling must take place in a flat secure location well away from waterways and water tables, (at least 10m), so that any accidental spill could be readily contained and prevented from entering water.**
2. Machinery and bulk fuel tanks should be regularly inspected for fuel and oil leaks.
3. Where machinery is leaking and is not able to be fixed immediately, machinery must be parked up and containers used to collect leakage.
4. Where space is constrained, consider installing longer supply hoses on Bulk Storage tanks to allow tanks to be located outside the main work area, but remain accessible for refuelling of machines.
5. Pumps on fuel tanks must be kept clean and free of built up material.
6. Any waste oil must be collected and removed from the operational site and recycled at an appropriate facility.
7. Transport, use, storage and emergency response of all hazardous substances must comply with Section 9 of the Approved Code of Practice for Safety and Health in Forest Operations, which includes:
   - A hazardous substance inventory (list) and Safety Data Sheets must be on site for all hazardous substances that are stored or used on site.
   - Hazardous substances storage must be separated from the main work area and located where an accidental spill could not reach a waterway.
   - Petrol tanks must be stored at least 3m away from aerosol cans, LPG, oxygen and acetylene.
   - Foam or class 'B' fire extinguishers must be readily available where flammable liquids are stored or used on site:
   - Minimum of two 9kg cylinders at your work site
   - If a fuel trailer is use, one 9kg cylinder on the towing vehicle (or trailer)
   - Fire extinguishers are required to have an annual maintenance check and five yearly pressure test (which must be recorded).
8. Hazardous substances storage containers (full and empty) must be secured at the end of each day.

Spill Response

9. Contractors must have a spill response procedure in place to deal with fuel and oil spills and all of the crew must be trained in the procedure.
10. Spill kits appropriate to the volume of the hazardous substance held on site, must be on site and readily available to respond to an emergency spill.
11. Any hazardous substance spillages must be promptly cleaned up and disposed of to an appropriate facility.
12. Any hazardous substance spill to land greater than 10 litres must be reported to the HFM NZ Forester within five workings days. If the spill enters a waterway or is unable to be contained the HFM NZ Supervisor must be informed immediately.

HFM NZ Environmental Standards
3. Earthworks

Hancock Forest Management®
A Division of Hancock Timber Resource Group, A Manulife Asset Management Company

The following standards apply to all Engineering operations in HFM NZ managed forests including those earthworks carried out as part of harvesting activities.

Rules denoted in bold are requirements of the National Environmental Standard for Plantation Forestry regulations (NES).

General

1. All operations must be carried out in compliance with:
    - The harvest plan
    - Any applicable resource consent conditions
    - Relevant requirements of the NES Plantation Forestry (included below in bold)
    - Relevant forest practice guides
    - The NZFOA Forest Road Engineering Manual and accompanying Operator's Guide
2. Ensure all personnel are aware of the operational requirements of the harvest plan and any in particular any documented issues and restrictions in the area before commencing work. All material environmental issues should be documented in the daily Hazard ID sheets and discussed at toolbox meetings.
3. Where weed transfer is an identified risk, wash down machinery when moving between forests.
4. All environmental incidents (breaches of resource consent conditions, harvest plan requirements, oil spills etc) must be reported to HFM NZ within five working days. Where a significant breach or incident has occurred HFM NZ must be informed immediately.

General Earthworks Construction

5. **Ensure all earthworks are constructed appropriate to the soil type, topography, weather conditions and anticipated traffic usage to maintain stability.**
6. **Spoil must not be deposited over slash or woody vegetation, where it could cause erosion or where it could enter water or an SNA.**
7. **Do not incorporate slash, stumps or other organic material into fill.**
8. Wherever practical road metalling should be completed immediately after construction.
9. As far as practical undertake construction in suitable weather for the site conditions.
10. Indigenous forest remnants must not be disturbed unless specifically authorised by HFM NZ.

Water controls

11. **Runoff from earthworks should be diverted away from fill and unstable areas (such as eroding gullies) onto stable erosion resistant ground.**
12. **If it is not possible to bypass water around fill areas, then use fluming to pass water over the fill to stable ground.**
13. Install appropriate water control structures (culverts, sediment traps, cut outs, berming, fluming etc.) according to local soil, slope and expected weather conditions.
14. **Minimum storm water culvert diameters for cross road drains are:**
    a. **325mm internal diameter,**
    b. **In very high erosion risk country (red zone) 375 mm**

Stabilisation

15. **Exposed areas that may result in sediment entering water must be stabilised as soon as practical after completion of the activity, using:**
    a. **hydroseeding or hand seeding**
    b. **vegetative cover, mulch, or slash cover**
    c. **compacting, draining, roughening, or rock armouring or other engineering methods.**

Operations around Water Courses

16. **Earthworks must not occur within 10m of any perennial stream, or a wetland or lake greater than 0.25ha in area except:**
    c. **When constructing or maintaining stream crossings, sediment controls or slash management devices**
    d. **Maintaining or upgrading existing earthworks**
    e. **If the area of disturbance is less than 100m^2 and not within 5m of the stream**
17. **All disturbed soil must be stabilised or contained to minimise sediment entering into water.**
18. **All runoff from roads/tracks and water tables shall pass through a zone for trapping silt (such as a sediment trap or heavy vegetation/slash filter) prior to entering a waterway.**

Operations around Archaeological Sites

19. Known archaeological and cultural sites shown on the harvest plan must be marked in the field, and must not be disturbed unless authorised by HFM NZ in accordance with a Heritage NZ Authority.
20. If a suspected archaeological site is discovered during the operation, work must be stopped in the immediate vicinity (30m) of the site, the area taped off and the HFM NZ Forester notified immediately.

Neighbours and the Community

21. Ensure any damage to boundary fences or neighbours property is immediately reported to the HFM NZ Forester, so repairs can be actioned promptly.
22. Ensure any community agreements (such as speed limits and time restrictions) are understood and complied with.

Decommissioning Harvesting sites

23. Temporary tracks and other earthworks not required for future operations must be deactivated with appropriate water controls (cut-off drains, water bars, sediment traps) or placement of slash Water must not be discharged onto loose fill or unstable areas.
24. **When operating in high erosion risk areas (identified as orange or red zone under the NES) temporary tracking must be deactivated within 20 days of completing work in that area.**
25. All water control structures (water tables, culverts, soak holes, fluming etc) must be reinstated to full working order.

Waste Disposal

1. All waste material must be managed during the operation using appropriate rubbish containment, and removed off site on completion of the operation. Recycling should be used where available.

Other relevant Environmental Standards

- River Crossings
- Fuel and Oil Storage and Handling

Remember <u>your safety is always the highest priority</u>. If these standards mean that you cannot undertake the job safely, stop and discuss the situation with your supervisor.

If you cannot comply with these Environmental Standards or the harvest plan requirements, notify the HFM NZ Supervisor managing your operation prior to commencing the operation.

HFM NZ Environmental Standards
4. Waterway Crossings

Hancock Forest Management®
A Division of Hancock Timber Resource Group, A Manulife Asset Management Company

The following standards apply to all waterway crossings installed in HFM NZ managed forests, including both permanent and temporary crossings.

Rules denoted in bold are requirements of the National Environmental Standard for Plantation Forestry regulations (NES). The NES contains further rules which relate to each type of crossing, including requirements relating to flow calculations and maximum permitted catchment sizes. If you are installing a new crossing it is important you read and understand the relevant NES rules.

General

1. All operations must be carried out in accordance with
   - The applicable resource consent conditions, or
   - If a permitted activity under the National Environmental Standard for Plantation Forestry (NES) the requirements of the NES.

Crossing location

2. Where possible crossings should be sited:
   - At the narrowest point of the river.
   - At right angles to the river.
   - Where the stream has relatively low gradient and is on hard substrate.
   - Where the approaches on either side are as flat as possible.
   - So as to minimise damage to native riparian vegetation.
3. The culvert configuration should match as closely as possible the existing bed and flow path of the river, to avoid concentrating the flow and increasing the flow velocity.
4. **To be carried out as a permitted activity the river crossing must not alter the natural alignment or gradient of the river.**

Construction and Maintenance Work

5. Undertake installation work in suitable weather for the site conditions.
6. **Check the NES Fish Spawning Indicator to confirm whether any of the species regulated under the NES are present. If the indicator confirms fish presence, check and comply with timing constraints.**
7. **Minimise as far as possible the disturbance of the river bed, and discharge of sediment to the waterbody.**
8. **Take all practicable steps to avoid wet concrete or concrete ingredients coming into contact with flowing or standing water as this can be toxic to fish.**
9. **Machinery must be kept out of flowing or standing water, except when crossing the bed.**

Fish Passage

10. **All crossings in permanently flowing rivers must be constructed and maintained to allow fish passage.**
11. Particular attention should be paid to the downstream works to ensure a drop off doesn't form, creating a barrier to fish travelling upstream. Generally, this can be achieved by installing the culverts below the level of the stream bed. In some situations, an erosion resistant apron may be required.

12. **For single culverts the culvert must be constructed so that at least 20% of the culvert diameter is below natural bed level.**
13. **For battery culverts at least one culvert must be at least 100mm below bed level.**
14. **As far as practical crossings must be constructed to allow natural bed material through the structure.**

Erosion and Sediment Controls

15. **Approaches to and abutments of river crossings must be stabilised to avoid erosion and sedimentation.**
16. **Install sediment controls on all approaching water tables within 10m of the waterway, to control sediment run off from the road from reaching the waterway.**

Temporary Culvert Crossings

17. **Temporary crossing must be in place for no more than 2 months (otherwise the permanent crossing rules must be complied with).**
18. All temporary crossings must be approved by the HFM NZ Supervisor prior to installation. The HFM NZ Supervisor will confirm requirements for installation, monitoring and removal of the crossing.
19. **All temporary crossings over a formed water course must have a culvert of at least 300mm placed in the stream bed first.**
20. **Temporary crossings must be removed within one week of their last use.**
21. The stream banks at the crossing location should be stabilised after removal, ideally using mulch or hydroseeding to minimise sediment loss to the waterway.
22. Approaches must be stabilised with runoff controls installed.

Other relevant Environmental Standards

- Earthworks
- Fuel and Oil Management

Remember <u>your safety is always the highest priority</u>. If these standards mean that you cannot undertake the job safely, stop and discuss the situation with your supervisor.

If you cannot comply with these Environmental Standards or the harvest plan requirements, notify the HFM NZ Supervisor managing your operation prior to commencing the operation.

HFM NZ Environmental Standards
5. Agrichemical Application

Hancock Forest Management®
A Division of Hancock Timber Resource Group, A Manulife Asset Management Company

The following Environmental Standards apply to all agrichemical application in HFM NZ managed forests, including manual and aerial application. Agrichemicals include herbicides, fungicides and insecticides.

General

1. The transport use and storage of agrichemical must be carried out in accordance with:
   - The HFM NZ work prescription
   - Applicable Regional Plan Rules (to be provided with the work prescription).
   - HSNO Act and applicable regulations
   - NZS8409:2004 Management of Agrichemicals
   - The relevant requirements of the EPA notice *Hazardous Substances (Hazardous Property Controls) Notice 2017*
   - Approved Code of Practice for Safety and Health in Forest Operations (Sections 9.1 and 9.2).
2. The contractor shall have the following on site:
   - An inventory of all your hazardous substances.
   - PPE appropriate for the hazardous substances.
   - The SDS for all substances listed on the inventory.
   - Hazardous substances must be stored in approved containers and appropriately labelled

Training

3. All personnel handling and applying agrichemicals must be trained in accordance with Subpart C of the EPA Notice *Hazardous Substances (Hazardous Property Controls) Notice 2017.*

Application

4. Ensure manufacturer's label recommendations are followed at all times (with the exception of application rates which will be specified by HFM NZ based on site requirements).
5. Notify neighbours prior to the operation commencing, and again immediately prior to agrichemical application on their boundary (most Regional Plans contain rules specifying notification requirements and these must be checked to ensure compliance).
6. When aerially applying agrichemicals adjacent to property boundaries or protected areas (such as indigenous reserves), work must be undertaken with controls in place to prevent spray trespass onto non-target vegetation. Flight lines should be planned to avoid flying over neighbour's property with chemical on board (i.e. flying parallel to the boundary with turns inside the boundary where possible).
7. For aerial operations, monitor and record the weather conditions at half hourly intervals during the operation and on completion, (including wind direction and speed, temperature and relative humidity).

Spill Response

8. Contractors must have in place spill response procedures and all staff must be trained in implementation of the procedure.
9. A suitable sized spill kit must be on site when handling agrichemicals.
10. All environmental incidents (breaches of resource consent conditions, harvest plan requirements, oil spills etc.) must be reported to HFM NZ within five working days.

Where a significant breach or incident has occurred HFM NZ must be informed immediately and followed up with a written report within 48 hours.

Storage

11. Locate chemical mixing, loading and storage areas at least 10 metres away from any water table, stream, wetland or lake and in a location where an accidental discharge of chemical can be contained and will not reach a waterway.
12. When storing Hazardous Substances in larger quantities signage may be required (refer the applicable regulations).

Waste Management and Disposal

13. Chemical containers must be removed from the site and reused, recycled, or triple rinsed prior to disposal to an approved facility.
14. Any left over mixed chemical should be applied to target vegetation within the boundaries of the area to be sprayed.
15. Chemical equipment washing residues shall either be used as part of the next mix or disposed of entirely within the boundaries of the sprayed area and not within 10 metres of any water table, stream, wetland, and lake or forest boundary.

Other relevant Environmental Standards

- Waste Management and Hazardous Substances Storage and Handling

Remember your safety is always the highest priority. If these standards mean that you cannot undertake the job safely, stop and discuss the situation with your supervisor.

If you cannot comply with this Environmental Standard or the Work Prescription, notify your HFM NZ Supervisor prior to commencing the operation.

HFM NZ Environmental Standards
6. Harvesting Operations

Hancock Forest Management®
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The following standards apply to all harvesting operations in HFM NZ managed forests, including clear felling, road line salvage and production thinning operations.

Rules denoted in bold are requirements of the National Environmental Standard for Plantation Forestry regulations (NES).

General

1. All operations must be carried out in compliance with:
   - The harvest plan
   - All applicable resource consent conditions
   - Relevant requirements of the National Environmental Standard for Plantation Forestry (NES rules are included in the requirements below in bold)
   - Relevant forest practice guides
2. Ensure all personnel are aware of the operational requirements of the harvest plan and documented any restrictions in the area before commencing work. Any particular environmental issues should be documented in the daily Hazard ID sheets and discussed at toolbox meetings.
3. All environmental incidents (breaches of resource consent conditions, harvest plan requirements, oil spills, damage to neighbours property etc.) must be reported to HFM NZ within five working days. Where a significant breach or incident has occurred HFM NZ must be informed immediately.
4. Where weed transfer is an identified risk, wash down machinery when moving between forests.

