


# Landscape, natural character and visual assessment

December 2017

Isthmus Group

Technical Report 8a



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# Executive Summary

## Overview

The NZ Transport Agency is to develop a new section of SH3, north of New Plymouth, to bypass the existing steep, narrow and winding section of highway at Mt Messenger. The Project comprises a new section of two lane highway, some 6km in length, located to the east of the existing SH3 alignment in an area of remote hill country characterised by steep bush slopes and gullies.

The selected route for the Project minimises adverse landscape effects *and* achieves an appropriate 'fit' both with the wider landscape context and the valley landscapes within which it is proposed. In summary, the Project:

- Is a route that avoids the more sensitive landscapes in the area notably the Regionally Significant Landscape to the west of the existing SH3;
- Is an alignment that follows the landform (linking two valleys and crossing one ridgeline compared to two or more for other options);
- Fine-tunes the alignment to best follow landscape features and to avoid or reduce adverse effects on landform and vegetation.

Design measures incorporated into the Project to avoid, remedy and mitigate adverse landscape effects are described in the Landscape and Environment Design Framework (Technical Report 8b, Volume 3 of the AEE) (LEDF). It is recommended that this assessment report be read in conjunction with the LEDF.

The LEDF is based around four overarching landscape design principles:

- "Keeping low in the landscape" – thereby minimising physical landscape effects;
- "Letting the landscape speak" – a clean uncluttered highway where the surrounding landscape provides the scenic amenity;
- Recognising culture – which means appropriately recognising human relationship to the land, including continuing the partnership with Ngāti Tama through the detail design process to express their mana whenua and kaitiakitanga;
- Connecting 'Landscape' and 'Ecology' – responding to and reflecting natural elements, patterns and processes through design.

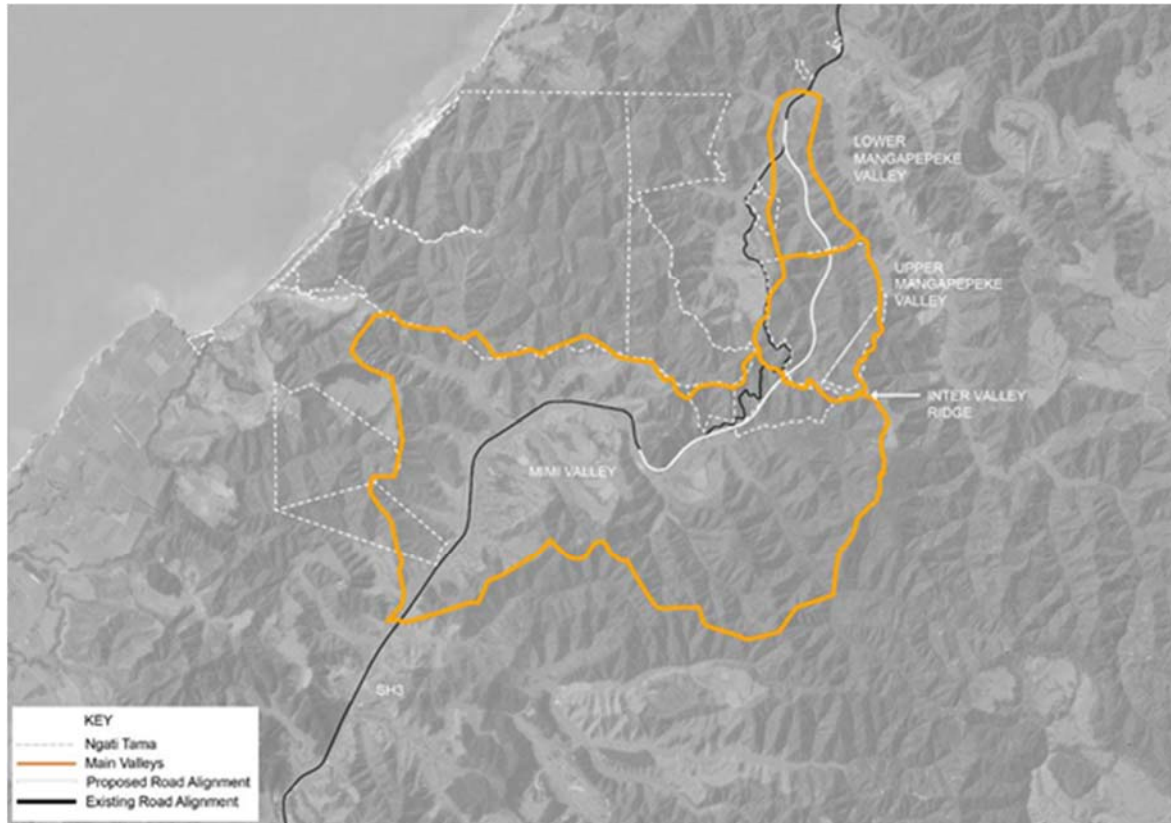
The above principles are given effect in the Project through a design that:

- Retains a key ridgeline by using a tunnel, minimising effects on landform and bush;
- Minimises stream and valley crossings by keeping to the sides of the valleys;
- Develops cut faces that echo natural slope angles;
- Promotes natural succession re-vegetation;
- Integrates landscape and ecological rehabilitation;
- Provides an opportunity for cultural expression and recognition;
- Promotes a scenic journey experience.

## Baseline Landscape

The project traverses two valleys north and south of a leading ridgeline (see **Error! Reference source not found.** below):

- the Mangapepeke Valley (Lower and Upper) which flows northwards; and
- the Mimi Valley which flows southwards.



*The two principal catchments of the Project Area*

The **Mangapepeke Valley** is characterised by rough pastoral land on the flats in the north ('lower Mangapepeke') transitioning into steeper bush hill country in the upper valley. The lower pastoral flats lend themselves to the highway alignment because of the relatively low elevation, gentle topography, and modified landscape character. The steeper slopes at the head of the valley, however, have higher naturalness, more challenging topography, and the potential for greater adverse landscape, natural character and visual effects.

The **Mimi Valley** similarly includes bush on the steeper slopes of a tributary of the Mimi River, transitioning to a modified pastoral rural landscape on the lower valley flats that include the existing SH3 corridor. Once again, the steeper slopes are relatively sensitive to modification, particularly in relation to the Mimi Valley Kahikatea wetland, whereas the lower topography in the southern part of the valley lend themselves to accommodating the realigned highway.

The Lower Mangapepeke Valley is considered to have **moderate – low** landscape and natural character value. The Upper Mangapepeke Valley is considered to have **moderate – high**

landscape and natural character. The area of the Mimi Valley affected by the project, which is the northern part of the upper catchment, overall is of **moderate landscape and natural character** value particularly given the modified nature of the adjoining valley flats and the presence of SH3 on the flanking hills to the west. This appraisal notes the lack of any specific landscape significance (NPDP) associated with the immediate project area. It also acknowledges the natural character and landscape values of the Mangapepeke Stream, tributaries of the Mimi River, the steep bush clad slopes and skyline ridge at the head of the two valleys. At the same time the valleys are considered to have moderate ability to accommodate a highway having regard to the reasonably easy topography of much of the route, the relatively low number of properties and visibility, and the presence of the existing highway.

**Natural character** considerations apply to the main streams – the Mangapepeke Stream and upper gully streams of the Mimi River – and to associated wetlands. These features were assessed as having ‘**moderate – low** natural character in the lower valleys where the streams are in a working pastoral landscape, and ‘**moderate–high**’ natural character in the Upper Mangapepeke Valley where the streams are within bush.

## Landscape Effects

Any new or re-routed highway will necessarily have adverse landscape effects. As discussed above, such effects have been reduced by the selection of the proposed route, the detailed alignment of the proposed highway, the incorporation of a tunnel through the main inter-valley ridge, and measures to further fine-tune and mitigate the works as described in the LEDF.

The highway will have the following adverse landscape and visual effects:

- Introduction of a highway into two valleys that currently have a quiet, remote rural character – albeit exposed in places to the existing highway on the western flanking hills;
- The introduction of additional built elements into the landscape including ancillary structures such as hydrant tanks and a tunnel control building;
- Clearance of 44 ha of vegetation, of which 34ha is indigenous vegetation at the top of the valleys in particular;
- Earthworks including batters cut into the side slopes of the valley in some cases up to approximately 60m;
- Creation of permanent disposal areas;
- Crossing, filling and diversions of 3.8km of streams.

These effects will be ‘**moderate**’ in degree (measured against the 7–point scale) described on page 17 having consideration to the following:

- The restricted visibility and low number of properties in the two valleys;
- The presence of the existing State highway in part of the valleys;
- The alignment of the highway with existing landscape “edges”;



- The maintenance of rural characteristics in lower parts of the valleys, particularly the lower Mimi Valley which is already associated with the existing SH3;
- Reducing potential encroachment into steeper bush country on the upper slopes of both valleys – in part through use of a tunnel to traverse the ridge at the head of the valleys.

The Project will also have **positive effects** to the extent that the re-routed highway will have scenic qualities as a user or journey experience, including a tunnel which will become a waymark on the route and echo the tunnel on the existing Mt Messenger section of SH3. Additional positive landscape effects will also be associated with the ecological mitigation planting (including stream restoration) of the Project. This will enable a scenic user experience that not only integrates the highway into the landscape but also connects landscape and ecology addressing wider landscape fragmentation particularly in relation to the restoration of patches of lowland pasture back into the surrounding indigenous landscape.

## Natural Character Effects

**Natural character** effects are closely aligned with landscape effects described above. Measures incorporated in the alignment to avoid and reduce adverse effects include:

- Avoiding the kahikatea swamp forest / wetland in the Mimi Valley (Mimi Valley Kahikatea wetland); and
- Minimising stream and valley crossings by keeping to the valley sides throughout the alignment.

Nevertheless, there will be unavoidable adverse effects on streams, particularly in the Upper Mangapepeke Valley where the highway alignment will require filling and diversion of the natural stream. Overall 3.8km of stream are affected by the Project.

The Project will have a **moderate** effect on the natural character of the lower Mangapepeke Stream as a system. The Project avoids multiple stream crossings with fill limited to side gullies and the edge of the primary valley floor.

For the upper Mangapepeke Stream the adverse natural character effect is **moderate – high** being mitigated by the opportunity to create a stream diversion to replicate a similar (albeit modified) stream environment.

It is also noted that there is considerable opportunity to enhance the wider perceptual and natural character values of the entire Mangapepeke Stream system as part of the wider ecological mitigation package for the project as set out in the landscape plans for the project (LEDf section 6) and the Assessment of Ecological Effects – Mitigation and Offset, this includes restoration of 8.9km of stream margins.

This outcome is fully supported from a landscape, natural character and scenic amenity perspective and, is seen as a positive landscape outcome that would considerably mitigate the loss of natural character values within the upper catchment.

For the Mimi Valley, adverse natural character effects are considered to be **moderate– low** given, the relationship between the existing SH3 corridor and the Mimi Valley and the design intent of the Project bridge which seeks to avoid adverse effects on the adjoining Mimi Valley Kahikatea Wetland in particular.

## Mitigation Recommendations

### Landscape Measures

As discussed, a number of measures ‘built-in’ to the alignment of the proposed highway will reduce potential adverse effects to a ‘**moderate**’ degree of effect. Further mitigation measures described in the LEDF include the following:

- Cut and fill batters to tie into natural landforms in the area – techniques should be employed to reflect natural rock faces as appropriate and treatments should be implemented to assist in the natural re-colonisation (revegetation);
- Options to further reduce the use of rock drapes will be investigated in detailed design;
- Avoiding “engineered” landform modification and blending earthworks in with the immediate landform context including the form and contouring of permanent disposal areas;
- Detailed design of highway furniture, barriers, lighting (if any) and signage – with particular emphasis on simplifying such elements and minimising visual clutter;
- Consideration of rehabilitation and mitigation/offset planting that reflect the wider ecological conditions of the site including eco-sourcing of seed, co-ordination with the Project ecological restoration experts and participation with Ngāti Tama;
- Maintenance of access to the conservation estate as appropriate;
- A planting programme including staging, integration with construction programme and wider maintenance programme;
- Design and finish of co-designed cultural expressions particularly for the tunnel portals and bridge areas and any other ancillary structures as appropriate;
- Providing for views from the bridge, and for pedestrian and cycling access including through the tunnel;
- Architectural form appropriate to nearby ecologically sensitive areas and the finish of the bridge appropriate to the rural landscape context;
- Provision for cycling within the carriageway shoulder;
- Consideration of stopping places as appropriate and where practical; and
- Avoidance and retention of significant trees and areas of vegetation wherever possible.

Subject to such works being successfully established, the net landscape and visual adverse effects will be ‘**moderate–low**’.

## Natural Character Mitigation

Mitigation measures relating specifically to natural character matters include:

- Minimising construction effects on natural stream environments in the Mimi Valley and rehabilitating with riparian planting following construction;
- Constructing stream diversions (where impacts are unavoidable), with naturalised elements reflecting the characteristics of the existing streams, within the Upper Mangapepeke Valley; and
- Ecological restoration along the Mangapepeke Stream corridor within the designation.

Subject to such works being successfully established, the net effects on the natural character of streams and their margins within the vicinity of the project will be '**moderate**'.

## Summary

Overall the Project represents an appropriate and well considered design response to the wider bush hill country setting within which it is located, such that the proposed highway will be a recessive human influence within a predominantly natural landscape setting. In this regard the Project overall will have moderate – low landscape and visual effects and moderate , natural character effects as well as the opportunity for positive user experience scenic amenity and landscape restoration outcomes. The ecological mitigation measures proposed will support the highway landscape design and treatments.'

Overall, it is considered that the landscape and visual effects of the Project have been appropriately addressed through the measures outlined above.

# 1 Introduction

## 1.1 Purpose and scope of this report

This report forms part of a suite of technical reports prepared for the NZ Transport Agency's Mt Messenger Bypass project (the Project). Its purpose is to inform the Assessment of Effects on the Environment Report (AEE) and to support the resource consent applications and Notice of Requirement to alter the existing State Highway designation, which are required to enable the Project to proceed.

This report assesses landscape and natural character effects of the Project as shown on the Project Drawings in Volume 2: Drawing Set.

The purpose of this report is to provide an understanding of the Project landscape, the effects of the Project on landscape values, and the measures by which the highway can be integrated with its surroundings.

This assessment of landscape values for the Project area has been informed by site visits, workshops and reporting undertaken through the options assessment process (refer Volume 4 of AEE), which informed the selection of the Project alignment.

