Te Ahu a Turanga; Manawatū Tararua Highway

Notices of Requirement for Designations
Volume Two: Assessment of Effects on the Environment and supporting material

NZ TRANSPORT AGENCY
WAKA KOTAHI

New Zealand Government

Te Ahu a Turanga; Manawatū Tararua Highway Project

Notices of Requirement for Designations
Volume 2: Assessment of Effects on the Environment and Supporting Material

31 October 2018

NZ TRANSPORT AGENCY WAKA KOTAHI

New Zealand Government

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Glossary (Defined Terms and Abbreviations)

The following table sets out technical terms and abbreviations used in this Report.

ABBREVIATION/TERM	TERM/DEFINITION
AEE	Assessment of Effects on the Environment
AgResearch	AgResearch Limited
BCR	Benefit to cost ratio
BS	British Standard
CEMP	Construction Environment Management Plan
Ch./Chainage	A distance measured along a straight line. For this Project, Chainage is measured in metres and starts from the west to the east
CNVMP	Construction Noise and Vibration Management Plan
Councils	Palmerston North City Council, Manawatū District Council and Tararua District Council
CTMP	Construction Traffic Management Plan
dB	Decibel
DBC	Detailed Business Case
DIN	German Standard (Deutsches Institut für Normung)
DOC	Department of Conservation
ECDF	Environmental and Cultural Design Framework
Existing routes	Saddle Road and the Pahīatua Track
FFDB	Freshwater Fish Database
GDP	Gross Domestic Product
GPS	Government Policy Statement on Land Transport: 2018/19 – 2027/28
ha	Hectares
HCV	Heavy commercial vehicles
HNZ	Heritage New Zealand Pouhere Taonga
HNZPTA	Heritage New Zealand Pouhere Taonga Act 2014
Horizons	Manawatū-Whanganui Regional Council also known as Horizons Regional Council
HV	Heavy vehicles
IBC	Indicative Business Case

ABBREVIATION/TERM	TERM/DEFINITION
km	Kilometre
km/h	Kilometres per hour
LAWA	Land Air Water Aotearoa database
$L_{Aeq(15min)}$	Time-average sound level over a 15 minute hour period, measured in dB
$L_{Aeq(24h)}$	Time-average sound level over a twenty-four hour period, measured in dB
L_{AFmax}	Maximum sound level, measured in dB
LiDAR	Light Direction and Ranging (an aerial survey method used to make high resolution maps).
LOS	Level of Service
LTMA	Land Transport Management Act 2003
LV	Light vehicles
Gorge	Manawatū Gorge
m	Metres
M	Million
MCA	Multi Criteria Analysis
MDC	Manawatū District Council
MDP	Manawatū District Plan
Meridian	Meridian Energy Limited
MGSR	Manawatū Gorge Scenic Reserve
Mm/s	Millimetres per second
MSE	Mechanically stablised embankment
NES Air	Resource Management (National Environmental Standards for Air Quality) Regulations 2004
NESETA	Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009
NES Soil	Resource Management (National Environmental Standard for Assessment and Managing Contaminations in Soil to Protect Human Health) Regulations 2011
NLTP	National Land Transport Programme
NoRs / NoR	Notices of Requirement for a Designation
NPSET	National Policy Statement on Electricity Transmission 2008
NPSFWM	National Policy Statement for Freshwater Management 2014
NPSREG	National Policy Statement for Renewable Electricity Generation 2011
NPV	Net Present Value
NS	Norwegian Standard
NZECP 34:2001	New Zealand Electrical Code of Practice for Electrical Safe Distances
NZS	New Zealand Standard

ABBREVIATION/TERM	TERM/DEFINITION
NZ Transport Agepncy	New Zealand Transport Agency
ONRC	One Network Road Classification
OP	Outline Plan
PNCC	Palmerston North City Council
PNCDP	Palmerston North City District Plan
PPFs	Protected Premises and Facilities
PPV	Peak particle velocity
Project	Te Ahu a Turanga; Manawatū Tararua Highway Project also known as the Manawatū Gorge Replacement Route Project
PWA	Public Works Act 1981
The Ranges	Ruahine Ranges
Regional Council	Manawatu-Whanganui Regional Council also known as Horizons Regional Council
Requiring Authority	Has the same meaning as section 166 of the RMA and, in the case of the NoRs, is the NZ Transport Agency
RLTP	Horizons Regional Land Transport Plan 2015 – 2025
RMA	Resource Management Act 1991
RoNS	Roads of National Significance
RPTP	Horizons Regional Public Transport Plan 2015-2025
SH2	State Highway 2
SH3	State Highway 3
SH57	State Highway 57
SH57 South	Travel between Aokautere to SH2 north of Woodville
TDC	Tararua District Council
TDP	Tararua District Plan
Territorial Authorities	Palmerston North City Council, Manawatū District Council or Tararua District Council
TIA	Traffic Impact Assessment
Traffic volume	The number of vehicles flowing in both directions past a particular point in a given time (e.g. vehicles per hour, vehicles per day)
Transpower	Transpower New Zealand Limited
$v_{w,95}$	Statistical maximum weighted velocity with 95% probability
vpd	Vehicles per day. The number of vehicles observed passing a point on a road in both directions for 24 hours.
vph	Vehicles per hour
WTSM	Wellington Transport Strategy Model
ZVT	Zone of theoretical visibility analysis

PART A:
INTRODUCTION & BACKGROUND TO THE PROJECT

Part A: Introduction and Background to the Project

1. INTRODUCTION

The New Zealand Transport Agency ("NZ Transport Agency") is giving notices of requirement for designations ("NoRs") to Palmerston North City Council, Manawatū District Council and Tararua District Council for the Te Ahu a Turanga; Manawatū Tararua Highway Project ("the Project"), being the construction, operation, use, maintenance and improvement of approximately 11.5km of new State highway connection between Ashhurst and Woodville to replace the indefinitely closed State Highway 3 route through the Manawatū Gorge.[1]

The name Te Ahu a Turanga has special cultural and historical significance, referring to an historical event and a wāhi tapu near the Project area, and has been gifted to the Project by tangata whenua.

1.1 The New Zealand Transport Agency

The NZ Transport Agency is the Crown entity responsible for providing an integrated approach to planning, funding and delivering transport in New Zealand. The overarching objective of the NZ Transport Agency, as set out in section 94 of the Land Transport Management Act 2003 ("LTMA") is to "*undertake its functions in a way that contributes to an effective, efficient, and safe land transport system in the public interest*".

One of the NZ Transport Agency's statutory functions is to manage the State highway network, including planning, funding, design, supervision, construction, maintenance and operations, in accordance with the relevant statutes.[2]

1.2 Strategic Context

The Project has been developed in accordance with key legislation and transport policy. The key relevant legislation and policies that have guided the development of objectives for the Project, and the evaluation of expected outcomes, include:

- The LTMA, which informs the development of strategy (the Government Policy Statement on Land Transport:2018/19 - 2027/28 ("GPS") and New Zealand Land Transport Programme) as well as plans (such as the New Zealand and Regional Land Transport Plans); and

[1] Drawing C-01 shows the location of the proposed designations in relation to the territorial authority boundaries.
[2] The LTMA and the Government Roading Powers Act 1989.

- The Resource Management Act 1991 ("RMA") including as it is implemented through National Policy Statements, the Horizons One Plan and the Manawatū, Tararua and Palmerston North District Plans.

Under the LTMA, when undertaking its functions, the NZ Transport Agency must amongst other matters:

- exhibit a sense of social and environmental responsibility;
- use its revenue in a manner that seeks value for money; and
- give effect to the GPS.

The GPS, prepared under the LTMA, sets the Government's strategy to guide land transport investment over a 10-year period. The GPS identifies safety and access as the key strategic land transport priorities for the Government, alongside the environment and value for money as supporting priorities. The Project is directly aligned with the GPS priorities through improved travel time, increased resilience, a safer journey and the provision of greater access for all road users. In addition, value for money has been a key consideration in planning for the new connection and identifying a preferred designation corridor.

The National Land Transport Programme 2018 – 2021 ("NLTP") gives effect to the GPS forecasts of activities and expenditure. The NLTP identifies the Project as a key priority and confirms an initial investment for its design and construction.

The Horizons Regional Land Transport Plan 2015 – 2025 (2018 review) ("RLTP") sets out the strategic direction for land transport in the Region. The RLTP recognises a replacement route for the Manawatū Gorge as a key focus area and states that:

> "*It is critical for regional economic growth that the focus remains on the development of an alternative to the Manawatū Gorge as the principal east-west link between Manawatū and Hawke's Bay. Completion of a new route must ensure an improvement to the resilience and availability of the route as well as realising opportunities for connectivity to land use development, freight hubs and efficiency, and tourism.*"

The RLTP identifies an alternative to the Manawatū Gorge route as the first priority project for funding purposes.

The policy context included in RMA plans is set out in Parts D and I of this Report. The relevant objectives and policies of RMA plans are included in Appendix One to this Report.

1.3 Notices of Requirement and Designations

Requiring Authority Status

A NoR may only be given by a requiring authority. Section 166 of the RMA defines a requiring authority as:

> "*(a) a Minister of the Crown; or*
>
> *(b) a local authority; or*
>
> *(c) a network utility operator approved as a requiring authority under section 167*."

The NZ Transport Agency is a network utility operator approved as a requiring authority under section 167(3) of the RMA for:

- the construction and operation (including the maintenance, enhancement, expansion, realignment and alteration) of any State highway network or motorway;[3] and
- the construction or operation of cycleways and shared paths.[4]

The NZ Transport Agency is the requiring authority for the proposed designations.

The Extent of the Proposed Designations and Affected Parties

The extent of the proposed designations (in all three district plans) is shown on plans included in Volume 4. The affected properties (including the areas affected) are included in a schedule in Volume 4 and also listed in the NoRs in Volume 1.

Public Notification

The NZ Transport Agency, as the requiring authority giving notice of its requirement for the designations, requests that the NoRs be publicly notified under sections 169(1) and 149ZCB(2) of the RMA.

1.4 Purpose and Scope of the Information Provided to Support the Notices of Requirement

The information necessary to support the NoRs, addressing all aspects relevant to the consideration and determination of the NoRs,[5] is contained in four volumes, as follows:

Table 1 – Information Provided to Support the Notices of Requirement

VOLUME	CONTENTS
1	NoRs - RMA Form 18
2	Supporting material required by Form 18 and addressing relevant matters under section 171 of the RMA including an assessment of actual and potential effects on the environment of allowing the requirements
3	Technical assessments of the effects on the environment of the construction and operation of the Project
4	Drawings and plans

[3] Resource Management (Approval of Transit New Zealand as a Requiring Authority) Notice 1994.
[4] Resource Management (Approval of NZ Transport Agency as a Requiring Authority) Notice 2015.
[5] This statutory context is set out in Part D of this Report.

Supporting Material (Volume 2)

The structure of this Report (Volume 2) is outlined in the following Table 2.

Table 2 - Structure of this Report

PART	SECTIONS	NAME	CONTENTS
A	1 - 3	Introduction and Background to the Project	The background to the Project, the requiring authority and the Project objectives.
B	4 - 7	Description of the Environment	A description of the environment in which the Project is located.
C	8 – 10	Project Description	A description of both the operation and construction of the Project.
D	11 – 13	Statutory Context	An outline of the statutory matters that are relevant to the Project.
E	14 - 15	Consideration of Alternatives	A summary of the process undertaken to consider alternatives.
F	16 - 25	Consultation and Engagement	A description of the consultation and engagement undertaken, to assist in the identification of persons affected by the Project.
G	26 - 36	Assessment of Effects on the Environment	An assessment of any actual or potential effects on the environment that may result from the construction, operation, and maintenance of the Project.
H	37 – 39	Management of Effects on the Environment	Proposed measures to avoid, remedy or mitigate the identified adverse effects on the environment, including proposed conditions to be imposed on the designations.
I	40 - 47	Statutory Assessment	An assessment of the NoRs against all relevant statutory considerations.
J	-	Appendices	**Appendix One** Relevant Statutory Provisions **Appendix Two** Environmental and Cultural Design Framework **Appendix Three** Preliminary Design Philosophy Report **Appendix Four** Bridge and Retaining Wall Design Philosophy Report

Technical Assessments

The following Table 3 lists the technical/expert assessments that are included in Volume 3:

Table 3 – Technical/Expert Assessments in Volume 3

ASSESSMENT NUMBER	TECHNICAL ASSESSMENT
1	Transport
2	Noise and Vibration
3	Social
4	Landscape, Visual and Natural Character
5	Historic Heritage and Archaeology
6	Terrestrial Ecology
7	Te Ahu a Turanga – Cultural Values Statement: Rangitāne o Manawatū and Rangitāne o Tamaki Nui-ā-Rua
8	Statement of Kahungunu ki Tāmaki Nui-a-Rua Trust – Cultural Values Statement: Ngāti Kahungunu ki Tāmaki Nui-ā-Rua
9	Te Manawaroatanga – Cultural Values Statement: Ngāti Raukawa

1.5 Aspects and Approvals Not Covered in the Report

Other Consents, Approvals or Authorities

There are future consents, authorisations or approvals relating to the Project that are not sought at this time and are therefore not addressed in this Report. These may include:

- the alteration or removal of existing designations;
- regional resource consents that may be required by the Horizons One Plan, including for discharges to land and water and the removal of indigenous biodiversity;
- resource consents that may be required under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011;
- resource consents that may be required under the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009;
- outline plan (or plans) approval under section 176A of the RMA (the NZ Transport Agency is not seeking to waive the requirement to submit outline plans);
- requiring authority consents under section 177 of the RMA for works that may prevent or hinder an existing designated project or public work, including from KiwiRail (for crossing the rail corridor designation on the northern bank of the Manawatū River) and Tararua District Council (for works within the designation for the closed Woodville Landfill);
- an archaeological authority sought under the Heritage New Zealand Pouhere Taonga Act 2014; and
- an authorisation given by the Director-General of Conservation under section 53 of the Wildlife Act 1953 in relation to any protected wildlife.

The Future of Existing State Highway 3 through Manawatū Gorge

The Project will become the new State Highway 3 and will replace the existing route. The details associated with the revocation and/or termination of the existing State Highway 3 route are not part of this Project and will be subject to separate procedures and discussions with stakeholders. This process will be carried out in accordance with the relevant provisions of the LTMA and/or the Public Works Act 1981 ("PWA").

Until such time as the future of the existing route is confirmed the existing designation will remain in place.[6]

The potential future uses of the 'old Manawatū Gorge' are not within the scope of the Project. As the area is still a significant health and safety risk, there are currently no plans to re-open the road for any activities including winning material, cycling or pedestrians.

2. PROJECT BACKGROUND

2.1 Manawatū Gorge Landslides

Since its construction in 1872, State Highway 3 through the Manawatū Gorge has been a vital connection between the west and east of the North Island, connecting:

- the Manawatū-Whanganui region with Hawke's Bay; and
- the communities of Woodville and Dannevirke with Ashhurst and Palmerston North.

The route carried (prior to its closure) approximately 7,600 vehicles per day and was classified as a National Road.[7] It carried freight traffic at a level qualifying it as an important national freight link.

The Manawatū Gorge route had a long history of unplanned closures due to slips blocking the road. Over time, the widening of the road has required large cuts into the southern side of the Gorge. These cuts have steepened the base of the slope and led to greater instability at various locations throughout the Gorge.

Since 1980, seven road closures ranging in duration from two days to 14 months (in 2011- 2012) were recorded. The scale and frequency of land instability events has increased over time, with each event resulting in substantial road user disruption and requiring significant investment to remediate.

For instance, in February 2004, a significant rain event resulted in 9 major slips, 30 smaller slips and significant flooding throughout the Gorge. The largest slip (between 70,000 and 100,000m^3 of colluvium and weathered red argillite) closed the road for 70 days. The larger slips were located in the central sections of the Gorge. This storm event also washed out the Saddle Road Bridge over the

[6] The potential future removal of the designations over the existing route will be dealt with in accordance with section 182 of the RMA.
[7] Under the One Network Road Classification ("ONRC"). The ONRC is a classification system that divides New Zealand's roads into six categories (from 'national' through to 'access') based on how busy they are, whether they connect to important destinations, or are the only route available.

Pohangina River. The following Table 4 sets out the number of significant landslides that have occurred since pre-1930.

Table 4 – Historical Landslide Occurrences (Source: DBC)

YEAR/S	WESTERN SECTION	CENTRAL SECTION	EASTERN SECTION
Pre 1930 - 1940	13	9	
1940	9	12	6
1968-69	4	7	1
1978-80	19	11	6
1985-86	1 (closed for 2 days)		
1990		1 (closed for 8 days)	
1995		3 (closed for 67 days)	
1998		1 (closed for 7 days)	
2004	7	14 (closed for 70 days)	7
2008	1		1
2011-12	1 (closed for 360 days)		
2015	2 (closed for 50 days)		
2017	2 (closed indefinitely)		2

Following a significant landslide in April 2017, the Manawatū Gorge section of State Highway 3 was indefinitely closed. The continued repair and use of the State highway is considered unsafe due to ongoing movement and instability risk, including risks associated with seismic activity. Figure 1 illustrates the historic landslides and future potential landslides in the area. The photographs in Figure 2 and Figure 3 show the extent of the 2017 slip activity at the Kerry's Wall and Anzac slips.

Figure 1 – Manawatū Gorge Historic and Potential Landslides (Source: DBC)

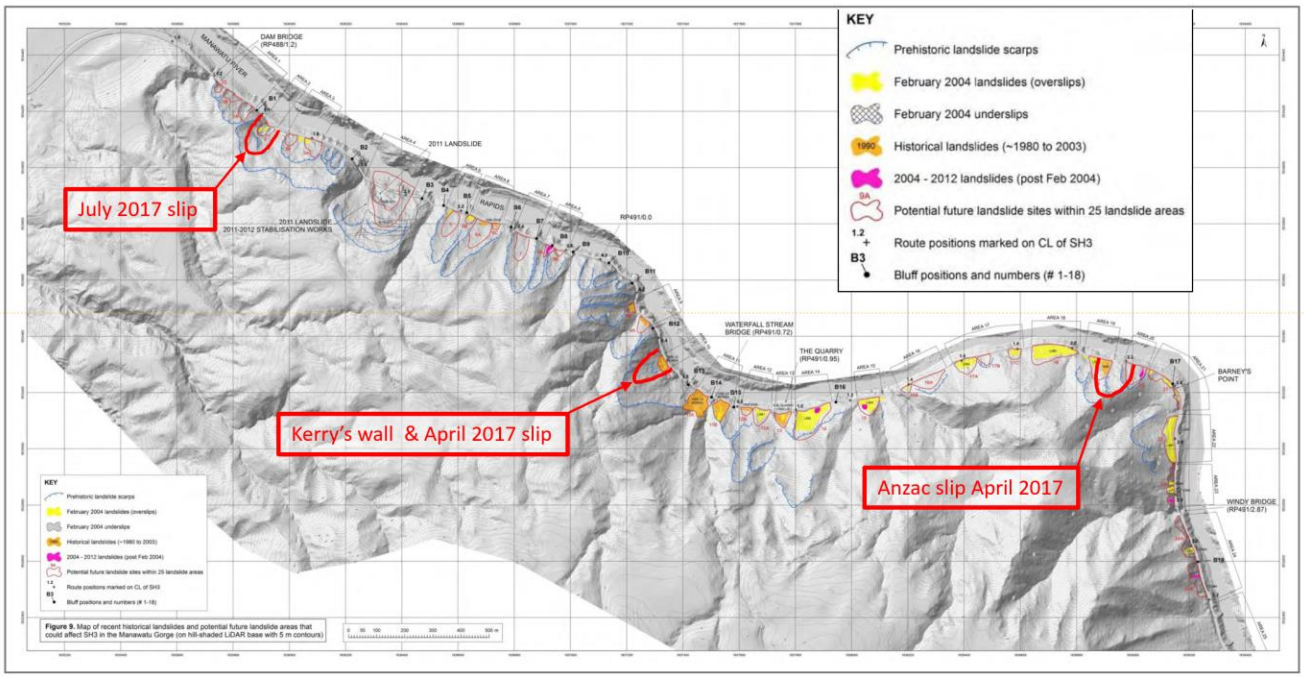


Figure 2 – Photograph of Anzac Slip, April 2017 (Source: NZ Transport Agency website)

Figure 3 – Photograph of Kerry's Wall Slip from western side in February 2018 (Source: NZ Transport Agency website)
- the red circles indicate cracks above Kerry's wall, which are areas assessed as being highly vulnerable to future slips

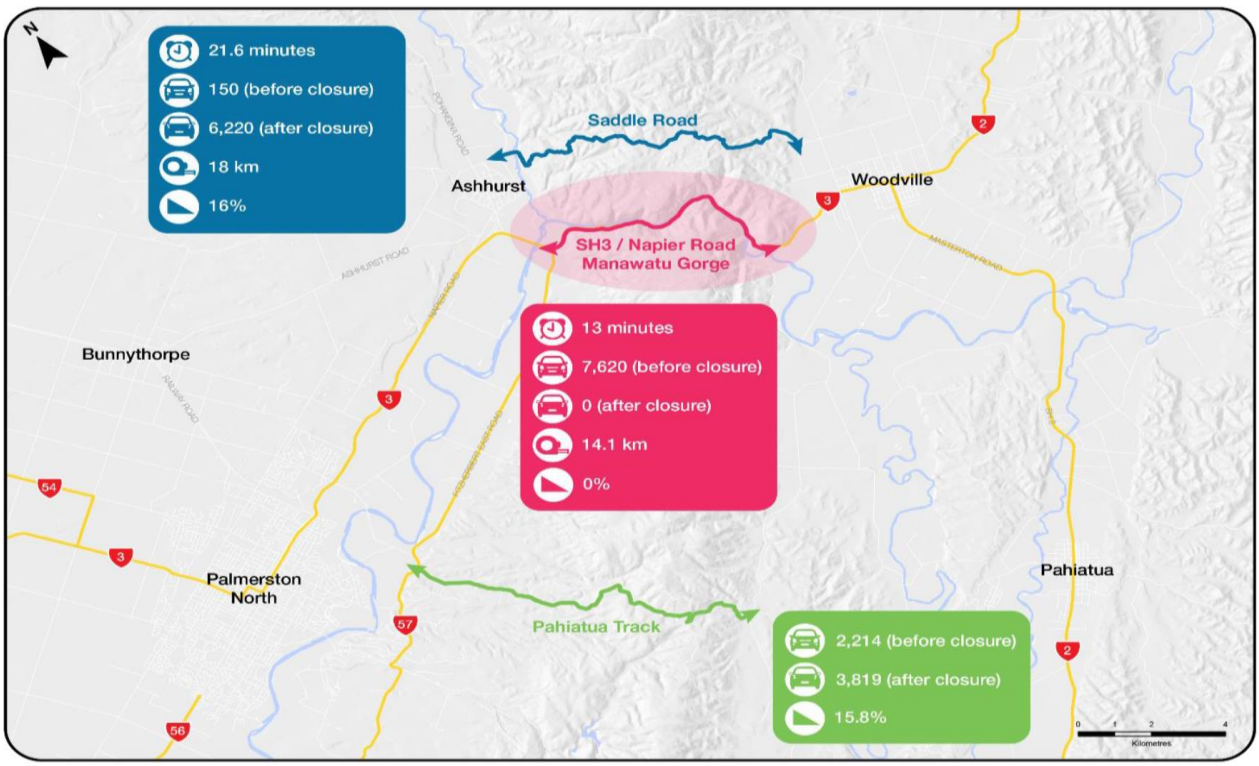
2.2 Identification of a Preferred Corridor

Following the closure of the Manawatū Gorge route, traffic flows have continued at previous levels using the two alternative routes, being Saddle Road and Pahīatua Track. The use of these alternative routes has had significant social, economic and environmental impacts on nearby residents and the wider region and has led to a spike in crash events on the alternative routes. While improvement works on Saddle Road continue, neither of these steep, narrow and winding routes are able to provide an appropriate level of service for a permanent State Highway 3 connection in terms of safety, resilience and efficiency. The location, distance, gradient and traffic volumes on these alternate routes is shown in Figure 4 below.

The scale of impacts of the indefinite closure of the Manawatū Gorge route resulted in an urgent need to identify a safe, resilient and efficient new route and, as such, the NZ Transport Agency undertook an extensive two-stage investigation process to identify a replacement route. This included analysis of a long list of 18 different route options, followed by a short list of four options (culminating in the confirmation of a preferred corridor in March 2018), and further development of connections and the proposed designation boundaries.

The investigation and evaluation of these alternatives is set out in detail in Part E of this Report.

Figure 4 – Current Alternative Route Location, Distance, Gradient and Traffic Volumes (Source: DBC)



3. THE PROPOSED DESIGNATION

The NZ Transport Agency now seeks to designate land to accommodate a new State highway connection. This corridor crosses the Ruahine Ranges, from the State Highway 3 western entry to the

closed Manawatū Gorge, north of the Manawatū Gorge and south of the existing Saddle Road, emerging near Woodville.

The new road will include roundabout connections with State Highway 57 east of Ashhurst and State Highway 3 west of Woodville, as well as a number of new bridge structures crossing the Manawatū River and unnamed streams, and providing property access underpasses. The road will be a median separated carriageway that includes two lanes in each direction over the majority of the route (the second lane provides 'crawler lanes' over and between steeper grades).

A more detailed description of the Project, and its construction, is included in Part C of this Report.

3.1 Project Objectives

The NZ Transport Agency's objectives for the Project (including for the purposes of section 171(1) of the RMA) respond to the indefinite closure of State Highway 3 through Manawatū Gorge, due to geotechnical instability, and the subsequent use of alternate routes that are not safe, efficient or resilient.

The Project objectives are:

- To reconnect the currently closed Manawatū Gorge State Highway 3 with a more resilient connection.
- To reconnect the currently closed Manawatū Gorge State Highway 3 connection with a safer connection than the Saddle Road and Pahīatua Track.
- To reconnect the currently closed Manawatū Gorge State Highway 3 with a more efficient connection than the Saddle Road and Pahīatua Track.

3.2 Project Outcomes

In delivering the Project, and the stated Project objectives, the following benefits are expected to be realised:

- A safe, efficient, and resilient transport corridor. It is expected that the new road corridor will:
  - significantly reduce traffic-related deaths and serious injuries;
  - increase resilience of the corridor;
  - improve travel times by 12.1 minutes per trip for general traffic, and 13.8 minutes per trip for freight that currently use the Saddle Road (with associated reductions in vehicle operating costs).
- Enabled economic development and regional productivity. A new road corridor is expected to:
  - support regional economic activities and productivity including through reductions in operating costs and travel time;
  - avoid the cost of a delay to realising the benefits of the Gorge replacement, which is estimated to be $22M per annum in additional direct travel costs.

The technical assessments in Volume 3 that accompany this Report set out these benefits and illustrate how they will be delivered in more detail.

PART B: DESCRIPTION OF THE ENVIRONMENT

Part B: Description of the Environment

4. INTRODUCTION

This part of the Report provides a description of the human, physical and natural aspects of the existing environment within which the Project will be constructed and operated. It draws on information from a number of sources including the technical assessments included in Volume 3. The potential effects of the Project on this environment and measures proposed to manage these effects are detailed in Parts G and H of this Report.

5. REGIONAL CONTEXT AND ECONOMY

The Project connects Ashhurst and Woodville, across the Ruahine Ranges, and reinstates the principal east-west link between Manawatū and Hawke's Bay.

The Project is located entirely within the Manawatū-Whanganui Region, and traverses and connects the Palmerston North City, Manawatū District and Tararua District territorial authority jurisdictions. These districts have a population of 124,340[8] with the majority of residents living in Palmerston North. Outside of Palmerston North the area is predominantly rural, interspersed with local town services centres, including Ashhurst and Woodville, which are located at the western and eastern extents of the Project respectively.