Ground Disturbance

5. **Harvesting systems must be planned and located to achieve butt suspension wherever practicable.**

Operations around Water Courses

6. **Disturbed soil must be stabilised or contained to minimise sediment entering into water.**
7. **Trees must be felled away from any water body or riparian zone during harvesting, except where it is unsafe to do so. If trees cannot be felled away, trees must be felled directly across the water body for full-length extraction before de-limbing or heading.**
8. **When pulling across rivers greater than 3m wide full suspension must be achieved.** If this is not possible a resource consent will be required.
9. **Harvesting machinery must not be operated:**
   a. **within 5m of a perennial river less than 3 metres wide or a wetland larger than 0.25ha; or**
   b. **Within 10 m of a river wider than 3m, a lake larger than 0.25ha**

   Exceptions to the above setbacks are:
   - **When mechanically felling trees within the riparian zone, where it is necessary to place the machine within the above setbacks to safely fell the tree. This should be discussed and agreed with your HFM NZ supervisor prior to undertaking the operation.**
   - **At stream crossing points.**
   - **When removing slash.**

10. If a tree is dropped into a watercourse or wetland, remove promptly taking care to minimise damage to the watercourse as far as practical. If you believe that tree felling or extraction will cause too much damage to a stream margin, consult with the HFM NZ Supervisor managing your operation.
11. Non-merchantable wind thrown trees may be left in place unless instructed otherwise by HFM NZ.
12. Limbing or heading off of trees must not be carried out within 5m of a stream edge, or within the flood zone of a stream.

Water controls

13. All water control structures (water tables, culverts, soak holes, fluming etc.) should remain open and working throughout the operation.
14. If damage to water control structures does occur, it must be reinstated by the harvesting contractor on completion of that component of the operation and/or communicated to the HFM Supervisor if further work is required by engineering.

Slash and debris Management

15. **Provided it is safe to do so, slash must be removed from all permanently-flowing streams and from the flood plain that would be covered by water during 1 in 20-year flood event, where there is a danger it could:**
    a. **block or dam a water body**
    b. **erode river banks**
    c. **have significant adverse effects on instream life or**
    d. **damage downstream property (culverts, bridges, fences etc.).**

    Plan for slash removal as you undertake the operation, and if you believe you will have difficulty safely removing slash, discuss this with your HFM NZ supervisor during the operation.
16. Where practical, slash should be left distributed in stable locations over the cutover, or used for sediment control and stabilisation of tracks, rather than being removed.

Slash Management on Landings

17. **Processing slash must be placed onto stable ground and must not be placed in non-slash disposal areas marked on the harvest plan.**
18. Where there is not enough space on or around the landing to safely store the volume of slash to be generated a Slash Management Plan should be prepared by the HFM NZ Supervisor, prior to starting operations. The Slash Management Plan will document how slash is to be managed and where it is to be stored.
19. At the end of the operation clearly identify any landings with potentially unstable slash requiring further treatment (pulling back or burning).

Operations around Archaeological Sites

20. Known archaeological and cultural sites shown on the harvest plan must be marked in the field and must not be disturbed unless authorised by a Heritage NZ Authority.
21. When undertaking harvesting that could damage or destroy an archaeological site, this must be carried out in accordance with the Historic Places Trust Authority and associated harvesting instructions. Written instructions must be on site before work begins.
22. If a suspected archaeological site is discovered during the operation, work must be stopped in the immediate vicinity (30m) of the site, the area taped off and the HFM NZ supervisor notified.

Neighbours and the Community

23. Where there is a chance of damage to a neighbour's property such as fences, discuss this with your HFM forester prior to commencing the operation so that arrangements can be made with the neighbour. Ensure any damage to boundary fences or neighbours property must be reported immediately to the HFM Supervisor so repairs can be undertaken.
24. HFM staff will notify you if there are any agreements with neighbours or the local community (speed limits, time restrictions etc). Ensure these are understood by the crew and complied with.

Post-Harvest Decommissioning

25. All temporary tracks and other earthworks must be deactivated with appropriate water controls (cut off drains, water bars, sediment traps) and/or placement of slash in high risk areas. Water must not be discharged onto loose fill or unstable areas.
26. The Contractor must notify the HFM NZ Supervisor prior to the completion of an operation to confirm post operation clean up requirements. Where remedial work is required by Engineering, discuss with the HFM NZ Forester to arrange engineering assistance.
27. **When operating in high erosion risk areas (identified as orange or red zone under the NES) temporary tracking must be deactivated within 20 days of completing work in that area. All other areas within 1 month.**

Waste Disposal

28. All waste material must be managed during the operation using appropriate rubbish containment, and removed off site on completion of the operation. Recycling should be used where available.

Other relevant Environmental Standards

- Waste Management and Hazardous Substance Storage and Handling
- Earthworks
- River Crossings

Remember your safety is always the highest priority. If you believe that complying with these standards means that you cannot undertake the job safely, stop and discuss the situation with your supervisor.

If you cannot comply with these Environmental Standards or the harvest plan requirements, talk to the HFM NZ Supervisor managing your operation to come up with an alternative solution.

HFM NZ Environmental Standards

7. Mechanical Land Preparation

Hancock Forest Management®
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The following Environmental Standards apply to all Mechanical Land Preparation operations in HFM NZ managed forests (spot mounding, cultivation, line raking, wind rowing, ripping and mounding, roller crushing and mulching operations).

Rules denoted in bold are requirements of the National Environmental Standard for Plantation Forestry regulations (NES).

General

1. Operations must be carried out in accordance with work prescription and the rules in the National Environmental Standard for Plantation Forestry (NES).
2. Ensure that any restrictions identified in the work prescription (such as archaeological sites or setbacks from riparian zones) are clearly understood and complied with.
3. **With the exception of roller crushing, mechanical land prep must be carried out following the contour of the slope unless it is unsafe to do so. If it is considered unsafe to follow the contour, sediment controls must be installed to contain sediment from being discharged to water.**
4. **Mechanical land prep must not occur:**
   a. **within 5 m of a perennial river less than 3 metres wide or a wetland**
   b. **within 10 m of a perennial river wider than 3m or a lake larger than 0.25ha**
5. Avoid damage to water control structures wherever possible. If damage to water control structures does occur it must be reinstated by the land preparation contractor on completion of that component of the operation, or communicated to the HFM NZ Supervisor if further work is required.
6. **Ensure sediment runoff resulting from the operation is contained within the work site, and prevented from discharging to waterways.**
7. Where weed transfer is an identified risk wash machinery before transporting between forests.
8. All environmental incidents (breaches of resource consent conditions, harvest plan requirements, oil spills etc.) must be reported to HFM NZ within five working days. Where a significant breach or incident has occurred HFM NZ must be informed immediately.
9. If bush falcon are observed behaving aggressively (dive bombing) stop work in the area and notify your HFM NZ supervisor. This indicates nesting in the area which could be damaged by your operations.

Waste Disposal

10. All waste material must be managed during the operation using appropriate rubbish containment, and removed off site on completion of the operation.

Other relevant Environmental Standards

- Fuel and Oil Management

If you cannot comply with these Environmental Standards or the work prescription requirements, notify your HFM NZ Supervisor prior to commencing the operation.

HFM NZ Environmental Standards
8. Planting

Hancock Forest Management®
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The following standards apply to all planting operations in HFM NZ managed forests.

Rules denoted in bold are requirements of the National Environmental Standard for Plantation Forestry regulations (NES).

General

1. Replanting must be carried out in compliance with:
   a. The planting work prescription
   b. Relevant requirements of the National Environmental Standard for Plantation Forestry (NES).
2. Ensure all members of the planting crew are aware of the requirements of the work prescription, and in particular any planting restrictions or set back distances from streams and other protected areas.
3. **Replanting setbacks:**
   a. **Streams less than 3m wide or wetlands – 5m minimum setback**
   b. **Streams greater than 3m wide or lakes larger than 0.25ha – 10m minimum setback**
4. **When replanting adjacent to an existing native reserve, replant no closer than the stump line of the previous crop.**

Archaeological Sites

5. Archaeological sites must be marked in the field (either by Historic Site tape or pegs) and the location of sites must be clearly understood by all members of the planting crew prior to undertaking the operation.
6. Trees shall not be planted within the marked boundary of an archaeological site feature.
7. If you are at all unsure of the location or extent of an archaeological site or other restriction in the work prescription, seek clarification from the HFM NZ Supervisor managing the operation.
8. All environmental incidents (breaches of resource consent conditions, work prescription requirements, oil spills etc.) must be reported to HFM NZ within five working days. Where a significant breach or incident has occurred HFM NZ must be informed immediately.

Waste Disposal

9. All rubbish and waste material (including planting boxes) shall be managed during the operation and removed on completion.

If you cannot comply with these Environmental Standards or the Work Prescription requirements, notify the HFM NZ Supervisor managing your operation prior to commencing the operation.

HFM NZ Environmental Standards
9. Burning

Hancock Forest Management®
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The following Environmental Standards apply to all burning operations in HFM NZ managed forests, including cutover and slash pile burns.

General

1. Burning must be planned, supervised and undertaken by appropriately trained personnel.
2. Burning operations must comply with applicable Regional Plan rules.
3. Burning operations will be only undertaken during open or restricted fire seasons.
4. Burns lit during restricted fire seasons must have a Fire and Emergency New Zealand fire permit, and the permit conditions must be observed.
5. Prior to burning, the Regional Manager or alternative designated HFM NZ Manager shall approve a burn plan.
6. Check that important environmental values within and adjacent to the burn area (e.g. protected vegetation areas, public recreation areas, neighbour properties and riparian vegetation) are clearly identified and methods are in place to ensure protection during the burn.
7. Consult with parties likely to be affected by the burn (neighbours and land owners for forestry rights, leases and joint ventures) prior to undertaking the burn and immediately prior to the operation.
8. Check fuel moisture content to ensure the fuels are not too wet or in a condition to smoulder for long periods.
9. Prior to ignition, check long range weather forecasts for wind warnings, and adequate Ventilation or Haines Indexes to assist with smoke dispersal. Avoid burning during periods of stable atmosphere or when air inversions are likely overnight.
10. When using accelerants ensure:
    a. Manufacturers label recommendations are complied with
    b. SDS sheets are readily available, (preferably on site).
11. Monitor the site after the burn for any flare-ups and potential re-ignition sources.
12. All environmental incidents must be reported to HFM NZ within five working days. Where a significant breach or incident has occurred HFM NZ must be informed immediately.

Waste Disposal

13. All waste material must be removed off site on completion of the operation.

If you cannot comply with this Environmental Standard or the Work Prescription, notify your HFM NZ supervisor prior to commencing the operation.

HFM NZ Environmental Standards
10. Fertiliser Application

Hancock Forest Management®
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The following Environmental Standards apply to all fertiliser application in HFM NZ managed forests.

General

- All conditions of applicable resource consents, Regional and District Plan rules and the HFM NZ work prescription must be complied with at all times.
- Fertiliser must be applied in accordance with the Code of Practice for Fertiliser Use and in a manner that minimises risk of actual and potential adverse effects on water ways and neighbouring properties.
- Ensure any restrictions to fertiliser application specified in the work prescription (e.g. waterways or neighbours properties) are clearly understood and complied with.
- Fertiliser must not be applied within 5m of a perennial waterway, wetland or lake. Exemption where fertiliser is mixed for the purpose of hydro-seeding around water crossings.
- Fertiliser application must be carried out in suitable weather conditions to avoid runoff or drift to waterways.
- Fertiliser must be stored in a suitable location well away from waterways, where the risk of accidental discharge to the waterway or other restricted areas is avoided. Any spills must be contained and cleaned up.
- All environmental incidents (breaches of resource consent conditions, work prescription requirements, oil spills, damage to boundary fences etc.) must be reported to HFM NZ within five working days. Where a significant breach or incident has occurred HFM NZ must be informed immediately and provided with a written report within 48 hours of the incident.
- All rubbish and waste material shall be managed during the operation and removed on completion.

If you cannot comply with these Environmental Standards or the work prescription, notify your HFM Supervisor prior to commencing the operation.

HFM NZ Environmental Standards
11. LTO Holders

Hancock Forest Management®
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The following Environmental Standards apply to all Licence to Operate holders in HFM NZ managed forests.

General

- The Licensee/LTO holder is responsible for obtaining any resource consents necessary to carry out their operations on HFM NZ land. All conditions of the resource consent(s) held by the Licensee and/or HFM NZ must be complied with.
- Ensure that any restrictions identified on any HFM NZ maps (such as archaeological sites or riparian zones) are clearly understood and complied with. Known archaeological and cultural sites shall not be disturbed.
- Track construction, water crossings or other earthworks shall not be installed without prior approval from HFM NZ.
- Avoid causing damage to water control structures (culverts, sediment traps, water tables etc) wherever possible. If damage to water control structures does occur it must be reinstated by the Licensee/LTO contractor on completion of that component of the operation, or communicated to HFM NZ if further work is required.
- Tracked or wheeled machinery shall not operate within 10m of a permanent water course without prior approval from HFM NZ.
- Vegetation shall not be removed or disturbed (except cutting back adjacent to existing tracks) without prior approval from HFM NZ.
- The site must be kept free of rubbish. Other foreign material (broken equipment, waste oil etc.) must be removed regularly and before leaving the site.
- Any use of fuel, oil or chemicals must comply with Section 9 of the Approved Code of Practice for Safety and Health in Forest Operations.
- Containers for the storage and use of any fuel, oil or chemicals must be secure from leaks and sited so that in the event of accidental spill, the liquid is contained.
- There shall be no lighting of fires without specific approval from the appropriate HFM NZ.

If you cannot comply with these Environmental Standards or the work prescription requirements, notify your HFM Supervisor prior to commencing the operation.

