



Te Ahu a Turanga; Manawatū Tararua Highway Notices of Requirement for Designations Volume Two: Assessment of Effects on the Environment and supporting material





PART J:
APPENDICES

APPENDIX TWO:
PRELIMINARY
ENVIRONMENTAL
& CULTURAL
DESIGN
FRAMEWORK

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TE AHU A TURANGA; MANAWATŪ TARARUA HIGHWAY PROJECT

Environmental & Cultural Design Framework

(Preliminary Urban and Landscape Design Framework)

October 2018



Document Quality Assurance

Bibliographic reference for citation: TE AHU A TURANGA; MANAWATŪ TARARUA HIGHWAY PROJECT ENVIRONMENTAL AND CULTURAL DESIGN FRAMEWORK (Preliminary Urban and Landscape Design Framework). Prepared by Boffa Miskell Limited for New Zealand Transport Agency	
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Status:	Revision / version: 04 Issue date: 29.10.2018

File ref: W1804_ECDE_Draft_Version_04

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CONTENTS

1. Introduction		
1.1 Introduction	2	
1.2 Role And Purpose	2	
1.3 Structure Of The Document	3	
1.4 Consultation	3	
1.5 Iwi Crown Partnership and Treaty of Waitangi Settlements	3	
1.6 Background Documents	4	
2. Corridor Design Principles		
2.1 Tangata Whenua Principles	8	
2.2 Project Specific Principles	10	
2.3 Project Vision	12	
2.4 Project Constraints and Opportunities	13	
3. Project Elements and Features: Emerging Design Outcomes		
3.1 Structures	16	
3.2 Ecologically Sensitive Areas	17	
3.3 Earthworks / Spoil Disposal	17	
3.4 Water Bodies	19	
3.5 Revegetation	20	
3.6 Urban Connections (Intersections / Roundabouts)	20	
3.7 Stopping Places	20	
3.8 Walking and Cycling	20	
4. Project Sectors		
4.1 Project Sectors and Focus Areas	22	
Appendix A: Environmental & Cultural Context		
A.1 Heritage	24	
A.2 Cultural Values and Narratives	26	
A.3 Sites of Significance to Tangata Whenua	27	
A.4 Landscape (Slope, Topography, Landcover, Landuse)	28	
A.5 Hydrology	31	
A.6 Ecology	32	
A.7 Protected Areas	33	
A.8 Landscape Character Areas	34	
Appendix B: Design Review Template		
B.1 Design Review Template	39	

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1. Introduction



1.1 Introduction

A major slip in the Manawatū Gorge (the Gorge) in November 2011 and again in July 2017 resulted in the closure of SH3 between Ashhurst and Woodville. The extent of the closure negatively impacted people and communities in the Manawatū, Palmerston North and Tararua regions with a much wider impact across the regions, given the route's national strategic classification¹. The proposed new route runs near the western entry of the closed part of SH3, crossing the Ruahine Ranges north of the Gorge and reconnecting to SH3 at Woodville.

Te Ahu a Turanga (the Project) is to provide a new resilient, safe and efficient connection between the eastern and western sides of the Ruahine and Tararua Ranges. The proposed approximately 12km route is located on the southern foothills of the Ruahine Range, immediately north of the Gorge and south of Saddle Road (Figure 1). This new route will be SH3, replacing the existing State Highway route, which ran through the Gorge. The new route was selected following a multi-criteria analysis of 18 route options. The process involved a consideration of the Project's investment objective, environmental and social impact, and implementability.

The Project incorporates an Environmental and Cultural Design Framework (ECDF) that has been developed following discussion with local iwi, councils and stakeholders through a series of consultation workshops. The ECDF sets out the overarching design principles and 'vision' that will be applied to the final design of the Project.

The ECDF is consistent with the form and content of the preliminary Urban and Landscape Design Guidelines and New Zealand Transport Agency (NZ Transport Agency) Landscape Guidelines.

1.2 Role And Purpose

The ECDF is a 'Living Document' in that it continues to be expanded and refined throughout the life of the Project. The preliminary ECDF provides a design framework within which the design of the proposed Project will be developed. It identifies design principle constraints and opportunities that form the framework that will guide design development.

There are three phases in the development of the ECDF as outlined in Figure 2. The first phase, the planning phase, involves the development of this Preliminary ECDF. It outlines the Project and its context, and identifies the key documents and principles that guide the design development. The Preliminary ECDF is to be lodged with the Assessment of Environmental Effects (AEE). It supports the environmental assessments by demonstrating that the design process will respond to the landscape, ecological and cultural issues identified as Project specific principles.

The second phase of the ECDF (the Draft ECDF), will incorporate the conditions of consent and show how the design is being developed to address the conditions. This will assist with regional consents and consultation with key stakeholders and iwi, by illustrating how effects are being minimised, how some are unavoidable and how they are being mitigated.

The third and final phase of the ECDF will contain developed design solutions in response to the issues (Manawatū Gorge Alternative Routes report)

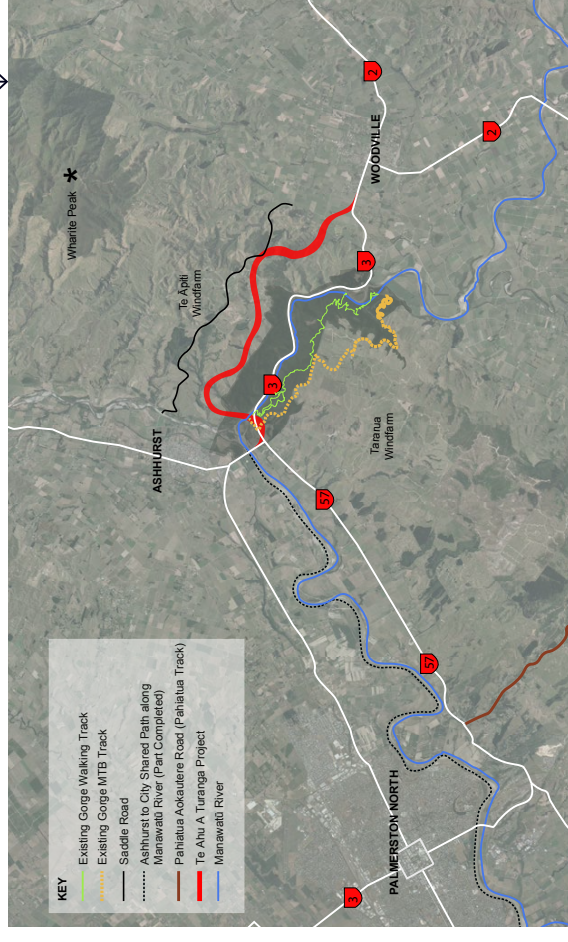
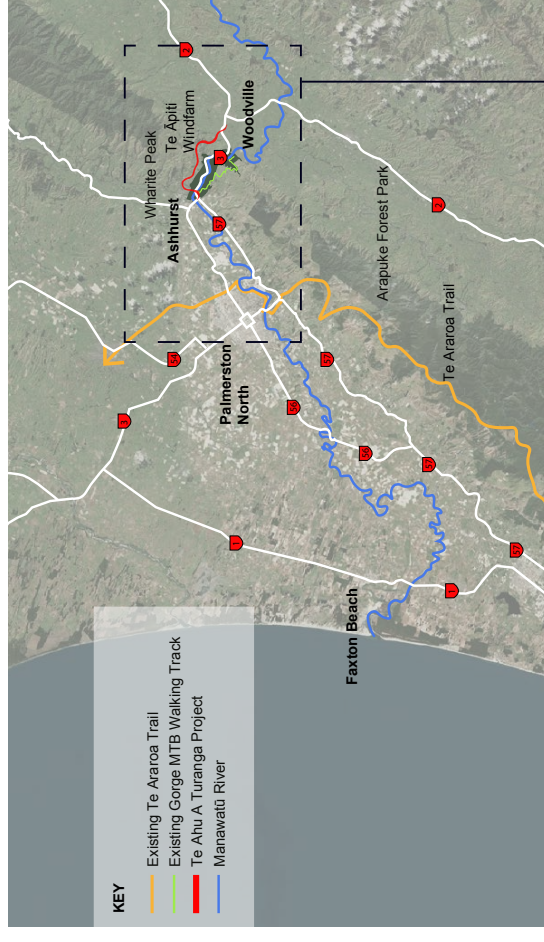


Figure 1: Location of Te Ahu A Turanga Project

identified. Detailed design and environmental and construction management plans will be linked to the ECDF. They will be approved by the NZ Transport Agency's Urban Design Advisor and by territorial authorities as part of the Outline Plan of Works. The ECDF will continue to be a reference document throughout the construction and operational phases of the Project.

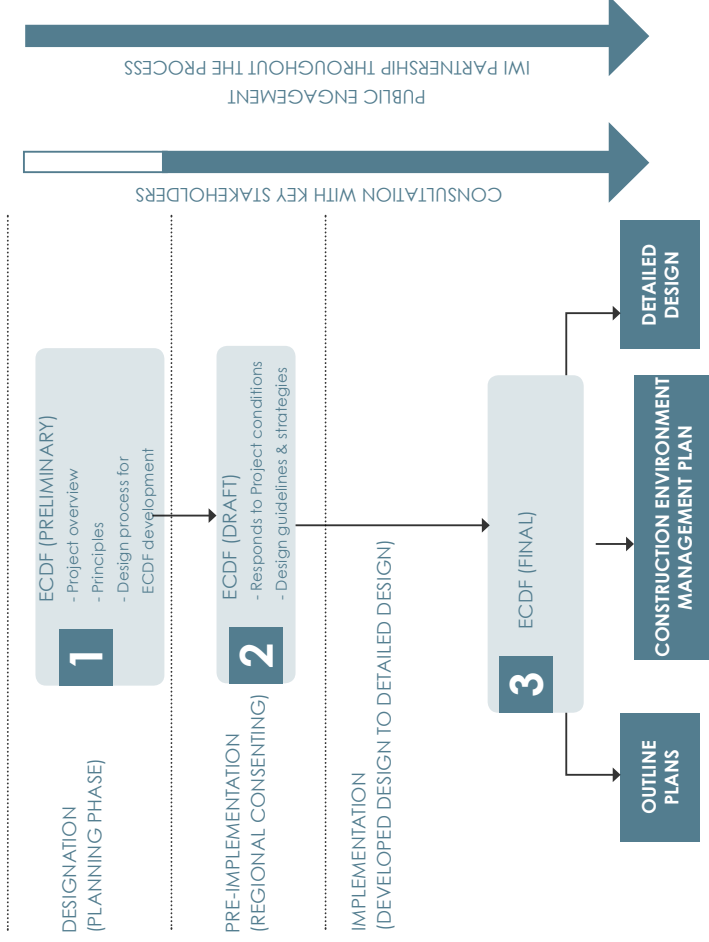


Figure 2: ECDF development process. Regional consents may be sought in a staged manner during stages 2 and 3 as shown. Staging would respond to the desirability to commence construction early and to get the road open as quickly as possible.

1.3 Structure Of The Document

The preliminary version of ECDF contains 4 chapters and Appendices. The first chapter contains the introduction, and Project description, and sets out the purpose and role of the ECDF, providing design guidelines that will be further developed throughout the consenting detailed design and construction phases of the Project.

The second chapter contains tangata whenua principles (Te Aranga design principles) as well as high level corridorwide design principles. Corridorwide environmental principles are based on connectivity, human landmarks, landscape and natural features, environmental health and amenity.

They will provide a reference for checking that the future design document is addressing the key environmental and cultural issues of the Project. The Project constraints, opportunities map and Project vision summarise the key issues and opportunities identified in the planning phases of the Project.

The third chapter lists specific design principles that are required to be addressed during the detailed design phase. These principles are based on the NZ Transport Agency's urban design and landscape documents 'Bridging the Gap' and 'Landscape Guidelines'.

The fourth chapter illustrates the Project sectors and also identifies focus areas where specific solutions need to be considered in the detailed design phase.

Appendix A contains the landscape and environmental and cultural context.

Appendix B contains a design review template to be used as a check that the future design responds to the corridorwide design principles.

1.4 Consultation

An intensive consultation process has been undertaken with the community and key stakeholders. This has involved communicating on a regular basis and seeking opportunities for dialogue and information sharing. To date, public open days have been held in Woodville, Ashurst, Dannevirke, Pahiatua and Palmerston North. Other locations, in particular for regional connectivity consultation, can be considered as the Project continues to engage with key stakeholders and the public.

Meetings and workshops involving key stakeholders include three district councils and Horizons regional council as well as government departments such as Department of Conservation (DOC) and Land Information New Zealand (LINZ), the Te Āpiti Governance Group and the Accessing Central New Zealand strategy group.

The NZ Transport Agency recognises Māori as partners, and building lasting relationships with tangata whenua is a priority. We will support this through early, no surprises engagement, and by taking a long-term view. We will prioritise face-to-face communication and awareness having respect for kawa (protocols) and tikanga (customs).

This ECDF has been developed with input from iwi. This document contains Matauranga Māori principles and cultural values, and has considered outcomes of engagement with iwi. The intention is to involve tangata whenua in the development of future versions of the ECDF and in design decisions as the Project is developed.

1.5 Iwi Crown Partnership and Treaty of Waitangi Settlements

The iwi and hapū groups identified as having interests in and around the area affected by the Project have each been involved in Treaty settlement negotiations, through which the Crown has or will acknowledge and apologise for various historical breaches of the Treaty of Waitangi and provide commercial and cultural redress. Based on information set out in the relevant publicly available

legislative and deed of settlement documents, the current status of these settlements is summarised briefly below.

1.5.1 Rangitāne o Manawatū

The Rangitāne o Manawatū Claims Settlement Act came into force in December 2016. This Act, and the Deed of Settlement and accompanying documents, describe the significant and abiding relationship between Rangitāne o Manawatū and the land that is identified in the relevant documents as their 'area of interest', which includes land over which the Project is proposed to be built.

This relationship is described at various stages throughout the legislation, including in the Summary of Historical Account and Acknowledgements (at sections 8 and 9), as well as through the background, Deeds of Recognition, and Statements of Association contained within the Deed of Settlement itself. These descriptions of the relationship between Rangitāne o Manawatū and its area of interest provide important context for the detailed design of the Project going forward.

In particular, it is important to note that the statements of association include the following potentially relevant areas:

- Manawatū Gorge Scenic Reserve (including Te Ahu a Turanga)
- Manawatū River and tributaries
- Pohangina River

1.5.2 Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua)

The Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) Claims Settlement Act came into force in August 2017.

