



# TE TUHI ESTATE

DRAFT RESTORATION AND MITIGATION PLANTING STRATEGY

This Draft Restoration and Mitigation Planting Strategy has been prepared as part of the application for a proposed Te Tuhi Development at the end of Whakaroa Road, Taupo

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Report Version: R1  
August 2023





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# INTRODUCTION

Te Tuhi Estate Ltd is seeking to subdivide and develop the property at 387 Whakaroa Road in a way that enhances the landscape characteristics of the outstanding natural landscape within which it is contained, including the retirement of a significant part of the property from rural production, the reestablishment of indigenous forest cover and the development of a high-quality lodge, an equestrian centre, and a range of different living opportunities.

Approximately 294 ha (approx.) of indigenous vegetation comprising 42 ha (approx.) of mitigation planting and 252 ha (approx.) of native restoration planting, will be implemented across the site to help mitigate the effects of development associated with the subdivisions, lodge, and equestrian centre on landscape character (including visual character) and to restore the natural character and ecological diversity of the site. To achieve this, approximately 1.4 million plants, endemic to the Taupo Ecological District will be planted.

In addition to this, areas of native amenity planting will be established around the proposed lodge and chalets, and equestrian centre. Approximately 28 hectares of pasture within the site will be retained for equine use and grazing.

All planting areas have been calculated using land surface area rather than plan area, to account for the slope of the land, which will achieve more accurate plant number calculations. Subsequently all areas indicated in this document represent surface areas which may differ from areas used in any other associated documents.

Carbon will be sequestered by the newly planted native revegetation and be eligible to be registered for carbon credits in the ETS, ensuring long-term maintenance and protection of the native bush.

Following consent, Te Tuhi Estate Mitigation And Restoration Planting Management Plan (“the planting management plan”) will be produced and will identify the mitigation and restoration planting strategy for the site and the key components that will be included in the planting management plan.

## CONTEXT

Located within the Whakaroa Outstanding Landscape Area (OLA 65), the site is currently used for farming. It consists mainly of pasture and lacks significant tall vegetation, except for a few pockets of native and exotic plantings scattered across the property. These plantings are mostly found in the steeper gullies and escarpments. Except where it adjoins private farm property in the northwest (Whakaroa Road), the site is surrounded by indigenous vegetation located within the adjacent protected Significant Natural Areas (SNAs)/scenic reserves (Whakaipo Bay Scenic Reserve, Whakaroa Point Recreation Reserve and Whangamata Bay Headland) and Maori land.

Te Tuhi Estate is located within the Taupo Ecological District. This forms the foundation for plant selection in the revegetation and restoration planting project.

## COLLABORATIVE APPROACH

The applicant has been communicating with the Western Bays Forum to connect with the hapu that holds mana whenua over the site (Oruanui). The applicant is seeking to partner with Oruanui, to ensure an integrated approach between the applicant and Oruanui, ensuring that cultural associations and values are considered within the proposal.

An opportunity exists for a collaborative approach with local iwi or community groups to be fully or partially involved in the revegetation efforts at Te Tuhi. This involvement could range from establishing and managing an onsite nursery to taking part in the planting and post-planting maintenance.

This would see the mitigation and restoration/enrichment planting carried out by either establishing an on-site nursery, engaging local hapu, hiring commercial contractors, or a combination of all three to implement approximately 1.4 million eco-sourced plants. This would include seed collection, propagation, site preparation, planting, replacement planting, and ongoing maintenance/management of restoration and enrichment planting.

## PROJECT OBJECTIVES

The key objectives of the restoration project are:

- a. To mitigate the effects of development on the Outstanding Landscape Area (OLA65)
- b. To restore and enhance the natural character values of the Outstanding Landscape Area (OLA65) by returning the existing pastoral land to its former bush-covered state, using ecologically appropriate plant species from the Taupo Ecological District.
- c. To enhance the habitat values within the site through the establishment of indigenous vegetation.
- d. Ensures the long-term maintenance and protection of the native bush by including it in a carbon credit scheme.
- e. To enable public access throughout the site by way of walkways and bridle trail for recreational opportunities.
- f. To develop and use the land to provide for the culture and traditions of the tangata whenua.
- g. To provide training opportunities to grow the skills, knowledge base and workforce of the local hapu.
- h. To enhance the appearance of the lodge using amenity planting, while integrating it with the surrounding natural environment ensuring that views across the lake and surrounding landscape are maintained.

## SITE PHOTOS

The following photos show the different planting environments and topography within the site, within which rehabilitation planting will occur.



*Northern escarpment from site entrance*



*Whakaipo Bay from West of telecommunications tower*





*Central plateau (equestrian centre) from Ngangautu*



*Central plateau (equestrian centre)*





*Looking from lodge site towards Ngangautu*

# IMPLEMENTATION STRATEGY

The restoration and mitigation planting will be implemented over three phases, staged over a period of 6-10 years.

## PHASE 1: MITIGATION PLANTING WITHIN PRIVATE LOTS AND EARTHWORKS RESTORATION

### PRIVATE LOTS

Native mitigation planting will be established within each lot to help screen/visually integrate the development into the landscape. This planting will be implemented by Te Tuhi Estate Ltd prior to 223 & 224(C) certification being issued and will be protected by consent notice in perpetuity.

Distinct tall and low planting zones have been designated for each private lot to achieve effective visual screening, backdropping, and separation between neighbouring properties. The Tall Planting Zone will resemble the site's restoration planting but with closer plant spacings for faster canopy closure and enhanced visual screening. Property owners must maintain the tall mitigation planting in its natural form, with no tree removal or pruning allowed, except for health reasons or to remove dead specimens, which should be replaced appropriately. However, within the low planting zones on their lots, property owners will be permitted to prune to maintain views of lakes and mountains where viewshafts overlap with neighbouring properties.

The height of the low mitigation planting will be controlled by property owners to preserve outward and neighbouring views. Planting plans will be prepared for each lot, indicating the general plant mix for different areas.

### ROAD RESERVE PLANTING

Intermittent amenity planting, including semi-formal clusters of avenue trees and low native species, will highlight subdivision development clusters along road reserves. This planting will be carried out progressively with each subdivision cluster's development.

Steep cut and fill batters within road reserves and the bridle trail will be hydroseeded using an appropriate mix of native species. Fill batters will be shaped to blend with the natural landform and stabilized through hydroseeding or hydro-mulching to prevent erosion.

### PHASE 1 STAGING

All mitigation planting and road reserve planting will be implemented in the first planting season following subdivision development. Where the subdivision development is staged, this planting will be implemented concurrently with the development of each subdivision cluster. It is anticipated that all mitigation planting will be implemented within the first two planting seasons following commencement of the subdivision development.

## PHASE 2: NATIVE RESTORATION PLANTING

Approximately 252 hectares in the balance lot will be restored to native bush. Native restoration planting will consist of a mix of fast-growing colonising plants capable of tolerating moderately exposed conditions which will form a protective canopy for the establishment of Phase 3- Enrichment Planting.

The native restoration planting serves several key objectives for the site. It is intended to visually screen and seamlessly integrate the development into its surroundings, restoring the natural character values of the landscape. Moreover, the planting creates an ecological corridor across the site, promoting connectivity and supporting biodiversity. Additionally, the restoration planting enhances the overall visual amenity, contributing to the site's aesthetic appeal while simultaneously enriching its ecological values. Through these collective efforts, the native restoration planting plays a vital role in fostering sustainability and ecological balance within the area. The planting strategy for the restoration project will be carefully tailored to suit the diverse topographic and environmental conditions found throughout the site. Different species mixes will be selected based on the specific requirements of each location. For damper gully areas, plant selections will prioritize species that thrive in moist conditions and can withstand periodic waterlogging. These resilient plantings will help stabilize the gully banks, prevent erosion, and enhance the overall ecological health of these areas.

On dry north-facing slopes, nurse crop species that are better adapted to such conditions will be favoured. Conversely, colder south-facing slopes will require plantings of species that can endure cooler temperatures.

In the low planting zones, where the focus is on maintaining outward and neighbouring views, greater emphasis will be placed on ensuring that the species selected are located so that they do not obstruct sightlines and blend seamlessly into the landscape. This will offer a balance between providing visual amenity and preserving the natural vistas surrounding the development.

### PHASE 2 STAGING

Due to the size of the site, the restoration planting will be implemented in stages over a period of 4-6 years (depending on the collaborate approach outlined above). This will follow the implementation of all mitigation planting.

A pragmatic approach to the staging of planting within the large site will initially prioritise areas which are of greatest benefit from a visual mitigation perspective, adjacent to the Phase 1 Mitigation Planting and restoring areas disturbed by earthworks and rehabilitating sensitive and erodible soils. This approach will follow a logical sequence dictated by existing fencing and development patterns, meaning that areas of pasture can be maintained or managed in the interim.

By focusing on visual mitigation first, planting efforts aim to create an immediate impact on the landscape, effectively screening and integrating the development with its surroundings. Following this, restoration efforts target areas previously disturbed by earthworks, aiming to rejuvenate and stabilize these zones. Concurrently, sensitive, and erodible soils are addressed to prevent further degradation and promote ecological resilience. Adopting a logical sequence guided by existing fencing and development patterns ensures a systematic and efficient planting strategy, maximizing the positive ecological and visual outcomes throughout the large site restoration project.



## PHASE 3. ENRICHMENT PLANTING

Approximately two years after Phase 2 planting has begun, or when the seedlings reach a height of about 1.5m, enrichment species will be established across approximately 87ha of the site under selected areas within the tall native restoration planting zones.

The enrichment planting will comprise of tree species that require the canopy protection provided by the initial restoration planting to establish. This will introduce a greater diversity of species across the site within a shorter time frame than would naturally occur.

These species will include climax forest species and species whose seed will be distributed across the site by birds.

This strategic inter-planting approach ensures the progressive development of a diverse and sustainable ecosystem over time, benefiting from the mutual support of both restoration and enrichment plantings. The enrichment planting will be tailored to the site conditions and will be spaced further apart, grouped in clusters, to emulate their natural growth patterns.

It is also expected that natural enrichment will also occur within the site, with seeds from the adjacent reserves being naturally distributed across the site.