The regional economy is centred in Palmerston North and has particular strength:

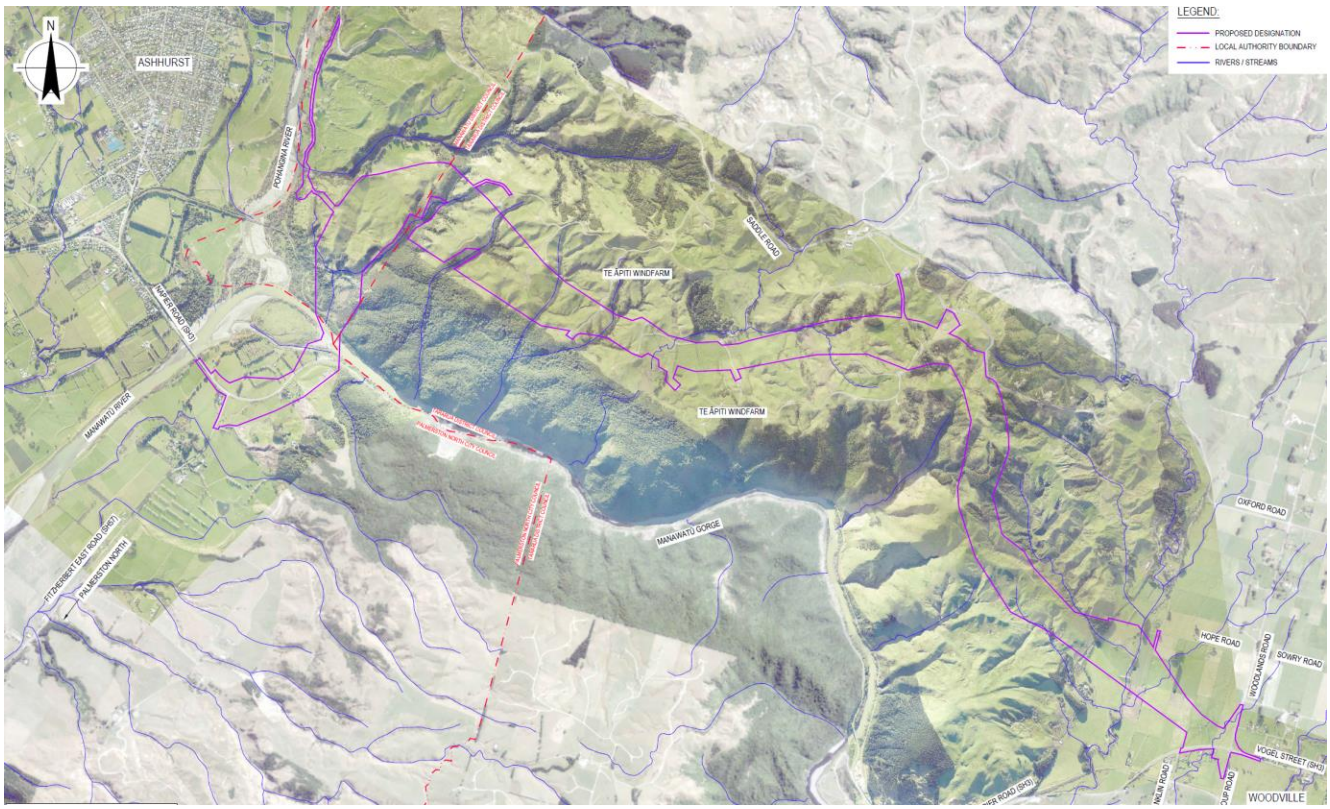
- in transport and distribution, with the growth of a regional logistics hub being consolidated in the North East Industrial Zone in Palmerston North;
- in food product manufacturing, and particularly value-added manufacturing, supported by processing red meat and dairy from the Rangitikei, Manawatū, and Tararua Districts;
- in agricultural and scientific research, supported by Massey University and exemplified by Food HQ (a collaboration between internationally recognised companies, research and educational institutions, mostly based within a one kilometre radius in Palmerston North); and
- as a public sector hub, including a substantial health and New Zealand Defence Force workforce.

Sustaining and growing the regional economy, including the key components listed above, depends on maintaining high quality and efficient transport links (including an east-west connection).

[8] 2013 Census.

The Project is located in the southern foothills of the Ruahine Ranges and north of Manawatū Gorge. Manawatū Gorge is the boundary between the Tararua and Ruahine Ranges and is 16 kilometres east of Palmerston North, 31.7 kilometres south west of Dannevirke and approximately 155 kilometres north of Wellington. Figure 5 shows the Project in its context (including territorial authority boundaries).

Figure 5 – Project Context (Source: Volume 4: Drawings and Plans C-01)



6. HUMAN ENVIRONMENT

6.1 Heritage Environment

Māori Settlement

The description of Māori settlement below has been derived from documentary records summarised in Technical Assessment 5 (Historic Heritage and Archaeology) by Clough and Associates (Volume 3).

The wider Manawatū, Whanganui and Wairarapa areas were settled and occupied by various iwi, including the Rangitāne tribe (whose ancestor, Whatonga, came to New Zealand as one of three chiefs in command of the Kurahaupō canoe), Ngāti Kahungunu, and Ngāti Raukawa, among others. The areas are rich in cultural association and histories.

The Manawatū Gorge is recognised by iwi as one of the main routes connecting the east and west and is named Te Āpiti, meaning the narrow passage that is situated between two mountain ranges, Te Hononga Maunga. An early walking track along the river was formed by Māori in order to carry waka

over land when the river was low. The rapids of the Manawatū River are called Te Au-Rere-a-Te Tonga, meaning 'the rushing current of the south'.

The Gorge (and the adjoining Ranges) also encompass a number of cultural and spiritual values, including geological and landscape features and mahinga kai.

In Rangitāne history, the spirit, Okatia possessed a giant tōtara tree on the Puketoi Ranges (east of Woodville). Okatia became restless and decided to explore new places. He uprooted his tōtara tree and headed in a north-west direction, gouging a channel behind him. When he met the mountain range, he forced his way straight through, dividing the Tararua and Ruahine Ranges.

A carved rock on the hilltop near Saddle Road marks a battle site where ancestors were killed. According to legend, the bodies were collected and heaped and then turned to stone. The rock and hilltop are therefore a deeply significant cultural site and are named Te Ahu a Turanga.

Māori settlement in the area has been concentrated along the margins of rivers, with the rivers and surrounding forest being abundant sources of food. Pā were strategically located, for instance at the entrance to the Manawatū Gorge (now part of Ashhurst Domain) and the 'Raukawa pā' near Ashhurst, which was a base for the gathering of hīnau berries. During the 19th century, Māori had several small occupation sites along the Manawatū and Pohangina Rivers, such as Raparuhe, Te Ponga, Te Wharau, and Parahaki. The Parahaki kāinga (village) was established on an island known as Parahaki or Moutere Island at the confluence of the Manawatū and Pohangina Rivers. The village was the site of burial ceremonies. Parahaki Island is now Māori freehold land and a highly valued cultural site.

Figure 6 – View east at mouth of Manawatū Gorge over Parahaki Island

Following the arrival of European colonists, Rangitāne chief Te Peeti Te Awe Awe (leader of the Ngāti Hineaute 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 the 1880s Rangitāne's remaining land was largely situated to the east of the Manawatū Gorge.

European Settlement

Māori guided the first European, Jack Duff, through the Manawatū Gorge in 1830. By 1870, a more substantial bridle track through the Gorge had been developed for foot and horse traffic. In the same year the construction of a railway started, but it was not fully completed until 1891. The Upper Gorge Bridge was constructed in 1875 and provided coach communication to Hawke's Bay. The original bridge was washed away in a flood in 1895. Over this timeframe substantial forest clearance occurred and by 1900 very little native forest remained on the plains.

Forest Reserve north and south of the Manawatū Gorge, along the line of the Tararua and Ruahine Ranges, was created by the Crown during the 1880s. Subsequently, the reserve status was uplifted from a part of this land that is located to the north east of the confluence of the Manawatū and Pohangina Rivers. This land was leased and used for timber milling and sheep farming.

The township of Ashhurst, located to the west of the Manawatū Gorge, is situated on land that was acquired by the Crown in 1864 as part of the purchase of the Ahuaturanga Block, or the upper Manawatū Block. A portion of this land was subsequently purchased by Colonel William Feilding, in early 1870, on behalf of the Emigrants and Colonists Aid Corporation, to assist immigration of British working class people to New Zealand. Ashhurst was surveyed at a clearing in the bush, known as Otangaki in 1877 and was named after Henry George Ashhurst, a director of the Emigrant and Colonists Aid Corporation.

By 1879, the township had increased significantly as a base for those involved in developing the Pohangina Valley, due to its strategic location in proximity to the Manawatū Gorge Road and railway line between Whanganui and Napier. 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 in the main street of the township.

East of the Manawatū Gorge, the township of Woodville was established at the road and rail junction between the Wairarapa, Hawke's Bay and Manawatū regions, earning its informal name of 'The Junction'. Settlement began with the sale of the first rural and suburban sections in 1875, with many of these sections purchased by road workers or those employed to construct the Hawke's Bay Railway. Land sales continued throughout the 1870s and the establishment of dairy farms in and around the Woodville area helped to support growth.

By 1883 Woodville included several houses, a hotel, a butcher, bakery, bootmaker, general store, schoolroom and a branch of Bank of New Zealand. Woodville's population had grown to 1,100 residents by 1908. Between 1895 and 1910, sawmills in and around the Woodville area produced significant quantities of firewood and sawn timber. Production was aided by the nearby rail lines, including from Napier, which reached Woodville in the 1880s, and the Palmerston North line, which was constructed in the 1890s.

6.2 Land Use

The townships of Ashhurst and Woodville are located on the terraces and plains at either extent of the proposed designation. Dwellings are more prevalent near these townships including along State Highway 3 (Napier Road), between Ashhurst and Palmerston North, where there are a number of lifestyle blocks. The Ruahine Ranges separate the two townships.

In the past the hill country of the Ruahine Ranges would have been covered in dense podocarp-broadleaved native forest but, by the turn of the twentieth century, much of the forest had been cleared for pastoral use such that the majority of the designation traverses rural farmland, used predominantly for sheep and beef cattle farming, and more recently including exotic woodlots.

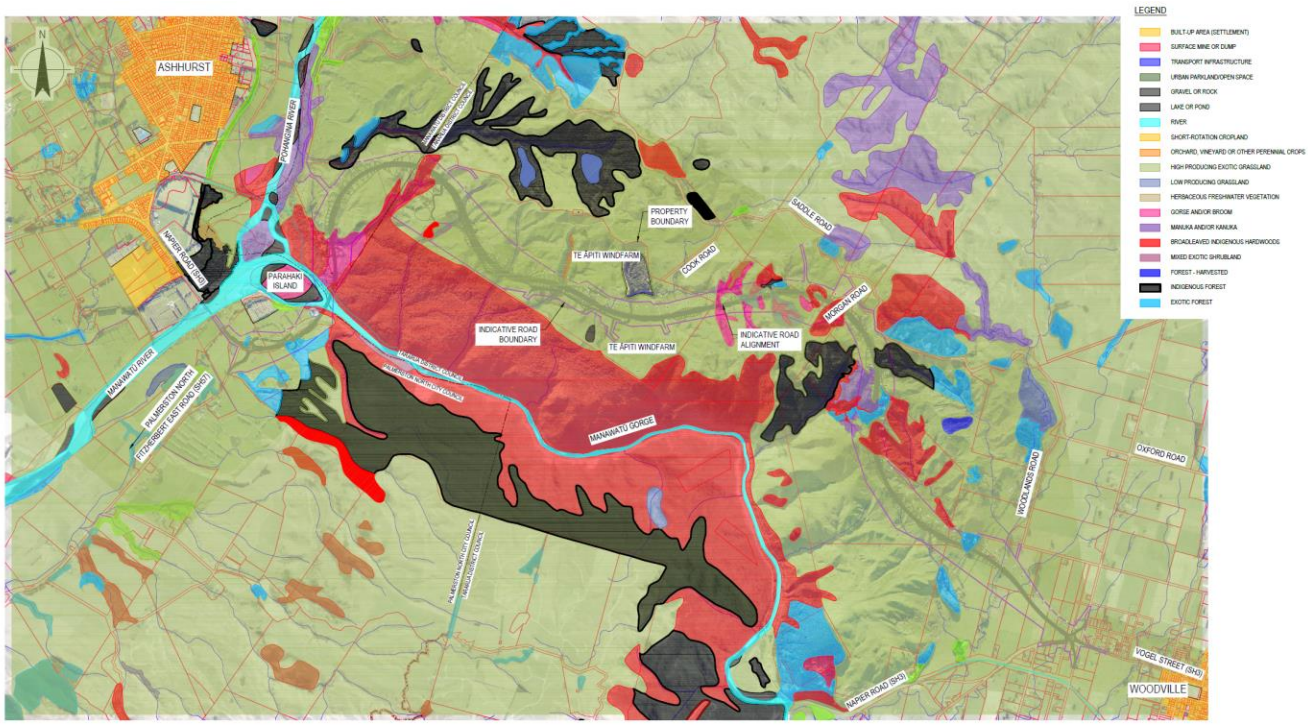
While predominately hill country farmland, the Project area includes areas of remnant forest protected by Queen Elizabeth II Trust ("QEII") open space covenants. The proposed designation traverses two of these areas.

Outside of the proposed designation, extensive areas of native forest are located on both sides of the Gorge and are protected by the Manawatū Gorge Scenic Reserve that is administered by the Department of Conservation ("DOC"). The Scenic Reserve includes popular walking tracks through native forest on the southern side of the Gorge.

A long-term fertiliser trial site is located on the AgResearch's Ballantrae Hill Country Research Station, north of the Gorge near the eastern end of Saddle Road.

The following Figure 7 shows the land cover across the Project area.

Figure 7 – Land Cover (Source: Volume 4: Drawings and Plans C-08)



Utilities and Infrastructure

In addition to the road transport network that is described below, the following network utilities and infrastructure are located within or near the proposed designation and will require protection and/or relocation as part of the Project:

- KiwiRail's Palmerston North to Gisborne railway, which follows the northern bank of the Manawatū River through the Manawatū Gorge;
- Te Āpiti wind farm (owned by Meridian), located to the north of the Manawatū Gorge;

- First Gas' high pressure gas pipeline, which also crosses the Ruahine Ranges in the vicinity of Saddle Road;
- Tararua District Council's closed Woodville Landfill that is located off Saddle and Morgan Roads;
- Transpower's Mangamaire – Woodville A 110kV transmission line that follows Woodlands and Troup Roads; and
- A number of other utilities such as local water supply, stock water, telecommunications and electricity supply infrastructure.

Figure 8 – View west across Te Āpiti wind farm towards Ashhurst

Noise Environment

The existing noise environment has been confirmed by site observations, acoustic modelling of existing road traffic, and sound level measurements.

The existing noise environment includes relatively high road-traffic noise levels in parts of Ashhurst and Woodville as a result of traffic passing through the wider area and connecting to Saddle Road; this situation has arisen as a result of the closure of SH3 through the Gorge. Residents in Ashhurst have reported significant disturbance from noise and vibration caused by this traffic, particularly from heavy vehicles. Modelling shows that in the order of 100 houses are currently exposed to over 57 dB $L_{Aeq(24h)}$.[9] Poorly silenced engine brakes on heavy vehicles descending Saddle Road can also be clearly audible in Ashhurst.

[9] 57 dB LAeq(24h) corresponds with Category A under the 'new road' criteria in NZS 6806, which is the primary criterion sought to be achieved, if practicable, when developing a new road.

Conversely, the closure of the Manawatū Gorge route has reduced traffic volumes, and associated road-traffic noise, on State Highway 3 (Napier Road) between Cambridge Avenue and the Manawatū River, and predicted sound levels range from 49 to 62 dB $L_{Aeq(24h)}$ at nearby houses. Traffic flows are similarly modest in the vicinity of the State Highway 3 and State Highway 57 intersection. One house at this intersection is predicted to be exposed to around 56 dB $L_{Aeq(24h)}$ and disturbance due to vehicle braking and acceleration.

At the location of the new Manawatū River bridge, road-traffic from the wider area is still audible in the distance, along with natural sounds from the river and vegetation. There are sporadic local sounds from visitors and their vehicles. It is likely this area is generally perceived as being relatively quiet. In the pre-existing environment (when the section of SH3 through the Manawatū Gorge was open) there was regular road-traffic adjacent to this area and associated noise.

Where the proposed designation crosses the Ruahine ranges, the noise environment is often dominated by wind generated sound and the sound of the Te Āpiti wind farm. Farm activity, road traffic and train movements will be audible in some locations on occasions.

In Woodville there are in the order of 45 houses that are currently exposed to over 57 dB $L_{Aeq(24h)}$ and in the order of 7 houses exposed to over 64 dB $L_{Aeq(24h)}$.[10] The existing route on Vogel Street through Woodville has various road surface and pavement irregularities and vibration from heavy vehicles is perceptible adjacent to the road in places. On the outskirts of Woodville on Woodlands Road, Oxford Road and Pinfold Road, there are in the order of 15 houses that are currently exposed to over 57 dB $L_{Aeq(24h)}$ and in the order of 7 houses exposed to over 64 dB $L_{Aeq(24h)}$.

Zoning and District Plan Features

As noted above, the Project traverses Palmerston North City, Manawatū District and Tararua District. Appendix One sets out the relevant district plan provisions that apply in each of these jurisdictions and includes the relevant district plan planning maps. The proposed designations are primarily over land that is zoned rural in the relevant district plans. Where adjacent to the Manawatū and Pohangina rivers the Project traverses the Flood Protection Zone and Flood Channel 2 Zone in the Palmerston North City and Manawatū District Plans respectively. The designation is also over areas identified as "covenanted areas" in the Tararua District Plan. These are the areas subject to a QEII Trust covenants.

The proposed designation is also over KiwiRail's designation for the Palmerston North – Gisborne railway in Manawatū District, and Tararua District Council's Woodville landfill designation in the Tararua District Plan (refer to Volume 4: Drawings and Plans).

The broad landscape includes features recognised as Outstanding Natural Features and Landscapes within Schedule G (Landscapes) of the Horizons One Plan, Manawatū District Plan, Tararua District Plan and Palmerston North City District Plan.

6.3 Social Environment

The townships of Ashhurst and Woodville are located at either extent of the proposed designations. Ashhurst is a small satellite community located 14km north-east of Palmerston North at the base of the Ruahine Ranges. The 2013 Census records Ashhurst as having a population of 2,778. Ashhurst

[10] 64 dB LAeq(24h) corresponds with Category B under the 'new road' criteria in NZS 6806. If compliance with that criterion is not possible, the Standard encourages mitigation to be implemented to ensure the internal criterion in Category C is achieved.

has a primary school, kindergarten and play centre. Community facilities include a library, churches, aquatic centre, sports grounds, domain and community centre. The community is serviced by bus services to Palmerston North (approximately 4 trips on weekdays and once during weekends).

Woodville is located at the junction of State Highway 2 and State Highway 3, and to the east of the Ruahine Ranges, and provides a thoroughfare for travellers within the Region. In 2013 the population of Woodville was approximately 1,400. Within Woodville there is a primary school (Woodville School) play centre and kōhanga reo, and there are two other primary schools in the Woodville district (Kumeroa/Hopelands and Papatawa). Community facilities include a library, marae, churches, council offices, recreation and sports grounds and a community centre. The Tararua i-SITE Visitor Information Centre is located in Woodville.

Between Ashhurst and Woodville the proposed designation traverses predominantly farming properties, including the Te Āpiti wind farm and AgResearch's fertiliser trial site at Ballantrae Hill Country Research Station.

Traversing the Ruahine Ranges (both historically using the Manawatū Gorge, or the current alternative routes) is a daily occurrence for many for the purposes of employment, education, social, recreational, health and retail activities. Te Āpiti – Manawatū Gorge is a landmark for the area and the location of tourism and recreational opportunities.

The 2013 Census identified 202 business locations and 340 paid employees in Ashhurst, and 106 business locations and 220 paid employees in Woodville.

6.4 Cultural Environment

Rangitāne o Manawatū, Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) and Ngāti Kahungunu ki Tāmaki Nui-ā-Rua have identified an interest in the Project and have attended a site visit (20 July 2018), as well as a series of hui and broader stakeholder workshops in relation to the Project. Ngāti Raukawa have also identified an interest in the Project.

The NZ Transport Agency appreciates and respects that issues such as 'areas of interest' and mana whenua are for Māori to determine in accordance with tikanga and it is not the role of the NZ Transport Agency to seek to define those matters. The NZ Transport Agency seeks to operate in a manner that is respectful of tikanga and seeks to ensure that Māori who identify with an area have the ability to express that, if they wish to do so, through the statutory processes. Consequently, an open and inclusive approach is adopted. The NZ Transport Agency acknowledges there will be different layers and strengths of history, association and interests, and again the NZ Transport Agency has no role in defining or resolving those matters.

The Rangitāne o Manawatū Claims Settlement Act 2016, Deed of Settlement and accompanying documents describe the relationship between Rangitāne o Manawatū and land that is identified as their area of interest, including land subject to the proposed designations for the Project. The Rangitāne o Manawatū Claims Settlement Act 2016 includes statutory acknowledgements and accompanying statements of association in respect of:

- Manawatū Gorge Scenic Reserve;
- Manawatū River and tributaries; and
- Pohangina River.

The Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) Claims Settlement Act 2017, Deed of Settlement and accompanying documents set out the relationship between Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) and land that is identified as their area of interest, including land subject to the proposed designations for the Project. The Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) Claims Settlement Act 2017 includes a statutory acknowledgement of the Manawatū River and its tributaries.

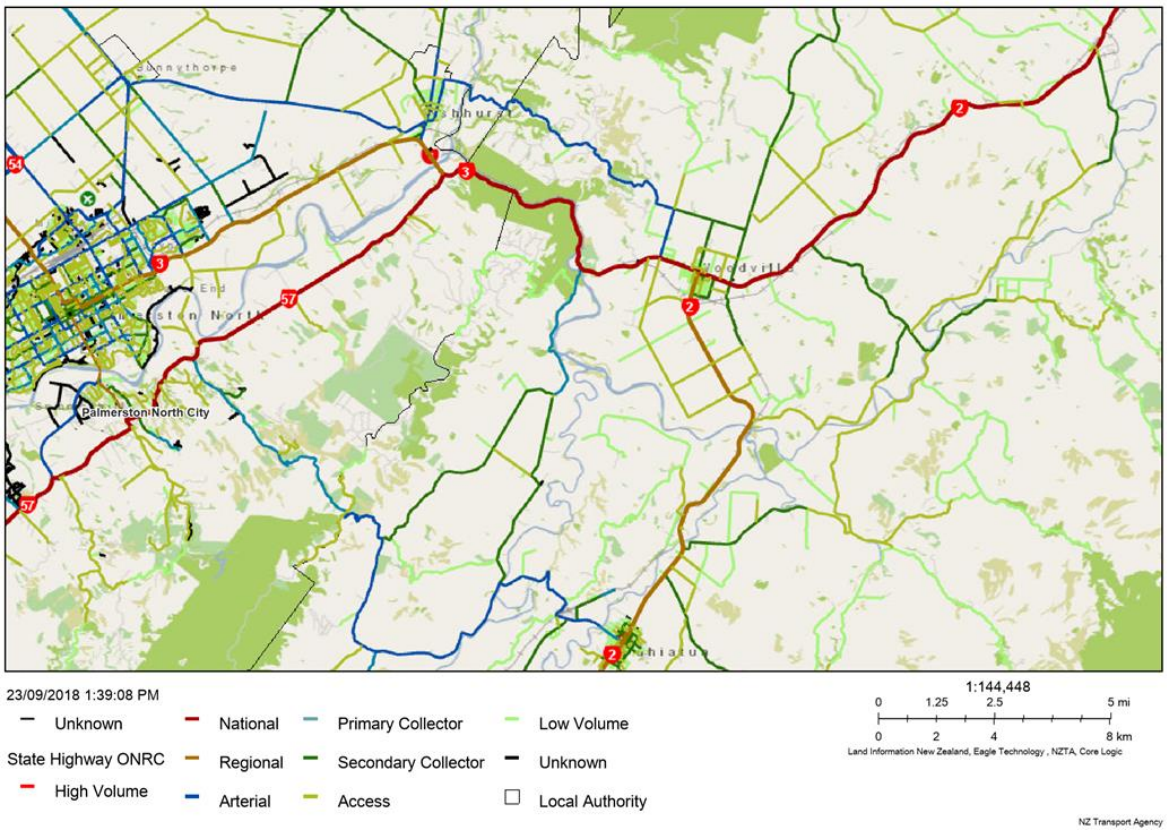
The Crown and Ngāti Kahungunu ki Wairarapa Tāmaki Nui-ā-Rua initialled a Deed of Settlement earlier this year. The Deed, and accompanying documents similarly describe the relationship between Ngāti Kahungunu ki Wairarapa Tāmaki Nui-ā-Rua and their area of interest, including land that is subject to the proposed designations for the Project.

The NZ Transport Agency has been engaging further with Ngāti Raukawa with a view to confirming Ngāti Raukawa values and relationships and assessing the actual and potential effects of the Project on those values and recognising those relationships.

6.5 Transport Environment

The regional transport network, including the One Network Road Classification for various routes, is shown on Figure 9 below. This Figure shows the three east-west connections across the Ruahine Ranges, including the closed Manawatū Gorge route (national), Saddle Road to the north (arterial) and the route known as Pahīatua Track (primary collector).

Figure 9 – Regional Transport Network (Source: NZ Transport Agency)



Prior to its closure, the Manawatū Gorge route carried approximately 7,620 vehicles per day, with heavy vehicles making up 11.3% of the traffic. The closure of the Gorge has not resulted in lower

traffic volumes traversing the Ruahine Ranges rather, traffic volumes have redistributed with 80% of traffic shifting to Saddle Road, while the rest has re-routed along the Pahīatua Track. Daily traffic volumes on Saddle Road and the Pahīatua Track have increased from approximately 150 to 6,220 and from approximately 2,214 to 3,819 vehicles respectively. This has resulted in road users experiencing significantly longer travel times (see Figure 4 in section 2.2). For instance, the travel time between east and west through Saddle Road is 21.6 minutes for light vehicles, which is almost 9 minutes slower than the travel time was on the closed Manawatū Gorge.

Saddle Road connects to Salisbury Street the through the centre of Ashhurst. Increased traffic volumes have resulted in additional noise and vibration, increased traffic delays and raised safety risk.

Along its length, Saddle Road provides rural property access and access to the Te Āpiti wind farm. At Woodville, Saddle Road connects to Oxford Road/Woodlands Road. Saddle Road has a steep curvilinear alignment with one lane in each direction and climbs approximately 300m vertically. Sporadic slow vehicle passing opportunities are provided in the uphill direction. The Level of Service ("LOS")[11] of Saddle Road is currently assessed as acceptable, but predicted to be 'worst performance' (LOS E) by 2041.

Pahīatua Track (Pahīatua Aokautere Road) connects Aokautere (State Highway 57) to Pahīatua (State Highway 2). At the Aokautere end, State Highway 57 provides access to the north (Ashhurst) and south/west (Levin and Palmerston North). Pahīatua Track provides lifestyle block and rural property access. At the eastern end, Pahīatua Aokautere Road connects to Makomako Road and loops to the south before heading north and east to Pahīatua. There are a number of alternative routes to connect with State Highways 2 and 3. Pahīatua Track has a narrow curvilinear alignment with one lane in each direction. Limited passing opportunities are provided. The route climbs approximately 350m vertically.

There are fundamental operational issues associated with the terrain, pavement construction and geometry of both Saddle Road and the Pahīatua Track. The extra distance and higher gradients on both routes have led to higher vehicle operating costs, particularly for HCV, since the closure of the Manawatū Gorge route. These costs have been estimated at approximately $60,000 per day, or more than $22M per annum.

In terms of safety, since the closure of the Manawatū Gorge route, crashes on Saddle Road from Ashhurst to Woodville have spiked, which is likely to be attributable to the significant increase in traffic using Saddle Road. There has not been a significant change in crash numbers on State Highway 57 from Aokautere to State Highway 3, but there has also been an increase in the number of crashes on Pahīatua Track from Aokautere to Woodville.

There are no public transport services on either of the current east-west connections. Intercity operate inter-regional bus services connecting Napier, Wellington, Gisborne, Palmerston North, Tauranga and Masterton. These services use Saddle Road. Several school buses also travel between Dannevirke and Palmerston North daily via Saddle Road.

The Palmerston North to Gisborne rail line runs through the northern side of the Manawatū Gorge. Currently this line carries freight services only.

[11] Estimated using the Level of Service ("LOS") typical curve contained in the Highway Capacity Manual 2010, Chapter 14 Exhibit 15-5

The main Fire and Emergency New Zealand facilities and St Johns ambulance services are located in Palmerston North. These services rely on Saddle Road to provide connection to the adjacent eastern districts such as Tararua.

Walking and cycling routes are focussed around Ashhurst and Manawatū Gorge including:

- the Manawatū River shared path between Ashhurst and Palmerston North;
- walking trails around Ashhurst Domain (west of Manawatū River) and through the Manawatū Gorge (east/south of Manawatū River); and
- the cycle route traversing Pahīatua Track, which forms part of the New Zealand Cycle Trail Touring Route (currently the 10km section on Pahīatua Road is closed due to the increased volumes of traffic since the Gorge closure).

The Manawatū Gorge walking track is the primary walking route between the western and eastern ends of the Gorge, and has remained open and accessible following the closure of the Gorge. The track is accessible from State Highway 3 and car parks for recreational users are located at the western and eastern ends of the Gorge. Figures from 2016 indicate that the Manawatū Gorge recreational area has over 100,000 visitors annually, with walking track numbers increasing by 350 percent since 2012.[12]

7. NATURAL AND PHYSICAL ENVIRONMENT

7.1 Topography and Landscape Context

The landscape traversed by the proposed designations comprises steep hill country ranging from 200 metres above sea level to the south and 400 metres above sea level to the north, with deeply incised gullies that contain remnant or regenerating native vegetation and areas of exotic scrub. Further north, the landform rises steeply to Wharite Peak, a prominent landmark at 920 metres above sea level on which a television repeater tower is located. Native forest covers the upper slopes of Wharite Peak to the north of the corridor.

The Manawatū Gorge Scenic Reserve extends on both sides of the Gorge and contains an extensive area of native forest. The Reserve provides a distinctive contrast to the surrounding farmland and a contextual southern 'boundary' to the Project. The Manawatū River flows through the Gorge from the east to west, bisecting the North Island's main axial ranges. There are views from open parts of the walking tracks on the southern side of the Gorge to the Te Āpiti and Tararua wind farms.