This Act, and the Deed of Settlement and accompanying documents, describe the significant and abiding relationship between Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) and the land that is identified in the relevant documents as their 'area of interest', which includes land over which the Project is proposed to be built.

This relationship is described at various stages throughout the legislation, including in the Summary of Historical Account and Acknowledgements (at sections 8 and 9), as well as through the background, Deeds of Recognition, and Statements of Association contained within the Deed of Settlement itself. These descriptions of the relationship between Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) and its area of interest provides important context for the detailed design of the Project going forward.

In particular, it is important to note that the statements of association include the following potentially relevant areas:

- Manawatū River and its tributaries within the Rangitāne Area of Interest.

1.5.3 Ngāiti Kahungunu ki Wairarapa Tāmaki Nui-ā-Rua

The Crown and Ngāiti Kahungunu ki Wairarapa Tāmaki Nui-ā-Rua initiated a Deed of Settlement on 22 March 2018. The Deed is now with the claimant group for ratification. The Deed of Settlement and accompanying documents describe the significant and abiding relationship between Ngāiti Kahungunu ki Wairarapa Tāmaki Nui-ā-Rua and the land that is identified in the relevant documents as their 'area of interest', which includes land over which the Project is proposed to be built.

This relationship is described at various stages throughout the Deed of Settlement, including through the background Deeds of Recognition and Statements of Association contained within it. These descriptions of the relationship between Ngāiti Kahungunu ki Wairarapa Tāmaki Nui-ā-Rua and its area of interest provide important context for the detailed design of the Project going forward.

1.6 Background Documents

The following documents and relevant legislation provide the background that supports the development of the ECDF:

New Zealand Urban Design Protocol (2005): Provides a conceptual platform of urban design values to create safe, well connected, accessible and inclusive places.

Resource Management Act (1991).

Land Transport Management Act (2003, reprint as October 2017): requires the NZ Transport Agency to "exhibit a sense of social and environmental responsibility" in meeting the statutory objective of operating a State highway network.

New Zealand Transport Agency Environmental Plan (2008): specifies how the NZ Transport Agency's staff and suppliers are expected to address key social and environmental effects. Relevant objectives include:

- Social responsibility: To enhance and contribute to community cohesion.
- Culture and heritage: To pro-actively limit the disturbance of significant cultural and heritage features along State highways. To show respect for historic buildings we own to maintain their integrity.
- Visual quality: To incorporate multi-purpose landscaping as an integral part of all new State highway construction projects. To improve the visual quality of the existing State highway network.
- Promote biodiversity on the State highway network.

1.6.1 NZ Transport Agency Environment and Urban Design Guidelines

New Zealand Transport Agency Environmental and Social Responsibility Standard (2016): Requires consultants engaged on highway projects to consider social and environmental factors identified in legislation and the NZ Transport Agency's policies and guidelines.

Bridging the Gap: NZ Transport Agency Urban Design Guidelines (2013): The Guidelines set out 10 over-arching urban design principles, and guidance on specific elements of highways including bridges, retaining walls, earthworks, noise barriers, highway furniture, stormwater management devices, signalised junctions, roundabouts, tunnels, stopping places, landscape planting and public art.

- Context sensitive and place based approach
- Champion low impact design
- Facilitate green infrastructure and landscape integration
- Deliver a quality user experience
- Understand the physical conditions
- Low maintenance and whole of life value
- Safety in design
- The right plant in the right place
- Facilitate community engagement and a collaborative approach
- Promote biodiversity and build in resilience



Figure 3: Bridging the gap: NZ Transport Agency Urban Design Guidelines

New Zealand Transport Agency Landscape Guidelines (Final Draft) (2014): The Guidelines similarly set out 10 over-arching principles, and guidance on (1) design considerations (including safety and extent of landscaping), (2) landscape treatments (including topsoil, planting, and stormwater) and (3) maintenance requirements.

- Designing for the environmental and cultural context
- Maintaining local connectivity
- Integrating transport and land use
- Respecting cultural heritage values
- Contributing to good urban form
- Design to reduce disruption to natural landscapes, vegetation and biodiversity
- Integrating all modes of movement
- Creating a positive road user experience
- Supporting community cohesion
- Achieving a low maintenance design



Figure 4: NZ Transport Agency Landscape Guidelines

Bridge Manual, New Zealand Transport Agency (Third edition, 2016): Section 2.6 Urban Design refers to aesthetics / functions, urban design assessment for bridges and major retaining walls, appearance and an urban design bridge assessment matrix.

- 1 Manawatu Gorge Alternative Routes report, <https://www.nzta.govt.nz/assets/projects/sh3/manawatu-gorge-2017-closure/FSW-198-SH3-Manawatu-Gorge-Alternative-Route-report-2012-11.pdf>
- 2 www.mfe.govt.nz/sites/default/files/urban-design-protocol-colour.pdf
- 3 <https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines-environment-and-social-responsibility/national-standards-guidelines-and-specifications/esr-standard>
- 4 www.nzta.govt.nz/resources/bridging-the-gap/
- 5 www.nzta.govt.nz/resources/nzta-landscape-guidelines/
- 6 www.nzta.govt.nz/resources/bridge-manual/bridge-manual.html

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2. Corridor Design Principles



2.1 Tangata Whenua Principles



Figure 5: Te Ahu A Turanga

An objective of the Te Aranga Māori Design Values and Principles is to enhance the protection, reinstatement, development and articulation of mana whenua cultural landscapes and to enable all of us (mana whenua, mataawaka, tauwi and manuhiri) to connect with and to deepen our collective appreciation and 'sense of place'. The following core Māori values have informed the development of the Te Aranga Māori design principles. The outcome-oriented principles are underpinned and guided by these values:

Rangatiratanga

Kaitiakitanga

Manaakitanga

Wairuatanga

Whanaungatanga

Mātauranga

MANA Rangatīhira Authority	NGA HUA / outcome	AHUATANGA / attributes (General)	HE TAUIRA / application (Project Specific)
Whakapapa Names and Naming	<p>The status of iwi and hapū as mana whenua is recognised and respected</p> <p>Māori names are celebrated</p>	<ul style="list-style-type: none"> Provide a platform for working relationships where mana whenua values, world views, tikanga, cultural narratives and visual identity can be appropriately expressed in the design environment. High quality Treaty-based relationships are fundamental to the application of the other Te Aranga principles. Recognise and celebrate the significance of mana whenua ancestral names. Recognise ancestral names as entry points for exploring and honouring tūpuna, historical narratives and customary practices associated with development sites and their ability to enhance sense of place connections. 	<ul style="list-style-type: none"> Reference Treaty and partnership in ECDF. NZ Transport Agency to establish a partnership with tangata whenua. Involve tangata whenua in the design process. Ongoing input through the design and delivering phases.
Taiiao The Natural Environment	<p>The natural environment is protected, restored and/or enhanced</p>	<ul style="list-style-type: none"> Sustain and enhance the natural environment. Local flora and fauna which are familiar and significant to mana whenua are key natural landscape elements. Natural environments are protected, restored or enhanced to levels where sustainable. 	<ul style="list-style-type: none"> Seek to minimise the Project impact on the forests and streams. Where practicable bridge streams and minimise culvert lengths. Landscape and ecological mitigation should enhance existing flora and fauna habitats and connect fragmented forest remnants. Where practicable reuse / recycle waste materials.
Mauri Tu Environmental Health	<p>Environmental health is protected, maintained and/or enhanced</p>	<ul style="list-style-type: none"> The wider development area and all elements and developments within the site are considered on the basis of protecting, maintaining or enhancing mauri. The quality of wai, whenua, ngāhere and air are actively monitored. Water, energy and material resources are conserved. Community wellbeing is enhanced 	<ul style="list-style-type: none"> Ensuring emphasis on maintaining and enhancing ecological habitats and the environmental quality of water and soil to enhance mauri. Careful stormwater management using vegetated swales and constructed wetlands to protect streams from silt during construction and to treat operational stormwater.
Mahi Toi Creative Expression	<p>Iwi / hapū narratives are captured and expressed creatively and appropriately</p>	<ul style="list-style-type: none"> Ancestral names, local tohu and iwi narratives are creatively re-inscribed into the design environment including: landscape; architecture and public art. Iwi / hapū mandated design professionals and artists are engaged where, practicable, in the design process. 	<ul style="list-style-type: none"> Develop opportunities to reference tangata whenua narratives in the design to enhance a sense of place, and ensure iwi appointed Māori design professions are appropriately engaged in the process.
Tohu The Wider Cultural Landscape	<p>Mana whenua significant sites and cultural landmarks are acknowledged</p>	<ul style="list-style-type: none"> Acknowledge a Māori world view of the wider significance of tohu / landmarks and their ability to inform the design of specific development sites. Support a process whereby significant sites can be identified, managed, protected and enhanced. Celebrate local and wider unique cultural heritage and community characteristics that reinforce sense of place and identity. 	<ul style="list-style-type: none"> Tangata whenua values and sites of significance to be identified and incorporated in the ECDF to inform the design. Tangata whenua values and narratives to inform the design and assist with place making.
Ahi Kā The Living Presence	<p>Iwi / hapū have a living and enduring presence and are secure and valued within their rohe</p>	<ul style="list-style-type: none"> Mana whenua live, work and play within their own rohe. Acknowledge the post Treaty of Waitangi settlement environment where iwi presences can include customary, cultural and commercial dimensions. Living iwi/hapū presences and associated kaitiaki roles are resumed within urban areas. 	<ul style="list-style-type: none"> Explore opportunities for tangata whenua to have meaningful roles on the Project such as seed collection, plant vegetation, propagation, environmental maintenance.

Further design items should be reviewed against the Te Aranga Principles. Refer to Appendix B: Te Aranga Design review Template

2.2 Project Specific Principles

The route passes through a diverse landscape with high ecological and tangata whenua values. There is an opportunity to create unique experiences that visitors and the local community can appreciate.

The Project involves the construction of a significant section of new highway and therefore a corridor approach is required that encapsulates system thinking. Refer to NZ Transport Agency Urban Design Guidelines, 'Bridging the Gap' page 18 and 19 for corridorwide design objectives and strategies.

The following corridorwide design principles have been developed to guide the design and development of the Project. The environmental and tangata whenua principles are to be used as a primary means of checking that future design development is addressing the key environmental and cultural issues of the Project.

2.2.1 Connectivity: Reconnecting People And Places

A primary purpose of the Project is to reconnect people and communities, as well as connecting people to the environment, heritage and cultural values of the area.

- **C1:** Reconnect local communities that were disconnected when the Manawatū Gorge was closed.
- **C2:** Connect people to the landscape.
- **C3:** Connect people to existing trails, greenways and recreational facilities.
- **C4:** Landscape and ecological mitigation should retain and connect patches of indigenous vegetation and stream vegetation to enhance habitat and ecological corridors.

2.2.2 Human Landmarks: Respecting The Cultural Landscape

Recognise, protect and (where appropriate) highlight human features in the vicinity of the highway as they are the unique elements that reflect the character of the area.

- **H1:** Sites of significance to tangata whenua.
- **H2:** The historic Manawatū Gorge.
- **H3:** Historic significance of Parahaki Island.
- **H4:** Other landmarks of interest and rural character such as Manawatū River, rural landscapes, Manawatū Gorge Scenic Reserve and remnant indigenous forests.
- **H5:** Celebrate tangata whenua values through Te Aranga Principles.
- **H6:** Consider Māori values and principles in the process of design and construction.

- **H7:** Enable cultural interpretation through early engagement with tangata whenua and stakeholders to develop a collaborative design that responds to cultural values, aspirations and contains stories of place.
- **H8:** Facilitate community engagement across the corridor and in association with developing township gateways.

2.2.3 Landscape and Natural Features: Integrating Infrastructure

Natural features enhance the road user experience as well as protecting the special qualities of the area. Where appropriate and practicable, recognise, protect and highlight natural features in the vicinity of the highway.

- **N1:** Minimise bridge piers in water bodies.
- **N2:** Minimise construction footprints where they impact on indigenous forest and streams.
- **N3:** Avoid change to drainage patterns where they affect indigenous ecosystems.
- **N4:** Restore planted buffers where practicable to address edge effects of fragmented or distributed bush areas.
- **N5:** Landscape and ecological mitigation should be a cohesive and integrated package of activities and outcomes to maximise the environmental benefits, including hydrology, habitat and ecological connectivity.
- **N6:** Architectural features of the Project such as bridges, large cut and fill batters and roundabouts should be designed to enhance the experience of the motorist and not compete with or detract from the landscape.
- **N7:** Provide a consistent suite of highway furniture.
- **N8:** Integrate spoil disposal fill sites and cut and fill batter slopes to fit in with surrounding landforms.
- **N9:** Use monoslopes in preference to benched cuts.
- **N10:** Shotcrete is a least preferred architectural finish.

2.2.4 Environmental Health: Design With Nature

- **E1:** Maintain natural processes, landform, water courses, vegetative cover and land-uses.
- **E2:** Stormwater to be treated.
- **E3:** Strengthen natural vegetation patterns when replanting areas.
- **E4:** Mitigation measures should support the development of resilient ecosystems.
- **E5:** Mitigation planting should include weed and pest plant and animal management.