### 1.1.1 Relevant Documents

The report should be read in conjunction with the Landscape & Environment Design Framework (Technical Report 8b, Volume 3 of the AEE) (LEDf). This framework document includes contextual and design specific information and principles relevant to the Project. This information is intended to direct further design refinement through the detailed design phase.

In this regard the LEDf is a '*living document*' within which further design principles and technical inputs can be embedded throughout the design, planning and implementation process.

## 1.2 Project overview

The Project involves the construction and ongoing operation of a new section of State Highway 3 (SH3), generally between Uruti and Ahititi to the north of New Plymouth. This new section of SH3 will bypass the existing steep, narrow and winding section of highway at Mt Messenger. The Project comprises a new section of two lane highway, approximately 6 km in length, located to the east of the existing SH3 alignment.

The primary objectives of the Project are to enhance the safety, resilience and journey time reliability of travel on SH 3 and contribute to enhanced local and regional economic growth and productivity for people and freight.

A full description of the Project including its design, construction and operation is provided in the Assessment of Effects on the Environment Report, contained in Volume 1: AEE, and is shown on the Drawings in Volume 2: Drawing Set. Of the 6km route 3.4km is north of the

tunnel and 2.4km is south of the tunnel. Approximately 1.1 km of the route is within the existing road corridor in the south (southern tie-in improvements) and 300m in the north (northern tie-in).

### 1.2.1 Landform Model Illustrations of the Project

The following 3D digital terrain model images provide a general illustrative understanding of the nature of the Project in relation to the existing SH3 alignment and the surrounding terrain (also see section 2.2 LEDF p16–19). This is a base terrain model and shows the alignment, cut slope areas, fill areas, and the underlying terrain. These images are not intended to be used as a photo simulation of the completed Project, and do not include existing vegetation or proposed revegetation.



*Figure 1.1 – General southerly view of the Mangapepeke Valley (left of frame) and the existing SH3 in red (and the proposed new route to the left)*



*Figure 1.2 – A general ‘birds –eye’ view of the Mangapepeke Valley looking to the north with the existing SH3 in red (and the proposed route to the right)*



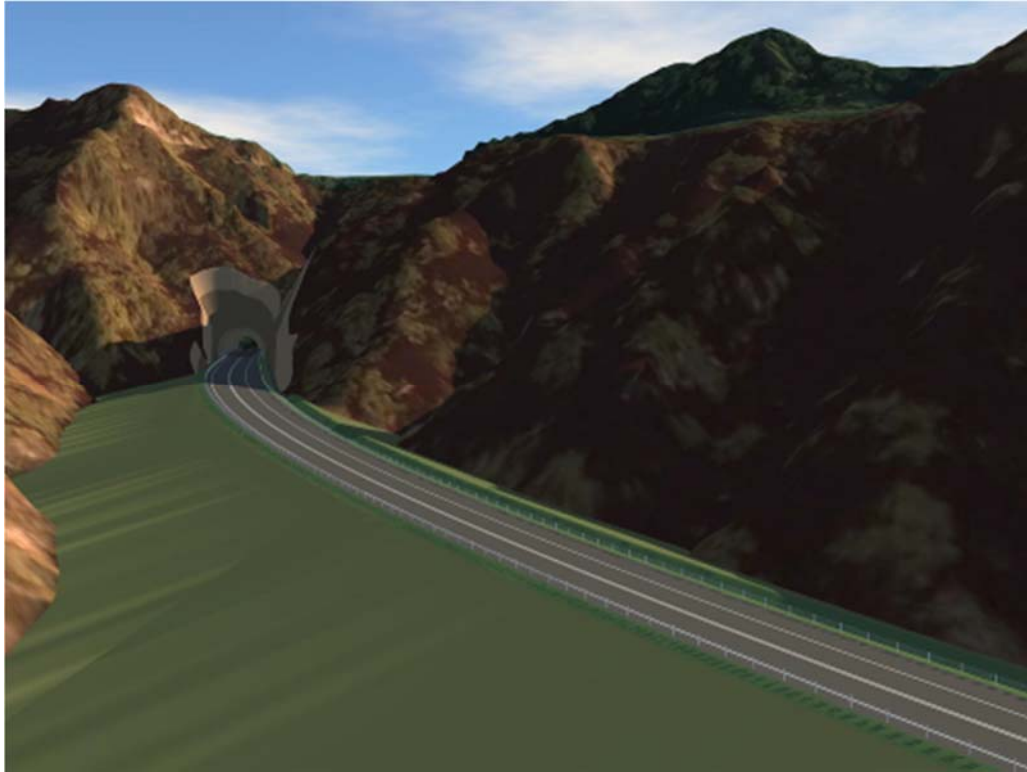
*Figure 1.3 – Southerly view at the northern tie in with the existing SH3 (in red) showing toe slope rock cuts and the proposed highway to the east of the valley floor.*



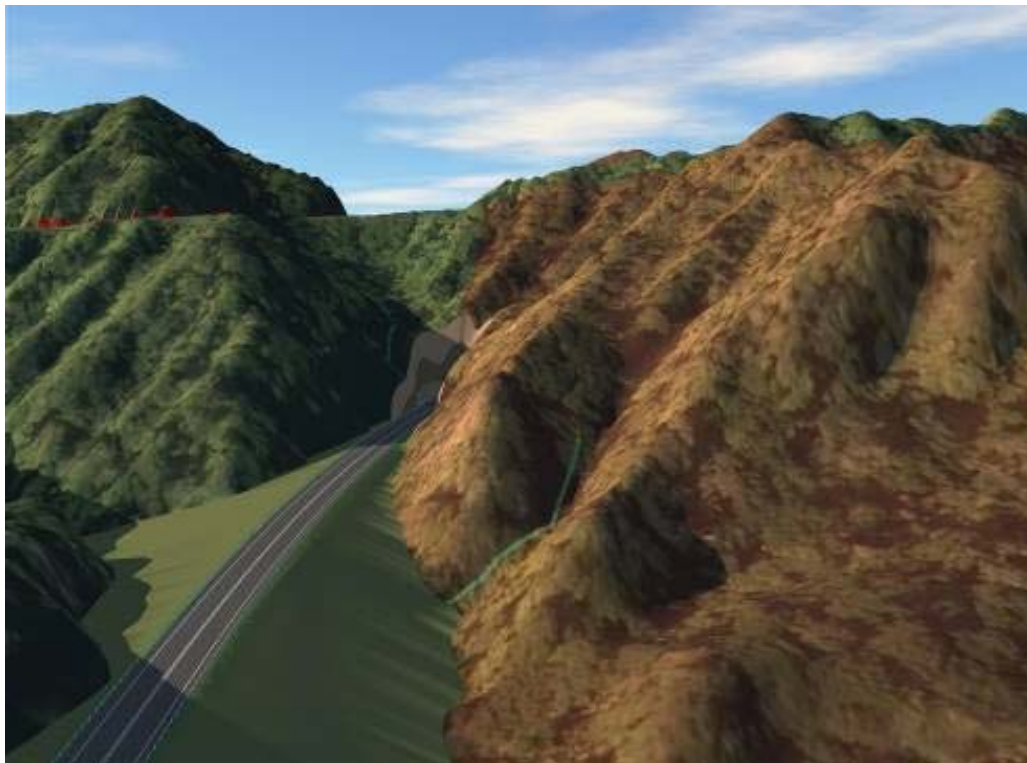
*Figure 1.4 – View of the proposed road corridor looking south up the Mangapepeke Valley.*



*Figure 1.5 – South westerly view of the proposed upper Mangapepeke Valley fill, and Mount Messenger (right of frame), on the approach to the northern tunnel portal*



*Figure 1.6 – The proposed northern tunnel portal with Mount Messenger on the skyline right of frame.*



*Figure 1.7 – The proposed southern tunnel portal and fill with Mount Messenger and the existing route left of frame*





*Figure 1.8 – The proposed southern tunnel approach and wetland gully bridge with rock cut approaches, with Mount Messenger on the skyline (the existing alignment is in red. The green outline area is the Mimi Valley Kahikatea wetland).*

## 2 Methodology

The report addresses the natural and rural landscape. It includes within its compass matters relating to ‘natural character’ and ‘visual amenity’.

### 2.1 Landscape

#### 2.1.1 Definition of ‘Landscape’

The following definition of ‘landscape’ is applied in this report:

*‘Landscape is the cumulative expression of natural and cultural features, patterns and processes in a geographical area, including human perceptions and associations’<sup>1</sup>*

*Source: New Zealand Institute of Landscape Architects, 2 November 2010, ‘Best Practice Note 10.1: Landscape Assessment and Sustainable Management’*

#### 2.1.2 Existing Landscape

The characteristics and qualities of the existing landscape were analysed, having regard to the list of typical factors set out in Table 2.1.<sup>2</sup>

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<sup>1</sup> ‘Visual effects’ are a subset of ‘landscape effects’ and are usually associated with a specific method, see below.

<sup>2</sup> The list is similar to a list contained in the ‘Lammermoor decision’ (*Maniototo Environmental Society Incorporated and others v Central Otago District Council and Otago Regional Council* Decision C103/2009, paragraphs 201 to 204). The factors listed in the table also cover all those in the so-called ‘Pigeon Bay criteria’ which have been used for some years. Such lists are not a formula, nor are they exhaustive or fixed. They merely describe typical factors to take into account. The landscape is a composite phenomenon that depends on how the different factors come together. The relevance of such factors will depend on the context.

**Table 2.1: Typical factors**

<p><b>Physical (or geographic)</b> aspects (i.e. natural and cultural features, patterns and processes)</p>	<p>Natural</p> <ul style="list-style-type: none"> <li>• Geology and geomorphology</li> <li>• Topography and drainage patterns</li> <li>• Vegetation and soil patterns</li> <li>• Ecological and dynamic components</li> </ul> <p>Cultural (i.e. human)</p> <ul style="list-style-type: none"> <li>• Settlement, cadastral and street patterns</li> <li>• Built form</li> <li>• Land use</li> </ul>
<p><b>Perceptual</b> aspects ('sensory' aspects)</p>	<ul style="list-style-type: none"> <li>• Geomorphic expressiveness (how obviously the landscape expresses the geomorphic processes)</li> <li>• Legibility (visual clarity and visibility of landmarks, edges, and character areas)</li> <li>• Visibility, public and private views (especially Auckland gateway views)</li> <li>• Aesthetic qualities (presence of water, ridge skylines and bush backdrop)</li> <li>• Coherence (the extent to which human patterns reinforce the underlying natural landscape or otherwise)</li> </ul>
<p><b>Associative</b> aspects</p>	<ul style="list-style-type: none"> <li>• Tangata whenua associations</li> <li>• Recreational use</li> </ul>
	<ul style="list-style-type: none"> <li>• Consideration needs to take into account things that may be present only occasionally or seasonally or in different weather conditions (i.e. 'transient factors')</li> </ul>

An assessment was made of the particular combination and interplay of factors. To put it another way, the landscape is more than a catalogue of components. Rather, the goal of the assessment is to identify the landscape's overall character or 'sense of place', and the characteristics that contribute to that character.

An overall appraisal was made of the **existing landscape values** against the following scale:

very low	low	mod-low	moderate	mod-high	high	very high
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### 2.1.3 Assessment of Landscape and Visual Effects

The **nature** and **degree** of landscape and visual effects of the Project were assessed based on a combination of site visits and desktop assessments. Given that landscape is a broad

subset of the environment, the assessment relies on input from other disciplines (particularly ecology, geomorphology) and from Ngāti Tama with regards landscape values for mana whenua.

For this project, the most useful organising framework is geographical, assessing the effects in the context of the two main catchments (the Mangapepeke and the Mimi). Within each catchment, potential effects are identified and analysed. An overall assessment of landscape and visual effects was made for each catchment against the 7-point scale cited above. The detailed assessment of the landscape and visual effects of the Project is set out in section 6 of the report.

#### 2.1.4 Mitigation

Measures were conceived to avoid, remedy and mitigate adverse landscape and visual effects that were identified. This is described in section 7 of the report. This work draws on guidance provided in “Bridging the Gap” NZTA Urban Design Guidelines (NZTA 2013) and NZTA Landscape Guidelines (September 2014).

## 2.2 Natural character

### 2.2.1 Definition of ‘Natural Character’

The natural character of ‘wetlands,...and rivers and their margins’ in the vicinity of the Project was analysed separately because of the need to address section 6(a) of the RMA.

In lieu of a definition of ‘natural character’ in the RMA, Policy 13(2) of the New Zealand Coastal Policy Statement states that ‘natural character’ may include such matters as:

- a) *natural elements, processes and patterns;*
- b) *biophysical, ecological, geological and geomorphological aspects;*
- c) *natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;*
- d) *the natural movement of water and sediment;*
- e) *the natural darkness of the night sky;*
- f) *places or areas that are wild or scenic;*
- g) *a range of natural character from pristine to modified; and*
- h) *experiential attributes, including the sounds and smell of the sea; and their context or setting.*

The following points are made with respect of this list:

- The list encompasses both the biophysical environment and people’s perceptions and experience of the environment;
- The list is neither exhaustive nor a formula – it identifies matters that ‘may be included’;
- Natural character is the particular combination of an area’s natural features and attributes;
- ‘Natural character’ is not the same as ‘naturalness’. ‘Character’ is the inherent and apparent attributes that makes a place distinctive.

This is consistent with the Department of Conservation guidance (NZCPS 2010 Guidance Note Policy 13: Preservation of Natural Character, p.11), which states that the degree or level of natural character within an environment depends on:

- The extent to which the natural elements, patterns and processes occur;
- The nature and extent of modification to the ecosystems and landscape/seascape;
- The degree of natural character is highest where there is least modification;
- The effect of different types of modification upon natural character varies with context and may be perceived differently by different parts of the community.

While the examples listed above relate to the coastal environment, they can extrapolate to the natural character of ‘wetlands, rivers and their margins’.

The following excerpt from the National Policy Statement for Freshwater Management also touches on ‘natural form and character’ with respect of fresh water.