The Project area is traversed by a number of waterways, all of which are tributaries of the Manawatū or Pohangina Rivers.

At the broad scale, the landscape is expansive, comprising several easily recognised landforms – mountain ranges, hills, plains and terraces. At the designation corridor level, the landscape is more complex with short broken ridges, spurs, and deep gullies. Technical Assessment 5 (Landscape,

[12] http://www.teapiti.com/updates/2017/11/2/additional-facilities-enhance-te-apiti-manawatu-gorge-visitor-experience.

Visual and Natural Character) has identified five different landscape character areas as shown in Figure 10 and further described in Table 5 below.

Figure 10 – Landscape Character Areas (Source: Volume 4 Drawings and Plans C-09)

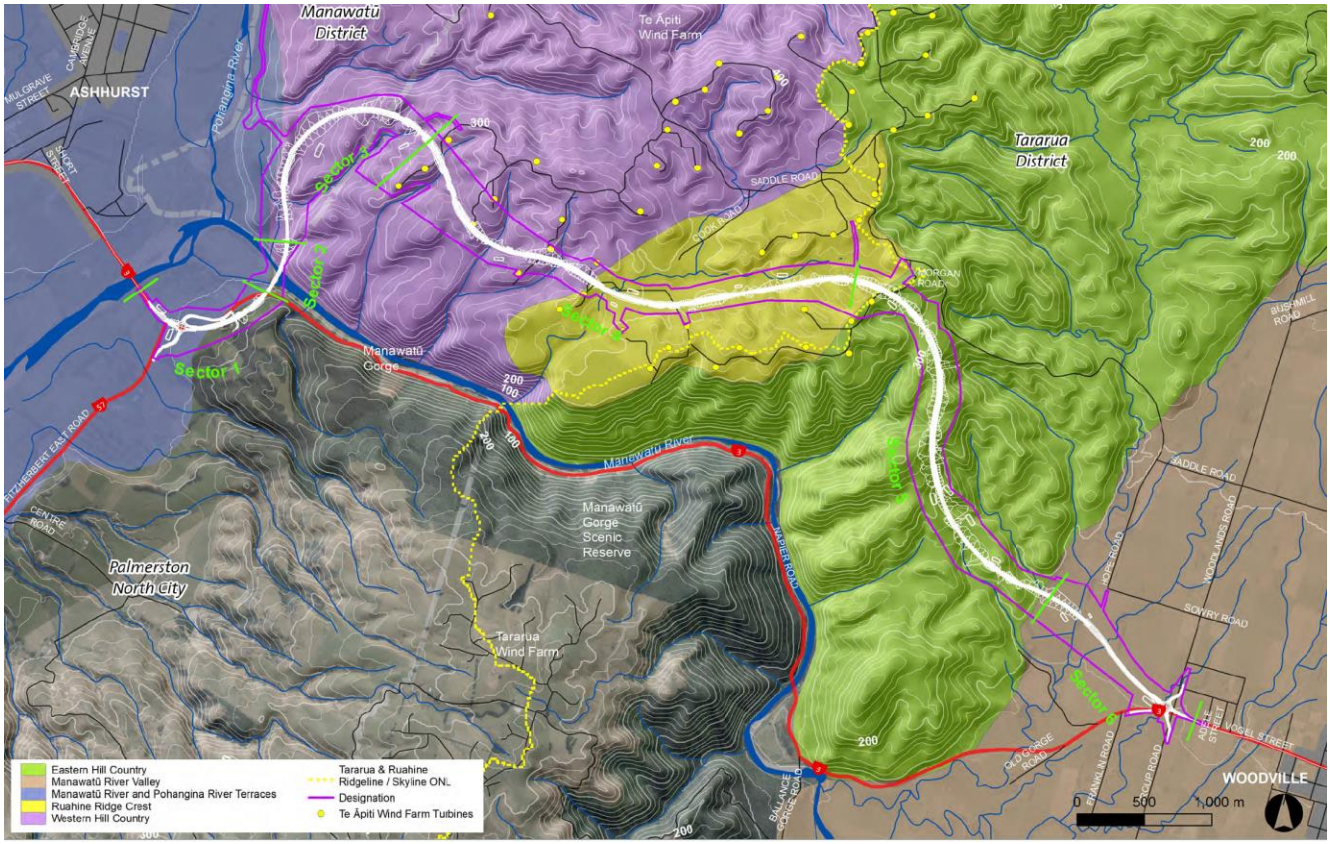


Table 5 – Landscape Character Areas

LANDSCAPE CHARACTER AREA	DESCRIPTION
Manawatū River and Pohangina River Terraces	The Pohangina and Manawatū Rivers run along the eastern edge of the 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, extending from the terrace face and on to the terrace itself. There are also open areas of pasture on this terrace and stock have browsed and trampled the areas of unfenced native vegetation. 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. Parahaki Island, at the confluence of the Manawatū and Pohangina Rivers, is an area of elevated gravel beaches with rough pasture and willows along the edge.
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 native forest extending over

LANDSCAPE CHARACTER AREA	DESCRIPTION
	an adjoining gully system are protected by QEII 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.
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. The Te Āpiti Wind Farm operational area is located on the ridge crest as are groups of farm buildings and yards. Cook Road is located on the crest and extends south off Saddle Road. There are small stands of remnant native forest, several of which are protected by QEII National Trust open space covenants.
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 recently sprayed and 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.
Manawatū River Valley	The headwaters of the Manawatū River are located in the Ruahine Range northwest of Norsewood. The eastern side of the Ruahine Range transitions abruptly from steep hill county to river flats There are patches of remnant podocarp forest at the bottom of the toe slopes. There are many small tributaries and farm drains that 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.

Figure 11 – View south across the western hill country towards the Manawatū and Pohangina Rivers

Figure 12 – View west across western hill country towards Ashhurst

Figure 13 – View east across eastern hill country towards Woodville

Figure 14 – View west towards eastern hill country

7.2 Landforms, Geology and Natural Hazards

The Project is situated between Saddle Road to the north and the Manawatū Gorge Scenic Reserve to the south and runs through Te Āpiti Wind Farm on part of a landform referred to as the Manawatū Saddle, a structural sag in the otherwise continuous mountain axis formed by the Ruahine and Tararua Ranges. The geomorphology of the area is shown on drawing C-07 in Volume 4.

The proposed designation traverses a short section on the edge of the Manawatū Plain then crosses the Manawatū River near the confluence with the Pohangina River before rising quickly up the steep hill slopes to a flattish area along the ridge crest. The proposed designation then descends through steep hill country on the eastern side and then on to the alluvial river plain south of Woodville.

South of the Gorge, the Tararua wind farm is located on the Tokomaru Marine Terrace and adjoining hill slopes. To the west of the ranges, the Manawatū River meanders generally south-westwards through the relatively young Manawatū Plain landscape (c. 500,000 years). The old seabed of the Manawatū Plain has been affected by movements in the underlying rock, producing a series of domes with intervening low areas. The Pohangina River, which flows between the Ruahine Range on the east and the Pohangina Dome on the west, joins the Manawatū River at Ashhurst. The Pohangina Valley occupies the area between the Ruahine Ranges and the Dome.

Tectonic forces have influenced landform both directly through active faulting and folding and indirectly as a result of effects on stream patterns and drainage. Slopes vary in steepness over short distances and slips are reasonably common throughout the area.

The wider Project area has a complex geology, with a number of geological formations showing contrasting geological behaviours. It is a seismically active area due to the presence of a number of active and inactive fault lines, including the Wellington and Mohaka Faults. The proposed designation crosses two active faults and, therefore, there is a risk of rockfall, landslides and ground rupture as a result of a seismic event.

River flooding as a result of sustained or high intensity rainfall is the most frequent and widespread hazard throughout the Manawatū – Whanganui Region. Significant flood events occurred in 2004 and 2015 that impacted wide parts of the region, including the Project area. The primary flood risk areas in the lower river system of the Manawatū River are Palmerston North, Feilding, Foxton and Foxton Beach, while Pahīatua is the primary risk area in the upper catchment.

The geology and terrain traversed by the proposed designation means that there is also some risk of slips in significant storm events.

7.3 Terrestrial Ecology

Terrestrial Vegetation and Habitats

Historically indigenous vegetation in the Project area has been extensively cleared and converted to agricultural and urban land uses, with the exception of the Manawatū Gorge Scenic Reserve (immediately adjacent to the designation corridor), which comprises approximately 600 hectares of protected lowland forest, and forest remnants associated with gully systems that have been protected by QEII National Trust open space covenants.

Approximately 10% of the proposed designation (or approximately 38ha) is over indigenous terrestrial ecosystems. The balance of the proposed designation corridor is predominantly exotic

pasture and small areas of exotic plantation forest as shown on the landcover map in Figure 7. Various exotic angiosperm species, such as gorse and willow, also occur.

The 'Land Environments'[13] traversed by the proposed designation are classified as 'Chronically' or 'Acutely Threatened Environments', meaning that the combinations of landform and climate that are present in this landscape, at a national scale, contain less than 20% or 10% (respectively) of indigenous cover remaining.

Technical Assessment 6 (Terrestrial Ecology) identifies ten distinct indigenous terrestrial ecosystem and fauna habitat types within the designations. These ecosystems, and their assessed ecological value, are set out in the following Table 6.

Table 6 – Indigenous Terrestrial Ecosystem Types Located Within the Proposed Designations

NO.	ECOSYSTEM	ECOLOGICAL VALUE[14]	AREA (HECTARES)
1.	Old-Growth Forests (Alluvial), including 0.05 ha of 'threatened-nationally critical swamp maire forest.	Very High	4.23
2.	Old-Growth Forests (Hill Country)	Very High	1.78
3.	Secondary Broadleaved Forests with Old-Growth Signatures	High	3.07
4.	Old-Growth Treelands	High	0.41
5.	Advanced Secondary Broadleaved Forests	High	2.93
6.	Raupō Dominated Seepage Wetlands	High	0.55
7.	Secondary Broadleaved Forests and Scrublands	Moderate	16.32
8.	Kānuka Forests	Moderate	4.52
9.	Indigenous-Dominated Seepage Wetlands	Moderate	0.56
10.	Mānuka, Kānuka and Divaricating Shrublands	Low	4.12
	Total area		**38.49**

Terrestrial Fauna

While surveys have not detected the presence of lizards, it is very likely 'at-risk' lizard species are present in low densities within the proposed designation, particularly within areas where grazing does not occur and in areas connected to remnant habitats such as the gully systems and habitats with existing connections to the Manawatū Gorge Scenic Reserve. 'At-risk' lizard species that may be present include:

- barking gecko (*Naultinus punctatus*);
- ngahere gecko (*Mokopirirakau* "southern North Island");
- pacific gecko (*Dactylocnemis pacificus*);
- glossy brown skink (*Oligosoma zelandicum*); and

[13] In terms of Leathwick et al., 2003.
[14] Values have been assessed by reference to the Ecological Impact Assessment Guidelines (2018) published by the Environment Institute of Australia and New Zealand Inc.

- ornate skink (*Oligosoma ornatum*).

While the Manawatū Gorge Scenic Reserve, mature forest and older regenerating forest provide high quality habitats for terrestrial invertebrates, a desktop review has not identified the presence of 'at-risk' or 'threatened' invertebrates. During herpetofauna surveys the common stick insect (*Clitarchus hookeri*), an *Acanthoxyla* sp. and Wellington tree weta (*Hemidina crassidens*) were detected.

The shingle riverbed habitat of the Manawatū River supports many wetland and river bed bird species and the old-growth forest areas support a diversity of common, and possibility 'threatened' and 'at-risk' forest bird species. On the hill country New Zealand falcon are present and their range would include and extend across the entire designation area and beyond. Pipit may also be present in exotic grasslands throughout the proposed designation. The following Table 7 lists notable indigenous bird species that are (or may be) within the designation corridor.

Table 7 – Notable Indigenous Bird Species (Present, or Potentially Present, Within the Proposed Designation)

SPECIES	SCIENTIFIC NAME	CONSERVATION STATUS
Black-billed gull	*Larus bulleri*	Threatened – Nationally Critical
Australasian bittern	*Botaurus poiciloptilus*	Threatened – Nationally Critical
Caspian tern	*Hydroprogne caspia*	Threatened – Nationally Vulnerable
Banded dotterel	*Charadrius bicinctus bicinctus*	Threatened – Nationally Vulnerable
Red-billed gull	*Larus novaehollandiae scopulinus*	At Risk – Declining
Whitehead	*Mohoua albicilla*	At Risk – Declining
Spotless crake	*Porzana t. tabuensis*	At Risk – Declining
New Zealand pipit	*Anthus n. novaeseelandiae*	At Risk – Declining
North Island rifleman	*Acanthisitta chloris*	At Risk – Declining
South Island pied oystercatcher	*Haematopus finschi*	At Risk – Declining
Marsh crake	*Porzana pusilla affinis*	At Risk – Declining
New Zealand dabchick	*Poliocephalus rufopectus*	At Risk – Recovering
North Island kaka	*Nestor meridionalis septentrionalis*	At Risk – Recovering
New Zealand falcon	*Falco novaeseelandiae*	At Risk – Recovering
Pied shag	*Phalacrocorax varius varius*	At Risk – Recovering
Australian coot	*Fulica atra australis*	At Risk – Naturally Uncommon
Black shag	*Phalacrocorax carbo novaehollandiae*	At Risk – Naturally Uncommon
Little black shag	*Phalacrocorax sulcirostris*	At Risk – Naturally Uncommon
Black-fronted dotterel	*Charadrius melanops*	At Risk – Naturally Uncommon
New Zealand pipit	*Larus bulleri*	Threatened – Nationally Critical

Although bioacoustics monitoring failed to detect long-tailed bats, there are trees within the designation area that have the attributes which could provide roost cavities. Riparian and forest edge habitats in gullies with nearby mature forest also provide potential roosting sites.

PART C:
DESCRIPTION OF THE PROJECT

Part C: Description of the Project

8. INTRODUCTION

The following project description provides the basis for the assessment of effects on the environment of the Project. The project description sets out the key physical elements of the Project, including:

- the design context and standards;
- the State highway formation and traffic function;
- significant structures;
- local road connections;
- the resulting works to enable the on-going operation of the Te Āpiti wind farm (and described in detail in section 9); and
- the anticipated physical works necessary to construct the Project.

This project description is indicative to the extent that it provides details of the Project that are sufficient to assess the actual and potential effects on the environment of realistic and technically feasible road alignments within the designation corridor, and to identify measures to avoid, remedy or mitigate adverse effects where it is appropriate to do so.

The design of the Project will be developed once the designations have been confirmed. This detailed design will be undertaken within the scope of the final designations' boundaries and conditions and will be set out in an outline plan, or outline plans, and other accompanying documents that will be provided to the Councils prior to construction.

As set out in Part A of this Report, all resource consents that are required from Horizons will be sought as part of the detailed design phase of the Project. Other approvals, which may include, for example, a resource consent for any relocation of the Mangamaire – Woodville A 110kV transmission line (if necessary), will also be sought at this time. The scope of these consents will be determined once the final design of the Project has been developed.

9. DESCRIPTION OF THE PROJECT

9.1 Design Context

The existing State Highway 3 through Manawatū Gorge is permanently closed due to geotechnical instability and 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 Project is designed to deliver a 'national route' classification under the One Network Road Classification and incorporates design elements that are contained in the NZ Transport Agency's Action Plans and implement a Safe System Approach. The new route will be State Highway 3, replacing the existing (closed) State Highway 3 route.

The new route was selected following a multi-criteria analysis of 18 route options. The process involved a consideration of the Project's investment objectives; environmental and social impacts; and implementability. The process for selecting and developing the proposed designation corridor as the preferred route option is described in Part E of this Report.

9.2 Design Standards

Geometric Design

The indicative geometric layout for the Project (shown on the Indicative Alignment Plans in the drawing set in Volume 4) has been developed using the NZ Transport Agency design standards and guidelines and the Austroads suite of road design standards. Amongst other matters, the design standards establish the parameters for the vertical and horizontal alignment that must be achieved.

The indicative geometric layout (including a range of design options) has been used to confirm the appropriate extent and location of the designations such that the designations are able to accommodate the Project, including environmental management measures and construction activities (as detailed design and construction proceeds) and the potential effects on the environment.

The road design parameters for the Project are further described in the Preliminary Design Philosophy Report in Part J, Appendix Three to this Report.

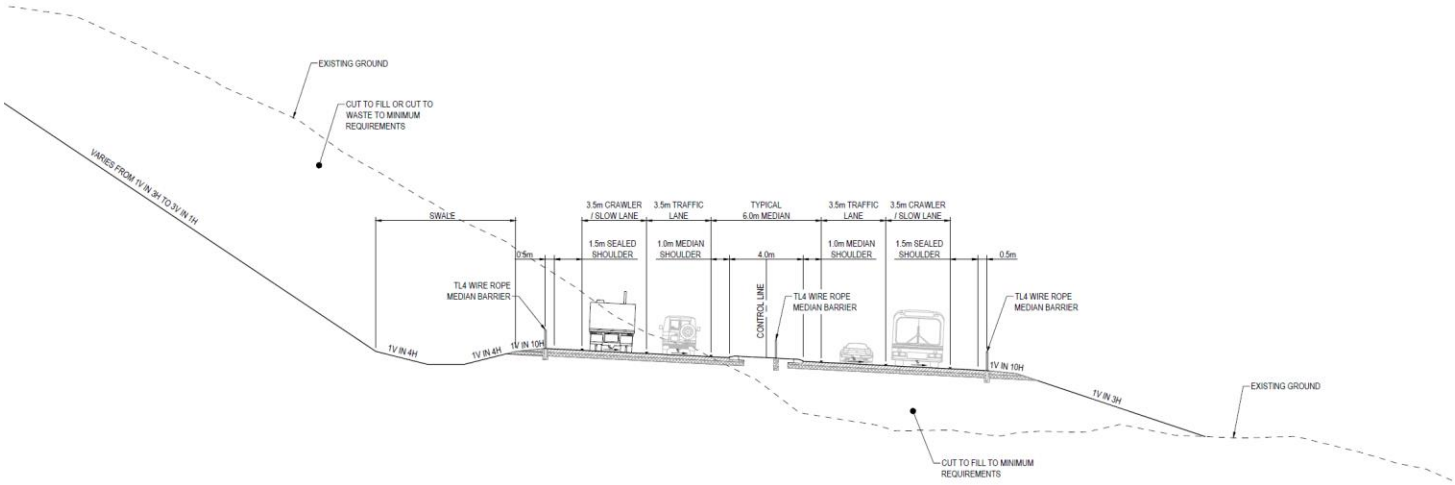
Typical Cross Sections and Lane Widths

The road carriageway layout includes:

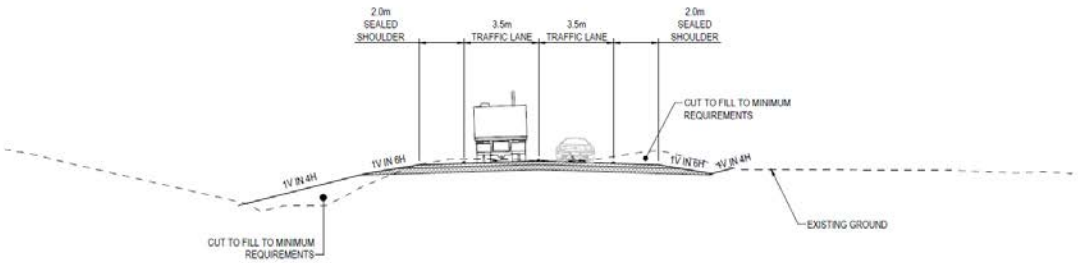
- a four-arm two lane roundabout connection with State Highway 57 east of Ashhurst;
- a five-arm single lane roundabout connection with existing State Highway 3 west of Woodville;
- two lane single carriageway highway (one lane in each direction) where crawler lanes are not provided;
- four lane dual carriageway highway (two lanes in each direction) where crawler lanes are required due to steep grades and where extending the crawler lanes is necessary to provide a consistent corridor and reduce merge and diverge points;
- 3.5 metre wide traffic lanes;
- 2.5 metre wide outside shoulders on single carriageway (to face of edge barrier), or 2.0 metre wide outside shoulders where there is a single carriageway with crawler lanes (outside crawler lanes to face of edge barrier);
- a central median which will be typically between 4.0 and 6.0 metres wide; and
- a central median and wire rope barrier provided from roundabout to roundabout.

The typical design cross sections are shown below in Figure 15.

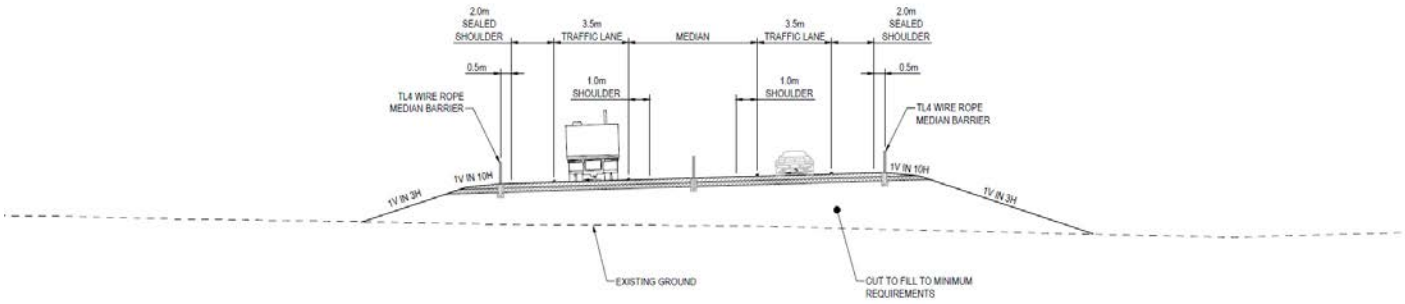
Figure 15 – Typical Cross Sections



TYPICAL SECTION - DUAL CARRIAGEWAY WITH MEDIAN AND SAFETY BARRIER
SCALE 1:200H-A1, 1:200V-A1, 1:400H-A3, 1:400V-A3



TYPICAL SECTION - TWO LANE TWO WAY CARRIAGEWAY
SCALE 1:50-A1, 1:100-A3



TYPICAL SECTION - TWO LANE CARRIAGEWAY WITH MEDIAN AND SAFETY BARRIER
SCALE 1:50-A1, 1:100-A3

Design Speed and Design Vehicle

A design speed of 110km/h has been adopted for the main alignment. The design speeds for local roads (where these need to be reconfigured to connect with the new State highway) will be dependent on the existing speed environment and will be determined during the detailed design phase of the Project on a case-by-case basis.

The design vehicle used for the main alignment is a RTS 18 metre long quad rear axle semi-trailer, as this provides a worst-case in terms of tracking paths.

The route provides for over dimensional vehicles of up to 10.0 metres wide and 6.0 metres high.

Pavements and Surfacing

The design of the pavement will be part of the detailed design phase of the Project and will be based on the requirements of Austroads, Pavement Design – A Guide to Structural Design of Road Pavements 2004 (including the New Zealand supplement to this document, dated 2007).

The final surfacing will depend on grade, surrounding environment and potential road usage. This will be determined during the detailed design process. The Project will also include porous asphalt surfaces (or pavement that provides a similar noise performance) in Ashhurst, on Napier Road east of the Cambridge Ave intersection and through Woodville (locations are specified in Technical Assessment 2 (Noise and Vibration)).

Where practicable the pavement design for local roads will replicate the existing pavement structure of the adjacent network for future maintenance efficiencies. It will likely be a two coat Grade 3/5 chipseal but will be finalised during detailed design.

Traffic Management and Safety

Lighting

Full lighting of the main alignment is not proposed, due to the rural nature of the locality. The Ashhurst and Woodville roundabouts will require flag lighting. The location, spacing and lighting levels of lighting will be in accordance with NZTA M30 and AS/NZS 1158. Light masts will include frangible bases where not protected by a safety barrier.

Signs and Road Markings

The design and location of signs and road markings will form part of the detailed design phase of the Project.

It is expected that signs will include directional signs at the intersections at the western and eastern extent of the Project; signs associated with the Manawatū Gorge car park; and signs associated with the crawler lanes. The design of signs and road markings will be in accordance with the following standards:

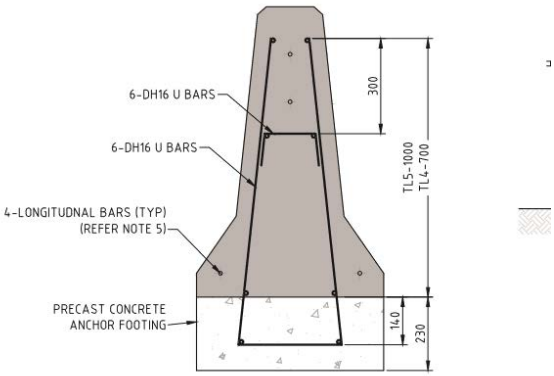
- Manual of Traffic Signs and Markings (MOTSAM) – Parts I, II and III;
- Traffic Control Devices Manual (TCDM); and
- the NZ Transport Agency's Guidelines for Audio Tactile Profiled Road markings.

No traffic signals are proposed as part of the Project.

Barriers

Continuous wire rope barriers are proposed along the central median to separate oncoming traffic and along the roadside. More rigid roadside barrier systems may be necessary in some circumstances, such as across the new Manawatū River Bridge where a TL5 barrier (concrete base and steel roll bar) will be provided. A typical TL5 barrier is shown in Figure 16 below.

Figure 16 – Typical TL5 Barrier



Where the TL5 barriers are not required, roadside barriers will be installed where necessary to achieve safety standards; this will typically be on embankments and near roadside hazards such as trees or waterways. Emergency crossover points in the median barrier will be provided at appropriate locations to allow emergency vehicle U-turn movements. Sealed maintenance access areas may also be provided behind the barriers to provide safe access and parking for maintenance activities outside of the carriageway.

No new barriers are proposed on local roads.

Network Utilities

The Project traverses, or requires the relocation of, a number of network utilities including the rail corridor, telecommunications, gas transmission, electricity and water services. The protection of these services, and maintaining their on-going operation, will be part of the detailed design phase of the Project and will be informed by discussion with the network utility owners and operators. In some cases, such as telecommunications and electricity, the services may require relocation.

Environmental and Cultural Design Framework

The Project incorporates an Environmental and Cultural Design Framework ("ECDF") that has been developed in conjunction with local iwi, Councils and stakeholder consultation. The ECDF sets out the overarching design principles and a 'vision' that will be applied to the final design of the Project, including its structures, landform, mitigation planting and other planting associated with the Project.

The ECDF is consistent with the form and content of a preliminary Urban and Landscape Design Framework ("ULDF") prepared in accordance with NZ Transport Agency's Urban Design Guidelines and NZ Transport Agency's Landscape Guidelines.

Walking, Cycling and Rest Areas

Separated walking or cycling facilities are not specifically provided for by the Project, although it is anticipated that the shoulder widths and bridge widths will be sufficient to accommodate cyclists. The primary cycle route between the western and eastern ends of the Manawatū Gorge will continue to be via the Pahīatua Track, which is an identified national cycling route. It is also expected that, while there are currently very low levels of cycle usage of Saddle Road, due to the volume of traffic and road configuration, Saddle Road will revert to a suitable cycling route once the new road is constructed. Similarly, the Manawatū Gorge Scenic Reserve walking track is expected to remain as the primary walking route between the western and eastern ends of the Gorge.

The Project will include pull over areas adjacent to the east and west bound lanes. The locations will be determined as part of detailed design and will likely be provided in conjunction with maintenance service areas.

Stormwater Design, Management and Treatment and Cross Drainage

The design of stormwater management and treatment for construction and operation of the Project will achieve consistency with the NZ Transport Agency's and Horizons' requirements, and will:

- not exacerbate existing flood risks;
- replace existing habitats in stream diversions;
- set a State highway carriageway freeboard above the 1 in 100 year flood level with runoff flows and volumes managed to provide safe serviceability in design rainfall events;
- where appropriate, provide outfalls that include erosion control measures;
- where appropriate, provide fish passage; and
- include water sensitive design solutions such as treatment swales, wetlands and/or other appropriate devices.

The operational stormwater system will include structures for stormwater collection and conveyance, treatment systems and devices, and culverts and watercourse diversions. The design will include a range of water sensitive design solutions to deliver practicable stormwater hydrology (flows and volumes) and stormwater quality (treatment) mitigation.

The works will also include cross drainage structures to allow for the continued flow of existing watercourses and overland flow paths. These will generally be pipe or box culverts, or small bridge structures. The existing hydrological regime will be maintained in terms of flooding and flows being retained in their sub-catchment.

Resource consent for these works and associated discharges will be sought during the next stages of (regional) consenting of the Project.

9.3 Indicative Road Alignment and Designation Corridor

The Project is 11.5km of new State highway running from the State Highway 3 western entry to the closed Manawatū Gorge route, across the Ruahine Ranges north of the Manawatū Gorge and south of Saddle Road, emerging near Woodville. The Manawatū Gorge route accommodated 7,620 vehicles per day, including 11.3% heavy vehicles in 2016, prior to being closed. The Project is expected to accommodate approximately 9,370 vehicles per day when it opens in 2024/2025.