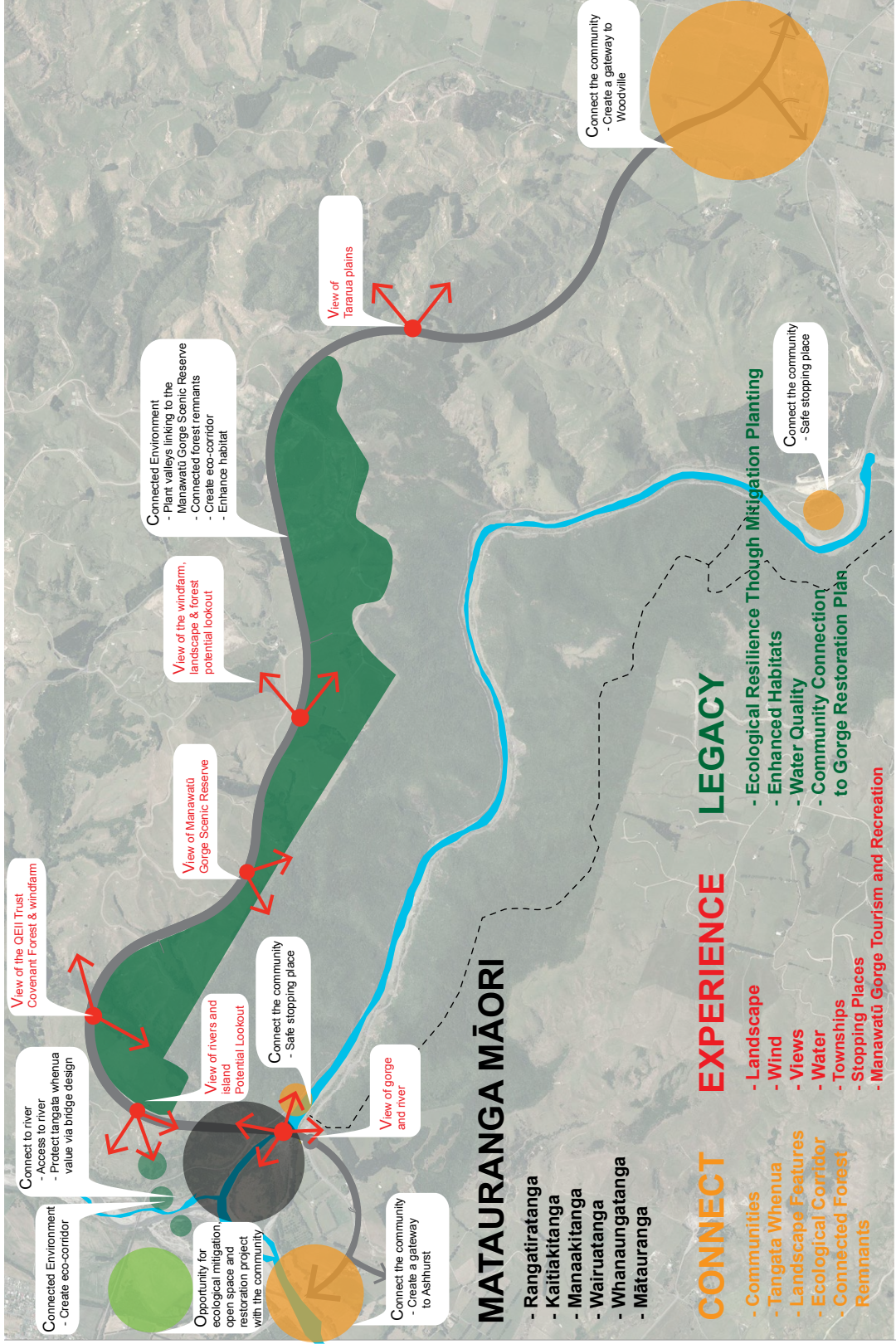
2.2.5 Amenity: Memorable Experience

The design of the highway should integrate in the landscape to enhance the road user experience and reinforce the sense of place.

- **A1:** Enable people to read the landscape by maintaining views of landscape features, exposing cuts into geology, and integrating bafflers with the adjacent landform.
- **A2:** Integrate tangata whenua narratives into the design of structures to reinforce the sense of place.
- **A3:** Walking, cycling and access for recreation should be considered.
- **A4:** Consider providing safe stopping places.
- **A5:** Traffic noise and barriers should be considered when mitigating effect on rural character.
- **A6:** Noise attenuation should have the minimum visual impacts on the landscape.

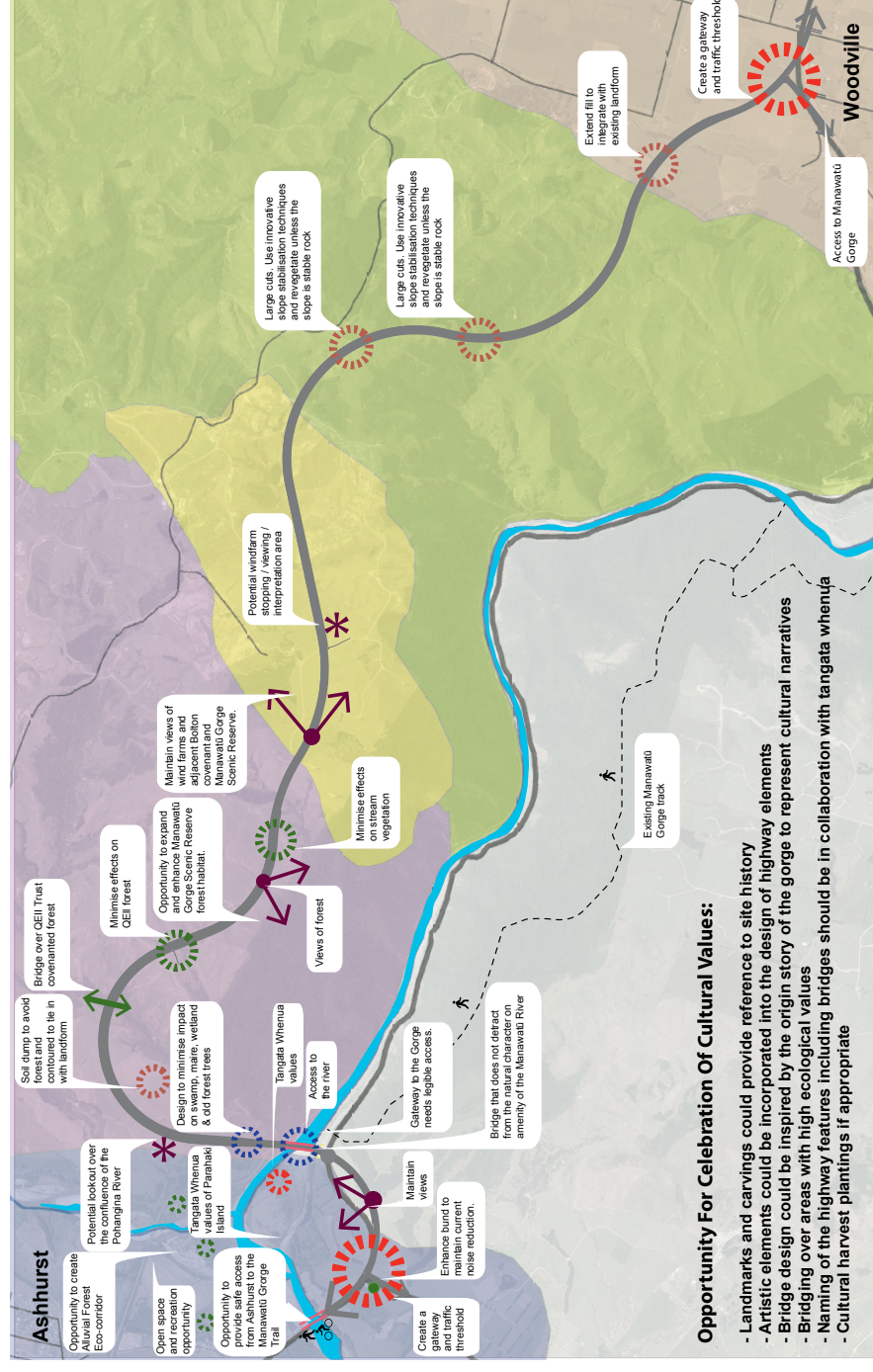
2.3 Project Vision

The following Project Vision Plan is a result of a series of visioning workshops involving key stakeholders, mana whenua and technical experts. The key values identified are summarised under the headings: Matauranga Māori, Connect, Experience and Legacy. Specific opportunities are noted on the plan.



2.4 Project Constraints and Opportunities

The following Constraints and Opportunities Plan is a result of technical expert assessment of the indicative alignment and a series of mitigation workshops. The plan identifies landscape and environmental opportunities and constraints across the Project and outside the Project area. Some of these opportunities are beyond the scope of the Project and will involve other partners. Some opportunities may be limited by construction practicability and extended issues such as land ownership. Five landscape character areas have been identified in the Assessment of Landscape Natural Character and Visual Effects and are described in Appendix A.



2.4.1 Landscape Character Areas Key Issues:

<p>Manawātū River and Pohangina River Terraces</p> <ul style="list-style-type: none"> • Design to minimise effects on threatened ecosystem. • Opportunity to enhance and connect alluvial forest remnants. • Provision of public access to be mindful of cultural and ecological sensitivities. • Maintain the natural character and landscape values of the Manawātū Gorge. • Cultural values of the Manawātū River and Parahaki Island. • Ecological values of the rivers and forest. • Bridge over Manawātū River to be a feature and yet not detract from the natural character and amenity of the Manawātū River.
<p>Western Hill Country</p> <ul style="list-style-type: none"> • Design to minimise effects on QEII covenanted forests. • Opportunity to gain views down the Manawātū and Pohangina River valleys. • Earthworks design to integrate cuts and fills into the landscape.
<p>Ruahine Ridge Crest</p> <ul style="list-style-type: none"> • Design to minimise effects on streams and indigenous vegetation. • Earthworks design to integrate cuts and fills into the landscape. • Opportunity for views of windfarm, rural landscape and indigenous forest. • Opportunity for stopping/ viewing/ experiencing the wind.
<p>Eastern Hill Country</p> <ul style="list-style-type: none"> • Design to minimise effects on streams and indigenous vegetation. • Earthworks design to integrate cuts and fills into the landscape. • Opportunity to gain views across the Tararua plains. • Gateway and access to Woodville and Manawātū Gorge.
<p>Manawātū River Valley</p> <ul style="list-style-type: none"> • Gateway and access to Manawātū Gorge Woodville and Tararua District. • Access to the Manawātū River.

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3. Project Elements and Features: Emerging Design Outcomes



This part of the framework expands the principles and vision that will ensure the next phase (detailed design) of the Project achieves the outcomes sought. The outcomes listed as bullet points are based on the landscape and urban design guidelines in the NZ Transport Agency Bridging the Gap and Landscape Guidelines.

3.1 Structures

- Bridge design should utilise the NZ Transport Agency Bridging the Gap Urban Design Bridge Matrix on page 144 of the document to ensure design issues are considered.
- Architectural form of the bridge to minimise effects on the landscape.
- Reflect cultural narrative in the design.
- Safety in design.
- Develop a corridor-wide approach with similar structures used throughout.
- Compliance with NZ Transport Agency Bridge manual.
- Ecological connections to be achieved through use of structures and sensitive design during construction / implementation.

3.1.1 Bridge (Manawatū River Crossing)

The Project will consist of one major bridge across Manawatū River QEII covenanted area and at least one that crosses gullies and an unnamed stream within the Te Āpiti windfarm. It is likely that there will be more bridges. Refer to the Bridge and Structure Philosophy Statement, Appendix 4 of the AEE. The bridge over Manawatū River has the potential to be a dominant built structure in a rural landscape. Given its sensitive location on the Manawatū Gorge, any design for this bridge should consider the surrounding environment, cultural significance, effects of piers in the river bed and current land use. The bridges should become part of the landscape rather than dominate it.

- Bridges shall achieve a harmonious consistency with a logical and well defined overall architectural composition. They shall integrate efficiency, economy, and elegance of both structural and non-structural elements.
- Bridge architecture shall be designed so the form, slope and proportions are compatible with the context of the site. The design quality and themes sought should be of a form, scale, and finish that can be appreciated by people walking, cycling and driving on the local roads and spaces leading up to and around the bridges and corridor, as much as the highway user experience.
- Incorporate required safety structures (such as safety barriers and guardrails), lighting and signage into the whole design of the bridges, rather than being additional clip-on structures.
- Avoid hiding places to provide Crime Prevention Through Environmental Design (CPTED) outcomes.

URBAN COMMENT IN EACH COLUMN FOR EACH BRIDGE LOCATION (THERE MAY BE MORE THAN 2 LOCATIONS ON ANY SECTION OF ROADING PROJECT - ADD FURTHER COLUMNS AS REQUIRED) AS TO THE LEVEL OF IMPORTANCE AND A BRIEF EXPLANATORY COMMENT			
Assessment matter	Explanation as to importance for urban design attention	Measure types that may be used to gain an understanding of importance	Location A Location B
Underlying natural environment	Does the context have underlying characteristics that will be affected by a bridge or suggest a certain form of bridge response? For example consider topography, natural features such as vegetation, ecology or landscape	Planning documents (district or regional plans) Landscape assessments Urban design contextual analysis Preliminary assessment undertaken as part of project	
Circulation	Is there an existing or likely future (eg from planned urban development) circulation pattern or network that will be affected by bridge or suggest a certain form of bridge response? For example consider what level of use occurs (or may be planned to occur) in the bridge location? Demographic profile also of interest as older people/children more vulnerable to level changes/safety and less likely to have access to a vehicle.	LAMS (Local Area Movement Surveys) Counts including school travel plans Network monitoring Demographic profile for area Urban growth plans	
Activities	Are the existing or likely future (eg from planned development) activities in the vicinity affected by bridge or suggest a certain form of bridge response? For example consider access to existing properties, accessibility to activities of local importance such as schools.	District Plan Urban growth plans, transport strategies Urban design contextual analysis Preliminary assessment undertaken as part of project	
Built form	Is the existing or likely future (eg from planned development) urban form affected by bridge or suggest a certain form of bridge response? For example consider whether the bridge at a key nodal point in the network (eg at an interchange, town centre, key turn off)? What is the fit with the scale of the built form in the area?	Network analysis (transportation plans) Urban growth plans Urban design contextual analysis Preliminary assessment undertaken as part of project	
Amenity	Is the location amenity affected by bridge or suggest a certain form of bridge response? For example consider how many people will view the bridge-- ie live near the location or pass by frequently? What is the visibility of the bridge from the point of view of the highway user? What is affect on shading or tranquillity of the location?	Inter-visibility assessment Landscape assessments Urban design contextual analysis Preliminary assessment undertaken as part of project	

Figure 6: Urban Design Bridge Assessment Matrix used to identify urban design factors which must inform the bridge design ('Bridging the Gap', P114)

3.1.2 Highway Furniture

- Select all highway furniture elements to form a coherent, corridorwide palette by limiting the number of different materials and finishes.
- Elements of highway furniture should fit in with the context of where they are located.
- Provide suitable transition between different types of elements, for example steel w-section or wire barrier and solid barrier on approaches to bridges.
- All elements of highway furniture should be simple in design and require minimum maintenance.
- Place highway furniture elements to achieve a simple and consistent arrangement and ensure they do not impede pedestrian and cycle movement.
- Colour should 'blend in' with the background.

- Consider vandalism and tagging when selecting and locating furniture.
- The location and design of gantries shall avoid obstructing notable views where practicable.