Signed _____ Date: _____

HFM Manager Signed _____ Date: _____

Appendix III: HFM NZ Environmental Forms and Templates

1. Harvesting and Engineering Audit Form
2. Forestry Operations Audit Form
3. Quarry/Superskid Environmental Audit Form
4. Pre-operation Area Induction Form
5. Environmental Hazard ID Checklist
6. Environmental Incident Report Form
7. Environmental Systems Audit Form
8. Amendments to Harvest Plan / Work Prescription Form
9. Social Impact Report template
10. Indigenous Forest Monitoring Form
11. Incident Investigation Template
12. Harvesting Area Handover Form
13. Animal Pest Control Operator Engagement Form
14. Animal Pest Control Operator Induction Form
15. Neighbour Notification Template
16. Neighbour Notification Record
17. Ground based Animal Pest Control Operator Audit Form

Harvesting/Engineering Environmental Audit Form

Hancock Forest Management

In-Process Audit / Final Audit

Forest: _____ **Operation ID:** _____

Contractor: _____ **Prescription ID:** _____

HFM Representative: _____ **Crew :** _____

Start Date _____ **Finish Date** _____

Audit By: _____ **Audit Date:** _____

Environmental Requirements	Complies?		
	Yes	No	NA
Work prescription, resource consent conditions & HFM Environmental Standards complied with			
Water/sediment controls (culverts, water tables, soakholes, fluming etc) open & working effectively			
No excessive soil disturbance, scouring, compaction occurring			
Operations around streams in accordance with work prescription			
Slash well managed and complies with harvest plan (birds nests & slash in streams)			
Native vegetation/wetlands/protected areas managed in accordance with work prescription			
Archaeological sites managed in accordance with work prescription and HPT Authority			
Fuel and Oil management complies with HFM Environmental Standards			
Waste Management complies with HFM Environmental Standards			
Utilities/infrastructure/neighbour issues/lessor notification managed as instructed			
Tracks not required for future operations deactivated			
Temporary crossings and corduroy removed			
Other			
Overall assessment (1 serious non-compliance, 2 minor non-compliance, 3 complying, 4 exceeds requirements)			

Comments/Corrective Actions required	By Whom	Date
Recheck Required **Yes /No**	**Recheck Date**	

Signed:		Date:
Contractor	**HFM Supervisor**	

Forestry Operations
Environmental Audit Form

Hancock Forest Management

In-Process Audit / Final Audit (*delete one*)

Forest: _____ **Operation ID:** _____

Contractor: _____ **Prescription ID:** _____

HFM Representative: _____ **Crew:** _____

Audit By: _____ **Audit Date:** _____

Environmental Requirements	Complies?		
	Yes	No	NA
Work prescription, resource consent conditions & HFM Environmental Standards complied with			
Water/sediment controls (culverts, water tables, soakholes, fluming etc) open & working effectively			
No excessive soil disturbance, scouring occurring			
Operations around streams in accordance with work prescription			
Native vegetation/wetlands/protected areas managed in accordance with work prescription			
Archaeological sites managed in accordance with work prescription and HPT Authority			
Fuel and Oil management complies with HFM Environmental Standards			
Waste Management complies with HFM Environmental Standards			
Utilities/infrastructure/neighbour issues/lessor notification managed as instructed			
Other			
Overall assessment (1 serious non-compliance, 2 minor non-compliance, 3 complying, 4 exceeds requirements)			

Comments/Corrective Actions required	By Whom	Date
Recheck Required **Yes / No**	**Recheck Date:**	

Signed:		**Date:**
Contractor	**HFM Supervisor**	

Quarry/Superskid Environmental Audit Form

In-Process Audit / Final Audit *(delete one)*

Forest: _____ **Operation ID:** _____

Contractor: _____ **Prescription ID:** _____

HFM Representative : _____ _____

Audit By: _____ **Audit Date:** _____

Environmental Requirements	Complies?		
	Yes	No	NA
Work prescription, resource consent conditions & HFM Environmental Standards complied with			
Water/sediment controls (culverts, water tables, soakholes, fluming etc) open & working effectively			
No excessive soil disturbance, scouring, compaction occurring			
Fuel and Oil management complies with HFM Environmental Standards			
Waste Management complies with HFM Environmental Standards			
Utilities/infrastructure/neighbour issues/lessor notification managed as instructed			
Slash and other woody waste material managed in a stable location			
Overall assessment (1 serious non-compliance, 2 minor non-compliance, 3 complying, 4 exceeds requirements)			

Comments/Corrective Actions required		By Whom	Date
Recheck Required	**Yes /No**	**Recheck Date**	

Signed:		**Date:**
Contractor	**HFM Supervisor**	

Pre Operation Area Induction Form

Contractor: ____________________ **Crew No:** ____________________ **Date:** ____________________

Forest: ____________________ **Harvest Area:** ____________________ **Road:** ____________________

Planned timing: Start date: / / Completion date: / /

Harvest plans supplied and discussed (min 2 copies): ☐ Any harvest area boundaries require marking: Y | N

Issues arising from harvest plan discussion: ____________________

Environmental Hazard Identification

Environmental issues in Harvest Plan discussed: ☐ Environmental Risk (H/M/L): High / Medium / Low

Resource consent & HPT Authority supplied & discussed: ☐ Environmental Audit requirements discussed: ____________

Record significant Environmental Hazards specific to the harvest area and methods of control (refer checklist inside front cover)

Hazard Identified	**Significant Hazard** Y/N	**Risk** H/M/L	**Proposed Controls**

H&S Hazard Identification

Safe Retreat process for block discussed & signed off: Y | NA Mean tree height for block: ____________

Comprehensive Tree Felling Plan discussed & agreed: ☐ Traffic Management Plan discussed: Y | NA

Record all hazards specific to the harvest area, and proposed methods of control (refer Hazard ID guidance inside front cover).
It is not the role of HFM NZ to record generic hazards normally faced in the operation being carried out.

Hazard	**E,I,M**	**Planned method of control**	**Resp**

HFM Rep: ____________________ Contractors Rep: ____________________

Signed: ____________ Date: ____________ Signed: ____________ Date: ____________

HFM NZ Environmental Hazard ID Checklist

Before starting and if required during an operation, the Contractor is to use this checklist together with the prescription to identify any of the following hazards/risks and develop appropriate methods to avoid, reduce or remedy adverse environmental effects:

Waste disposal.

Storage and use of chemicals and fuel/oil etc in relation to discharges, particularly to water.

Activities adjacent to waterbodies where there is potential for slash, debris, sediment or other pollutants to enter the waterway.

Steep slopes.

Unstable/eroding areas e.g. gully heads, slips, slumps, etc.

Potential for slash and debris ("Birds Nests") on landing edges to collapse.

Location and gradient of earthworks (including haul tracks/paths), particularly near environmentally sensitive areas and neighbouring properties/reserves.

Placement and disposal of fill, stumps, slash, debris, etc.

Haul lines (particularly downhill extraction) and areas of runoff concentration.

Boundaries with neighbouring properties and reserves.

Public recreation sites.

Native vegetation and wetlands.

Physical resources e.g. roads, bridges, culverts, network utilities (power/water/gas/telecom/sewage lines), etc.

Areas of high visual value e.g. skylines, river margins and sites adjacent to public roads.

Archaeological and cultural sites (not identified on prescription).

Hancock Forest Management

Env 05

Environmental Incident Report Form

Incident Details Date of Incident:_____/_____/_____ Date Reported: _____/_____/_____

Forest:_____ Location (Road):_____

Contractor/parties to incident:_____ Crew Number:_____

Operation (circle one): Harvesting / Engineering / Forestry / LTO holder / Other_____

Incident reported by:_____ HFM

Rep:_____

Details of Incident:

_____

_____

_____

_____

_____

_____

_____

Scale of Environmental Effect: ☐ Large scale/significant effect (*notify HFM immediately*)

☐ Localised/moderate effect

☐ Minor effects

☐ Nil effect/near miss

Immediate Causes (People/Equipment/Materials/Environment/Weather conditions):

_____

_____

_____

_____

Underlying Causes (system/process failure) which allowed this event to happen:

_____

_____

_____

_____

Corrective Actions to address causes	**By who**	**Completion Date**	**Date completed**

HFM Office Use Only:

Incident entered into incident database: ☐

Environmental Systems Audit Form
Harvesting Crews

Hancock Forest Management

Supplier:	**Crew No.:**	
Forest:	**Road Name:**	
Harvest Area:	**Auditor:**	**Date:**

	Environmental requirements	**Y/N/NA**
1	All environmental requirements for the operation are on site and understood by foreman & relevant crew members:	
	• Harvest plan/work prescription	
	• Relevant HFM NZ Environmental Standards	
	• Resource consent(s) or permitted activity rules	
	• Historic Places Trust Authority (if applicable)	
	• RTE Species Guide (confirm all crew members familiar with guide)	
2	Environmental plan completed for the block to comply with the working prescription, EMS & consents. The foreman can clearly explain the requirements and the plan to ensure compliance including in relation to:	
	• Waterways (plan to minimise waterway disturbance, riparian protection)	
	• Temporary crossings (location, installation, removal)	
	• Slash management requirements (landings & waterways)	
	• Archaeological sites	
	• Protected reserves (SNA, forest accord, threatened species etc)	
	• Management of water controls	
	• Any potentially wet areas & plans to manage timing to minimise impacts	
	• Temporary tracking (construction, deactivation)	
	• Neighbour issues, agreements with community/iwi	
3	Environmental auditing/documentation:	
	• Hazard ID & induction fully completed and on site	
	• Toolbox meeting records include relevant environmental issues	
	• System for undertaking and recording audits (view an example)	
	• Systems in place to demonstrate management and completion of corrective actions from audits	
	• Environmental Incident processes in place: o Process understood - including what should be reported o View a recent example of a reported incident from the crew	
	• Systems in place for recording threatened species to HFM – all crew members familiar with the RTE species guide and understand reporting requirements.	
4	Fuel and agrichemicals stored and handled in accordance with Section 9 of ACoP:	
	• The H&S plan on site must include a hazardous substances inventory, emergency procedure and copies of SDS's	
	• All storage in tidy working order, approved storage containers used, tanks in good working order leak free, with the correct cap etc	
	• Signage is in accordance with section 9.3 of ACoP & clearly visible.	
	• Trailer tanks have current WOF and registration	
	• Storage tanks are located so that accidental spills cannot reach waterways	
	• All containers clearly labelled with contents	

	• For tanks > 2000 litres bunding holds 110% of tank volume (or double skinned)	
	• If bund exposed to weather system there is a system for draining rainwater via an absorbant material to capture hydrocarbons.	
	• If stored volumes of fuel/oil exceed 1000 litres there is secondary containment	
	• Petrol stored at least 3m from any aerosol cans, LPG, Oxygen or acetylene	
	Fire extinguishers on site: • If flammable liquids stored 2x9kg foam or Class B extinguishers are in an accessible location to storage • If trailers used 1 x 9kg foam of class B extinguisher in towing vehicle • Fire extinguisher annual maintenance checks and 5 yearly pressure tests being carried out and recorded.	
	• Spill response procedures in place. Appropriate spill kit on site. No evidence of significant oil spillage around site.	
	• If refuelling takes place by mini-tanker, refuelling takes place in locations where accidental spill cannot reach a waterway	
5	Waste Management:	
	• Systems in place to manage waste - rubbish collection container on site, no obvious rubbish around work site	
	• Waste oil is collected & recycled or if not possible appropriately disposed of. Record company undertaking disposal:	
4	All crew members trained in accordance with HFM EMS requirements:	
	• Staff training records in place	
	• All staff have 17772 (or training has been arranged for those who have been working < 6 months)	
	• At least one person holding the relevant environmental standard to the operation is readily available to the crew (harvesting 6964, engineering 6965, land prep 6366)	
6	Forest Stewardship Council (FSC) and PEFC:	
	• Crew have basic understanding of FSC and PEFC and what they need to do to be prepared for audits	
	• Correct docket books used for operation and relevant crew member understands process (on instruction from HFM)	

Comments:

Corrective Actions	**By whom**	**Completion Date**	**Completed**

Signed:		**Date:**
Contractor	**HFM Supervisor**	

Environmental Questionnaire	
The following set of questions can be used to check the level of understanding that operational staff have about the EMS if crew is new or the audit is being used as a training exercise.	
1	How often are you required to audit your operation?
2	What happens if a possible archaeological site is identified during a forest operation?
3	What are the requirements for operating around streams in your operation?
4	Are the forest operations which you oversee covered by a resource consent, if so, do you know where a copy is located?
5	If a resource consent is breached, who may be held liable?
6	What are the environmental risks in your operation and how has the crew identified them?
7	What are the slash management on landings requirements for your operations?
8	What do you need to do if you agree to a harvest plan or header sheet change?
9	What is an example of an environmental incident that would likely occur during this operation and how would you deal with it?
10	What is your understanding of FSC – who they are, and what you need to do to be prepared for an audit?

Comments:

AMENDMENT TO HARVEST PLAN / WORK PRESCRIPTION

Forest: …… **Operations/Harvest Area:** ……

Prescription ID: …….. **Contractor:** ……

Describe The Proposed Change(s). Include a Plan.

……

……

……

……

……

Describe The Effects That The Proposed Change Could Have On The Environment, Safety Or Productivity.

……

……

……

……

……

Describe Any Methods Proposed To Avoid, Remedy Or Mitigate Any Possible Adverse Environmental Effects.

……

……

……

……

……

Desired Start Date Of Change: .....

Signed: …….. **Date:** ……..

(Contractor)

APPROVED/MODIFIED/DECLINED:

Signed …… **Date:** …….

(HFM Supervisor or Planner)

Hancock Forest Management (NZ) Ltd
SOCIAL IMPACT ASSESSMENT REPORT

- *This template has been developed to be used to prepare an SIA report.*
- *This is a guide only – amend the format as required to suit the particular project.*
- *Info in italics provides guidance which is intended to be deleted you fill out the form.*

Project Title:	
Manager:	
Date of Report:	
Report prepared by:	

1.0 Introduction

General introduction describing scope of SIA – what it covers

2.0 Background

Summary of relevant background information leading into the SIA:

- *Forest location (with map if warranted)*
- *Any relevant ownership arrangements (lease, freehold etc)*
- *Reference to any other associated documents etc*

3.0 Project Description

Description of project or operations that are the subject of this SIA. Include the following as relevant:

- *Location.*
- *Size and timing of operation*
- *Workforce required.*
- *Any workforce change – increase/decrease*
- *Work hours.*

4.0 Affected Parties

Description of surrounding community including (as relevant):

- *Surrounding land uses*
- *Number of people in area affected by the proposal.*
- *How closely is the community located to the operations (including trucking routes)*
- *Any affected community facilities – schools, marae etc*
- *Extent to which local people use the forest area affected by the proposal (eg hunting/fishing, gathering plant material, recreation).*
- *Any particular characteristics what could be important.*
- *Any relevant info on community demographics - Level of unemployment etc*
- *Percentage of work force employed in HFM NZ business and associated industries.*
- *What other employment opportunities exist in the area.*

- *Financial contribution of forestry industry to local economy.*

5.0 Consultation with affected parties

Describe any consultation undertaken with affected parties and outcomes

6.0 Impact Assessment

Describe process to identify social impacts and conclusions of that process including items such as:

- *Employment changes*
- *Population changes*
- *Impacts of operations on the local community including information/concerns raised through consultation.*
  - *Noise impacts – machinery, traffic flow changes etc.*
  - *Aesthetic impacts.*
  - *Accessibility changes for users of the forest.*
  - *Leisure and recreation impacts or restraints on forest use.*
  - *Health and safety for public, employees and contractors.*
  - *Citizen's reactions.*
  - *Community impacts.*
  - *Will spending power change in the community as a result of changes?*
  - *Will these changes affect local business?*
  - *Will the project open up opportunities for existing business or new business in the area?*

For each affected party clearly identify how they are impacted.
Identify both negative and positive impacts of the proposal (as applicable).

Consider also cumulative impacts of operations – the effects of the project you are assessing, in combination with any other company activities in the area eg harvesting of adjacent blocks may result in greater traffic impacts than just the project you are considering.

