



FOREST STEWARDHIP COUNCIL®
(FSC®)
FOREST MANAGEMENT PLAN

Pāmu Northland Forests
Landcorp Farming Ltd
Reporting Period: February 2024 – February 2029

Author Signature 
Author Name Sally Moore
Author Role Environmental forester
Date 26 February 2024

Reviewed By 
Name Heather Arnold
Role Environmental Manager
Date 26 February 2024

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PF Olsen Limited
PO Box 1127 | Rotorua 3040 | New Zealand
T: 07 921 010 | info@pfolsen.com | nz.pfolsen.com

PF Olsen (Aus.) Pty Limited
Suite 6, 50 Upper Heidelberg Road | Ivanhoe | Vic | 3079 | Australia
T: 1800 054 659 | ausinfo@pfolsen.com | au.pfolsen.com

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1. What is this Plan?

About this Plan

This **specific** forest management plan provides details about Pāmu Northland forests.

It is to be used in conjunction with the **standard** forest management plan¹, which outlines the typical management applied to the Forest Stewardship Council (FSC) Group Scheme estate forests.

Where Pāmu Northland forests are managed in a different way than described in the standard forest management plan, this is detailed within this plan, which takes precedence.

Foundation Principle

Landcorp Farming Ltd is committed to adopting the Forest Stewardship Council (FSC) Principles and meeting the FSC Criteria relevant to forest management.

Landcorp Farming Ltd is committed to the PF Olsen FSC Group Scheme **NC-FM/COC-000190** processes and associated documents.

Landcorp Farming Ltd seeks FSC certification, to ensure that their forests are managed in an environmentally appropriate, socially beneficial and economically viable manner and to obtain the best access opportunities to the local processing market which is seeking to source FSC certified logs.

¹ <https://nz.pfolsen.com/site/pfolsen/ForestManagementPlan%20-%20Standard.pdf>

2. The Forest Land

Forest area

Pāmu Northland forests are all within the Northland region. The location of the forest is shown in Appendix 1. The net stocked areas have been measured from mapping produced by PF Olsen. These areas are subject to change due to farmland retirement and afforestation and are correct as of February 2024.

Forest	Productive Current	Productive Planned afforestation	Productive Total	Reserve Indigenous Natural	Reserve Indigenous Planted	Reserve Indigenous Total	Reserve Exotic	Farmland / Other	Total Legal Area (ha)
1107 Kapiro	336.6	10.4	347.0	238.6	36.1	274.7	21.6	2,549.7	3,193.0
1117 Omamari	435.3	130.0	565.3	195.6	24.6	220.2	22.2	1,571.2	2,378.9
1119 Puketotara	117.2	14.1	131.3	184.6	43.6	228.2	32.0	276.9	668.4
1127 Takakuri	693.2	201.8	895.0	246.0	24.8	270.8	1.0	493.4	1,653.1
1132 Titoki	271.8	4.3	276.1	70.1	51.8	121.9	24.7	523.4	912.1
1141 Mangatōa	943.9	229.8	1,173.7	314.3	20.4	334.7	8.7	3,135.4	4,652.5
Total (ha)	2,798.0	590.4	3,388.4	1,249.2	201.3	1,450.5	110.2	8,550.0	13,458.0

Location and access

Forest	Location
1107 Kapiro	12 km north-west of Kerikeri. Main access is located from Stanners Road which in turn is located off State Highway 10.
1117 Omamari	22 km north-west of Dargaville. Accessed via Babylon Coast Rd, from State Highway 12.
1119 Puketotara	20 km west of Kerikeri. The main access is located from Mangakaretu Road which in turn is located off Puketotara Road. Puketotara Station is situated over two separate blocks.
1127 Takakuri	16 km south-west of Kaeo. Access is from Sharnocks Rd, Pupuke Mangapa Rd, off State Highway 10.
1132 Titoki	30 km west of Whangarei. Accessed from Puketitoti Rd, Milne Rd, off State Highway 15.
1141 Mangatōa	6 km west of Kaikohe township. The main access is located on Jordan Road, from Rakauwahia Road which in turn is located off State Highway 12.

Topography

Forest	Topography
1107 Kapiro	Predominantly large flat areas and areas of rolling hill country, suitable for ground-based harvesting. There is a small area of steeper slope that may require cable-based harvesting. Altitude ranges from 20 to 220 metres above sea level.
1117 Omamari	Strongly rolling to moderately steep, areas suited to a mixture of ground-based and hauler harvesting. Altitude ranges from 20 to 120 m above sea level.
1119 Puketotara	Rolling hill country suitable for ground-based harvesting. The station is in two areas - referred to as top farm and bottom farm. Altitude ranges from 100 to 370 m above sea level.
1127 Takakuri	Rolling to moderately steep hill country, some areas may require cable harvesting. Altitude ranges from 60 to 180 m above sea level.
1132 Titoki	Rolling hill country suitable for ground-based harvesting. Altitude ranges 40 to 140 m above sea level.
1141 Mangatōa	Rolling to steep hill country. Areas that are currently forested are all suitable for ground-based harvesting. Planned establishment over the next 5 years is in areas that is likely to require cable-based harvesting at maturity. Altitude ranges from 40 to 260 metres above sea level.

Markets

The location of the forest in relation to potential markets is listed in the table below.

Distances from forest to log markets

Potential Market or Export Port	Product	Distance from forest
North Point – Marsden Point	Export	100 – 130 km Titoki 60 km Takakuri 165 km
Waipapa Pine – Waipapa	Structural	Kapiro, Puketotara 6 – 10 km Takakuri, Mangatōa 40 km Titoki 95 km Omamari 130 km
Mt Pokaka – Kerikeri	Postwood	Kapiro, Puketotara 12 – 16 km Takakuri, Mangatōa 45 km Titoki 94 km Omamari 130 km
JNL – Kaitaia	Pulp and structural	Takakuri, Titoki 75 km Kapiro, Puketotara 100 km Mangatōa 125 km Omamari 200 km
Rosvall – Whangarei	Pruned	77 – 94 km Titoki 28 km Takakuri 130 km
Crofts Poles – Whangarei	Postwood	77 – 94 km Titoki 28 km Takakuri 130 km
CHH LVL Mill – Ruakaka	Structural	90 – 125 km Titoki 55 km Takakuri 160 km

Legal ownership

The forests are freehold.

Forest	Legal Description
1107 Kapiro	Section 1 Survey Office Plan 60929 and Section 1 Survey Office Plan 61837 and Section 1 Survey Office Plan 64432 and Part Section 2 Survey Office Plan 64319 and Section 15 Survey Office Plan 61836 and Section 16-17 Survey Office Plan 61837 and Section 18 Survey Office Plan 61838, freehold Fee Simple, 1/1, Lot 2 Deposited Plan 209464, freehold
1117 Omamari	Lot 1 DP 201886, freehold
1119 Puketotara	Lot 2 DP 156360, Section 4 Survey Office Plan 64267 and Section 5 Survey Office Plan 64286, freehold Section 2 Survey Office Plan 64266 and Section 1 and Section 6 Survey Office Plan 64269
1127 Takakuri	Section 1-2, Section 4-5 and Section 5-6 Survey Office Plan 64287 and Section 21 Block V Kaeo Survey District, freehold
1132 Titoki	Section 1-2 Survey Office Plan 65718, freehold Section 38 Block XII Mangakahia Survey District, freehold
1141 Mangatoa	Section 1-3 and Section 5 Survey Office Plan 66162 and Lot 1-2 Deposited Plan 170545, freehold Section 2 Survey Office Plan 66159, Section 1 Survey Office Plan 66145, Section 2-4 Survey Office Plan 66146, Section 1-2 Survey Office Plan 66147 and Section 1 Survey Office Plan 66160, freehold

Soil

Forest	Soils ²
1107 Kapiro	Combination of flat to undulating slopes on strongly weathered basalt rock; predominantly Okaihau gravelly clay with some Ruatangata gravelly clay and Hukerenui silt loam.
1117 Omamari	Coastal sand country: soils are steepland and hill soils related to yellow-brown sands and podzolised yellow-brown earths. Potential for extreme sheet and wind erosion.
1119 Puketotara	Rolling to strongly rolling slopes on acid to intermediate igneous rocks. The top farm soils are Wharekohe silt loam podzols with a pan. The bottom farm soils are moderately podzolised Pukenamau silt loams and some Ruatangata volcanics. There is potential for erosion.
1127 Takakuri	Fractured crushed argillites beneath podzolised yellow-brown earth, mostly of the Omu suite. Potential for severe gully and sheet erosion. Forestry recommended on slopes over 15°.
1132 Titoki	Shattered sheared argillite complex with sandstone/bedded mudstone. Soils are yellow-brown earths, mostly in the Omanaia suite. Potential for moderate soil slip, gully and tunnel erosion.
1141 Mangatooa	Rolling to moderately steep slopes forming hilly terrain, on siliceous claystone. Flat to easy undulating hills near the road is Wharekohe silt loam with silica pan. Northeast portion is Whirinaki clay loam. The balance is steeper hill country, Waioitira clay loam and Wairiki clay loam

Climate

- The climate of the Northland region is warm and humid with mild winters.
- Summer droughts occur, as do occasional tropical storms originating from the NE and N.
- Rainfall ranges from 1500 mm to 3000 mm/year, a bit lower (1100 mm) around Omamari in the Kaipara district.
- The mean annual temperature for the region is around 15.6 degrees Celsius. The Kerikeri region averages only 13 ground frost days per year.

² <https://soils-maps.landcareresearch.co.nz/>

3. Ecological Information

Ecological District

The Pāmu Northland Forests fall across several different Ecological Regions and Districts as shown in the table below.

Ecological Region	Ecological District	Forest
Western Northland	Maungataniwha	Takakuri
	Hokianga	Mangatōa
	Tangihua	Titoki
Eastern Northland	Eastern Northland and Islands	Puketotara Kapiro
Kaipara	Kaipara	Omamari

Refer to the following information about the EDs:

<https://www.doc.govt.nz/documents/science-and-technical/ecoregions1.pdf>

FSC requirement: Ecological District

The Pāmu Northland forests meet the FSC requirement of having 10% or more of the total area as reserves (natural and planted indigenous).

Forest	Total Forest Area (ha)	Indigenous Reserve Area (ha)	Reserve %	Meets FSC?
1107 Kapiro	643.3	274.7	42.7	Yes
1117 Omamari	807.7	220.2	27.3	Yes
1119 Puketotara	391.5	228.2	58.3	Yes
1127 Takakuri	1,166.8	270.8	23.2	Yes
1132 Titoki	422.7	121.9	28.8	Yes
1141 Mangatōa	1,517.1	334.7	22.1	Yes
Total (ha)	4,949.1	1,450.5	29.3%	Yes

Threatened Environment Classification

The natural indigenous reserve areas within the Pāmu Northland estate fall within the following NZ Threatened Environment Classification categories.

Threatened Environment Class	<10% remaining	10 – 20% remaining	20 – 30% remaining	>30% remaining <10% protected	>30% remaining 10 – 20% protected	>30% remaining >20% protected	Total (ha)
1107 Kapiro		40.7	100.9	5.8	26.9	64.3	238.6
1117 Omamari	46.4	26.0	105.4	17.7			195.6
1119 Puketotara	1.1	15.8		39.9	119.5	8.3	184.6
1127 Takakuri		1.1	2.2	130.1	107.6	5.0	246.0
1132 Titoki		10.4		35.7		24.0	70.1
1141 Mangatooa	14.2	8.9	1.1	266.6		23.6	314.3
Total (ha)	61.7	102.9	209.6	495.8	254	125.2	1,249.2

4. Cultural and Social Aspects

Forest history

Landcorp Farming Ltd was formed as a state-owned enterprise in 1987 to assume the commercial farming and property activities of the former governmental Department of Lands and Survey. Areas have been developed and subdivided, and separate Landcorp Farming Ltd stations have been amalgamated to form the stations as they exist today.

The plantation forest areas of these stations were initially planted for the provision of shelter for stock and soil stabilisation of gullies and waterways. As these first rotation areas have been harvested, replanting has focused on increasing the size of forested areas to result in profitable and sustainable forest units that can be managed effectively.

With the advent of the New Zealand Emissions Trading Scheme there are now plans to increase the forested areas in areas that are marginal for profitable farming.

Current social profile

The principal operation of the Pāmu Northland properties is farming:

- Kapiro station is a sheep, beef and dairy unit. The primary farming function is the Rangitane Angus breeding scheme.
- Mangatoa station is a beef farming operation producing store lambs and finishing beef cattle.
- Omamari, Puketotara, Takakuri and Titoki are beef and dairy-beef farming operations, principally growing and finishing bull beef.