Barriers

- Comply with relevant engineering standards and designs in accordance with the 'Safe System Approach'.
- Maximise openness on the outside edge of the highway. Concrete barriers are least favoured on the outside edge except in special circumstances, such as bridges or at the top of steep banks.
- To maintain views of the landscape and rural character wire rope barriers are preferred.
- Medians and edge barriers are to be designed in conjunction with each other.

3.2 Ecologically Sensitive Areas

North of Manawatū River Crossing

- Minimise impact on raupo seepage wetland and swamp maire.
- Minimise impact on alluvial old growth forest.
- Minimise impact on high value streams.
- Consider options to minimise the ecological impact in this area.

Western QEII Covenant

- Design highway alignment where possible to minimise impact on indigenous forest.
- Bridge over gully to reduce impact on the stream and maintain ecological habitat connectivity.
- Keep bridges as high as possible to minimise impact on the forest.



Figure 7. North of Manawatū River Crossing



Figure 8: Otanerua Eco Viaduct under construction. Northern Toll Road

Te Āpiti Windfarm and Ridge

- Consider refinement to highway alignment to minimise the impact on stream network resilience and riparian vegetation, taking into consideration the need for site and construction efficiency.
- Consider using retaining walls or reinforced slopes to steepen batters so the length of culverts can be reduced.

Eastern Rise

- Consider refinement of the highway to minimise impact on stream network resilience and riparian vegetation.
- Minimise the length of culverts where possible.

3.3 Earthworks / Spoil Disposal

The Project involves extensive earthworks through a variety of rural landscapes. The form and extent of cut and fill batters and spoil disposal areas play crucial roles in mitigating the adverse landscape visual and landowner effects. Slope grades need to be considered to ensure batters are integrated with adjacent landforms, landuse and ownership. Gradients also need to be considered in context of the geotechnical issues, appropriate landscape treatment, erosion and sediment control and stormwater treatments.

Slope systems need to be considered with geotechnical solutions to ensure topsoil medium is stable and suitable for plant growth.

- Refer to the NZ Transport Agency Landscape Guidelines Section 4.13 Slope Management.
- Where the ground is stable, the cut face should be steep and left as exposed rock.
- Feather the top edge of cut batters to visually soften the edge profile.
- Design batter slopes to integrate with adjacent landform and avoid benched cuts.
- Shotcrete is the least preferred method of slope stabilisation. All rock faces should appear as natural rock.
- Stabilise and revegetate slopes using hydromulching or other innovative solutions.
- Avoid shifting the alignment, steepening slopes or using retaining walls and fill batters encroaching into water bodies or indigenous vegetation.
- Replant or hydroseed all fill batters as appropriate, integrating with the adjacent landcover.
- Consult with mana whenua with respect to earth transported across catchments.
- Spoil disposal sites are to be designed to minimise impacts on water bodies or indigenous vegetation.
- Contour the soil to merge with natural landforms.
- Consider re-use of forest material that has been removed, ensuring tangata whenua requirements are met.

3.3.1 Cut and Fill Batters:

Cut Batters

- Where the ground is stable and competent 'formation' rock, the cut face should be steep and left as exposed rock.
- Rock fall protection (e.g. wire mesh and rock bolts) should be designed to be less visually obtrusive.
- Where the rock is unstable the batter slope should be graded, topsoiled and revegetated by scarifying and planting.
- Vertical and horizontal highway alignments that seek to actively minimise earthworks, and result in cut / fill balances by logical mass haul sector, are encouraged.
- Plant appropriate native species at the top of the cut slope to colonise the cut slopes.

Fill Batters

- Utilise wide flatter batters to integrate fill embankment with the surrounding landscape, except where it would involve extending stream culverts.
- Avoid encroachment into rivers, floodplains, other water bodies and indigenous vegetation by

making batter slopes as steep as practicable.

- Replant all fill batters with indigenous vegetation that coincide with stream courses (i.e. at culverts).
- Replant or hydroseed other fill batters to match adjacent land use where appropriate.

3.3.2 Top Soil

- Topsoil is a key component of achieving successful landscape and ecological outcomes. The protection of soil stormwater and fertility needs to be considered prior to earthworks commencing. Refer to NZ Transport Agency Landscape Guidelines, Section 4, Project Specific Topsoil, 4.12 Topsoil Outcomes.
- Consult tangata whenua with respect to earth transported away from an area (e.g. moving earth between catchments).
- Maximise disposal opportunities of each spoil disposal site to limit the overall footprint and the number of disposal sites.
- Select spoil disposal sites to minimise disruption of natural watercourses and areas of indigenous vegetation. Place soil preferably in broad spurs and natural terraces.
- Contour the soil so that it merges with or replicates natural landforms.
- Utilise spoil disposal opportunities to flatten fill batters so the elevated fill areas blend into the adjacent landscape. Use fill to reduce the height and impact of structures and as earth bunds for noise attenuation (if required).
- Revegetation of spoil disposal sites will be defined by the context of the site including adjacent land cover. In grazed landscapes grassing will be appropriate, whereas in forest areas or adjacent to remnant indigenous vegetation, planting would be appropriate.

Topsoil Stripping

- A cross-disciplinary approach is required to ensure topsoil is maintained as a healthy viable growing medium.
- Ensure soil testing is undertaken on any imported topsoil and topsoil harvested from within the designation. Confirm topsoil is fit for landscape purposes.
- Ensure the topsoil horizon is separated from subsoil.
- Remove entire topsoil depth at one time, if practicable.
- If woody vegetation is present (excluding weed species), this can be mulched and included in the topsoil.

Stockpile Management

Generally, for major highway projects, the majority of topsoil is not able to be stripped and placed immediately in its final location. Where a topsoil stockpile is required, the following practices will help maintain the quality of the topsoil for later use across landscape areas:

- Prepare stockpile areas by ensuring surface water is intercepted and diverted around the stockpile. Construct sediment control features to capture and treat runoff from stockpiles if required. Ensure the base is relatively even and sloped or well drained to minimise anaerobic conditions developing at the base of the stockpile. Under-drainage may be beneficial.
 - Ensure soil condition testing is undertaken to confirm topsoil is fit for landscape purposes.
 - Stabilise the stockpile (such as with mulch or hydroseeding) to reduce erosion, sediment generation and weed ingress.
 - Where anaerobic soils have developed at the base of stockpiles, there will typically be elevated iron and reduced pH (as low as 4 to 5). These soils will require amelioration before placement in landscape areas.
- Topsoil Placement**
- Place topsoil with care to avoid compaction.
 - Soil depth, refer to NZ Transport Agency P39 Standard Specification for Highway Landscape Treatment. Minimum depth, 100mm for lawn areas, 300mm for planted areas, 1,000mm for tree pits.
 - Light compaction of the surface is required.
 - Consider inoculating soil with Mycorrhiza fungi to assist with plant growth.

Degraded Soil Enhancement

- If topsoil structure is degraded, investigate utilising additives to ensure it facilitates good plant growth and establishment, with input from a soil scientist.

Construction Yard

- Where possible, select sites for construction yards in low sensitivity areas e.g. within plantation forest, within construction zones and away from residential dwellings.
- Remove all construction areas and rehabilitate the ground so that it merges with the adjacent land. Construction areas left over adjacent to bridges and roads usually create a neglected appearance. Rehabilitation works may entail removing any hardstand, ripping, re-topsailing and replanting.

3.4 Water Bodies

Stormwater management within the Project shall be in general accordance with the following guidelines (including subsequent amendments): The NZ Transport Agency Stormwater Treatment for Road Infrastructure (published May 2010); and the NZ Transport Agency Landscape Guidelines (September 2014). The Project is interconnected with hydrology, ecological values, landscape and tangata whenua values.

- Bridges are preferred to culverts.
- Integrate riparian planting into the overall landscape.
- Re-vegetate stream margins either side of the highway to visually accentuate the stream as a

landscape feature.

- Minimise culvert lengths and provide fish passage through culverts.
- Configure stormwater wetlands to a natural appearance.
- Incorporate stormwater treatment requirements into wetland mitigation and habitat creation.

Overall Design Principles for Stormwater Management:

- Refer to The NZ Transport Agency Urban Design Guidelines Bridging the Gap, section 4.17 Stormwater Management Devices and Landscape Guidelines Section 4.17 Stormwater Management.
- Rationalise the number of stormwater treatment ponds. Use vegetated and rock lined swales to assist with treatment, conveyance and collection of stormwater.
- Locate ponds beside streams and design them to follow landscape contour and pattern so they are integrated into the landscape.

3.4.1 Culverts

The following outcomes apply where culverts are to be used:

- Minimise culvert length to reduce the loss of habitat.
- Where appropriate construct culverts to incorporate fish passage across the highway in accordance with Horizons Regional Council guidance and NZ Transport Agency Fish passage guidance for state highways, August 2013.
- Extend riparian planting onto the fill embankments at culvert crossings. Use low species near the top of fill embankments where views are to be maintained from the highway, grading to taller species toward the base of the embankment.
- Replant stream margins upstream and downstream of culverts for biophysical and visual reasons (see above).

3.4.2 Stormwater Treatment Wetlands

Outcomes sought for stormwater treatment features are:

- Avoid locating stormwater treatment devices in indigenous forest and streams.
- Wetlands are preferred to ponds.
- Natural appearance, conforming to landform setting (not geometric).
- Optimisation of the natural appearance with careful definition of the edge profile to include riparian and margin vegetation.
- Shallow and vegetated wetland edges generally appear more natural, and can obviate the need for fences to prevent accidental access. Wetlands are also usually safer and provide better treatment than deep ponds.
- Design to minimise maintenance requirements and avoid the need for fencing.

3.5 Revegetation

Main Project specific revegetation outcomes:

- Topsoil to be carefully harvested, stockpiled and reinstated to ensure the maintenance of the soil and its function as a growing medium
- Ecosourced indigenous species are to be used for mitigation and revegetation
- Planting to respond to local conditions, hydrology, climate and localised vegetation matrixes
- Revegetation to build on and connect to existing forest remnants and expand existing habitats
- Reuse of plant material, logs and seed source forest duff

3.6 Urban Connections (Intersections / Roundabouts)

There is a roundabout proposed at the intersection of SH57 and the old SH3. The intersection / roundabout will act as a threshold for speed reduction. This will require careful consideration of landscape treatment to clearly identify and signal the exit of SH57, and the beginning of the new constructed road, and reduce conflict points. There is also a roundabout proposed at the connection with the Woodville community at Troup and Woodland Roads.

- Gateways and thresholds should be designed as part of the roundabout to assist with speed transitions and reinforce the sense of place.
- Gateways to the Gorge need to be legible to visitors. They should add to the wider Manawatu Gorge experience.

Generally peri-urban gateways and speed thresholds align with a change in speed environment. Landscaping can assist the legibility of this change through visual cues e.g. planting and a narrowing of carriageway. Landscape treatments that provide environmental cues to alert drivers to the change in speed environment and setting are encouraged by the NZ Transport Agency. Landscape design opportunities can include:

- Utilising scale (e.g. canopy trees, boulevards and avenues)
- Utilising density of planting, seasonality and composition to focus driver attentions
- Building on natural boundaries and views (topography, waterways, natural vegetation)
- Changing the road width and berms (consider the treatment of the road berm as it transitions from an open rural setting to a more urban setting)
- Landmark features / artworks and the integration of signage

3.7 Stopping Places

There are several stopping places located within the wider context of this Project. They include local towns main rest areas and potential lookouts at tourism destinations such as the Manawatu Gorge and Te Āpiti wind farm.

Some safe stopping facilities could be created as part of this Project and where proposed will be created in partnership with stakeholders

Refer to NZ Transport Agency Urban Design Guidelines Bridging The Gap Part 3, Section 4, 4.21 Stopping Places and NZ Transport Agency Landscape Guidelines Section 4, Part 2, 4.10 Further Consideration.

Key Considerations:

- Safe easy access, including signage, sight lines and minimising conflict points.
- CPTED issues
- Retention and enhancement of views
- The opportunity for interpretation of the cultural and network heritage
- Integration of street furniture
- Integration of parking and access with the context of the immediate environment

3.8 Walking and Cycling

The Pahiatua Track, 12 km south of the Gorge, is an identified national cycling route and will function as the main connection between west and east Manawatu Gorge for cyclists. It is also expected that Saddle Road will be a suitable route for cyclists once the new road is constructed. The new road is close to the Manawatu Walking Track which will remain as the main walking route between both ends of the Gorge.