Summarise findings. The table below may assist:

Summary of SIA Findings

Identified Impact	**Who is impacted**	**Impact Period**	**Proposed mitigation/ enhancement strategy**
Negative Impacts			
Positive Impacts			

7.0 Summary and Conclusion

Summarise SIA Findings

8.0 Recommendations

Summarise any recommendations

- *Recommended amendments to the proposal.*
- *Prioritise enhancement and mitigation measures.*
- *Any further consultation required.*
- *Monitoring strategies to measure effectiveness of the enhancement and mitigation strategies where able.*

Report Completed By:_____

Manager Sign Off: _____

FOREST GENERAL SURVEILLANCE CHECKLIST

Location name:	Grid reference:	Date:
Fieldworker names:		Weather:

Landscape unit:	Altitude:
Aspect:	Drainage:
Description/sketch of area assessed:	Special species or communities: *(rare, threatened, unusual distribution, etc)* Forest canopy composition: *Underline dominant species.*

Indicator	Rating	Estimate *(Tick appropriate level)*	Notes *Species etc*
Birds	1	☐ Very few birds, and only 1-2 species.	
	2	☐ Occasional birds, and 2-4 species.	
	3	☐ Common birds, and 5-10 species.	
	4	☐ Abundant birds, and >10 species.	
Canopy condition	1	☐ Very sparse foliage, many large holes, dieback > 20% of tree crowns.	
	2	☐ Foliage sparse in some areas, canopy holes common. Some dieback.	
	3	☐ Foliage mostly dense, only occasional sparse areas, canopy holes rare, very occasional dieback.	
	4	☐ Abundant dense foliage over whole canopy, no canopy holes or dieback.	
Understorey	1	☐ No browse palatable species 45cm-1.35m. Understorey bare.	
	2	☐ Very few browse palatable species 45cm-1.35m. Scattered seedlings of less palatable species.	
	3	☐ Moderate browse palatable species 45cm-1.35m. Other species relatively abundant.	
	4	☐ Abundant browse palatable species and other species present.	
Ground cover	1	☐ Bare soil, rock/gravel > 20% of forest floor. Ground vegetation (ferns, moss, seedlings etc < 45cm tall) absent or very uncommon. Leaf litter on remainder of forest floor.	
	2	☐ Scattered bare soil and rock. Ground vegetation (ferns, moss, seedlings etc < 45cm tall) < 20%. Leaf litter on remainder of forest floor.	
	3	☐ Bare soil, rock absent or very uncommon. Ground vegetation (ferns, moss, seedlings etc < 45cm tall) 20%-50%. Leaf litter on remainder of forest floor.	
	4	☐ No bare soil, rock, or eroding soil. Ground vegetation (ferns, moss, seedlings etc < 45cm tall), abundant, 50%-100%. Leaf litter on remainder of forest floor.	
Vine Weeds	1	☐ Very common, > 50% canopy cover.	
	2	☐ Common, 10%-50% canopy cover.	
	3	☐ Occasional, up to 10% canopy cover.	
	4	☐ None present.	
Shrub / Tree Weeds	1	☐ Very common, > 50% understorey or canopy cover.	
	2	☐ Common, 10%-50% understorey or canopy cover.	
	3	☐ Occasional, up to 10% understorey or canopy cover.	
	4	☐ None present.	

Indicator	Rating	Estimate *(Tick appropriate level)*	Notes *Species etc*
Ground cover weeds	1	☐ Very common, cover > 50% ground area.	
	2	☐ Common, 10%-50% ground area.	
	3	☐ Occasional, up to 10% ground area.	
	4	☐ None present.	
Possums	1	☐ Abundant fresh sign (droppings, pad runs, bark scratching and biting).	
	2	☐ Common fresh sign but sometimes scattered.	
	3	☐ Sign uncommon, often quite old.	
	4	☐ No sign.	
Deer	1	☐ Abundant fresh sign (droppings, major tracks and hoof prints). Occasional deer may be disturbed.	
	2	☐ Common fresh sign but sometimes scattered. Sightings of deer uncommon.	
	3	☐ Sign uncommon. Sign is often old.	
	4	☐ No sign.	
Goats	1	☐ Abundant fresh sign (droppings, major tracks and hoof prints, bedding areas). Goats commonly heard, seen, or smelt.	
	2	☐ Common fresh sign but sometimes scattered. Occasional goats heard, seen, or smelt.	
	3	☐ Sign uncommon. Sign is often old.	
	4	☐ No sign.	
Pigs	1	☐ Abundant fresh sign (rooting, droppings and hoof prints). Pigs commonly seen, or heard nearby.	
	2	☐ Common fresh sign but sometimes scattered.	
	3	☐ Sign uncommon. Sign is often old.	
	4	☐ No sign.	
Stock	1	☐ Abundant fresh sign (droppings, major tracks and hoof prints). Stock heard or seen throughout area.	
	2	☐ Common fresh sign but sometimes scattered. Occasional stock heard or seen, generally confined to scattered areas on edge.	
	3	☐ Sign uncommon. Sign is often old. Only near edges.	
	4	☐ No sign.	
Fencing	1	☐ No fencing.	
	2	☐ Some fencing, for example, one side, or fence poorly maintained with large breaks.	
	3	☐ Most of boundary fenced, includes all areas where stock access likely. Some small recent breaks.	
	4	☐ Secure, intact fencing around whole area	
Human Visitors	1	☐ Widespread trampling, anda other damage throughout area.	
	2	☐ Common trampling and damage but limited to certain areas.	
	3	☐ Occasional localised minor damage.	
	4	☐ No damage.	

Management needs/actions	By whom	By when

Hancock Forest Management

Environmental Incident Report & Action Plan

Private and Confidential

Insert incident name

Executive Summary

Incident:

Date/Time of Incident:

Date/Time notified to Council:

Location:

Name of Contractor/parties involved:

Summary of incident:

Describe what happened, who involved, timing, weather and ground conditions etc.

Summary of Investigation

Investigation Team

Name	Position and company
Leader:	

Steps taken to investigate:

Summary of findings:

Basic Causes

Underlying Causes

Areas that require improvement

Summary of recommendations:

	Recommended Corrective Actions	By Who	By When
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			

Attachments:

Maps, harvest plans etc.

Hancock Forest Management

Harvesting - Forestry

Harvest Area Handover Form

Forest: _____ **HA/Compartment:** _____

Road Name: _____ **Environmental Risk:** _____

Date: _____ **Harvesting Crew:** _____

Item #	Issues	Yes/No/NA
1	Are all corrective actions complete?	
2	Are Health or Safety hazards identified for management (eg: spars, bluffs, tomos)?	
3	Are there any areas recommended for retirement (eg: adjacent area to be harvested, unprofitable of hazardous areas recommended not to plant, felled to waste areas)?	
4	Are there any landings that should not be replanted?	
5	Are there any areas that will be affected by future harvesting operations (access, tailholds etc)?	
6	Are there any outstanding issues with third parties that forestry should know about (neighbours, iwi , Council issues, recreation use)?	
7	Are there any factors that may impact on how the land should be replanted (excessive soil compaction areas, corduroy, heavy slash, significant environmental incidents)?	
8	Have Forestry access requirements been discussed? - Tracks to be left passable if practical.	
9	Are there any other issues forestry should be aware of ?	
10	Is the harvest plan map attached (attach map showing any issues identified above)?	

Item #	Further details / corrective actions	By Whom	By When	Completed

Harvesting Forester: _____ *Sign:* _____ *Date:* _____

HFM Forester: _____ Sign: _____ *Date:* _____

Ground Based Animal Pest Control Operator Engagement Form

Hancock Forest Management®
A Division of Hancock Timber Resource Group, A Manulife Asset Management Company

Name:_____ Forest(s):_____

Methodology to be used: Shooting / trapping / VTA (specify):_____

General Requirements	**Yes**	**NA**
Current driver's license		
License to operate/contract/permit in place		
PPE requirements (list):		
Signage processes discussed and understood		
Notifications processes discussed and understood		
Working alone processes (call in /EPERB):		
Emergency response plan in place:		
VTA application:		
Controlled Substance License *License number:* *Expiry date:*		
Approved Handler Certificate *Expiry date:*		
Read and understood the EPA '*Working Safely in Animal Pest Control Operations, Working with Vertebrate Toxic Agents'* (provide a copy if necessary)		
Applicable conditions of the Public Health Unit VTA Approval provided to operators and understood		
SDS for relevant VTA's held by operator and understood		
Processes for storage and transport in place		
Processes for tracking of product (where applicable):		
Disposal method for containers/waste VTA/carcasses:		
Spill response procedures (if applicable)		
Shooting operations:		
Gun License *License number:* *Expiry date:*		
Trapping operations:		
Approved traps (specify):		

Signed:

Pest control operator	**HFM Supervisor**	**Date:**

Animal Pest Control Operator Induction Form

Operator: _____ **Date:** _____

Forest: _____ **Operation Area:** _____ **Risk:** _____

Control method(s): Shooting / trapping / VTA (specify chemical): _____

Planned timing: Start date: / / Completion date: / /

Work Prescription supplied and discussed: ☐ Signage requirements discussed: ☐

Neighbour notifications required: Y | N

Neighbour notification processes: _____

Public access issues: _____

Threatened species present: Y | N Protocols to prevent impacts: _____

Relevant VTA conditions discusssed and understood (if applicable): ☐

Hazard Identification

Record significant hazards specific to the block and methods of control

Hazards Identified	Significant Hazard (Y/N)	Risk H/M/L	Controls

HFM Rep: _____ Operator: _____

Signed: _____ Date: _____ Signed: _____ Date: _____

Reference: EMS Form 14

Hancock Forest Management

Animal Pest Control Operation
Neighbours Notification

Dear neighbour,

An animal pest control operation is planned to take place within _____ forest adjacent to your property.

The operation will involve the use of:_____

The planned commencement date of the operation is:_____ and

completion date:_____

If you have pets please ensure they are controlled to prevent them from entering the forest during this period / until _____

Additional information is attached.

The contact details for the pest control operator undertaking the operation are:

Name:_____

Phone:_____

Hancock Forest Management contact details:

Name:_____

Phone:_____

Please feel free to contact us if you require any further information.

Groundbased Animal Pest Control Operation
Neighbour Notification Record

Hancock Forest Management®
A Division of Hancock Timber Resource Group, A Manulife Asset Management Company

Pest Control Operators Name:_____

Forest:	Date:
Location:	
Operation type: Shooting / Trapping / VTA (specify):	
Neighbours name:	
Any issues or concerns raised:	
Signed operator:	Date:
Signed neighbour:	Date:

Ground Based Animal Pest Control Operator Audit Form

Hancock Forest Management®
A Division of Hancock Timber Resource Group, A Manulife Asset Management Company

Operator's Name:_____ Date of audit:_____

Forest(s):_____

Methodology being used: Shooting / trapping / VTA (specify):_____

General Requirements	**Yes**	**No**	**NA**
Engagement form completed in the last 12 months			
Inductions completed for current operations			
Work prescription being followed			
Signage processes being followed			
Neighbour notifications being undertaken and recorded			
Working alone processes being followed:			
Emergency response plan in place:			
VTA application:			
Any applicable conditions of the Public Health Unit VTA Approval over and above HFM requirements being followed (specify):			
Approved disposal method for containers/waste VTA/carcasses being followed (specify):			

Corrective Actions (detail any issues arising and corrective action required):

Signed:

Pest Control Operator	HFM Supervisor	Date

Appendix IV: External Agreements

- **NZ Forest Accord**
- **Principles for Commercial Plantation Forest Management in NZ**
- **Memorandum of Understanding between NZFOA, NZ Farm Forestry Association and Federated Farmers**

The *New Zealand* Forest Accord

THIS ACCORD is between the New Zealand Forest Owners' Association (Inc.), the New Zealand Timber Industry Federation, the New Zealand Farm Forestry Association, the New Zealand Wood Panels Manufacturers' Association

and

the Royal Forest and Bird Protection Society of New Zealand (Inc.) together with the following environmental or recreational organisations who collectively comprise the New Zealand Rainforest Coalition:

- Environment & Conservation Organisations of N.Z. Inc.
- Federated Mountain Clubs
- Friends of the Earth
- Beech Action Committee
- Pacific Institute of Resource Management
- World Fund for Nature (N.Z.)
- Japan Tropical Forest Action Network
- Tropical Rainforests Action Group

and

Maruia Society

OBJECTIVES OF ACCORD

To:

- define those areas where it is inappropriate to establish plantation forestry
- recognise the important heritage values of New Zealand's remaining natural indigenous forests and the need for their protection and conservation
- acknowledge that the existing area of natural indigenous forest in New Zealand should be maintained and enhanced
- recognise that commercial plantation forests of either introduced or indigenous species are an essential source of perpetually renewable fibre and energy offering an alternative to the depletion of natural forests
- acknowledge the mutual benefits emanating from an accord between new Zealand commercial forestry enterprises and conservation groups and the example that this unique accord can provide for the international community.

INSTRUMENTS OF ACCORD

1. The parties agree that for the purposes of this accord a native tree is defined as any indigenous woody plant which ultimately forms part of the canopy of a naturally occurring forest in the locality under consideration and also includes any indigenous tree species which attains a diameter at breast height of 30cm or greater.
2. It is the policy of N.Z.F.O.A. that members, when establishing plantation forests, will exclude from land clearing and disturbance all areas of naturally occurring indigenous vegetation with the following characteristics:

i. any area of 5 hectares or greater which has an actual or emerging predominance of naturally occurring indigenous tree species of any height.

ii. any natural indigenous forest vegetation of between 1 and 5 hectares in area with an average canopy height of at least 6 metres which is practical to protect. This recognises that in some instances small pockets of native vegetation within a commercial forest 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.

iii. any vegetation recommended for protection in a survey report in the Protected Natural Areas Programme or classified as a Site of Special Wildlife Interest (S.S.W.I.) in a published report by the former Wildlife Service.

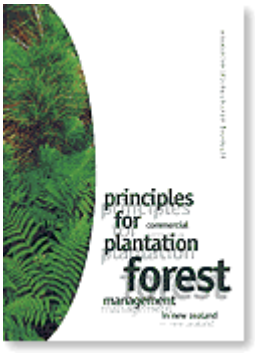
iv. in ecological districts where such surveys have not taken place, areas that would qualify as a Recommended Area for Protection (R.A.P.) or S.S.W.I. in the professional opinion of the Department of Conservation, using established criteria for such surveys.

3. The parties support the production management and harvest of naturally occurring indigenous forest only where such activity is conducted on a sustainable basis and principally for the production of added value solid wood products in New Zealand. A "sustainable basis" is considered to be a rate and method of tree extraction that does not exceed the replenishment so that the forest ecosystem in the area under consideration is maintained in perpetuity.
4. The conservation groups undertake to: acknowledge the importance of plantation forestry as a means of producing wood products and energy on a sustainable basis while promoting the protection and conservation of remaining natural forests, and to promote these understandings both within New Zealand and internationally.
5. The parties agree that this accord excludes high country Crown land, Crown pastoral leases and lands controlled by the Department of Conservation.
6. The parties agree that existing arrangements for the supply of native timber authorised by past Government decisions are not covered by this accord and that this accord will not be used by them to have effect on, nor to influence, negotiations with the Crown for forest arrangements referred to by the West Coast accord and the transitional arrangements in Southland.
7. The parties to this accord agree to meet from time to time to monitor the implementation and address issues which may arise.