The Project, in accordance with the design standards described above, and in broad terms, includes:

- typically four lanes (one lane plus a crawler lane in each direction, with the crawler lanes being provided across most of the route to meet safety and performance requirements through steeper highway grades, and with extension of the crawler lanes to provide a consistent corridor);
- new bridge structures (crossing Manawatū River and unnamed streams and property access underpasses);
- pipe or box culverts for cross drainage;
- new roundabouts at the proposed reconnections into the transport network at State Highway 57 and the existing State Highway 3; and
- the reconfiguration of a portion of the Te Āpiti wind farm.

The sectors of the route are described in further detail below.

Bridge to Bridge

In the west, the route begins at the southern embankment of the existing State Highway 3 (Napier Road) Manawatū River Bridge and follows the alignment of the existing State Highway 3 route for a short distance, before connecting with State Highway 57 (Fitzherbert East Road).

The intersection with existing State Highway 57 will provide for future traffic movements, act as a threshold for speed reduction, and will allow access to the old State Highway 3. This intersection will be a new large diameter four-armed two lane roundabout. Between the new roundabout and the old Manawatū River Bridge the traffic lanes will reduce to one lane in each direction.

From the roundabout, the route curves to the east and north along a plateau to the south of the existing State Highway 3. The fourth arm of the roundabout will provide vehicle access to the DOC walking tracks in Manawatū Gorge (including the track end car park and related rest facilities) and the property immediately to the south of the alignment. This property access across the alignment may achieved by an underpass (new State highway over).

New Manawatū River/Gorge Bridge

A new bridge will cross the Manawatū River and Palmerston North to Napier Railway line at the mouth of the Manawatū Gorge. The bridge provides two lanes in each direction and will accommodate cyclists. The final width will depend on the outcome of safety audits and the final design, but will be sufficient to provide safe and efficient use for future projected traffic volumes. The bridge will be approximately 25 metres above the current normal river level.

The design for the new bridge is yet to be confirmed, however this design will consider the surrounding environment, wind loading, effects of piers in the river bed, cultural significance of the area, the current use of the area (i.e. car park, former route through the Gorge, and walking track access), and the outcome of safety audits. All options will seek to avoid physical encroachment into the existing legal property boundary of Parahaki Island (to the north of the bridge alignment) and the Manawatū Gorge Scenic Reserve (to the south of the bridge alignment).

Western Slope

North of the new bridge crossing, the alignment climbs to the north (and to the west of the Manawatū Gorge Scenic Reserve) before curving to the east through an area of cut and crossing a gully and unnamed stream (a portion of which is subject to a QEII National Trust covenant). The road includes crawler lanes and a bridge over one branch of the stream and either a box culvert or bridge structure for the remaining stream crossing.

The designation corridor also includes an existing access track that is currently used to access the rail corridor from Saddle Road. This access track will be upgraded in some places (including the crossing of a stream) to provide suitable access for construction.

Te Āpiti Wind Farm and Ridge

The route then traverses the Ruahine Ranges approximately 1.2km north of the Manawatū Gorge and south of Saddle Road eastward through the Te Āpiti wind farm. The route includes crawler lanes and is in both cut and fill in order to maintain an appropriate vertical geometry and to achieve greater balance of the earthworks volumes.

It is anticipated that, following detailed design, the Project may require the removal of at least one wind turbine in the Te Āpiti wind farm along with the realignment or rationalisation of some turbine access tracks. Vehicle access within the wind farm site, and across the new State highway, will by via an underpass. Direct access from the new State highway will be provided when over dimension vehicles need to access the site. Direct access is 'left in, left out' only and will be located where safe access and egress can be achieved.

Existing electricity and fibre optic cables connect each turbine and generally run alongside the turbine access tracks. These services will also require modification in conjunction with other works associated with reconfiguring the wind farm. Cables underneath the new State highway will require access for maintenance and may be ducted or similar.

The detailed design of the Project in this section will be developed in discussion with Meridian.

Towards the east of the ridge top, the route traverses a Woodville Borough Council (Tararua District Council) property that contains a closed landfill. The new State highway is not expected to traverse the known landfill area, and physical works that disturb the known area of the landfill will be limited and carefully managed including as required by the One Plan and the NES Soil.

Eastern Slope

From the ridge top, the route continues to include crawler lanes as it descends to the south east through farmland towards Woodville. An unnamed stream at the foot of the Ruahine Ranges, and to the west of Hope Road, is traversed by an approximately 40-50 metre single span bridge. Farm access is also required at this location and may be provided by an underpass (culvert structure), or in conjunction with the stream crossing bridge. The carriageway and crawler lanes merge to a single lane in each direction between the bridge and the Woodville Gateway at the termination of the longitudinal grade greater than 6%.

Woodville Gateway

The route reconnects with the existing State Highway 3 (Napier Road/Vogel Street), Troup Road and Woodland Road via a large diameter, single lane five leg roundabout. The roundabout will connect

the existing cross-road and a realigned approach from existing State Highway 3. The central median and wire rope will extend to the west of this roundabout.

10. CONSTRUCTION OF THE PROJECT

10.1 Introduction

The following provides a broad overview of the construction methodology and a description of key elements of construction and sets out an indicative construction programme for the Project. This information is indicative only and is intended to provide sufficient detail of the proposed construction activities to assess their potential effects on the environment, and to identify any necessary measures to avoid, remedy or mitigate those effects, where appropriate and relevant to the NoR (as opposed to the outline plans to be lodged with the Councils, and the regional resource consents from Horizons that will be sought at a later date).

Construction of the Project will be influenced by many factors, including:

- the detailed design of the Project (following the confirmation of the designations);
- measures to mitigate possible risks, such as those set out below;
- the conditions of the designations and resource consents (sought as part of detailed design); and
- the timing and target completion date for the Project.

Where appropriate, the NZ Transport Agency seeks a degree of flexibility in construction methods to accommodate these factors and to provide further opportunities to reduce the impacts and duration of any adverse effects of construction.

Once the contract for the detailed design and construction of the Project has been awarded, the construction methodology will be developed alongside the design and preparation of an application for resource consents, including the accompanying assessment of effects on the environment. This design work will be undertaken within a management plan framework and consistent with the conditions of the designations. If the contractor wishes to undertake construction activities that are not within the scope of the designations, or future consents, additional authorisations would need to be obtained at that time.

Key Construction Risks

The following list summarises potential key construction risks which will need to be considered by the constructor and addressed, as appropriate, in the required management plans:

- delays to essential enabling works activities;
- difficult or delayed access to establish the northern abutment foundation for the Manawatū River bridge;
- the movement of construction traffic across a 'live' rail corridor, including works in the immediate vicinity;
- working at heights and over water during construction of the Manawatū River bridge;
- storm and flood risks associated with working in the riverbed and flood plain;

- crane operations and the lifting of heavy precast concrete units;
- difficult ground conditions;
- the movement of construction traffic to and from site and at site accesses;
- the potential for contamination of ground water or surface water; and
- availability of skilled resources and equipment.

10.2 Pre-Construction Considerations

Management Plan Framework

Construction activities (and the actual and potential effects of these activities) will be managed through the implementation of a suite of project plans including health and safety management plans, a quality management plan and construction management plans. The construction management plans form an integral part of how construction activities are managed to address the actual and potential adverse social, environmental and cultural effects. The content of these plans and the process for their approval and implementation are included in Part H of this Report.

Construction Methodology Parameters

The anticipated outline construction methodology has been developed to balance the costs, programme and potential effects of construction activities to achieve an approach that, as far as practical, avoids, or where avoidance is not possible minimises, adverse effects. Assessment of potential construction methodologies has included consideration of the following:

- the location and extent of construction compounds, laydown areas and site accesses and haul routes;
- the location of construction activities relative to sensitive environments or land uses;
- methods for works in the vicinity of waterways;
- seasonal weather; and
- NZ Transport Agency construction guidelines and standards relevant to the avoidance and minimisation of adverse effects on the environment.

Detailed Design and Construction Procurement

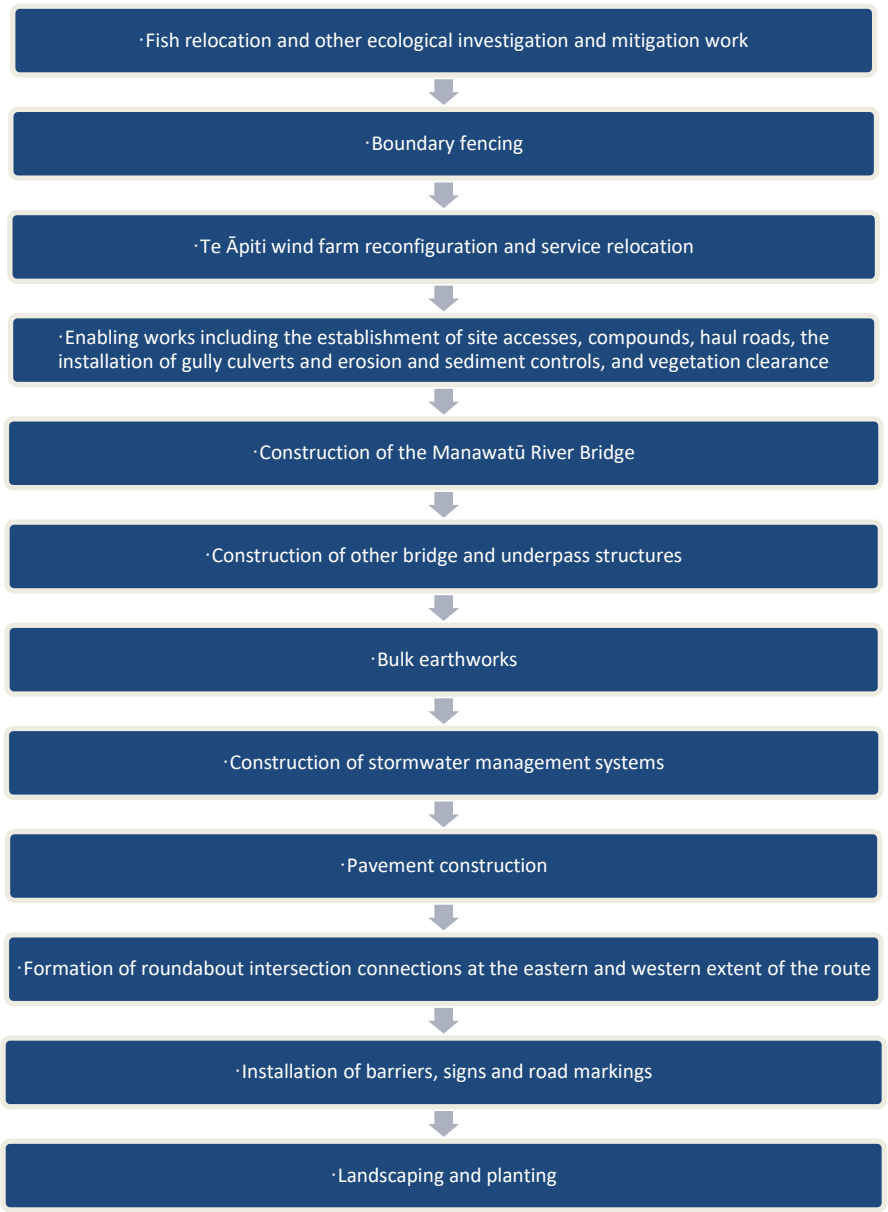
The NZ Transport Agency's Highway and Network Operations Environmental and Social Responsibility Manual sets a framework for integrating environmental and social commitments into all phases of NZ Transport Agency projects, including the development of detailed design and procurement of construction contractors. Any 'Request for Proposal' documentation for the Project will capture designation requirements and acceptable parameters within which consents will be sought to ensure detailed design meets conditions and commitments are carried through the approvals process, into detailed design and construction management documentation.

The specialist technical investigations undertaken by the NZ Transport Agency will be utilised to understand the environmental and social constraints and ensure that the final design and construction methodology meets the NZ Transport Agency's legal requirements, environmental commitments and conditions of designations and future resource consents.

10.3 Construction Programme

The design and construction of the Project can be completed within approximately 5 to 7 years. The target date for opening the new road is 2024, and the constructor will be required to identify opportunities to shorten the construction period to meet the target date. In order to achieve this completion date, many elements of the Project are likely to need to be undertaken concurrently during the construction period. The construction works are likely to be undertaken in the general sequence set out in the following Figure 17.

Figure 17 – Possible Construction Sequence



While there are some dependencies between construction elements, the specific staging of the work is subject to land acquisition, the availability of contractors and availability of other resources (such as materials and construction equipment).

10.4 Early Construction Activities - Enabling Works

Preparation of Management Plans

The proposed designation conditions require the preparation of a range of management plans to appropriately manage construction activities to minimise adverse effects. These management plans are described in Part H of this Report and will be prepared alongside the development of the detailed design to inform subsequent outline plan or outline plans and construction activities. The management plans are not required to allow any physical enabling works (described in this section), and instead relate to managing the effects of the construction works described in section 10.5. Management plans are listed here as an enabling activity.

Pre-Construction Site Investigations

Further site investigation work will be required prior to commencing enabling works to inform the project design team. Investigation work required may include, but is not limited to:

- topographical surveys;
- geotechnical investigations;
- contaminated land testing;
- groundwater and surface water investigation and monitoring;
- identifying services' locations; and
- environmental, ecological and cultural monitoring.

Site Establishment

Site establishment activities will be required prior to starting any bulk earthworks on site and may include:

- establishment of suitable fencing of all areas of vegetation that are to be retained and watercourses (as required);
- locating existing site services and undertaking necessary protection or diversion works;
- formation of suitable stabilised construction accesses, including widening in localised areas of Saddle Road, for the movement of construction traffic, materials and plant to and within the project site;
- establishment of site compounds and laydown areas;
- establishment of erosion and sediment control measures;
- installation of traffic management controls and measures at all site access points on roads;
- erection of secure site fencing along road frontages where work sites are accessible from roads;
- implementation of security and access protocols; and
- establishment of reservoirs for construction water storage.

Site Compounds

Construction site compounds will be required at a number of locations that are convenient for each main work area. Site compounds will typically include the following temporary facilities:

- site offices, lunch rooms and portable toilet facilities (including associated temporary power and water supplies);
- facilities for recycling materials;
- laydown areas and lockable storage containers;
- workshop space and plant/equipment maintenance facilities;
- refuelling facilities;
- wheel washing and cleaning facilities;
- vehicle parking areas;
- facilities for pre-casting products such as headwalls;
- plant and equipment storage areas; and
- facilities for site testing and potential nursery areas for landscaping activities.

Compounds will be designed to provide for the appropriate management of stormwater runoff and may include measures such as:

- perimeter bunds to prevent clean water run-on from areas outside of compound areas and to prevent dirty water run-off onto adjacent land;
- the collection and treatment of stormwater;
- bunding of fuel storage facilities to a volume sufficient for full containment in the event of a spill (rainwater collected in these areas will be removed and disposed at an appropriate facility); and
- provision of emergency spill kits to be used in the event of any oils, greases or chemicals being spilt on site.

Site Access and Haul Roads

Access to the western end of the route to form the new intersection and southern Manawatū River bridge abutment will be gained from State Highway 3 or State Highway 57. The eastern end of the route will be accessed from Hope Road. It is likely that Hope Road will require upgrading to cater for construction traffic. Access to the ridge area will be gained from Saddle Road in a number of locations. It is anticipated that existing legal road, farm access tracks (including one within the proposed designation connecting to Saddle Road) and wind farm tracks may be utilised for this purpose. Indicative site access locations are shown on the designation plans (D0 to D10) provided in Volume 4.

Some localised earthworks will be required to enable the formation of site accesses/haul roads to provide a suitable size and gradient for plant and equipment access. Topsoil and any other material unsuitable for reuse will be stripped and disposed of. Granular material will need to be imported to form all-weather surfaces. Where possible, haul roads will be constructed along the permanent road alignment to minimise the extent of earthwork disturbance.

Swales will be formed to collect any stormwater runoff for treatment, as required and practicable. Where site accesses pass through overland flow paths, temporary culverts will be installed below the track surface. For all stream crossings, temporary crossings will be provided and these will be subject to separate resource consent processes.

Access for the construction of the northern abutment of the new Manawatū River bridge will also require a temporary railway crossing over the existing rail corridor. The formation of this crossing will be as agreed with KiwiRail.

Protection and/or Relocation of Network Utilities

The Project traverses, or requires the relocation of, a number of network utilities including telecommunications, gas transmission, electricity distribution, electricity transmission and water services. Where these network utilities have the potential to be impacted by construction activities they will be identified, protected or diverted prior to the commencement of earthworks. When buried, locating of underground services will be carried out by pot holing using a small excavator and hand digging and/or hydro-excavation.

Works in relation to existing network utilities will be undertaken in accordance with agreements made with each operator to ensure compliance with their methodologies, standards and requirements (including for health and safety). This will include in relation to:

- measures to protect the First Gas high pressure gas pipeline, where it is traversed by any site access track;
- any necessary relocation of the Mangamaire – Woodville A 110kV transmission line; and
- works in the vicinity of, and across, the rail corridor at the mouth of the Manawatū Gorge.

Property Access and Access to the Department of Conservation Facilities

Access to existing private properties adjacent to the construction footprint at the western and eastern ends of the proposed route will be maintained during the construction phase of the Project. Temporary access routes through the construction footprint may need to be established to service some existing properties. Some existing property accesses along Saddle Road may also require temporary improvement during the construction phase to cater for increased construction traffic.

Public access to the Department of Conservation Manawatū Gorge Scenic Reserve will be maintained during construction. This will be achieved by providing a temporary access road and car park within the proposed road corridor during construction works.

Further details of works required to maintain existing accesses will be developed and included in the Construction Traffic Management Plan ("CTMP") and the Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan, both to be prepared by the contractor.

Ecological Surveys and Relocations

Ecological survey, monitoring and relocation work will be required prior to and during construction as follows (and in accordance with required designation conditions and/or sub-management plans (this enabling work activity may require the completion of the relevant sub-management plan)):

- bat acoustic surveys in possible habitat areas to determine whether any bats are present within the corridor;
- a relocation programme for lizards throughout likely habitats affected by construction activities in accordance with an agreed lizard management plan; and

- pre-clearance surveys of avifauna in accordance with an avifauna management plan that sets out habitats, seasons, location and timing (if work is proposed to be undertaken during a breeding season).

Fish salvage activities may also be required. This will be defined as part of the subsequent regional resource consent process.

Te Āpiti Wind Farm Reconfiguration

Where the designation corridor traverses Te Āpiti wind farm, some reconfiguration works will be required to enable to continued operation of the wind farm (including during construction). These works may include:

- the decommissioning and removal of an existing turbine (the concrete foundation may remain in place), where the road alignment is not able to avoid the turbine;
- the relocation of existing turbine access tracks and underground high voltage electricity cables;
- the construction of an underpass connecting the wind farm with access under the new State highway; and
- re-fencing, as required.

Any reconfiguration works will be undertaken in consultation with Meridian Energy Limited ("Meridian").

Vegetation Clearance and Tree Protection

The designation corridor passes through areas of existing vegetation cover, which will require removal to allow for construction activities. Some vegetation clearance will be required prior to mobilisation to site to create adequate space for the establishment of the Contractors' haul roads, site compounds, parking, laydown areas and stockpiles. Due to the density and size of some existing vegetation, including areas of plantation forest, larger clearance plant such as 20-50T diggers, skidders and large chippers will be required on site to carry out the clearance work.

Suitable controls will be required to be put in place to protect trees outside of the construction footprint. These controls are likely to include the appointment of a suitably qualified and experienced works arborist to supervise all works in the vicinity of trees and the clear identification of trees to be felled. The works arborist will be experienced in tree protection systems and construction methodologies and will coordinate site works to ensure that tree protection controls are correctly implemented.

Erosion and Sediment Control

Erosion and sediment control measures will be installed prior to bulk earthworks and will be maintained throughout the duration of the construction works to ensure protection of the downstream receiving environment from the adverse effects of sediment from the work area.

An Erosion and Sediment Control Plan ("ESCP") will be prepared by the contractor as part of the CEMP and future application for regional resource consents. The principle behind the ESCP is to control erosion across the construction site, to manage any sediment-laden stormwater runoff and prevent unacceptable discharges of sediment into the receiving environment.

While subject to detailed design and regional resource consents, it is anticipated that the site terrain lends itself to managing sediment through a network of localised decanting earth bunds ("DEBs")

installed down slope of earthworks. Other controls that may be used in conjunction with DEBs include:

- for fill areas, swales with bunding and/or silt fences may be constructed at the bottom of embankments to catch and remove sediment from slope runoff;
- for cut areas, cut-off channels would be formed at the slope toes to collect run-off from the cut slopes;
- mulch, weed mat and planting to stabilise embankment surfaces;
- the location of material stockpiles away from water bodies, stabilised as required; and
- sediment retention ponds in larger catchment areas where the site topography allows.

10.5 Construction Works

Earthworks

In addition to the earthworks necessary as part of the enabling works, earthworks will typically include the following activities:

- topsoil stripping;
- installation of permanent and temporary drainage systems;
- the establishment of spoil disposal sites;
- mucking out and filling of gullies;
- cut and fill activities including embankment construction; and
- landscaping and site reinstatement.

The Project will generate approximately 6,000,000m^3 of excavated (cut) material (excluding topsoil). Approximately 3,800,000m^3 of this cut material will be placed as structural fill for embankments along the proposed route. The remainder of the excess cut material will be disposed of within the designation boundaries either in spoil disposal sites or in landscape areas adjacent to structural embankments to avoid the need to export material off site for disposal. The establishment of several waste or landscaping sites at distances of approximately 500m apart along the route will reduce haulage distances and avoid the requirement to haul material off site for disposal.

Approximately 180,000m^3 of topsoil will be stripped and removed to waste or stockpiled for re-use within the Project area. Potential waste sites may be used for the stockpiling or permanent placement of topsoil. In general topsoil will be reused on site for landscaping.

Suitable erosion and sediment control measures will be installed at the waste sites and wet materials will be placed behind bunds and/or silt fences to minimise the discharge of sediment. Where overland flow paths are located within the footprint of waste sites, subsoil drains should be installed below fill material.

Waste areas will be contoured, landscaped, and vegetated as construction work is completed.

Any imported hard fill required for establishment of site compounds and haul roads will likely be sourced from local quarries or river extraction sites located as close to the site as is practical.

Cuttings

Cut slopes will be required along the proposed alignment. Material will be excavated mechanically from cut faces and loaded directly onto dump trucks, or other equipment, for transport to stockpiles, waste sites or for use as structural fill elsewhere on site. Scrapers may also be used in cuttings where ground conditions require unsuitable overburden to be 'mucked out'.

Groundwater flows or seepage from cut faces will be monitored and appropriate control measures installed as required.

Fill Embankments

Gullies along the proposed road alignment will need to be cleared and filled to allow construction access and subsequent construction of the road alignment. Earth fill along the proposed route will be required. Filling of existing gullies will be carried out as follows (once ecological relocations have been completed):

- remove topsoil and any other unsuitable material;
- diversion of watercourses and the installation of temporary or permanent culverts; and
- the placement of fill to the level required for access, road pavement or embankment construction.

Water

Water will be required for a number of construction activities, including:

- dust suppression;
- moisture conditioning for engineered fill construction or ground improvement (including lime or cement stabilisation);
- pavement aggregate moisture content control during compaction;
- concrete placement and curing;
- pile driving and pile stabilisation;
- irrigation for landscaping to establish a vegetation cover; and
- vehicle tyre wash to prevent tracking of sediment on to roads.

Construction water may be sourced from existing farm ponds or purpose-built water reservoirs established on site. If necessary, water may also be brought to the site by truck.

Noise and Vibration

While the majority of the designation is relatively remote such that the effects of construction noise and vibration are not anticipated to present a significant issue, construction noise and vibration will be managed to ensure its compliance with the relevant standards through a Construction Noise and Vibration Management Plan ("CNVMP"), which will be prepared for the Project. This plan includes information required by, and to demonstrate compliance with, NZS 6803:1999 Acoustics – Construction Noise, such as:

- general construction management practices;
- noise management and mitigation measures specific to activities and receiving environments;

- monitoring and reporting requirements;
- procedures for handling complaints; and
- procedures for review of the CNVMP throughout the Project.

Dust

Construction dust will also be addressed by way of a management plan. A Construction Air Quality Management Plan ("CAQMP") will be produced for the Project, to manage potential sources of dust and other air discharges associated construction activities such as:

- dust from roads and access tracks generated by trucks and other mobile machinery movements;
- excavation and disturbance of dry material;
- loading and unloading of dusty materials to and from trucks;
- stockpiling of materials including material placement and removal; and
- lime and/or cement spreading for construction purposes.

The AQMP may include the following management measures:

- water carts being available on site during dry and windy conditions to spray exposed areas, when and where required;
- requiring regular maintenance of access tracks and haul road surfaces;
- providing for the clean-up of any material spills;
- wetting-down areas in advance of cut and fill activities;
- stabilising excavated areas as soon as practically possible;
- establishing site specific management of stockpile areas;
- removing material deposited on public roads by sweeper truck as soon as practically possible;
- covering loads of fine material;

  enforcing speed limits on site for construction vehicles; and
- requiring lime/cement treatment of fill or aggregates to use spreading equipment which minimises the lime/cement drop height and reduces lime/cement dust drift.

Night Works

Construction activities will generally occur during the daytime hours. However, night work is likely to be necessary in order to complete the Project as scheduled (by 2024/2025), or to otherwise reduce the overall construction programme. In addition, night work for the following activities (subject to detailed design) is likely to be needed:

- completion of tie-in surfacing where connecting to existing roads at the western and eastern ends of the route;
- delivery of overweight or over dimension equipment or materials in order to minimise traffic disruption to users of Saddle Road;
- concrete pours for bridge and structure construction and bulk earthworks; and
- resurfacing of the carriageway during or at the end of the initial maintenance period.

Construction Traffic and Traffic Management

Construction of the Project involves disruptions to the existing road network and property accesses. These disruptions will be managed by a Construction Traffic Management Plan ("CTMP") that will set out traffic management methodologies and mitigation measures to be adopted for the Project during construction. The CTMP will detail the traffic control activities, the impacts on pedestrians, cyclists, adjoining property owners/users and general traffic and typical mitigation measures.

It is anticipated that construction traffic will primarily access the site from Saddle Road. Construction vehicle movements are expected to be generally in the order of 200 vehicle movements per day at the peak of construction. The majority of these vehicle movements will be light vehicles.

The CTMP will detail the acceptable routes for construction vehicles and the expected frequency of heavy commercial vehicle movements. Any required mitigation measures will also be assessed and detailed in the CTMP. Construction related truck drivers are to be briefed on the appropriate routes and made aware of sensitive areas and points of pedestrian and cycle usage.

The CTMP (and overarching Construction Environmental Management Plan) will include controls and measures to address potential impacts such:

- removing material deposited on public roads by sweeper truck as soon as practically possible;
- covering loads of fine material;
- restricting engine breaking in the urban environment;
- securely separating work areas from pedestrian and public areas using fencing and approved barrier systems;
- applying temporary speed limits where works are on the carriageway of a road; and
- detailing the location and traffic management measures for site access points including providing signs that clearly identify the access and requiring the use of hazard or flashing lights to indicate entering or exiting the site.

Pavement and Surfacing

As areas of bulk earthworks and drainage are completed along the proposed road alignment the construction of areas of pavement will be able to proceed. It is likely that the pavement will be constructed to sub-base level immediately following the completion of earthworks and subgrade preparation. This is to protect the subgrade and minimise dust on the site. Basecourse layers and seal will then be placed to complete the road structure.

It may be possible to use the newly formed road for hauling materials and for construction access. While this may reduce construction traffic using Saddle Road, there is some risk of damage to the newly formed pavement layers. Another option may be to seal one side of the carriageway and retain the other side at sub-base level for use by construction vehicles.

10.6 Sector Specific Construction

Bridge to Bridge

Construction in this sector will require:

- the diversion of network utilities prior to the construction of the new roundabout intersection of State Highway 3 and State Highway 57;

- traffic management plans to provide for the continued use of State Highway 3 and State Highway 57, while minimising disruption to road users and providing for construction access;
- the on-going provision of private property access and public access (and temporary parking facilities) for the Manawatū Gorge Scenic Reserve walking track, including the provision of permanent property access via an underpass;
- the establishment of a site compound and laydown area with suitable temporary fencing that will likely be established to the south of the proposed Manawatū River bridge approach at the entrance to the existing (closed) Manawatū Gorge route;
- the establishment of permanent access beneath the new Manawatū River bridge and pedestrian access to the riverbed near the southern bridge abutment.