A masterplan is being developed by the Te Āpiti Governance Group that:

- Seeks to enhance biodiversity
- Provides for tourism and ecological education
- Looks to expand the existing network of walking and cycling tracks, including a loop walk
- Is cognisant of the Te Ahu a Turanga Project

The Te Āpiti Masterplan will inform the design development of the Project, including the location of rest areas, ecological mitigation and long-term maintenance tracks

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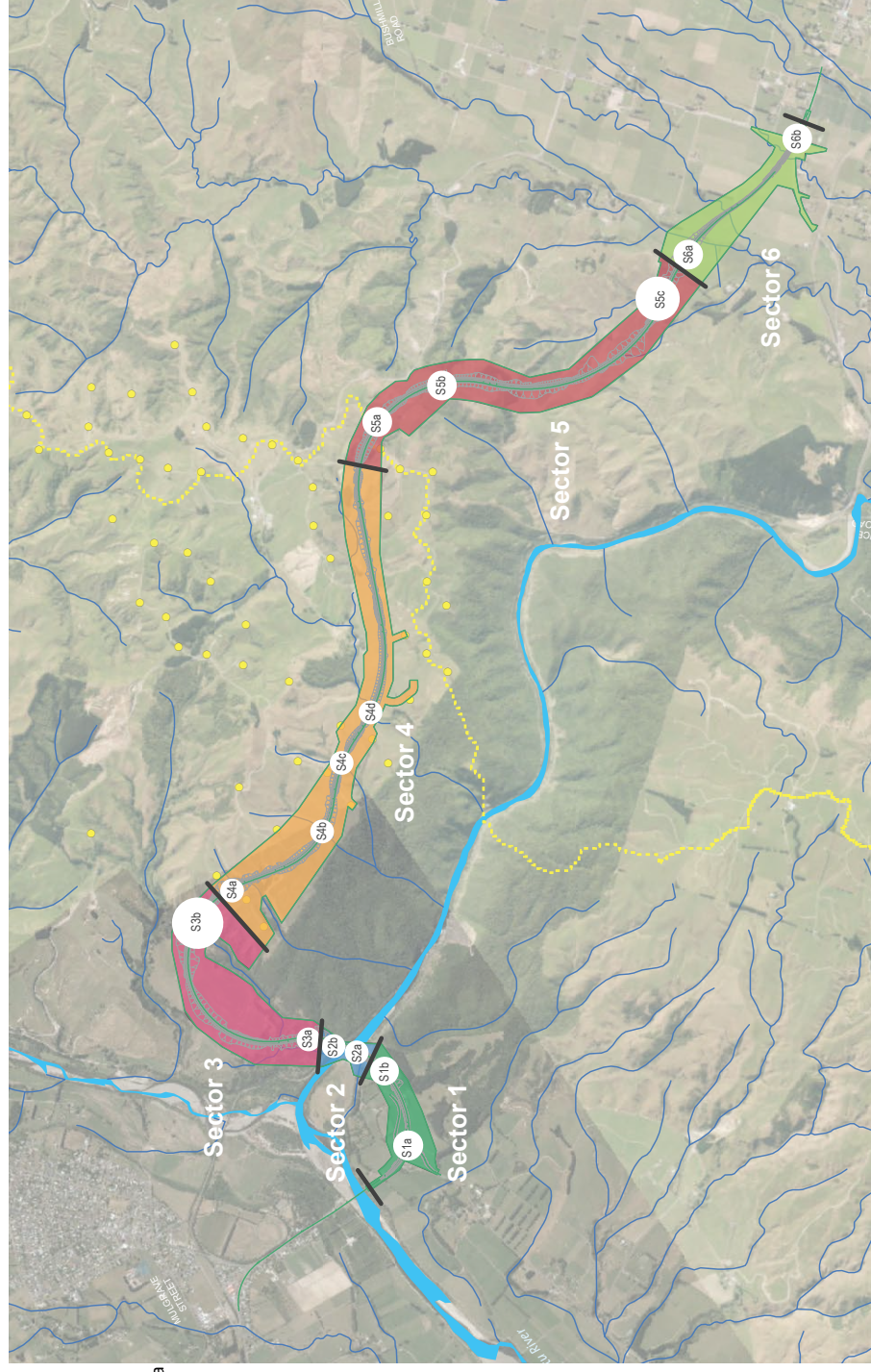
4. Project Sectors



4.1 Project Sectors and Focus Areas

The next phase of the Project will involve design development guided by the principles outlined in the ECDF. Design outcomes for each of the following focus areas will be addressed in future versions of the ECDF. Landscape Character Areas have been identified in the Landscape and Visual Assessment as a means of illustrating areas with distinctive character based on landform, elevation, landcover and landscape. They are similar to the sectors defined by the Project.

Further development of the ECDF should illustrate design solutions based on the sectors but consider the wide landscape character areas and full environment issues in the AEE. Design development should be reviewed against the NZ Transport Agency Urban Design Guidelines Bridging the Gap Appendix 4: Generic Urban Design Specification and Appendix 6: Urban Design and Landscaping Review Template.



Sector 1: Bridge to Bridge

- S1a: Gateway and speed threshold
- S1b: Gateway / access to Manawatu Gorge recreation area

Sector 2: Manawatu River Crossing

- S2a: Manawatu River
- S2b: River terraces sensitive ecosystem

Sector 3: Western Rise

- S3a: River terraces sensitive ecosystem
- S3b: QEII covenanted gully

Sector 4: Te Āpiti Windfarm and Ridge

- S4a: QEII covenanted gully
- S4b: Stream and regenerating indigenous forest crossing
- S4c: Stream and regenerating indigenous forest crossing
- S4d: Stream and regenerating indigenous forest crossing

Sector 5: Eastern Rise

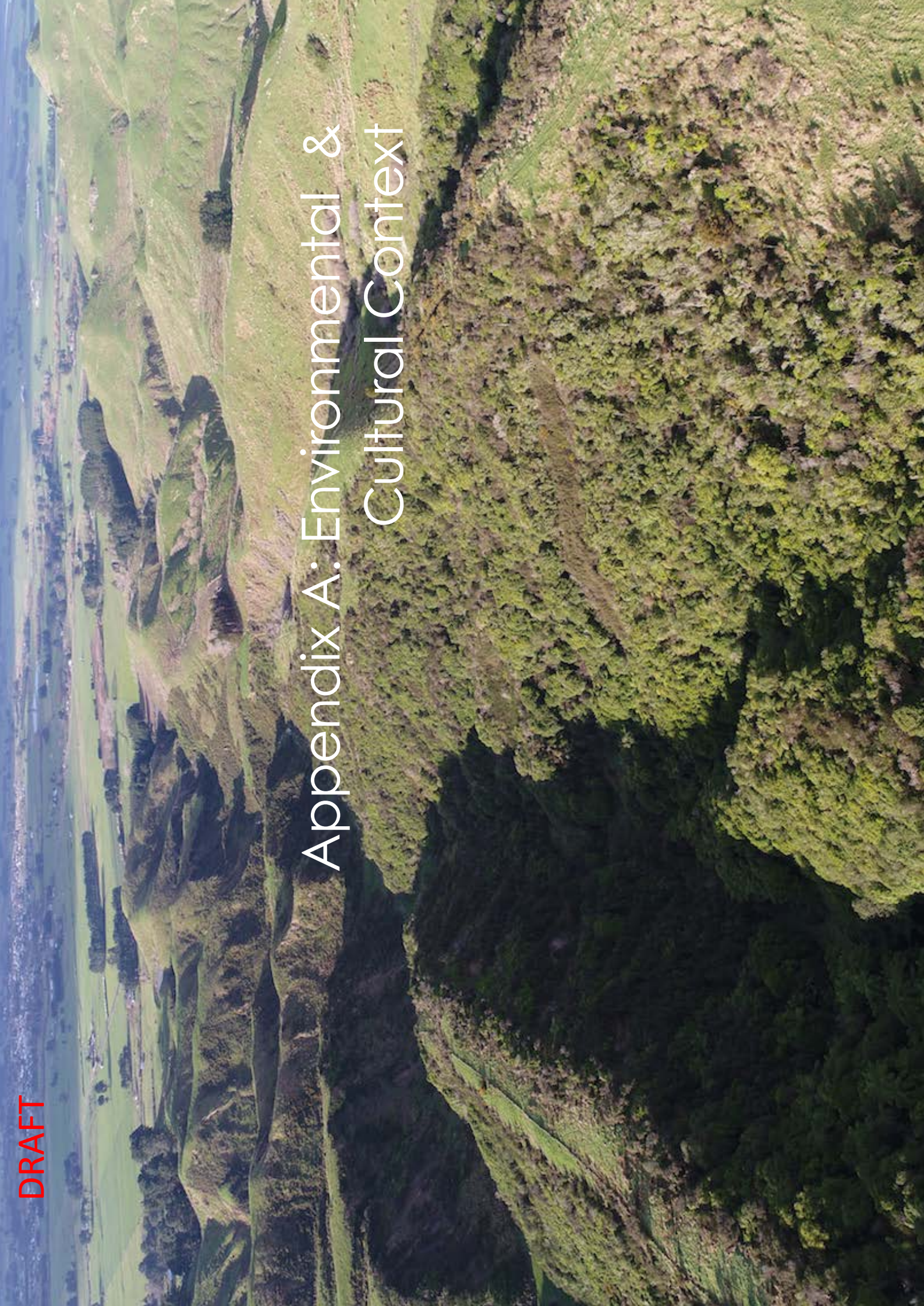
- S5a: Stream and regenerating forest
- S5b: Stream and regenerating forest
- S5c: Stream and regenerating forest

Sector 6: Tatarua Plains

- S6a: Landform integration
- S6b: Gateway and speed threshold

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Appendix A: Environmental & Cultural Context



A.1 Heritage

A.1.1 Māori Settlement

Manawatū Gorge (Te Āpiti, 'the passageway' in Māori) is situated between two mountain ranges of the Ruahine and Tararua. Te Hononga Maunga joining of the mountains, and was situated in the heart of a vast forest. The Āpiti-Manawatū Gorge itself was often referred to as 'Te Au Rere-a-te-Tonga' (the flowing current of the south). The formation of the Tararua and Ruahine ranges began about 1.5 million years ago. The rising of the greywacke ranges combined with erosion by the river has formed the steep gorges which exist today. It is the only place in New Zealand where a river begins its journey on the opposite side of the main dividing mountain range to where it joins the sea².

Manawatū district was first settled by Rangitāne who still exercise mana whenua over part of the Manawatū and Tararua districts, and is recognised as tangata whenua prior to European settlement. Based on J. McEwen' (1986), the ancestor of Rangitāne arrived in New Zealand by the Kurahaupo waka. Whatonga, a captain of the waka, settled in the Hereitanga area and then explored the North Island and Manawatū area. Rangitāne tribe established settlements in Wairapapa, Wellington, Wairua, Tamaki nui-a-Rua, Horowhenua and Manawatū.

Although Rangitāne had mana whenua over a wide area, settlements were constrained to the margin of the river. The river and dense forest were an abundant source of food and allowed for seasonal Māori occupation around the Gorge area. The Gorge was the only route to provide opportunity for early Māori to cross from one side of the North Island to the other. Ngāi Mamoe or Waitaha are believed to be pre-Rangitāne moa hunters that resisted against Rangitāne settlements. From 1500AD, to secure the natural resources needed to sustain increasing population, Rangitāne began to construct pā at strategic locations and close to valuable natural resources (like the entrance of the Gorge, now part of Ashhurst Domain) and across Manawatū to defend themselves. In addition, they also had small settlements for seasonal food collection, like at the Raukawa pā near Ashurst. From the 1820s, Rangitāne faced significant threats from northern tribes which led to several conflicts and revenge attacks. Following the arrival of European colonists, Rangitāne chief Te Peeti Te Awe Awe (leader of the Ngāti Hineauite and Ngāi Tamawahine hapū, who controlled large tracts of the lower Manawatū) sought alliances with the Crown by assisting with land purchases and lending support during the New Zealand Wars. Significant blocks of Rangitāne land were acquired by the Crown on either side of the Manawatū Gorge during the 1860s and 1870s, and by 1880s Rangitāne's remaining land was largely situated to the east of the Manawatū Gorge.

A.1.2 European Settlement

Ashhurst

Ashhurst is situated to the west of the Manawatū Gorge, and was acquired by the Crown with the purchase of the Ahuaturanga Block, or the upper Manawatū Block, in 1864. In early 1870, Colonel William Feilding bought a portion of the block, named Manchester Block, on behalf of the Emigrants and Colonists Aid Corporation to assist immigration of British working class to New Zealand. Ashhurst was one of the settlements within the block, and was named after Henry George Ashhurst, a director

of the Emigrant and Colonists Aid Corporation. By 1879 the township had increased significantly due to its strategic location near the Manawatū Gorge Road from Palmerston to Napier, and near the railway line between Whanganui and Napier. Bartholomew's sawmill on Pohangina Road was producing 20,000 feet of timber (mainly totara and matai) each week. In 1879 the Otangaki Hotel was built to accommodate an influx of visitors and workers. Schools and a post office were constructed and various businesses started to form on the main street of the township.

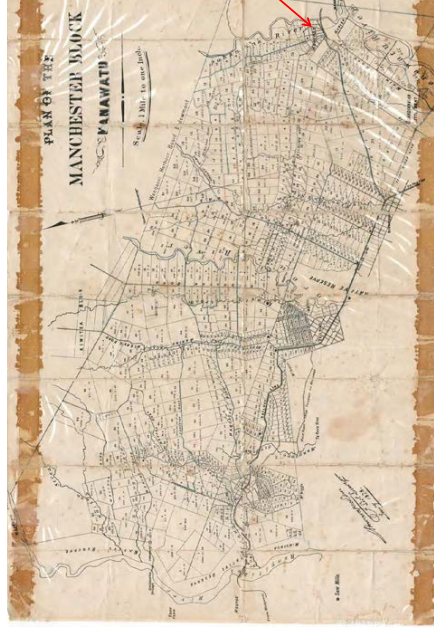


Figure 9: Plan of the Manchester Block, dated 1878, with the township of Ashhurst arrowed in red. [source: MDC 00486 1-2, Archives Central, www.archivescentral.org.nz].

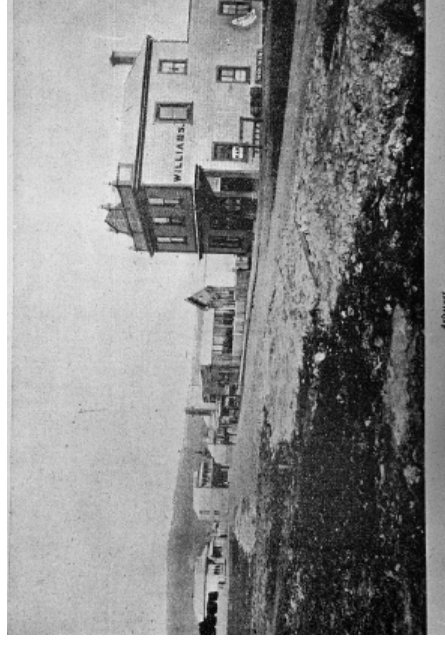


Figure 10: Undated photograph, showing businesses along one of Ashhurst's main roads. [source: PHOTO ASH-1, Feilding Library, Manawatū District Council].

Woodville

Woodville is situated to the east of Manawatū Gorge, at the junction of road and railway between Waitapapa, Hawke's Bay and Manawatū regions, which was an ideal place for a settlement. Napier Lands Office offered the land in this area for sale, which continued through the 1870s. Establishment of dairy farms supported the growth even more, and by 1883 Woodville included several houses, a hotel, a butcher, bakery, bootmaker, general store, schoolroom and a branch of Bank of New Zealand. By 1908 Woodville had a population of 1,100 residents.

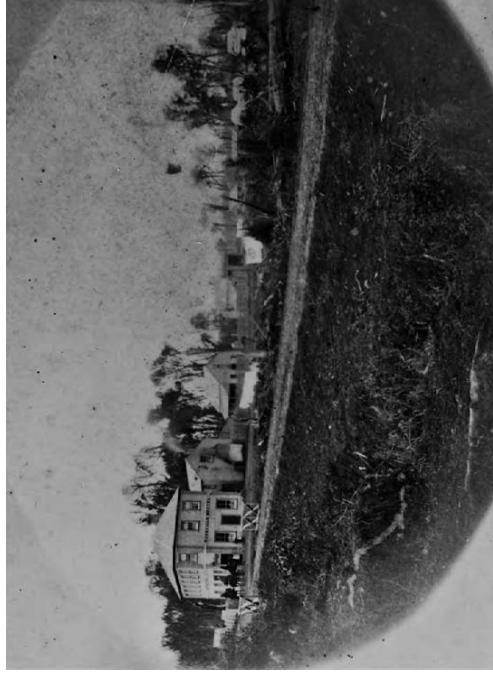


Figure 11: Photograph, dated 1878-1879, showing the Woodville Hotel on the corner of McLean and Vogel Streets. (source: 2007P_WoL_RTL_0918, Palmerston North Libraries and Community Services).