### PHASE 3 STAGING

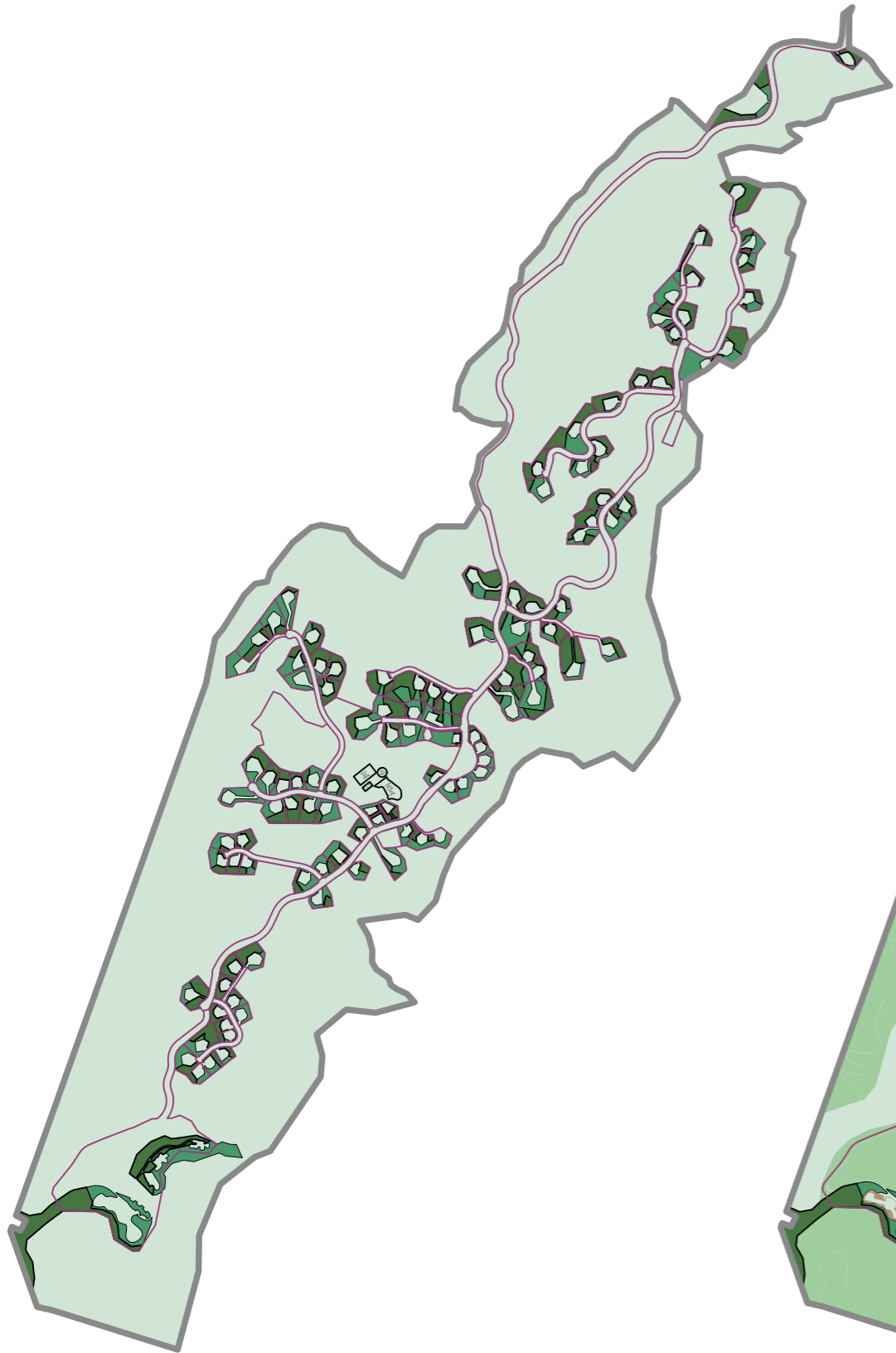
Enrichment planting will begin approximately 2 years after the implementation of each block of restoration planting. Like the restoration planting, this will be staged over a period of 4-6 years and will be implemented when areas of restoration planting have grown sufficient canopy cover to offer adequate protection.

### INDICATIVE TIMELINE

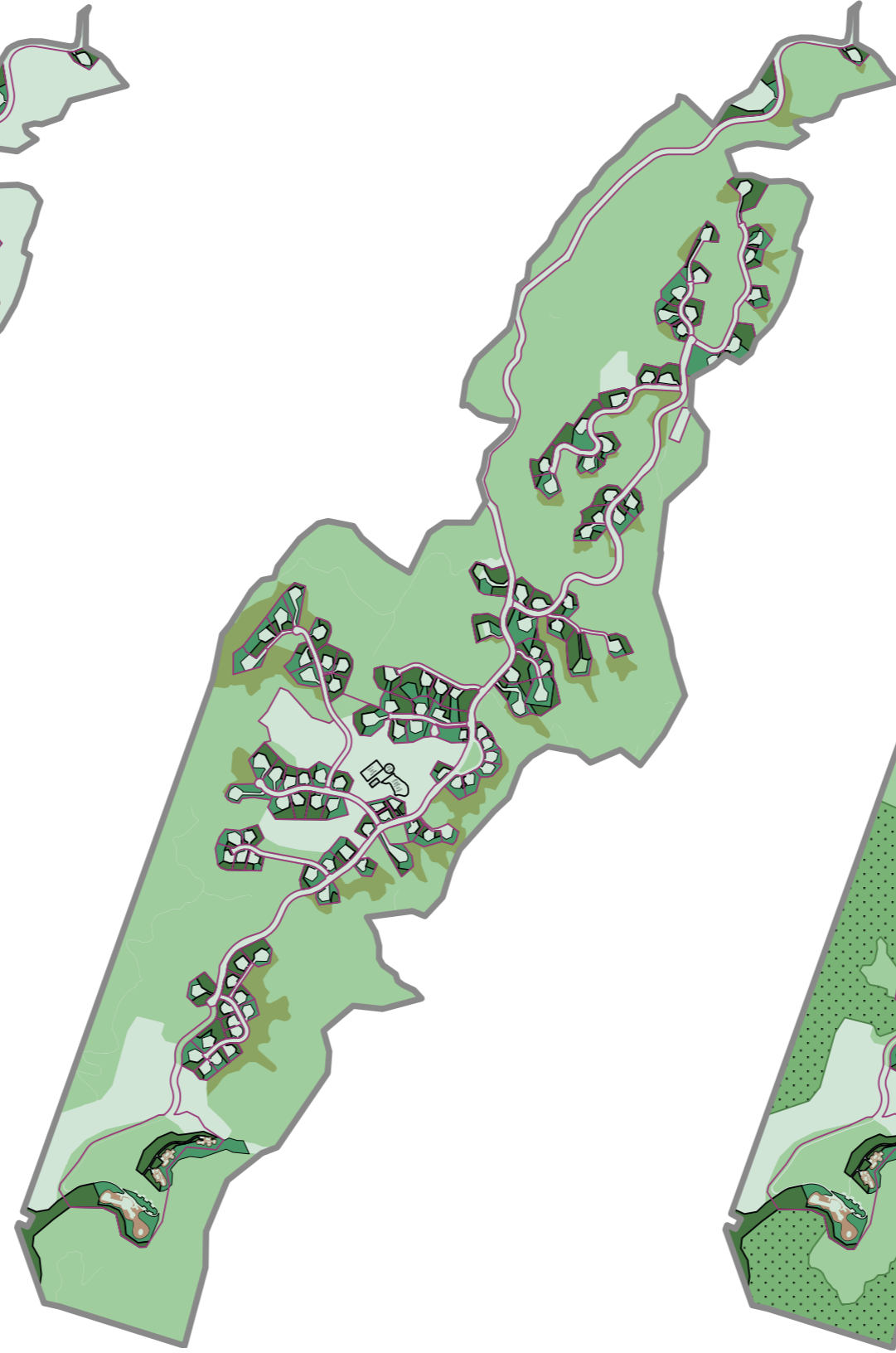
It is anticipated that the seed collection, propagation and implementation of the mitigation and restoration planting will occur as per the following schedule:

Planting Seasons (Late Autumn-Winter)												
	1	2	3	4	5	6	7	8	9	10	11	12
<b>Seed Collection</b>												
<b>Propagation</b>												
<b>Phase 1</b>												
<b>Phase 2</b>												
<b>Phase 3</b>												

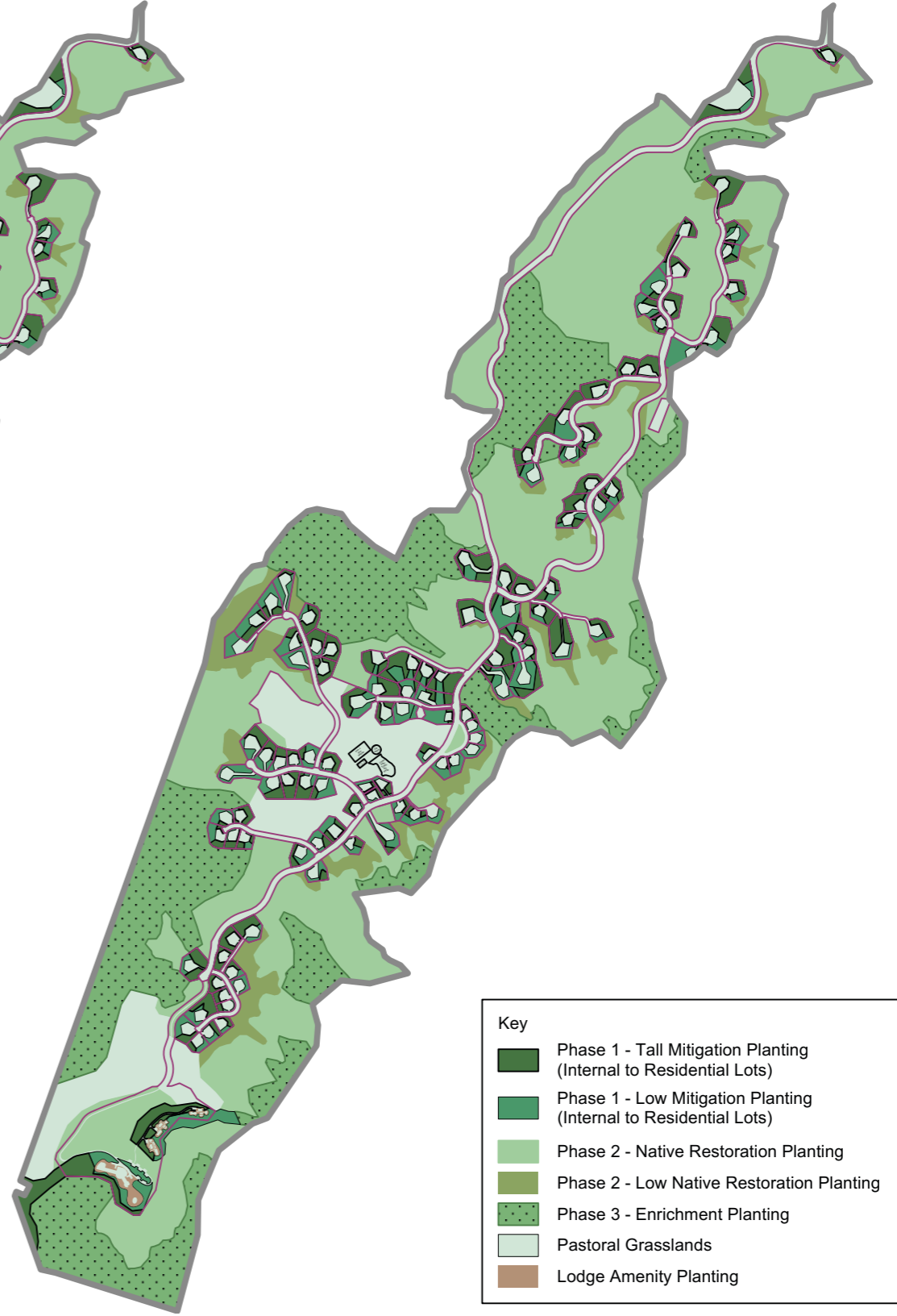
The above timeframe assumes a labour force of 16-20 people and suitable planting conditions during late autumn/winter for a duration of 16 weeks.