Forestry is a secondary activity on these Northland stations, but of increasing importance to profitability. The forests are a small incremental contributor to the social profile of the area. The forested areas are a small proportion of forested land in the wider area. The land and forests are privately owned; contribution to the local economy by way of added incremental employment and infrastructure will be low and intermittent.

Historic and archaeological sites

The ‘Archsite’ web resource shows recorded sites in some of the forests, as below. A map of the locations is included in Appendix 2.

Forest	Reference	Type
Kapiro	P04/411	Midden
Kapiro	P04/422	Terraces/ midden
Kapiro	P04/423	Terraces
Kapiro	P04/424	Terraces/ midden
Kapiro	P05/492	Midden
Kapiro	P05/493	Pa
Mangatoa	P05/1088	Gum holes/diggings
Omamari	P07/82	Pit

Forest	Reference	Type
Omamari	P07/81	Pit
Omamari	P07/93	Gum digging
Omamari	P07/99	Gum digging

Accidental discovery protocols will apply should any physical evidence of historic sites be discovered during operations.

Tangata Whenua

Northland Regional Council provided PF Olsen with contacts for several Iwi organisations that may have an interest in this land. Other organisations were identified in Te Puni Kokiri's Te Kahui Mangai directory³. No iwi management plans from Statutory Acknowledgements are available yet.

Forest	Iwi Organisation
Kapiro and Puketotara	Te Runanga o Ngati Hine
Kapiro, Mangatōa and Puketotara	Te Runanga a Iwi o Ngapuhi
Kapiro	Whitiora Marae
Kapiro	Ngati Torehina ki Mataka Resource Management Unit
Kapiro	Huriharama Marae
Kapiro and Puketotara	Te Runanga o Ngati Rehia
Kapiro and Puketotara	Te Uri Taniwha Otahuaō Burial Ground Trust
Kapiro and Puketotara	Kaire Edmonds Trust
Mangatōa	Ngapuhi Ki te Hauauru Takiwa
Mangatōa	Te Iringa Marae
Mangatōa	Nga Ngaru o Hokianga Takiwa
Mangatōa	Taheke Marae
Mangatōa	Taheke Maori Committee
Takakuri	Ngāti Kahu ki Whaingaroa
Takakuri/Kapiro	Te Runanga a Iwi o Ngapuhi / Ngāti Kahu ki Whaingaroa
Omamari	Te Roroa
Kapiro, Puketotara, Mangatōa, Titoki	Te Runanga a Iwi o Ngapuhi
Titoki, Omamari	Ngāti Whātua

Tenure & resource rights

There are numerous licences and agreements pertaining to existing uses with the forests that prevail through the 'Forestry Rights Agreements'.

Neighbours

Appendix 3 lists the forest neighbours. Some of these parties should be consulted when operations are proposed in forest areas adjacent to their boundaries.

³ <https://www.tkm.govt.nz/region/te-tai-tokerau/>

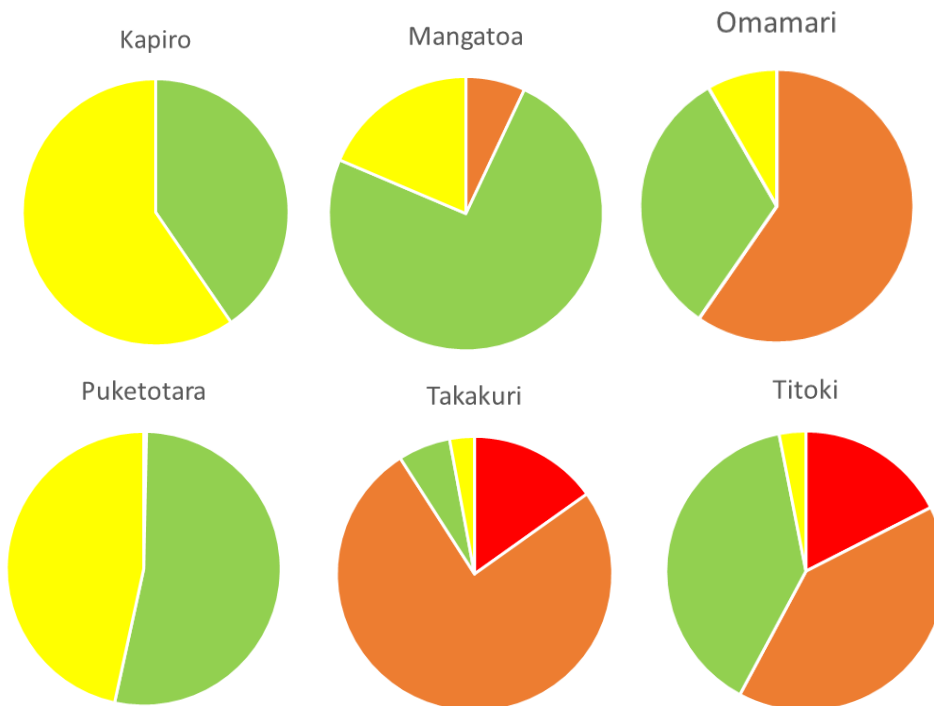
5. Regulations

National Environmental Standards for Commercial Forestry (NES-CF)

The regulations are generally based on the Erosion Susceptibility Classification (ESC) of the underlying land.

Kapiro, Puketotara and Mangatoa are mostly on lower erosion risk land (green and yellow ESC zones). Takakuri, Titoki and Omamari are predominantly in the higher erosion risk categories (orange and red ESC zones). The charts below show the proportion of each forest in each of the ESC categories.

■ Very High ■ High ■ Moderate ■ Low



Permitted Activities

Afforestation in green, yellow and orange ESC zones is a permitted activity under Regulation 9 if regulations 10 to 14 are complied with and there are no more stringent locational controls in council plans.

Earthworks in the green, yellow ESC zone and orange ESC zone up to 25° are permitted under regulation 24 if regulations 25 to 33 are met.

Harvesting in the green, yellow and orange ESC Zone are a permitted activity under regulation 63 if regulations 64 to 69 are complied with.

Replanting in yellow and orange ESC zones is a permitted activity under Regulation 77 if regulations 77A to 79 are complied with.

River crossings in all ESC zones are permitted activities under regulation 37 if regulations 38-45 are met as well as the additional regulations depending on crossing type (regulation 46).

Controlled and restricted discretionary activities

Afforestation of greater than 2 ha in the red ESC zone is a controlled activity under regulation 15 or a restricted discretionary activity under regulation 16.

Earthworks in the orange ESC zone on land > 25° will not comply with regulations 24(2) (c) and (d). Consent will be required for a restricted activity under regulations 35 (2) (a) and (b) of the NES-CF.

Harvesting in the orange ESC zone may not comply with 69 (5) (residual slash) therefore consent will be required for a controlled activity under Regulation 70 (3) (a) and (b) of the NES-CF. Harvesting of > 2 ha of Red ESC zone is a controlled activity.

Council RMA Plans

Pāmu Northland forests fall under the jurisdiction of the Northland Regional Council, and three separate district councils. All the district councils and the Northland Regional Council have their own planning documents and associated rules, developed through public process.

1. Far North District Council- *Takakuri, Kapiro, Mangatōa, Puketotara*

The Far North District Plan has rules that are more stringent than the NES-CF relating to:

- Outstanding Natural Landscapes and Features (Rules 12.1.6.1.1-4 and 12.1.6.3.3)
- Preservation of indigenous wetlands (Rule 12.7.6.1.3)

2. Kaipara District Council- *Omamari*

Operative plan November 2013 – undergoing review

Refer to the District Plan maps – Operative

The Far North District Plan has rules that are more stringent than the NES-CF relating to:

- Any plantation forestry activity is permitted if a 40 m separation is maintained between any building and the plantation forestry on a separate site and under separate ownership (Rule 12.10.10)
- Outstanding Natural Landscape overlay provides more stringent rules for:
 - Indigenous vegetation clearance (Rule 12.10.2b)
 - Excavation and fill (Rule 12.10.1b)

3. Whangarei District Council- *Titoki*

The application of the Whangarei District Plan Operative since 2022 will vary depending on the location of the forest. In general, there are no rules more stringent than the NES-CF; however, if there is a special feature located in the forest, such as SNAs, ONLs, or Coastal Areas, some district rules might apply.

Forest	District Plan	Points of note
1107 Kapiro	Far North	Rules 12.1.6.1.1-4 and 12.1.6.3.3 Outstanding Landscape and General Coastal zone along edge of inlet.
1117 Omamari	Kaipara	Reserve Management Unit (RMU 17), 'Babylon Coast Rd Recreation Reserve'. West Coast overlay.
1119 Puketotara	Far North	Minerals zone on part of eastern block.
1127 Takakuri	Far North	-
1132 Titoki	Whangarei	-
1141 Mangatōa	Far North	Site of cultural significance to Māori (MS 09-22). Restricted Discretionary activity to build/excavate/plant trees/clear vegetation.

Consents & authorities held

There are no resource consents or Archaeological Authorities relevant to the Pāmu Northland forests.

Emissions Trading Scheme

Areas currently registered as post-1989 land are shown below; these are added to as new areas are afforested.

Forest	Post-1989 area (ha)
1107 Kapiro	186
1117 Omamari	20
1119 Puketotara	29
1127 Takakuri	21
1132 Titoki	11
1141 Mangatōa	623
Total	890

6. Managing environmental risk

Assessment of environmental risks

Refer to the Standard FSC Forest Management Plan.

Infrastructure damage or service disruption

The following infrastructure is within/adjacent to the forests. It is recognised that forestry operations may have an impact on the infrastructure. Any potential adverse effects are managed through operational plans.

Forest	Infrastructure/Services
1107 Kapiro	Powerlines in several locations. State Highway 10 skirts the west boundary.
1117 Omamari	Powerlines in several locations.
1119 Puketotara	Powerlines bisect the western block.
1127 Takakuri	Powerlines adjacent to Pupuke Mangapa Rd.
1132 Titoki	Transpower National Grid pylons cut through north of station.
1141 Mangatoa	Powerlines along Rakauwahia Rd, and eastern boundary.

Pests and diseases

The Northland Regional Pest Management Plan 2017–2027 includes plant and animal pest species that are or may be present in the forest or within the pasture areas to be afforested. Refer to:

<https://www.nrc.govt.nz/media/uhudlio4/northlandregionalpestandmarinepathwaymanagementplan20172027.pdf>

Pasture-based plant pest species may be suppressed under a forest canopy. Machine hygiene practices should be used to prevent spread from properties where identified pests are present.

Landcorp Farming Ltd have also developed animal pest management plans for all the farms, in conjunction with the Kiwi Coast Trust and Northland Regional Council. Animal pests are controlled using ground control methods as required, which prevent impacts on non-target species. Current pest control activities include:

- Bait stations, shooting and trapping in high value areas, including young crop trees and the 'kiwi corridors', by a pest control contractor.
- Hunting and trapping for possums, feral cats, ferrets, stoats, weasels and rats by farm managers.

Fire

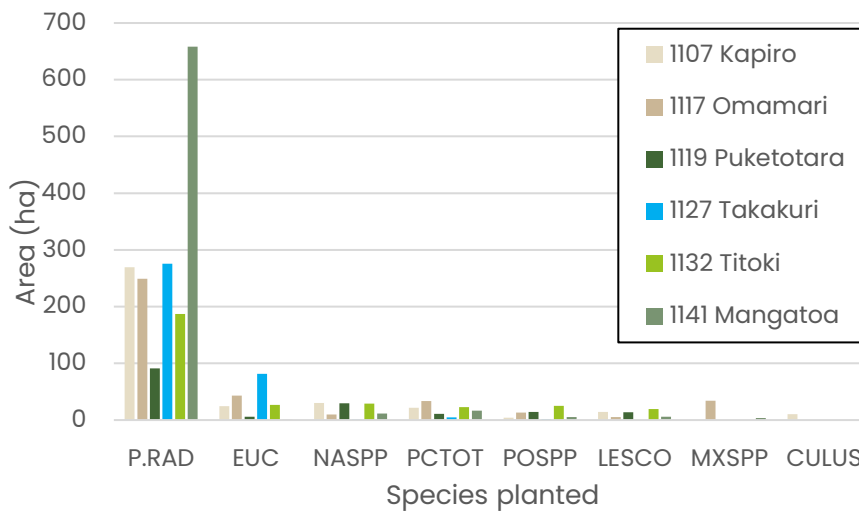
The FENZ region responsible for forest fire management is the Te Hiku Headquarters, more specifically, the Muri Whenua Fire Area, Kerikeri.