*Natural form and character [of fresh water] – Where people value particular natural qualities of the freshwater management unit. Matters contributing to the natural form and character of a freshwater management unit are its visual and physical characteristics that are valued by the community, including its flow regime, colour, clarity, morphology or location. They may be freshwater management units with exceptional, natural, and iconic aesthetic features.*

*Source: Appendix 1 of the National values and uses for fresh water in the National Policy Statement for Freshwater Management 2014*

By way of clarification, the following principles were adopted for this assessment:

- Natural character is the particular combination of a wetland or river’s natural features and processes;
- It comprises both biophysical naturalness and perceptions of naturalness;
- Factors influencing natural character (such as those listed in Policy 13 (2) of the New Zealand Coastal Policy Statement) are not a formula, nor necessarily of equal weight, nor necessarily exhaustive.

## 2.2.2 Existing ‘Natural Character’

The natural character of the Mimi River and Mangapepeke Stream, and the Mimi Valley Kahikatea wetland, was analysed and described having regard to both biophysical and perceptual (experiential) aspects. An overall synthesis of natural character was made in each case, rather than a mere cataloguing of components.

The **degree** of natural character was evaluated against the following scale:

very low	low	mod–low	moderate	mod–high	high	very high
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As a guide:

- Very high natural character typically describes a near to pristine catchment setting for a waterway, lake or wetland, with intact indigenous vegetation cover and hydrological processes.
- A high natural character typically describes a river, lake or wetland surrounded with indigenous vegetation, reasonably intact hydrological processes, reasonably high water quality, and a rural setting with a reasonably high proportion of natural vegetation cover.
- A less than high natural character typically describes one or more of the following: Absence of a buffer of indigenous vegetation, poor water quality, intrusive human structures and activities, a modified landscape setting.

### 2.2.3 Effects on 'Natural Character'

The **nature** of effects of the Project on natural character were assessed for each of the two catchments (Mangapepeke and Mimi). Potential effects were identified and analysed, including:

- Effects of the physical works on the biophysical integrity and natural processes of the streams and wetlands, and their buffer vegetation.
- Visual effects of the highway on the experience and perceptions of the rivers and wetlands as natural features (i.e. impacts of the highway on their setting).

Taking these matters together, an overall assessment of natural character effects was made for each catchment against the 7-point scale cited above. The detailed assessment of the natural character effects of the Project is set out in section 6 of the report.

### 2.2.4 Mitigation

Measures were conceived to avoid, remedy and mitigate adverse natural character effects that were identified. This is described in section 7 of the report. This work draws on guidance provided in "Bridging the Gap" NZTA Urban Design Guidelines (NZTA 2013) and NZTA Landscape Guidelines (September 2014).

# 3 Statutory Framework

The key statutory and policy considerations that inform this landscape assessment are contained in the following:

- Resource Management Act 1991 (RMA);
- Taranaki Regional Policy Statement;
- New Plymouth District Plan.

## 3.1 Resource Management Act 1991

The overarching framework of the RMA is set out in Part 2, including the purpose of the Act set out in section 5. Matters of national importance are set out in section 6. Those that are particularly relevant to landscape matters for the Project include:

- section 6(a): the preservation of the natural character of wetlands and rivers, and the protection of them from inappropriate subdivision, use and development;
- section 6(b): the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development;
- section 6(c): the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna; and
- section 6(e): the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.

Key relevant 'other matters' from section 7 of the RMA include sections 7(a): kaitiakitanga; 7(aa): the ethic of stewardship; 7(c): the maintenance and enhancement of amenity values; and 7(f): the maintenance and enhancement of the quality of the environment.

## 3.2 Taranaki Regional Policy Statement

The Taranaki Regional Policy Statement (Taranaki RPS) provides an overview of the resource management issues in the Taranaki region. Section 10 of the Taranaki RPS ('Natural features and landscapes (NFL), historic heritage and amenity value') includes policies and methods in relation to landscape and visual amenity. The RPS does not identify or map any outstanding natural landscapes, but states that 'outstanding' refers to "*those natural features or landscapes of exceptional value or eminence or distinction on a national regional or district level*".

A summary of the key landscape objectives and policies in the Taranaki RPS relevant to the Project is set out below.

- **NFL Objective 1:** To protect the outstanding natural features and landscapes of the Taranaki region from inappropriate subdivision, use and development, and to appropriately manage other natural areas, features and landscapes of and landscapes of value to the region to the region.

- NFL Policy 2: Recognition shall be given to the appropriate management of other natural areas, features or landscapes not covered by Policy 1 above, but still of value to the region for one or more of the following reasons:
  - a the maintenance of water quality and quantity;
  - b soil conservation;
  - c the avoidance or mitigation of natural hazards;
  - d natural character amenity and heritage values and scientific and educational significance;
  - e geological and geomorphological, botanical, wildlife and fishery values;
  - f biodiversity and the functioning of ecosystems;
  - g 'sinks' or 'pools' for greenhouse gases; and
  - h cultural features of significance to tangata whenua.
- NFL Policy 3: The protection of outstanding and where appropriate, other natural features and landscapes of value shall be achieved by having regard to the following criteria in determining appropriate subdivision, use and development:
  - a the protection of outstanding and where appropriate, other natural features and landscapes of value shall be achieved by having regard to the following criteria in determining appropriate subdivision, use and development:
  - b the degree and significance of actual or potential adverse effects on outstanding natural features and landscapes or other important natural
  - c features and landscapes, including cumulative effects, and the efficacy of measures to avoid, remedy or mitigate such effects;
  - d the benefits to be derived from the use and development at the local, regional and national level;
  - e the extent to which the subdivision, use or development recognises or provides for the relationship of tangata whenua and their culture and traditions with their ancestral lands, water, sites, wāhi tapu and other taonga;
  - f the need for use or development to occur in the particular location;
  - g the sensitivity or vulnerability of a natural feature or landscape to change, and its capacity to accommodate change, without compromising the values of the feature or landscape;
  - h the degree of existing modification of the natural feature or landscape from its natural character; and
  - i the degree to which financial contributions associated with any subdivision, use and development can be used to offset actual or potential adverse effects arising from those activities.



### 3.3 New Plymouth District Plan

The New Plymouth District Plan (NPDP) manages land use activities across the District. The NPDP regulates a number of proposed activities related to the Project, including landscape, amenity and rural character. The Project is located in the rural environment area, as shown on Planning Map B10.

There are no specific notations in the NPDP relating to landscape that overlap with the Project route / designation. There is a Regionally Significant Landscape immediately to the west of the existing SH3, which will not be directly affected by the Project. This is discussed in more detail in section 4 below.

The District Plan contains a range of objectives and policies in relation to landscape and amenity, as summarised below.

- Objective 1: To ensure activities do not adversely affect the environmental and amenity values of areas within the district or adversely affect existing activities.
- Policy 1.1: Activities should be located in areas where their effects are compatible with the character of the area.
- Objective 2: To avoid, remedy or mitigate the adverse effects of light overspill and glare, noise, and the consumption of liquor on amenity values and health.
- Objective 4: To ensure the subdivision, use and development of land maintains the elements of rural character.
- Policy 4.6: Retain vegetation, particularly indigenous vegetation and require the planting of new vegetation to mitigate the effects of activities.
- Objective 14: To preserve and enhance the natural character of the coastal environment, wetlands, and lakes and rivers and their margins.
- Policy 14.2: The natural character of wetlands and rivers and lakes and their margins should not be adversely affected by inappropriate subdivision, use or development and should, where practicable, be restored and rehabilitated.
- Objective 15: To protect and enhance outstanding landscapes and regionally significant landscapes within the district.
- Policy 15.2: Subdivision, use and development should not result in adverse visual effects on, and should enhance, where practicable, the following regionally significant landscapes<sup>3</sup>:

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<sup>3</sup> The NPDP is currently subject to a review process to develop the next generation plan. The New Plymouth Draft District Plan (2016) notes Parininihi as an Outstanding Natural Landscape. The description and values of this area focus mostly on the Parininihi Cliffs and coast, to the west of SH3

## 4 Landscape of the Project Area

The Project alignment is contained within two Valley systems, being the well-defined Mangapepeke Valley in the north (3.4km of the 6km route), and the south facing slopes of the Upper Mimi Valley in the south (2.4km of the route). A 235m tunnel is proposed between these two valleys to maintain the landform integrity of the intervening ridge (see Figure 4.1 below).

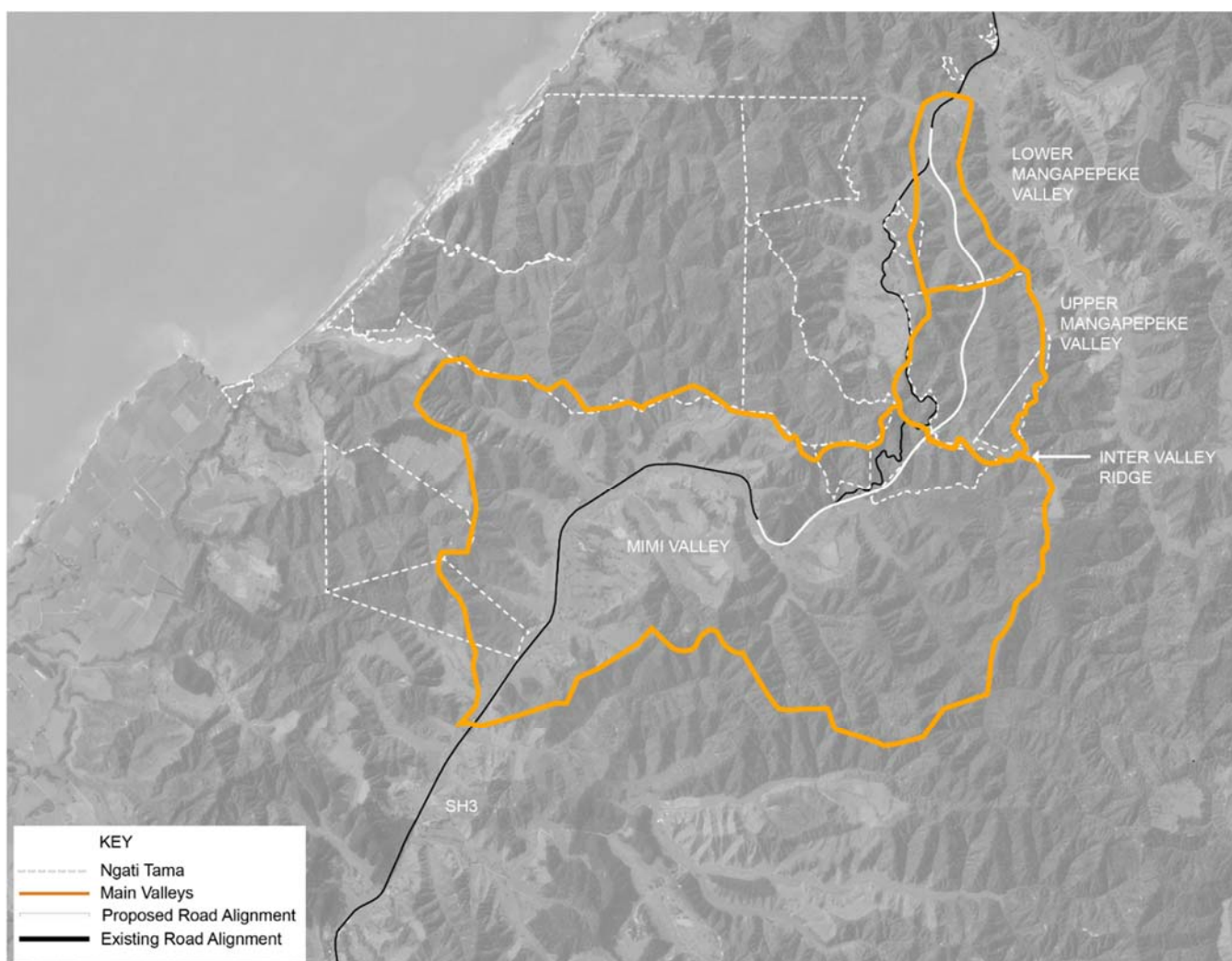


Figure 4.1 – The two primary catchments of the Project Area.

### 4.1.1 Landscape Quality and Capacity to Accommodate a Highway

As part of the route options selection process the wider Mt Messenger area was categorised into several landscape character sub-units (see LEDF section 3.1.4). This baseline evaluation undertaken for the whole of the project area identified landscape areas in a manner useful for comparing ‘joined-up’ routes that cross several sub-units that may demonstrate differences in landscape quality and capacity to accommodate landscape change. The evaluation was based on preliminary site investigations and high-level desktop analysis

using existing mapped resources (NZtopo, Google Earth and Imagery, Site survey and 3D Model).

The purpose of that classification was to broadly identify areas of landscape quality in general terms and the capability of the landscape to accommodate or ‘absorb’ the type of landscape change anticipated by a highway project – that is a general assessment of ‘highway absorption capability’.

Landscape **quality** was assessed taking into account the following matters:

- biophysical values such as the natural science values of landform, vegetation, waterways;
- perceptual values such as aesthetic quality, legibility (way-finding and orientation), distinctiveness and memorability;
- associative factors such as historical associations, recreational values, or values that tangata whenua and others might associate with a landscape.

The **highway absorption capability** is an appraisal of the likely degree of effects that would result from a highway of the type proposed taking into account such matters as:

- likely modification to natural landforms, waterways or vegetation;
- likely prominence, including density of dwellings, proximity to settlements, the ability to fit a road to the contours, potential screening by vegetation or topography; and
- likely extent of change to existing character – taking into account the landscape’s complexity and existing degree of modification.

The Project is contained within Sub-Unit vii (the Mangapepeke Valley) in the north and crosses a small section of the wider Sub-unit ii – Upper Mimi Valley. The quality and capacity of these units (as reported in the MCA process) is described below.

#### **Sub unit ii – Upper Mimi Bush Valley**

- Very Steep Bush Hill country (includes DoC estate)
- Complex stream systems
- Sensitive Wetland / stream system (Mimi System and confluence)
- Includes existing SH3 corridor in the Northwest.
- Modified lowland valley
- SH3 roadway south of Mt Messenger
- *High quality / Moderate to Low capacity for landscape change*

#### **Sub unit vii– Mangapepeke Bush Valley**

- Well defined and visually contained bush valley
- Moderate ecological values
- Partially modified (grazed in the north) with a unmanaged ‘scruffy’ rural character partially the valley floor
- Assumed cultural landscape values associated with landownership

- *Moderate quality / Moderate capacity to accommodate landscape change*

In this regard, the Project is predominantly within a contained valley system that has a moderate capacity to accommodate landscape change and crosses the north-western section of a higher quality landscape sub-unit (sub unit ii) in proximity to the existing SH3 corridor and the lesser quality lowland pastoral margins.