Signed by the following parties, in Wellington on the 14th day of August 1991:

- New Zealand Forest Owners' Association (Inc.)
- The New Zealand Farm Forestry Association (Inc.)
- The New Zealand Wood Panel Manufacturers' Association
- The New Zealand Timber Industry Federation (Inc.)
- The Royal Forest and Bird Protection Society of New Zealand (Inc.)
- Environmental and Conservation Organisations of New Zealand (Inc.)
- Federated Mountain Clubs
- Friends of the Earth
- Beech Action Committee
- Pacific Institute of Resource Management
- World Wild Life Fund (New Zealand)
- Japan Tropical Forest Action Network
- Tropical Rainforest Action Group
- Maruia Society

Principles for Commercial Plantation Forest Management in New Zealand



Objectives
To promote understanding between the signatory parties with a view to New Zealand achieving environmental excellence in plantation forest management and participating as an effective advocate internationally for the sustainable management of plantation forests and the protection, preservation, and sustainable management of natural forests. These principles are complementary to the New Zealand Forest Accord (August 1991).

Scope
These principles have been written to apply to New Zealand's plantation forest management and do not cover environmental and social issues associated with processing, products and use beyond the forest gate. It is recognised that criteria and standards for plantation forest management are being developed through various processes.

Definitions
Natural Forest - Areas of land which are predominantly covered in indigenous tree species that are naturally established, including managed indigenous forest areas where regeneration is supplemented by planting of indigenous species.
Plantation Forest - Areas of land predominantly covered in trees grown for cropping and managed primarily for commercial purposes and excluding natural forests as defined here.
Natural Areas - Areas of land with a predominant cover of indigenous vegetation, including natural forests as defined above, and also naturally occurring water bodies.
Sustainable Management - In the context of New Zealand's Resource Management Act (1991) sustainable management includes:
Managing the use, development, and production of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while - Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and Avoiding, remedying, or mitigating any adverse effects on the environment.

New Zealand Forest Accord
The objectives of the New Zealand Forest Accord form the basis for these Principles. These objectives are:

- to define those areas where it is inappropriate to establish plantation forestry
- to recognise the important heritage values of New Zealand's remaining natural indigenous forests and the need for their protection and conservation
- to acknowledge that the existing area of natural indigenous forest in New Zealand should be maintained and enhanced
- to recognise that commercial plantation forests of either introduced or indigenous species are an essential source of perpetually renewable fibre and energy, offering an alternative to the depletion of natural forests
- to acknowledge the mutual benefits emanating from an accord between New Zealand commercial forestry enterprises and conservation groups and the example that this unique accord can provide for the international community.

Global Consensus on Sustainable Forest Management
The parties recognise that the process of inter-governmental consensus building on sustainable forestry management is ongoing under the aegis of the United Nations and that non-governmental organisations continue to work towards complementary goals. These Principles represent a New Zealand response with regard to commercial plantation forests.

Principles For Plantation Forest Management
The parties agree that:

- the inter-dependence of ecological, economic and social sustainability must be recognised;
- efficient and effective monitoring is required in the implementation of these Principles;
- in the implementation of sustainable land management, rural land users should be treated equitably, based on the environmental effects of their activities;
- management practices must meet or improve on all statutory requirements and accepted best practices.

- Ecological Principles
  Recognising the need for operational flexibility, forest management activities shall be carried out in accordance with the following principles:
    - Indigenous Biodiversity
    - The parties agree that the protection of New Zealand's indigenous biodiversity and, where appropriate, its restoration, are important objectives.
    - Indigenous biodiversity will be protected primarily in natural areas.
    - The protection of indigenous biodiversity in plantation forests is not the primary objective but should be recognised and provided for where appropriate.
    - Where threatened species are known to occur within plantation forests and their presence is considered significant by the Department of Conservation, plantation managers shall consult with the Department of Conservation on management practices with the objective of conserving the population.

- Plantation forests shall not replace natural forest and other natural areas, as agreed under the instruments of the New Zealand Forest Accord.
- Plantation managers shall take all practical steps to protect indigenous vegetation along the margins of water bodies where appropriate.
- Plantation managers shall recognise, and where appropriate, facilitate the restoration of depleted indigenous habitat on critical areas under their management.
- Plantation managers shall take all practical steps to safeguard designated reserved natural areas within or adjoining plantation forest boundaries from any adverse effects of forest operations.
- The spread of wilding trees into natural areas is a matter of national concern. Plantation managers acknowledge their responsibility to prevent, to the best of their ability the spread of wilding trees from within their plantation forest boundaries, while recognising the property rights of adjacent land owners.

- Air, Water, Soil and Ecosystems
  Plantation management shall safeguard the life-supporting capacity of soil, water, and air.

  Plantation managers shall maintain or enhance soil quality and minimise soil erosion for the purpose of maintaining site productivity and water quality.

  Forestry operations shall be conducted in a manner that safeguards stream margins and water bodies with the objective of achieving healthy aquatic ecosystems.

  Any applications of agrichemicals, including fertiliser, will be undertaken in a manner to avoid adverse environmental effects.

  Resource, Energy, and Waste Management
  Plantation managers will, to the best of their ability, conduct forestry operations in an energy and resource efficient manner, minimising and disposing of waste in an environmentally acceptable way.

- Agrichemicals, Biological Control, Pests
  Animal and plant pests can substantially reduce crop productivity and therefore should be controlled. Plantations can also harbour weeds and other pests that can spread to nearby natural areas.

  The application of agrichemicals should be conducted according to the New Zealand Agrichemical Users Code of Practice and minimised to levels essential for ensuring a commercially viable crop without causing adverse environmental effects.

  An integrated management approach to pest control will be adopted recognising that pest problems can be minimised by appropriate management regimes.

  Pest control methods should have minimal and environmentally acceptable impacts on non-target species.

Biological control agents and the introduction of other new organisms are limited to those that have been screened for non-target impacts and a precautionary approach taken with respect to potential adverse environmental effects.

- Social
  - Public Access
    Access to some plantation forests for recreation is important to the general public.

    Plantation managers should provide for responsible public access to forests where appropriate.

  - Tenure and Use Rights
    Secure tenure and use rights to land and forest resources are important to provide investor confidence in plantation forestry.

    Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

  - Landscape, Aesthetics, Recreation and Cultural Heritage
    New Zealand contains many distinctive natural landscapes that are important for public use, appreciation and identity.

    Landscape, amenity and recreation values should be considered and, where appropriate, provided for in the planning and management of plantation forests.

    Plantation management will provide for the protection of discrete sites of important cultural and historical significance on the recommendation of a recognised authority.

  - Community Consultation

    Community consultation is an important component of responsible forest management.

    Plantation managers should consult on management operations that impact on significant public use, environmental, and amenity values of plantation forests and neighbouring areas.

  - Social Effects
    Plantation management provides both social benefits and costs to communities and society.

    Plantation managers shall protect the health and safety of their people and the public through meeting statutory requirements and using codes of practice.

All industry employees will be qualified in the skills that are relevant to the tasks they are performing or be under training to acquire such skills.

- Economic
  Plantation management is primarily concerned with the establishment and harvesting of tree crops for commercial purposes. The industry operates in a market environment and managers need the freedom to change management practices to meet changing consumer preferences in pursuit of maximising economic returns.

  Plantation managers will be free to maximise the economic return from plantation forests provided their operations meet statutory requirements and comply with these Principles.

  The costs and benefits of environmental effects should be incorporated into forest industry annual statements.

Implementation:
The parties to these Principles agree to meet from time to time to monitor their implementation and address issues which may arise.

Additional interested parties are welcome to become signatories to these Principles with the full support of the signatory parties.

The Principles are agreed between the following parties and signed in Wellington on Wednesday 6th December 1995:

New Zealand Forest Owners Association Inc
New Zealand Farm Forestry Association Inc
Royal Forest & Bird Protection Society of New Zealand Inc
WWF-NZ (World Wide Fund for Nature New Zealand)
Federated Mountain Clubs of New Zealand Inc
Maruia Society Inc

MEMORANDUM OF UNDERSTANDING

Between

NEW ZEALAND FOREST OWNERS ASSOCIATION

and

NEW ZEALAND FARM FORESTRY ASSOCIATION

and

FEDERATED FARMERS OF NEW ZEALAND

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1. Purpose

1.1 The purpose of this Memorandum of Understanding between the New Zealand Forest Owners Association (FOA), the New Zealand Farm Forestry Association ("NZFFA") and Federated Farmers of New Zealand (Federated Farmers) is to develop general guidance to assist in managing relationships between forest owners/managers (Forest Managers) and their farming neighbours (Farmers), to promote co-operation and constructive neighbourly relations.

1.2 While this Memorandum of Understanding formalizes the relationship between the parties, the FOA, NZFFA and Federated Farmers acknowledge that it is not legally binding and has no legal effect.

1.3 It is agreed as a guiding principle that timely communication is the key to good neighbourly relations, thus enabling the parties to plan well ahead for good outcomes when dealing with operations that may impact on any party's land or business.

2. General communications

2.1. Forest Managers will on request provide Federated Farmers regional representatives with a copy of an appropriately scaled map showing forest locations for the main companies, along with the office contact details. This will be made available to be circulated to Federated Farmers members and Regional Councils.

2.2. Forest Managers will make contact with Farmers prior to any significant operations in the block to discuss potential impacts and agree processes for dealing with them. This includes any engineering, harvesting, thinning/pruning or aerial spraying operations adjacent to forest boundaries that have the potential to impact on the neighbouring property.

2.3. Farmers will make contact with the neighbouring Forest Manager prior to any farming operations that could cause impacts to the forestry block, including earthworks and aerial spraying along the forest boundary.

2.4. Forest Managers will endeavour to make contact with Farmers from time to time during the growing phase of the forest to maintain communications. This would ideally be on an annual basis via email, phone call or visit. To facilitate this, and using the maps developed by Forest Managers, it would be prudent for Farmers to provide contact details to Forest Managers upon purchase of a farm with forest boundary. Where possible, Federated Farmers will assist with contact details using their members' data base.

2.5. Where either neighbour adopts organic or similar land management practices that preclude the use of commonly used herbicides on their land and notifies the adjoining neighbour of this, both neighbours acknowledge the difficulty of controlling pest plants on the non-planted boundary of a plantation, and will work together to find the best practicable means of minimizing growth of such plants. That may mean reliance on spot spraying or planting closer to the boundary to suppress weeds. It is recommended any agreements between neighbours are recorded in writing.

2.6. Where considered beneficial, Federated Farmers, NZFFA and FOA will approach Territorial Local Authorities to request they store owner/managers contact details, and authorise that such details be made available on request, to facilitate availability of contact details.

3. Boundary Fence Issues

3.1 The Forest Managers and Federated Farmers recognize that fences are a jointly owned asset and agree that secure boundary fencing to contain stock is critical to the operations of both parties. Damage to boundary fences has the potential to cause major disruption to farming operations, loss of stock and damage to tree crops.

3.2 It is agreed that fences need to be adequate for their purpose of containing stock. Fences requiring a higher specification will be by way of agreement between the parties.

3.3 It is agreed that it is desirable for Forest Managers to monitor and manage the tree crop to reduce fence damage through management of edge trees where required to prevent encroachment onto the fence (suitable planting setbacks and/or trimming of branches on edge trees encroaching onto fences).

3.4 Federated Farmers accept that in many situations Forest Managers are unable to easily monitor the condition of boundary fences and are reliant on neighbours to notify them of damage (provision of GPS coordinates of damage are helpful).

3.5 In the event that a Farmer finds damage to a boundary fence caused by trees or forestry operations they will attempt to contact the Forest Manager in the first instance. Upon notification Forest Managers will endeavour to make contact with the Farmer within 24 hours, and reach agreement on the process and timing for repairs.

3.6 Likewise if damage to the boundary fences is caused by a Farmer's operations or stock, Farmers will remove any stray stock and repair the fence as soon as practical to avoid damage to trees.

3.7 In event of damage to boundary fences, fence repairs will be carried out in accordance with the Fencing Act. In summary:

- If the damage is caused by forestry operations or the forester's trees (branches or toppling) the Forest Manager will arrange and pay for repairs
- If the damage is caused by farming operations or stock, the Farmer will arrange and pay for repairs
- If repairs are required as routine maintenance due to depreciation of the fence, the Forest Manager and Farmer will agree on a process for maintenance to be carried out and paid for on a 50:50 cost share.

3.8 Alternative arrangements (such as Farmers fixing their own fences and charging the Forest Manager) are supported but are subject to agreement between the Forest Manager and Farmer prior to any work being undertaken.

3.9 Forest Managers will endeavour to consult with the Farmer well prior to any harvesting operation that could cause fence damage, and agree processes to minimise disruption to the farming operation and for repairing any damage should it occur. Initial contact would ideally take place at the time of harvest planning with follow up contact at least one month prior to harvest.

3.10 In the event that trees cannot be harvested and it is necessary to leave either individual trees or a stand of trees alongside a farm boundary, within toppling distance of the boundary fence (<40m) the Forest Manager will consult with the Farmer and reach agreement on how the trees will be left (e.g.: left standing, felled to waste, poisoned).

4. Plant and Animal Pests

4.1 Forest Managers and Farmers will endeavour to monitor boundaries and control plant pests on their land in accordance with the local Regional Council Regional Pest Management Strategy (RPMS) and any National Pest Management Strategies.

4.2 If either party finds weeds along forest boundaries that contravene the RPMS they will attempt to contact their neighbour in the first instance. Once notified the party on whose land the weeds are located will arrange for plant pest control operations to be carried out in a timely manner (next suitable spraying season).

4.3 In some situations topography and the tree crop mean that ground access to forest boundary weeds is dependent on access through the Farmer's property. This will be subject to agreement between the Forest Manager and the Farmer.

4.4 Where wild pigs are causing damage, Farmers are encouraged to contact the Forest Manager or vice versa to discuss a mutually acceptable process (e.g. access for hunting or mutual vigilance to watch for any third party releasing pigs into forests).

4.5 Where access for recreation is managed by the Forest Manager, they may at their discretion allow recreational hunting on their land by Farmers if they so desire. Access for hunting/recreation in these instances can generally be arranged via access permits (refer contact details on forest location maps). Access and hunting on leasehold and joint venture forestry properties may be constrained by provisions in lease and joint venture agreements.

4.6 It is acknowledged that hunting by external parties can cause concerns for neighbours, in particular relating to uncontrolled pig dogs straying onto neighbouring land. On land where hunting is controlled by the Forest Manager, the Forest Manager will endeavour to manage hunting access through a permit system, incorporating a system for receiving and managing any complaints or issues regarding hunting. As noted, this is not always possible on lease or joint venture land where hunting rights may be controlled by the landowners.

5. Planting and replanting setbacks

5.1 When undertaking afforestation the rules in the applicable District Plan will apply.

5.2 The rules may allow for an exception to the setback rules on written approval of an affected landowner. In such situations the recommended process to capture such an agreement is to document the detail of the agreement and submit this to the Council to lodge on the property file or Land Information Management report.

5.3 Replanting of existing crops is covered by existing use rights where closer than the current rules. However for the purposes of replanting by FOA members, for planting in situations where no District Plan rules exist and in future District Plan processes, FOA and Federated Famers agree that plantation trees should be planted 10m from a neighbouring farm boundary unless:

- Both neighbours are growing production trees in woodlots or plantations on adjoining land in which case trees can be planted closer on agreement.
- Where the Council requires that trees be planted closer to boundaries for the purposes of control of gully erosion or soil conservation.
- The Forest Manager makes a commitment to prune the outside row of trees to an agreed height and timing, in which case the trees may be planted closer on agreement.
- Where the neighbour on the adjoining land provides written approval for a lesser setback.