7. Commercial Plantation Estate

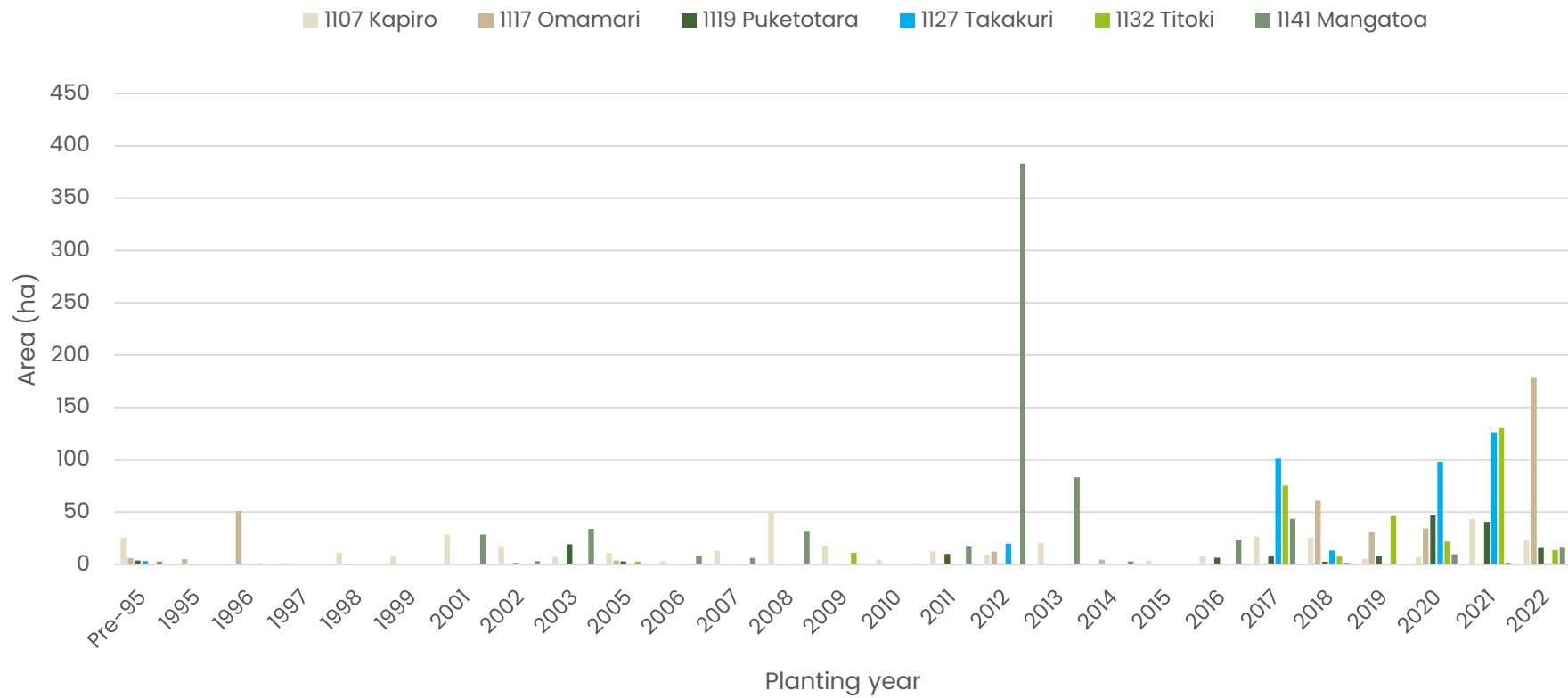
Current crop

There is a significant range of species planted across the forests, for commercial and non-commercial purposes. The graphs below show the proportion by forest of the most common species, and ageclass distribution.

Radiata pine has been selected for most plantings as it is the most commercially viable species. However, small areas have been planted in a range of species to perform other primary functions such as shelter or riparian protection. In recent years *Eucalyptus* species such as *E. globoidea* and *E. bosistoana* have been planted. A trial site established at Kapiro shows very impressive growth and promise for the eucalypt species.



Code	Species
P.RAD	Radiata pine
EUC	Eucalypt
NASPP	Indigenous species
PCTOT	Totara
POSPP	Poplar
LESCO	Manuka
MXSPP	Mixed indigenous
CULUS	Mexican cypress



Tending

Due to the large number of stands, data for these forests is not presented in detail. Most stands are either currently pruned or planned to be pruned.

Tree nutrition

The soils in the forests are not generally seen to be deficient in nutrients for healthy tree growth. As the forests are ex-farmland, the soil will have residual fertility from past farming fertiliser applications that will be in excess of normal requirements for tree growth.

8. Harvesting Strategy

Harvesting strategy

The potential range of harvest age is 25 to 32 years, depending on growth rates, likely markets and contractor availability.

In the next 5 years, based on stand age classes and tidying up some of the small, older, scattered stands of both pine and alternative species, some harvesting is planned at Kapiro and Mangatōa Forests. Kapiro will likely commence in late 2025 with ground-based logging during summer to protect soils. Mangatōa will be harvested towards the end of the decade.

The stands scheduled for harvesting are small and fragmented, and the harvest operations must be carefully managed in conjunction with the farming operations.

The planned harvest is shown below:

Forest	Species	Year of Harvest	#of Stands	Area (ha)
1107 Kapiro	Mixed	2025 - 2026	5	11.5
1107 Kapiro	Radiata pine	2025 - 2026	6	14.5
1141 Mangatōa	Radiata pine	2028 - 2029	9	65.5

Infrastructure

Due to the small, scattered nature of the stands at Kapiro, the bulk of the harvesting will involve forwarding trees and/or logs to areas accessible for trucks, rather than undertaking major earthworks to get trucks to the blocks. This emphasises the reason to harvest when soil conditions are dry.

Some significant track upgrades will be necessary to harvest one of the larger stands (27 ha) at Mangatōa, while the rest are either closer to the main road or will be two-staged to a central loading area.

9. Indigenous Biodiversity

Protected ecosystems

At present, the indigenous vegetation remnants in the estate are fragmented and modified from past farming and logging. Some of the areas are linked to adjacent Department of Conservation ecological areas, allowing indigenous species to move across the boundary into the Pāmu Northland forests. So, although they are not outstanding examples of indigenous ecosystems in most cases, they are important at a landscape level as refugia for species and corridors for dispersal.

Natural indigenous reserve areas by protection category

Forest	Special	Limited	Passive	Total (ha)
1107 Kapiro	161.3	73.7	3.5	238.6
1117 Omamari	140.2	55.4		195.6
1119 Puketotara	173.4	11.2		184.6
1127 Takakuri	225.2	6.7	14.1	238.9
1132 Titoki	36.1	34.0		36.1
1141 Mangatoa	224.8	80.6	8.9	314.3
Total (ha)	960.9	261.8	26.5	1,249.2

Protection granted to the natural indigenous reserves

Forest	QEII Covenant/ PNAP	NZ Forest Accord	passive	Total (ha)
1107 Kapiro	161.3		77.3	238.6
1117 Omamari	108.7		86.9	195.6
1119 Puketotara	173.4	6.4	4.8	184.6
1127 Takakuri	225.2		20.8	246.0
1132 Titoki	36.1		34.0	70.1
1141 Mangatoa	224.8	71.2	18.3	314.3
Total (ha)	929.4	77.6	242.2	1,249.2

High Conservation Value (HCV) Areas

Natural areas within Pāmu Northland forests were assessed against the HCV criteria.

1127 Takakuri and 1132 Titoki

This assessment has been carried out by an experienced qualified ecologist⁴. No HCV areas were identified in either forest.

1107 Kapiro, 1117 Omamari, 1119 Puketotara, 1141 Mangatōa

The initial assessment for Kapiro, Mangatōa, Puketotara and Omamari has been completed by PF Olsen environmental staff using existing ecological information from QEII reports, and an existing ecological assessment report of Omamari.

A complete HCV assessment of these four forests will be undertaken by the end of 2024 by an experienced qualified ecologist. This section will be updated with the findings of the assessment. Stakeholders with an interest in HCV areas should notify their interest with PF Olsen Ltd to be updated on the progress of this assessment.

Below are the areas identified by PF Olsen that may meet HCV status:

Forest	Area	HCV category	Comment
1107 Kapiro	Landcorp-Kapiro Tahoranui raupo (QEII 5-02-1349). WETL-17	1, 3	This Raupo wetland is one of the biggest and most significant in the local vicinity. Habitat for Australasian bittern (Threatened-Nationally Critical)
	Landcorp-Kapiro Tahoranui raupo (QEII 5-02-1041). SECF-10	3	Important fringe of freshwater/saltwater wetlands. Habitat for Australasian bittern (Threatened-Nationally Critical)

⁴ Natural Area Survey and Assessment of High Conservation Value Areas of Takakuri and Titoki Farms, Northland. Contract Report no. 6325b. Wildland Consultants Ltd, May 2023.

Forest	Area	HCV category	Comment
1117 Omamari	Maitahi Wetland (QEII 5-02-1237). WETL-03	1, 3	<p>This area is a continuance of the DoC Maitahi Wetland Scientific Reserve, rated as the most significant mesotrophic-oligotrophic wetland remaining in Northland, due to size, intactness and large range of wetland types it supports. Also the largest area of gumland remaining in the ED.</p> <p>Habitat for Australasian bittern (Threatened-Nationally Endangered) and Southern bladderwort <i>Utricularia australis</i> (Threatened- Nationally Endangered).</p>
	Omamari Wetland (QEII 5-02-1236). WEL-01	1, 3	<p>This area is an inland continuance of the DoC Omamari Scientific Reserve, which together with Landcorp’s Maitahi Wetland covenant, form the largest remaining wetland in the ED. Rated highly due to size, intactness and presence of threatened and regionally significant species. Also the largest area of gumland remaining in the ED.</p> <p>Habitat for Australasian bittern (Threatened-Nationally Endangered) and Southern bladderwort <i>Utricularia australis</i> (Threatened- Nationally Endangered).</p>
	Landcorp - Omamari Station- Read’s Bush (QEII 5-02-1235). LEPT-01	1, 3	<p>Highly representative of remaining wetlands in the ED. Rated highly due to size, intactness and presence of threatened and regionally significant species.</p> <p>Habitat for Australasian bittern (Threatened-Nationally Endangered) and Southern bladderwort <i>Utricularia australis</i> (Threatened- Nationally Endangered).</p>
1119 Puketotara	None identified	-	-
1141 Mangatōa	None identified	-	-

Biodiversity values by forest

Forest	Flora	Fauna present or highly likely
1107 Kapiro	<p>Overview</p> <p>Many recently fenced riparian areas, in various stages of regenerating to secondary indigenous forest types such towai/manuka-gorse shrubland, towai-totara/kanuka forest. Riparian raupo and flax wetlands. On the eastern coast there are intertidal zones with estuarine saltmarsh through to manuka/<i>Baumea</i>-raupo. All areas of ecological value are QEII covenanted. Significant linkages in the Tahoranui River catchment.</p> <p>Threatened flora</p> <ul style="list-style-type: none"> • Kānuka* (Threatened-Nationally Vulnerable) • Mānuka* (Threatened-Nationally Vulnerable) • Kauri~ (<i>Agathis australis</i>; Threatened-Nationally Vulnerable) <p>Ecological values</p> <p>Thirteen QEII covenants within forest:</p> <ul style="list-style-type: none"> • Kapiro Tahoranui River (5-02-1128) • Kapiro Rocks and Wetland (5-02-847) • Kapiro Wetland (5-02-809) • Kapiro Tahoranui 2 (5-02-1191) • Kapiro Tahoranui Raupo (5-02-1349) • Highway 10 Gully (5-02-848) • Rangitane River (5-02-1056) • Takou Dairy Unit (5-02-827) • Takou Kiwi (5-02-849) • Te Aiorua Creek (5-02-1072) • Te Puna (5-02-1041) • (5-02-850) • (5-02-1132) 	<p>Birds</p> <ul style="list-style-type: none"> • Reef heron (Threatened-Nationally Endangered) • North island brown kiwi • Mātātā/North island fernbird (At Risk- Declining) • Australasian bittern (Threatened- Nationally Critical) • Banded rail (At Risk- Declining) • Royal spoonbill (At Risk- Naturally Uncommon) • Northern NZ dotterel (Threatened- Nationally Increasing) <p>Fish</p> <ul style="list-style-type: none"> • Longfin eel (At Risk- Declining) • Torrentfish (At Risk- Declining) • Red finned bully (At Risk- Declining)