New Manawatū River Bridge

The new Manawatu River Bridge will likely be constructed using a methodology such as the one shown in the following Figure 18:

Figure 18 – Possible Bridge Construction Methodology

Western Slope

Much of the construction works on the western slope are associated with the earthworks necessary to achieve minimum design gradients. This portion of the route is likely to include construction of structural fill embankments and bridges. Construction in this sector will include:

- the establishment of construction access from Saddle Road and from Te Āpiti Wind Farm for the works toward the top of the western slope;
- the early construction of bridge and culvert crossings of two vegetated gullies (including associated stream diversions) to allow the movement of construction plant within the corridor;
- the management of indigenous vegetation in accordance with the Ecology Management Plan that will be prepared in conjunction with the development of the detailed design of the Project;
- the management of construction to maintain KiwiRail operations and the provision of safe construction and operational rail crossing/s;
- the establishment of a construction compound and laydown area near the top of the slope; and
- the establishment of a site for the disposal of surplus cut material during construction and for landscaping/planting at the completion of construction.

Te Āpiti Wind Farm and Ridge

Any reconfiguration works necessary to enable the on-going operation of the Te Āpiti wind farm and the construction of the Project will be part of the early, enabling, works. These are detailed above. Along with Morgan Road, the existing (and relocated) turbine access tracks may also provide access to the construction corridor from Saddle Road.

Construction in this sector will also include:

- bulk earthworks of relatively minor cut slopes and fill embankments, including culverts and new access tracks;
- the testing of the closed Woodville Borough Council landfill and the subsequent management of land disturbance works in the vicinity of the landfill to set out controls and procedures for the excavation, handling and disposal of contaminated soil and waste material;
- establishment of an access across the route for the AgResearch Ballantrae Hill Country Research Station to allow this to continue to operate during the construction period if required;
- the establishment of two construction compounds and laydown areas; and
- the establishment of disposal sites for surplus cut material where topography allows and where haul distance and double handling are minimised.

Eastern Slope

It is anticipated that the road will be constructed in cut at higher elevations before transitioning to a structural fill embankment toward the toe of the slope near Hope Road.

Works in this sector will include:

- the establishment of construction compounds and laydown areas at the top and bottom of the slope;
- the construction of a new bridge structure over an existing stream;

- construction access;
- the establishment of disposal sites for surplus cut material; and
- the establishment of site accesses from Saddle Road and Hope Road, including works necessary to upgrade the Roads in the immediate vicinity to cater for the volume of construction traffic to and from the site.

Woodville Gateway

Construction in this sector will include:

- the diversion of network utilities prior to the construction of the new roundabout intersection connecting with State Highway 3;
- traffic management plans to provide for the continued use of roading network, while minimising disruption to road users and providing for construction access, particularly during the construction of the new roundabout intersection;
- the establishment of a site compound and laydown area with suitable temporary fencing in an area adjacent to the proposed intersection;
- the relocation of existing property accesses and the maintenance of property access during construction.

PART D: STATUTORY CONTEXT

Part D: Statutory Context

11. INTRODUCTION

The following sets out the key statutory matters that are relevant to the Project under the RMA.

Other statutes, and their requirements that are relevant to this the Project, are also described, including where further approvals may be necessary. Some of these may not be matters relevant to the consideration of the NoRs but provide context to the Project.

This part of the Report seeks to establish the statutory context for the Project. An assessment of the Project against this statutory framework is contained in Part I of this Report.

12. RESOURCE MANAGEMENT ACT 1991

12.1 Purpose and Principles

Consideration of the NoRs is subject to Part 2 of the RMA (purpose and principles). Sections 5 to 8 make up Part 2 of the RMA.

Section 5 states that:

> "*(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.*
>
> *(2) In this Act, **sustainable management** means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety while—*
>
> *(a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
>
> *(b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
>
> *(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*"

Section 6 sets out the 'matters of national importance' and requires that, in achieving the purpose of the RMA, all persons exercising functions and powers under the RMA recognise and provide for the following matters of national importance:

"*(a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development;*

(b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.

(f) The protection of historic heritage from inappropriate subdivision, use, and development:

(g) The protection of protected customary rights.

(h) The management of significant risks from natural hazards."

Section 7 sets out 'other matters' to which particular regard must be had as follows:

"*In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—*

(a) Kaitiakitanga:

(aa) The ethic of stewardship:

(b) The efficient use and development of natural and physical resources:

(ba) The efficiency of the end use of energy:

(c) The maintenance and enhancement of amenity values:

(d) Intrinsic values of ecosystems:

…

(f) Maintenance and enhancement of the quality of the environment:

(g) Any finite characteristics of natural and physical resources:

(h) The projection of the habitat of trout and salmon:

(i) The effects of climate change:

(j) The benefits to be derived from the use and development of renewable energy."

Section 8 states that:

> "*In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).*"

12.2 Designations

Notices of Requirement

As set out in Part A of this Report, the NZ Transport Agency is a requiring authority and can give notice of its requirement to designate land for the State highway network in accordance with its statutory functions. The Project includes three notices of requirement to designate land within Palmerston North City, Manawatū District and Tararua District. The extent of the designation in each jurisdiction is shown on the drawings in Volume 4, including drawings C1 and LR0 – LR10.

The process for submitting the NoRs is set out in Part 8 (sections 166 – 186) of the RMA. Section 168(2) provides as follows:

> "*(2) A requiring authority for the purposes approved under section 167 may at any time give notice in the prescribed form to a territorial authority of its requirement for a designation—*
>
> *(a) For a project or work; or*
>
> *(b) In respect of any land, water, subsoil, or airspace where a restriction is reasonably necessary for the safe or efficient functioning or operation of such a project or work. …*"

The prescribed form for a notice of requirement is Form 18 included in Schedule 1 to the Resource Management (Forms, Fees, and Procedure) Regulations 2003. The NoRs for the Project (included in Volume 1) have been prepared in accordance with these regulations.

Section 169 directs the procedures in relation to further information, notification, submissions and hearings for a notice of requirement. Section 169(1) establishes that a territorial authority's decision to notify a notice of requirement is under section 149ZCB(1) to (4), 149ZCC(1) to (4), 149ZCE, and 149ZCF where reference to 'the EPA' is read as reference to a 'territorial authority' and reference to an 'applicant' is reference to a 'requiring authority'.

Section 149ZCB(2) states that:

> "*(2) Despite subsection (1), the EPA must publicly notify an application or notice if—*
>
> *(a) …*
>
> *(b) the applicant requests public notification of the application or notice; or …*"

In this instance the NZ Transport Agency, as the requiring authority giving notice of its requirement for designations, requests that the NoRs be publicly notified under sections 169(1) and 149ZCB(2) of the RMA.

Section 171 sets out the matters that must be considered by a territorial authority in making a recommendation on a notice of requirement as follows:

"*(1A) When considering a requirement and any submissions received, a territorial authority must not have regard to trade competition or the effects of trade competition.*

(1) When considering a requirement and any submissions received, a territorial authority must, subject to Part 2, consider the effects on the environment of allowing the requirement, having particular regard to—

(a) any relevant provisions of—

(i) a national policy statement:

(ii) a New Zealand coastal policy statement:

(iii) a regional policy statement or proposed regional policy statement:

(iv) a plan or proposed plan; and

(b) whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work if—

(i) the requiring authority does not have an interest in the land sufficient for undertaking the work; or

(ii) it is likely that the work will have a significant adverse effect on the environment; and

(c) whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought; and

(d) any other matter the territorial authority considers reasonably necessary in order to make a recommendation on the requirement.

(1B) The effects to be considered under subsection (1) may include any positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from the activity enabled by the designation, as long as those effects result from measures proposed or agreed to by the requiring authority.

(2) The territorial authority may recommend to the requiring authority that it—

(a) confirm the requirement:

(b) modify the requirement:

(c) impose conditions:

(d) withdraw the requirement.

(3) The territorial authority must give reasons for its recommendation under subsection (2)."

A decision is made by the requiring authority under section 172 as follows:

"*(1) Within 30 working days of the day on which it receives a territorial authority's recommendation under section 171, a requiring authority shall advise the territorial authority whether the requiring authority accepts or rejects the recommendation in whole or in part.*

(2) A requiring authority may modify a requirement if, and only if, that modification is recommended by the territorial authority or is not inconsistent with the requirement as notified.

(3) Where a requiring authority rejects the recommendation in whole or in part, or modifies the requirement, the authority shall give reasons for its decision."

Outline Plans

Section 176A of the RMA provides that an outline plan must be submitted to a territorial authority before commencing construction of a project or work under a designation unless certain circumstances apply. These circumstances are set out in section 176A(2) as follows:

"*(2) An outline plan need not be submitted to the territorial authority if—*

(a) the proposed public work, project, or work has been otherwise approved under this Act; or

(b) the details of the proposed public work, project, or work, as referred to in subsection (3), are incorporated into the designation; or

(c) the territorial authority waives the requirement for an outline plan."

These circumstances in clauses (a) and (b) do not apply to the Project and the NZ Transport Agency does not seek that the requirement for an outline plan be waived. Instead, it is anticipated that outline plans, detailing all relevant aspects of the Project (required by section 176A(3)) and including various management plans, will be submitted following the completion of the detailed design of the Project and prior to the commencement of construction works.

Section 176A(3) states that:

"*(3) Any outline plan must show—*

(a) the height, shape, and bulk of the public work, project, or work; and

(b) the location on the site of the public work, project, or work; and

(c) the likely finished contour of the site; and

(d) the vehicular access, circulation, and the provision for parking; and

(e) the landscaping proposed; and

(f) any other matters to avoid, remedy, or mitigate any adverse effects on the environment."

Within 20 working days of receiving an outline plan, a territorial authority may request changes to the outline plan. The requiring authority may accept or reject the requested changes; if changes are rejected, the territorial authority may appeal to the Environment Court.

Review of Designations

The designations include land required to be used for temporary and permanent works. Following the completion of construction, the area of the designation will be reviewed to identify any areas that are

no longer necessary for the on-going operation or maintenance of the State Highway or for on-going measures to mitigate adverse effects of the Project. The NZ Transport Agency will then give notice that the designation may be removed from the identified areas under section 182 of the RMA.

Lapse Period

Section 184 provides for the lapsing of designations that have not been given effect to as follows:

> "*(1) A designation lapses on the expiry of 5 years after the date on which it is included in the district plan unless—*
>
> *(a) it is given effect to before the end of that period; or*
>
> *(b) the territorial authority determines, on an application made within 3 months before the expiry of that period, that substantial progress or effort has been made towards giving effect to the designation and is continuing to be made and fixes a longer period for the purposes of this subsection; or*
>
> *(c) the designation specified a different period when incorporated in the plan.*"

Under section 184(1)(c) the NZ Transport Agency seeks a lapse period of 10 years.

Designations of Other Requiring Authorities

Where a designation is over land that is subject to an earlier designation section 177(1)(a) requires that:

> "*(a) the requiring authority responsible for the later designation may do anything that is in accordance with that designation only if that authority has first obtained the written consent of the authority responsible for the earlier designation or order; and …*"

The proposed designation includes land that is subject to earlier designations in favour of other requiring authorities.[15] These earlier designations are set out in the following Table 8:

Table 8 – Earlier Designations Within the Proposed Designation

JURISDICTION	DISTRICT PLAN REF.	REQUIRING AUTHORITY	DESIGNATION & PURPOSE
Manawatū District	D6B	KiwiRail Holdings Limited	Railway purposes
Tararua District	D112	Tararua District Council	Woodville Landfill – waste disposal

Written consent under section 177(1)(a) will be required from the requiring authorities listed in Table 8 before construction activities can commence. The NZ Transport Agency has consulted with these requiring authorities and will seek written consent once detailed design has sufficiently progressed.

[15] In places, the proposed designations are also over existing State highway designation for which NZ Transport Agency is the requiring authority.

12.3 Resource Consents

As noted in Part A of this Report, and on the prescribed forms in Volume 1, the Project also requires resource consents for a number of activities (including land use consents, water permits and discharge permits). These resource consents are not sought at this time but will be sought when detailed design is completed so as to confirm consent requirements, understand the actual or potential effects of the activities and define the measures proposed to manage adverse effects.

Resource consents are likely to be required by the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 ("NES Soil") for the disturbance of contaminated, or potentially contaminated land.

It is also possible that resource consent may be required by Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009 if the detailed design of the Project necessitate the relocation of Transpower's Mangamaire – Woodville A 110kV transmission line.

Resource consent may be required for the following activities by the Horizons One Plan:

- large-scale land disturbance (including earthworks) and vegetation clearance, and ancillary discharge of sediment, including within 'at risk' and 'rare and threatened habitats';
- construction phase stormwater discharge from treatment devices to land or water;
- operational stormwater discharges to land or water;
- discharge of cleanfill;
- dust generation (unless site management can achieve no offensive or objectionable odour, dust, smoke or water vapour at the boundary of any sensitive area);
- water take (including dewatering, if required);
- new drainage and stream diversions;
- work within the beds of rivers, streams and artificial watercourses;
- activities in Schedule B (Flood Control and Drainage) rivers; and
- activities in 'rare and threatened habitats'.

13. OTHER STATUTORY MATTERS

In addition to the matters requiring consideration under the RMA, there are some further statutory matters that that the Project either is informed by or is legally required to comply with. These matters may also be relevant in terms of section 171(1)(d) of the RMA. These matters are summarised below and, where relevant, assessed in Part I of this Report.

Any further authorities required by other statutes will be separately sought.

Table 9 – Other Relevant Statutory Matters

STATUTE	RELEVANCE
Land Transport Management Act 2003	The LTMA provides the statutory framework for the management of New Zealand's land transport network. It is also one of the main statutes

STATUTE	RELEVANCE
	under which the NZ Transport Agency operates (in conjunction with the GRPA). The purpose of the LTMA as set out at section 3 is: "*(1) The purpose of this Act is to contribute to an effective, efficient, and safe land transport system in the public interest*." The NZ Transport Agency's objective is set out in section 94 as: "*The objective of the Agency is to undertake its functions in a way that contributes to an effective, efficient, and safe land transport system in the public interest*." The NZ Transport Agency's functions are set out in section 95 and the principles under which the NZ Transport Agency must operate are in section 96. These principles include a requirement to exhibit a sense of social and environmental responsibility. The LTMA also recognises and respects the Crown's responsibility to take appropriate account of the principles of the Treaty of Waitangi and provides principles and requirements that are intended to facilitate participation by Māori in land transport decision-making processes.
Government Roading Powers Act 1989	The GRPA provides the statutory framework for the management of New Zealand's land transport system, in conjunction with the LTMA. Part 4 of the GRPA outlines the responsibilities of the NZ Transport Agency in relation to roading, including the powers and duties of the NZ Transport Agency in relation to State highways (section 61) including: "*(1) Subject to section 62[16], the Agency shall have the sole powers of control for all purposes, including construction and maintenance, of all State highways under this Act, and any such powers shall be exercisable only pursuant to this Act*."
Public Works Act 1981	The PWA enables land to be acquired, either by agreement or by compulsion, for the construction of public works including roads. The Project requires land to be acquired (either part of, or entirely properties) under the PWA. The NZ Transport Agency is working with the affected property owners.
Rangitāne o Manawatu Claims Settlement Act 2016	The Rangitāne o Manawatu Claims Settlement Act describes the significant and abiding relationship between Rangitāne o Manawatu and the land that is identified as their 'area of interest'. This includes land that is to be designated for the Project and, as such, the Act informs the development of the Project. The Act identifies a number of statutory acknowledgement areas relevant to the Project and the purpose of these areas, as set out in section 30 if the Act includes: "*(a) to require relevant consent authorities, the Environment Court, and Heritage New Zealand Pouhere Taonga to have regard to the statutory acknowledgement, in accordance with sections 31 to 33; and …*"
Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) Claims Settlement Act 2017	The Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) Claims Settlement Act describes the significant and abiding relationship between Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) and the land that is identified as their 'area of interest'. This includes land that is to be designated for the Project and, as such, the Act informs the development of the Project. The Act includes a statutory acknowledgement of the Manawatū River and its tributaries. Section 29 sets out the purpose of this statutory acknowledge as including: "*(a) to require relevant consent authorities, the Environment Court, and Heritage New Zealand Pouhere Taonga to have regard to the*

[16] Section 62 of the GRPA provide for the NZ Transport Agency to delegate powers and duties to territorial authorities.

STATUTE	RELEVANCE
	statutory acknowledgement, in accordance with sections 30 to 32; and .."
Heritage New Zealand Pouhere Taonga Act 2014	The HNZPT Act establishes Heritage New Zealand Pouhere Taonga. The purpose of the Act is in section 3 as follows: " *… to promote the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand*." Part 3, Subpart 2 of the HNZPT Act provides for the protection of archaeological sites. Section 42 provides that an archaeological site, recorded or not, may not be damaged or destroyed unless an Authority to modify the site is granted. While no known or recorded archaeological sites will be damaged or destroyed during construction of the Project, it is anticipated that unidentified sites may be within the designation corridor. For this reason, the NZ Transport Agency will apply for an Authority under section 44(a) of the HNZPT Act in due course.
Te Ture Whenua Maori Act 1993	Parahaki Island is Māori freehold land as defined by section 129 of Te Ture Whenua Maori Act 1993, and is therefore subject to the provisions of that Act. Note that the Project has been shaped to avoid effects on Parahaki Island. The Te Ture Whenua Maori Act 1993 establishes the following principles of the Act in its preamble: *"Nā te mea i riro nā te Tiriti o Waitangi i motuhake ai te noho a te iwi me te Karauna: ā, nā te mea e tika ana kia whakaūtia anō te wairua o te wā i riro atu ai te kāwanatanga kia riro mai ai te mau tonu o te rangatiratanga e takoto nei i roto i te Tiriti o Waitangi: ā, nā te mea e tika ana kia mārama ko te whenua he taonga tuku iho e tino whakaaro nuitia ana e te iwi Māori, ā, nā tērā he whakahau kia mau tonu taua whenua ki te iwi nōna, ki ō rātou whānau, hapū hoki, a, a ki te whakangungu i ngā wāhi tapu hei whakamāmā i te nohotanga, i te whakahaeretanga, i te whakamahitanga o taua whenua hei painga mō te hunga nōna, mō ō rātou whānau, hapū hoki: ā, nā te mea e tika ana kia tū tonu he Te Kooti, ā, kia whakatakototia he tikanga hei āwhina i te iwi Māori kia taea ai ēnei kaupapa te whakatinana.* *Whereas the Treaty of Waitangi established the special relationship between the Maori people and the Crown: And whereas it is desirable that the spirit of the exchange of kawanatanga for the protection of rangatiratanga embodied in the Treaty of Waitangi be reaffirmed: And whereas it is desirable to recognise that land is a taonga tuku iho of special significance to Maori people and, for that reason, to promote the retention of that land in the hands of its owners, their whanau, and their hapu, and to protect wahi tapu: and to facilitate the occupation, development, and utilisation of that land for the benefit of its owners, their whanau, and their hapu: And whereas it is desirable to maintain a court and to establish mechanisms to assist the Maori people to achieve the implementation of these principles.*"
Wildlife Act 1953	The Wildlife Act deals with the protection and control of wild animals and birds and the management of game. It provides varying levels of protection to different species. The Project has effects on areas of ecological values and therefore the Wildlife Act is a relevant consideration. The Project will likely require an authorisation, given by the Director-General of Conservation under section 53 of the Wildlife Act, in relation to the disturbance of any protected wildlife.
Reserves Act 1977	The Reserves Act was established to acquire, preserve and manage areas for their conservation values or public recreational and educational values. The Ashhurst Domain, an area subject to the Act, is a potential location for ecological offset planting undertaken as part of the Project.

STATUTE	RELEVANCE
Queen Elizabeth the Second National Trust Act 1977	The Queen Elizabeth the Second National Trust Act 1977 established the Queen Elizabeth II National Trust, the purpose of which is "*to encourage and promote the provision, protection, and enhancement of open space for the benefit and enjoyment of the people of New Zealand*". The Act sets out the functions and powers of the Trust, including in respect of land that is subject to an "open space covenant" (often called a "QEII covenant"), as provided for under the Act. The Project area includes two areas of QEII covenant land, and the NZ Transport Agency is working with the QEII Trust in respect of those areas. Three other QEII covenant areas are also in the vicinity of the Project, but have been avoided as part of the selection, and refinement, of the designation corridor.

PART E:
CONSIDERATION OF ALTERNATIVES

Part E: Consideration of Alternatives

14. INTRODUCTION AND STATUTORY CONTEXT

As discussed above, the abrupt closure of the section of SH3 through the Gorge in April 2017 brought a pressing need for a high-quality replacement road to be developed between the Manawatū-Whanganui and Wairarapa / Hawke's Bay regions.

A key part of solving that problem was selecting an appropriate route for the replacement section to take. The NZ Transport Agency tasked designers with identifying an appropriately broad range of possible alternative routes, and a large multi-disciplinary team has since undertaken a comprehensive process of gathering and analysing information to guide the choice of route for the Project and the shape of the proposed designation. Part of that work progressed in tandem with a Detailed Business Case ("DBC") process used to inform the NZ Transport Agency's investment decisions relating to the Project.

This chapter explains the process that has been undertaken by the NZ Transport Agency to consider alternative sites, routes, and methods for the Project.

One reason why that process is relevant is that section 171(1)(b) of the RMA requires the Territorial Authorities, when considering the NoRs, to have particular regard to:

> "*(b) whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work if—*
>
> *(i) the requiring authority does not have an interest in the land sufficient for undertaking the work; or*
> *(ii) it is likely that the work will have a significant adverse effect on the environment; and...*"

The NZ Transport Agency does not have property interests in the land required for the Project to undertake the work, and it is likely that the Project would have significant adverse effects on the environment (before mitigation and offsets are taken into account); as such, s 171(1)(b) is relevant to the assessment of the NoRs.

As explained in more detail below, the NZ Transport Agency's process has entailed:

- identifying a broad range of alternative routes to be assessed (including tunnel options, and adding further hybrid routes during the process as additional information came to light);
- implementing Multi-Criteria Analysis ("MCA") processes, with inputs from tangata whenua, stakeholders, and technical specialists, in respect of a Long List of 18 and a Short List of four alternative routes, and to inform an assessment of sub-options for connections around Ashhurst;

- selecting a preferred route and developing a proposed designation, involving further consideration of alternatives using increasingly comprehensive information; and
- as part of those processes, assessing effects on landowners (including Meridian, AgResearch, and farming operations), social and other environmental effects, key RMA considerations and relevant statutory planning instruments, alignment with Project objectives, and strategic considerations (including Project risk, cost, and wider transport networks).

15. IDENTIFICATION AND ASSESSMENT OF ALTERNATIVES

15.1 Project Identification

The NZ Transport Agency immediately identified the vital importance of reinstating the severed SH3 connection with a safe, high quality route, given that neither Saddle Road nor Pahīatua Track provides the necessary level of service for such a connection. The Project's urgency has been continually reinforced by those most affected, including tangata whenua, local authorities and residents, other inter-regional travellers, transport operators, and businesses reliant on the link.

Objectives for a reinstated link were developed to guide investment decisions (to be made through business case processes), and for RMA purposes. The Project objectives are:

- to reconnect the currently closed Manawatū Gorge State Highway 3 with a more resilient connection;
- to reconnect the currently closed Manawatū Gorge State Highway 3 connection with a safer connection than the Saddle Road and Pahīatua Track; and
- to reconnect the currently closed Manawatū Gorge State Highway 3 with a more efficient connection than the Saddle Road and Pahīatua Track.

The Project objectives focus on aspects of transport performance, as they respond directly to the defined 'problems' arising from the closure of the Manawatū Gorge route and reflect the Project's primary function as an important link in the transport network. Nonetheless, a wide range of environmental and other factors have been considered in developing the Project (as discussed below and throughout this Report).

15.2 Development of Alternatives

Context

As noted above, the NZ Transport Agency tasked designers with identifying a broad range of possible alternative routes to reinstate the inter-regional connection, to be assessed by a multi-disciplinary team.

Historical studies into a potential alternative connection provided a useful starting point for identifying possible alternatives, and a number of additional options were devised. The regional context for the Project provided a number of important factors influencing this process, including:

- the many geographic constraints to traversing challenging terrain across the Tararua or Ruahine Rranges, which include various outstanding natural features and landscapes and other significant intrinsic natural values, including in waterways (including the Manawatū and/or Pohangina Rivers) and floodplains;
- significant cultural values and sites across the Ranges, including the importance of the Manawatū River and Parahaki Island, as advised by tangata whenua;
- areas of significant ecological value throughout the Ranges, as well as reserves and QEII covenanted land;
- complex geology and seismic activity (resulting from multiple active or inactive fault lines, including the Wellington and Mohaka Faults);
- the various uses of land throughout the Ranges, including several wind farms, an AgResearch fertiliser trial site, farms, and residential dwellings; and
- numerous transport, economic, and social considerations, including origins and destinations of trips, centres of economic activity, growth areas, and regional connectivity, as well as geometric road design standards for safe and efficient travel.

One example of the influence of transport, economic, and social factors was the decision by the NZ Transport Agency that the Project's eastern tie-in point be at the intersection of SH2 and SH3 in Woodville. The scope of options was that options should reconnect back to the existing network efficiently and that decisions on bypassing Woodville would be subject to future decision making, should that become desirable. The options would not preclude a future State Highway 2 or State Highway 3 bypass of Woodville occurring.

The difficulties of traversing higher crossing points on the Tararua and Ruahine Ranges, and the location and function of existing transport connections, particularly Saddle Road and Pahīatua Track, were other key factors in the process for devising alternatives.

Reinstatement of the Gorge

The NZ Transport Agency carefully considered the possibility of reinstating the SH3 connection through the Gorge, as had been done following previous landslide events. However, geotechnical and health and safety considerations highlighted that this was not a viable option; the NZ Transport Agency was advised that there was an "*imminent extreme threat level*" for Kerry's Wall[17] and the surrounding slopes, and any remedial works to stabilise those areas were not possible due to the considerable safety concerns for anyone working around the site.

The Long List of Options

During the second half of 2017 the NZ Transport Agency and its consultants developed a Long List of alternatives for reinstating a high quality inter-regional connection. The Long List included 18 options (including the do-minimum), and was developed based on:

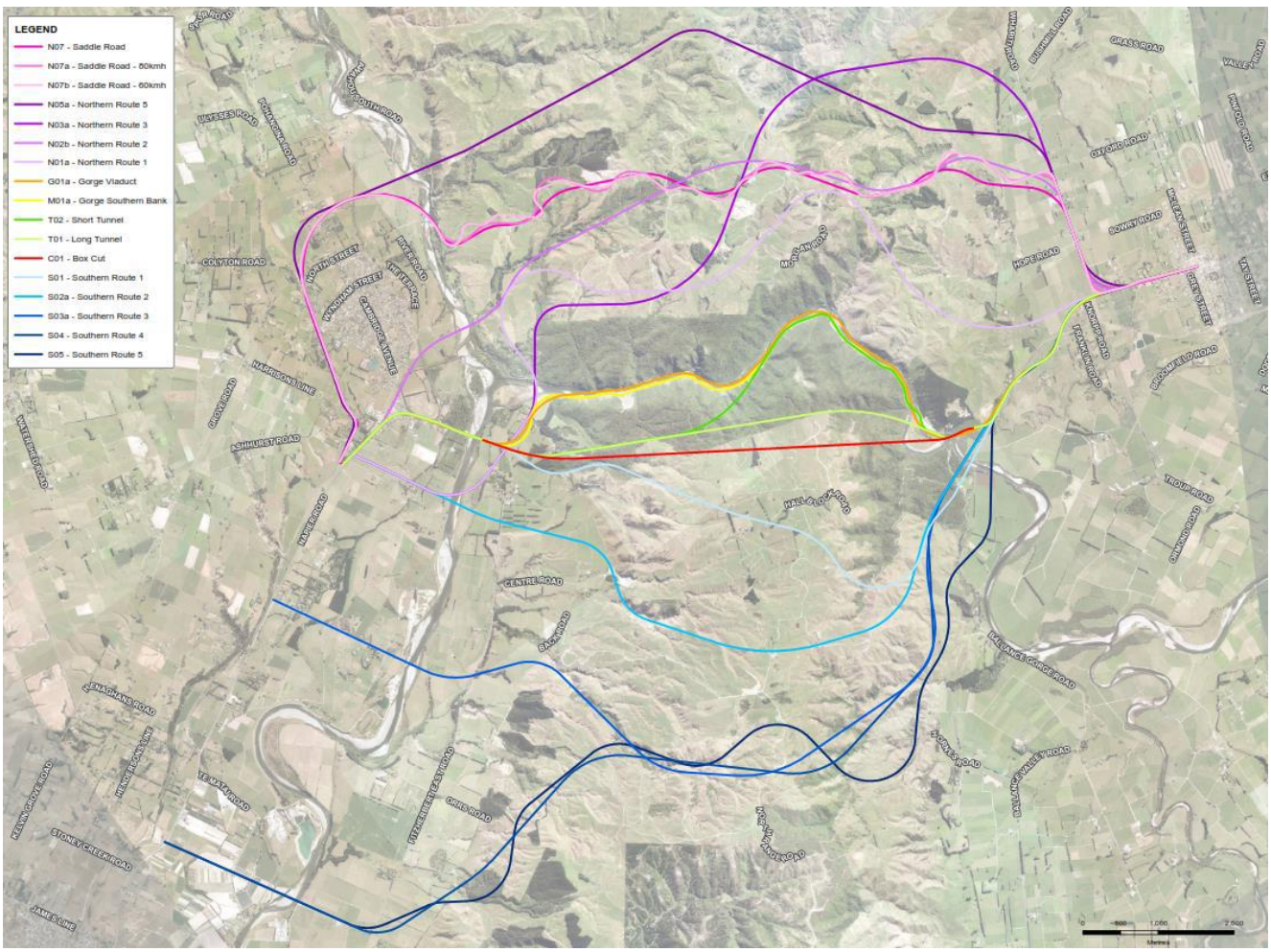
- a review of previous studies undertaken for an alternative route in 1977;
- a review of further investigations conducted in 2012, which considered four alternative routes;

[17] As explained in the DBC, 4.1.4, pg 30 (see footnote 14), and Geotechnical Literature Review appended to DBC Appendix B Long List Assessment Report: "*Kerry's Wall is a gabion-faced mechanically stablished embankment retaining wall, constructed in 1998 to stabilise a known unstable portion of the Gorge slope above the road*".