1 **Phase 1 - Mitigation Planting**  
Scale: 1:20000



2 **Phase 2 - Native Restoration Planting**  
Scale: 1:20000



3 **Phase 3 - Enrichment Planting**  
Scale: 1:20000

**Key**

- Phase 1 - Tall Mitigation Planting (Internal to Residential Lots)
- Phase 1 - Low Mitigation Planting (Internal to Residential Lots)
- Phase 2 - Native Restoration Planting
- Phase 2 - Low Native Restoration Planting
- Phase 3 - Enrichment Planting
- Pastoral Grasslands
- Lodge Amenity Planting

# TE TUHI ESTATE MITIGATION AND RESTORATION PLANTING MANAGEMENT PLAN

Following resource consent, the consent holder will prepare a Te Tuhi Estate Mitigation and Restoration Planting Management Plan ("the planting management plan"). The key components of the planting management plan will include:

- a. Background and overview of the project (as outlined above)
- b. The key objective of the mitigation and restoration management plan (as outlined above)
- c. The implementation strategy (as outlined above)
- d. Implementation Responsibility
- e. Indicative Plant Lists
- f. Detailed site analysis
- g. Preparation of planting plans and schedules.
- h. Plant and seed sourcing
- i. Site preparation
- j. Planting
- k. Maintenance of Mitigation & Restoration/enrichment planting
- l. Lodge and Chalet Planting
- m. Equestrian Centre Planting
- n. Amenity Planting along Road Reserves
- o. Curtilage Planting
- p. Pasture
- q. Infrastructure Requirements on Site
- r. Health and Safety Requirements

## IMPLEMENTATION RESPONSIBILITY

Te Tuhi Estate will be responsible for the implementation of all planting within the site, including the mitigation planting within the private lot prior to sale, restoration/enrichment throughout the balance lot and along the access road, and amenity planting in and around the lodge, chalets, and equestrian areas.



## INDICATIVE PLANT LISTS

Indicative Plants Lists (sourced from the Taupo Ecological District) will be included in the planting management plan and will include the following:

LOW MITIGATION & RESTORATION SPECIES		
BOTANICAL NAME	COMMON NAME	HEIGHT AT MATURITY
<i>Blechnum novae-zealandiae</i>	Kiokio	1-1.5m
<i>Brachyglottis repanda</i>	Rangiora	2-4m
<i>Coprosma lucida</i>	Shining karamu	4-6m
<i>Coprosma propinqua</i>	Mikimiki	2.5-5m
<i>Coprosma rhamnoides</i>	Red fruited karamu	1-2m
<i>Coprosma rigida</i>	Stiff Karamu	2-5m
<i>Corokia cotoneaster</i>	Korokio	2-3m
<i>Cortideria fulvida</i>	Toetoe	1.2-2m
<i>Gaultheria antipoda</i>	Tawiniwini	1-2m
<i>Leptospermum scoparium</i>	Manuka	3-5m
<i>Leucopogon fasciculatus</i>	Soft mingimingi	5-6m
<i>Muehlenbeckia axillaris</i>	Creeping Wire vine	0.2m
<i>Myrsine australis</i>	Mapou/Red matipo	4-6m
<i>Myrsine divaricata</i>	Weeping mapou	2-3.5m
<i>Neomyrtus pedunculata</i>	Rohutu	4-6m
<i>Olearia virgata</i>	Tree Daisy	3-4m
<i>Phormium cookianum</i>	Wharariki/Mountain flax	1-1.5m
<i>Phormium tenax</i>	Harakeke	2-3m
<i>Poa cita</i>	Silver tussock	0.5-1m
<i>Pimelea tomentosa</i>		0.5-1m
<i>Pittosporum turneri</i>	Turners kohuhu	4-6m
<i>Pomaderris amoena</i>	Tauhinu	0.5-1m
<i>Pseudowintera colorata</i>	Mountain horopito	2-3m
<i>Veronica parviflora</i>	Kokomuka taranga	1.8-5m
<i>Veronica stricta</i>	Koromiko	1.5-3m



## TALL MITIGATION & RESTORATION SPECIES

BOTANICAL NAME	COMMON NAME	HEIGHT AT MATURITY
<i>Carpodetus serratus</i>	Putaputaweta/marble leaf	6-8m
<i>Coprosma propinqua</i>	Mingimingi	2.5-5m
<i>Coprosma robusta</i>	Karamu	4-6m
<i>Cordyline australis</i>	Ti kouka/cabbage tree	8-12m
<i>Dicksonia fibrosa</i>	Wheki-ponga	6-10m
<i>Dodonea viscosa</i>	Akeake	6-8m
<i>Griselinia littoralis</i>	Kapuka/broadleaf	6-10m
<i>Kunzea ericoides</i> , <i>K robusta</i> , <i>K serotina</i> , <i>K tenuicalis</i>	Kanuka	10-15m
<i>Leptospermum scoparium</i>	Manuka	3-5m
<i>Myrsine australis</i>	Mapou	4-6m
<i>Pittosporum colensoi</i>	Black mapou	6-10m
<i>Pittosporum eugenioides</i>	tarata	6-10m
<i>Pittosporum tenuifolium</i>	Kohuhu	6-8m
<i>Plagianthus regius</i>	Manatu/ribbonwood	10-12m
<i>Podocarpus laetus</i>	Hall's totara	6-10m
<i>Podocarpus totara</i>	Totara	15-30m
<i>Veronica stricta</i>	Koromiko	1.5-3m



ENRICHMENT SPECIES		
BOTANICAL NAME	COMMON NAME	HEIGHT AT MATURITY
<i>Aristotelia serrata</i>	Wineberry	8-10m
<i>Carpodetus serratus</i>	Putaputaweta	8-10m
<i>Coprosma grandifolia</i>	Kanono	5-7m
<i>Cordyline banksii</i>	Forest cabbage tree	3-4m
<i>Cyathea delbata</i>	Silver fern/Ponga	8-10m
<i>Cyathea smithii</i>	Katote/soft tree fern	6-8m
<i>Dacrycarpus dacrydioides</i>	Kahikatea	30+m
<i>Dacrydium cupressinum</i>	Rimu	20-35m
<i>Eleocarpus dentatus</i> var. <i>dentatus</i>	Hinau	12-15m
<i>Fuchsia excorticata</i>	Kotukutuku/Tree fuchsia	10-14m
<i>Knightia excelsa</i>	Rewarewa	20-30m
<i>Melicytus lanceolatus</i>	Mahoe-wao	2-5m
<i>Melicytus ramiflorus</i>	Mahoe/whiteywood	8-10m
<i>Phyllocladus trichomanoides</i>	Tanekaha/celery pine	15-20m
<i>Podocarpus laetus</i>	Halls totara	6-10m
<i>Podocarpus totara</i>	Totara	20-30m
<i>Prumnopitys ferruginea</i>	Miro	20-25m
<i>Prumnopitys taxifolia</i>	Matai	20-25m
<i>Pseudopanax arboreus</i>	Whauwhaupaku / five finger	6-8m
<i>Pseudopanax crassifolius</i>	Horoeka/Lancewood	10-15m
<i>Sophora tetraptera</i>	Kowhai	6-12m
<i>Weinmannia racemosa</i>	Kamaha	15-25m





## DETAILED SITE ANALYSIS

After consent is issued, a detailed site analysis will be carried out which will include a comprehensive assessment of the site, including erosion and soil stability, soil analysis, site topography, microclimates and aspect, existing flora and fauna, ecological features, animal and pest species present, seed source availability, and access and infrastructure required within the site to implement the planting strategy.

All planting zones will be verified on-site prior to planting.

## PREPARATION OF PLANTING PLANS AND SCHEDULES.

From the information obtained from the detailed site analysis, a developed planting concept will be prepared at an appropriate scale showing the location of all areas of mitigation and restoration planting. Each plan will include the following information:

- Areas to be planted showing the location of tall and low (viewshaft) planting.
- Areas where enrichment planting will occur.
- Plant list including botanical name, common name, percentage mix of plant species, plant quantities, spacing, and size at planting.
- Staging of planting.
- Planting specification including pre-planting preparation, planting requirements and techniques, and post planting maintenance/management requirements (this will be for restoration/enrichment planting only).

## PLANT AND SEED SOURCING

As soon as consent is granted, plant sourcing and/or seed sourcing and propagation will begin. Between 1-3 years prior to planting, seeds will be collected, propagated, and grown to a size specified for planting.

All plant species selected for this revegetation project will be eco-sourced plants from the Taupo Ecological district and selected based on their tolerance and adaptability to the existing site conditions.

Plants will be root trainer size or PB3/0.5l (or equivalent) when planted. No cultivars, hybrids, or variegated varieties will be used.

Plants will be grown following best nursery practices to ensure healthy, disease-free, and pest-free seedlings. Quality control of plants prior to planting will ensure high-quality seedlings will be planted.

## SITE PREPARATION

Site preparation will occur prior to revegetation on a stage-by-stage basis as each area of land is revegetated.

Site preparation will include the following:

- Removal of any existing trees identified as problematic to new planting (pine etc).
- Soil management including soil deficiencies identified in the site analysis.
- Pre-planting plant pest control - Identification, assessment, and control/removal.
- Pre-planting animal pest control - Identification, assessment, and control/removal.

It is expected that the existing farm fences within the site will be retained and used to keep grazing animals away from the areas of new planting during the implementation phases.

## EXISTING VEGETATION

Where possible, any existing vegetation (native and non-invasive exotic) on site which is not identified as a weed species will be retained. Any existing tree identified as unhealthy or will become a potential threat to newly established planting will be removed prior to planting. As mitigation and restoration planting becomes established, any existing exotic tree that dies will not be replaced.