* Threat classification elevated as precautionary measure due to myrtle rust susceptibility

~ Threat classification listed as Threatened - Nationally Vulnerable due to the impacts of kauri dieback *Phytophthora agathidicida*

Forest	Flora	Fauna present or highly likely
<p>1117 Omamari</p>	<p>Overview</p> <p>Two areas containing seral kanuka forest. Relatively intact wetlands in valley basins with varying degrees of modification. Headwaters of large, nationally significant DoC wetlands. Small patches of scrub reversion (manuka, kanuka, gorse, pampas). Area of limestone outcrops/tomos. These gumland vegetation and habitat types have been greatly reduced in extent within Kaipara Ecological District.</p> <p>Threatened flora</p> <ul style="list-style-type: none"> • Kānuka* (Threatened-Nationally Vulnerable) • Mānuka* (Threatened-Nationally Vulnerable) • Kauri~ (<i>Agathis australis</i>; Threatened-Nationally Vulnerable) • Utricularia australis • Marsh fern • Cyclosorus interruptus • Swamp coprosma, forked sundew, wire rush (regionally significant species) <p>Ecological values</p> <p>Six significant sites within the forest:</p> <ol style="list-style-type: none"> 1. Landcorp – Omamari Station– Read’s Bush (QEII 5-02-1235). 2. Omamari Wetland (QEII 5-02-1236). 3. Omamari Station Wetland and Shrubland WETL-04 and WETL-02 (PNAP P07/132). 4. Landcorp – Omamari Station – Eagle’s Scrubland (QEII 5-02-1238). 5. Maitahi Wetland (QEII 5-02-1237). 6. Long Gully Wetland and Shrubland, WETL-05 (PNAP P07/153). 	<p>Birds</p> <ul style="list-style-type: none"> • Australasian bittern (Threatened- Nationally Critical) • Pīhoihoi/NZ pipit (At Risk-Declining) • Mātātā/North island fernbird (At Risk- Declining) • Red billed gull (At Risk-Declining) • NZ dabchick (At Risk-Recovering) • Spotless crane (At Risk-Declining) • Pied shag (At Risk-Recovering) • Pied stilt • Black shag/kawau (At Risk-Relict) • Australian coot (At Risk-Naturally Uncommon) • Little black shag/kawau tūi (At Risk- Naturally Uncommon) <p>Fish</p> <ul style="list-style-type: none"> • Black mudfish (At Risk-Declining) <p>Herpetofauna</p> <ul style="list-style-type: none"> • Elegant gecko (At Risk-Declining) 3km from forest

* Threat classification elevated as precautionary measure due to myrtle rust susceptibility

~ Threat classification listed as Threatened – Nationally Vulnerable due to the impacts of kauri dieback *Phytophthora agathidicida*

Forest	Flora	Fauna present or highly likely
<p>1119 Puketotara</p>	<p>Overview Mostly modified manuka or manuka-gorse gumland shrubland with emergent totara. Secondary towai forest: towai-kauri-(rewarewa)/mamaku, manuka. Flax-manuka shrub and wetland. All areas of ecological value are QEII covenanted. Large area of Kerikeri River headwaters. These vegetation and habitat types have been greatly reduced in extent within the Ecological District.</p> <p>Threatened flora</p> <ul style="list-style-type: none"> • Mānuka* (Threatened-Nationally Vulnerable) • Kauri~ (<i>Agathis australis</i>; Threatened-Nationally Vulnerable) <p>Ecological values Five QEII covenants within forest:</p> <ul style="list-style-type: none"> • Puketotara Wetland (5-02-764) • Puketotara Lower Farm (5-12-1345) • Puketotara No. 1 (5-02-189) • Puketotara No. 2 (5-02-189B) • Puketotara No. 3 (5-02-815) 	<p>Bats</p> <ul style="list-style-type: none"> • Long-tailed bat (Threatened-Nationally Critical) • Short-tailed bat (Threatened-Nationally Vulnerable) in DoC nearby <p>Birds</p> <ul style="list-style-type: none"> • North island brown kiwi • Mātātā/North island fernbird (At Risk- Declining) • Kokako (Threatened-Nationally Increasing) in DoC nearby <p>Fish</p> <ul style="list-style-type: none"> • Longfin eel (At Risk- Declining) • Inanga (At Risk- Declining)

* Threat classification elevated as precautionary measure due to myrtle rust susceptibility

~ Threat classification listed as Threatened - Nationally Vulnerable due to the impacts of kauri dieback *Phytophthora agathidicida*

Forest	Flora	Fauna present or highly likely
<p>1127 Takakuri</p>	<p>Overview Secondary forest types such as kānuka forest, mamaku forest, kahikatea treeland, and kānuka scrub. Several areas of modified indigenous forest are also present including kauri forest, kahikatea-rewarewa forest, and (kahikatea)-(kauri)-(rimu)-(tōtara)/tanekaha-(pūriri)-kānuka forest. Wetland habitats include raupō reedland and swamp millet-soft rush-wīwī grassland. All have been reduced in extent in Maungataniwha Ecological District.</p> <p>Threatened flora</p> <ul style="list-style-type: none"> • Kānuka* (Threatened-Nationally Vulnerable) • Mānuka* (Threatened-Nationally Vulnerable) • Kauri~ (<i>Agathis australis</i>; Threatened-Nationally Vulnerable) <p>Ecological values</p> <ul style="list-style-type: none"> • Two QEII covenants within forest- 5-02-1159 and 5-02-1331. 	<p>Bats- possible</p> <ul style="list-style-type: none"> • Long-tailed bat (Threatened-Nationally Critical) in DoC 4 km away • Short-tailed bat (Threatened-Nationally Vulnerable) in DoC 4 km away <p>Birds</p> <ul style="list-style-type: none"> • Mātātā/North island fernbird (At Risk- Declining) • Kawau/black shag (At Risk- Relict) • Pīhoihoi/NZ pipit (At Risk- Declining) <p>Fish</p> <ul style="list-style-type: none"> • Longfin eel (At Risk- Declining) • Torrentfish (At Risk- Declining) • Inanga (At Risk- Declining) • Bluegill bully (At Risk- Declining) <p>Herpetofauna</p> <ul style="list-style-type: none"> • Copper skink (At Risk- Declining) <p>Invertebrates</p> <ul style="list-style-type: none"> • Kauri snail (At Risk- Declining) • Land snail (At Risk- Declining)

* Threat classification elevated as precautionary measure due to myrtle rust susceptibility

~ Threat classification listed as Threatened - Nationally Vulnerable due to the impacts of kauri dieback *Phytophthora agathidicida*

Forest	Flora	Fauna present or highly likely
<p>1132 Titoki</p>	<p>Overview</p> <p>Tōtara forest, tōtara-kahikatea-kānuka forest, and tōtara-kānuka-(kauri)-(kahikatea) forest, are representative of indigenous tall forest, Small areas of <i>Carex</i> spp.-<i>Isolepis prolifera</i>-<i>Machaerina rubiginosa</i>-swamp millet sedgeland wetlands in small narrow gullies in the north. These vegetation and habitat types have been greatly reduced in extent within the Tangihua Ecological District.</p> <p>Threatened flora</p> <ul style="list-style-type: none"> • Kānuka* (Threatened-Nationally Vulnerable) • Mānuka* (Threatened-Nationally Vulnerable) • White rata* (Threatened- Nationally Vulnerable) <p>Ecological values</p> <ul style="list-style-type: none"> • One QEII covenant within forest- 5-02-1218. 	<p>Bats</p> <ul style="list-style-type: none"> • Long-tailed bat (Threatened- Nationally Critical) within 3.5 km <p>Birds</p> <ul style="list-style-type: none"> • Mātātā/North island fernbird (At Risk- Declining) • Pīhoihoi/NZ pipit (At Risk- Declining) <p>Fish</p> <ul style="list-style-type: none"> • Longfin eel (At Risk- Declining) • Torrentfish (At Risk- Declining) • Inanga (At Risk- Declining) • Lamprey (Threatened- Nationally Vulnerable) <p>Herpetofauna</p> <ul style="list-style-type: none"> • Forest gecko (At Risk- Declining) • Elegant gecko (At Risk- Declining)

* Threat classification elevated as precautionary measure due to myrtle rust susceptibility

Forest	Flora	Fauna present or highly likely
<p>1141 Mangatoa</p>	<p>Overview Mostly modified manuka or manuka-gorse gumland shrubland (Smith’s fern, bracken, <i>Hakea</i>) with emergent totara. Areas of podocarp-hardwood with emergent totara, pukatea, puriri, kahikatea. Secondary towai forest: towai-tanekaha-totara-(taraire)/mānuka, tī kouka. Linkages to significant PNA areas to the NE. All areas of ecological value are QEII covenanted. These vegetation and habitat types have been greatly reduced in extent within the Ecological District.</p> <p>Threatened flora</p> <ul style="list-style-type: none"> • Mānuka* (Threatened-Nationally Vulnerable) • Northern rata* (Threatened- Nationally Vulnerable) • Kauri~ (<i>Agathis australis</i>; Threatened-Nationally Vulnerable) <p>Ecological values</p> <ul style="list-style-type: none"> • One QEII covenant that covers multiple sites. Mangatoa Station (5-02-1068). 	<p>Birds</p> <ul style="list-style-type: none"> • North island brown kiwi <p>Fish</p> <ul style="list-style-type: none"> • Longfin eel (At Risk- Declining) • Inanga (At Risk- Declining) <p>Invertebrates</p> <ul style="list-style-type: none"> • Kauri snail (At Risk- Declining)

* Threat classification elevated as precautionary measure due to myrtle rust susceptibility

~ Threat classification listed as Threatened - Nationally Vulnerable due to the impacts of kauri dieback *Phytophthora agathidicida*

Rare and threatened species management

The general management of these species is shown below. Specific ecological management activities are outlined in Appendix 6.

iNaturalist⁵ (Biodiversity in Plantations) will be used to record sightings of important indigenous fauna or flora discovered in the forest.

Biodiversity group	Management response
<p>Flora</p>	<p>The rare flora species (excluding kauri) are in the <i>Myrtaceae</i> family. The Myrtle family are at risk of myrtle rust, hence their threat class has been elevated. Kauri has similarly had an increase in the threat class due to the impact of kauri dieback in the North Island. Implementation of forest hygiene measures in line with national guidelines will help safeguard these species from the effects of these pathogens.</p> <p>Indigenous vegetation will benefit from the exclusion of domestic stock within the natural areas, possum, feral pig and goat control, and careful harvesting along the boundary of indigenous vegetation.</p>
<p>Birds</p>	<p>Birds identified as present or highly likely within Pāmu Northland forests will benefit from reserve/riparian protection and wider pest control implemented across the forests. Many reserves have been protected for the purpose of rare species protection, including the North Island brown kiwi (<i>Apteryx mantelli</i>) in Kapiro and Mangatoa. Kapiro has areas fenced to provide 'kiwi corridors' along the riparian areas which provide a habitat along which kiwi can move freely between the forests adjacent to Kapiro.</p> <p>PF Olsen will follow kiwi management guidelines set out in the New Zealand Forest Owner's Association (NZFOA) 'industry best practice' guidelines for rare, threatened, and endangered species management in plantation forests.</p>
<p>Bats</p>	<p>Long-tailed bats are likely to be present in some of the forests as suitable bat habitat is present, and populations are known nearby. Targeted pre-harvest surveys are recommended. Populations will benefit from wider pest control implemented across the forests. These species will benefit from riparian and reserve protection.</p> <p>PF Olsen will follow bat management guidelines set out in the New Zealand Forest Owner's Association (NZFOA) 'industry best practice' guidelines for rare, threatened, and endangered species management in plantation forests.</p>
<p>Lizards & invertebrates</p>	<p>Herpetofauna and invertebrates identified as present or highly likely within Pāmu Northland forests will benefit from wider pest control implemented across the forests. These species will also benefit from riparian and reserve protection.</p>

⁵ <https://www.inaturalist.org/projects/biodiversity-in-plantations>

7. Other Special Values: Everything but the timber

Recreation

Pāmu Northland forests are open for recreation subject to safety requirements. Any approved access is managed through the PF Olsen forest access permit system (for areas outside legal public access areas). For information on how to apply for a permit, please contact the PF Olsen Northland office 09 407 7012.