The valley systems that are the basis of the landscape sub-unit analysis set out above is described below.

#### 4.1.2 The Lower Mangapepeke Valley



*Figure 4.2 – Aerial contextual landscape perspective of Mt Messenger (left of frame) looking northwards down the Mangapepeke Valley. This view is from above 2750 Mokau Road.*

The Mangapepeke Valley forms part of the bush hill country character of the wider landscape context. The valley is a well-defined landform contained by steep bush covered ridges to the west and east and associated minor spurs and toe slopes that work down to a flat valley floor.

This valley floor is predominantly grazed and includes the meandering Mangapepeke Stream. A single rural dwelling (3077 Mokau Road) and associated farm machinery and ancillary buildings is located at the northern head of the valley. That property is accessed off SH3.

This Mangapepeke Valley floor area is of **low to moderate landscape quality** based on a generally modified character and prominent human influence.



*Figure 4.3 – Looking south towards the Mangapepeke Valley from SH3 with pastoral valley flats to the right of frame (north of the project alignment). The Mangapepeke Valley landform itself is not visible from this view.*



*Figure 4.4 – Farm buildings and valley flats at 3072 Mokau Road, from SH3 looking south. The northern valley near SH3 is characterised by the pastured flats contained by steep surrounding bush slopes and the farm buildings and machinery of the farm property at 3072 Mokau Road.*



*Figure 4.5 – Looking south towards the farm at 3072 Mokau Road from SH3. The farm complex at 3072 Mokau Road is on the western side of the valley flats and includes an array of farm machinery and other materials. The grazed valley flats are well defined by the bush edge of the immediately adjoining bush slopes.*

South of the farm complex, the pastoral qualities of the valley flats become less defined with a predominance of sedge / rushland vegetation. These grazed valley flats however remain distinct from the surrounding bush with a clear ‘bushline’ boundary. Overall these transitional areas are of **moderate landscape quality** representing a mix of modified and natural landscape characteristics.



*Figure 4.6 – Valley flats south of the farm complex at 3072 Mokau Road with intact bush slopes, grazed flats and fragmented bush edge areas.*



*Figure 4.7 – rough pasture transitioning up the Mangapepeke Valley framed by the surrounding bush slopes and ridgelines.*

### 4.1.3 The Upper Mangapepeke Valley

This relatively extensive area of rough grazed mixed vegetation flats continues southwards up the valley (see above) and includes bush edges characterised by Kahikatea forest remnants in some areas and isolated large individual native trees. These transitional areas represent further increases in landscape quality as the natural landscape qualities become more predominant.



*Figure 4.8 – Kahikatea remnant bush edge featuring large prominent individual trees (left of frame).*



*Figure 4.9 – Rough pasture / bush transition*



The character of the valley floor transitions again to a more mixed lowland forest character still further south (above) before becoming more enclosed and broken reflecting the more incised and steep upper catchment terrain of the first order Mangapepeke Stream systems (below). This upper catchment area is of **moderate– high landscape and natural character value** due to the unmodified stream corridor and indigenous vegetation cover combined with relatively strong ridge and spur landforms.



*Figure 4.10 – Moderately high natural character of the Upper Mangapepeke Stream corridor*

The Mangapepeke Valley is a rural landscape of mixed character and value, with **moderate – low** landscape and natural character values in the lower valley increasing to **moderate – high** landscape and natural character values in the upper valley.

As a well-defined landform ‘unit’ the Mangapepeke Valley is relatively visually discrete from the existing SH3 alignment, with southbound views from the southern approach dominated by the western spur that divides the valley from the existing SH3 highway. The valley overall is visually discrete and contained. This discrete valley form is a landscape with the capacity to provide for a highway keeping “low in the landscape”.

#### 4.1.4 The Mimi Valley

The proposed alignment preserves the main ridge divide between the Mangapepeke Valley in the north and the Mimi Valley in the south by tunnelling through the intervening ridge.

The southern portion of the alignment is thus characterised by the south facing slopes of the upper Mimi Valley as they transition to the more open pastoral flats of the mid Mimi Valley to the south west.

Like the Mangapepeke Valley, the landscape setting of this southern section of the proposed alignment is also characterised predominately by steep bush hill country. However, the Mimi Valley itself is a larger and more open valley system characterised by broader pastoral flats particularly in the south west.

Pastoral / grazing farming characterises land use along the majority of the existing SH3 to the south of the Mt Messenger climb. This corridor is of **moderate– low landscape and natural character value**.

Upstream, this modified rural farming landscape gives way to a more contiguous area of indigenous vegetation (including Kahikatea swamp forest) which in turn adjoins the wider conservation estate of the Mt Messenger Forest. However the northern part of the Upper Mimi Valley affected by the Project is of **moderate landscape and natural character value** due to the relative proximity of the existing SH3 corridor (see fig. 5.14 below).



*Figure 4.11 – Contextual aerial view to the south west looking towards Mt Messenger (centre frame) and the Mimi Valley (left of frame). Pastoral flats can be seen left of frame defined in part by SH3 and the Mimi Stream. The existing SH3 roadway can also be seen in this image as it winds its way across the Mt Messenger landscape.*



*Figure 4.12 – North-easterly view across the modified pastoral flats and existing road corridor of SH3 south of Mt Messenger.*

Pastoral flats framed by a strong vegetated hill slopes and ridgeline patterns characterise the existing SH3 corridor at the proposed alignment southern tie in (above) before the existing roadway begins to climb northwards to the Mount Messenger summit. This same modified rural character is apparent when viewed from 2528 Mokau Road (below) to south with the contiguous bush hill slopes framing the modified farmed flats below.



*Figure 4.13 – View from SH3 to the northeast showing the contrast between modified pastoral flats and surrounding steep bush hill country.*



*Figure 4.14 – View to the south west showing the modified SH3 corridor and the adjoining pastoral flats to the south.*

SH3 characterises the northern boundary of the Mimi Valley in this location, with the existing SH3 corridor demonstrating a degree of landscape integration of the highway along the southern hill slope continuum. This combination of bush hill slope margins and immediate roadside cut (above) blends relatively well with the mixed and rough bush edge while maintaining the overall integrity of the both the pastoral flats and the wider bush hill slopes.

#### **4.1.5 Summary of Mimi Valley Landscape Values**

The Upper Mimi Valley is a rural landscape of mixed character and value with low to moderate– low landscape and natural character values in the south, increasing to moderate landscape and natural character values in the north. The south facing slopes of the upper Mimi are also generally visually discrete and contained. As with the Mangapepeke Valley section of the Project route, the Mimi Valley section is a landscape with the capacity to provide for a highway keeping “low in the landscape”.

## 4.2 Comparative landscape evaluation of the Existing SH3 Corridor

Consideration of the existing SH3 corridor serves as a useful “calibration evaluation” of the qualities and attributes of a regional highway in the area, and importantly as a baseline for informing the assessment of potential landscape effects of the Project.

The successional vegetation re-colonisation of the existing roadside by the rich and diverse natural seed source of the immediately adjoining bush environment is also relevant, illustrating the re-colonisation potential for the proposed alignment.



*Figure 4.15 – The existing Mount Messenger Tunnel in 1983 (left) and today showing natural successional revegetation of the rock cut faces.*

SH3 to the immediate north and south of the Project route can be characterised as a lowland valley road corridor which ‘keeps low in the landscape’.

The existing SH3 corridor follows the Mimi River valley in the south before turning eastwards at the south facing toe slopes and spurs of the west east running ridgeline that defines the southern catchment boundary of the Waipingao. These slopes are characterised by regenerating bush on the steeper scarps and pasture on the more moderate spur flanks.

The northern existing alignment area is a more open and rolling pastured valley characterised by the disturbed landslide landform, dissected sub-catchment valleys and drained valley floor. This valley is defined by the strong ridgelines of the northern Waipingao catchment and Mt Messenger summit. Landcover on these northern slopes is generally more mixed including areas of pasture, regenerating bush and exotic forestry.

A prominent conical landform with exotic forestry marks the southern SH3 hill climb towards Parininihi / Mount Messenger with the existing highway winding up to the summit and saddle and rest area.

A short tunnel characterises the highway north of a rest area at the catchment saddle between the Mangapepeke Stream and the Mimi Valley. This tunnel is cut directly into the slope face revealing the underlying papa strata and marks the route summit.



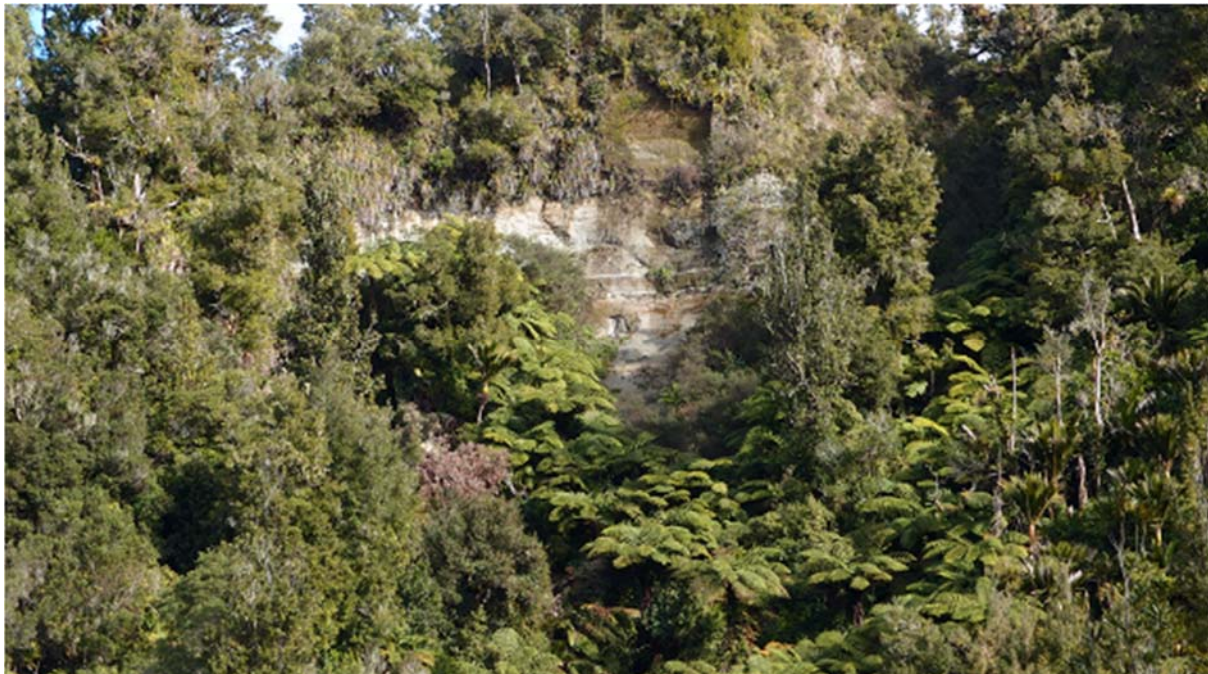
*Figure 4.16 – The existing Mount Messenger Tunnel: cut directly into the papa rock, partially vegetated by natural succession.*

Roadside cuts through this area are generally well vegetated, demonstrating a diversity of successional indigenous plant communities creating a highly naturalised roadside character.



*Figure 4.17 – SH3 at Mount Messenger showing the existing highway, bush hill country landscape context and naturalistic roadside character.*

These existing roadside conditions echo the natural patterns of the wider bush hill country landscape, including patterns of indigenous vegetation and natural rock slip faces and exposures (see below).



*Figure 4.18 – A Natural exposed rock (slip) face and bush as seen from SH3*

Overall, the existing roadside environment represents surprisingly natural qualities that have developed over time, particularly on moist south facing cut faces north and south of the existing Mt Messenger tunnel (see Figure 4.19 – Natural successional revegetation of



existing roadside including water seepage / discharge9 and Figure 4.20 a) and b) – Further examples of the variety of naturalised conditions of the existing SH3 corridor.20 below).



*Figure 4.19 – Natural successional revegetation of existing roadside including water seepage / discharge*



a)



b)

*Figure 4.20 a) and b) – Further examples of the variety of naturalised conditions of the existing SH3 corridor.*

### 4.3 Wider Landscape Context

The following section describes the landscape of the wider Project Area. In doing so, this section includes a broad discussion of the cultural / associative and natural science values of the wider Project area (including the more immediate area of the proposed Project route).

The landscape context of the wider Project area includes:

- the steep to very steep bush hill country from the coastal terraces south of the Tongaporutu River;
- south to the pastoral flats of the Mimi Valley;
- west to the coast and the Parininihi Cliffs; and
- east to the Mangaonga Road Corridor and the Mount Messenger Forest.

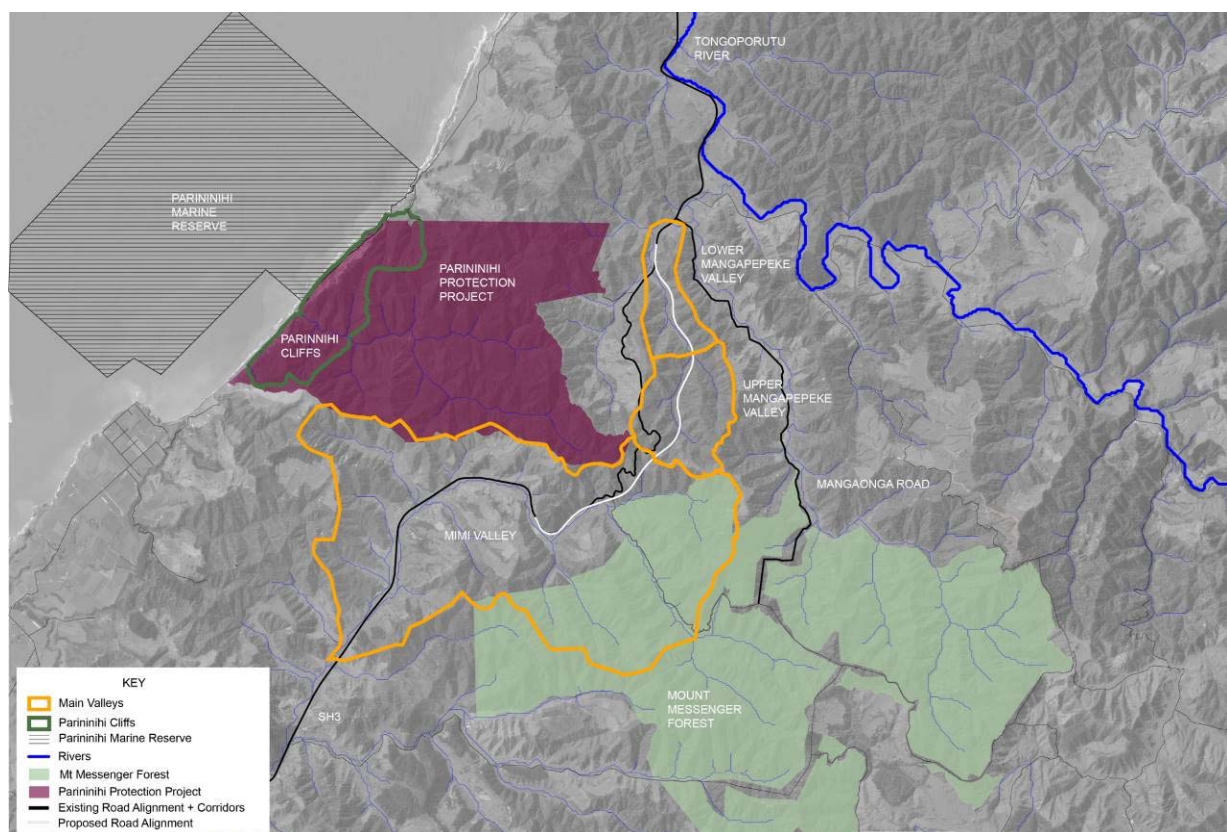


Figure 4.21 – Project location and key surrounding features of the wider Project area.