## FENCING

Fencing will be erected as required, to protect all newly planted areas from grazing animals (meaning around the equestrian and lodge grazing areas). The Development & Staging Plan will address how grazing stock will be managed during the staging of the revegetation.

Fencing type and style will follow the design guidelines.

## UNWANTED PLANTS AND WEED SPECIES

Some of the species growing in the surrounding catchment have the potential to become a problem on-site. These include wilding conifers (*Pinus* sp. Douglas fir), gorse (*Ulex europeaus*), blackberry, wattles (*Acacia* sp.) wild cherry, (*Prunus* sp.) and *Cotoneaster franchetii*.

All areas to be revegetated will remain grazed until planted. Grazing will play a vital role in maintaining grass growth prior to planting, potentially managing certain weeds (e.g., wilding conifers) and as a management tool to prepare land for planting and will be an important ongoing management practice until the land is revegetated.

Aerial spraying will not be used for weed control.

A plant pest management plan will be prepared and will outline the following:

- Identification of major plant pest/weed species present.
- Identification of suitable weed control methods to be implemented prior to planting.
- Spraying schedule identifying sprays to be used, indicating timing and frequency.
- Health and safety requirement.
- Post establishment plant pest management.

## ANIMAL PEST SPECIES

The proposed planting faces a significant threat from possums, rabbits, hares, and rodents. These introduced pests have become highly adapted to the New Zealand environment and can cause extensive damage to new and existing areas of bush.

Possums are notorious for their voracious appetite, feeding on leaves, buds, and fruit, hindering the growth and survival of young native plants. Similarly, rabbits and hares graze on tender seedlings and vegetation, impeding the establishment of native flora. Rodents pose a significant threat as they consume seeds and seedlings, disrupting the natural regeneration process.

To ensure the success of the proposed planting within the site, an Animal Pest Management Plan will be developed to identify the controls and measures that will be undertaken within the site to safeguard the restoration efforts. The Animal Pest Management Plan will outline the following:

- Comprehensive identification of target pest species.
- Assessment of the extent of the pest species present within the site.
- Clear delineation of management areas and boundaries.
- The identification of specific control methods and techniques for each target species.
- The identification of implementation and monitoring requirements.
- Inclusion of contingency plans for unexpected outcomes or changing pest dynamics
- Collaboration and coordination with relevant authorities and stakeholders (local iwi / DoC)
- Education and engagement with the local community (lot owners and visitors) about the importance of the pest management program.

The Animal Pest Management Plan will also include the management of species that pose a threat to the native fauna residing in the adjacent reserves and becoming established within the site.

## FERTILIZER REQUIREMENTS

All plants selected on the Recommended Species Lists are endemic to the Taupo Ecological District and are well adapted to the site and environmental conditions. While it is not anticipated that fertilizer will be applied at the time of planting, any soil nutrient deficiencies/requirements will be addressed at time of planting using fertiliser tabs.



# PLANTING

## TIMING

Planting will be dependent on the weather and soil conditions on the site. It will be undertaken during late autumn-winter months when there is adequate soil moisture. Planting will not be undertaken during extreme weather conditions e.g. heavy rainfall or snowfall or in the height of summer unless conditions allow.

## PLANT SPACING

Plant spacing for mitigation and restoration planting will range between 1 -2m centres allowing for smaller plants to be spaced closer together and larger plants further apart.

Mitigation planting will be planted at a higher density than restoration planting, with the aim to achieve quicker canopy cover and visual mitigation.

Enrichment planting will be planted at a wider spacing and planted in clusters of same plant species to accommodate the mature plant size and replicate natural growth patterns.

In general planting will occur at the following spacings:

- Mitigation planting will be planted at an average spacing of 1.2m centres (density 6944 plants/ha)
- Restoration planting will be planted at an average spacing of 1.5m (density 4444 plants/ha)
- Enrichment Planting will be planted at an average spacing of 5m spacing (density 400 /ha)

## PLANTING LAYOUT

In general plants will be laid out, so each species is matched to optimal site conditions. In all planting zones, the following planting pattern strategies will be adopted:

- Planting in clusters of the same plant species as well as mixed species arrangements that mimic natural regeneration patterns for these species.
- Planting in triangular and irregular patterns to avoid straight lines.
- Regular spacing (similar or mixed species) for plants of similar size and form.
- Mixed spacing for plants of different size at maturity (dependent on plant growth and spread habit)
- Planting smaller-growing species nearer the edges of planting.

Edge species will be used around the edges of the planting where it transitions to pasture.

## LAYOUT OF LOW MITIGATION & RESTORATION PLANTING

In designated low planting zones, as indicated on the Planting Concept Plan, the planting will prioritize preserving views for both property owners and neighbouring properties. Smaller plants will be positioned on the higher slopes, while taller trees will be planted on the lower slopes, ensuring unobstructed views above the planting area. Where taller trees are used as feature trees, lower limbs may be removed to retain views beneath the canopy.

This is shown in the indicative lot planting concept and layout typical cross sections on page C08, Appendix 1 of this report.

# MAINTENANCE

## MAINTENANCE OF MITIGATION PLANTING

The lot owner will be responsible for the continuous maintenance of both high and low mitigation planting within their lot, including any replacement planting. The owner will also be responsible for the resolution of any identified issues within the two planting zones e.g. pest/disease management and control, plant mortality replacement. Domestic planting or grassing will not be permitted within any designated mitigation planting areas.

All maintenance requirements will be identified in the consent notice on the certificate of title and will itemize what landowners are permitted/not permitted to do. Detailed maintenance guidelines will be produced and will provide guidance on the following:

- How planting will be maintained.
- When a plant can be removed and what replacement species are permitted.
- Pruning requirements and restrictions for the tall and low planting zones.

## REMOVAL AND REPLACEMENT PLANTING IN MITIGATION PLANTING ZONES

Removal of trees will not be permitted, except for health reasons or to remove dead specimens. Any plants removed will be replaced, preferably planted in the same planting season, with the same or similar species from the Plant Lists. All replacement plants will be sourced from local eco-sourced nursery suppliers.

## PRUNING OF MITIGATION PLANTING

Pruning will be permitted in both tall and low planting zones to remove dead or damaged branches, and address safety hazards, while maintaining the natural form of the plant.

In low mitigation planting zones, pruning to control the height of vegetation will also be allowed, to preserve lake and mountain views for both the lot owner and their neighbours. Limbing of lower branches may be carried out for taller trees used as feature trees, to maintain views beneath the canopy. However, pruning to maintain the height of tall mitigation trees will not be permitted.

Pruning of vegetation outside of a private lot by the lot owner will not be permitted.

## MAINTENANCE OF RESTORATION /ENRICHMENT PLANTING

Maintenance of all restoration and enrichment planting across the balance lots, will be the responsibility of Te Tuhi Estate Ltd in perpetuity.

In low restoration planting zones, pruning to control the height of vegetation will also be allowed to preserve lake and mountain views of neighbouring lot owners.

All restoration/enrichment planting will undergo regular monitoring. Where plants have died, a thorough investigation will be conducted to identify and eliminate possible causes, such as pests, diseases, slope aspect, soil conditions, inappropriate plant species, and water requirements. In cases of significant plant losses, plants will be replaced, (either with the same species or a more suitable species from the Plant List) preferably in the same planting season, to maintain planting densities.

Unless there are significant plant losses, replacement planting within the enrichment planting zones will not be required, as natural enrichment through seed dispersal from adjacent reserves is expected.

Maintenance will be regular until canopy closure, after which it will be less frequent.

A Restoration Planting Maintenance plan will be prepared and will address the following:

- Site inspections during the implementation phase and post-establishment phase outlining frequency and timing of inspections until canopy closure and post-canopy closure
- Replacement planting -Plant mortality checks and plant replacement requirements during implementation and post-implementation stages.
- Pruning/removal requirements
- Watering requirements – outlining appropriate irrigation methods and frequency if required.
- Identification of nutrient deficiencies and correction methods if required. This may include plant replacement with a more suited plant species rather than using fertilizer.
- Plant pest control – identification of appropriate weed control methods and timing / frequency of eradication/control
- Animal pest control- identification of appropriate animal pest control methods and timing /frequency of eradication/control
- Methods of record keeping, monitoring and evaluation, to measure the success/ failures of the revegetation which will be used as a basis for future decision-making.
- Long-term management and planning for sustained maintenance beyond the initial establishment phase.

Pruning will only occur if dead or dying branches need to be removed for safety reasons (e.g. they are overhanging the Bridle Trail) or to ensure the survival of a tree in a strategic location.



## LODGE AND CHALET PLANTING

Mitigation and restoration planting (chosen from the Plant Lists) will occur around the lodge and chalets, to screen and backdrop the lodge, and help integrate it with the surrounding natural environment. In addition, amenity planting will also be undertaken around the lodge, which will feature native plants specific to the Taupo Ecological District, arranged in a more formal manner to enhance the architectural features of the lodge and chapel.

Upon completion of the final design for the lodge and chalets, a detailed planting plan will be produced and will show:

- Individual plant placements for the amenity planting
- General plant areas for mitigation and restoration planting
- A plant schedule which will include common and botanical names of each plant, plant quantities, percentage species mix (where appropriate), plant spacing, and size of seedlings at time of planting.
- Timing and staging of planting.
- Planting specification including pre-planting preparation, planting requirements and techniques, and post planting maintenance/management requirements

## EQUESTRIAN CENTRE PLANTING

Amenity planting will occur within the equestrian centre. Following consent, a detailed planting plan will be prepared and will contain details as listed in Lodge and Chalet Planting.

## ROAD RESERVES AND BERMS

The berms within the road will either be grassed or planted in native species. After the cut and fill, batters will be hydroseeding with native species such as ferns and brackens. To integrate the road reserves with adjacent restoration planting, clusters of a single species of native trees will be strategically placed.

The prompt implementation of planting is vital to mitigate erosion risks effectively.

## CURTILAGE PLANTING

Curtilage planting will only be permissible inside the designated building pads within individual lots and be the responsibility of the landowner to maintain.

Native planting would be preferred but some exotic plant species such as amenity trees and shrubs, fruit trees and vegetables will be acceptable.

No restrictions will be placed on this planting unless it is a notified weed species listed in National Pest Plant Accord (NPPA) or declared a pest by Waikato Regional Council. Invasive domestic garden species such as spreading vines (ivy, japanese honeysuckle), bamboo, exotic conifers, wattles, , agapanthus, bears breeches (*Acanthus mollis*) *Cotoneaster* sp, and *Prunus* sp will not be allowed.

## PASTURE

Area of pasture within the equestrian centre, lodge grazing and wastewater disposal field will be either grazed or mown. Weed species will be controlled within these areas.