Following the intent of the Outdoor Access Code⁶ (published by Herenga ā Nuku – Outdoor Access Commission) and any signage / barriers in place within the forest, is expected behaviour. Closures of the forest will also apply during times of high fire risk, any *force majeure* state and damage and during forestry operations.

All forests receive some recreational demand from the wider public:

- Horse trekkers may use Kapiro and Mangatoa by approval of the farm manager.
- Staff have permission to hunt pigs. Friends of staff can request permission to hunt from the farm manager. On Mangatoa there is an issue with controlling hunting from the general public at the back of the station.
- There are occasionally requests for planned off-road motorbike rides.
- A section of Te Araroa walkway crosses Puketotara Station
- Kapiro hosts an annual local school sports event.

Public access

According to the information available on the Herenga ā Nuku – Outdoor Access Commission website⁷, there are formed and unformed legal roads running through the Pāmu Northland Forests. A map is included in Appendix 7. Refer also to the Herenga ā Nuku – Outdoor Access Commission website⁸.

These areas are open to the public, subject to any temporary closures as required for safety. Temporary closures can only be undertaken in conjunction, and with the authority, of the local Territorial Authority.

⁶ <https://www.walkingaccess.govt.nz/assets/Publication/Files/Outdoor-Access-Code/0fcf4d2e5b/Outdoor-Access-Code.pdf>

⁷ <https://www.herengaanuku.govt.nz/>

⁸ <https://maps.walkingaccess.govt.nz/Viewer/?map=b1d1e76a6c754d11b3f3fd9dfceleb12>

Anyone who accesses legal public access areas within Pāmu Northland Forests are expected to abide by the intent of the Outdoor Access Code⁹ (published by Herenga ā Nuku – Outdoor Access Commission) and signage or barriers placed at track or public access points. Requirements for valid DOC permits for firearms and/or dogs must be observed.

Other special values

- Kapiro has been recognised as a ‘kiwi corridor’ by QEII. Large areas of riparian zone throughout the station have been fenced to exclude stock and create a corridor for movement of kiwi between forested areas adjacent to the farmland.
- Puketotara has allowed free public access over the farm as part of Te Araroa – the Cape Reinga to Bluff walkway. Te Araroa, meaning the long pathway, is a continuous 3,000 km walking track that connects settlements, townships and cities. The track corridor showcases a wide variety of New Zealand’s natural, cultural, and historic values.
- A Sustainable Forest Management Plan (SFMP 4-00-00097) was granted to Landcorp Farming Ltd under the Forests Act 1949 for harvesting small volumes of totara in Kapiro. This operation is managed by Landcorp Farming Ltd, not PF Olsen Ltd. This operation is outside the scope of this plan, and no product has any FSC claims.
- Beehives are situated in each station near the forest block edges.

Non-Timber Forest Products

There are no FSC certified non-timber forest products¹⁰ from Pāmu Northland Forests.

⁹ <https://www.herengaanuku.govt.nz/knowledge/responsible-behaviour/the-outdoor-access-code-2/>

¹⁰ In FSC standards, the reference to non-timber forest products is a reference to such products that are able to carry the FSC label. It is not a reference to the presence or absence of other co-products from the forest areas that do not seek to carry the FSC label.

8. Future Planning

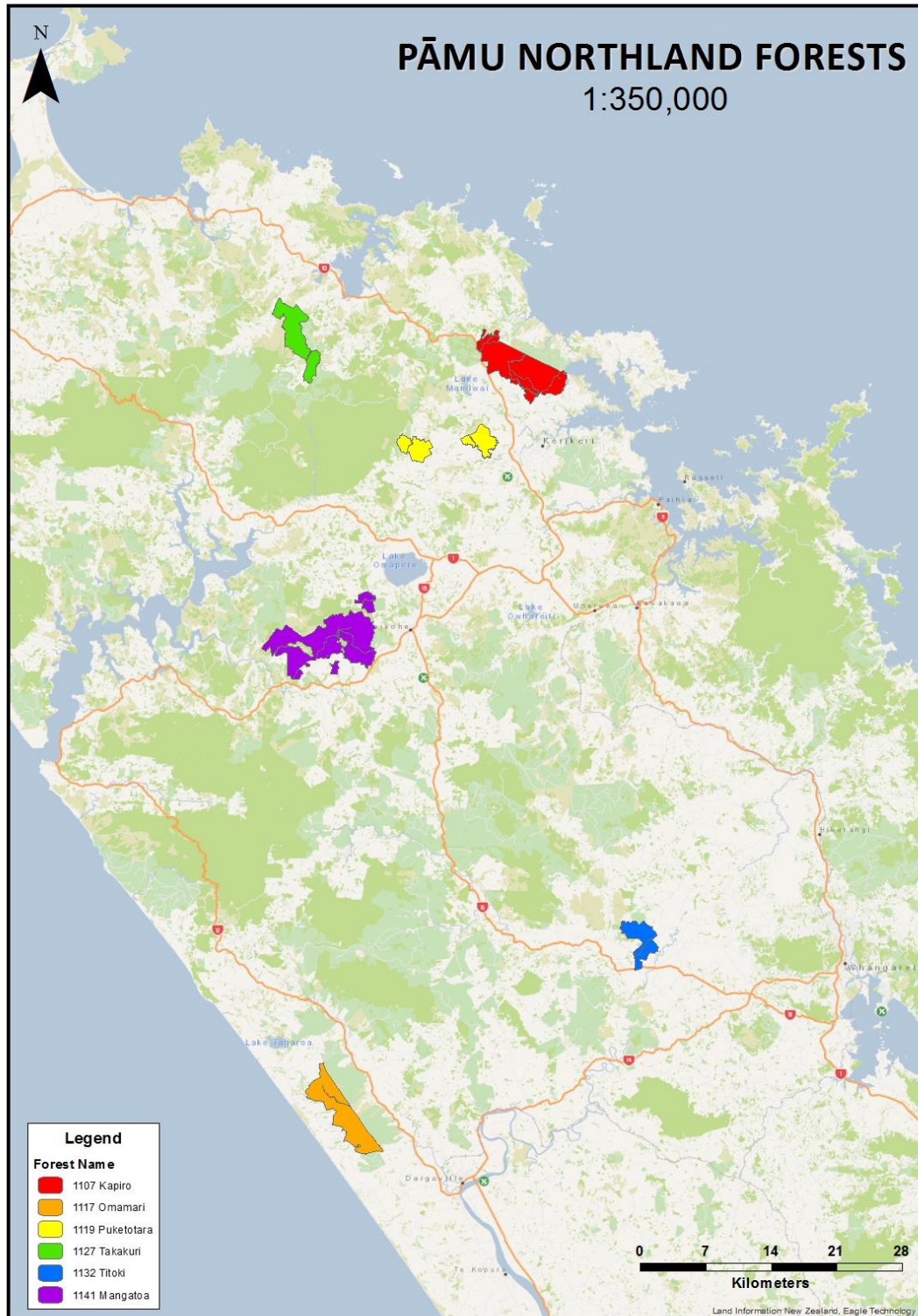
Plan changes & reviews

The next major review date for this plan is February 2029.

Minor revisions may be made at any time. Any material changes made will be documented below.