Figure 12: Photograph, dated 18 August 1904, showing the main street in Woodville. (source: Sir George Grey Special Collections, Auckland Libraries, AWNS-19040818- 10-1)

During the 19th century, Māori had several small occupation sites along Manawatū and Pohangina Rivers, such as Raparuhe, Te Ponga, Te Wharau, and Parahaki. The Parahaki kainga (village) was established at the confluence of the Manawatū and Pohangina Rivers. The village was the site for burial ceremonies. The site is one of mahainga kai sites that were used to service the many kainga clustered around Otangaki and the lower Pohangina valley.⁴



Figure 13: ML 338, dated ca.1879-1880, showing the island known to Māori as Parahaki at the confluence of the Manawatū and Pohangina Rivers. This plan was presented during the Māori Land Court hearings to determine the title to the land. (source: Quickmap)

Transportation along the Gorge

Māori guided the first European, Jack Duff, to travel through the Gorge in 1830. The early walking track along the river was formed by Māori who needed to carry their canoes overland when the river was low. By 1870 a more substantial bridle track had been developed for foot and horse traffic on the Tararua side of the river. In the same year the construction of the railway started, but it was not fully completed until 1891. Before completion of the bridge over the river in 1875, coach passengers crossed the river in an aerial cage and then continued their journey with another coach. However, in 1895 a heavy flood washed away the bridge, and during construction of the new bridge, a punt was used to ferry passengers.⁵

Beside regular flooding, the road and railway track had been temporarily closed several times due to large slips, before it was permanently closed in 2017.

A.2 Cultural Values and Narratives

Cultural values are the foundation on which tikanga Māori is based and from where Mātauranga Māori emerges. Cultural values define the framework for behaviour, actions, and interaction with the natural world. Rangitāne o Manawatū arrived in the area in the 1500s. Understanding their value and belief system is essential for providing a design framework to avoid adverse impact on Rangitāne o Manawatū.

For this framework the following key values have been identified:

Mauri: the interconnection of all things, which means the well-being of any part of the environment will have a direct impact on the well-being of people.

Waiurātanga: a central value to all existence, and effects how tangata whenua interact with the natural environment, manuhiri and other communities.

Whakapapa: the Māori system of relationship. "The Whakapapa of the Manawatū Awa includes the many streams and groundwater systems that contributes to the awa, which creates its mauri and energy, and then enable the species to thrive". Indigenous species require access to the sea during their life cycle and whakapapa connects maunga with the ocean.

Kaitiakitanga: the act of guardianship and protection. The obligation to protect and enhance the mauri of the natural environment, for the benefit of ourself and others.

The belief system of Rangitāne o Manawatū have has developed over the last 600 years of settlement. Their belief also formed their spiritual practice that occurred at different times and locations. There are several cultural narratives related to the Manawatū River which relate to the origin and name of the River.

According to Māori tradition, the Gorge was created when a giant totara tree, located on the slopes of the Puketoi mountain range, became possessed by the spirit Okatia and then pushed through the Rūhine and Tararua ranges, forming the Gorge from its path.

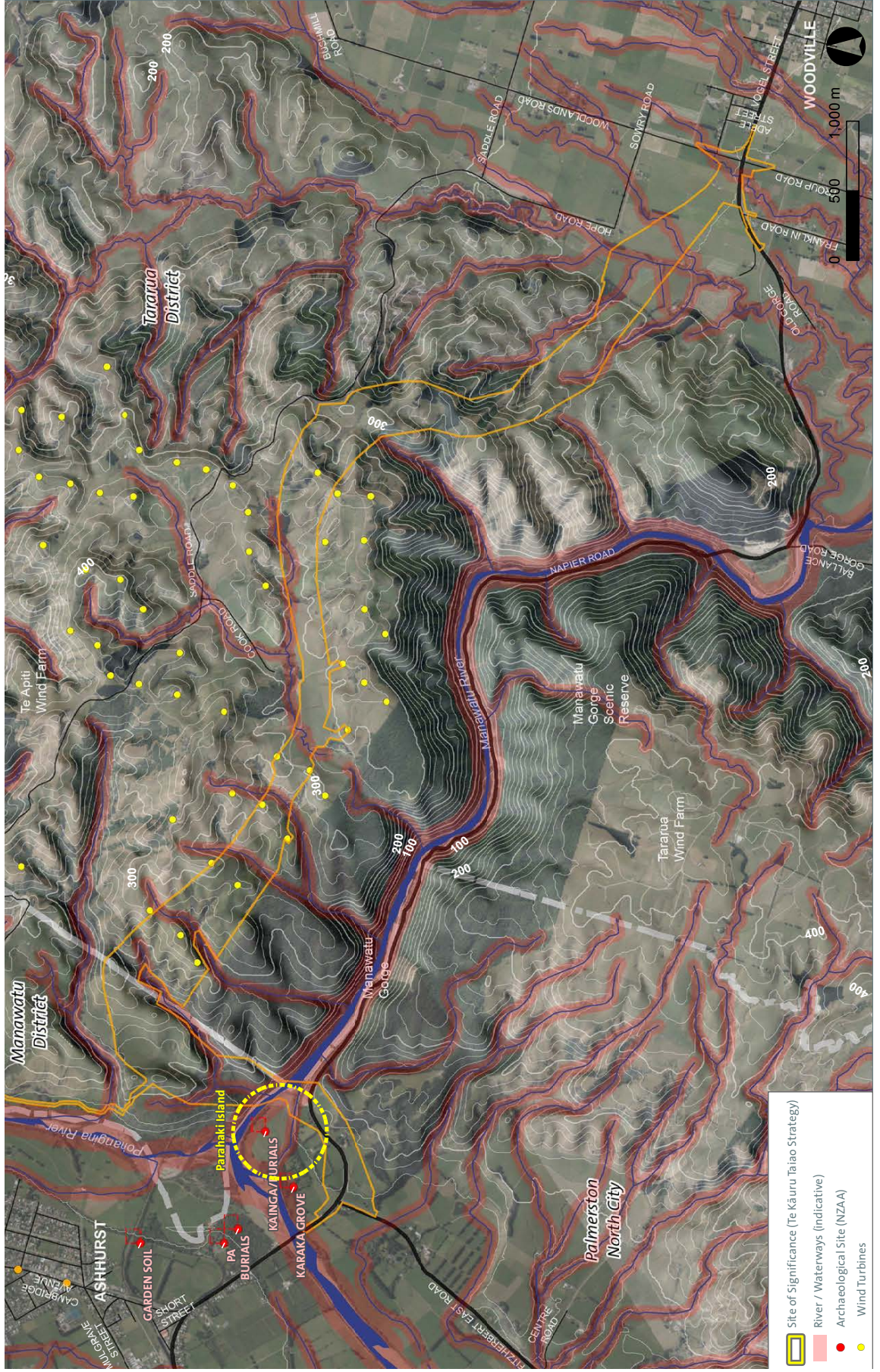
Away upon the slopes of the Puketoi Ranges there grew in the days of old a giant Totara tree, into which the spirit of a God called Okatia suddenly entered and endowed it with the power of motion, whereupon it gradually wormed its way over the land, gouging out a deep bed as it went, until it came to the mountain chain which separates the east from the west coast. Then it drove a course for itself through this huge barrier, which the mighty Okatia split as easily as a child would break a twig, and on passed the inspired tree, ploughing its irresistible way with many serpentine wanderings towards the sea, leaving the turbulent waters and still reaches of the Manawatū River flowing in its wake⁷.

The naming of the river can be traced through Rangitāne tribal history: The Manawatū River received its name from a tohunga (priest) named Haunui- a -Nanaia. Haunui travelled down the coast from Taranaki chasing his wife, Wairaka and her lover. As he crossed the river-mouth he named the rivers, 'Whanganui' was named because of the width of the river-mouth, 'Whangaehu', 'Turakina', 'Rangitīkei' were all named by Haunui. The next river he crossed was the 'Manawatū' which was so

wide, deep and cold that it made his breath stand still. This is the origin of the name 'Manawatū still breath'⁸.

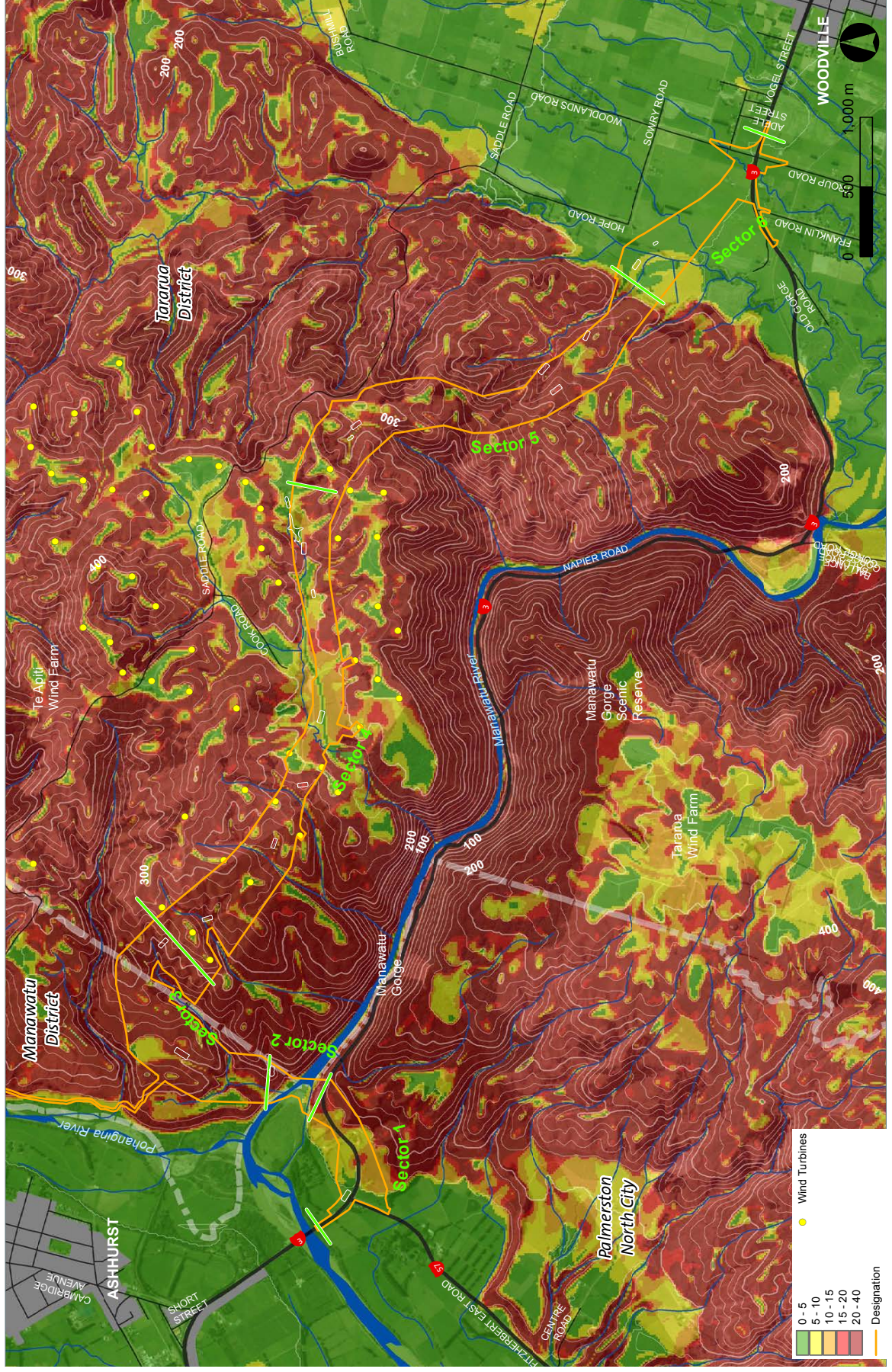
- 1 <https://www.doc.govt.nz/parks-and-recreation/places-to-go/Manawatū-whanganui/places/Manawatū-gorge-scenic-reserve/>
- 2 <https://www.manawatunz.co.nz/te-apiti-manawatu-gorge/>
- 3 McEwen, J. M. (1986) Rangitāne: a tribal history. Auckland, Reed Books
- 4 Manawatū River Framework, Palmerston North City Council
- 5 <http://jamesfaganhistoryblog.blogspot.com/2013/05/a-spectacular-gorge.html>
- 6 Black M. W., Kendrick J. L., McArthur K. J. (May 2018), *Ekelahuna and Pahiatua cultural values*
- 7 Buick T.L. (1903) *The Wild Days of the West*, Buick and Young Palmerston North
- 8 Te Kōuru Taiao Strategy, November 2016, page 6