- variations of the alternative routes that formed part of the 1977 and 2012 studies and investigations;
- three new options 'in the Gorge'; and
- a series of options development workshops with stakeholders, which resulted in five additional alternatives being added to an original list of 13 options (including Northern Option 5, which provided a northern option that avoided wind farms, and Southern Option 5, which reduced negative aspects of four other southern options in the Long List).

To enable a comparative assessment of options, a 'do-minimum' was assessed among the Long List.That option was defined as the existing situation – with the Gorge section of SH3 closed and traffic using Saddle Road or Pahīatua Track – plus minor upgrades to the Saddle Road that were planned and to be implemented.

Figure 19 – Final Long List Options[18]



[18] The do-minimum option (including minor upgrades to Saddle Road) is not illustrated.

15.3 Long List Assessment

The Assessment Criteria

The 18 Long List options were tested against criteria developed with input from stakeholders, consultants and technical specialists. The criteria were:

- The transport-related **Project/investment objectives** noted above, focusing on resilience, safety, and efficiency (together referred to as 'Assessment Criteria 1')):
- **Environmental and social impacts** ('Assessment Criteria 2'), which involved specialist assessments in the following areas:
    - natural environment, which incorporated water quality, hydrology, freshwater ecology, and terrestrial ecology;
    - cultural and heritage, which incorporated cultural values, sites/areas of cultural significance, archaeology; and built heritage;
    - social effects;
    - landscape and visual effects;
    - infrastructure and property; and
    - human health, which incorporated noise effects and contaminated land.
- **Project implementability factors** ('Assessment Criteria 3'), namely Project risk, cost, construction considerations, network dependent investments (i.e. what flow-on investment may be required as a result of the option being developed), and integration.

Application of Assessment Criteria 1: Project/investment objectives involved considering:

- quantifiable measures for safety and efficiency, such as: KiwiRAP ratings (used to determine the safety levels of highways and roads), average annual deaths and serious injuries, and travel times; and
- more qualitative measures for resilience drawing on the specialist's professional experience and considering the potential alignment, design, construction method, and ability to withstand an unusual event.

A team of specialists assessed each Long List option against Assessment Criteria 2: environmental and social impacts. The assessments were undertaken using a risk-based approach, drawing on desktop reviews of available information, specialists' professional insights and knowledge of the area, and stakeholder and community feedback (discussed further below). Cultural effects were assessed by iwi representatives, who provided specific comments on options considered to be fatally flawed, rather than a single score for all options.

Application of Assessment Criteria 3: implementability considered:

- Project risks, which included potential issues that needed to be addressed during the design and consenting of the Project that may impact the cost, time, quality and other outcomes;
- cost, broken down into:
    - capital costs including geotechnical cost risk (construction and operation); and
    - operational cost i.e. maintenance;
- construction considerations, such as time to deliver, complexity and risk; and

- network dependant investments.[19]

Cost and construction timeframe estimates took into account key specific aspects of infrastructure such as bridges, among other factors.

Each option was assessed and scores were allocated to the assessment criteria. The scores comparatively assessed the particular option against the do-minimum option and applied the seven point system shown below. In addition, specialists were able to rate an option as 'fatally flawed', where a potential effect for a specific environmental and social criterion was so serious that, in the opinion of the specialist carrying out the analysis, an alignment through that option would have an unacceptable level of effect and was unable to be mitigated. The assessment was refined with input from key stakeholders.

Figure 20 - MCA Scoring

✓✓✓	Substantial positive effect
✓✓	Moderately positive effect
✓	Minor positive effect
-	Neutral
x	Minor adverse effect
xx	Moderate adverse effect
xxx	Substantial adverse effect

The summary of the Long List assessments is included in Table 10 below.

[19] For the assessment of the Long List, this was assessed as requiring similar levels of other network investment to deliver.

Table 10 – Long List Assessment Summary

Manawatū Gorge Alternative options	Do Minimum	Northern Option 1	Northern Option 2	Northern Option 3	Northern Option 5	Northern Option 7	Northern Option 7a	Northern Option 7b	Deep Box cut	Manawatū Gorge Southern Bank	Long Tunnel	Short Tunnel	Gorge Viaduct	Southern Option 1	Southern Option 2	Southern Option 3	Southern Option 4	Southern Option 5
Resilience	-	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓	✓	✓	✓✓✓	xxx	✓✓	xx	xx	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Safety	-	✓✓✓	✓✓✓	✓✓	✓✓	✓	✓	✓	✓✓✓	✓	✓✓✓	✓✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓✓	✓✓✓
Efficiency	-	✓✓	✓✓	✓✓	✓✓	✓✓	✓	-	✓✓✓	✓✓	✓✓✓	✓✓	✓✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Natural Environment	No fatal flaws identified								F		No fatal flaws identified		F	F	F	F	F	No fatal flaws identified.
Cultural and Heritage									F	F		F	F					
Human Health																		
Social																		
Infrastructure and Property																		
Landscape and Visual																		
Cost (Capital)	$2M	$350-450M	$500-600M	$500-650M	$350-450M	$300-400M	$200-300M	$130-230M	$1,900-2,500M	$800-1,000M	$1,700-2,100M	$1,200-1,500M	$1,100-1,400M	$1,000-1,250M	$550-750M	$800-1,050M	$800-1,050M	$550-$650M
Other major attributes and/or major project risks	Community objection to traffic through Ashhurst and inadequacy of alignment for a State highway connection	Large structure required at western end to cross Manawatū River	Rail crossing within Ashhurst area – technical feasibility and visual impact. Alignment through Ashhurst community acceptability	Large structure required at western end to cross Manawatū River. Areas of cultural significance near Manawatū River	Impact on Ashhurst residents along new highway route	Impact of construction on Saddle Rd as the primary connection between the regions	Safety risks and likelihood of deaths and serious injuries continuing from crashes	Major safety risks and likelihood of deaths and serious injuries continuing from crashes	92 M cubic metres of surplus fill Major environmental impact. 15 plus years for design, consenting and construction stages	Ongoing risk of slips causing closure and safety issues	Availability of tunnelling equipment and experience to deliver project in required timeframes	There is still considerable risk associated with section of the Gorge which is susceptible to closure	Consenting timeframes and risk of non-approval. Ecological impacts of construction and use of the viaduct	Major number of trucks and heavy haulage impacts from removal of excess fill and construction timeframes	Geotechnical uncertainty of materials and construction timeframes	Major number of trucks and heavy haulage impacts from removal of excess fill and construction timeframes	Major land acquisition costs and timeframes may delay project delivery due to large number of affected land owners	Major land acquisition costs and timeframes may delay project delivery due to the large number of affected land owners
Construction Timeframe	6 months	4-5 yrs	5-6 yrs	5-6 yrs	4-5 yrs	4-5 yrs	4-5 yrs	3-4 yrs	12-15 yrs	7-8 yrs	6-7 yrs	5-6 yrs	5-6 yrs	10-11 yrs	6-7 yrs	8-10 yrs	9-10 yrs	6-7 yrs

Outcome of Assessment

As shown in the summary above, eight of the Long List options were assessed as being fatally flawed, reflecting the challenging river valley and ridge terrain that dominates the landscape between the west and east of the Gorge, as well as the significant cultural and ecological values of the area.

Otherwise, the scores and other information obtained in respect of the Long List options were considered by the Project team as part of an overall evaluation, in order to determine which options should be carried forward to the subsequent Short List assessment.

The excluded Long List options were not carried through to the Short List for the key reasons summarised in the Table 11 below.

Table 11 – Long List Assessment Rationale – Excluded Options

LONG LIST OPTION	KEY INFORMATION	KEY REASONS FOR EXCLUSION
Do Minimum (Upgrade of Saddle Road)	Cost: $2 m Time to complete: 1 year	This option did not provide the necessary levels of safety, efficiency and resilience for a State highway with current volumes of traffic and function.
Northern Options 2 and 3	Cost: $530 - 680 m Time to complete: 6-7 years	These options were not shortlisted, as they had similar or less transport benefits to Northern Options 1 and 5 with additional delivery risks or impacts (i.e. Northern Option 2 runs through Ashhurst community requiring a rail crossing). Both were substantially higher in cost than Northern Options 1 and 5.
Saddle Road Upgrade (60 and 80 km/h)	Cost: $150 – 300 m Time to complete: 4-5 years	These options provided some levels of improvement from the current Saddle Rd but due to the upgrade being on the existing alignment there were still significant issues including: · Resilience · Residual safety issues · Poor efficiency outcomes due to high gradient levels
Deep Box Cut	Cost: $1,900 m – $2,500 m Time to complete: 15+ years	The construction duration, cost, challenge with disposal of more than 90 M m3 of excess fill, unacceptable impacts on ecology and sites of cultural significance, as well as substantial impacts on landscape were the major issues identified with this option
Manawatū Gorge South Bank	Cost: $800 m – $1,000 m Time to complete: 8-9 years	This option was not as resilient as other options (due to numerous high-risk slip sites). There were also unacceptable impacts on sites of cultural significance.
Tunnel options (long tunnel and short tunnel)	Long tunnel: Cost: $1,700 m – $2,200 m Time to complete: 8-10 years Short tunnel: Cost: $1,200 m - $1,500 m Time to complete: 6-7 years	The tunnel options are not as resilient as non-tunnel options, due to risk of tunnel closure from traffic incidents. Tunnels cannot accommodate all freight traffic due to dangerous goods restrictions. Fault lines lie across the long tunnel route, and there is a high risk of slips on the short tunnel route (there is instability throughout the Gorge with approximately half the slips from 1985 to 2012 occurring on the eastern section of the Gorge). There were also large capital and operational costs for both tunnel options.

LONG LIST OPTION	KEY INFORMATION	KEY REASONS FOR EXCLUSION
Viaduct through Manawatū Gorge	*Cost: $1,100 m – $1,400 m* *Time to complete: 6-7 years*	The concerns identified with this option included high impacts on landscape and social values, unacceptable impacts on ecology and sites of cultural significance, and piles in the river would interfere with river flow. There would remain a residual risk of slips in the Gorge undermining viaduct piers and it was considered to have long delivery timeframes (due to consenting and construction risk) and a high capital cost.

The Short List was made up of four options that met the transport outcomes sought, enabled environmental and social effects to be minimised (relative to other options), and were practically deliverable. Each option included similar indicative construction lengths, costs within a range of $300 – 650 million, and delivery timeframes of approximately 5-6 years.

The Short List comprised:

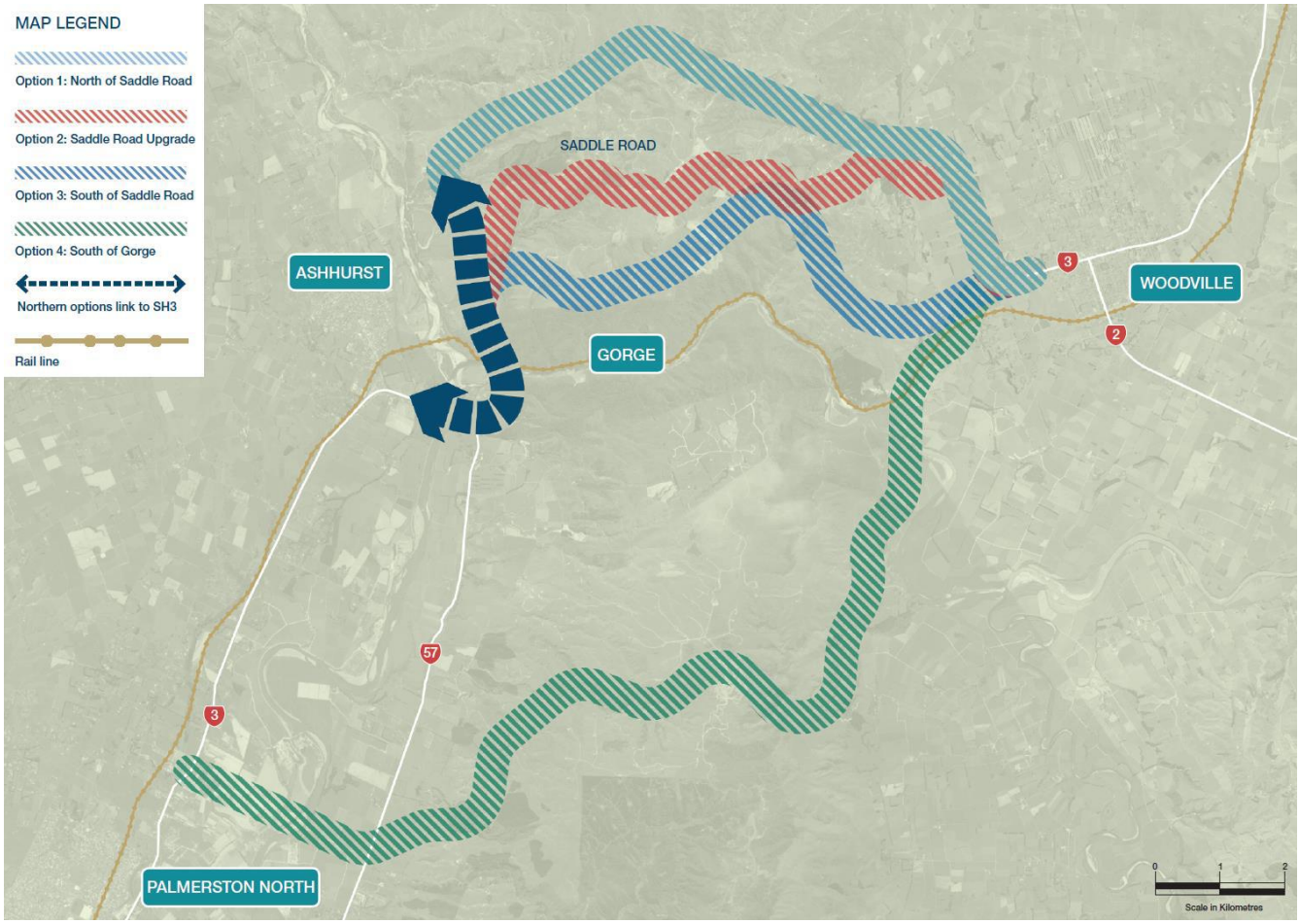
- Northern Option 5, which was renamed Short List Option 1;
- Saddle Road Upgrade (100km/hr), which became Short List Option 2;
- Northern Option 1, which became Short List Option 3 (and ultimately became the preferred option); and
- Southern Option 5, which became Short List Option 4.

15.4 Short List Assessment

Introduction

The Short List options were then assessed using a similar MCA process and criteria as before, but building on the information obtained during the Long List process and incorporating additional information obtained from specialists and others, including through engagement processes with landowners and the wider public (discussed further below). The Short List Options are shown on Figure 21 below.

Figure 21 – Short List Options



NZ Transport Agency representatives and environmental and other specialists held workshops and individual meetings with tangata whenua representatives and key stakeholders,[20] to ensure a wide range of perspectives and knowledge could be incorporated into specialists' assessments and the wider process. Specialists then updated their assessments as necessary. MCA scoring included the same criteria as the assessment of the Long List, including the seven-point system (from substantial positive (three ticks), to substantial negative (three crosses), with differences and areas of development in these assessments outlined below.

Transport Objectives

Further input was received from specialist teams in the key results areas of resilience, safety and efficiency. Resilience was assessed by a group including transport planners, civil engineers and geologists able to make informed judgements about the relevant ground conditions (through available mapping and historical data, as well as surface observations), effects of a road closure from earthquakes, landslide events, accidents, or other network disruptions, and the 'route redundancy' benefits of constructing a new route.

The safety methodology applied the NZ Transport Agency's KiwiRAP system, focusing on four areas: safe roads and roadsides, safe speeds, safe vehicles, and safe road use. Ratings were given for each

[20] Including Meridian Energy Limited, TILT Renewables Limited, and AgResearch Limited.

option (expressed as a range), a multiplier applied based on the length of each option, and 'death and serious injury' crash rates estimated per 100 million vehicle kms travelled for each option.

Efficiency was determined by four aspects: general traffic travel time, freight travel time, travel time costs, and total vehicle operating costs.

Environmental and Social Criteria

Environmental specialists assessed the potential effects for each option based on a 500m corridor within which an alignment could be located. Specialists reviewed more detailed desktop data, undertook site visits, and took into consideration consented or approved projects.[21] Typical design standards and other mitigation measures provided for NZ Transport Agency projects were to be assumed, but no bespoke mitigation measures for an option were taken into consideration.

Additional information provided by tangata whenua was presented to specialists, but scores were not ascribed for cultural values given the breadth of values expressed. Rather, information provided by iwi representatives was recorded against each option and taken into consideration in the overall assessment of options.

Implementability Criteria

The implementability assessment also built on information from the Long List and included further consideration of network connectivity and land use. The assessment clarified differentiators between options relating to:

- Geotechnical risk, traffic impacts during construction, and impacts on infrastructure.
- Estimated costs for construction, land acquisition and operational cost, primarily reflecting differences in the bulk earthworks required, pavement qualities, potential bridge locations and spans, the length of each option, the number of properties affected, and the time to deliver.
- Connections to the existing transport network and the requirement for additional investment flowing from selection of each option. In particular, Option 4 would require considerable investment, in addition to the Project, to contribute to a well-functioning network, whereas Options 1 to 3 would not.

Public Consultation and Stakeholder Discussions

Extensive consultation and engagement processes (discussed further below) gathered considerable amounts of information that was fed into experts' assessments and the wider consideration process. Key matters highlighted through stakeholder and community engagement and relevant to this assessment were:

- that the main concerns of stakeholders and the community were to ensure travel efficiency and connectivity, address geotechnical considerations, and shorten the time of Project delivery;
- the importance of diverting traffic away from Ashhurst;
- in terms of the specific Short List options, stakeholder feedback emphasised the following:
    - the potential ecological effects of Option 1;

[21] For example, the Saddle Road improvements which were underway at the time such as low noise surfacing through Ashhurst).

- the potential effects of Option 3 on AgResearch's nationally significant fertiliser trial site; and
- divided feedback about Option 4, regarding the directness of the route, the potential to support economic growth in Palmerston North and the region, concerns with connecting the route to SH3 near Stoney Creek Road, and the large number of landowners that may be affected.

Council Views on Option 4

As the Short List assessment process was being carried out, regional stakeholders (including representatives and mayors from Horizons and the territorial authorities of the Manawatu-Whanganui region and surrounding regions) expressed strong support for Option 4 of the Short List to the NZ Transport Agency Board, because of the benefits they considered would arise to the regions.

In December 2017 the NZ Transport Agency's Board directed the Project team to undertake further evaluation of issues raised by the Councils, relating to the strategic transport network and land use integration, and to engage further with local and regional councils. This led to further assessment work.

Outcome of the Short List Process

All of the information gathered in relation to the Short List options was then evaluated by the Project team, in order to ascertain whether one option was clearly preferred. This process involved analysis of the scores from the Short List MCA process, as well as evaluation of the other qualitative and quantitative information received, including from tangata whenua, stakeholders, members of the public, and the specialist team.

The process included aggregating the scores ascribed to the various environmental criteria, but did not rely strongly on mathematical analysis (for instance, weighting systems devised to test the scores were considered not to provide information of significant value in assessing options). Rather, the process involved an overall evaluation of the scores against all criteria and, as such, examined all points of differentiation between the options. In doing so, the process did not favour the transport objectives or any set of criteria (or any one criterion).

The key findings of the Short List evaluation process were:

- In comparison to the do-minimum, each option would provide significant transport benefits.
- Option 3 was the best performing option in respect of transport, having been assessed as providing significant transport benefits across all three Project objectives. Option 4 was assessed as being less resilient than Option 3 as a result of seismic risk, but otherwise performed similarly for safety and efficiency.
- Each Short List option had the potential to give rise to significant adverse environmental and social effects, and overall there were not substantial differences between the options. The particular differences related to performance against specific sub-criteria, including:
  - Option 4 was assessed more favourably than Options 1 to 3 for archaeology and built heritage and visual amenity effects, but included the greatest potential effects on hydrology, land, operational noise and social impacts (and would affect the most number of dwellings as compared with the other options).
  - Option 3 scored better on freshwater ecology than other options as many of the waterways run at right angles to the Option 3 corridor, but it was identified as potentially

affecting sites of cultural significance. For environmental and social impacts, on balance, it was considered to have the lowest risks.

- Option 1 scored significantly better on infrastructure (as it was the only option to avoid all wind farms), but had the worst score for landscape values.
- All options had the potential to encounter cultural sites, however particular feedback on cultural values and sites included that:
  - Options 1 to 3 maintained a connection with the Gorge which was preferable to Rangitāne o Tamaki Nui ā Rua.
  - Option 3 could have a visual effect on a site of great cultural significance, Te Ahu a Turanga.
  - Option 4 was the preferred option for Rangitāne o Manawatū because of the linkages to Palmerston North and potential to affect fewer cultural sites.
  - Options 1 to 3 were in the vicinity of a significant site, namely Parahaki Island (which tangata whenua had strongly indicated should be avoided by the Project).

- For implementability overall, Option 3 was considered the best performing option. Similar scores were allocated across all options, with the exception of the geotechnical assessment where Option 1 to 3 had similar underlying conditions and Option 4 was attributed higher technical and delivery risk.
- Costs associated with the four options ranged from $392 to $801 million. Options 1, 2 and 3 had similar cost ranges between $392 and $561. Option 4 had the highest cost range, between $603 and $801.
- Options 1 to 3 all had estimated construction timeframes of 5-6 years, and Option 4 had a construction timeframe of 6-7 years.
- The majority of public feedback indicated a preference for either Option 3 or Option 4. Favourable feedback on Option 3 was relatively consistent and related to: it being the shortest, most direct route with the best gradients, cost efficiency, and lesser property impact than other options. Overall, there was limited negative commentary on this option (although concerns regarding the impact on the AgResearch fertiliser trial site and the similarity of the route (in terms of location) to Saddle Road were noted).

Overall, Option 3 was identified as the preferred option (with further consideration to be given, outside the Project, for achieving similar network benefits identified by the Councils as deriving from Option 4).

Key factors influencing the NZ Transport Agency's selection of Option 3 as the preferred route were better transport performance, an acceptable risk of adverse environmental impacts, and greater implementability. This was borne out by the information and outcomes of the MCA process, and the feedback from public engagement.

In addition to the key findings outlined above, the NZ Transport Agency highlighted the following aspects of Option 3 in its explanation of its preferred option in the DBC:

Transportation:

- Option 3 (along with Option 2) provided for the greatest transport resilience, relative to the other short list options and do-minimum. This was because of its reduced exposure to seismic events (which was greatest on Option 4) and the provision of a new and additional alignment to Saddle Road, which could remain an alternative route.

- Option 3 performed well in terms of safety as a function of the design standard and the length of the route (longer routes are more likely to have a higher crash rate).
- Option 3 provided efficiency benefits, with the shortest travel time for heavy commercial vehicles relative to the other Short List options and a significant reduction in travel time costs and vehicle operating costs compared with the do-minimum (of a scale comparable to, or better than, the other Short List options).

Environmental and social impacts:

- The effects of Option 3 were considered to be able to be addressed using mitigation and environmental offset approaches familiar to the NZ Transport Agency, noting that the Short List options performed similarly overall in terms of environmental and social impacts (with no fatal flaws identified on any of the options).

Implementability:

- Option 3 was overall the most favourable in terms of implementability, which included consideration of project risk, safety in design, delivery time and cost, network dependant investment and strategic integration, because:
    - While all of the Short List options had some geotechnical risk, the northern options had substantially less risk than Option 4 as a function of the underlying geology. As noted above in relation to resilience, the Preliminary Geotechnical Appraisal Report (Source: DBC) confirmed Option 3 had the least geotechnical risk of the Short List options.
    - Further work to understand the wider transport and economic benefits of the Short List options confirmed that Option 3, along with the other Short List options, was able to provide a connection to the current and future strategic road network and integrate with the current and anticipated land use.

15.5 Ashhurst Sub-Options Assessment

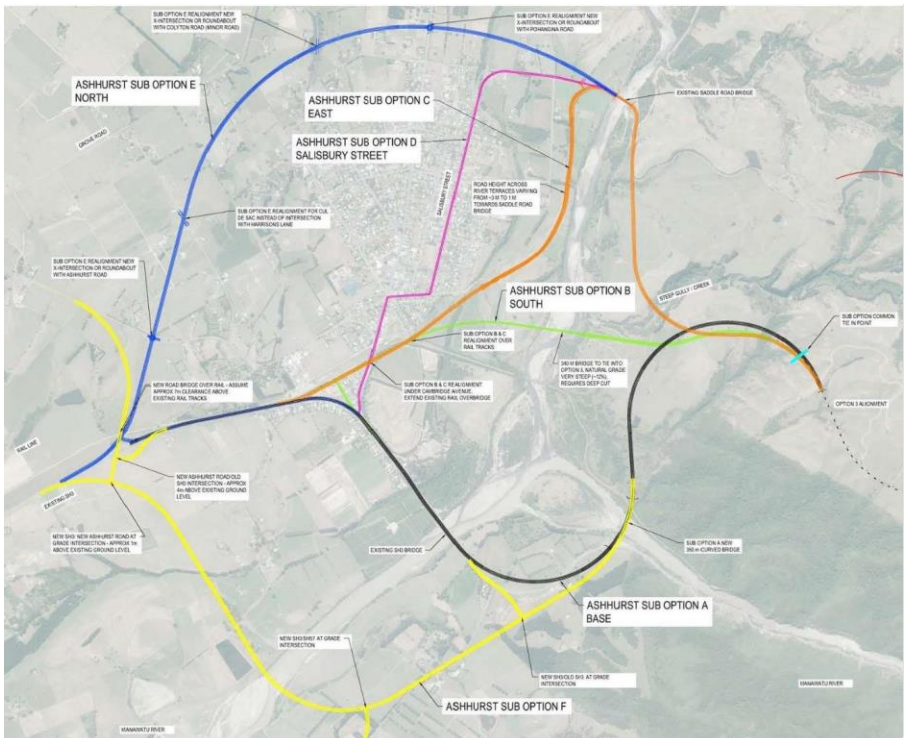
In parallel with the Short List evaluation, a specific process was undertaken to consider how the northern options in the Short List, Options 1 to 3, could (if selected) best connect with SH3 at or near Ashhurst.

Six sub-options were assessed. Sub-option A was the connection that had been used in the Long List and Short List stages for all northern options, and consisted of a new bridge connection across the Manawatū River at the western end of the Gorge. The site of the new bridge connection was developed to avoid Parahaki Island, an area of Māori land, in recognition of the special cultural significant of the Island. Sub-options B to F are shown in Figure 22 below.

An MCA process was used to assess the six sub-options (with some variations from that used in the Long List and Short List processes, given the different context for the Ashhurst connection issue).

The outcome of the sub-option assessment was that Sub-option A was favoured as the most preferred connection of the northern Short List options (and, ultimately, Option 3) into the existing network around Ashhurst. Details of this process are contained in the DBC.

Figure 22 – Ashhurst Sub-Options



15.6 Option Refinement

As noted above, assessment of the Long List, Short List, and Ashhurst sub-options was undertaken in tandem with the DBC process used to inform the NZ Transport Agency's investment decisions relating to the Project. The NZ Transport Agency has chosen to invest in a Project broadly based on Short List Option 3, with a preferred connection across the Manawatū River (Ashhurst sub-option A).

A wide-ranging programme of further work, based on those preferred options, has led to the proposed designation corridor reflected in the NoRs and assessed in this AEE.

This programme of work has involved consideration of alternative sites, routes, and methods for undertaking the Project, at a finer level of detail than the earlier processes for assessing the Long List and Short List of potential corridors and the sub-options to connect them to the wider transport network.

As explained above, the NZ Transport Agency has not yet undertaken detailed design of the Project and is therefore seeking, at this stage, to designate a corridor of land within which the Project will be built. As a result, the option refinement process has focused on:

- obtaining a more comprehensive understanding of the Project's potential effects on landowners, stakeholders and the environment;
- developing potential roading designs to minimise those effects; and
- tailoring a proposed designation to accommodate a Project design, to be developed in the near future, that is acceptable in environmental and engineering terms.

This programme of work has been multi-faceted, and included:

- Ongoing collaboration with Rangitāne o Manawatū, Rangitāne o Tamaki Nui ā Rua, and Ngāti Kahungunu, and engagement with Ngāti Raukawa.