This area is sparsely populated and is dominated by steep bush hill country with pockets of pastoral rural land in lowland areas as well as pasture on some limited upper spur areas. Strong ridgeline patterns predominate lowland landscape valley views from the existing SH3 corridor which generally follows the rural pastoral valley landforms (apart from the existing upland Mt Messenger SH3 alignment).

**Settlement patterns** within the wider Project area are sparse and determined predominantly by the access afforded by SH3. There are a small number of dwellings at Ahititi at the

intersection of Mokau Road (SH3) and Okau Road and a pattern of sparse and occasional dwellings along the road corridor itself.

Extensive areas of very steep bush hill country within the Mt Messenger Forest (including Department of Conservation (DoC) areas) characterise the inland landscape context in the east. The Taranaki coast (including the Parininihi Cliffs and Marine Reserve) characterise the coastal hill and terrace county in the west.

In general terms, the wider Project area traverses a landscape that is predominantly characterised by steep bush hill country. This includes a pattern of fragmented areas of ecologically significant bush as well as areas of high value but unprotected bush. This condition highlights the potential for landscape connectivity as a result of integrating the proposal with the wider landscape patterns for example providing landscape continuity between large areas of bush and marginal pasture land in the northwest with the existing conservation estate in the southeast.

There are also recognised cultural landscape values associated with the wider landscape with Ngāti Tama and DoC landholdings and land management programs extending from the Parininihi Marine Reserve in the west to landholdings east of the existing SH3 corridor. The wider Project area is of cultural, spiritual, historical, and traditional importance to Ngāti Tama. These associative values (cultural values) and natural science values help to inform the wider understanding of landscape value including shared, recognised and community associations with the Project area.

### 4.3.1 Cultural Landscape Associations

The wider Project area is set within an important cultural landscape. Ngāti Tama are acknowledged as mana whenua and the project traverses Ngāti Tama Treaty settlement lands which are located to the east and west of the existing SH3 alignment.

Inland bush areas including Parininihi / Mt Messenger are of particular importance to Ngāti Tama where, '*...The associations with the inland bush area played an important role in the customary practices of Ngāti Tama, along with the many streams, ridgelines and peaks of this area, and continue to do so today<sup>4</sup>....*'

This is also reflected in important landscape connections between coastal and inland areas including coastal pā and inland tracks and peaks, in particular, the importance of ridgeline walking tracks between the coast and the Mount Messenger peak. These pathways have cultural significance to Ngāti Tama as the source of mauri. Important waterways which flow to the coast and Parininihi Cliffs are also of major cultural significance to Ngāti Tama.<sup>5</sup>

The wider landscape context also includes the Parininihi Protection Project area, which is located west of Mt Messenger within the Waipingao catchment and western coastal hills. The Parininihi Protection Project relates to the wider landscape values associated with the area

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<sup>4</sup> *Cultural Values Assessment in relation to the SH3 Mount Messenger Project*, prepared for Te Runanga o Ngāti Tama by Atkins Holm Majurey Ltd, March 2017, p10

<sup>5</sup> Ibid.

and helps to inform the shared, recognised and community values associated with the wider landscape. The combination of these high ecological and cultural landscape values is reflected in the Regionally Significant Landscape notation of land to the west of Mount Messenger in the NPDP. **The Project avoids these sensitive landscapes.**

#### 4.3.2 Ecological (Natural Science) Values

A physical and ecological description of the project area can be found in the Assessment of Ecological Effects – Mitigation and Offset (Technical Report 7h, Volume 3 of the AEE) (Mitigation and Offset Report).

The Mitigation and Offset Report notes that:

*“... the forest and natural habitat along and adjacent to the Project area east of the existing SH3 retains indigenous plant and animal communities that are considered to have high ecological value. However, the full ecological potential of the area has been greatly diminished over many decades by the largely uncontrolled impact of browsing, grazing and predatory animal pests and unfenced cattle. The evidence of this is clear when the ecology of the Project area is compared to the nearby forest of the Parininihi immediately to the west of SH3. Over a decade of intensive pest management in this western forest has produced much more diverse and healthy flora from canopy to forest floor, and substantially greater habitat for the diversity of indigenous fauna that live there”.*

The Mitigation and Offset Report also states that:

*“The Project will result in the removal or modification of 34ha of predominantly indigenous vegetation and habitat and 3.5km of freshwater habitat. This, combined with the diverse and high value nature of the ecology, means that the potential ecological effects generated by the construction, operation and maintenance of the new road will also be high.”*

And;

*“The proposed biodiversity offset – mitigation package comprises pest management in perpetuity (or until such time as pest management in the form we know of it today is no longer necessary to sustain the levels of biodiversity created) over approximately 560ha, restoration planting of 6ha of swamp forest, 9ha of mitigation replacement planting, restoration of 8.9km of riparian margin and revegetation of as much of the construction footprint that will not be road as is practicable. The package has a high likelihood of substantially reversing the diminished state of the ecology and achieving a net gain in biodiversity within 10 to 15 years following construction.”*

### 4.3.3 District Landscape Assessment

The New Plymouth District Landscape Assessment (LA4 – June 1995) identifies a number of landscape units across New Plymouth District. The project area is predominantly within Landscape Unit 4: Eastern Hill County – Bush (the relevant map is included in the LEDF, p12).

This landscape unit is described as being predominantly remote bush covered hill country with strong underlying landform.

- Steep ridges rising to 400m;
- Peaked and angular landform;
- Clearly defined stream gullies;
- Mature and regenerating native vegetation;
- An enclosed landscape quality from strong landform and solid bush cover; and
- Skyline landform backdrops which frame lower valley views.

Elements listed that made the unit sensitive were:

- Extensive and homogenous bush landcover;
- Lack of development / activities;
- Strong ridged landform is listed as heightening sensitivity;

This broad scale district wide assessment also identified '*cuts in the hillsides and cliffs for roads*' for the existing SH3 through the Mount Messenger Area as an adverse landscape element.

Landscape Unit 4 is listed as having a viewing audience limited to SH3 users. Key qualities are:

- Remoteness;
- Large undisturbed areas of bush; and
- Strong landforms with bush cover forming backdrops.

### 4.3.4 New Plymouth District Plan: Regionally Significant Landscape

Landscape Unit 4 is identified in the 1995 District Landscape Assessment as being sensitive to change (overall sensitivity rating 5 out of 7), and was recommended in that report to be a Regionally Significant Landscape (for the purposes of the New Plymouth District Plan). However this recommendation was not followed as it represented the majority of the Northeast of the district.

Following this District Assessment, a smaller area of land to the west of the existing SH3 alignment has been mapped as Regionally Significant Landscapes in the Operative District Plan (see LEDF p11). This includes extensive hill country areas to the west of Mt Messenger in the Waipingao Catchment. This area is less extensive than the district wide Landscape Unit 4 mapped in the 1995 district wide landscape assessment.

Following the options assessment process (refer Volume 4 of AEE), which considered a range of options including to the west of the existing SH3, **the route chosen for the Project avoids**

**the Regionally Significant Landscape area to the west of the Project** (also see section 7.1 of this report).

# 5 Assessment of Effects

This section of the report assesses the overall landscape and visual effects of the Project. This includes an overall judgment regarding the overlapping matters of:

- Physical Landscape Change
- Landscape Character;
- Natural Character of the streams and wetlands;
- Effects in relation to Associative landscape values; and
- Amenity including visual amenity to and from the Project for identified viewing audiences including rural residents, and the travelling public.

These effects are set out in the context of three principal geographical areas of the site:

- The lower Mangapepeke Valley;
- The upper Mangapepeke Valley; and
- The Mimi Valley and inter-valley ridge

## 5.1 The Lower Mangapepeke Valley

### 5.1.1 Landscape Integration or “fit”

From the north the proposed highway aligns with the eastern valley toe slopes traversing only minor inter spur flats (rather than the main valley floor). The alignment gently works southwards up the Mangapepeke, cutting through minor toe slopes (some of which may be ‘daylighted’ on the valley /western side to afford open views of the adjoining flats). This alignment both provides an opportunity for interesting exposures of the local geology as a feature, and avoids a straighter route which would result in more discordant and prominent major cross spur cuts.

The result is a sinuous relatively open alignment that maintains the design speed (100 kph), affords open scenic views, and reflects the meandering natural valley landform. More detailed design work will be required to ensure that cut and fill transitions will be tie into the surrounding terrain. However, the steep nature of the existing landform closely resembles the proposed cut slope batters. Looking at the existing SH3 cuts it is expected that the proposed alignment cuts will become similarly colonised developing an overall highly naturalistic appearance and blending with the immediate bush roadside. In consultation with ecology specialists<sup>6</sup> this process is estimated to take up to between 5 and 10 years (depending on aspect) and will be assisted by the top seeding of upper soil slope areas above the rock cuts, the textured finish of cut faces and the use of successional hydro-seeding (see LEDF section 5.4.4).

The landform modification to the north of the upper Mangapepeke Valley (fill) area (Chainage 2850–3350) is considered to be moderate–high but acceptable, given the scale of the landform modification proposed in relation to the legibility of the predominating natural

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<sup>6</sup> Roger MacGibbon, author of Technical Report 7h

bush hill terrain, very strong definition of the surrounding valley landform including ridge skylines, and the coherence of the alignment with the distinct landform edge between valley floor and surrounding slopes.

### 5.1.2 Effects of Cut and Fills

The proposed alignment has been designed to optimise a balance of cut and fill volumes by utilisation of stable rock toe slopes, minimising fill areas on unstable valley flats; and seeking a sympathetic alignment reflective of the wider bush hill country character. Overall, therefore the alignment is complementary to the underlying landform.

The proposal will generate cuts into the hill toe slopes ranging up to approximately 50m. Cut faces are an inevitable effect of a project of this nature in this terrain. They are however a wholly consistent and expected element in a highway environment.

Larger cuts will occur on the “uphill” slope side with smaller cuts being located on the “downhill” valley side. Larger uphill cuts (generally 60 degrees) have been designed to reflect the natural geological slopes of the surrounding steep terrain, which predominantly ranges between 45 – 80 degrees with an average of 65 degrees. The slope of cut faces will reflect the surrounding character of the immediately adjoining terrain with some flexibility in slope angle within the 45–80 degree range.

In this way, while visible and prominent, it is expected that these rock cut faces will become colonised over time as part of a natural successional vegetation process. It is also expected that appropriate landscape treatments such as cut face surface texturing and successional seed species planting above steep cut faces will further assist in this natural process.

Based on the evidence of the existing SH3 corridor it is anticipated that these rock cuts will become a naturalised geological feature of the alignment over time mitigating their effect.

The effect of these cuts will vary with their size, ranging from a low effect to moderate–high. This effect may not necessarily be perceived as adverse, with even large (up to 50m) cuts being consistent with the overall slope character of the surrounding terrain and will be a unique expression of the underlying geology of the area.

Cut and fill areas represent a change of natural landform and physical landscape change. While some of these cuts are relatively large (up to 50m) they are generally consistent with the wider steep hill country terrain and are expected over time to become ‘naturalised’ as they have for the existing SH3. Fill areas are also expected to tie into surrounding terrain with an **overall moderate level of effect** of cuts and fills within the Lower Mangapepeke Valley.

Further discussion on the design treatment of cuts and fills is set out in the LEDF section 5.1.

### 5.1.3 Effects of Permanent Disposal Areas

Excess fill is proposed to be disposed of in contingency sites including the lower Mangapepeke Valley, grazed side gully areas in the west of the lower Mangapepeke and in a contained pastoral side valley in the south of the Project area. It is understood that the



nature of the disposal in side valleys is generally a flat layered landform approach reflecting the underlying landform of the existing gully floors.

In the north of the Project a more comprehensive approach is proposed including contouring to match the surrounding landforms. This northern area has been selected as a disposal area in part due to its low existing ecological values. As such final contouring and shaping of this area represents an opportunity to develop a 'naturalised' constructed amenity landscape complimentary to the wider ecological mitigation that is proposed for the Mangapepeke Valley (see section 5.1.7 of the LEDF)

Where possible, these disposal areas should be designed to integrate with the immediately adjoining landform and deposit greater volumes of material in upper gully areas where there is steep landform context. This is preferable to creating the appearance of artificial or engineered landforms that would be more obvious and contrasting in proximity to the valley flats.

It is noted that for the southern disposal area this design approach will be well contained and will be able to be visually integrated with the surrounding landscape. This area may be able to be finished with grass planting and returned to pasture blending with the surrounding rural character if required.

*In summary:* Disposal areas represent a potential change of natural landform and physical landscape change. The effects of this change are assessed as **moderate** provided the integration of these areas with the surrounding landform is addressed.

#### 5.1.4 Effects on Landscape Character

The project will introduce a State highway into this remote, generally undeveloped landscape setting which will result in a change in landscape character.