A.3 Sites of Significance to Tangata Whenua

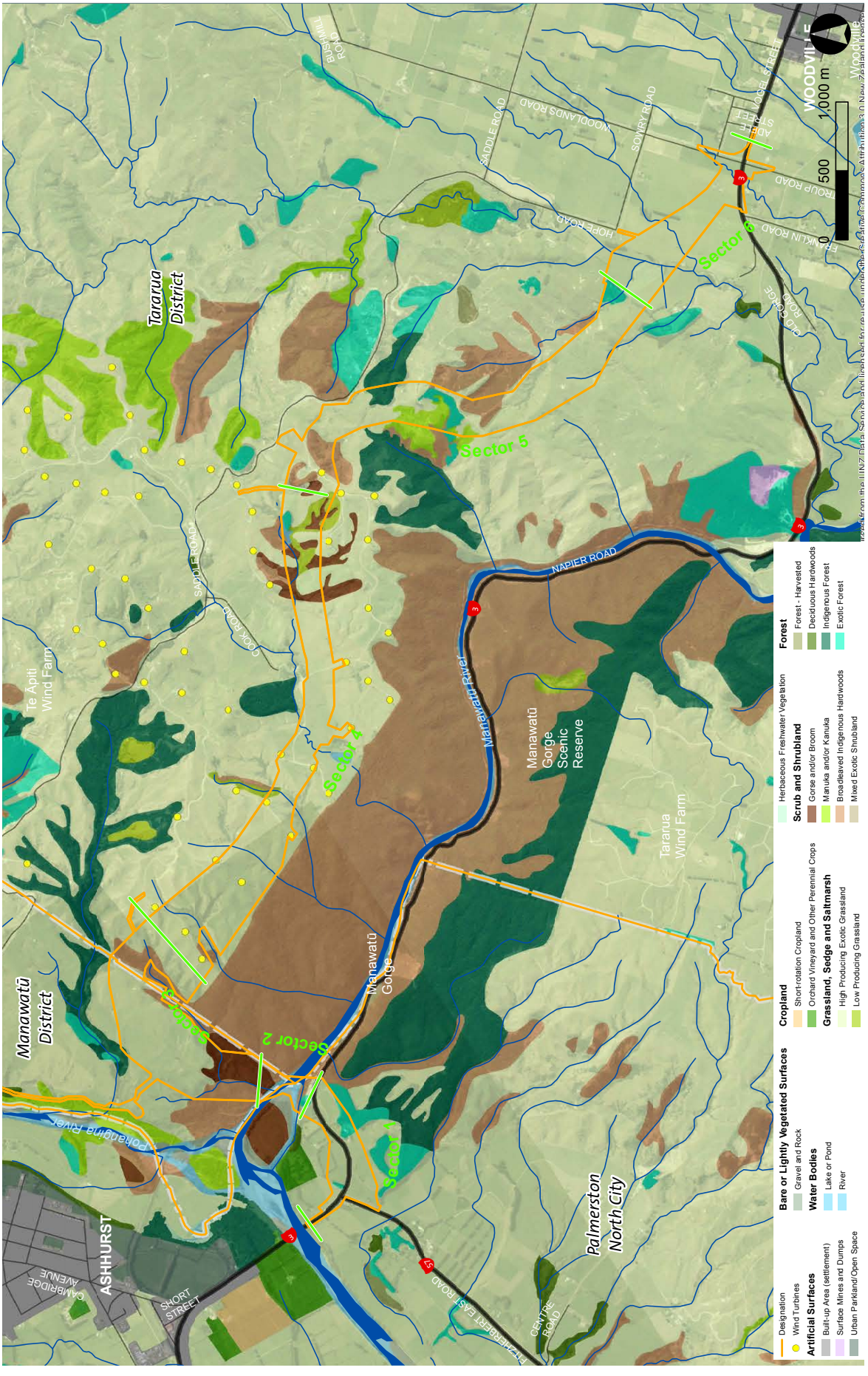


A.4 Landscape (Slope, Topography, Landcover, Landuse)