## INFRASTRUCTURE REQUIRED IN SUPPORT OF THE MITIGATION & RESTORATION PLANTING

Any supporting infrastructure that may occur on site to facilitate the development will be identified and outlined in the management plan. This may include the setup of an onsite nursery which will require structures such as propagation/potting sheds, storage areas for potting mix and chemicals, shade houses and standing out areas.

Lot 2 has been designed specifically to allow for the above activities (if required to be established within the site).

# HEALTH AND SAFETY REQUIREMENTS

Health and safety will be a priority throughout all stages of the development. Any health and safety requirements will be identified in the planting management plan and will include the following:

## On Site planting and maintenance

- On site training for workings on planting techniques to avoid injury.
- Training and safety protocols for using machinery and tools.
- Assessment and management of site-specific hazards such as steep slopes and uneven terrain.
- Personal protective equipment (PPE) requirements.
- Identifying weather conditions e.g. high winds, heavy rain, snow that may affect worker safety.
- Communication and emergency protocols in case of accidents or injury.
- Regular site inspections/risk assessments to ensure ongoing safety compliance.
- Use of vehicles within the site.

If a plant nursery is set up on site any Health and Safety requirements will be identified and will include the following:

- Storage and handling of chemicals, fertilizer, and pesticides.
- Training and safety protocols for using machinery and tools.
- Ergonomic requirements for workstations and equipment.
- Ventilation & protective gear when using harmful substances.
- Fire safety measures and emergency response plans.

# **APPENDIX 1.**

TE TUHI ESTATE

DRAFT RESTORATION AND MITIGATION PLANTING STRATEGY

LANDSCAPE DRAWING SET



**Mitigation and Restoration Planting Strategy**

The proposed development seeks to mitigate the visual effects and restore and enhance the landscape and natural character of the site through mitigation and restoration planting.

The strategy proposes 295 ha (approx) of indigenous vegetation comprising 42.2 ha (approx.) of mitigation planting and 252 ha (approx.) of native restoration planting, will be implemented to mitigate the effects of development associated with the subdivisions, lodge and chalets, and equestrian centre on landscape character (including visual character), and to restore and enhance the natural character and ecological diversity of the site.

Approximately 1.4 million plants, endemic to the Taupo Ecological District will be planted.

The proposed housing on site will be adequately screened by mitigation planting, to achieve effective visual screening, backdropping, and separation between neighbouring properties.

Low planting zones are identified within both mitigation and planting areas to maintain views of the lake and mountains.

Housing is proposed on the flattest areas of land to minimise earthworks and are grouped in cluster, with large gaps of planting between cluster to minimise the visual impact of the development.

Earthworks will be integrated with the adjacent landforms.

Restrictions will be placed on building heights, size, and colour to reduce the visual prominence of the buildings when viewed from outside of the site

Private access road



Enrichment planting responds to site topography for natural looking revegetation patterns.

Equestrian centre

Wastewater soakage

1  
C07

Bridle trail

1  
C07

Housing is clustered in small groups to minimise visual impact










Designated areas of low planting are provided both internal and external to residential lots in order to maintain views out.

Areas of pasture are provided in association with the lodge for livestock.

Chalets

Lodge and chapel

**Key**

-  Phase 1 - Tall Mitigation Planting (Internal to Residential Lots)
-  Phase 1 - Low Mitigation Planting (Internal to Residential Lots)
-  Phase 2 - Tall Native Restoration Planting
-  Phase 2 - Low Native Restoration Planting
-  Phase 3 - Enrichment Planting
-  Pasture
-  Amenity Planting
-  Buildings (Indicative)
-  Wastewater Soakage Field
-  Lot Boundaries
-  Site Boundary

1

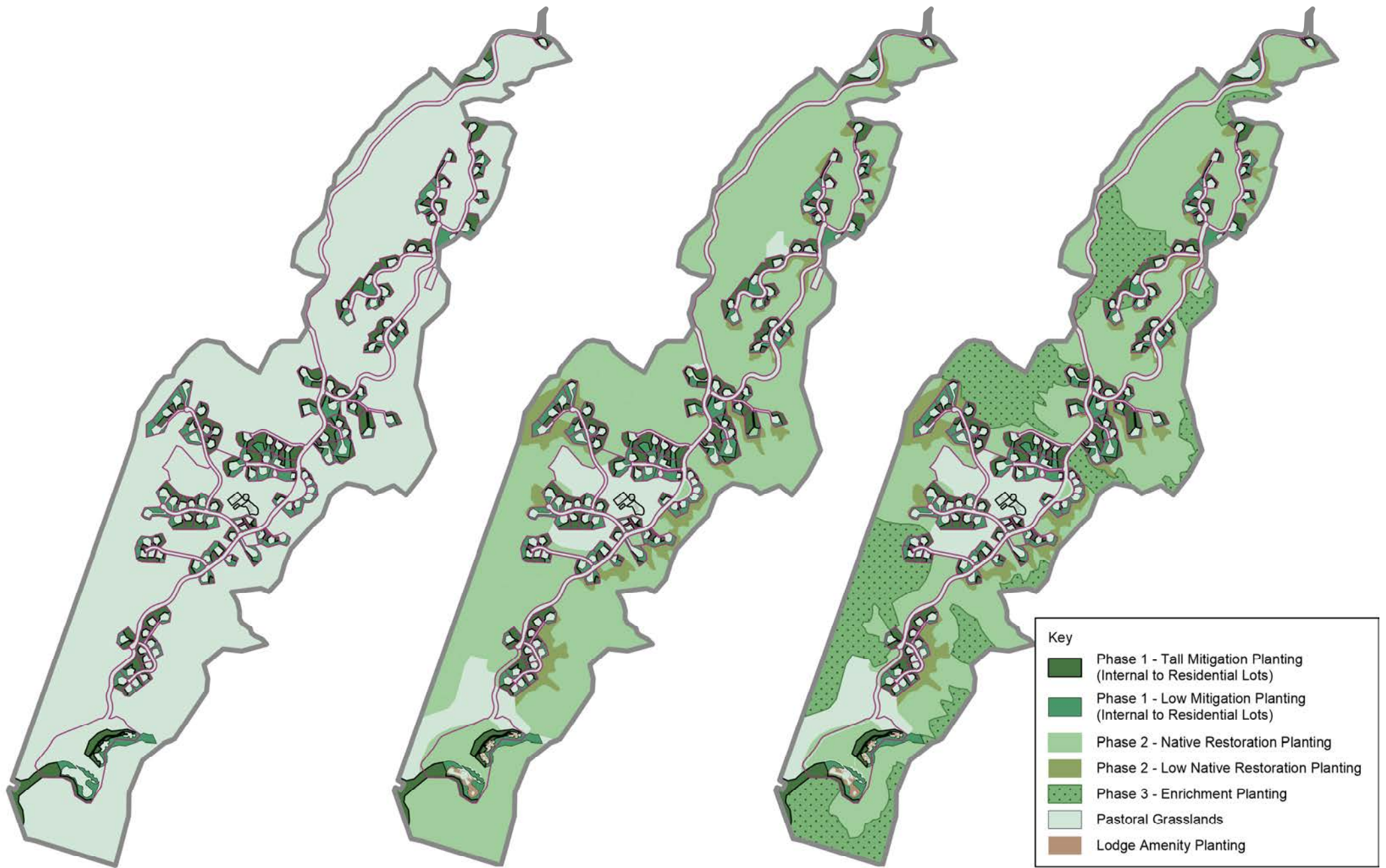
**Overview Plan**

Scale: 1:12000

0 500 1000 m







1 Phase 1 - Mitigation Planting  
Scale: 1:25000

2 Phase 2 - Native Restoration Planting  
Scale: 1:25000

3 Phase 3 - Enrichment Planting  
Scale: 1:25000

**Mitigation and Restoration Planting Approach**

The Mitigation and Restoration Planting strategy will be implemented in three phases over a period of 6-10 years.

**Phase 1. Mitigation Planting** (approximately 42 ha)

Mitigation planting for screening of the proposed houses, will be planted in the 1<sup>st</sup> planting season following the development of the subdivision to screen/visually integrate the development into the landscape. Planting will be protected by consent notice and will be the responsibility of lot owners to maintain in perpetuity.

**Phase 2 Native Restoration Planting** (approximately 252 ha)

Restoration planting will follow the mitigation planting over a 4-6 year period and will visually screen and integrate the development into its surroundings and to restore and enhance the natural character values of the landscape using ecologically appropriate plant species from the Taupo Ecological District. Long term maintenance of all areas of Restoration planting will be the responsibility of Te Tuhi Estate

**Phase 3. Enrichment Planting** (approximately 87 ha)

Enrichment planting will occur approximately 2 years after the implementation of each block of restoration planting (or when there is sufficient canopy cover to offer adequate protection), introducing a greater diversity of species across the site to ensure the progressive development of a diverse and sustainable ecosystem. Planting will be staged over 4-6 years

Amenity planting will occur around the Lodge/Chalet and Equestrian Centre and approximately 28 ha of land will be retained as pasture.

Road reserves will be integrated with adjacent restoration planting using strategically placed clusters of a single species of native trees.