- Further discussions with Meridian, AgResearch, and other landowners, focusing on ways in which the effects of the designation (and the associated construction and operation of the Project) can be minimised.
- An iterative process of design, effects assessment leading to redesign and further assessment. This allowed the extent of the designation to change and be optimised in response to potential environmental effects. This entailed assessments by environmental specialists of the likely environmental effects of the Project, and in some instances, it was necessary to consider different potential configurations and different potential designs of the indicative alignment in order to develop appropriate effects envelopes. This approach included on-going discussions between various environmental specialists and engineering advisors.
- Detailed advice by construction specialists on the likely nature and location of the construction-related land use activities that are proposed to be enabled by a designation. Those specialists have also prepared an indicative construction methodology to guide experts' assessments of effects. This assessment included consideration of hydraulic performance of the Manawatū River.
- Advice from bridge design specialists to understand how the proposed designation should be shaped to accommodate potential bridge design options, including over the Manawatū River.
- Numerous workshops and other sessions involving Project team members, iwi, and Council representatives. These sessions aided in bringing together the strands of numerous inter-related workstreams, and included the following:
    - A **design workshop** was held on 5 July 2018, where the Project team (environmental specialists, engineers, legal advisors and planners), Council representatives (plus their planning and landscape advisors) and iwi considered the potential designation corridor and the various values associated with it, the different sectors of the corridor, the Project's gateway potential, and the ECDF framework to guide ongoing design, and discussed landscape and environmental drivers, geometric design parameters, and bridge structures.
    - Three further **internal Project team design workshops** took place on 3 August and 30 August 2018, where the specific focus was on refining the boundaries of the designation.
    - Two **mitigation workshops** took place on 6 July, 26 July and 14 August 2018, where experts presented their interim assessments of the potential effects of the Project and recommended mitigation measures to the assembled group, including iwi and Council representatives (and their legal, landscape, ecological and planning advisors).
    - Ecology and landscape workshops (on 12 August, 17 September and 26 September 2018) involving various ecology and landscape specialists, engineers and planners to discuss the effects of the Project and its construction and how these can be appropriately managed. The 12 August workshop specifically considered natural character values and the likely effects of the Project on those values.
- Additional liaison with representatives of the Councils and Horizons.

The designation that is now proposed is different in various respects from the corridor of Option 3, considered in the Short List process. Particular changes have been made at the eastern end of the Project, where the designation has been realigned southwards over a length of approximately 1.8km. This reduces the need for significant embankments on soft soils and minimises effects on a stream and property. A fuller description of the adjustments/changes considered and made is provided in the Preliminary Design Philosophy Report included in Part J, Appendix Three.

15.7 Stakeholder and Community Feedback

Part F of this Report describes the various processes undertaken and methods used by the NZ Transport Agency to engage with the communities and stakeholders affected by the closure of the Gorge, and to seek feedback on how the Project should be implemented to address that issue.

That feedback has been particularly informative and valuable in the context of the NZ Transport Agency's consideration of alternative sites, routes, and methods for the Project, and has been carefully considered at all stages of the processes outlined above.

The Project is different in character to many other recent roading projects, which have been developed to respond to increasing traffic volumes and/or other transport patterns developing over time. The closure of the Gorge had an immediate (and very significant) impact on people's way of life and, as such, was accompanied by strongly expressed public views as to the urgent need for a solution. In that context, the people of Manawatū-Whanganui and Wairarapa, and stakeholders from further afield, have played – and have needed to play – a central role in the Project's development.

Further, the fact that no ready-made, 'off the shelf' solution was available to be implemented has underscored the need for local knowledge to inform the NZ Transport Agency's processes.

The NZ Transport Agency has therefore been committed to open and wide-reaching communications with stakeholders and the community about the Project, as summarised in Part F.

Specific to the NZ Transport Agency's consideration of alternatives, stakeholder workshops, public meetings, and open days have been held to coincide with key milestones in the Long List, Short List, Ashhurst sub-option, and option development processes outlined above. Engagement provided the NZ Transport Agency with a very significant quantity and quality of information that was taken into when assessing options. Feedback from that engagement was critical to the exclusion of a number of options (for example, the fatally flawed options that reflected cultural and ecological concerns) and to the selection of the preferred option which was the result of an evaluative exercise that took into account the feedback received through the MCA process. The Project has also included significant refinement of Option 3, including through continued, proactive and transparent engagement with stakeholders. Feedback has been considered and resulted in changes to the proposed designation corridor and constraints proposed by the NZ Transport Agency for the Project.

A very large number of meetings have been held with landowners and others with key interests in the potentially affected areas, which have intensified as preferred options have been identified; minimising adverse effects on Meridian, AgResearch, and other landowners has been a major focus of the option refinement process.

PART F:
CONSULTATION & ENGAGEMENT

Part F: Consultation and Engagement

16. INTRODUCTION

This section provides an overview of partner, stakeholder and public engagement for the Project. It summarises engagement during each phase of the Project including the engagement tools and methods used, the parties engaged, and the engagement outcomes sought and achieved.

The engagement has extended through the issue identification, option evaluation and preferred option identification and corridor alignment processes.

Feedback received as part of its communication and engagement activities has informed decisions on the preferred route (as explained in Part E) and the iterative process applied to refine the proposed designation corridor since the selection of Option 3 as the preferred option. This is reflected in other parts of this Report, and the accompanying technical assessments in Volume 3.

The following describes the outcomes of consultation and engagement undertaken in relation to the Project and set out a summary of:

- the statutory framework and guidelines for consultation;
- the communications and engagement process;
- the methods or techniques used to engage with communities and stakeholders;
- the phases of consultation;
- key issues identified in feedback and responses to that feedback;
- engagement with iwi; and
- engagement with other key stakeholders and affected property owners, the feedback received and responses to that feedback.

The NZ Transport Agency has engaged with parties in a proactive, transparent and responsive manner. The consultation and engagement approach for the Project has been to work collaboratively with key stakeholders and to be transparent and responsive in engagement with the wider community.

17. STATUTORY FRAMEWORK AND CONSULTATION GUIDELINES

17.1 Resource Management Act 1991

Form 18[22] requires a notice of requirement for a designation to include a description of any consultation that has been undertaken with parties that are likely to be affected.

In this regard, the NZ Transport Agency has undertaken consultation within the framework of relevant statutory matters in section 171(1) of the RMA as follows:

- the effects on the environment of allowing the NoRs;
- suitable and appropriate approaches to avoiding, remedying or mitigating adverse effects;
- alternative routes and alignments for delivering the NZ Transport Agency's objectives; and
- engagement with tangata whenua.

17.2 NZ Transport Agency State Highway Public Engagement Guidelines (Draft 2016)

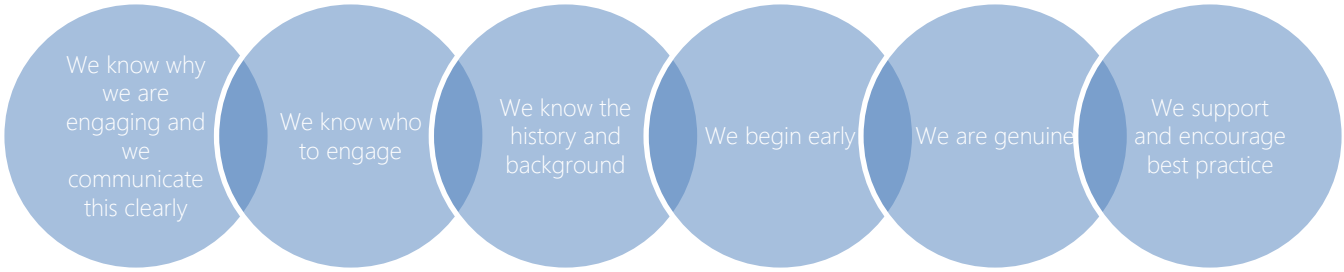
The NZ Transport Agency has undertaken public engagement to ensure better-informed decisions, improve the Project design and assist it to deliver a State highway network that meets the needs of communities and the wider public. The extensive public engagement undertaken has also been consistent with the NZ Transport Agency's obligations under the RMA and the LTMA; section 96(1) of the LTMA requires the NZ Transport Agency to "*exhibit a sense of social and environmental responsibility*" in meeting its statutory objective and undertaking its functions.

The NZ Transport Agency's Public Engagement Guidelines (Sept 2016), set a framework for consultation with the public. By actively engaging the public in its decision-making, the NZ Transport Agency aims to gain a better understanding of how people, communities and organisations are affected by its decisions and how it should balance its social, environmental, cultural and economic responsibilities.

The NZ Transport Agency's overarching approach to effective stakeholder engagement is to develop strong collaborative relationships with stakeholders. The NZ Transport Agency's engagement activities are guided by the engagement principles shown in the following Figure 23.[23]

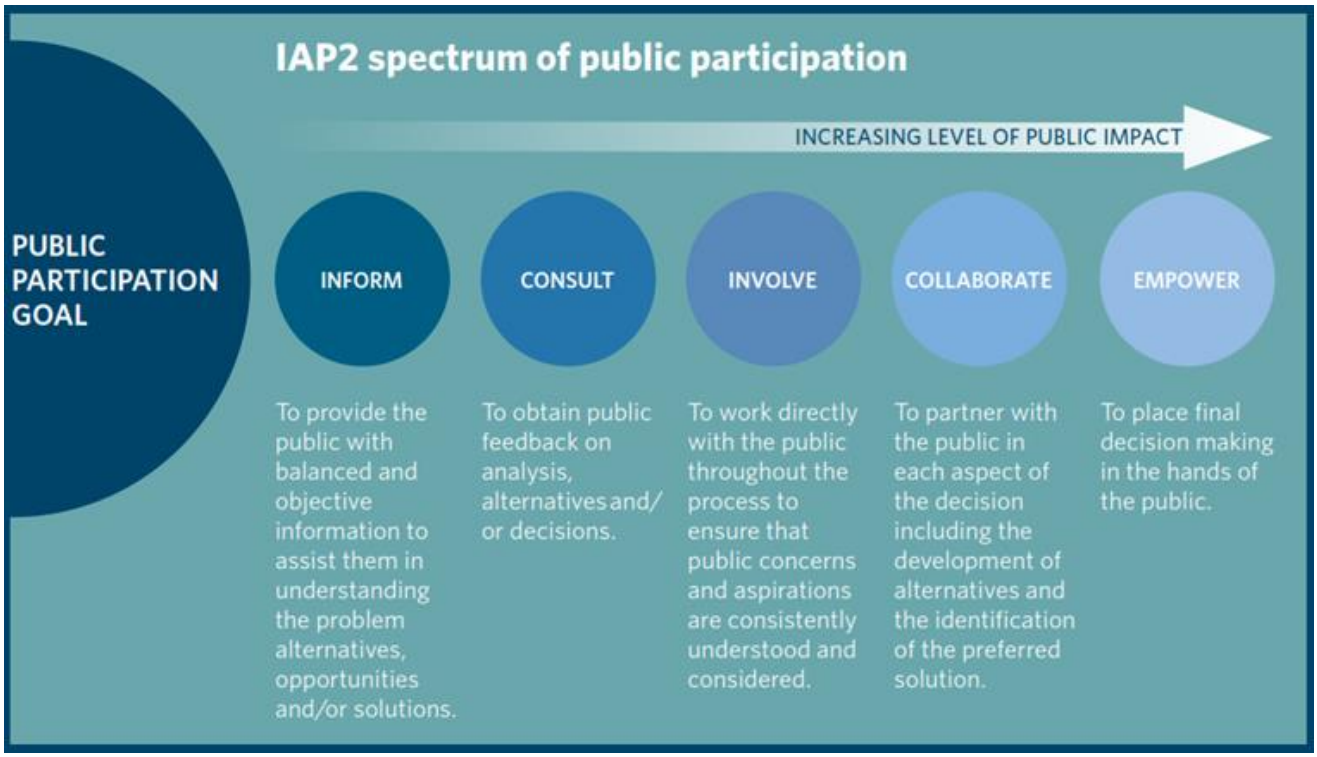
[22] Included in Schedule 1 to the Resource Management (Forms, Fees, and Procedure) Regulations 2003.
[23] NZ Transport Agency, Public Engagement Guidelines (Sept 2016), pg 5.

Figure 23 – NZ Transport Agency Engagement Principles



The NZ Transport Agency applies an engagement approach consistent with the International Association for Public Participation industry best practice guidelines (at a high-level, the approach is outlined in the Figure 24 below).[24]

Figure 24 – IAP2 Spectrum of Public Participation



17.3 Engagement Framework for the Project

For each phase of the Project, the level of partner, public and stakeholder participation has been guided by the IAP2 participation spectrum approach. This approach specifically seeks that engagement transparently identifies the goal or outcome of the engagement process and determines how this outcome can best be delivered through a spectrum of engagement processes ranging from informing (providing information and education), through to empowering (whereby decision-making is handed to parties in the engagement process).

[24] NZ Transport Agency, Public Engagement Guidelines (Sept 2016), pg 8.

The stakeholder engagement process has been an integral part of the Project, particularly as part of the NZ Transport Agency's commitment to exhibiting a sense of social and environmental responsibility, which includes taking into account the views of affected communities.

18. COMMUNICATIONS AND ENGAGEMENT STRATEGY

The Project team developed the Te Ahu a Turanga Project: Communications and Engagement Strategy ("Strategy") to guide the 'why', 'how' and 'when' of engagement with iwi and key stakeholders, as the Project moved towards the design and consenting phase. The Strategy is consistent with the NZ Transport Agency's Public Engagement Guidelines and commitment to apply an IAP2 participation spectrum approach.

Central to this process is the need to collaborate and build consensus with iwi and key stakeholders. The Strategy provided the blueprint for collaborative and meaningful engagement, and described how to reach the relevant audiences, focusing chiefly on the period between mid-2017 (when it became apparent that State Highway 3 through the Manawatū Gorge would be closed indefinitely and an alternative route was required) and late 2018 (the intended time of NoR lodgement).

The Strategy included the core principles of:

- proactive communication;
- responsiveness;
- the use of a straightforward and engaging tone (avoiding jargon and bureaucratic language); and
- transparency.

Building on these core principles, the Strategy also outlined a set of specific engagement and communications principles relating to stakeholders:

Place and time *- communicating on a regular basis and seeking opportunities for dialogue and information-sharing in order to actively foster constructive links with the community and key stakeholders.*

Joined-up communications, and regional context *- communications and engagement relating to the project will be managed with careful consideration given to the regional connectivity project and the wider implications of the project for the central and lower North Island.*

Iwi *- the 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 and having respect for kawa (protocols) and tikanga (customs).*

Directly affected landowners *- direct and regular contact will be maintained with those affected, to achieve rapport and mutual understanding. Clear information on process and timing as well as rights under the Public Works Act will be provided.*

Ashhurst *- Ashhurst residents have had to cope with a 20-odd fold increase in traffic since the Gorge has been closed. A steering group with representatives from the community, trucking industry, the*

local council and police to be set up to explore and implement measures to mitigate noise, safety and other issues.

***Local authorities, government departments and other governance groups** - there are three district councils and one regional council that have major interests in this Project, as well as government departments such as DOC and LINZ, the Te Āpiti Governance Group and the Accessing Central New Zealand strategy group. We will consult and share relevant information as a matter of priority with these organisations.*

The Strategy outlined key messaging based on a central core proposition: "*A safe, resilient and efficient replacement for the closed State Highway 3 through the Manawatū Gorge is a top priority".*

19. COMMUNICATIONS AND ENGAGEMENT TOOLS AND METHODS

A wide variety of engagement tools and methods have been used by the NZ Transport Agency, as summarised in Table 12 below:

Table 12 – Communications and Engagement Tools and Methods

TOOL	DESCRIPTION
Communications and Engagement Database	All communications and engagement activities with key stakeholders and the public are recorded in the Consultation Manager database.
Landowners	There have been regular communication and engagement with landholders through both written updates and face to face/phone interactions, to ensure productive relationships to assist with land access and future land purchases.
Stakeholder Meetings	Many stakeholder meetings have been held to present audience-specific information to key stakeholder groups and seek feedback.
Working Groups	Project team members and selected stakeholders have worked together on specifics issues (for example, regional connectivity).
Regional Land Transport Committee	Regular Project updates have been given as part of the regular Regional Land Transport Committee meeting schedule.
Public Information Events	Numerous public information events and open days have been held to enable the public to view plans and designs, ask questions and discuss the Project with team members directly and to provide input and feedback.
Newsletter	A digital newsletter is sent to subscribers on a public email distribution list and is published in the Project website.
Online	Online channels are used to provide Project related information and give the public a further opportunity to interact with the Project team: The project website: www.nzta.govt.nz/Manawatū-gorge; Tweet: @NZTACNI; Facebook: www.facebook.com/nztacni; Email contact: manawatūgorge@nzta.govt.nz and teahuaturanga@nzta.govt.nz; Social Pinpoint: on-line survey and comment platform.
Dedicated Phone	A free phone number (0800 740 560) was set up to receive calls and answer queries from the public.

TOOL	DESCRIPTION
Media Releases/Press Briefings/Advertising	There has been considerable media interest in the Project. Media engagement has been proactive, with press releases, site visits and informal briefing at key stages throughout the process. Public meetings, open days and information sessions were advertised in local media.

20. PHASES OF CONSULTATION

20.1 Phase One – Option Long List

A Long List of options was announced on 20 September 2017. The Long List options assessment included public consultation and specialist assessment and took into account information provided through Project and stakeholder workshops. This process was undertaken during September and October 2017.

Following the release of an initial list of 13 potential routes public meetings were held in Palmerston North, Woodville and Ashhurst (on September 25, 26 and 27 2017). Feedback was invited and captured through various formats: face-to-face in public feedback forums, via the online Social Pinpoint tool, and as requested through notification (letter/email) to potentially affected property owners. As explained in Part E, as a result of stakeholder feedback, the Long List was extended to include another four options, and the do-minimum, resulting in a list of 18 possible routes. These options were the subject to further consultation and specialist assessment.

Feedback received included:

- 749 comments on Social Pinpoint; and
- 66 responses to the landowner notification letter/email.

Key stakeholder workshops were held as follows:

- 4 September 2017 in Palmerston North – Project introduction
  Presentation of the Project, process and programme
- 3 October 2017 in Palmerston North – Long List feedback and option analysis
  Long List option analysis presentation and Long List option feedback

Representatives from the key stakeholder groups and organisations listed below were invited to workshops to discuss the Long List:

- Rangitāne o Manawatū;
- Rangitāne o Tamaki Nui-ā-Rua;
- Ngāti Kahungunu;
- Manawatū District Council;
- Palmerston North City Council;
- Tararua District Council;
- Horizons Regional Council;
- Department of Conservation;
- Accelerate 25 – Manawatū business community;

- Road Transport Association;
- New Zealand Heavy Haulage Association;
- New Zealand Automobile Association; and
- Fonterra New Zealand.

These workshops were a forum to help gather information around the problem, the benefits of the Project and the options developed.

Statutory Approvals Working Group

A Statutory Approvals Working Group (SAWG) was established with planning representatives from Horizons Regional Council, Tararua District Council, Manawatū District Council and Palmerston North City Council. The purpose of this group is to draw on Council expertise to assist with identifying planning, social and environmental constraints with the options under consideration, and to understand proposed or current plan changes and land use/growth plans that might affect the Project.

The first meeting of this group took place on 26 September 2017, and further meetings were held at key Project milestones. The group's name changed to 'RMA Planning Officers' Group' from April 2018 to reflect the Project moving to the pre-implementation phase. Meetings were held monthly, and this increased to fortnightly from July 2018.

20.2 Phase Two – Option Short List

The Short List options assessment included public consultation as well as Project and stakeholder workshops and the Short List itself was announced on 11 October 2017. Consultation and assessment were undertaken during October and November 2017.

Open Days

More than 400 people attended open days in Palmerston North, Woodville and Ashhurst on 11, 12 and 13 October 2017. Feedback received included 189 comments on Social Pinpoint and 35 written submissions.

Key Stakeholder Workshop and Meetings

A workshop was held with key stakeholders from local government, industry and iwi on 2 November 2017 in Palmerston North. Attendees included representatives of:

- Rangitāne o Manawatū, Rangitāne o Tamaki Nui-ā-Rua and Ngāti Kahungunu;
- Manawatū District Council, Palmerston North City Council, Tararua District Council and Horizons Regional Council;
- New Zealand Automobile Association (Manawatū) and Road Transport Association;
- Spearhead Manawatū/Accelerate 25; and
- Fonterra New Zealand.

Additional meetings were held with New Zealand Automobile Association (on 18 October 2017), Hawke's Bay Regional Transport Committee (on 24 October 2017), the Statutory Approvals Working Group (on 25 October 2017).

A Joint Working Group ("JWG") was established in December 2017, including representatives from the NZ Transport Agency, Accelerate 25,[25] PNCC, Horizons, TDC, Road Transport Association, New Zealand Automobile Association, New Zealand Defence Force and the New Zealand Heavy Haulage Association. The JWG was formed to consider the future development of a regional freight network and how the Short List options (and, eventually, the preferred option) would enable or complement this. The JWG continues to meet regularly.

On 25 January 2018, the Project team met with a group consisting of regional mayors, chief executives, chairs and officials from across the lower North Island, as well as iwi and industry leaders, to discuss the process used to assess the Short List options.

Manawatū District Council's Ngā Manu Tāiko Committee[26] was briefed in Feilding on 13 February 2018.

20.3 Phase Three – Preferred Option Announcement

The Project team communicated with regional mayors, chief executives, chairs and officials from across the lower North Island in early March to communicate the preferred option and discuss the public release of this.

The Statutory Approvals Working Group met to discuss the preferred option on 15 March 2018.

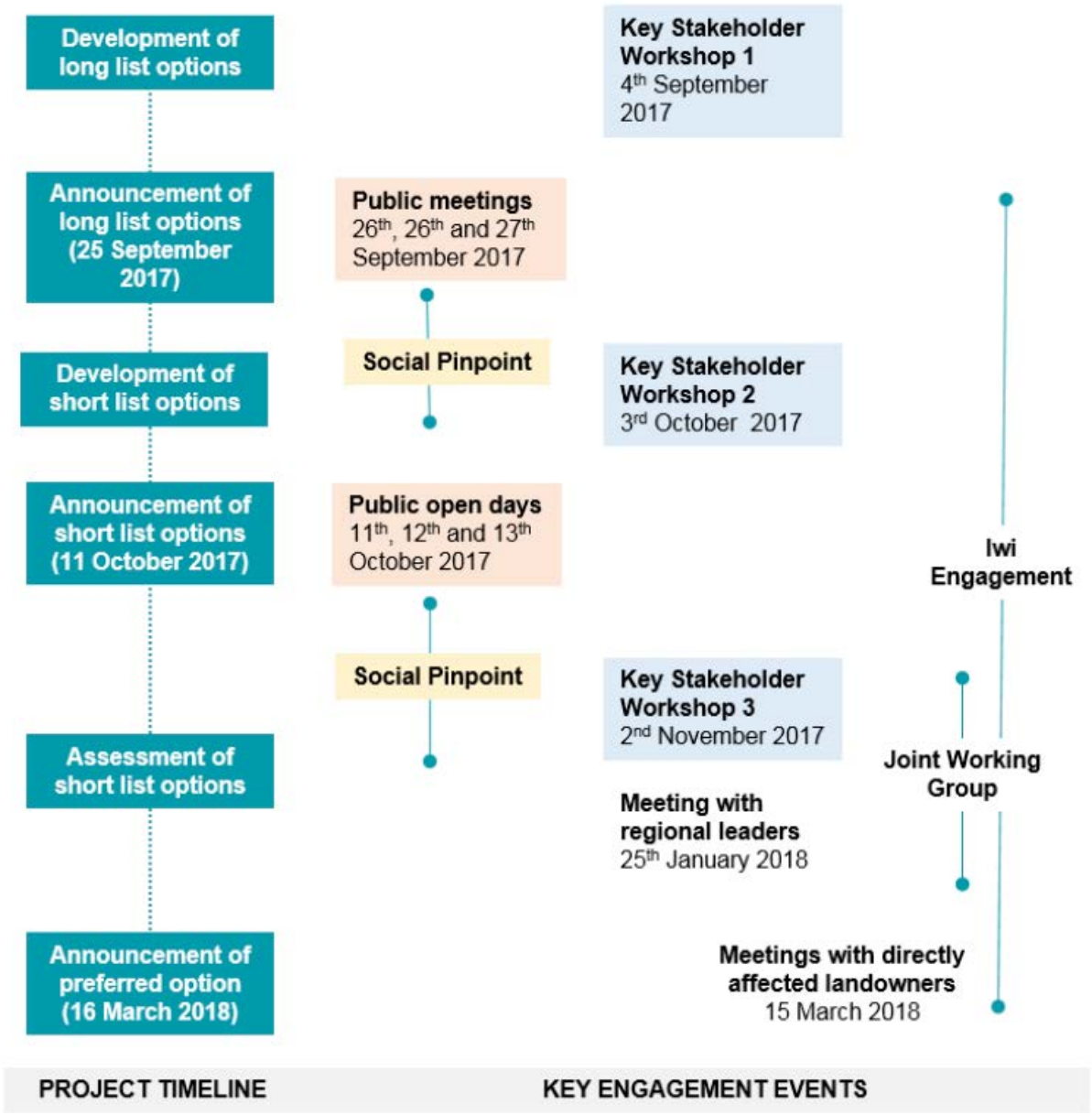
The preferred option was publicly announced on 16 March 2018. Information was distributed via press release, the Project website, a Project newsletter, and online channels.

Key stakeholders were informed of the preferred option at meetings and by emails and phone calls on 15 March 2018. These included:

- Rangitāne o Manawatū, Rangitāne o Tamaki Nui-ā-Rua and Ngāti Kahungunu;
- Manawatū District Council, Palmerston North City Council, Tararua District Council, Horizons Regional Council and other lower North Island Councils; and
- KiwiRail, DOC, QEII National Trust, Meridian, AgResearch, New Zealand Automobile Association (Manawatū), Road Transport Association, New Zealand Heavy Haulage Association, Road Transport Forum, New Zealand Defence Force, Spearhead Manawatū/Accelerate 25 and Massey University.

[25] Accelerate 25 is a regional implementation programme following the identification of opportunities and key enablers to help realise economic prosperity in the Manawatū-Whanganui region (https://www.accelerate25.co.nz/).
[26] A Manawatū District Council Committee comprised of councillor and local marae representatives.

Figure 25 – Consultation Phases 1-3



20.4 Phase Four – Pre-Implementation

During the pre-implementation stage of the Project, the NZ Transport Agency has given a large number of briefings to a variety of organisations and held meetings with key stakeholders. These include the meetings set out in the following Table 13:

Table 13 – Phase Four – Stakeholder Meetings

STAKEHOLDER	DATE (2018)
RMA Planning Officers Group	16 April, then monthly; and fortnightly from July
Meridian	14 June, 10 July, 3 August, 9 August, 23 August, 30 August, 19 September, 26 September
Joint Councils (MDC, PNCC, TDC) Economic Resourcing	22 June
Horizons – Freshwater Ecology	17 July
TDC – Workshop	25 July
Te Āpiti Governance Group	24 August
Heritage NZ	28 August
AgResearch	16 July, 31 August, 25 October
Masterton Council Meeting (Combined Councils) - Briefing	7 September
First Gas	18 September
DOC	14 June, 20 September and 3 October
QEII National Trust	3 October
Transpower	13 August
Local Road Control Authorities (PNCC and TDC)	10 October

Public information sessions, presenting details of the preferred option, including an animated flyover video, were held in July and August 2018 (three sessions were held in Ashhurst where we presented additional materials outlining proposals to mitigate traffic issues arising from an increase in traffic through the town due to the rerouting of traffic from the closed Manawatū Gorge over Saddle Road). The sessions held were in:

- Ashhurst: Thursday 19 July, Friday 20 July and Saturday 21 July 2018 – 181 visitors (all three sessions combined);
- Woodville: Wednesday 25 July 2018 – 128 visitors;
- Palmerston North: Thursday 26 July 2018 – 108 visitors;
- Dannevirke: Tuesday 31 July 2018 - 157 visitors; and
- Pahīatua: Wednesday 1 August 2018 - 47 visitors.

54 Feedback forms were received. Time of Project delivery, recreational opportunities and employment opportunities were recurring themes in the feedback.

Key stakeholder workshops were held in Palmerston North on 10 August 2018 (Pre-implementation update) and 4 October 2018 (Pre-lodgement Notices of Requirement) to which most of the stakeholders also attended.

Representatives of the following the key stakeholder groups and organisations were invited to workshops:

- Accelerate 25;
- New Zealand Automobile Association;
- Central Economic Development Agency;

- DOC;
- Environment Network Manawatū;
- Fire and Emergency New Zealand;
- First Gas;
- Fonterra New Zealand;
- New Zealand Heavy Haulage Association;
- Horizons Regional Council;
- Manawatū Chamber of Commerce;
- Manawatū District Council;
- Ngāti Kahungunu;
- Ngāti Raukawa;
- New Zealand Defence Force
- Royal Forest and Bird Protection Society of New Zealand Inc.;
- New Zealand Trucking Association;
- Palmerston North City Council
- New Zealand Police;
- QEII National Trust;
- Rangitāne o Manawatū;
- Rangitāne o Tamaki Nui ā Rua;
- Road Transport Association;
- Sport Manawatū;
- Tararua District Council; and
- Transpower New Zealand Limited.