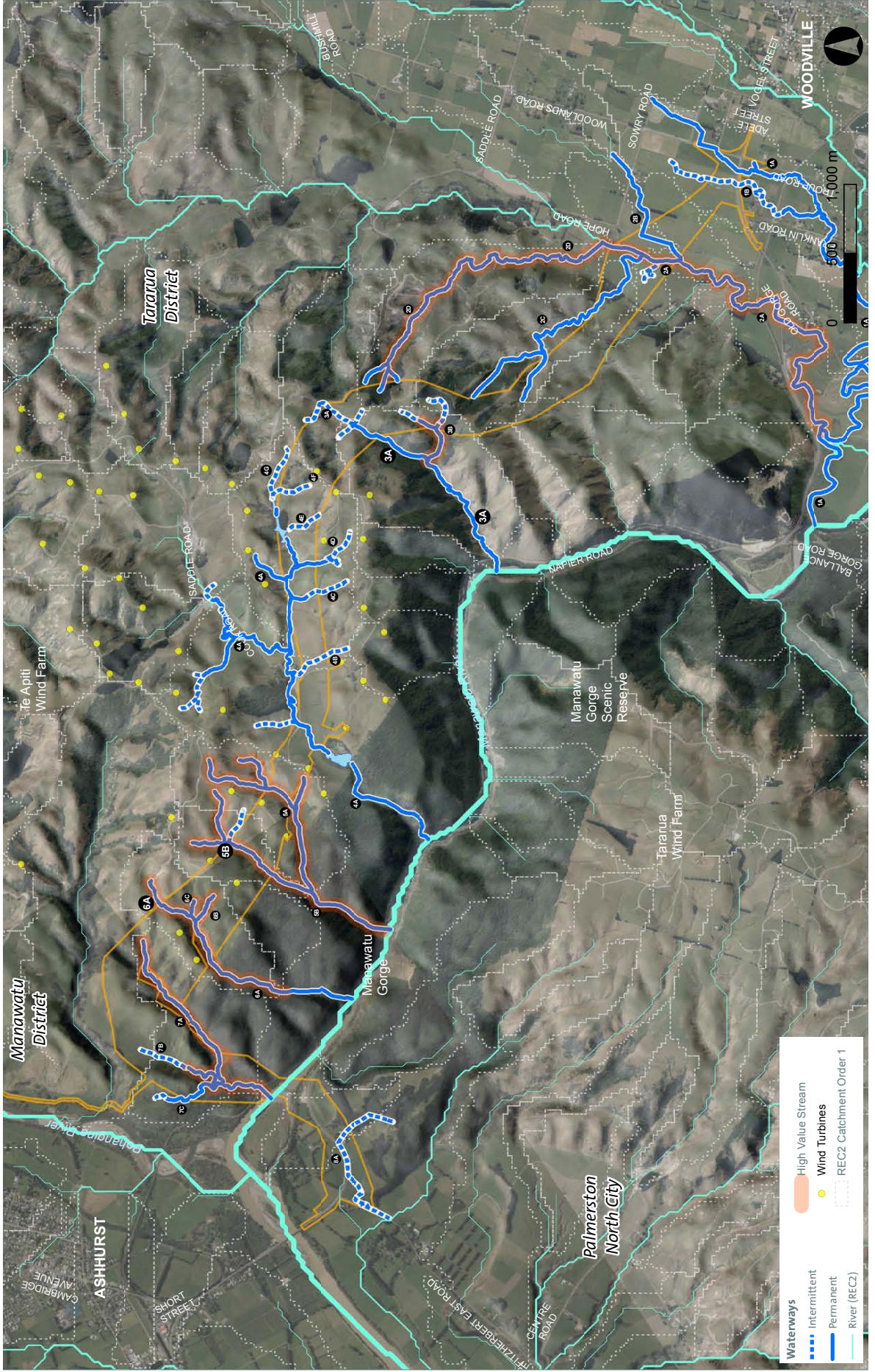
A.4.1 Slope



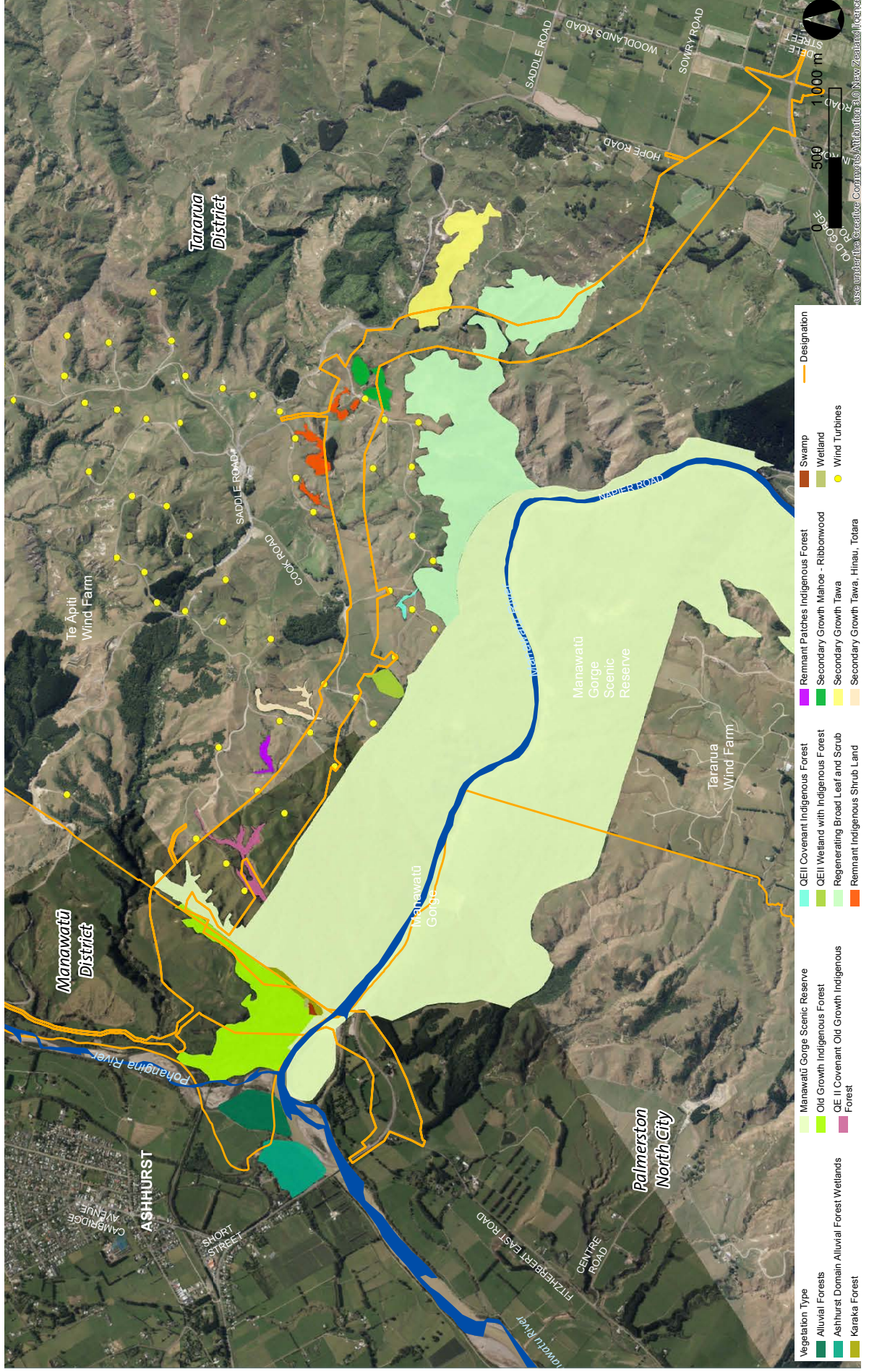
A.4.3 Landcover & Landuse



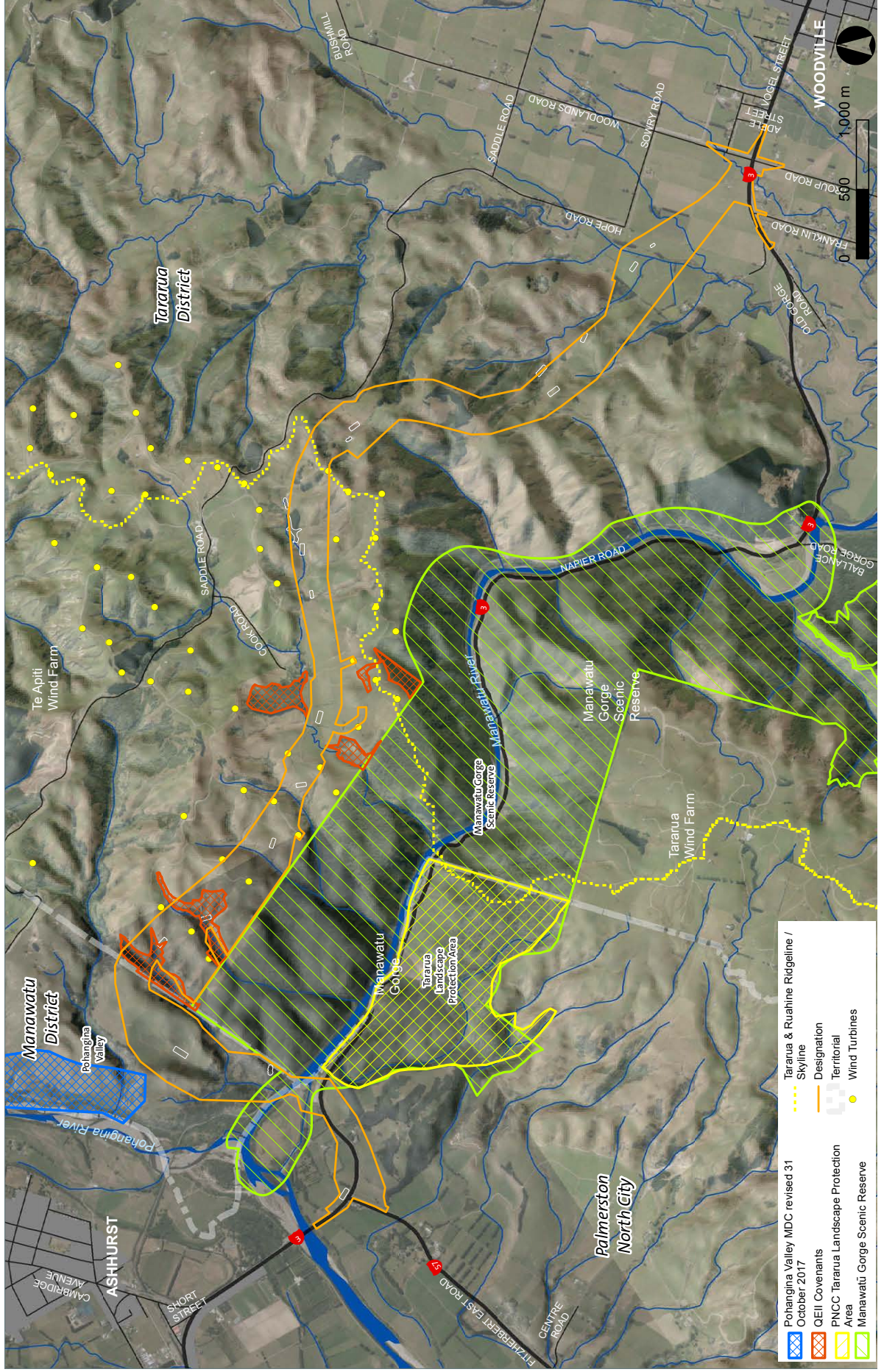
A.5 Hydrology



A.6 Ecology



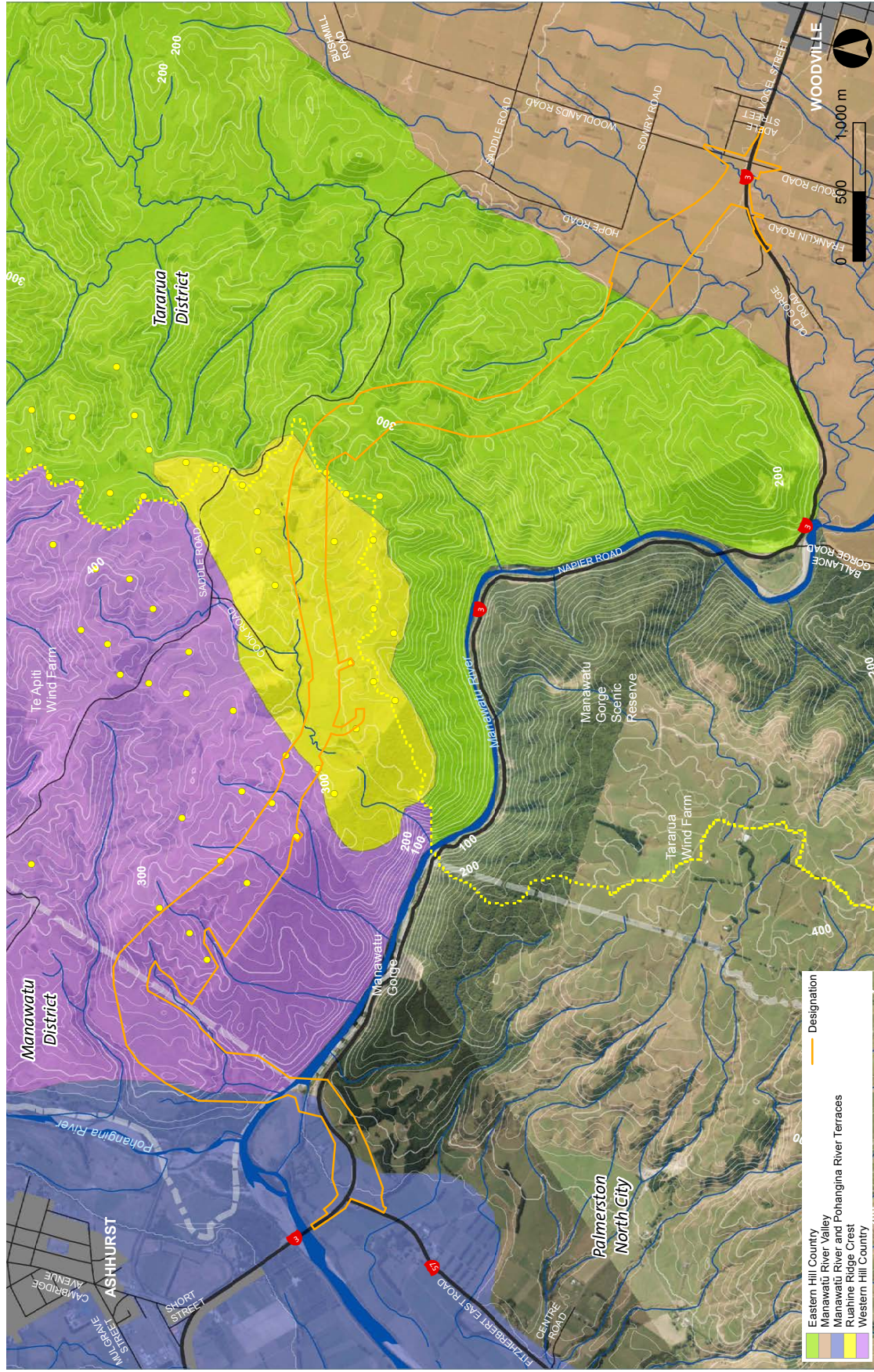
A.7 Protected Areas



A.8 Landscape Character Areas

The corridor traverses five landscape character areas based on differences in land form, land cover and land use; these landscape character areas are listed and described below:

1. Manawatu River and Pohangina River terraces
2. Western Hill Country
3. Ruahine Ridge Crest
4. Eastern Hill Country
5. Manawatu River Valley



A.8.1 Manawatū River and Pohangina River Terraces

The Pohangina and Manawatū Rivers run along the eastern edge of the expansive Manawatū Plain that extends westward to the coastal dunes. The river terraces form an abruptly defined edge to the eastern hill country. The river terrace faces along the eastern Pohangina River valley are well vegetated, dominated by native species. Native vegetation extends from the terrace face on to the terrace itself in the vicinity of the corridor. There are also open areas of pasture on this terrace and stock have browsed and trampled the areas of unfenced native vegetation.

In contrast, the Manawatū River terraces south of the Gorge are all grazed with exotic woodlots, shelterbelts and groups of amenity trees. Willows have been planted along the edges of both the Manawatū and Pohangina Rivers and these contrast with the well-established native vegetation growing on the terraces.

Parahaki Island, consists of elevated gravel beaches with rough pasture and willows along the edge. It is located at the mouth of the Gorge and at the confluence of the Manawatū and Pohangina Rivers. Parahaki Island, together with the adjoining Manawatū Gorge Scenic Reserve (which extends on both sides of the Gorge) is recognised as a Regionally Outstanding Natural Feature in the Horizons One Plan.

The Manawatū District Plan identifies the Pohangina River and river valley as one of the District's outstanding landscapes. The boundaries of this outstanding landscape are being reviewed by the Council.

A.8.2 Western Hill Country

The western hill country rises steeply from the river terraces and is broken by deeply incised gullies and streams, many of which are well vegetated, with stands of mature native forest in the gully bottoms and on the sides, together with areas of young regenerating native vegetation and exotic scrub. The hill country is extensively grazed.

Saddle Road is located to the north and well separated from the corridor by a deep, well vegetated gully. Two areas of mature native forest extending over an adjoining gully system are protected by Queen Elizabeth The Second (QEII) National Trust open space covenants.

Turbines of the Te Āpiti Wind Farm are located on both sides of the corridor and sited on the flatter spurs and connected by well-formed access tracks.



Figure 14: Car park and location of the proposed south bridge abutment.



Figure 15: Parahaki Island at the lower end of the Gorge.



Figure 16: View west with the existing SH3 bridge in distance.



Figure 17: Car park on south bank of the Manawatū River (New bridge location).



Figure 18: View looking down the western rise toward the Manawatū River, with a QEII Covenant in foreground.

A.8.3 Ruahine Ridge Crest

At the crest of the Ruahine Range, a wide rolling area of grazed farmland separates the western hill slopes from the generally steeper eastern hill slopes. The Te Āpiti Wind Farm extends over this area with the eastern-most turbine located on the edge of the adjoining steep hill slopes. Te Āpiti is one of several wind farms that have been built along the Tararua – Ruahine Ranges. The Tararua Wind Farm is located on a plateau immediately south of the Gorge.

The series of highest ridges and hilltops along the Ruahine (and Tararua) Ranges are recognised as a Regionally Outstanding Natural Feature: the Manawatū District Plan identifies the ridgeline of the Ruahine Range as an outstanding landscape and the Tararua District Plan identifies the “skyline of the Ruahine Ranges” in its schedule of natural features and landscapes.

The substation and Te Āpiti Wind Farm operational area are located on the ridge crest as are groups of farm buildings and yards; Cook Road is also located on the crest and extends south off Saddle Road towards the corridor. There are small stands of remnant native forest, several of which are protected by QEII National Trust open space covenants.

A.8.4 Eastern Hill Country

The eastern hill country is generally steeper and more broken than on the western slopes and is characterised by short narrow spurs and deep gullies, many of which have streams and areas of native and exotic scrub. Scrub has been sprayed and recently cleared off many of the hill faces and there are small slips on many of the hill faces. Exotic pine woodlots are well established and poplar poles have been planted on erosion-prone slopes.

The streams draining this area drain directly into the Gorge or on to the Manawatū River plain to the east and then into a series of smaller streams and drains, eventually ending up in the Manawatū River.

A.8.5 Manawatū River Valley

The headwaters of the Manawatū River are located in the Ruahine Range northwest of Norsewood. The Manawatū River is unique among New Zealand rivers in that it starts east of the axial ranges and has its outflow on the west. Unlike the river terraces along the Pohangina and Manawatū Rivers on western side of the Ruahine Range, the eastern side has an abrupt transition between the river flats and the steep hill country. There are patches of remnant podocarp forest at the bottom of the toe slopes where it is wet and poorly drained and there are many small tributaries, and farm drains, which eventually discharge into the Manawatū River.

Where the corridor joins the existing road network south of Woodville, the land is well subdivided and intensively farmed. There is also a cluster of rural lifestyle properties in this area.

Moving away from the edge of the hill country the underlying river gravels ensure the area is well-drained. The area is intensely farmed with shelterbelts along the edges of paddocks and along watercourses, together with groups of amenity trees around dwellings.



Figure 19: View from the ridge tops to the east.



Figure 20: The ridge top farm land is dissected by steep vegetated gully systems.



Figure 21: Towards the bottom of the eastern rise the terrain becomes more broken and confused.



Figure 22: View north where the eastern rise (left) meets the plains.

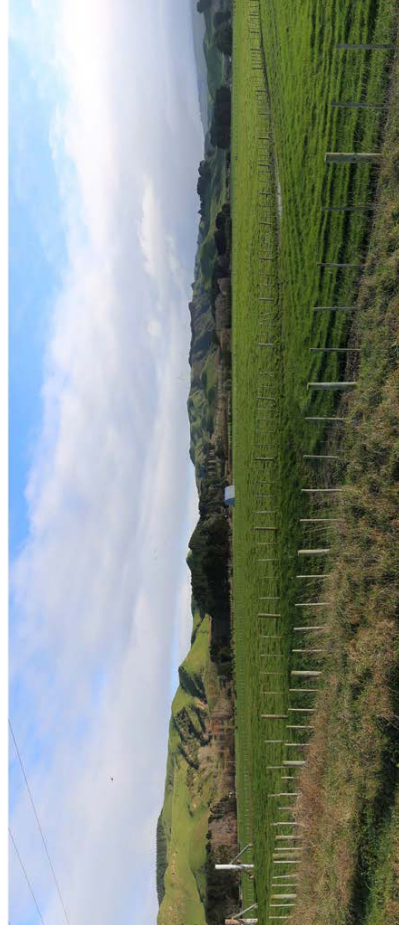
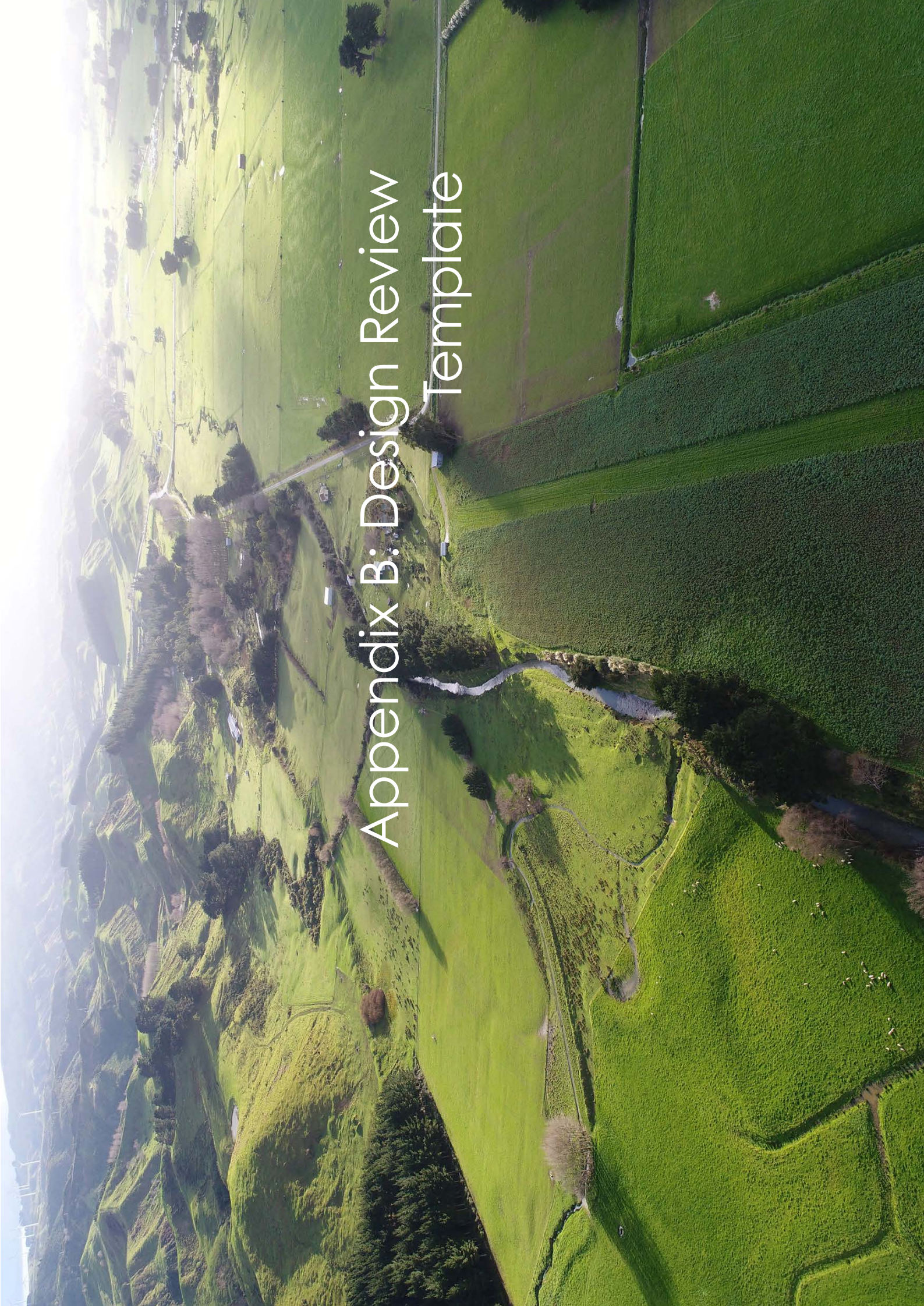


Figure 23: View across the plains to the steep hill country of the eastern rise and windfarm beyond.



Appendix B: Design Review Template

B.1 Design Review Template

DESIGN REVIEW TEMPLATE					
Design Issues	Design Opportunities	Project Vision Supported	Corridor Wide Environmental Principles Supported	Tangata Whenua Principles Supported	Design Response