All road berms will either be grassed or planted in native species

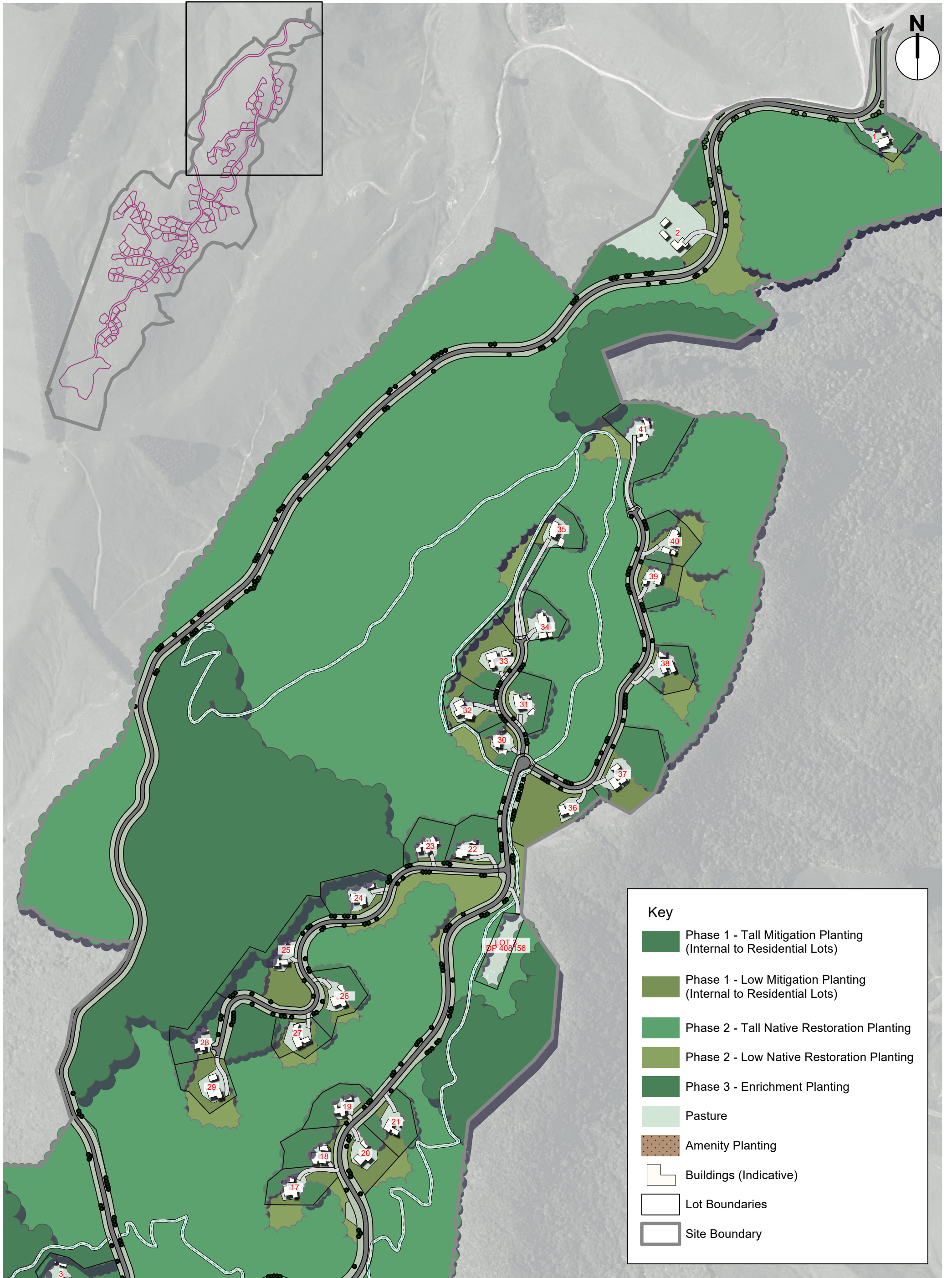
Phase 2 & 3 will be registered for carbon credits and will be maintained for the duration of the consented activity.

LOW MITIGATION & RESTORATION SPECIES	
Botanical Name	Height at maturity
Blechnum novae-zealandiae	1-1.5m
Brachyglottis repanda	2-4m
Coprosma lucida	4-6m
Coprosma propinqua	2.5-5m
Coprosma rhamnoides	1-2m
Coprosma rigida	2-5m
Corokia cotoneaster	2-3m
Cortideria fulvida	1.2-2m
Gaultheria antipoda	1-2m
Leptospermum scoparium	3-5m
Leucopogon fasciculatus	5-6m
Muehlenbeckia axillaris	0.2m
Myrsine australis	4-6m
Myrsine divaricata	2-3.5m
Neomyrtus pedunculata	4-6m
Olearia virgata	3-4m
Phormium cookianum	1-1.5m
Phormium tenax	2-3m
Poa cita	0.5-1m
Pimelea tomentosa	0.5-1m
Pittosporum turneri	4-6m
Pomaderris amoena	0.5-1m
Pseudowintera colorata	2-3m
Veronica parviflora	1.8-5m
Veronica stricta	1.5-3m

LOW MITIGATION & RESTORATION SPECIES	
Botanical Name	Height at maturity
Carpodetus serratus	6-8m
Coprosma propinqua	2.5-5m
Coprosma robusta	4-6m
Cordyline australis	8-12m
Dicksonia fibrosa	6-10m
Dodonea viscosa	6-8m
Griselinia littoralis	6-10m
Kunzea ericoides, K robusta,	10-15m
K serotina, K tenuicalis	
Leptospermum scoparium	3-5m
Myrsine australis	4-6m
Pittosporum colensoi	6-10m
Pittosporum eugenioides	6-10m
Pittosporum tenuifolium	6-8m
Plagianthus regius	10-12m
Podocarpus laetus	6-10m
Podocarpus totara	15-30m
Veronica stricta	1.5-3m

ENRICHMENT SPECIES	
Botanical Name	Height at maturity
Aristolelia serrata	8-10m
Carpodetus serratus	8-10m
Coprosma grandifolia	5-7m
Cordyline banksii	3-4m
Cyathea delbata	8-10m
Cyathea smithii	6-8m
Dacrycarpus dacrydioides	30+m
Dacrydium cupressinum	20-35m
Eleocarpus dentatus var. dentatus	12-15m
Fuchsia excorticata	10-14m
Knightia excelsa	20-30m
Meliccytus lanceolatus	2-5m
Meliccytus ramiflorus	8-10m
Phyllocladus trichomanoides	15-20m
Podocarpus laetus	6-10m
Podocarpus totara	20-30m
Prumnopitys ferruginea	20-25m
Prumnopitys taxifolia	20-25m
Pseudopanax arboreus	6-8m
Pseudopanax crassifolius	10-15m
Sophora tetraptera	6-12m
Weinmannia racemosa	15-25m





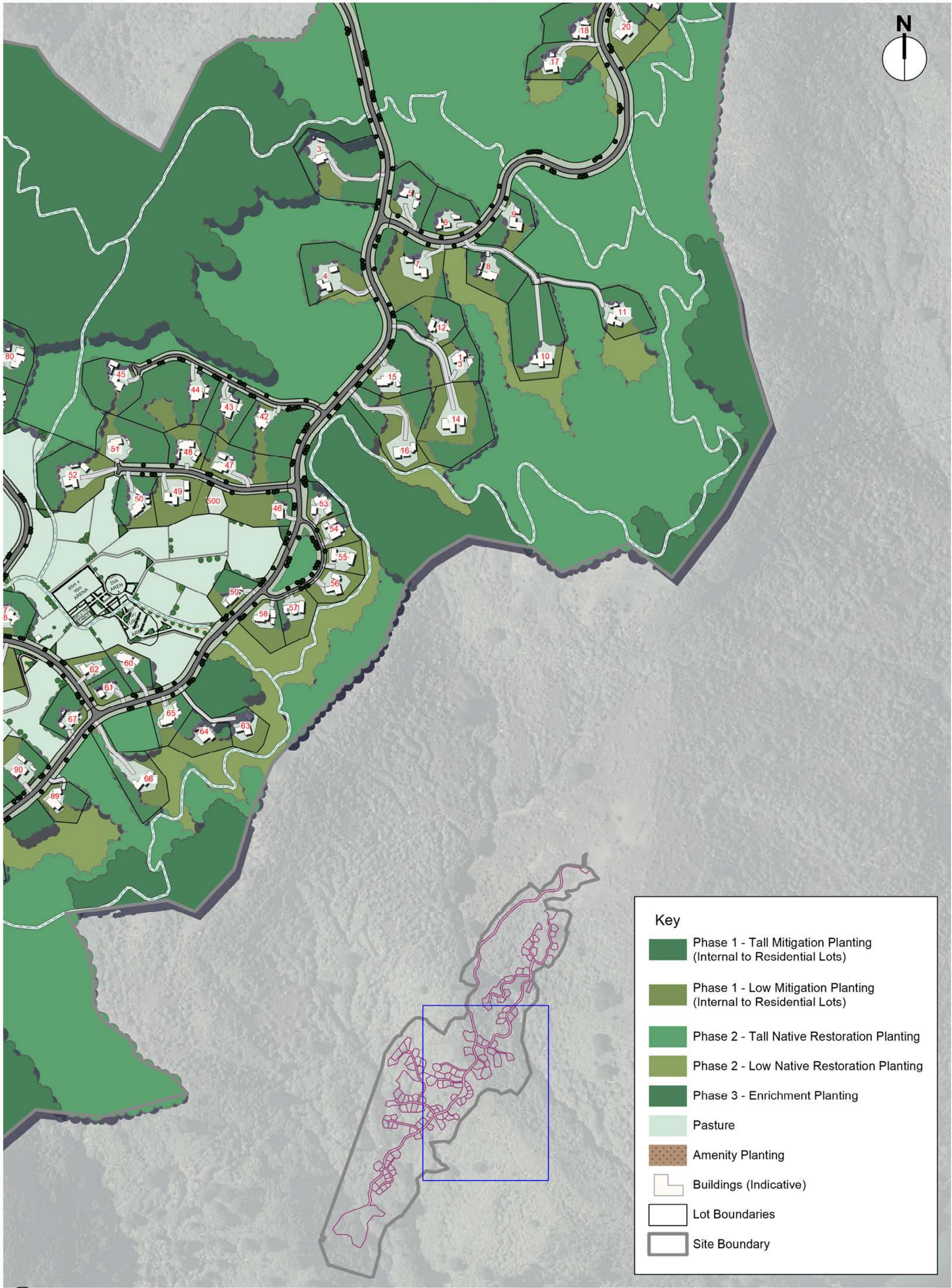
Key	
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	Phase 1 - Low Mitigation Planting (Internal to Residential Lots)
	Phase 2 - Tall Native Restoration Planting
	Phase 2 - Low Native Restoration Planting
	Phase 3 - Enrichment Planting
	Pasture
	Amenity Planting
	Buildings (Indicative)
	Lot Boundaries
	Site Boundary