5.4 It is agreed that whenever a replanting setback will trigger a deforestation liability under the NZ Emissions Trading Scheme or subsequent climate change legislation, then both neighbours agree to trees being replanted to a setback that will avoid liabilities, but no closer than the previous stumpline.

6. Agrichemical application

6.1 It is agreed that the ability to undertake aerial application of agrichemicals is beneficial to both farming and forestry operations. It is agreed that all parties undertaking agrichemical application along boundaries will take all reasonable and practical precautions to avoid overspray to the neighbouring property that could cause damage to either party's property or operations, and that Regional Plan rules will be complied with at all times.

6.2 In the event that overspray does occur, it is recommended that in the first instance the situation is best resolved between the parties. Where it is clear that damage has occurred as a result of the neighbour's spray operations, the party that caused the damage will take all reasonable steps to remedy the damage on the neighbour's property, e.g. paying for regrassing or replanting of trees killed by herbicide application.

7. Duration of Agreement

7.1 The provisions of this Memorandum of Understanding may only be altered with the written agreement of the parties.

7.2 This Memorandum of Understanding will remain in force until terminated by either party giving one month's notice in writing to the other party.

Dated this 19 day of November 2013

Signed on behalf of the
New Zealand Forest Owners Association
Paul Nichols, President

Signed on behalf of
Federated Farmers of New Zealand
Bruce Wills, National President

Signed on behalf of the
New Zealand Farm Forestry Association
Ian Jackson, President

Appendix V: HFM NZ Planning Guides:

- **Planning Guide 1: Guidelines for planning operations around waterways**
- **Planning Guide 2: Guidelines for managing visual impacts of operations**

Hancock Forest Management

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Hancock Forest Management (NZ) Ltd

PLANNING GUIDE 1
GUIDELINES FOR PLANNING OPERATIONS AROUND WATERWAYS

CONTENTS

1.0 INTRODUCTION

A key factor that is taken into account when planning plantation forestry operations is the potential impact on stream, river, lake and wetland systems. If operations are poorly planned and executed, water quality and in-stream aquatic values can be impacted by a range of potential effects such as sediment discharges, destruction of habitat, increased temperature and stream bank erosion. These impacts can impact values not only within the forest but also downstream resulting in the risk of negative publicity, poor perceptions of plantation forestry practices, and possible enforcement action by Regional Councils.

The purpose of this document is to provide guidance to staff planning and managing harvesting and forestry operations to assist in developing appropriate standards and controls for forest operations around stream margins, taking into account stream values and the level of risk of environmental damage occurring.

2.0 STATUTORY REQUIREMENTS AND CODES OF PRACTICE

It is essential that the Planner has read and understands the requirements of the relevant Resource Consent conditions and any relevant documents referenced under the consent. In some cases additional Regional/District Plan rules apply. Above all, the instructions in the Harvest Plan or Work Prescription must comply with these requirements. If any requirements of consents or associated documents are not clear, talk to the Environmental Planner.

The Planner should also have read the NZ Environmental Code of Practice for Plantation Forestry and plan in accordance with the relevant sections of this code.

3.0 ASSESSING STREAM AND RIPARIAN VALUES

3.1 In-stream values

When planning the harvesting of a block, a first step is to determine the location of all waterways in the block, including ephemeral channels, seasonal waterways, perennial streams and wetlands. The GIS hydrology layer shows the location of all waterways however this should always be ground truthed to confirm the locations are correct.

The next step is to determine the values of the waterways present. All flowing waterways, no matter how small, provide value in the delivery of clean cool water to larger downstream waterways. For this reason operations should always be planned to minimise potential impacts on waterways as far as practical.

Additional values that may be present include:

- Habitat for rare, threatened or endangered species:
- Fisheries values: Koura, eels and native fish are typically present in all perennial forest streams, unless there is a downstream barrier preventing access, particularly those near to the coast. Trout and other introduced species may also be present.
- Recreational use: Fishing and eeling, and on larger waterways boat access and water sports.
- Water supply: In some situations neighbouring landowners have water takes located within or downstream of the forest for domestic or stock water.

Regional Plan maps generally provide information relating to the values in medium to larger

sized waterways in the region.

3.2 Riparian Values

Riparian areas are the strip of land immediately adjacent to the banks of a water body (stream, river, lake or wetland). A wide range of terms apply to riparian areas including riparian/buffer strips, streamside management zone and riparian management zone. Most Regional Plans contain a guide to determine the width of the riparian zone, and all are different (varying from 5m up to in some cases 100m).

Riparian vegetation in a plantation forest (whether native or exotic) carries out the same function as in a native forest stream, principally protection of in-stream habitat values through shading and therefore temperature control, and the production of vegetative input for the macro-invertebrate community.

In a production forest riparian buffers also provide three other important functions during forest operations:

- A zone for filtering sediment and debris derived from harvesting and earthworks operations or unsealed roads in close proximity to streams.
- In the case of native riparian vegetation, the provision of a residual habitat (wildlife corridors) potentially linking larger areas of ecological significance during the harvesting and regrowing phase of the production forest, when the habitat provided by the plantation forest trees has been removed.
- On larger rivers, a visual buffer along the stream edge for recreational users.

Where large native riparian vegetation reserves are present, and in particular if the area was present and left as a reserve at the time of planting the production forest, the vegetation within the riparian strip itself will have important ecological values. All significant reserve areas have been mapped and assessed by Wildland Consultants, and where this is the case the ecological assessment of the areas should be reviewed. The Wildlands assessment provides an ecological classification for each reserve area from Category 1 (generally larger areas of pristine native) down to Category 5 (low ecological value). A full description of the Wildland Categories is provided in the HFM NZ Reserves Management Strategy. As a general rule Category 1-3 vegetation is considered to be 'significant' vegetation in terms of implementation of the purposes and principals of the Resource Management Act and should be protected as far as practical from damage. Damage to Category 4 vegetation should be minimised as far as possible and be temporary in nature.

In addition to the above, riparian zones may form habitat for rare, threatened or endangered species, such as Hochstetters frogs. In general this will have been identified and those areas mapped in a GIS restrictions layer. When planning operations in those areas guidance should be obtained from the Environmental Planner.

3.3 Stream Classification

3.3.1 General

A tool used by HFM NZ to guide planners in the decision making process is the use of a stream classification system. The stream classification system is a two stage process involving firstly classification of 'stream type', based on its size, use and values, and secondly a rating for environmental risk. The combined classification can then be used to provide guidance for appropriate methods for managing slash, and also recommendations for replanting setbacks.

3.3.2 Stream Type

The classification of 'stream type' is based on a system developed in North America to classify streams according to their size, recreation and/or fishery values. The classification is a number system from Type 1 (a large multi-use river) down to Type 5 (ephemeral stream). This numbering system should not be confused with stream order which is unrelated.

The following is a guide to assigning stream type:

Type 1: Major Recreational Use and High Visual Values
This type is defined as having high landscape and recreational values, from both the local and international perspective. These water bodies have very high, well-defined banks and terraces, and stream widths >30 metres. They convey very large flows, in the order of hundreds of cumecs. The size of the water bodies provides for large scale multi purpose recreational use. Trout fishing is important for many national and international fishermen.

Examples of Type 1 Rivers and lakes are Waikato River, Motu River, Lake Taupo and hydro lakes such as Matahina.

Type 2: Smaller Multiple Use Rivers
Type 2 rivers consist of perennial, multiple use rivers or streams, generally containing native fish and trout spawning areas. The water surface is typically 10-20m in width with minimum streamflows >1000 l/sec. Identifiable streambanks with numerous small flood plains are likely. Recreational use is restricted to smaller craft such as powerboats, canoes etc because of waterbody characteristics.

Examples of Type 2 rivers and lakes include Waihou and Oraka Rivers (South Waikato), Lee River (Nelson) and Mangakahia River (Northland)

Type 3: Medium sized perennial streams
This stream type consists of perennial, generally second order streams, named on NZMS 260 1:50,000 topographical maps. The water surface is typically 5-10 metres in width with flows in the order of <1000 l/sec. They provide native fish and trout spawning habitat but generally not recreational fishing areas. They may have limited recreational values because of limited public access within the forests but should be wide enough to canoe. These are typically the larger streams within forest production areas. They may include wetland areas with flora and fauna values rather than having recreational values.

Examples of Type 3 streams include Pokaiwhenua Stream (South Waikato), Finlayson's Brook, Waihoihoi and Opouteke (Northland)

Type 4: Small Perennial Streams
This type consists of small perennial streams commonly found in production forest areas. They are generally <3m in width and have a base flow of less than 100 l/sec. Generally they are too small for recreational use. They are likely to provide native fish habitat where they are accessible from the coast. Streams of this type in forests situations commonly incorporate wetland areas, forming the valley bottom in most middle and upper catchments. Generally these wetland areas have very little standing clear water, with vegetation ranging from carex, flax, raupo and sedge depending on the amount of soil moisture water.

Type 5: Ephemeral / Seasonal Streams
This type consists of ephemeral or seasonal, generally first order streams. These streams do not flow all year round but have a defined flow channel. They range from streams that flow only after rain, to those that flow most of the year but dry up for several months during the dry summer period. As with Type 4 streams, wetland areas are common. A wetland in this class is likely to be characterised by water tolerant vegetation (for example sedge and manuka) in the uppermost part of a catchment. Areas may have been planted in the past but indicate poorer growth due to the high water tables.

3.3.3 Environmental Risk

The environmental risk component of the classification is a measure to take into account risk that cannot be captured by the stream type classification alone. Two streams of similar size and values may have entirely different risk profiles due to their location, climate etc.

The risk rating is assigned by assessing the full range of potential adverse effects and categorising the stream as high, medium or low risk. Factors that should be considered when assigning the risk rating include:

- Climate and likelihood of high intensity rainfall events
- Surrounding topography and soil stability
- Catchment size, permeability and likelihood of flooding
- Proximity and importance of downstream infrastructure both internal and external to the forest – houses, fences, culverts, bridges, water intake structures etc
- In-stream ecological values - species present and their rarity
- Classification of the stream under the relevant Regional Plan
- Visibility of the site and/or proximity to neighbours boundaries, state highways or public roads
- Proximity of trees to the stream margin or on steep slopes above the stream
- Evidence of historic or recent landslide activity
- Classification of the stream under the relevant Regional Plan

A high level of risk for any one of these factors would lead to a high risk rating, and therefore a greater level of care when planning and executing operations around the stream. The following is a guide to the three risk categories:

High Risk:
Significant risk of major damage to in-forest or off-site structures, stream and habitat damage, degradation of high landscape values or threat to recreational values. High in-stream ecological values.

Moderate Risk:

Damage would only likely occur in large events, which are not common (1 in 50 years or more). Harvesting slash and cutover will be relatively stable, in-stream material is not detrimental to fauna or structures. Effects would be contained within the forest

Low Risk:
In-stream material is not likely to move in storm events, no structures are under threat, low public interest/visibility, ecological values are low.

Section 4.6 provides further guidance regarding assessing the risk associated with slash movement.

4.0 PLANNING GUIDE FOR HARVESTING AND EARTHWORKS OPERATIONS

4.1 Introduction

This section reviews the potential impacts of operations on the stream environment and provides guidance to planners to develop practical instructions for inclusion in Harvest Plans to manage the effects of operations on the stream environment. The following are some of the topics that the harvest planner should consider in the harvest planning process.

4.2 Proximity of Earthworks to streams

As a general rule earthworks should be located well away from waterways to provide a sufficient buffer zone for trapping sediment between earthworks and the stream. In steep topography, ridge top roading and landings is the optimum solution wherever practical.

A key decision in steep country is the location and number of landings so as to minimise impacts on the stream environment caused by hauler operations extracting logs over streams. There will always be a trade off between the risk posed by the additional engineering infrastructure required to enable pulling away from streams, and damage to riparian zones caused by extraction. A number of studies have confirmed that most of the sedimentation associated with forestry is sourced from earthworks related to roading, tracking and landing activities (Wallis and McMahon 1994), and that in steep country a small riparian buffer is generally ineffective to retain this sediment. In such situations hauling over streams is often the optimum solution to minimised the volume of high risk earthworks. Hauling over streams is generally limited to Type 4 or 5 streams, and in occasional circumstances Type 3.

The HFM NZ Environmental Standards specify a minimum 5m buffer between earthworks and streams, with the exception of stream crossings. In some situations topographical constraints leave no alternative other than to locate a road or landing within 5m of a stream. In such situations additional controls should be specified in the harvest plan to contain the earthworks and effectively manage sediment. This is particularly important for skid sites that can have a tendency to 'creep' outwards during operation.

Where the harvest plan shows earthworks in close proximity to waterways, the harvest plan should specify:

- the intended buffer distance
- specific requirements to minimise operations impacting the waterway eg: barriers or bunding between the operation and the waterway, sediment controls etc

4.3 Protection of Riparian Vegetation

Any native riparian reserve within the block should be identified in the harvest plan, and guidance provided as to the appropriate treatment of that vegetation.

As a general rule native riparian vegetation should be retained wherever it is practical to do so, regardless of the ecological merits of the vegetation itself. However as noted above, in steep hauler country with small streams, protection of all riparian vegetation is often not practically achievable.

Further considerations are:

- The values of the riparian vegetation present. If the riparian zone contains significant vegetation generally this will be mapped in the GIS mapping system and assigned an ecological classification.
- The ability of vegetation to recover from damage. Carex or raupo wetland vegetation or succession species such as five finger, will recover in months to one year but podocarp forest may take 20-30 years.
- Habitat values, species present, and the rarity and mobility of those species: Wetland bird species will generally only move small distances under vegetation cover, making them more vulnerable to vegetation damage if there is no suitable adjoining habitat for them to retreat to. Flying birds on the other hand, can generally fly greater distances between remnant forest cover and other mobile ground dwelling birds (eg kiwi) have large territories and can move between harvest areas.

For hauler operations the following is a general guide regarding hauling over established riparian vegetation.

Wildlands Consultants Riparian vegetation classification	**Guide**
Category 1-3 riparian vegetation	Hauling over riparian vegetation should be avoided. If it is unavoidable discuss with the Environmental Planner and consider consulting with external parties (Dept of Conservation, Council staff).
Category 4 riparian vegetation	Hauling over should be avoided if practical, but if not avoidable specify techniques to minimise disturbance eg reducing payloads and maximising suspension, hauling through corridors.
Category 5 or unmapped vegetation	May be hauled over.

Note: The above is a guide only. In all situations any over-riding consideration is the resource consent conditions, that must be complied with.

In all cases when hauling over existing riparian vegetation (outside of the productive area) care should be taken to minimise disturbance of that vegetation. For vegetation that has been assessed (by Wildlands Consultants) as category 3 or above, additional techniques should be applied such as:

- Reducing payloads and/or use of motorised carriages or other techniques to maximise lift over the riparian zone
- Bridling and hauling through identified corridors to retain high value vegetation as far as practical
- Assigning suitable hauler equipment to the block to maximise lift

In ground based operations directional felling and back pulling should be used where practical, to minimise damage to native riparian reserves.