In the lower Mangapepeke, the proposed alignment follows the existing landscape edge between the Mangapepeke Stream valley flats and the adjoining hill slope terrain. This design approach of 'keeping low in the landscape' minimises major landform modification and disturbance and preserves the integrity of the key characteristics of the hill country bush character. In this regard, the proposed alignment 'lets the landscape speak' with the alignment representing a relatively recessive element in the context of the dominant qualities of the surrounding natural bush hill country.

This is further reinforced in lowland pastoral sections of the alignment, particularly in the south where the surrounding bush hill country landscape frames the more modified farmed flats of the Mimi system. In this area, the proposed alignment represents similar characteristics to the existing SH3 alignment with the highway reinforcing the natural western valley flat and steep hill slope terrain.

In this regard, the alignment preserves the contiguous nature of large undisturbed areas of bush as well as the dominant and strong landforms with bush cover forming backdrops of the lowland and more modified valley flats. The Project will have an overall **moderate** effect on the landscape character the lower Mangapepeke Valley.

### 5.1.5 Landscape Character and vegetation removal / mitigation

In addition to the 34 ha of indigenous vegetation and 11 ha of pasture affected, the Project will result in the loss of a number of significant trees including up to fifteen large trees (up to 500 years old) including rimu, totara, matai, and hinau. These potentially will have a cultural value, and may also be reused across the project in consultation with Ngāti Tama where appropriate.

A comprehensive vegetation management strategy will be developed for the Project integrating landscape, ecological and mitigation requirements. The overarching revegetation strategy is to work with the landscape as a resource; utilise existing natural seed sources; re-use existing forest material where ever possible; and to facilitate natural successional processes (see LEDF section 5.4.2).

The proposed landscape treatments for fill and cut areas will also assist in the integration of the highway with the bush character of the immediately surrounding landscape.

#### 5.1.5.1 Ecological Mitigation Planting

In addition, significant ecological mitigation planting is also proposed. As much of this as possible will occur within the designation although some riparian planting and possibly some swamp forest planting may need to be undertaken outside the designation but in close proximity. The ecological mitigation planting will include:

- 6ha of swamp forest planting all or predominantly in the Lower Mangapepeke Valley;
- Riparian planting (10m each side of the stream edge) along 8.9km of stream;
- 9ha of replacement mitigation planting consisting of manuka and early successional planting.

The majority of the planting is intended to be within the Lower Mangapepeke Valley. This planting, within the designation, will have **a significant long term positive landscape effect** on the enhancement of the natural landscape characteristics of the Lower Mangapepeke Valley in particular, and will greatly assist the integration of the highway within a natural bush setting.

In addition, this planting will also serve to enhance the wider appreciation of the corridor as a scenic bush highway user experience as well as addressing wider landscape fragmentation. The matter of landscape fragmentation will be further addressed through the application of a pest management programme over 580ha. This programme forms a key component of the ecological mitigation of the Project.

The LEDF includes further guidance and discussion on this subject at section 5.4. The location of this proposed planting is shown in section 6 of the LEDF – Landscape Concept Plans.

### 5.1.6 Natural Character of the Mangapepeke

In an RMA and project context natural character specially relates to the existing natural elements, processes and patterns, in particular the natural movement of water; and natural experiential attributes of the Mangapepeke stream systems (and the Mimi Valley Kahikatea

Wetland). In this regard, natural character is considered within a range from pristine to modified where the degree of natural character generally reflects the absence of buildings and other human influences, the presence of original landforms and vegetation cover (particularly indigenous vegetation) together with other ecological patterns, water bodies and natural movement of water and sediment, as well as experiential attributes.

The Project has been specifically designed to minimise impacts on natural drainage patterns in particular. Previous design iterations of this corridor examined options such as extensive areas of fill on the western valley side of the Mangapepeke and alignments that crossed the Mangapepeke Valley numerous times. Similarly, options were also explored that included structural solutions for the upper Mangapepeke. These design alternatives were rejected in part due to their effects on the natural character of the mid and lower Mangapepeke Stream.

The Project will have a **moderate** effect on the natural character of the lower Mangapepeke Stream as a system. The Project avoids multiple stream crossings with fill limited to side gullies and the edge of the primary valley floor.

The northern and southern tie in sections, the Lower Mangapepeke Valley and the southern Mimi Valley sections represent the most modified areas of the Mangapepeke and Mimi Stream systems. As such the natural character effects of the Project on these areas are low, due to the coherence between the Project and the existing human influence of rural land use activities.

### 5.1.7 Associative Values

As discussed above cultural associations are recognised as a key component of the wider appreciation of landscape values across the project area.

In regard to this the LEDF promotes the development of themes and design expressions to address identified relevant cultural values and associated landscape matters. It is acknowledged that this is likely to be an iterative process and that stakeholder communication, dialogue and exchange of ideas is required to fully explore opportunities to appropriately express the acknowledged cultural narrative and shared values of the Parininihi Landscape with mana whenua.

As set out in more detail in the LEDF, there are a number of unique design opportunities to develop the cultural narrative for the project including developing appropriate means of cultural expression with the integrated design treatments of the tunnel portals and access (as well as the southern bridge crossing reflecting the nearby wetland).

There are possible opportunities for stopping places (rest areas, viewing places cultural places, or composite places) across the Project that could be developed along the alignment (within the constraints of traffic safety arrangement), including to further share the cultural and wider landscape narrative (e.g. information signage (as per the NZ Transport Agency's Highway Stopping Places Strategy and section 4.21 of Bridging the Gap Urban Design Guidelines).

It is recognised that NZ Transport Agency guidance notes the following Factors to be considered in determining the appropriate location and spacing of stopping places:

- Traffic volumes, types and predominant trip length;
- Proximity to existing stopping opportunities such as towns and villages;
- Potential co-location benefits ie development in pairs on either side of double;
- Carriageway; and
- The frequency of quality stopping places

The proposed alignment also passes near land that is currently part of the conservation estate which also represents wider community shared associative values. It is recommended that this access is maintained, and where practicable enhanced, to further promote the unique recreational and open space amenity values of the wider project area.

In this regard, both cultural landscape values and wider recreational values can be appropriately recognised through the further collaborative detailed design of the Project to reflect the wider social and cultural values of SH3.

It is also recognised that the Lower Mangapepeke Valley has been owned by the current occupier for a considerable period and as such it is expected that there will be strong associative values attributed to that land as a working rural landscape. Anecdotal evidence from stakeholder interactions to date suggest this is the case. It is acknowledged that these values for that individual landowner are likely to be high.

### **5.1.8 Amenity Values**

By selecting an alignment that works with the underlying landform and keeps low in the landscape, the wider scenic amenity qualities of the alignment's surrounds are maintained. Major cuts have been minimised and the overall approach of preserving as much of the natural landform as possible has been promoted as far as practically possible. This design approach has been specifically developed to "let the landscape speak" that is, to allow the natural scenic landscape qualities of the immediate surrounding landscape setting and wider landscape context to predominate.

It is expected that these wider qualities will be further enhanced over time as natural successional processes begin to colonise the immediate roadside environment as they have done for the existing SH3 resulting in a highly naturalised and unique bush highway experience.

This design approach also allows for the highway corridor to be enhanced as a scenic bush highway allowing for the continued appreciation of the key landscape characteristics of the surrounding bush hill country for potential future highway users. Qualities of remoteness and isolation and the generally undisturbed nature of the wider landscape identified in the district landscape study will be able to be similarly appreciated from the proposed highway as they are from the existing alignment. The very contained and confined nature of the Mangapepeke Valley in particular offers a very unique potential for the appreciation of these qualities, albeit from the comfort of a travelling vehicle.

## 5.2 The Upper Mangapepeke Valley

### 5.2.1 Landscape Integration and 'fit'

The Project represents a logical landform fit with the Upper Mangapepeke Valley as it narrows and tightens, with a sweeping horizontal alignment complimentary to the underlying natural landform. This complementarity will further enhance the appreciation of the perceptual natural landscape qualities of the upper Mangapepeke.

### 5.2.2 The Upper Mangapepeke Fill

The largest single fill for the Project will be located from Chainage 2850 to 3350. This area of fill is contained within the head of the Mangapepeke upper catchment up off the valley flats in an area characterised by the landform pattern of intersecting spurs and dissected stream gullies. This fill supports the highway geometry across the upper catchment landform complex, linking it from the northern tunnel portal to the more moderate and open valley terrain further downstream.

This fill represents a moderate– high degree of landform modification within a very discreet and visually contained steep bush upper catchment landscape which is predominantly characterised by steep intersecting spurs. While modified in nature this pattern of fill is consistent with the wider pattern of surrounding spurs and generally follows the natural alignment of primary valley landform. That is, the highway alignment works “with the grain” of the upper catchment, as noted above, with proposed fill slopes feathering into the surrounding natural bush hill country.

The magnitude of the adverse physical landscape change effects of the proposed fill is also moderated by the coherence between the proposed pattern of fill, which follows and reinforces both the and the underlying natural valley landform as well as the visually and topographically contained nature of the upper catchment terrain. In this regard the ‘tight’ and dynamic surrounding natural landform provide a strong and predominantly natural setting for the change proposed.

The proposed upper Mangapepeke fill will occupy an existing natural stream corridor, and as such represents a further physical landscape change effect that will also affect natural character. It is expected that with further detailed design consideration this upper catchment fill can be appropriately integrated into the existing pattern of steep surrounding hill slopes and natural drainage patterns. Inevitably this will result in the loss of the existing incised valley floor and associated stream corridor.

Structural solutions (bridging) for this section have also been considered as an alternative to fill. It is understood that given the very confined terrain these solutions would also result in loss of stream corridor and similar effects to fill.

This area will require further specific detailed fill and stream diversion design to develop a final landform landscape solution, with input from the appropriate technical experts. A specific and detailed landscape plan for this section of the alignment should result in the development of an appropriate mitigation / design response to the physical landscape change proposed, such that the associated landscape effects can be appropriately mitigated.

### 5.2.3 Effects on Landscape Character

In the topographically more contained Upper Mangapepeke Valley, the change in character will be more pronounced for proposed areas that will fill the existing clearly defined stream gullies. This will occur in a relatively confined area of the overall system and is mitigated in part by the proposed stream diversion (which will also form a clearly defined corridor between the fill slope toe and the adjoining natural hillslope terrain).

In this regard, this change of character is a modification to the existing characteristics of a natural pattern which are echoed by the proposed alignment landform modification and associated stream diversion. The upper Mangapepeke fill area should be the subject of particular detailed design as a focus area addressed in the LEDF.

### 5.2.4 Natural Character

The natural character effects of the upper Mangapepeke fill are discussed above. For the Upper Mangapepeke Valley the proposed fill and transport corridor will have a greater effect on the natural character values of the upper Mangapepeke Stream system. Lengths of this stream is proposed to be filled, changing this corridor and natural water flows from a natural stream system to a modified one. This **adverse natural character effect is moderate-high** being mitigated by the opportunity to create a stream diversion to replicate a similar (albeit modified) stream environment. As discussed above there is considerable opportunity to enhance the wider perceptual and natural character values of the entire Mangapepeke Stream system as part of the wider mitigation package for the project.

This outcome is fully supported from a landscape, natural character and scenic amenity perspective and, if it were to occur, **is seen as a positive landscape outcome that would considerably mitigate the loss of natural character values within the upper catchment.**

In summary: The Project addresses potential natural character effects by:

- Seeking to minimise the stream and valley crossings throughout the alignment;
- Maintaining and enhancing natural stream environments where practically possible;
- Mitigating stream disturbance within the Upper Mangapepeke Valley and developing appropriate stream diversions of comparable natural character where practical and lastly; and
- Offering a significant opportunity to enhance the natural character of the entire Mangapepeke Stream corridor and valley.

### 5.2.5 Associative Values – Ngāti Tama

The discussion above of associative values effects in respect of the Lower Mangapepeke Valley applies equally to the Upper Mangapepeke Valley.<sup>7</sup> Cultural values and associations will be appropriately recognised through detailed design features and processes in line with the LEDF.

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<sup>7</sup> The discussion also applies to the Mimi Valley – the section assessing effects on the Mimi Valley below therefore does not include a specific sub-section discussing associative and cultural values.

As discussed above Cultural Associations are recognised as a key component of the wider appreciation of landscape values across the project area. This is partially pertinent given that the proposed alignment traverses Ngāti Tama land predominantly within the Upper Mangapepeke Valley.

It is expected that the LEDF (see section 4.1 of the LEDF) will provide an opportunity to further develop themes and design expressions that may address identified relevant cultural values and associated landscape matters. Based on previous similar projects, this is anticipated to include matter such as:

- Integrating appropriate tikanga throughout the project in relation to appreciation of wider cultural values;
- An appreciation of the concept of Mauri in the context of the Project;
- Naming and wayfinding;
- Respect of traditions embodied in the cultural narratives of Ngāti Tama;
- Appropriate protocols around tree and vegetation removal;
- Consultation on plant species selection and stream restoration / diversions; and
- Maintaining and improving access to Ngāti Tama land.

It is expected that these matters will be discussed and developed further in consultation with Ngāti Tama.

## **5.3 The Mimi Valley**

### **5.3.1 Landscape Integration and ‘fit’**

Preserving the physical landform integrity of ridgelines as a key landscape design principal was influential in the consideration of alternatives as discussed above. As such large cuts that interrupted these natural patterns have been avoided in preference for tunnel solutions.

### **5.3.2 Inter-valley Ridge**

A large cut through the inter-valley ridge, which would have interrupted these natural patterns, has been avoided in preference for a tunnel solution.

The inter-valley ridge that divides the Upper Mangapepeke Valley and Mimi Valley systems has therefore been preserved and will remain intact as a connected ridgeline spur as part of the wider Mt Messenger topographical pattern.

This has been achieved through the design of a 235m tunnel through the ridge at an elevation well below the ridgeline crest. In this regard the inter-valley tunnel not only results in a low level of landform change but is also a very discrete and recessive design response to the overall predominance of natural landform both to the south and the north of the ridge.

This tunnel is one of the principal positive landscape features of the Project which not only maintains the integrity of natural landform but also echoes the character and heritage associations of the existing SH3 Mt Messenger tunnel as a transitional ‘journey feature’ or waypoint.

### 5.3.3 South facing Mimi Valley slopes

#### 5.3.3.1 Physical landscape effects

From Chainage 3700 to 3900 a moderate fill is proposed up stream of the Mimi Valley Kahikatea wetland. This fill will be integrated into the surrounding steep upper gully terrain forming a minor basin west (upslope) of the proposed alignment and will then tie into the surrounding gully to the east (downslope).