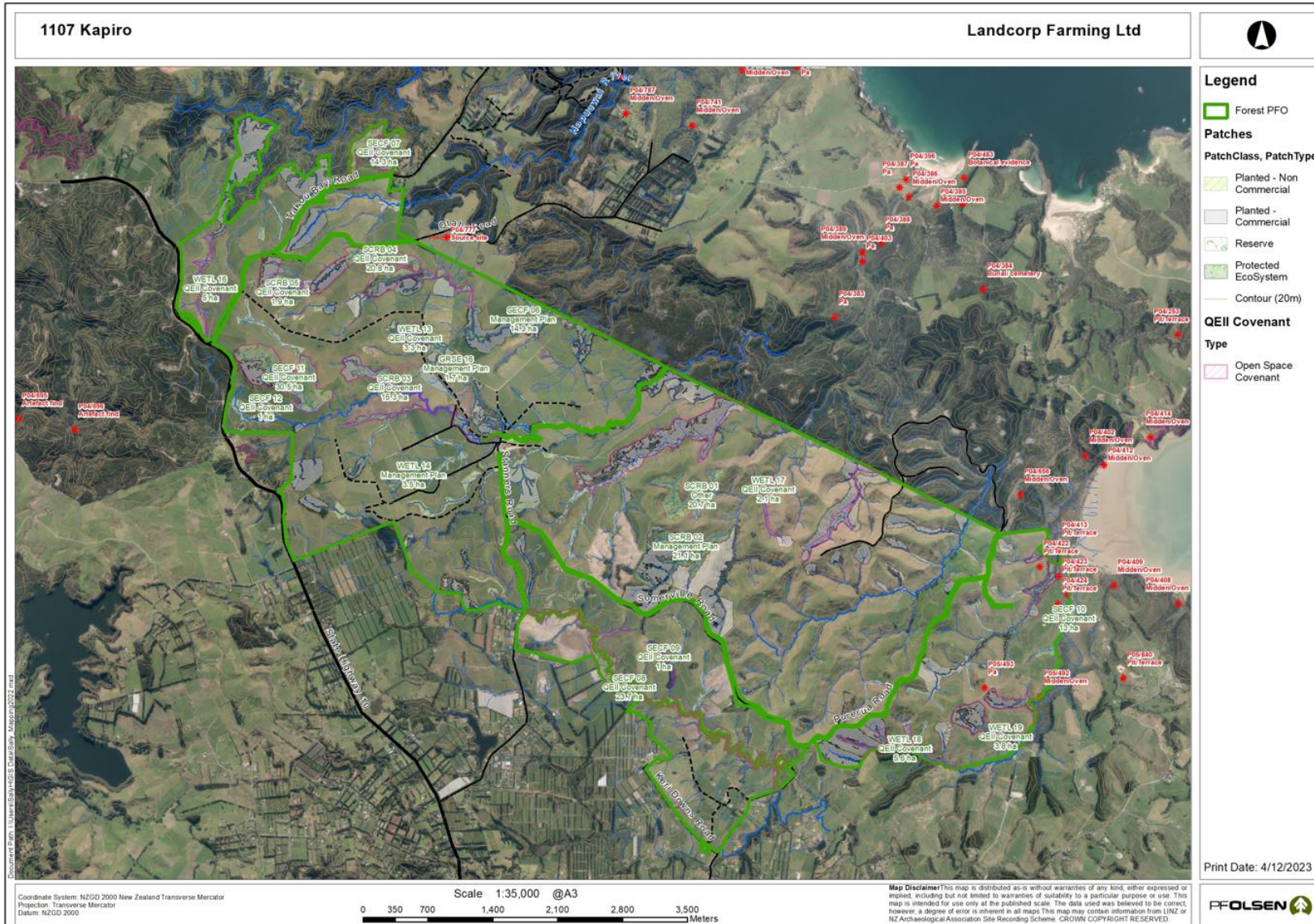
Change	Date	Section/Page

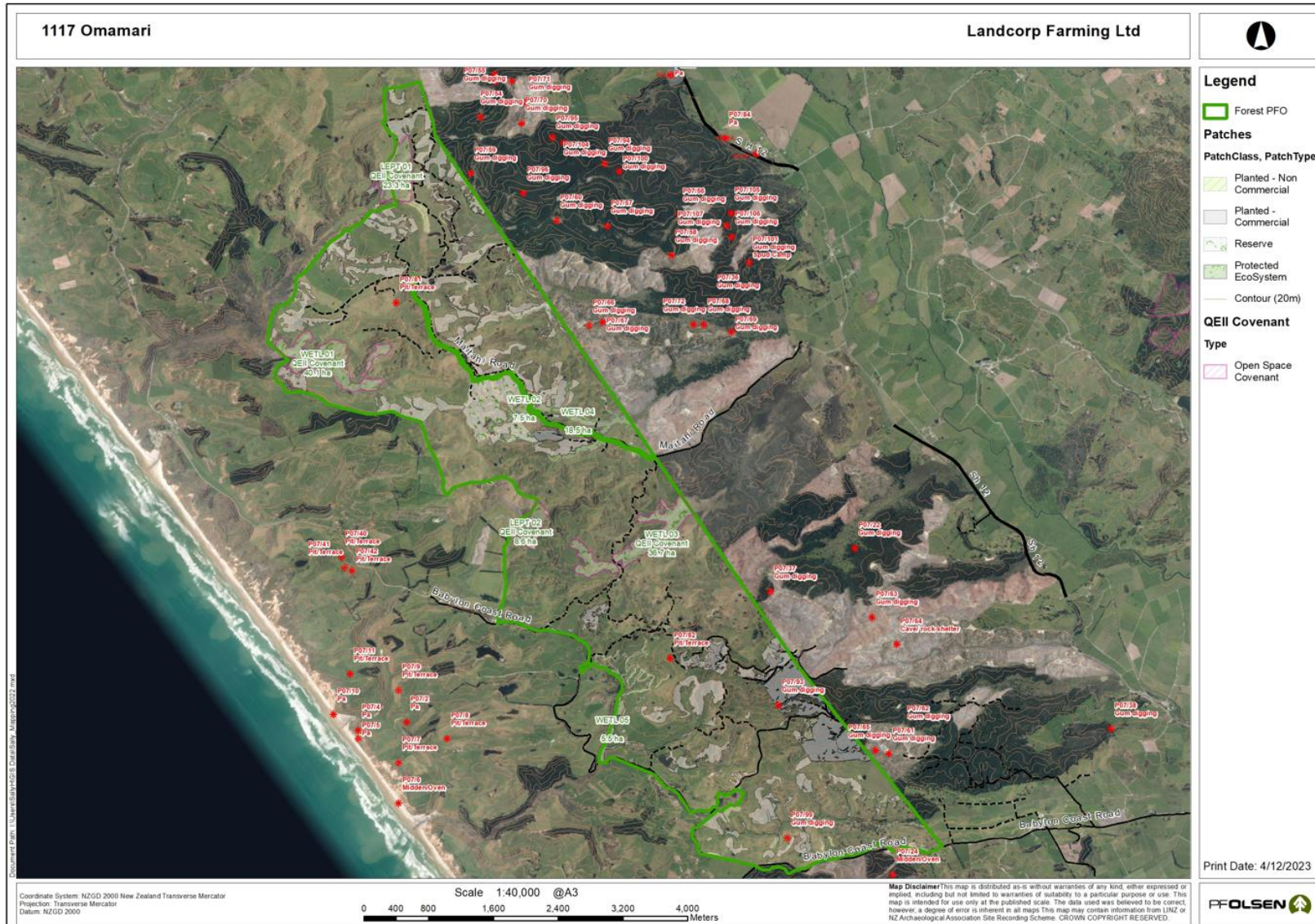
Appendix 1: Forest Location Map

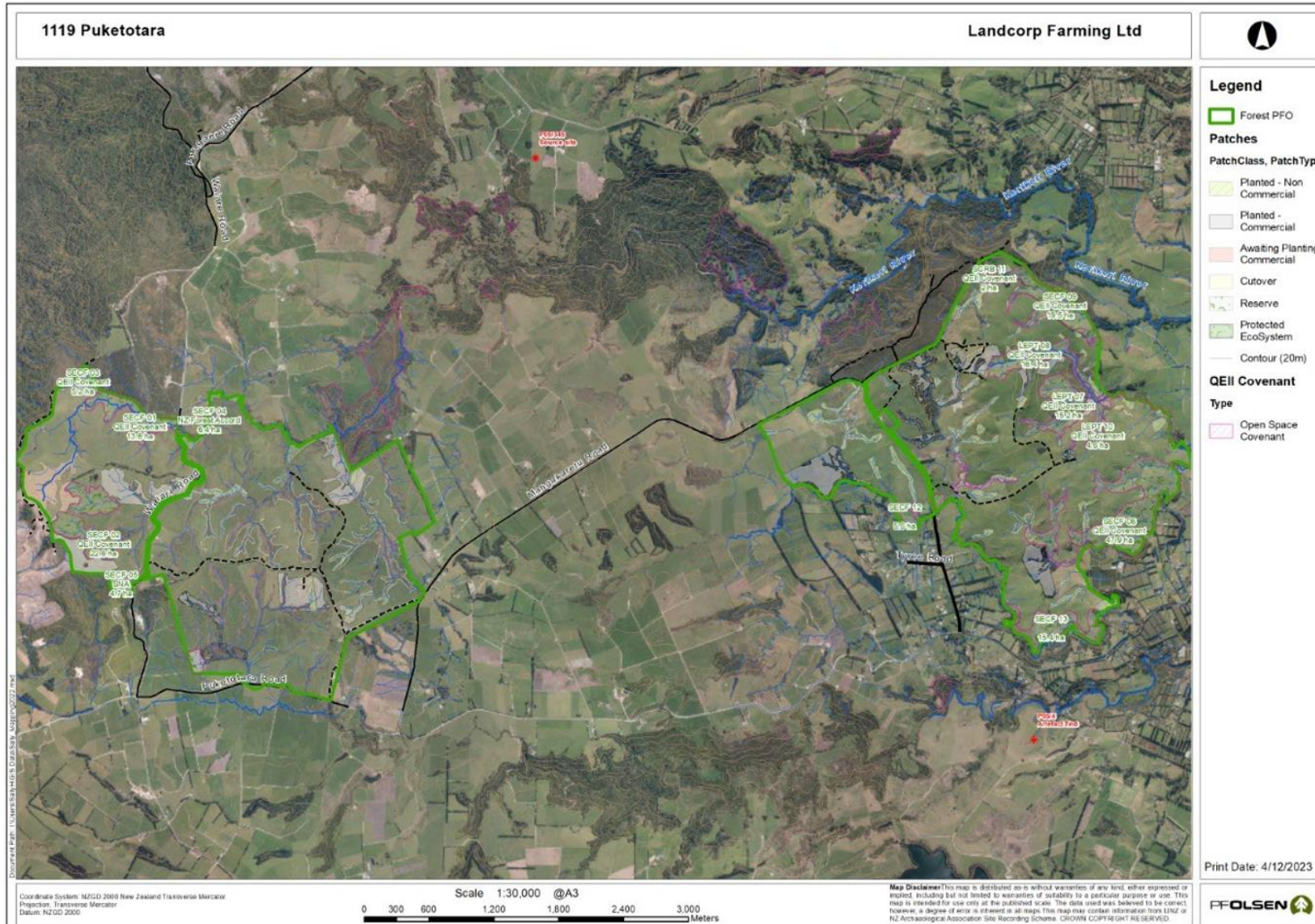


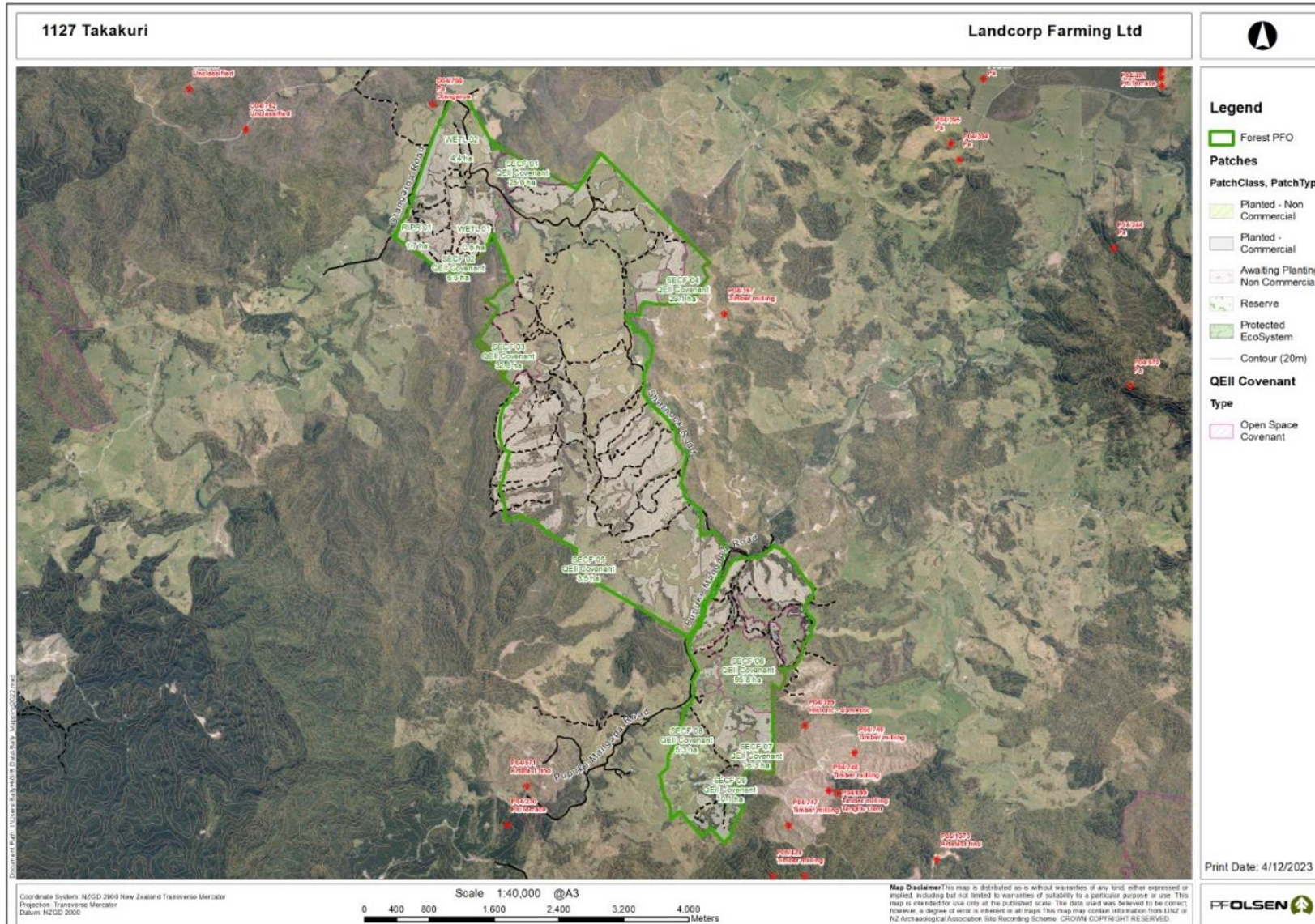
Appendix 2: Forest Maps

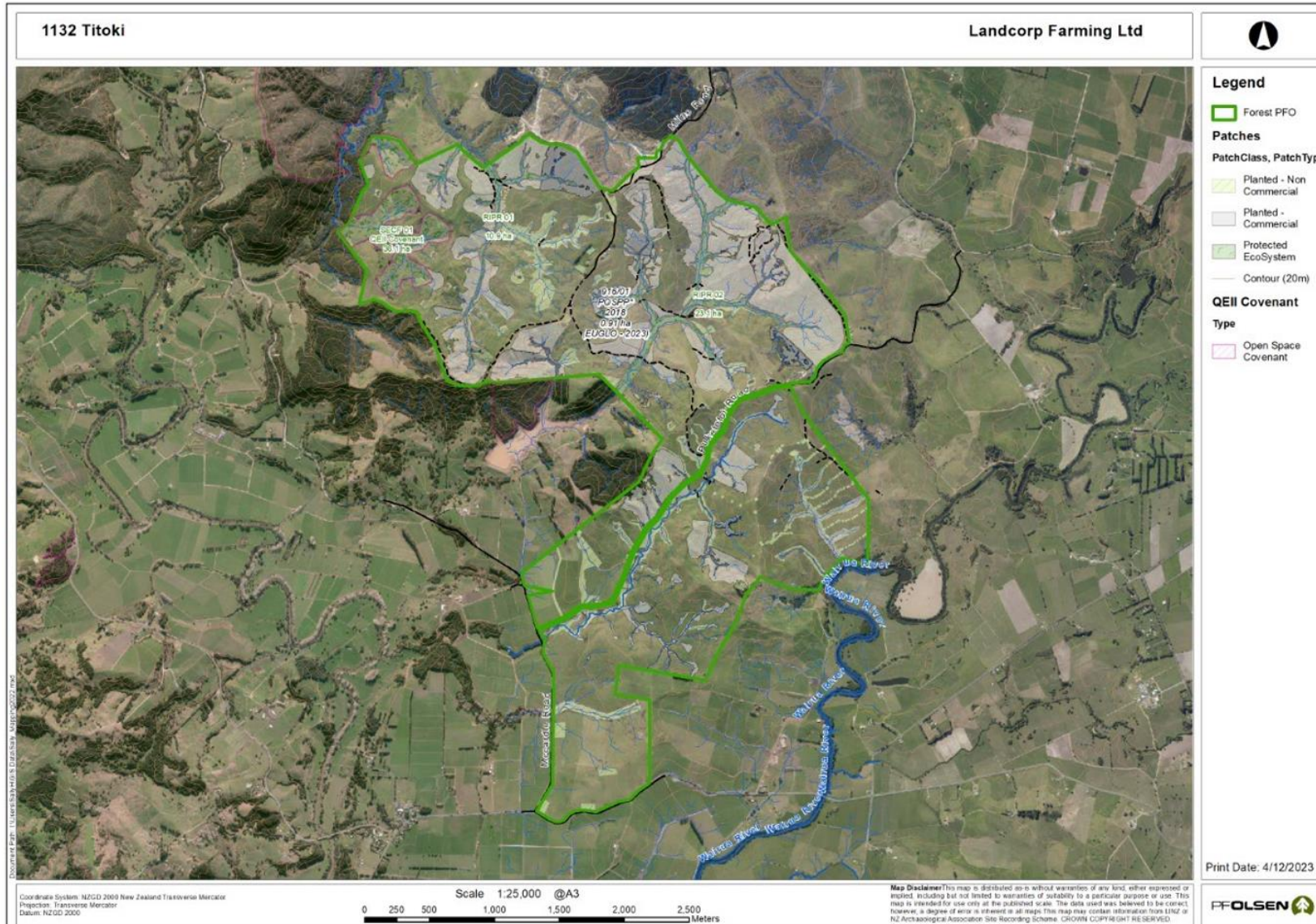
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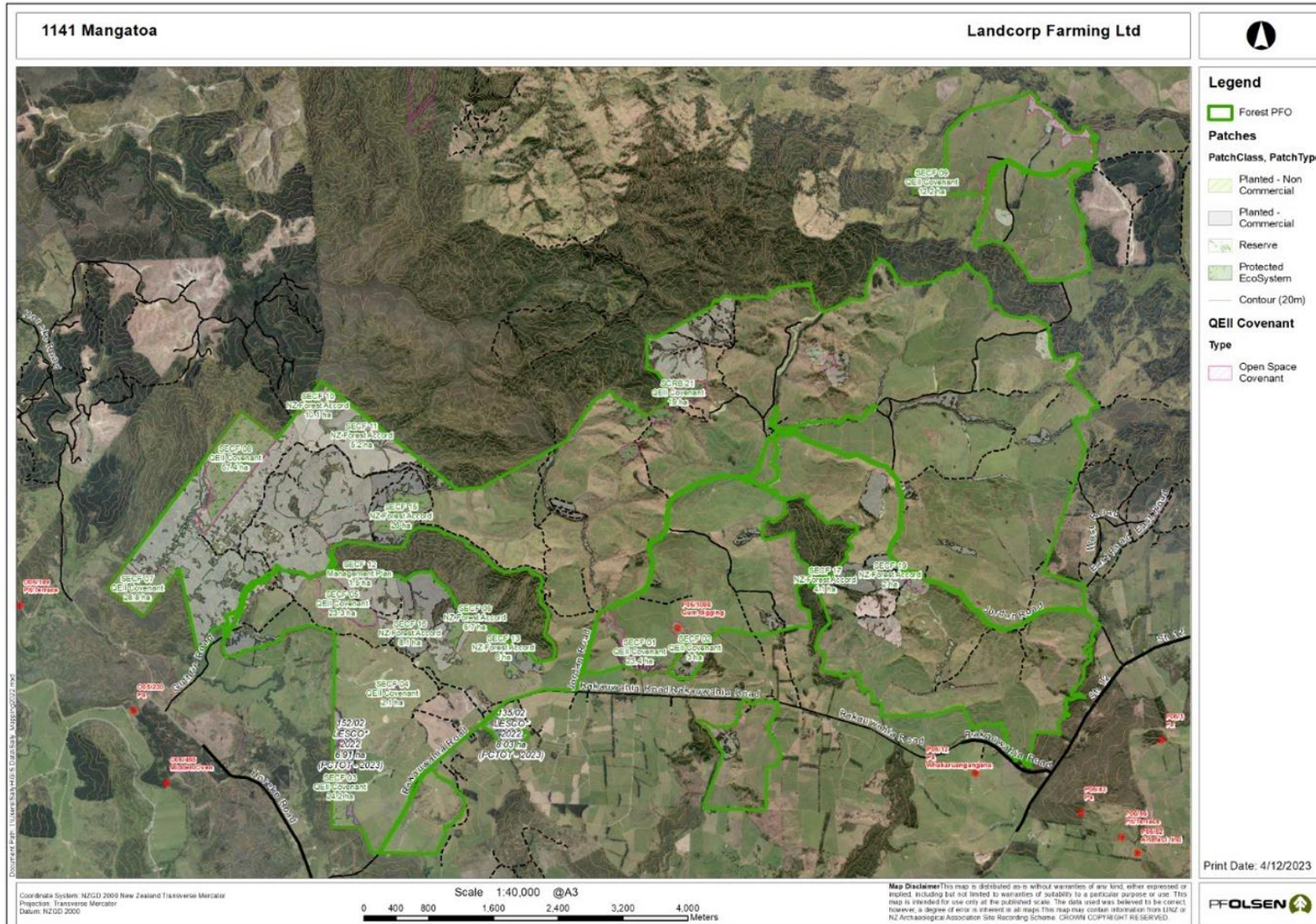












Appendix 3: Forest Neighbours

Not Publicly Available.

Appendix 4: HCVF Management Plan

To be completed, if applicable, following the completion of the formal HCV assessment.

See section 9: High Conservation Value (HCV) Areas for more information.

Appendix 5: Ecological Management Plan

Review Date: February 2024

QEII Covenant Areas: Landcorp Farming Ltd will manage all of the QEII covenanted areas and carry out any restoration / protection activities that are required in accordance with their own specific QEII covenant plans. They will inform PF Olsen of the work carried out, where chemicals are used, the amount used, the area treated and the active ingredients of the chemical products.

Pest Control Plans: Landcorp Farming Ltd and the Northland Regional Council have formal pest management plans for the stations. External pest control contractors implement these. Landcorp Farming Ltd will supply PF Olsen with a summary of control (method, pests targeted, number killed) across the stations.

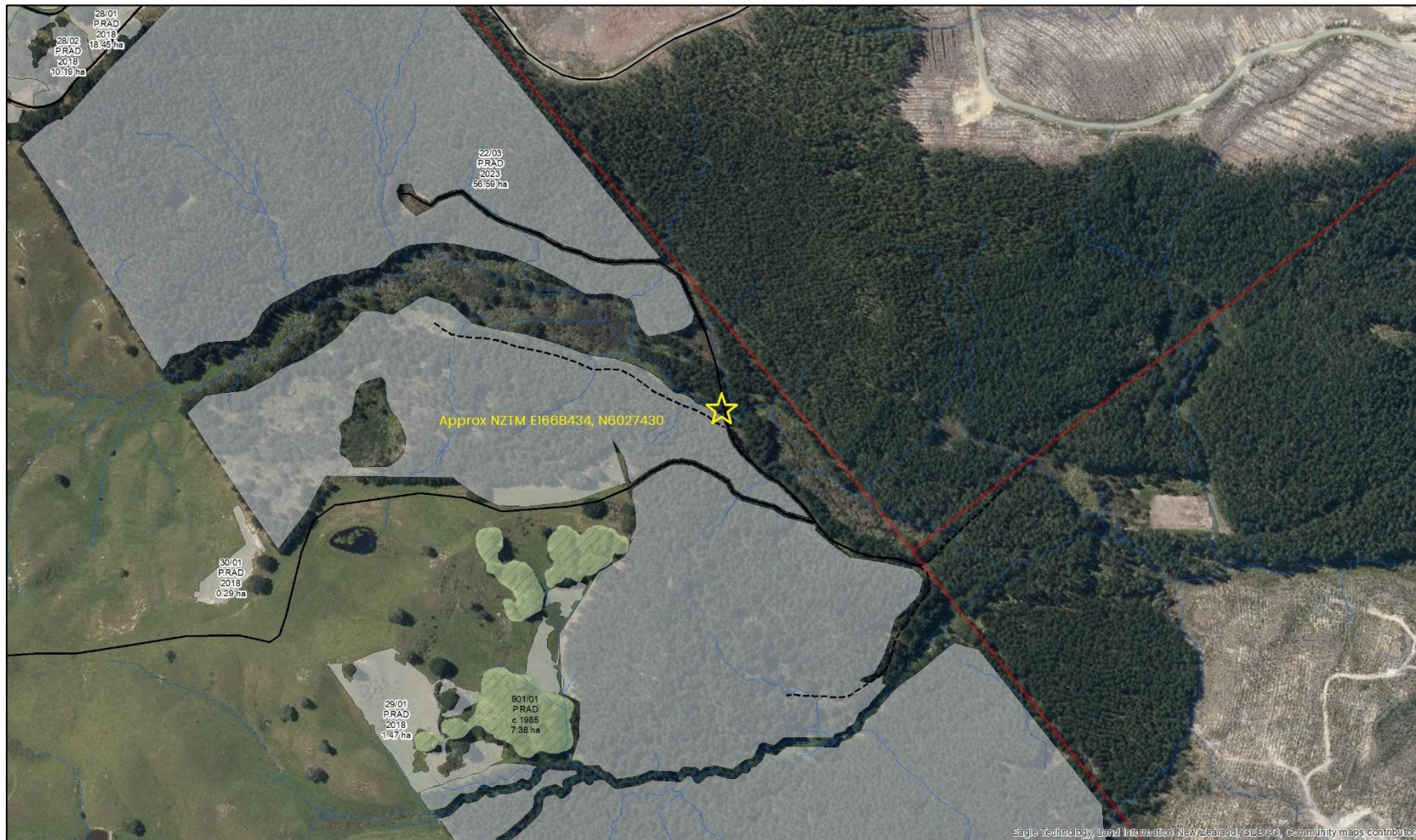
Activity	Action detail	Area/s				Due date																										
Vegetation monitoring	3 yearly photopoint monitoring- continue existing 3 yearly monitoring in the following sites, but move to drone photopoints.	<table border="1"> <thead> <tr> <th>Forest</th> <th>Stand</th> <th>NZTM E</th> <th>NZTM N</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Kapiro</td> <td rowspan="3">WETL-14</td> <td>1682246</td> <td>6109828</td> </tr> <tr> <td>1682324</td> <td>6109945</td> </tr> <tr> <td>1682440</td> <td>6111429</td> </tr> <tr> <td></td> <td>SECF-07</td> <td>1681672</td> <td>6113118</td> </tr> <tr> <td rowspan="2">Mangatoa</td> <td rowspan="2">SECF-02</td> <td>1663848</td> <td>6079021</td> </tr> <tr> <td>1663799</td> <td>6079010</td> </tr> <tr> <td rowspan="2">Puketotara</td> <td>LEPT-08</td> <td>1680289</td> <td>6102535</td> </tr> <tr> <td>LEPT-07</td> <td>1680695</td> <td>6102414</td> </tr> </tbody> </table>	Forest	Stand	NZTM E	NZTM N	Kapiro	WETL-14	1682246	6109828	1682324	6109945	1682440	6111429		SECF-07	1681672	6113118	Mangatoa	SECF-02	1663848	6079021	1663799	6079010	Puketotara	LEPT-08	1680289	6102535	LEPT-07	1680695	6102414	Ground photopoints monitoring complete. Sites to be migrated to 3 yearly drone monitoring by the end 2024