1 **Detail Plan 1**  
Scale: 1:5000



**MITIGATION AND RESTORATION PLANTING STRATEGY**



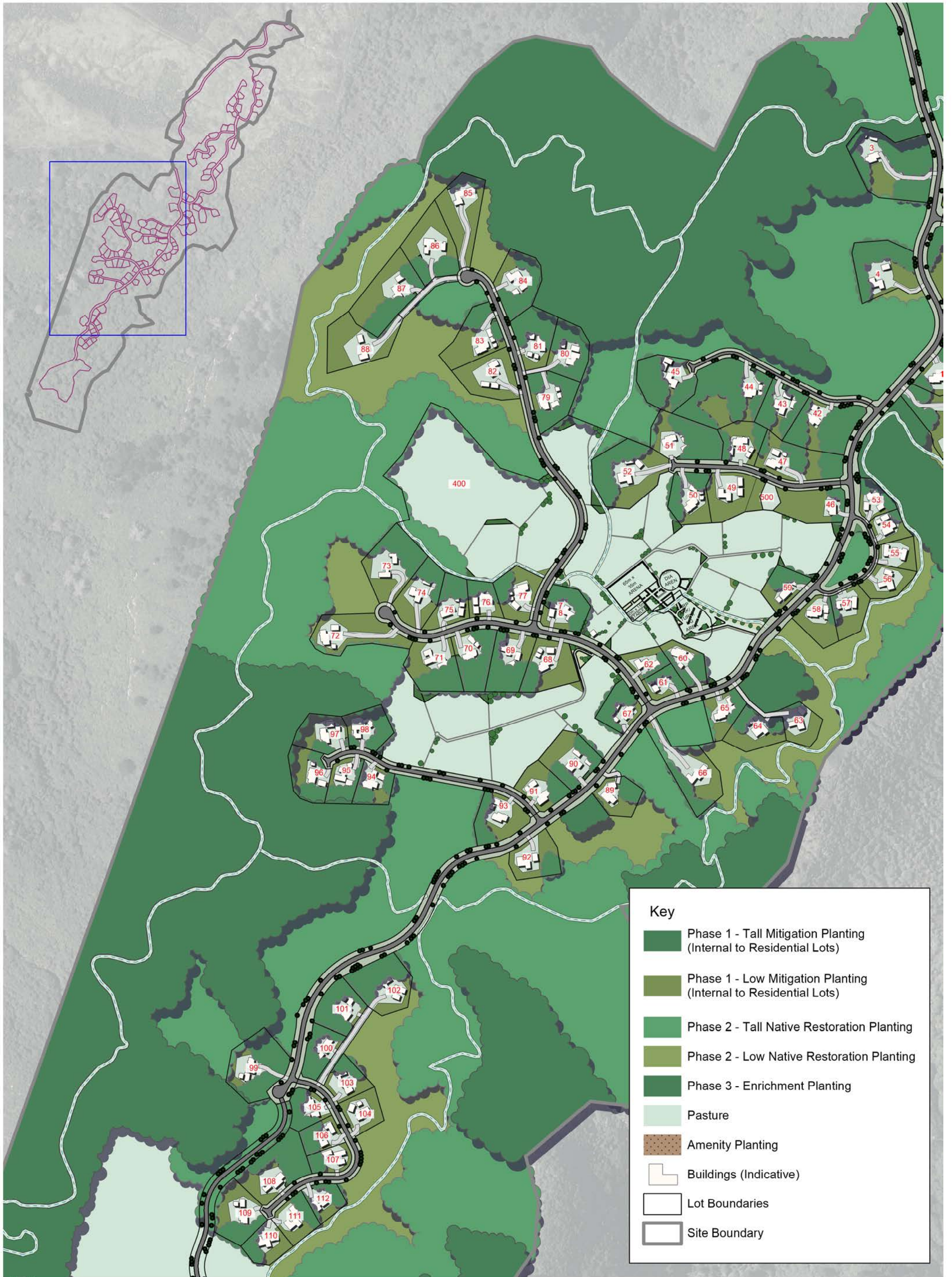


1 Detail Plan 2  
Scale: 1:5000



MITIGATION AND RESTORATION PLANTING STRATEGY

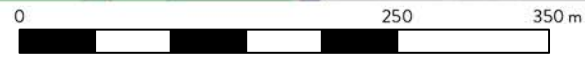




**Key**

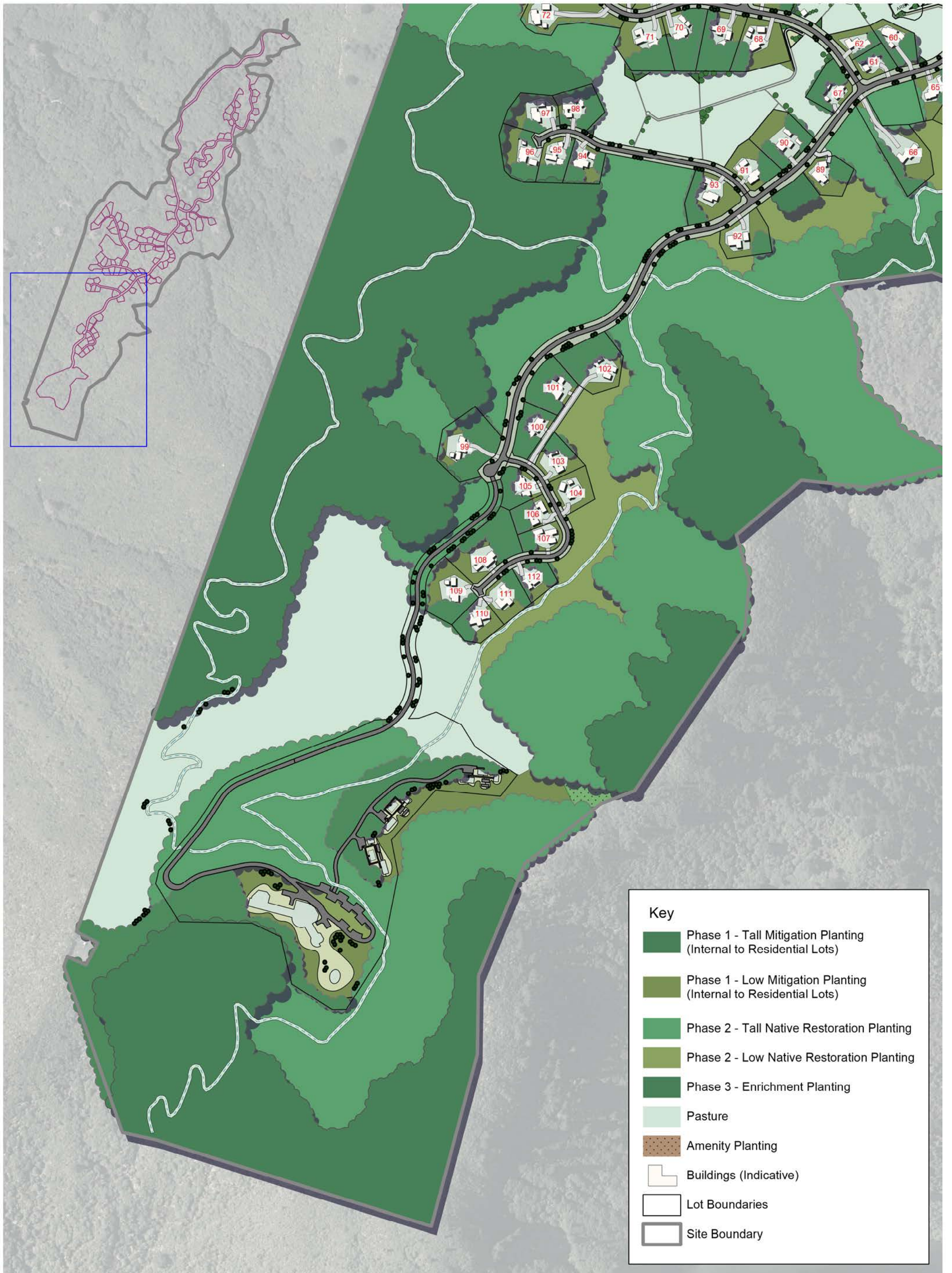
- Phase 1 - Tall Mitigation Planting (Internal to Residential Lots)
- Phase 1 - Low Mitigation Planting (Internal to Residential Lots)
- Phase 2 - Tall Native Restoration Planting
- Phase 2 - Low Native Restoration Planting
- Phase 3 - Enrichment Planting
- Pasture
- Amenity Planting
- Buildings (Indicative)
- Lot Boundaries
- Site Boundary

1 Detail Plan 3  
Scale: 1:5000

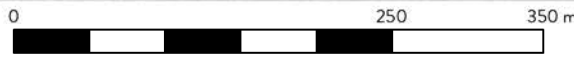


**MITIGATION AND RESTORATION PLANTING STRATEGY**





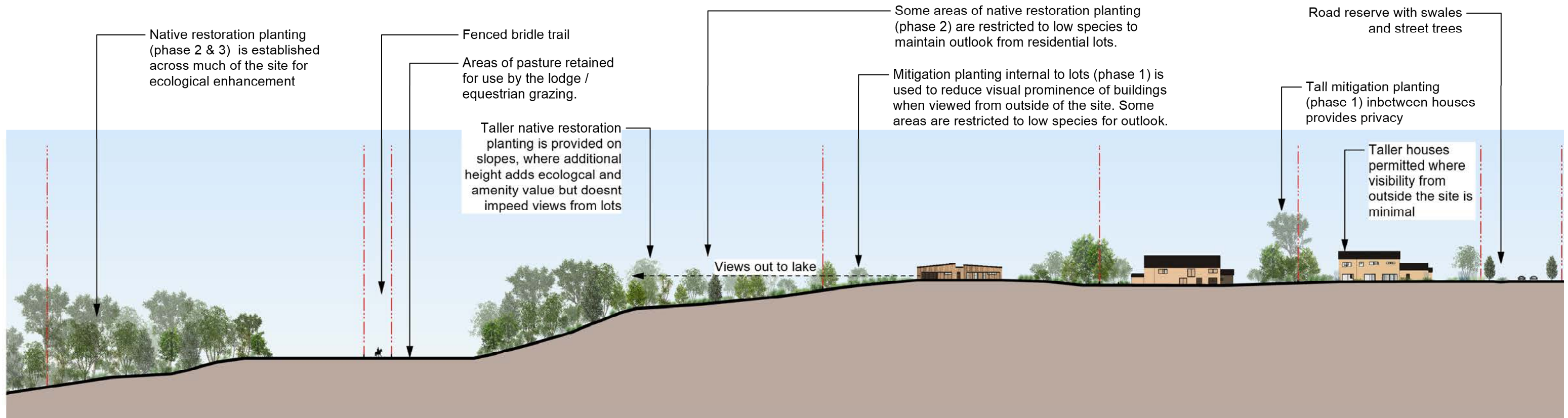
1 Detail Plan 4  
Scale: 1:5000



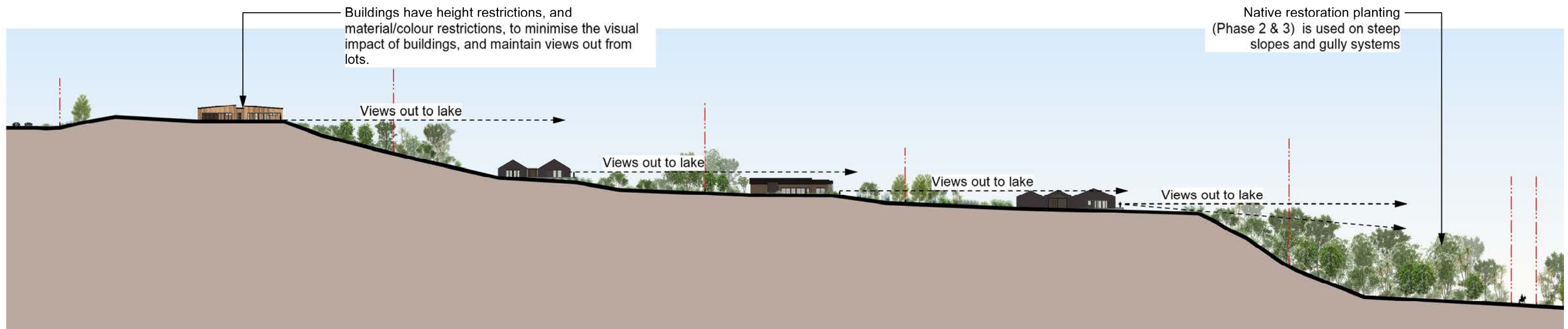
Key	
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	Phase 1 - Low Mitigation Planting (Internal to Residential Lots)
	Phase 2 - Tall Native Restoration Planting
	Phase 2 - Low Native Restoration Planting
	Phase 3 - Enrichment Planting
	Pasture
	Amenity Planting
	Buildings (Indicative)
	Lot Boundaries
	Site Boundary