As with the larger fill at the head of the Mangapepeke, specific earthworks design at the detailed design phase will provide an appropriate means of integrating landform modification of the Project with the surrounding and immediate natural landform setting. This can be further enhanced (in line with the LEDF) through landscape planting such that the final modification will be perceived over time as blending seamlessly with the surrounding bush.

Immediately to the south of this fill from Chainage 3900 – 4100 a cut is proposed as the alignment passes through one of the minor spurs that run southwards below the existing SH3 alignment. This cut runs obliquely through the underlying papa geology and will be perceived as a man-made modification within an otherwise natural landscape setting.

This will not however be incongruous with the highway environment of which it will be a part and is expected to become ‘naturalised’ over time in the same way as the existing SH3 cuts have been as described earlier in this report. To assist this natural successional process it is intended that these cut faces will be textured to encourage the collection of suitable revegetation micro-habitat, and the top soil nailed areas will be vegetated with suitable seed source species to help encourage the acceleration of this natural process. This treatment approach is set out in more detail in the LEDF.

#### 5.3.3.2 Landscape Character Effects

From Chainage 4150 – 4260 a bridge structure is proposed. This structure has been specifically included to avoid landform modification (fill) within the steep bush gully that immediately adjoins the Mimi Valley Kahikatea wetland.

This bridge is considered an appropriate design response to this section of the proposed alignment preserving as far as practically possible the natural landform context of the adjoining Kahikatea wetland. The proposed bridge will also afford a strong visual connection with this landscape feature and the wider Mimi Valley beyond particularly for southbound views. The bridge therefore is considered an appropriate design response with a **moderate effect** on landscape character.

Further landform modifications are proposed south of the bridge described above. These are relatively moderate in scale and again considered appropriate as part of a highway environment, and relatively consistent with the type of landscape change that has been experienced with the existing SH3 environment. These are therefore considered **moderate** in terms of landscape character effect.



### 5.3.4 Natural Character and the Mimi Valley Kahikatea Wetland

The proposed alignment specifically avoids directly impacting the Mimi Valley Kahikatea wetland. In addition, as discussed above the Project includes a 120m<sup>3</sup> span bridge to the west of the wetland area preserving the natural landform of the steep gully that feeds directly into this wetland. It is understood that all road drainage will be diverted away from the system to storm water treatment areas downstream of the wetland.

The proposed alignment does however represent a shift of the existing SH3 transport corridor eastwards in closer proximity to the wetland and in this regard the perceptual and experiential qualities of this wetland will be more affected by traffic noise in particular. This is considered a **moderate– low adverse** effect given, the expected traffic volumes of the highway and relative screening of the proposed alignment from the cuts to the north and the south that are assumed to limit significant traffic noise to the immediate confines of the cut corridors.

It is noted too that the proposed bridge also potentially offers the opportunity for a unique scenic appreciation of the wetland from southbound viewpoints. This is seen as a positive outcome for the appreciation of the wild and scenic values of this landscape feature.

Overall, the proposed alignment avoids significant adverse effects on the experiential natural character values of the Mimi Valley Kahikatea wetland.

### 5.3.5 Visual Amenity, Aesthetics and Structural Design elements

Aesthetic and structural design considerations will serve to develop an integrated design approach, such that the two key structural design elements of the Project (the tunnel and the bridge) fit with the surrounding landscape and do not appear as discordant or obtrusive built elements in an otherwise natural landscape setting (this is discussed in more detail in section 5.2 of the LEDF).

#### 5.3.5.1 Tunnel (LEDF section 5.2.3)

The opportunity to develop a unique driver experience can be further enhanced through the appropriate development of the inter–valley tunnel which, in itself, will be a unique and defining journey feature complementary to the wider natural environment.

Here the traveling public will be very much aware of the wider dominance of the natural landscape and its overwhelming predominance as the roadway will be “swallowed” by the landscape only to emerge in an equally scenic environment. This represents a dynamic journey experience for road users with the tunnel a key ‘waypoint’.

The main components of the tunnel that have been considered both from a design and assessment perspective are the tunnel approaches and portal, the tunnel interior and pedestrian / cycling and safety egress facilities. It is expected that the design of these elements will continue through detailed design including:

- The treatment of cut faces on the approach to the tunnel portals to complement the surrounding natural landscape;
- the form and architectural design of the tunnel portals;

- appropriately reflecting cultural expression in the portal design;
- a clean uncluttered design of the tunnel interior – to reinforce a clear, safe path of travel, maintain driver attention and create a pleasant driving experience; and
- Pedestrian and cycling access and personal safety (CPTED).

These above considerations can be appropriately addressed through detailed design process and supported by conditions of consent.

### 5.3.5.2 Bridge (LEDF section 5.2.1)

The proposed alignment contains only one significant bridge crossing. This reflects the considerable effort taken to integrate landscape inputs and geometric design to minimise land disturbance. This is a positive landscape outcome given the scope and scale of the proposed alignment and the surrounding terrain.

The form and proportion of this bridge has been considered as part of the integrated design development process. The underbridge form of this structure has been specially designed to minimise land disturbance and to develop a context specific pier support that reflects the wider natural landscape setting and steep gully terrain. Previous experience with the Matahorua Gorge Bridge using a top down construction resulted in minimal vegetation and land disturbance limited to the area from abutment down to the piers footings. Vegetation continues to flourish under this bridge and the same outcome is expected on the Project (see LEDF p.44).

Indicative view of bridge, looking south towards the Mimi Valley



*Figure 5.1 – Illustration of the Bridge crossing the gully that leads into the Mimi Valley Kahikatea wetland. Note angled piers that avoid direct effects within the gully.*

This context specific bridge design is considered an appropriate approach given the proximity of the adjoining Kahikatea wetland and wider bush hill country terrain reflecting a more sympathetic aesthetic than a more traditional vertical pier system. The angled piers, as well as being structurally appropriate, allow for a more open gully expression compared with vertical piers which would be more intrusive into the gully landform.

Views from this bridge will be of scenic amenity value providing a strong visual connection and journey experience with the wider landscape. Optimising views from this bridge is

strongly recommended. This will require design consideration to be given to the bridge barrier, rail and treatment (e.g. opportunity for cultural expression). This should also include top rail design to allow for views out from this structure across the landscape within allowable safety standards. For example, open rails to maximise the views from the bridge to provide the least disruption to the motorist's view. Similarly as pedestrians and cyclists may be likely to travel over the bridge, it is desirable to provide space where they can also safely stop and enjoy the view.

## **5.4 Other effects in respect of users of the proposed Highway**

The following additional effects will occur across the Project that relate to design issues addressed in the LEDF.

### **5.4.1 Wire rope Barriers (LEDF section 5.2.9)**

The immediate highway roadside will include a standard wire rope safety barrier. The posts of this barrier will have a galvanised finish. This grey galvanised finish as well as the galvanised wire rope is expected to blend with the adjoining papa rock face. While reflective and safety markings will be clearly visible the barrier post themselves will not be painted (especially white) and will be visually recessive.

### **5.4.2 Cut face rock drape (LEDF section 5.1.4)**

An open mesh galvanised drape will be installed for 65 degree upper rock cut areas to arrest rock fall and direct it to the 3m rock fall margin at the base of cuts over 20m.

It is recommended, where possible, that to maintain a scenic highway aesthetic this drape does not extend below the 65/85 degree cut interface. This means that the drape will be a relatively unobtrusive element on the naturalised road side cut faces.

### **5.4.3 Cut face drainage**

In some areas drainage channels (or flumes) will be required to allow for and direct storm-water directly over and down rock face cuts. In such instances pipe flumes or half pipes will not be used in preference for natural rock cut channels or natural channels that are stabilised.

Considering all of the above measures the urban design of these structures is considered appropriate for the environment of which they are a part.

### **5.4.4 Ancillary Structures**

#### **5.4.4.1 Hydrant Tanks**

A set of three hydrant tanks (6m diameter X 4.5m height) are proposed on the existing SH3 stopping area near the Mt Messenger summit. These tanks will hold water for firefighting purposes for the tunnel. The area around these tanks will provide sufficient space for landscape planting to help visually integrate them with the immediate site surrounds (see section 5.2.5 LEDF). This area is expected to be developed further through detailed design phases of the Project.

#### **5.4.4.2 Tunnel Control Building**

A small (8.6m X 4.9m X 3.5m) building is proposed on the fill area to the immediate south of the southern tunnel portal (see section 5.2.7 LEDF and MMA-DES-UDL-E1-DRG-1006, Landscape Plan Sheet 6). This building will accommodate the operations equipment for the tunnel. This building will be set into the proposed fill slope to reduce its relative vertical appearance in relation to the road corridor. An area of screen planting is also proposed to screen the building from the highway.

Both of the hydrant tanks and the Tunnel Control Building are expected to be appropriately integrated into the landscape through the detailed design phase of the Project.

#### **5.4.5 Journey Experience and Scenic Amenity**

The future of the existing SH3 is still under discussion but it could provide walking and cycling opportunities as well as access to bush tracks and properties. Opportunities for stopping areas on the bypass will also be explored during the detailed design phase and in accordance with the NZ Transport Agency's Highway Stopping Places Strategy. The preliminary identification of potential stopping places is indicated in the LEDF (section 6 – Preliminary Landscape Concept Plans). Overall these options are seen as positive design opportunities and potential enhancements.

### **5.5 Visual Amenity and Visual Effects**

Five indicative viewpoints have been selected to inform an assessment of visual effects of the Project (refer to Viewpoints 1–5 in Appendix A). In the north the alignment follows a remote and enclosed valley and in the south an equally remote south-facing slope area. As such the visibility of the Project is limited to a small viewing audience, which reflects the sparsely populated settlement patterns of the wider Project area.

For the purposes of the visual assessment below no ecological revegetation planting has been assumed (eg as a requirement for vegetation removal). However, there is considerable opportunity for such planting throughout the proposed corridor and with the proposed designation. As discussed above, the intention is to carry out extensive ecological revegetation through the Lower Mangapepeke Valley section of the Project. That planting will further enhance the natural landscape character of the project area and as a consequence further assist in the visual integration of the Project within its immediate landscape setting.

#### **5.5.1 Viewing audiences**

As noted in the District Landscape Assessment, the wider landscape is remote with viewing audiences limited to a small number of rural residential dwellings and to SH3 users.

Settlement patterns and the location of rural dwellings is determined by the access afforded by the existing SH3 corridor. There are three rural dwellings that will have views of limited sections of the proposed alignment. These views are strongly influenced by dynamic terrain through which the alignment passes. These properties are:

- 3072 Mokau Road in the north;

- 2750 Mokau Road on the inter-valley ridge; and
- 2528 Mokau Road in the south (mid-Mimi Valley).

This assessment presumes that the dwellings at these properties will remain in place through and following the construction of the Project.<sup>8</sup> Apart from these properties the proposed alignment is otherwise:

- visually contained within the confined and remote Mangapepeke Valley in the north;
- is entirely concealed as it passes under the inter-valley ridge (tunnel);
- traverses the south facing Mimi Valley slopes through a series of contained cuts; and
- ties into the existing corridor environment in the south with limited visible change.

In this regard, and notwithstanding potential future road users, the potential viewing audiences for the proposal are limited to three existing properties.

This is discussed further in the following assessment of the following viewpoints (refer to Appendix A).

### 5.5.2 Viewpoint One

Viewpoint One illustrates the highway looking south from the northern tie-in. This image approximates a southbound view for the travelling public.<sup>9</sup>

The view illustrates the proposed highway as it transitions from a southbound alignment, following open pastoral valley flats to the immediate north of the project, into the Mangapepeke Valley section on a more southeasterly alignment. The natural bush covered hill slopes that frame the lower valley pastured flats predominate in this view with strong natural landforms and consistent unbroken skylines. The toe slope rock cut (centre frame) creates a minor hill landform which echoes the slope profile of the larger spur to the west and eastern slopes providing coherence between modified and natural landforms. This is a function of applying cut slope angles that reflect the surrounding landform driven by the technical cut and natural slope tolerances of the underlying papa material.

For example, the eastern side of the alignment (left of frame) cut slopes angles illustrate a relatively consistent slope of approximately 65 degrees, reflecting the wider character of the surrounding hill country. This in turn is reinforced by the naturalised vegetation patterns of the immediate roadside. These successional vegetation patterns bring a bush character down to the immediate roadside. It is assumed that similar vegetation patterns will emerge over time for the proposed highway cuts in the same way they have done for the existing highway assisted by as proposed stabilisation planting.

*Visual Effect Summary:* the visual effects of highway cut are assessed as low mitigated by the integration of slope angles, the surrounding and dominating hill country backdrop and likely natural revegetation of these cut faces over time.

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<sup>8</sup> This is a 'worst case' assumption in terms of the visual effects of the Project.

<sup>9</sup> Note Viewpoint One was taken from the western side of the road for safety reasons

### 5.5.3 Viewpoint Two

Viewpoint Two illustrates the northern tie in area as seen from the west and the existing SH3 alignment. It has been assumed that the existing SH3 pavement has been left “as is” in this image.<sup>10</sup>

This view shows the most northerly cut section from the west, illustrating the larger eastern cut face in the foreground context of the minor hill landform. In this view this minor hill screens this cut as well as the highway itself. The property at 3072 Mokau Road can also be seen right of frame and again the minor hill landform will help to screen the larger eastern cut slope as well as the highway and associated vehicle movements. It is noted however that the property at 3072 Mokau Road has a view of the existing SH3 highway.

Amenity planting is proposed on the western roadside boundary to the south of the first cut (right of frame) with a recommendation for patches of suitable tree species planting (for example Manuka and Kahikatea) This planting can be placed to further visually integrate the highway and screen northbound views from 3072 Mokau Road should this be required.

It is noted that the southern extent of the most northerly cut terminates in the south roughly parallel with the dwelling at 3072 Mokau Road. In this regard headlight glare and daytime visibility of southbound traffic will be well screened from views from this property by the minor hill landform.

As above the Project will also be further integrated by successional re-vegetation of cut slopes, as well as by the slope stabilisation and planting of adjoining moderate soil slopes which is expected to assist this natural re-vegetation process.

*Visual Effect Summary:* Moderate– low visual effects of highway cut mitigated by remaining minor hill landform, surrounding predominate hill county backdrop and likely natural revegetation over time.