	Forest	Stand	NZTM E	NZTM N																												
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	Annual photopoint drone monitoring. Establish sites within the high ecological value / proposed HCV areas.	<table border="1"> <thead> <tr> <th>Forest</th> <th>Stand</th> <th>NZTM E</th> <th>NZTM N</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Kapiro</td> <td>WETL-17</td> <td>1686178</td> <td>6109574</td> </tr> <tr> <td>SECF-10</td> <td>1689260</td> <td>6108922</td> </tr> <tr> <td rowspan="3">Omamari</td> <td>WETL-01</td> <td>1662321</td> <td>6031758</td> </tr> <tr> <td>WETL-03</td> <td>1666253</td> <td>6029426</td> </tr> <tr> <td>LEPT-01</td> <td>1663139</td> <td>6033992</td> </tr> </tbody> </table>	Forest	Stand	NZTM E	NZTM N	Kapiro	WETL-17	1686178	6109574	SECF-10	1689260	6108922	Omamari	WETL-01	1662321	6031758	WETL-03	1666253	6029426	LEPT-01	1663139	6033992	End 2024								
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Activity	Action detail	Area/s	Due date
Rare species - sightings	<p>iNaturalist used to record species (especially new finds) by public, crews, operational supervisors, Landcorp Farming staff.</p> <p>Apply relevant forest management protocols (e.g. NZ Falcon Management Guide – Plantation Forestry)</p>	All forests	As required
Rare species - train crews Provide identification resources	<p>Include photos of species in rare species ID posters and train (during inductions) crews to be alert for presence of threatened species and required operational controls e.g., as per the relevant forest management protocols.</p> <p>Record any sightings in iNaturalist database.</p>	All forests	As required
Kiwi/bat surveys- pre harvest	<p>Prior to harvesting, engage an experienced kiwi contractor to review harvest plans/timing in Kapiro, Mangatoa, Puketotara for potential impacts on kiwi. Implement their advice for locating and managing kiwi through harvest phase.</p> <p>Carry out concurrent bat surveys using bat box.</p> <p>Record any sightings in the iNaturalist database.</p>	Kapiro, Mangatoa, Puketotara	<p>Pre-harvest as applicable</p> <p>Post harvest if detected pre-harvest</p>