Typically the harvest plan would specify:

- Riparian vegetation must not be disturbed, or
- Riparian vegetation may be disturbed but disturbance must be minimised by (s*pecify techniques or requirement to consult with HFM),* or

- Riparian vegetation may be disturbed

The map must be clear as to which areas of stream these instructions apply to.

4.4 Machine Exclusion Zones

The HFM NZ Environmental Standards specify a minimum 5m buffer zone for machine operation and earthworks from waterways. The exceptions to this are at stream crossings, and where crop trees are located within 5m of waterways and machine operation in the 5m zone cannot be avoided (generally ground based operations).

All harvesting contractors should be familiar with the requirements of the HFM NZ Environmental Standards, and in many cases no specific mention is required in the Harvest Plan. Some exceptions where the risk should be specifically addressed in the Harvest Plan include:

- Where it is obvious when planning the block that there is a high risk of stream disturbance and the engineering or harvesting contractor is going to have to take particular care to minimise that disturbance. E.g. where infrastructure such as skid sites are located very close to a waterway and the harvesting contractor will have to take extra precautions in managing the site to avoid operations encroaching on the stream.
- Where particular values are present that require complete machine exclusion over and above what is typical e.g. rare species present.
- Where the values of the stream are such that a greater stream exclusion zone than 5m is appropriate (e.g. bordering a stream with very high recreational use).

In such situations the Harvest Plan should provide clear instructions on the additional requirements, and where those requirements apply.

4.5 Protection Zones

If known populations of threatened species are located within the riparian zone (e.g. Hochstetters frogs) this must be identified in the Harvest Plan map and guidance obtained from the Environmental Planner as to appropriate controls to be included in the Harvest Plan. In such situations guidance would typically be obtained from the Dept of Conservation and in some cases a Biodiversity Management Plan will be in place.

4.6 Slash Management

4.6.1 General

Native and exotic forest streams have varying amounts of woody material in and over them, as part of the natural forest lifecycle. Natural slash exists in streams as the result of windthrow, bank undercutting, branch and stem breakage and leaf fall. This is positive to the stream or the ecosystem, providing food and habitat for the many in-stream insects and fish and influencing flow and sediment retention characteristics.

In an exotic plantation forest some wood is delivered to steams mainly via windthrow or bank undercutting processes as the stand matures. However most of the wood is delivered to streams during and after harvesting as a result of:

- Hauling over streams resulting in slash being dragged down the slope into the stream during the extraction process.

- Damage to streamside trees (native or production) during felling and extraction of crop trees, causing tops and limbs to be dropped into the stream.
- Mobilisation of mid to upper slope slash from the cutover into streams during high intensity rainfall events after harvest.
- Incised stream bank sides with no floodplain allow material to roll down the slope into the stream

Slash in streams can consist of small mobile branches, larger intact stem material and in some cases stream-side indigenous vegetation. The level of slash entering a stream will be dependant on the method of harvesting, topography, species and the size of the riparian buffer. The preferred outcome is to minimise the level of slash entering a stream by ideally pulling away from the stream wherever practicable. However, topographical or other constraints may make this impossible or impractical making it inevitable that some slash will enter the stream. In these situations an assessment must be made as to whether slash is potentially detrimental to the in-stream and downstream values.

The key factors that need to be assessed in determining whether slash that enters a stream can remain in-situ are the effect of the slash on the stream ecosystem itself, and the risk of slash mobilising and causing unacceptable damage to the stream and/or downstream infrastructure. A range of factors are taken into consideration when making this assessment.

Stream size is a key factor in assessing slash risk. In small headwater streams where most of the slash is spanning over the stream channel, and flood risk is low, leaving slash in place can be beneficial in maintaining shade and water temperature, increasing channel roughness and dissipating flow. Stream cleaning, particularly by mechanical means, would often be more detrimental than leaving the material in-situ. In such situations slash can generally remain, if allowed by the resource consent.

In larger streams where logging slash can no longer span the stream channel and stream flow is high, slash may be mobilised and can lead to debris dams, bank undercutting, stream diversion and damage to downstream infrastructure. In such situations partial or complete slash removal is required. Research in New Zealand and overseas shows that retention of large stable pieces of woody material in waterways is beneficial to ecology and in reducing risk (Evans et al. 1993; Collier and Baillie 1999; Collier and Halliday 2000; Gregory et al. 2003; Baker and Smith 2007; Baillie et al. 2008). These pieces persist over time, assist in the retention of small mobilised slash, sediment and organic matter in the stream system, provide habitat for freshwater biota and are the least likely to move during high flow events.

Examples of stable woody material includes:

- Windthrown trees – both the present of a rootwad and branches makes them extremely stable even in flood events
- Long branches and stems at least longer than the channel bank full width – the longer they are in relation to channel width the more stable
- Long branches and stems extending outside the channel ie partially on the bank
- Woody material that is partially buried
- Full stems (with branches attached are even more stable)
- Large non-merchantable pieces of logging slash that bridge over the stream ie sitting over an incised channel with unrestricted waterflow underneath.

Unless there is some overriding reason why this material must be removed (instruction from a Regional Council or resource consent requirements) large stable material as described above

should be left in-situ. If slash removal is decided to be necessary, it should be targeted at the loose easily mobilised branch material.

Further to stream size, other key factors to be assessed when determining the likelihood of slash mobilisation are:

- Stream storm response: Slash is less likely to mobilise in streams in free draining spring fed streams with low response to rain events (such as in the CNI pumice lands), than in streams with a significant storm flow.
- Topography: the steepness of the stream channel itself and the slopes above the stream contribute to slash mobilisation
- Climate: the likelihood of high intensity rainfall events – of greater risk in coastal Northland and Eastern Bay of Plenty than the Central North Island or Nelson.

4.6.2 Slash Management Guide

As a general rule, harvest planning should be carried out to minimise the volume of slash entering a water body. Where it is impossible to avoid slash being deposited either directly into a water body, or being left in a position where it could enter a water body, the following is a suggested guide to slash removal based on the stream classification system. It should be noted that this is a guide only and an over-riding factor will be the requirements of the site resource consent, and/or Regional Council permitted activity rules or practice guides with regard to slash removal.

Type 1 and 2 Rivers:
Type 1 and 2 water bodies are too wide for log extraction to take place across them and typically have a significant riparian buffer. Therefore it is assumed that harvesting will be carried out in a manner to avoid slash entering the river. If this is not the case, for example felling edge trees planted too close to the river, any slash entering the water body or in the flood channel for moderate storm events, must be removed promptly.

Type 3 Streams:
Wherever practical, operations around Type 3 streams should also be planned so that logs are extracted away from the stream. Likewise felling and extraction of stream edge trees should be carried out by felling and pulling away from the stream to avoid slash entering the stream. Where it is necessary to tie off over the stream some slash may be generated by cable whip causing damage to stream edge production or native trees. Furthermore, in some situations there may be no alternative to hauling over the stream.

In these instances all care should be taken to minimise the risk of slash entering the stream through the use of accepted best management practices such as ensuring some suspension of logs or the use of a carriage device to only disturb specific corridors.

If slash does enter the stream it should be removed entirely. The exception to that is in low risk Type 3 streams of smaller size and with stable flow. In such streams it may be acceptable to leave the large stable slash in place, and remove only the potentially mobile loose branch material. Such treatment can only be considered where it is permitted by the resource consent and accepted by the Regional Council.

Where slash removal cannot practically be achieved a full assessment must be undertaken to develop a proactive plan to manage slash, with input from the Environmental Planner, Harvesting Manager and Harvest Planner. In high risk situations where there is a high risk of

slash entering the stream that cannot be retrieved, felling to waste and/or retirement should be considered.

Type 4H and 4M Streams
Type 4 streams are typical small perennial forestry streams. Harvesting in situations with minimal riparian buffers or where harvesting is carried out over the stream will almost inevitably result in slash entering the stream. The decision on whether or not to remove slash is largely based on the risk of slash mobilising.

The high to moderate risk rating would generally indicate a higher risk of slash mobilising, the presence of downstream neighbours or infrastructure and/or high ecological values indicating that some slash removal is necessary. Unless complete slash removal is required by the resource consent it is recommended that only the potentially mobile slash (loose branch material) is removed, and all large stable slash is left in situ.

If slash removal cannot practically be achieved, a full assessment should be undertaken to develop a proactive plan to manage slash (e.g. a downstream slash trap), with input from the Environmental Planner, Harvesting Manager and Harvest Planner.

Type 4L Streams
The low risk rating indicates low ecological values and low risk of slash movement, therefore on assessment the slash is not creating harm and on balance may provide beneficial effects. In this situation slash may be left in place, provided that slash removal is not required by the site resource consent or other rules.

Type 5:
Type 5 seasonal or ephemeral streams will generally have low in-stream ecological values as the stream flows only intermittently and therefore does not provide a permanent habitat. There may be disjoint wetland areas of moderate ecological significance. Slash left in streams like this can be beneficial to maintaining in stream temperatures and dissolved oxygen levels. In such streams it is appropriate to leave slash in-situ, except in situations where it is considered a high risk that slash could mobilise in storm events and cause damage to the downstream environment or infrastructure. If it is assessed that slash mobilisation is a risk (i.e. a 5H stream) loose branch material should be removed or alternative measures implemented to contain slash (e.g. a downstream slash trap).

In addition to slash removal requirements, the Harvest Plan should specify the expected frequency for slash removal. In practise, many harvesting contractors find that it can be more effective, results, time and costs wise, to remove slash as they work along the stream, rather than returning at a later time. This is preferred from an effects point of view.

In some situations the guidelines given above will recommend slash removal in situations where topography (such as steep incised gullies) makes it impossible to do so practically or safely. If this is the case and the slash is considered a risk downstream, consideration should be given to the installation of a debris trap at the next accessible point downstream to contain slash during storm events.

The following table provides guidance as to appropriate slash management instructions for inclusion in harvest plans, based on stream classification.

Table 1: HFM NZ Slash Management Guide

Stream Classification	Slash Removal Requirements	Monitoring & Removal frequency
Types 1 & 2, 3H and 3M	Plan operation to pull away from waterway and avoid slash entry to stream. Any logging slash entering the stream must be removed	To be monitored daily and logging slash removed weekly
3L	• All slash must be removed, *or* • Remove all potentially mobile slash (loose branches) leaving only large stable material, *or* • Develop documented slash management plan to remove/contain slash	To be monitored daily and logging slash removed weekly
4H	• All potentially mobile slash (loose branches) must be removed, *or* • Develop documented slash management plan to contain slash	To be monitored on a weekly basis but removal to be completed at end of settling.
4M	• All potentially mobile slash (loose branches) must be removed, or • Develop documented slash management plan	End of each setting.
4L and 5H	Generally slash may be left unless removal is specified by resource consent conditions. If there is a high risk of slash mobilising in storm events, develop a slash management plan specifying containment methods.	End of setting
5M and L	Slash may be left in place	

NOTE: The above is a guide only. In all situations an over-riding consideration is the resource consent conditions specifying slash removal requirements. Harvest Plan instructions must comply with consent conditions.

4.6.3 Slash Management Plans

As described above, in certain circumstances a specific assessment may be required to develop a site specific slash management plan. This will typically occur where it is not possible to stop slash entering a creek and there is an identified risk that slash may mobilise, but slash management cannot practically or safely be carried out.

A site specific slash management assessment will be required to determine the best way to manage slash in the catchment, with input from the Environmental Planner, Harvesting Manager and the Harvest Planner. Any management plan or slash management decision must include removal and monitoring frequency and be recorded, documented and filed accordingly. Slash management in some catchments may need to be discussed with Regional Council for approval before works begin.

It is vital to insure the harvesting contractor understands what the slash management plan states and how slash management is to be achieved. This should be discussed with the harvest contractor at the harvest area induction. Slash should continue to be monitored during the harvest operations and reported back to HFM through the environmental audit process. It is critical to ensure post harvest monitoring of high risk sites also occurs after heavy rainfall events.

4.6.4 Slash Management Techniques

In some situations topographical constraints or the size and shape of the stream channel, will make manual slash removal impossible, and in many cases unacceptably dangerous. Ideally these situations should be identified at the planning stage. In these situations alternative slash management techniques must be specified.

Some options for managing in-stream slash include:

- Progressive removal of slash by the hauler as the operation progresses
- Slash traps: Installation of an artificial barrier downstream of the site to capture any slash that is mobilised. Slash traps can be constructed from railway irons or poles fixed vertically across the stream bed and held in place with wire rope to form a 'net' like structures which will catch any slash that moves downstream. Installation of a slash trap will generally require a resource consent. Slash traps must be located in an area that is easily assessable to maintain and clean out caught slash, and provides for flood bypass should the trap become blocked with slash.
- Strategically felled trees: As an alternative to a slash trap, trees can be felled at strategic points along a water course to act as a catch tree to hold up any smaller slash that moves through the stream, or if there is a risk of slash washing off the slopes in extreme storm events. The tree felled ideally would be a tree which is leaning towards the stream and has a lot of branches to capture material. The location and number of felled trees will depend on the layout of the block, volume of slash likely and presence of natural trap locations. Strategically felled trees should ideally be located at incised stream locations so the tree lies above water level at normal to low flow, and left hinged to the stump to give the tree extra stability. **This method must be approved by the Regional Council before use.**

In areas with steep slopes and extreme climatic events (e.g. Northland), the risk exists of slash mobilising not only within streams and flood plains during storm events, but also washing off slopes into streams. If the site is considered a high risk of slash mobilising and is close to a property boundary or downstream infrastructure an alternative method is to attempt to capture slash prior to entry to the stream.

In these situations high stumps can be left along the stream edge to capture slash off the slopes. To create an even more effective barrier trees can be felled parallel to the stream so they are resting behind the high stumps and act as a buffer or catcher to any small slash washing off the slope.

5.0 PLANNING GUIDE FOR FORESTRY OPERATIONS

5.1 Introduction

The establishment of a replacement stand of exotic forest has the potential to impact on the stream environment both during current and future operations. The key forestry operations that have the potential to affect this stream environment include aerial spraying, mechanical land preparation and planting. The following sections provide guidance to foresters planning these operations in HFM NZ forests.

5.2 Aerial Herbicide Spraying

Aerial spraying has the potential to impact the riparian zone through:

- ☐ Dessicating remnant riparian vegetation or wetland vegetation retained through the harvesting process
- ☐ Suppressing regenerating native and exotic vegetation acting to stabilise the riparian zone, control sediment and provide shading to streams.
- ☐ Potential impacts to instream and riparian zone fauna

When planning an aerial spraying operation all significant waterways, riparian vegetation and wetlands should be identified on the work prescription and clear instructions provided as to the protection of those areas.

As a guide:

- Any significant riparian or wetland vegetation present should be protected from spray damage (as far as is practical).
- Herbicide application shall be applied to leave a 5 metre buffer from all perennial (flowing all year) streams or wetlands, regardless of vegetation present.
- With the exception of chemicals approved for aquatic use, chemical application should be applied to avoid spraying over standing or flowing water.

Where applicable the work prescription should include guidance as to precautions to be taken to protect sensitive areas, including acceptable weather conditions and wind directions to ensure a positive wind off the sensitive boundary (internal or external).