### 5.5.4 Viewpoint Three

Viewpoint Three illustrates a private viewpoint from 2750 Mokau Road (northern deck area). The view illustrates partial visibility of a short section of the Project that being the upper Mangapepeke fill and associated cuts. The natural landscape character of the surrounding bush hill country predominates including views across to Mt Messenger and expansive northerly hill country views with uninterrupted ridgelines extending northwards into the distance.

The highway alignment itself is in a recessive location keeping low in the landscape and following the general form of the Upper Mangapepeke Valley. Cut faces are consistent with the natural slope angles (as discussed previously (VP1)) and the upper valley fill sits comfortably within the containing landforms of the surrounding steep hill slopes and spurs. The most notable visual effect from this viewpoint location will be distant headlight visibility at night for southbound traffic. This can be partially mitigated by planting of the eastern fill slope south of the main cut. Vegetation clearance, earthworks and roadworks will also be

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<sup>10</sup> This is a ‘worst case’ assumption in visual impact terms.

visible during the majority of the 3 year construction period (construction visual effects are discussed below).

*Visual Effect Summary:* Low visual effects of highway mitigated by the visual exposure of a limited roadway section and the recessive location of the Project in the wider context of the upland bush hill country. It may also be possible to screen the particular line of sight to this section of the project by foreground planting on 2750 Mokau Road should this be appropriate and acceptable to the property owners. If this were to be agreed then the visual effects of the proposal from this viewpoint would be negligible.

#### **5.5.5 Viewpoint Four**

Viewpoint four illustrates an indicative northerly view from 2528 Mokau Road – a private viewpoint. In this view, the road corridor itself is a relatively recessive element generally taking a lower alignment than the current SH3 corridor. The proposed alignment will be visible in the context of a working rural landscape that includes the influence of existing farm buildings and structures as well as the mixed vegetation patterns of the Mimi Valley.

The most visible elements of the Project in this view will be the south facing cuts (right of frame). However these cuts are expected to take on a naturalised appearance similar to existing south facing cuts on SH3 where successional re-vegetation has occurred.

Vegetation clearance, earthworks and roadworks will be visible during the majority of the 3 year construction period.

*Visual Effect Summary:* Moderate– Low visual effects of highway moderated by the influence of the existing SH3 corridor and generally modified character of the working rural landscape context. As with Viewpoint Three above, a farm landscape plan for screen and amenity planting reflecting the farms current mix of exotic tree species to screen a particular line of sight to this section of the project could be discussed with the property owners. If this were to be agreed then the visual effects of the Project from this viewpoint would be low.

#### **5.5.6 Viewpoint Five**

Viewpoint five illustrates an indicative north easterly view from the existing SH3 corridor. This view shows the general design principle of keeping low in the landscape with the alignment following the north–westerly edge of the Mimi Valley. Changes to the foreground pavement are visible yet entirely consistent with the existing highway and there is a minor visible landscape change associated with the south facing cut faces.

This alignment maintains the rural character of the adjoining valley pastured flats as well as the wider character of the surrounding hill country which in turn frames the lowland valley including the proposed alignment.

*Visual Effect Summary:* Low visual effects of highway moderated by the influence of the existing SH3 corridor and generally modified character of the working rural landscape context.

### 5.5.7 Temporary visual and amenity effects during construction

Temporary effects are expected to last the duration of the construction period, lasting up to three years.

The construction methodology of the project sets out a number of construction zones such that these effects will be localised to a number of staged areas. It is also noted that the proposal will be constructed predominantly “off line” with areas of major earthworks undertaken in remote areas not visible from the SH3 corridor. This excludes the northern and southern tie-ins where this work will be visible to the existing SH3 travelling public. In this regard the majority of the construction effects will be contained within the site and will be low.

Temporary stockpile areas proposed for valley flats that will visibly contrast with the valley flats during the construction period but these will be removed entirely when no longer required. This will maintain the landform integrity of valley flats and represents a low effect.

There are two properties in particular that are in relatively close proximity to the Project: the 3072 Mokau Road in the north; and 2528 Mokau Road in the south. The existing SH3 corridor is visible from these properties, however they will also be exposed to construction activity through the 3 year construction period. In this regard the wider rural amenity of these two farms will be affected by this construction activity. The Baird property will also be exposed to the visual effects throughout the construction period, but to a lesser extent because of the viewing distance.

However it is understood that amenity matters such as noise, vibration, dust, and lighting will be undertaken within the relevant standards and controlled through the application of an agreed Construction Environmental Management Plan. This plan and the stakeholder and communications plan is expected to be an appropriate mechanism for addressing these effects.



## 6 Design Measures to avoid, remedy or mitigate potential adverse effects

### 6.1 Route Selection – Avoidance of Potential Adverse Landscape, Natural Character and Visual Effects

The route selection process (refer Volume 4 to AEE) avoided potential adverse effects on the following significant landscape areas and features:

- The intact wilderness area of the Waipingao Valley;
- The area west of Mount Messenger that is of particular significance to Ngāti Tama and the wider community reflected in the Parininihi Protection Project;
- The ‘Regionally Significant Landscape’ that has been identified west of SH3;
- The high quality Mimi Valley Kahikatea wetland; and
- The landmark peak of Mount Messenger – including the picturesque tunnel and other features of the existing Mount Messenger section of SH3.

### 6.2 Project Design

The design of the Project also reduces potential adverse effects by means of the following:

- Following the topography by connecting two valleys and crossing a single ridge (rather than routes that followed spurs or crossed more than one ridgeline);
- Adopting a tunnel to pass through the ridgeline, reducing potential effects on landform and bush; and
- Aligning the highway along the edge of the valleys, following the existing landscape patterns.

#### 6.2.1 Positive effects

By ‘fitting in’ with the natural and human landscape patterns, the proposed alignment also provides the conditions for an aesthetically pleasing experience for users of the realigned highway. It is considered the new route will be a scenic corridor. In particular, the tunnel through the main ridge, and the views associated with the exit portals, will be a positive waymark on the highway, and will echo the signature tunnel on the existing Mount Messenger section of SH3. The tunnel in particular also provides an opportunity to appropriately reflect cultural landscape associations as a further opportunity to affirm a positive associative landscape outcome.

In summary, the route selection and alignment process is the key measure in avoiding and reducing potential adverse landscape, natural character and visual effects. Measures to further mitigate the residual adverse effects are described in the LEDF, and discussed below.

## 6.3 Further Mitigation – Design and Rehabilitation Measures

Measures to mitigate the residual adverse landscape, natural character and visual effects are set out in the LEDF. It is recognised that the LEDF is a “living document” and will evolve through the course of the project including moving into the detailed design phase including wider consultation. The LEDF describes the existing landscape characteristics and qualities, the ‘Design Approach’ (principles, strategies and required outcomes), and specific design measures to achieve such outcomes. It is recommended that this is developed in accordance with the relevant NZ Transport Agency guidelines including Appendix 2 of the “Bridging the Gap” NZ Transport Agency Urban Design Guidelines and the NZ Transport Agency Environmental Design Guidelines (where appropriate).

### 6.3.1 Design Principles

Section 4 of the LEDF sets out the **principles and design strategies**. The four **overarching principles**<sup>11</sup> are:

- *‘Keeping low in the landscape’* – thereby reducing potential adverse effects on landform, bush and views;
- *‘Letting the landscape speak’* – which means reinforcing the natural landscape patterns, and designing an uncluttered highway that allows the surrounding landscape to provide the aesthetic amenity;
- *‘Recognising culture’* – which means recognising human relationship to the land, including continuing the partnership with Ngāti Tama through the detail design process to express their mana whenua and kaitiakitanga; and
- *‘Connecting ‘Landscape’ and ‘Ecology’* – responding to and reflecting natural elements, patterns and processes through design.

### 6.3.2 Design Strategies

The **design strategies** that follow from these principles are:<sup>12</sup>

- Following the **‘grain’ of the landscape**. Aligning the highway to follow the detailed topography and landscape patterns, such as the edges between bush and pasture, and the edges between valley floor and hill slopes.
- Expressing the **cultural footprint and values** of mana whenua in the landscape.
- Creating an **aesthetically pleasing experience** for travellers that derives from the highway following and ‘fitting in’ with the natural landscape patterns.
- **Avoiding localised natural features** where practicable, such as significant trees, waterbodies and distinctive landforms.
- **Minimising stream crossings** by hugging the true right side of the Mangapepeke Valley.

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<sup>11</sup> LEDF, page 34

<sup>12</sup> LEDF, page 34

- Integrating cut and fill batters into the landscape were possible, for instance by designing cut batters to echo natural slope angles, and promoting natural re-colonisation by indigenous pioneer species.
- Protecting and rehabilitating natural processes and patterns, including restoring natural riparian vegetation along the Mangapepeke Stream.
- Promoting natural succession as a means of landscape rehabilitation.
- Creating a straight-forward and uncluttered aesthetic to the highway by such means as attention to the details of the highway edge, and a refined and pared-back suite of elements (such as barriers, signs, drainage structures).

### **6.3.3 Design Outcomes**

**Section 5** of the LEDF describes details and specific outcomes for various elements of the Project. These include:

#### **6.3.3.1 Earthworks**

To enable outcomes that work with the wider slope patterns of the steep bush hill county terrain avoiding an overly ‘engineered’ appearance or small remnant roadside landforms and promoting as naturalistic an appearance as possible while maintaining flexibility for cut slope angles. This will require design detail for:

- Cut batters;
- Fill slopes;
- Batter treatment materials;
- Cut batter water flumes; and
- Typical cut and fill sections.

#### **6.3.3.2 Structures and Highway Elements**

To enable outcomes where the built elements are complementary to and reflective of the Project’s natural and cultural landscape setting while avoiding visually discordant elements or patterns. The key built elements in this respect include:

- Bridge;
- Tunnel portals and threshold;
- Tunnel control building;
- Hydrant tank;
- Safety barriers;
- Edge treatment; and
- Rockfall barriers.

#### **6.3.3.3 Streams, wetlands and storm water**

To enable outcomes that successfully integrate stormwater management across the project with the natural landscape setting:

- Water sensitive landscape response;

- Stream diversion;
- Stormwater ponds;
- Swales and stormwater transport.

#### 6.3.3.4 Planting and revegetation

To enable successful integration of the immediate roadside with the wider bush hill country landscape, through terrestrial and riparian ecological mitigation planting:

- Revegetation strategy;
- Revegetation process;
- Rehabilitating engineered landform;
- Mitigation planting; and
- Integration with ecology.

## 6.4 Summary of Effects and Mitigation

The design measures set out in the LEDF are integrated, so that the design as a whole mitigates a range of adverse effects. The correlation between adverse effects and their mitigation measures is summarised in Table 6.1 below.

**Table 6.1: Summary of effects and mitigation**

Adverse effect	Mitigation measures
<p><b>Earthworks</b> Physical and visual impact of cut and fill batters</p>	<ul style="list-style-type: none"> <li>• Reducing earthworks extent by aligning the highway to follow topography</li> <li>• Avoiding as far as practical impacts on streams and bush by locating fill in modified pasture and contouring to merge with natural landforms</li> <li>• Minimising the visual impact of cut batters eg by echoing the natural slopes of cliffs in the area</li> <li>• Minimising the visual impact of fill batters eg by merging with contours</li> <li>• Rehabilitating cut batters by promoting re-colonisation by indigenous species</li> <li>• Replanting fill slopes with species indigenous to the area and naturally found in the setting</li> <li>• Aligning the highway to follow the topography to minimise the amount of vegetation removal and stream diversion.</li> </ul>
<p><b>Natural Character</b> Physical disturbance of streams and bush</p>	<ul style="list-style-type: none"> <li>• Avoiding specific features such as the Mimi Valley Kahikatea wetland</li> </ul>

Adverse effect	Mitigation measures
	<ul style="list-style-type: none"> <li>• Minimising crossings of the Mangapepeke Stream by hugging the true right of the valley</li> <li>• Creating a naturalised channel for the unavoidable diversion in the headwaters of the Mangapepeke Stream</li> <li>• Mitigating effects by rehabilitating the riparian margins of the Mangapepeke Stream in the highway corridor</li> <li>• Bridging the tributary of the Mimi Stream</li> </ul>
<p><b>Landscape and Visual Amenity</b></p> <p>Visual intrusion of the highway into a rural and natural setting</p>	<ul style="list-style-type: none"> <li>• Avoiding a skyline cutting, and reducing elevation of the highway, by passing through ridge in tunnel</li> <li>• Creating a visually uncluttered highway that minimises its distraction from the natural landscape by (i) adopting a simple and pared-back suite of elements, (ii) simplifying the configuration of elements along the highway edge, and (iii) reducing the left-over space between the edge of the seal and vegetation</li> <li>• Strengthening natural vegetation patterns (such as replanting the course of the Mangapepeke Stream) to offset the presence of the highway</li> <li>• Celebrating the tunnel in a way that recognises a key landscape feature by (i) creating attractive portals that express design excellence, (ii) rehabilitating the interface between portals and bush, and (iii) incorporating design measures to express the cultural presence and narrative of Ngāti Tama.</li> </ul>

## 6.5 Conclusion on Effects

The measures summarised above are considered ‘**best practice**’. They seek firstly to avoid adverse effects, secondly to reduce their magnitude and, thirdly, to mitigate the residual effects through design. The measures are effective and efficient because they:

- Integrate the different disciplines (highway design, ecology, landscape); and
- Integrate design measures with the natural processes and patterns of the broader landscape.

As discussed, any new or re-aligned highway will inevitably have adverse landscape, natural character and visual effects. The proposed Project substantially avoids and reduces potential adverse effects by means of the route-selection process and detailed alignment and design of the highway and specific mitigation measures. Overall the Project will have moderate – low landscape and visual effects and moderate natural character effects.

As well as reducing potential adverse effects, the measures above will lead to a **positive driving or user experience** on the re-aligned section of highway. The experience will be of

an alignment that weaves its way 'naturally' through scenic bush valleys and passes through a tunnel at a landmark location.

The design will also have positive effects through the opportunity to develop and incorporate an appropriate cultural narrative and design expression at the portals of the tunnel as an important landmark on SH3 in collaboration with Ngāti Tama.

The design principle of connecting 'Landscape' and 'Ecology' by responding to and reflecting natural elements, patterns and processes through design represents a method for the ecological mitigation measures proposed to support the highway landscape design and treatments.

Overall, it is considered that the landscape, visual and natural character effects of the Project have been appropriately addressed through the measures outlined above.

# Appendices



## Appendix A: Photo Simulations

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