MITIGATION AND RESTORATION PLANTING STRATEGY



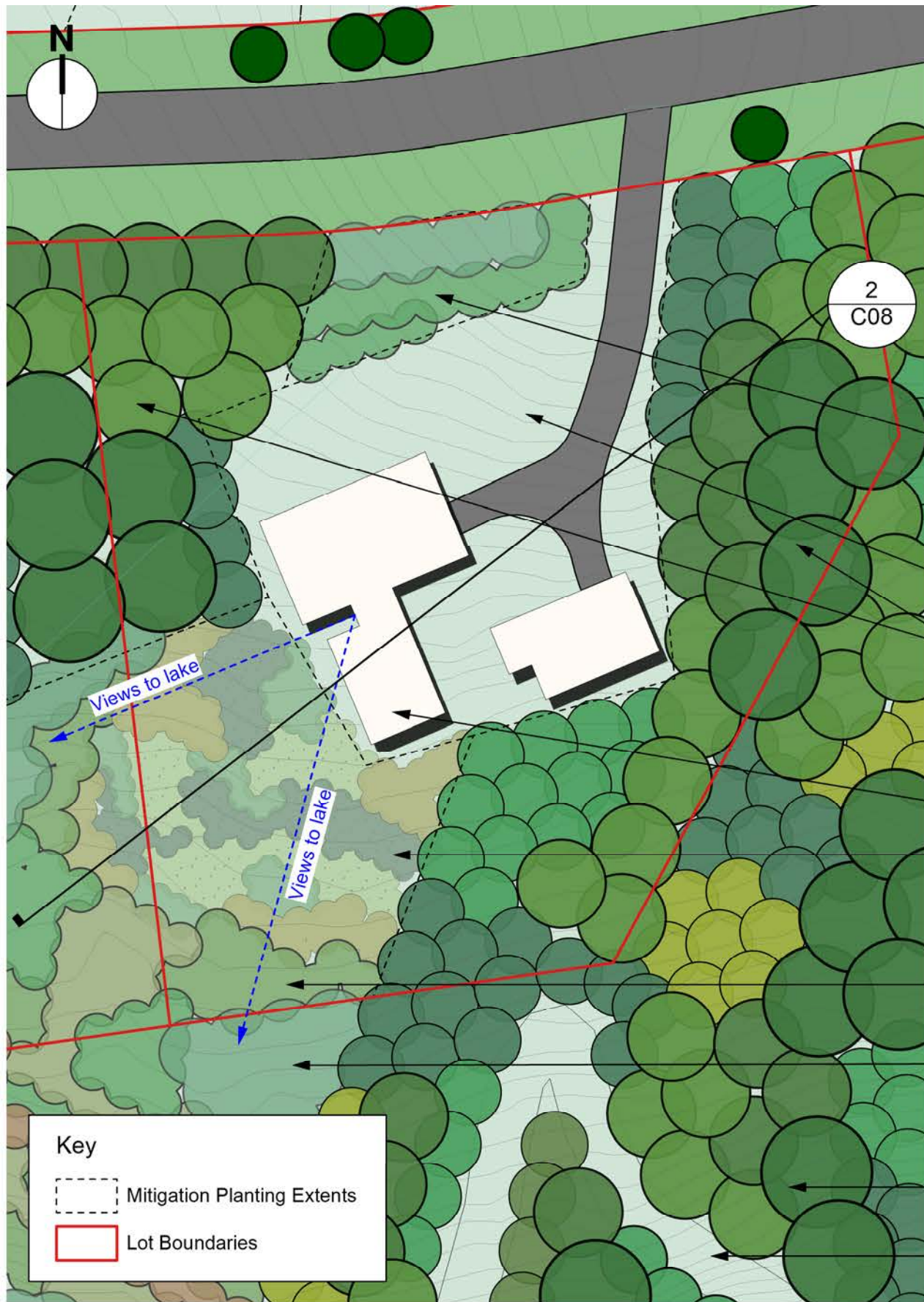


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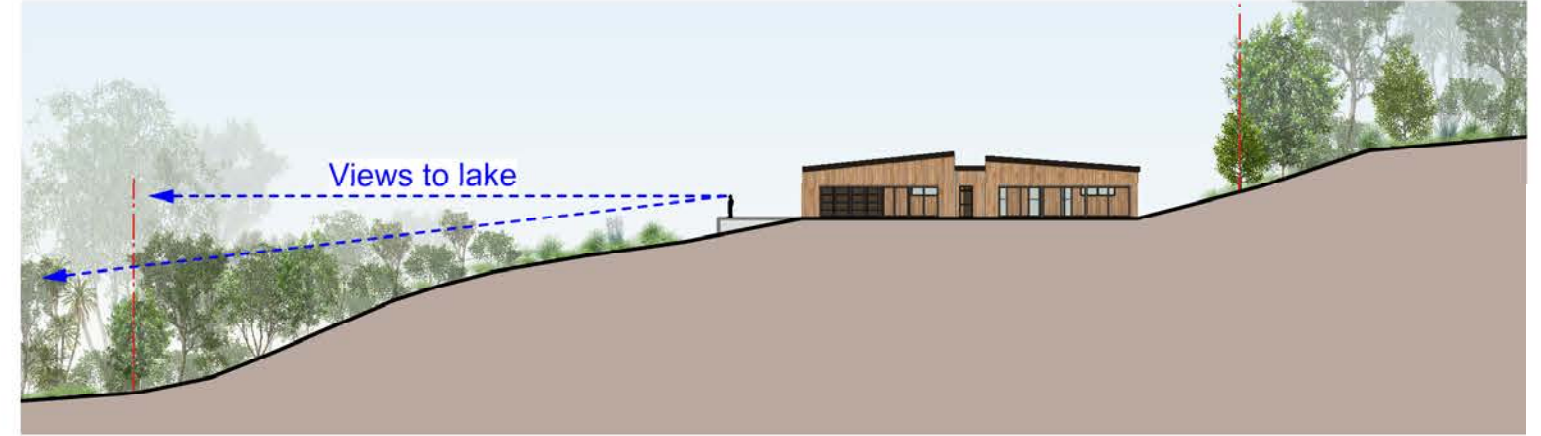


2 Section 2  
Scale: 1:1000





1 Example Planting Plan  
Scale: 1:500



2 Typical Section  
Scale: 1:500

- Low mitigation planting to maintain a visual connection with the street. Plants to be chosen from the low mitigation and restoration plant list.
- Domestic planting to be contained within building platform
- Taller mitigation planting provides privacy between neighbouring properties and frame views towards the lake. Plants to be chosen from the tall mitigation and restoration plant list.
- Housing orientated towards views
- Upper slopes consist of low planting such as tussocks, flaxes and small shrubs. Plants to be chosen from the low mitigation and restoration plant list.
- Taller trees and shrubs are planted further down the slope, maintaining views out
- Low planting zones continue external to lots in order to maintain viewshafts using plants from the low mitigation and restoration plant list
- Native restoration planting is established across the wider site
- Fenced bridle track runs through restoration planting

**LOW MITIGATION & RESTORATION SPECIES**

Botanical Name	Common Name	Height at maturity
Blechnum novae-zealandiae	Kiokio	1-1.5m
Brachyglottis repanda	Rangiora	2-4m
Coprosma lucida	Shining karamu	4-6m
Coprosma propinqua	Mikimiki	2.5-5m
Coprosma rhamnoides	Red fruited karamu	1-2m
Coprosma rigida	Stiff Karamu	2-5m
Corokia cotoneaster	Korokio	2-3m
Cortideria fulvida	Toetoe	1.2-2m
Gaultheria antipoda	Tawiniwini	1-2m
Leptospermum scoparium	Manuka	3-5m
Leucopogon fasciculatus	Soft mingimingi	5-6m
Muehlenbeckia axillaris	Creeping Wire vine	0.2m
Myrsine australis	Mapou/Red matipo	4-6m
Myrsine divaricata	Weeping mapou	2-3.5m
Neomyrtus pedunculata	Rohutu	4-6m
Olearia virgata	Tree Daisy	3-4m
Phormium cookianum	Wharariki/Mountain flax	1-1.5m
Phormium tenax	Harakeke	2-3m
Poa cita	Silver tussock	0.5-1m
Pimelea tomentosa		0.5-1m
Pittosporum turneri	Turners kohuhu	4-6m
Pomaderris amoena	Tauhinu	0.5-1m
Pseudowintera colorata	Mountain horopito	2-3m
Veronica parviflora	Kokomuka taranga	1.8-5m
Veronica stricta	Koromiko	1.5-3m

**TALL MITIGATION & RESTORATION SPECIES**

Botanical Name	Common Name	Height at maturity
Carpodetus serratus	Putaputaweta/marble leaf	6-8m
Coprosma propinqua	Mingimingi	2.5-5m
Coprosma robusta	Karamu	4-6m
Cordyline australis	Ti kouka/cabbage tree	8-12m
Dicksonia fibrosa	Wheki-ponga	6-10m
Dodonea viscosa	Akeake	6-8m
Griselinia littoralis	Kapuka/broadleaf	6-10m
Kunzea ericoides, K robusta, K serotina, K tenuicalis	Kanuka	10-15m
Leptospermum scoparium	Manuka	3-5m
Myrsine australis	Mapou	4-6m
Pittosporum colensoi	Black mapou	6-10m
Pittosporum eugenioides	tarata	6-10m
Pittosporum tenuifolium	Kohuhu	6-8m
Plagianthus regius	Manatu/ribbonwood	10-12m
Podocarpus laetus	Hall's totara	6-10m
Podocarpus totara	Totara	15-30m
Veronica stricta	Koromiko	1.5-3m