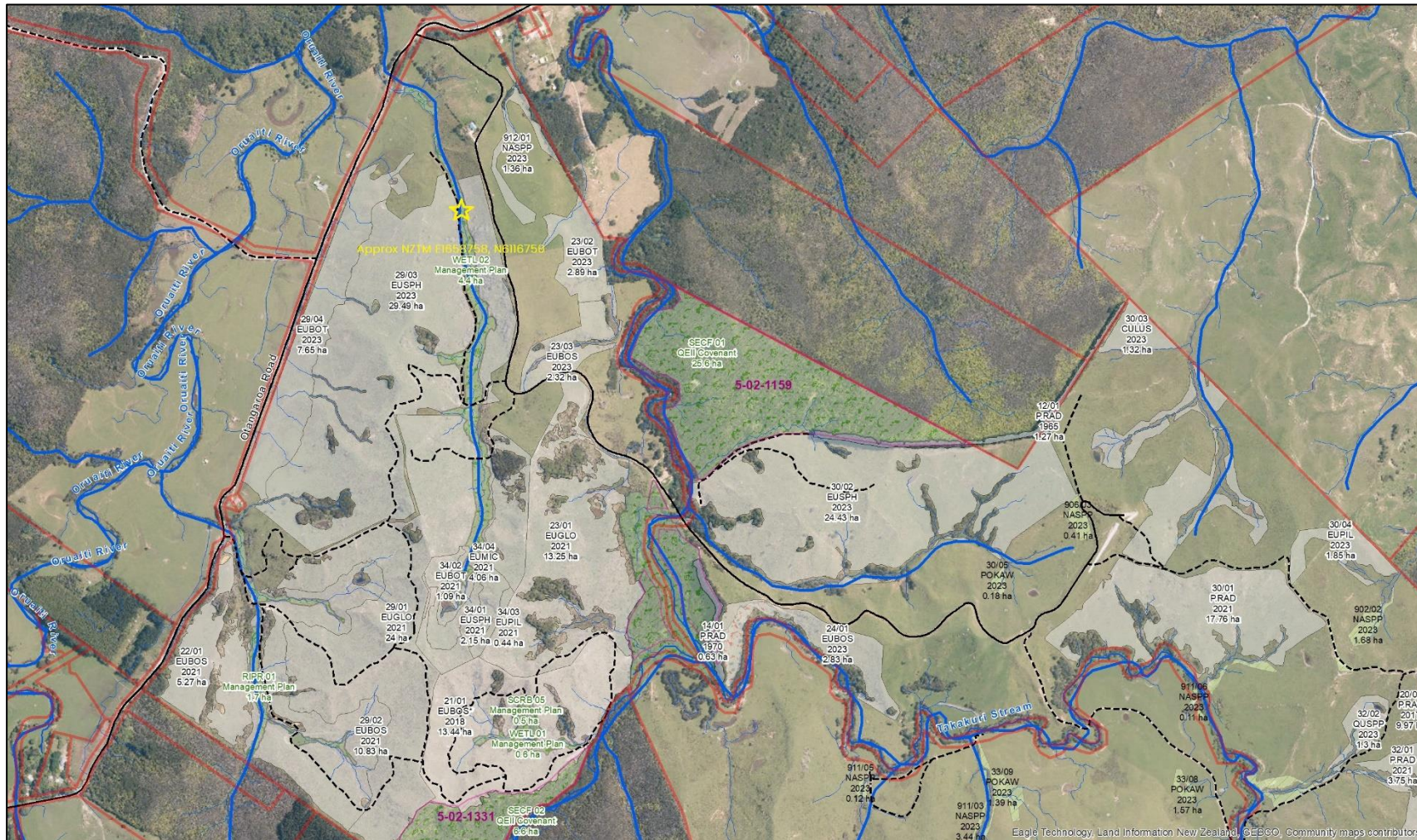
Activity	Action detail	Area/s	Due date
Bat surveys - preharvest	<p>Implement pre-harvest bat surveys. Focus on areas adjacent to:</p> <ul style="list-style-type: none"> Riparian edges with potential bat roosting trees (large old trees- willow, poplar, 'old man' pines, large indigenous trees) Indigenous reserves Other potential bat roosting sites (e.g. other large old trees as above) <p>Record any sightings in the iNaturalist database.</p>	Takakuri, Titoki	<p>Pre-harvest as applicable</p> <p>Post harvest if bats detected pre-harvest</p>
Fish passage	<p>In conjunction with Landcorp Farming Ltd farm staff, survey culverts on all farms for fish passage.</p> <p>Create plan to bring culverts up to standard in an appropriate timeframe. NZ-FishPassageGuidelines-upto4m-NIWA-DOC-NZFPAG.pdf</p>	All forests	<p>Survey complete end 2024</p> <p>Remediation plan due by June 2025</p>
Wilding removal	Remove wilding pines from SECF-01 when harvesting adjacent stands (108/01, 154/01, 176/01).	Mangatoa SECF-01	At harvest (2027?)

Activity	Action detail	Area/s	Due date						
Water monitoring site	<p>Undertake 6-replicate comprehensive eDNA water testing to:</p> <ul style="list-style-type: none"> - establish aquatic / amphibious / riparian terrestrial rare species presence. - provide water quality indicator (TICI). <p>If threatened species are identified:</p> <ul style="list-style-type: none"> - Findings will be reported in iNaturalist - Review forestry and harvesting operations to ensure that any potential impacts are recognised and managed appropriately to not adversely affect the threatened species (in line with the National Policy Statement for Indigenous Biodiversity). <p>If an unexpected result is produced, a repeat test will be implemented.</p>	<p>3 sites proposed, as described below and shown on the maps on the following pages. Exact site location is subject to change based on practical access.</p> <table border="1" data-bbox="864 475 1760 810"> <tbody> <tr> <td data-bbox="864 475 1137 564">1117 Omamari</td> <td data-bbox="1137 475 1760 564">Stream in stand 22/03 before it leaves the property. Approx NZTM E1668434, N6027430</td> </tr> <tr> <td data-bbox="864 564 1137 687">1127 Takakuri</td> <td data-bbox="1137 564 1760 687">Tributary of Oruaiti River- just before it leaves the forestland before the boundary. Approx NZTM E1658758, N6116750</td> </tr> <tr> <td data-bbox="864 687 1137 810">1141 Mangatoa</td> <td data-bbox="1137 687 1760 810">Omao Stream before it reaches the Whitiwhitiangi Stream. Approx NZTM E1659496, N6080219</td> </tr> </tbody> </table>	1117 Omamari	Stream in stand 22/03 before it leaves the property. Approx NZTM E1668434, N6027430	1127 Takakuri	Tributary of Oruaiti River- just before it leaves the forestland before the boundary. Approx NZTM E1658758, N6116750	1141 Mangatoa	Omao Stream before it reaches the Whitiwhitiangi Stream. Approx NZTM E1659496, N6080219	<p>Establish baseline January 2025, implement annually for 5 years to monitor effects of post-harvest canopy closure.</p> <p>Switch 5-yearly during mid-rotation (age 5, 10, 15, 20, 25 years), and increase frequency to annual just prior and during next harvest.</p>
1117 Omamari	Stream in stand 22/03 before it leaves the property. Approx NZTM E1668434, N6027430								
1127 Takakuri	Tributary of Oruaiti River- just before it leaves the forestland before the boundary. Approx NZTM E1658758, N6116750								
1141 Mangatoa	Omao Stream before it reaches the Whitiwhitiangi Stream. Approx NZTM E1659496, N6080219								

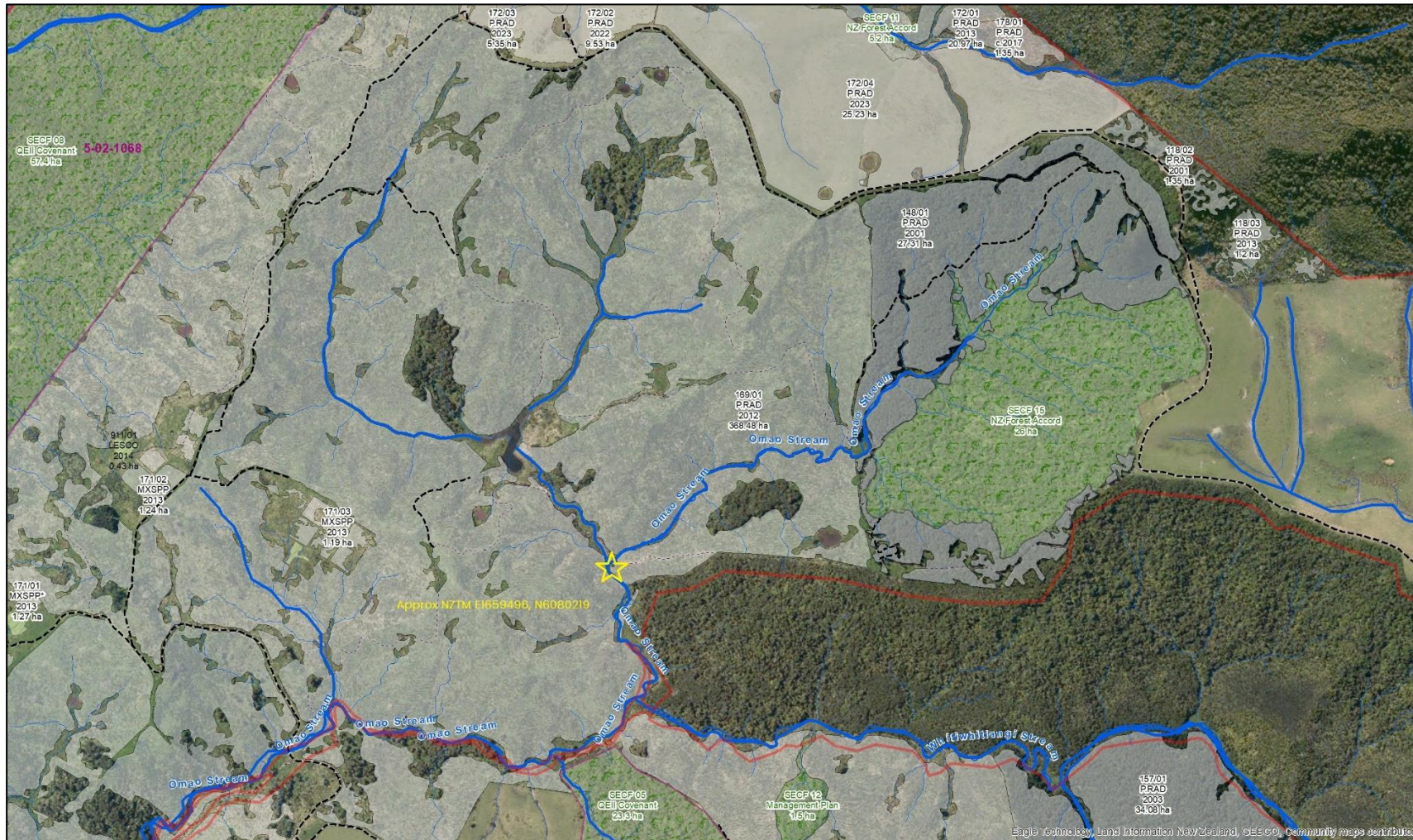
1117 Omamari Forest- proposed water monitoring site



1127 Takakuri Forest- proposed water monitoring site



1141 Mangatoa Forest- proposed water monitoring site



Appendix 6: Public Access Maps

On following pages