All regional plans contain rules controlling aerial application of agrichemicals. In most (but not all) regions this is a permitted activity subject to rules. Prior to planning the operation read and understand the Regional Plan Rules and ensure conditions are complied with.

Mechanical Land Preparation.

Two types of cutover environment require Mechanical improvement to ensure a well stocked and evenly growing forest.
Lineraking or Roller crushing where the slash debris are so thick that is not practicable to archive the prescribed stocking.
Compacted soil types or frost flats where spot cultivation is necessary to provide a micro site where the trees have a better environment to grow.
The mechanical work will be prescribed to ensure no machine trespass into riparian zones, safety margins back from the edge of drop offs into streams will be described in the prescription.
Often work will be prescribed on both sides of a stream, the prescription will detail the route to

be taken to cross the stream to ensure no unmanaged disturbance of the stream margins by the machine while travelling.

5.3 Planting Operations

In many cases we have inherited a legacy of past planting decisions where trees have been planted too close to waterways, making it difficult to harvest trees without impacting the waterway.

When planning the replanting operation it is important to properly consider the future impacts of today's planting decisions and avoid recreating the same problems for the future. Feedback from Harvesting Foresters is a valuable source of information regarding areas that were uneconomic to harvest or created a high risk of unacceptable environmental impacts.
Our philosophy needs to be, step back and think what I am creating for a forest manager to deal with in 28 yrs time when expectations will be higher.

As a general rule trees must not be planted within 5m horizontal setback of a perennial stream (where the stream is located within a defined flood channel, the 5m distance should be measured from the edge of the drop off). This is considered a NZ industry minimum standard and is specified in many resource consents and the NZ Environmental Code of Practice for Plantation Forestry.

On larger streams a wider riparian strip should be considered, particularly streams with high recreational use. The following table provides a general guide to suitable planting setbacks based on the HFM NZ stream classification system.

Stream classification (refer s.3.3)	**Recommended minimum setback**
Type 1 River	30m
Type 2 or 3 River	10m
Type 4 or 5H stream	5m

These are the recommended minimum setbacks from waterways. There will be situations where topography, recreation interests or agreements with external parties dictate a greater setback.

In all cases rules in Regional Plans and/or Resource Consents must be understood and complied with.

Appendix One
Summary Guide to HFM Stream Classification

STREAM TYPE	**1**	**2**	**3**	**4**	**5**
	Perennial	Perennial	Perennial	Perennial	Ephemeral/ Seasonal
	>30 Wide	10 – 20m wide	3 – 10m wide	Generally <3m wide	<1m wide
		>1000 l/s	approx 100 - 1000 l/s	<100 l/s	
			2nd Order Named on NZMS 260 Series Maps	1st/2nd Order	1st Order
	High recreational use	Recreational use (possible canoeing, small boats etc)	Minor recreational use	Too small for recreational use	No recreational use
	High landscape value	Generally have native fish/fish spawning	Native fish habitat	Native fish habitat	No permanent native fish habitat

RISK RATING	**HIGH**	**MEDIUM**	**LOW**	**Consider**
	High risk to downstream infrastructure	Some risk to downstream infrastructure	Low risk to downstream infrastructure or none present	Culverts, roads, bridges, canals, water supplies, irrigation
	High ecological values present (hochstetter frog, native fish)	Moderate ecological values present	Low ecological values present (ephemeral minimal habitat)	Riparian margin, aquatic life, water quality
	High erosion potential	Moderate to low erosion potential	Low erosion potential	Slope stability, soils, bedrock
	High public visibility from neighbouring land/public place	Moderate public visibility from neighbouring land/public place	Low public visibility from neighbouring land/public place	Access to site and downstream use, visibility from outside of the forest
	High recreational values	Moderate recreational values	Low or no recreational values	Frequency of use
	Water take for household consumption			

Note: Type 1 and Type 2 waterways are always HIGH risk

Hancock Forest Management (NZ) Ltd
PLANNING GUIDE 2
GUIDELINES FOR MANAGING VISUAL IMPACTS OF OPERATIONS

1.0 INTRODUCTION

A plantation forest is a productive landuse and as with any productive landuse the visual landscape changes through the lifecycle of the forest, with the most significant landscape change occurring at the time of harvesting. The cutover landscape is considered by some people to be visually undesirable. The perceived level and significance of the visual impacts of an operation vary significantly based on numerous variables including the topography, the visibility of the area from public locations, the population density in the vicinity of the harvesting, the regularity that stakeholders are exposed to harvesting operations and peoples individual perceptions. In some cases harvesting can enhance visual landscape such as exposing a view that is otherwise hidden from view.

It is not possible to eliminate visual impacts of plantation forestry operations, and as with any productive landscape it would be unreasonable to expect this to be the case. However through identification of significant landscapes within the forest, and giving consideration to aesthetics when planning and undertaking operations, it may be possible to reduce negative visual impacts of operations and avoid unacceptable impacts.

The purpose of this document is to provide guidance to operations staff when planning and managing forestry operations so as to practically manage visual impacts.

2.0 SCOPE

The operations that have the greatest visual impact are clearfall harvesting and engineering (road and landing construction). Decisions made at reestablishment can also mitigate visual effects of the recently completed harvesting, and dictate future effects.

This planning guide is therefore aimed principally at the planning and management of harvesting, earthworks and reestablishment operations.

3.0 IDENTIFICATION OF SIGNIFICANT LANDSCAPES

To assist in the application of this guide, HFM NZ have undertaken an assessment of the full HFM NZ estate, to identify areas within the estate considered to have significant landscape values. This assessment included:

- Identification of any areas of plantation forest within the estate that have been scheduled by District and or Regional Councils as ‘significant’ or ‘outstanding’ landscapes.

- Through discussions with staff and stakeholders, identification of any further areas of forest with high landscape value or that are highly visual from well frequented public locations.

Only those landscapes that can be viewed from a public location outside of the forest have been included in the list.

The full list of Significant Landscapes in HFM NZ managed forests is attached as Appendix One. All of these areas are to be entered into the GIS mapping system restrictions layer as an alert to staff planning operations in those areas.

4 TECHNIQUES FOR MINIMISING VISUAL IMPACTS

The techniques and degree of effort to mitigate visual impacts is very much dependant on the specific location, and must be assessed on a case by case basis. The following is a list of some of the techniques that should be considered when planning and undertaking operations in areas identified as Significant Landscapes:

Harvesting and Earthworks Operations

- Modifying harvest timing of adjacent harvest operations – in situations where a significant number of harvest areas can be viewed from one location, the visual impact can be reduced by altering timing of operations so as to allow 'green up' to occur on a completed operation before commencing a further operation within the view shed. This is particularly recommended where operations are highly visible from a well populated location such as a town.
- Reducing clear cut harvest size or retaining areas of buffer trees for a period, until green up occurs on the remainder of the site – generally only practical in groundbased operations .
- Modifying harvest stand boundaries to fit more naturally into the landscape (following natural boundaries such as ridge lines and streams) where it is practical to do so.
- Selecting the least impact harvest method when planning the operation – for example undertaking cable harvesting to avoid excessive groundbased tracking on highly visible slopes
- Minimising tracking as far as possible, and locating roads and landings away from direct sight where practical.
- Careful management of slash to avoid birds nests in highly visible locations
- Avoiding excessive side casting when constructing roads along highly visible slopes
- Undertaking rehabilitation of temporary haul tracks using slash or topsoil.

Reestablishment

- Use of oversowing and/or hydroseeding to speed up the 'green up' of tracks and/or cutover.
- Establishing shelter belts, potentially of slower growing or permanent alternative species along highly visible corridors such as state highways
- Modifying replanting boundaries to follow natural contours.

5.0 PLANNING AND MANAGING OPERATIONS IN SIGNIFICANT VISUAL LANDSCAPES

Harvesting and Earthworks

Where multiple Harvest Areas or very large Harvest Area are located within an identified Significant Landscape, consideration should be given to the breaking up the timing of adjacent operations when developing the 5 year plan and 2 year Operational Woodflow Plan, to reduce magnitude of the visual landscape impacts.

When planning harvesting operations in Significant Landscapes the Harvest Planner must:

- Undertake an assessment of the visual effects of the operation and consider all applicable techniques to minimise negative visual impacts.
- If the area is scheduled in a Regional and District Plan, review any applicable rules or constraints that apply to such scheduled areas and ensure these are complied with.

Any specific operational requirements as a result of this assessment must be documented in the Harvest Plan.

While undertaking harvesting operations in Significant Landscapes, the HFM NZ Harvesting Forester must ensure that the harvesting contractor takes all practical steps to minimise avoidable negative landscape effects as specified in the harvest plan. This should include managing harvesting slash appropriately, minimising and rehabilitating temporary haul tracks in highly visible locations and ensuring no rubbish is left in a visible location during the operation.

Reestablishment

When planning re-establishment of plantation forest in areas identified as Significant Landscapes the forester must undertake a post harvest assessment to identify opportunities to reduce the visual impacts of harvesting (eg oversowing) and to reduce visual impacts of future harvesting (modifying planting boundaries, screen planting etc).

If the area is scheduled in a Regional or District Plan, review any applicable rules to ensure any constraints on replanting are complied with.

General

The list of techniques in section 4.0 should be considered as a guide, and actual techniques applied will be assessed on a case by case basis. In some situations no changes will be required to the operation.

Where practical, consultation should be undertaken with affected local communities or neighbours prior to undertaking operations in highly visible locations. The outcomes of this consultation should be taken into account in planning the operation.

The list of Significant Landscapes attached also provides some guidance at to appropriate techniques to be considered, for each location.

ATTACHMENT:
Schedule of Significant Landscapes in HFM NZ Management Forests

HFM NZ Schedule of Significant Visual Landscapes

Region	Forest	Site name / locality	Council	Scheduled in Distric Plan	Distric/Regional Plan rules/requirements	Site Description	Viewing points - internal/ external	Ownership	Interested parties	Recommended management	Comments
Central	Kinleith	Pohaturoa	Taupo DC	Outstanding Visual landscape			External	Taumata	Raukawa, Te Arawa and Tuwharetoa	Summit retired and weed/wildling control completed post harvest. No further management requirec	Many historic sites.
Central	Kinleith	Waihaha (Taupo Lake margin)	Taupo DC	Outstanding Visual landscape		Lake Taupo riparian margin can be viewed from lake only.	External, from Lake Taupo only	Maori lease	Taupo lake users, Waihaha 3B1(owners)	None required - unimpacted by operations.	Located along Lake Taupo and is lease land
Central	Kinleith	Waikato River margin in Taupo District	Taupo DC	Outstanding Visual landscape		Scheduled landscape applies to non-plantation riparian strip	External, from Waikato River only	LINZ	River users	None required - riparian strip below the forest only	
Central	Kinleith	Ngautuku (Springbok) Hill	South Waikato DC	NA	None as yet.	High visibility from SH1	External	Taumata	SH 1 travelling public, Raukawa	Roading now in place. Careful planning of future harvesting (including harvest boundaries) to minimise visual impact. Rehab any visible haul tracks. Felling to waste on bluffs could be considered at first thinning.	
Central	Kinleith	Utuhina/Ngongataha bluffs (Mamaku Tors)	Rotorua DC	Mapped as an Outstanding Landscape in an initial consultants report preceeding plan development - pre-consultation stage.	None as yet.		External	Taumata	Rotorua DC	Includes plantation trees on the Mamaku Plateau but the bulk is not visible from outside of the forest - need to clarify purpose of zone with RDC.	Draft Plan-Large area of forest on Rotorua lakes catchment
Central	Kinleith	Horohoro Bluff	Rotorua DC	Mapped as an Outstanding Landscape in an initial consultants report preceeding plan development - pre-consultation stage.	None as yet.	Visible from SH 30	External	Taumata	Rotorua DC	Very small area of pines at one end will be included in the zone - will need to consult plan rules when planning operations.	Draft plan-Small part of larger plateau margin
Central	Aramiro	Aramiro Forest	Waikato District	Part of forest scheduled in the 'Landscape Policy Area'	Proposed Plan contains specific rules controlling forestry and earthworks in the Landscape Policy Area - Plan under appeal by HFM. Seek advice from Environmental Manager.		External	Forestry Right	Waikato DC	Env Planners to query zoning - not mapped in Proposed Plan. Strategic harvest planning around margin of Pirongia Forest Park.	Limited public visibility from District road. Earthworks requires discretionary resource consent
Eastern	Houpoto	Maraenui escarpment, above State Highwaty 35	Opotiki DC	No	N/A	Steep erodible face above road that has plantationcrop on it.	External	Maori lease	SH 35 travelling public	Retire post harvest and undertake weed/wildling control.	Only a small component of plantation lies within zone. Difficult logging coastal face directly above SH 35.
Eastern	Houpoto	Motu riparian	Opotiki DC	NA	NA	Steep riparian area visible from the Motu Rivei	External	Maori lease	Motu river users	Strategic harvest planning	Steep erodibl;e face elading directly into Motu River
Eastern	Potikirua	Potikirua Coastal face	Gisborne DC	A small area of production forest is included in the 'Outstanding Landscape Area' running along the coast.	Plantation forest harvesting >2ha in the Outstanding Landscape Area requires a resource consent.	Coastal face. Visible from Lottin Point road and sea.	External	Maori lease	Gisborne District Council	Strategic harvest planning	Numerous historic sites.
Eastern	Torere	Front of Torere Forest (visible from Torere/SH35)	Opotiki DC	NA	NA	Visible from SH 35 and Torere village	External	Maori lease	Ngaitai, Te Uri o Te Ngahere Trust	Strategic harvest planning, careful consideration of harvest boundaries, break up timing of adjacent harvest areas if practical	Direct neighbours will need to be consulted.
Northern	Te Mingi	Parengarenga Harbour	Far North DC	NA	NA	Highly visible	External	Maori lease	Ngati Kawa (Pohotiari) and Te Mingi (Muriwhenua)	Limit earthworks visible from public viewing area	Forest under harvest now and is to be completed by 2011. Forestry work completed under permitted activity status. **Forest handed back.**
Northern	Ngunguru	Between Ngunguru Ford Road and Ngunguru River	Whangarei District	NA	NA	Highly visible	External	Carter Holt Harvey	Te Waiariki and Carter Holt Harvey	Minimise tracking and ensure slash is well managed.	Land is handed back to CHH when an area of 10ha or greater is harvested. CHH plan to subdivide this once harvested.**Under new management - Mr Li**
Northern	Te Kao	Parengarenga Habour	Far North DC	Outstanding Landscape and Outstanding Natural Feature			External	Maori lease	Parengarenga Incorporation	Ensure no dune damage.	50m Coastal protection strip has been between dunes and forest
Northern	Waipu	Bryderwyn Hill	Whangarei DC	NA	NA	Highly visible	External	Carter Holt Harvey		Minimise tracking and ensure slash is well managed.	Important to look at catchment constraints in this area. Visually impacting when travelling south on SH 1 from Whangarei.
Northern	Kaitara	Hokianga Habour	Far North DC	Outstanding Landscape			External	ATAIDAR		Limit earthworks visible from public viewing area	**Harvest of forest has been completed and handed back.** Forestry work completed under permitted activity status.