21. COMMUNITY FEEDBACK

21.1 Long List Feedback

At the Long List stage, the most commentary was received on the deep box cut option (49 comments), the Gorge viaduct (18 comments), southern option 4 (21 comments), long tunnel (16 comments), short tunnel (10 comments) and northern option 7 (10 comments). The remaining 579 comments were general in nature, rather than specifically tagged to a particular option.

The key feedback from comments at the Long List stage were:

- Stability and the reliability of a new route is critical – timely completion of a long-term solution was sought.
- There was a desire for a 'straight and short route' to reduce the time and cost of travel and achieve an efficient and direct route – inherently these themes are linked to easy gradients, so there were preferences for the flat options that did not traverse the ranges.

- The desire for a solution that avoided significant impacts on property was noted by many (particularly impacts on the character of quiet rural/lifestyle areas); productive land was also important.
- Impacts on Ashhurst should be avoided (in relation to future growth and amenity).
- Woodville business impacts were highlighted, with mixed views as to whether Woodville should be bypassed or not.
- There was a concern that the Project should not be just about an Ashhurst to Woodville connection – the wider connections to State Highway 57, State Highway 2 and surroundings should be considered as well.
- The advantage of a second bridge over the Manawatū River was also noted.

21.2 Short List Feedback

Information received via feedback forms at the Short List stage highlighted the considerations of travel efficiency and connectivity (a considerable number of comments related to easy gradients and travel times for all traffic, and reliability of the route in the future), followed by time of Project delivery and cost. Another common theme was the impact on Ashhurst and the value of the Ashhurst Domain. The importance of future proofing the route by providing sufficient lanes and passing lanes was also expressed.

There was little commentary on Option 1 (north of Saddle Road) via the Social Pinpoint forum (with only six comments specific to this route), which related to stability concerns, the less direct nature of the route, and the impacts of wind and fog. The consistent themes expressed in the feedback that was received via feedback forms (available at the public open days and online) were that this route was too steep and windy, had limiting terrain, was located too far north and added extra distance.

Option 2 (upgrade of Saddle Road) received fewer comments on Social Pinpoint. Public feedback on this option was almost exclusively related to the disruption to traffic during construction of this option and the associated difficulties with construction on the current alternative route. A few people noted that this option would result in the least impact on land/property impact and was practical in that it utilised an existing route.

The majority of public feedback indicated a preference for either Option 3 (the option that led to the Project) or Option 4 (the southern option). The feedback on Option 3 was relatively consistent amongst the public – namely that this option was considered favourable as it is the shortest, most direct route and has the best gradients. Associated commentary included the favourable road geometry ('less twisty') and cost efficiency. This route was also considered to have a lesser property impact than other options. Overall, there was limited negative commentary on this option (even when it was not identified as their preferred option). Concerns regarding the potential impact on the AgResearch fertiliser trial site, and the similarity of the route (in terms of location) to Saddle Road were noted.

Option 4 was the most divisive of all the options. Positive comments related largely to the provision of a second bridge over the Manawatū River, accessibility to Palmerston North and surrounding areas (including Hawke's Bay, Feilding and Horowhenua), the avoidance of Ashhurst, shorter travel time, the flat gradient and the provision of key elements of the proposed rural freight ring route that came with Option 4. Negative comments related to the associated impacts on the nearby road network (e.g. Stoney Creek Road) as result of changed traffic patterns, social impact (particularly on Whakarongo School), reduced visibility in poor weather conditions and that the option was too far south for some travellers.

21.3 Feedback on Option 3

54 'submissions' were received on Option 3, which was ultimately the preferred option. Time of Project delivery, recreational opportunities and employment opportunities were recurring themes.

Specific concerns included:

- time travelling to hospital / doctors' visits– delays and concerns about road closures;
- the road being the districts' life blood and, in that context, querying whether construction time of 6 years could be shortened;
- the critical nature of the maintenance of the Saddle Road in the interim;
- any new road construction should allow for growth;
- why traffic was being sent through Woodville as too much weight was being given to the voices of a few businesses; and
- high interest in recreational access to the Gorge.

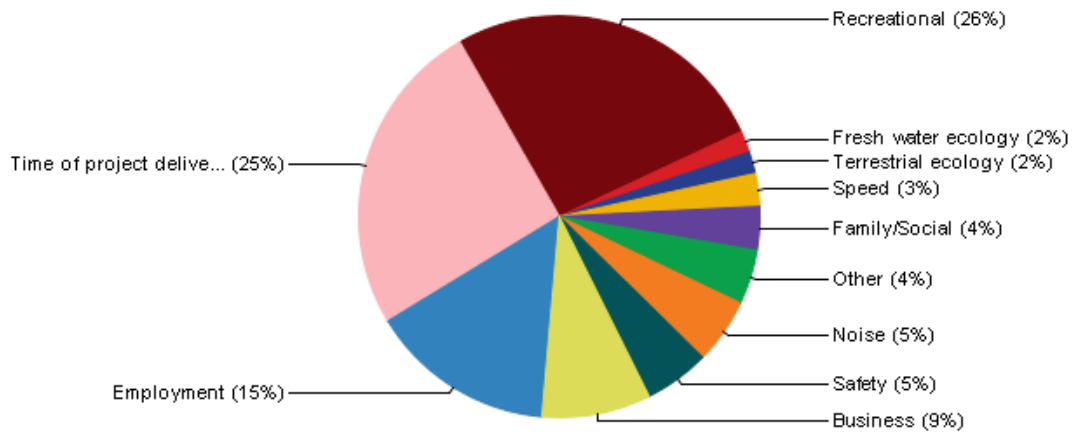
21.4 Responding to Public Feedback

Public commentary on Social Pinpoint on the Long List and Short List options was reviewed as part of the social evaluation that informed the social criteria of the MCA assessment. The specialist who undertook the social assessment was also present at the public open days. In addition, members of the Project team engaged with the public and landowners at the public open days.

At the public open days (where the Short List options were announced) the material presented included posters which summarised the Long List assessment and the rationale for why options were not taken forward.

In relation to Woodville, the Project scope was defined as needing to connect traffic to the State Highway 2 / State Highway 3 intersection in Woodville, which accommodates traffic movements to and from the Wairarapa and Hawke's Bay regions. As noted above, options were not specifically developed and assessed to consider whether traffic should be bypassed around Woodville; rather, as direct a connection as possible was provided to the existing State Highways (noting that State Highways 2 and 3 both connect into Woodville).

Figure 26 – Phase 4 Consultation Themes



22. IWI ENGAGEMENT

As set out in the NZ Transport Agency's Public Engagement Guidelines, Māori are recognised as the Treaty partner by the Crown, including specifically in the Land Transport Management Act 2003.[27] The Guidelines explain that "*in a practical sense this means sharing decision making with Māori when identifying priorities for investment and when identifying the best choice of transport system for their communities, both regionally and nationally*".

The Project team engaged with iwi early during the option assessment phases. This engagement has intensified during the pre-implementation stage to guide design and delivery of the Project. The purpose of this ongoing engagement is to build lasting relationships built on trust.

The NZ Transport Agency has been engaging with the following iwi and iwi landowner:

- Rangitāne o Manawatū;
- Rangitāne o Tamaki nui-ā-Rua;
- Ngāti Kahungunu;
- Ngāti Raukawa; and
- Te Āpiti Ahu Whenua Trust.[28]

There has been regular contact with iwi via phone, email and face-to-face meetings. Iwi have been party to the key stakeholder workshops, and additional Project hui have included:

- presentations to Manawatū District Council's Ngā Manu Tāiko Committee in Feilding;
- site visits to culturally significant sites surrounding the proposed designation corridor (particular visits were made to Parahaki Island and Te Ahu a Turanga, a highly culturally and spiritually significant site near the proposed designation); and
- hui in Hastings, Dannevirke, Woodville and Palmerston North.

The following Table 14 lists key hui held in Phase 4 – Pre-Implementation

Table 14 – Key Hui: Phase 4

IWI ORGANISATION	DATE (2018)
Rangitāne o Manawatū - Rangitāne o Tamaki nui ā Rua	29 June, 20 July, 8 August, 13 September, 10 October
Ngāti Kahungunu	13 July, 25 July, 7 August, 9 October
Ngāti Raukawa	5 September, 21 September
Te Āpiti Ahu Whenua Trust	7 June, 20 July

The partnership approach has highlighted the range of interests in the Project. Key cultural interests include how the preferred option interacts with significant cultural sites; how to maintain a connection with the culturally and spiritually significant Manawatū Gorge; what the impacts are on the environment (wetlands, rivers, former pā sites and stands of vegetation) and, in particular for the Te

[27] Section 4.
[28] The trust represents the owners of Parahaki Island which is situated in the Manawatū River at the western end of the Gorge.

Āpiti Ahu Whenua Trust, whether and how any bridge structure would impact in Parahaki Island and the Manawatū River flow.

Cultural Values Statements have been prepared for and by iwi stakeholders, to further clarify potential effects of the Project on tangata whenua values, and to assist in the development of mitigation measures to address potential adverse effects. These are included in Volume 3.

23. OTHER KEY STAKEHOLDERS

Developing collaborative relationships with stakeholders has been central to the Project development process and refinement of the proposed designation corridor, consistent with the NZ Transport Agency guidance that it is important to include the perspective of stakeholders in order to make good decisions and provide sound advice to decision-makers.

The approach to stakeholder engagement was to firstly focus on engaging with identified key stakeholders through a series of workshops and then provide an opportunity for wider community feedback through online feedback and public open days. This approach recognises the NZ Transport Agency's social and environmental responsibility and statutory obligations for the Project (e.g. LTMA and RMA), and provided valuable information to be factored into the decision-making process.

- Manawatū District Council - Partner organisation. The Project area is within the boundary of Manawatū District - the Project will influence transport connections within this district and the existing alternative route (via Saddle Road) is impacting Ashhurst, within the Manawatū District.
- Palmerston North City Council - Partner organisation. The Project area is within the boundary of Palmerston North - the Project will influence transport connections within the city, and rerouting of traffic via the Saddle Road has impacted on the quality of life in Ashhurst.
- Tararua District Council - Partner organisation. The Project area is within the boundary of Tararua District - the Project will influence transport connections within this district, Woodville is a key town impacted by the closure.
- Horizons Regional Council - Partner organisation. The Project area is within the Horizons region. Horizons Regional Council have transport and environmental interests.
- Accelerate 25 – Manawatū business community - Key stakeholder. Interests relate to opportunities for supporting and promoting regional economic growth.
- Department of Conservation - Key stakeholder. Interests relate to conserving natural and historic heritage and recreation opportunities.
- New Zealand Heavy Haulage Association - Key stakeholder. Interests relate to providing for heavy commercial vehicles, who rely on a resilient connection between Whanganui/Manawatū and Tararua District/Hawke's Bay/Northern Wairarapa.
- New Zealand Automobile Association - Key stakeholder. Road user advocacy organisation.
- Road Transport Association - Key stakeholder. Road freight advocacy organisation.
- Fonterra New Zealand - Key stakeholder. Farmer collective impacted by Manawatū Gorge road closure.
- Heritage New Zealand Pouhere Taonga – Key stakeholder to inform on matters of cultural and historical significance.

Engagement with these key stakeholders occurred in many forms, including key stakeholder workshops, one-on-one conversations, phone calls and emails, membership of working groups (Joint Working Group for regional connectivity, Statutory Approvals Working Group on consenting and regional planning). Mayors and chief executives have received and continue to receive regular updates from the Project team.

Other key stakeholders (excluding landowners) that have been consulted include:

- Accessing Central New Zealand;
- Ashhurst Action Group;
- Bus and Coach Association of New Zealand;
- Central Economic Development Agency;
- Emergency Services;
- Environment Network Manawatū;
- Federated Farmers of New Zealand Inc.;
- First Gas;
- Greater Wellington Regional Council;
- Hastings District Council;
- Hawke's Bay Regional Council;
- Horowhenua District Council;
- KiwiRail Holdings Limited;
- Land Information New Zealand;
- Manawatū Chamber of Commerce;
- Minister of Transport;
- Napier City Council;
- New Zealand Archaeological Association;
- New Zealand Defence Force;
- New Zealand Landcare Trust;
- New Zealand Trucking Association;
- Port of Napier;
- Queen Elizabeth II National Trust;
- Rangitikei District Council;
- Road Transport Forum;
- Royal Forest and Bird Protection Society of New Zealand Inc.;
- Ruapehu District Council;
- South Wairarapa District Council;
- Sport Manawatū;
- Te Āpiti Governance Group;
- Transpower New Zealand Limited;
- Trustpower Limited; and
- Whanganui District Council.

24. DIRECTLY AND INDIRECTLY AFFECTED LANDOWNERS

During Phase One (Long List Phase), potentially affected landowners (within 500 metres of a Long List option) received a letter (email or letter box drop) inviting them to attend the upcoming public meetings, and providing Project team contact details. Landowners contacted the Project team by phone and email for further information.

During Phase Two (Short List Phase), potentially affected landowners (within 500 metres of a Short List option) received a letter (email or letter box drop) inviting them to attend the open days, and providing Project team contact details. Landowners contacted the Project team by phone and email for further information. The Project team met with some landowners on a one-on-one basis, either on their request or ours (i.e. when a site visit was required).

An on-site meeting was held with AgResearch representatives in October 2017 to discuss the various route options, with AgResearch providing details of the Fertiliser Trial Site (FTS). The Fertiliser Association NZ provided further advice on the FTS in November 2017.

A series of meetings were held with Meridian Energy Limited through September - November 2017, with preliminary design information shared with Meridian to better understand the effects of the various route options on the Te Āpiti Wind Farm.

During Phase Three (Preferred Option Announcement), individual meetings (or, where not possible, phone calls) were held with landowners within the indicative corridor on 15 March 2018 (the day before the public announcement). Property owners who had previously been contacted but would not be affected by the preferred option were so advised on 16 March 2018 (emails were followed up by hard copy letters sent by post or delivered directly).

24.1 Pre-Implementation Engagement

With the identification of the preferred option, it was determined there are eleven land owners directly affected by the Project, with seven private landowners, Meridian Energy Limited (Meridian), AgResearch Limited (AgResearch), Tararua District Council and the Crown. The affected properties include five hill country pastoral farms, three rural lifestyle farmlets, one pastoral research farm, a Council former land fill site, and the KiwiRail Palmerston North – Gisborne line, with two farm properties accommodating turbines relating to having Meridian's Energy Te Āpiti wind farm turbine generation.

There are three other landowners in close proximity to the Project works, two residential properties and one Māori owned land parcel adjoining the Manawatū River (Parahaki Island). Meetings have been held with these owners. In general, concerns have been raised regarding potential noise and visual effects, which have been considered by experts. The NZ Transport Agency has developed proposed mitigation measures to be incorporated into the design to reduce these affects.

Meetings held with the Māori owners (of Parahaki Island) resulted in the designation corridor being relocated in a more easterly direction to avoid the designation being located over it and minimise the effect on this land parcel, with the bridge design to take into account changes in river flows that could potentially affect the property.

The designation corridor has been widened in the vicinity of the SH3/SH57 intersection to allow for greater flexibility in the intersection design to mitigate against the effects of noise and visual detriment for the residential property at that intersection.

The designation corridor in the vicinity of Hope Road has been widened and the indicative preliminary road alignment moved in a more southerly direction within the designation corridor to minimise noise and visual detriment to a residential property on Hope Road. There has been consultation with all landowners directly affected by the preferred route option prior to and after its announcement in March 2018, and consultation is on-going. Consultation on the land designation/consenting process and the land purchase process has included individual landowner meetings and written correspondence to all affected landowners.

The Project has a significant effect on one pastoral land holding and one lifestyle farm, and the NZ Transport Agency has been in discussions with these landowners on land purchase options. There have been no significant issues raised by the private landowners concerning the Project. Matters such as access to severance areas and farm mitigation measures will be worked through with the landowners as part of the negotiations to acquire the land for the Project.

In consultation with the affected landowner and QEII, the road alignment and the designation corridor have been altered to minimise the effect on QEII covenanted areas.

The Project will potentially affect a Meridian Te Āpiti Wind Farm wind turbine and regular meetings are being held with Meridian. The NZ Transport Agency has refined the alignment route to avoid two wind turbines and provided for a vehicle underpass under the new highway. Proposed mitigation planting areas will be developed with a view to minimising potential effects on electricity generation (by altering the wind flow patterns). Matters such as access to the wind turbines, maintaining the associated infrastructure and minimising the effect on the wind farm's operations during Project construction are being worked through with Meridian.

The Project will affect a fertiliser research trial site on the AgResearch farm. Meetings are being held with AgResearch to consider options to minimise the effect of the Project on the fertiliser trial site. The land designation corridor has now been reduced in this location to this end, with access provided to the severed land area.

25. ON-GOING AND FUTURE CONSULTATION

The NZ Transport Agency is committed to ongoing communication with all stakeholders through the consenting phase of this Project. The Strategy includes sharing Project information and providing updates via the Project newsletter, website, local media and social media. Working closely with iwi and in consultation with other key stakeholders will also be an integral part of the detailed design process of the final alignment (and subsequent processes).

The NZ Transport Agency and the contractor engaged to construct the final alignment will implement a comprehensive communication plan prior to and for the duration of construction works. The types of communication that the public could reasonably expect will be outlined in a Communications and Engagement Plan.

The experience of the NZ Transport Agency with other major construction projects around the country is that effective communication of information is one of the best ways to manage the effects of construction on people and communities. Recommendations about engagement over construction are included in Technical Assessment 3 included in Volume 3.

PART G:
ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

Part G: Assessment of Effects on the Environment

26. INTRODUCTION AND SUMMARY OF EFFECTS ON THE ENVIRONMENT

26.1 Introduction

Part G of this Report provides a summary of the actual and potential effects of the construction, operation and maintenance of the Project, including whether these effects are positive or adverse and the scale, duration and locality of effects.

As set out in Part E, the avoidance of adverse effects has been a key driver for the identification of the designation corridor and the subsequent shaping and refinement of the corridor. Where avoidance has not been possible, measures to remedy or mitigate significant adverse effects have been proposed. Details of these measures are included in Part H of this Report and reflected in conditions proposed to be imposed on the designations.

26.2 Assessment Methodology and Project Shaping

Under the RMA an assessment of the environmental effects of the proposed Project is required. In addition to the requirements under the RMA, it is also part of the NZTA's environmental policy and its operating principles under section 96(1)(a) of the LTMA to:

> *"exhibit a sense of social and environmental responsibility, which includes -*
>
> *(i) avoiding, to the extent reasonable in the circumstances, adverse effects on the environment; …"*

The requirements of the RMA and the LTMA formed the basis for the assessment of effects undertaken for the Project.

As described in Part E of this Report, the assessment of environmental and social impacts has underpinned the selection of the preferred corridor for the proposed designation as one of three sets of assessment criteria applied to the MCA methodology (alongside transport objectives and implementability). The environmental and social impact of the 18 Long List route options were considered with input from stakeholders and specialist assessments as follows:

- natural environment, which incorporated water quality, hydrology, freshwater ecology, and terrestrial ecology;

- cultural and heritage, which incorporated cultural values, sites/areas of cultural significance, archaeology; and built heritage;
- social effects;
- landscape and visual effects;
- infrastructure and property; and
- human health, which incorporated noise effects and contaminated land.

The four selected Short List options were then assessed using a similar MCA process and criteria but building on the information obtained during the earlier Long List process and incorporating additional information obtained from specialists and stakeholder, community and tangata whenua engagement. The preferred corridor[29] was the only option that provided substantial transport benefits across all Project objectives and also had better overall outcomes in terms of implementability. Each Short List option was assessed as having the potential to give rise to adverse environmental and social effects and, while other options were more favourable in terms of other criteria, the preferred corridor scored better on freshwater ecology than other options and was considered to have the lowest environmental and social risks.

The actual and potential effects of the preferred corridor have been further assessed by various experts. This assessment has included further shaping and refinement of the Project. The outcomes of these expert assessments are detailed in the Technical Assessments in Volume 3. The approach to this assessment has been:

- collaborative, with the Project designers, the environmental assessment team and key stakeholders contributing to a consideration of potential effects and the possible measures to avoid, remedy or mitigate any adverse effects; and
- iterative through the refinement of the proposed designation corridor, and constraints on that corridor, to respond to potential adverse effects.

This effects assessment and corridor refinement approach included:

- two mitigation workshops, where experts presented their interim assessments of the potential effects of the Project to a group including tangata whenua, stakeholders and representatives of the Councils, and recommended potential mitigation measures; and
- a design workshop where the Project team, tangata whenua, stakeholders and representatives of the Councils considered the potential designation corridor and the various values associated with it, the different sectors of the corridor, the Project's gateway potential, and the ECDF framework to guide ongoing design, and discussed landscape and environmental drivers, geometric design parameters, and bridge structures.

26.3 Structure of the Assessment

The remainder of Part G describes the assessment undertaken in the key topic areas, with each topic area described in a separate section as set out in Table 15. Each section includes a description of the potential effects (both positive and adverse) resulting from the Project (with reference to the existing environment as described in Part B of this Report) and a description of measures that have been undertaken, or are proposed, to avoid, remedy or mitigate potential adverse effects.

[29] Known as 'Option 3'.

Table 15 – Assessment of Effects on the Environment Topic Areas

SECTION	TOPIC	RELEVANT TECHNICAL REPORT/SUPPORTING INFORMATION[30]
27	Traffic and Transport	Technical Assessment 1
28	Noise and Vibration	Technical Assessment 2
29	Social	Technical Assessment 3
30	Landscape, Natural Character and Visual	Technical Assessment 4
31	Historic Heritage and Archaeology	Technical Assessment 5
32	Terrestrial Ecology	Technical Assessment 6
33	Tangata Whenua Values	Cultural Values Statements 7, 8 and 9
34	Economics	-
35	Land Use, Property, Utilities and Infrastructure	-
36	Natural Hazards	Preliminary Design Philosophy Report and Bridge and Retaining Wall Design Philosophy Report

26.4 Summary of Effects on the Environment

The actual and potential effects of the construction, operation and maintenance of the Project, including opportunities or measures that can be taken to minimise or mitigate the adverse effects, are summarised in the following Table 16.

Table 16 – Summary of Actual or Potential Effects on the Environment

ACTUAL AND POTENTIAL EFFECTS ON THE ENVIRONMENT	POSITIVE/ADVERSE
Table key: Construction or temporary effects	Operational or permanent effects
Traffic and transport effects	
Improved safety through reduced crash risks on Saddle Road and Pahīatua Track. Low predicted crash risk on the new route due to high safety standards and intersection upgrades.	Significant positive effect.
Improved efficiency and reliability of transport network.	Significant positive effect.
Improved route resilience, including in the event of crashes, slips and natural hazards.	Significant positive effect.
A safer, more reliable and faster route for public transport.	Minor positive effect.
Improved environment for pedestrian and cycling activities through reduced traffic demand on Saddle Road and Pahīatua Track and due to wide shoulders on the new route. Impacts on safety of pedestrian and cyclist users due to increased use of the existing SH3 bridge at Ashhurst.	Effects are neutral, subject to the design not precluding future pedestrian and cycling facilities.

[30] The Technical Assessments are contained in Volume 3.

ACTUAL AND POTENTIAL EFFECTS ON THE ENVIRONMENT	POSITIVE/ADVERSE
Table key: Construction or temporary effects	Operational or permanent effects
Property accesses are severed and require the provision of alternative accesses. Reduced demand on Saddle Road improves property access on this road.	Effects are neutral, subject to accesses being constructed as soon as practicable and to the appropriate standards.
Safety impacts associated with construction vehicle accesses to the site from Saddle Road.	Minor adverse effect that can be mitigated by access design requirements and the management of construction traffic through a 'Construction Traffic Management Plan' ("CTMP").
Impacts of construction traffic on the operation and efficiency of Saddle Road, local roads (including on active users of these roads) and intersections in Ashhurst and the rail corridor.	Moderate adverse effect that can be mitigated by the management of construction traffic through a CTMP.
Impacts on access to, and parking for, recreational opportunities for the Manawatū Gorge Scenic Reserve.	Minor adverse effect that can be mitigated by maintaining access during construction and reinstating facilities at the completion of construction, and a dedicated management plan.
Noise and vibration effects	
Reduced road-noise traffic noise in Ashhurst and around the outskirts of Woodville	Significant positive effect.
Increased road-traffic noise on State Highway 3 Napier Road in Ashhurst and Vogel Street in Woodville.	Minor adverse effect, subject to low noise road surfacing being provided.
Road-traffic noise on the new route.	Minor adverse effect, subject to mitigation measures to promote gradual speed changes at the roundabouts; to provide separation from the traffic lanes at the roundabouts and eastern slope; and subject to low noise road surfacing over the lower part of the eastern slope.
Road-traffic vibration	Minor adverse effect.
Construction noise and vibration effects.	Minor adverse effect, subject to good practice management, including the management of construction-related heavy vehicles in Ashhurst.
Social effects	
At a regional level, improved resilience, reliability and journey times provides better access to services.	Positive impacts in terms of community cohension, way of life and socio-economic well-being.
At a regional level, improved safety performance and safer journeys on the new route, Saddle Road and Pahīatua Track that result is a reduction of road accidents.	Positive impacts due to reduced social consequences of injuries and deaths.
The diversion of traffic out of Ashhurst resulting the reinstatement of the community's way of life, connectivity and business activity experienced prior to the closure of the Manawatū Gorge route.	High positive impact on the Ashhurst community's way of life; a low positive impact on community connectivity within Ashhurst and the community's ability to sustain oneself and a moderate to high positive impact on the quality of the Ashhurst environment.
A safer, more resilient and reliable connection west from Woodville.	Moderate to high positive impact on the way of life and connectivity of the Woodville community.
Disruption to community connectivity across Vogel St in Woodville.	Low negative impact.

ACTUAL AND POTENTIAL EFFECTS ON THE ENVIRONMENT	POSITIVE/ADVERSE
Table key: Construction or temporary effects	Operational or permanent effects
Increased traffic through Woodville resulting in increased business activity and increased activity in Vogel Street.	Moderate positive impact in terms of socio-economic well-being.
Exacerbated effects of disruption and delays at a regional and local level to users of Saddle Road on the way people carry out daily activities, time away from home and social connectedness.	Low negative impacts that can be mitigated by the management of construction traffic through a CTMP.
Exacerbated effects of high traffic volumes travelling through Ashhurst due to additional construction traffic on the way people carry out daily activities and the quality of the environment.	Low negative impacts that can be mitigated by the management of construction traffic through a CTMP.
Impacts on people's way of life and access to recreation opportunities as a result of use of the Manawatū Gorge Scenic Reserve car park for construction activities.	Low negative impact, on the basis that parking facilities, and therefore access, will be maintained during construction.
Increased business activity resulting in employment opportunities and growth in Ashhurst and Woodville.	Positive impacts on peoples' way of life and ability to sustain oneself.
Landscape, visual and natural character effects	
Bridge to Bridge: Adverse biophysical effects as a result of (some limited) earthworks. Adverse landscape character effects as a result of an increase footprint and roundabout lighting.	Low adverse biophysical effects. Moderate/low adverse effect on landscape character.
Manawatū River Crossing: Adverse biophysical effects as a result of landform modification and vegetation clearance. Adverse landscape character effects as a result of the new bridge crossing and associated traffic activity. Adverse effects on natural character in terms of the experiential qualities associated with the remoteness and naturalness of the river corridor and modification to the river margins.	Moderate adverse biophysical effects. High adverse effect on landscape character. Natural character reduced from moderate/high to moderate (not significant).
Western Slope: Adverse biophysical effects, particularly at the upper stream crossing and lower part of the gully as a result of landform modification, stream diversion and vegetation clearance. Adverse landscape character effects, particularly at the lower extent of the slope in the vicinity of the Manawatū River. Adverse effects on natural character as a result of physical modification to the stream bed and margins, permanent structures, impacts on aquatic ecosystem functioning, vegetation removal and impacts on experiential qualities of the stream gully.	Moderate/high adverse biophysical effect. High adverse effect on landscape character. Natural character reduced from high to moderate/high (whole of stream) (not significant). Natural character (whole stream) is unchanged as a result of the stream crossing required to provide a temporary construction access (as part of the upgrade of the existing access track) from Saddle Road.
Te Āpiti Wind Farm and Ridge: adverse biophysical effects due to the extent of earthworks and vegetation removal from the QEII covenant area. Adverse landscape character effects as a result of the introduction of a new element in the landscape. Adverse effects on natural character (and a local level) as a result of earthworks, permanent structures, construction disturbance and vegetation removal. At an area level there is no change to the natural character of the stream.	Moderate adverse biophysical effect. Moderate/high adverse effect on landscape character. Natural character reduced from high to moderate/high (whole of stream) (not significant). Natural character (whole stream) is unchanged.

ACTUAL AND POTENTIAL EFFECTS ON THE ENVIRONMENT	POSITIVE/ADVERSE
Table key: Construction or temporary effects	Operational or permanent effects
Eastern Slope: adverse biophysical effects due to topographical changes created by earthworks and as a result of vegetation removal. Adverse landscape character effects as a result of the altered topography and the bisection of the hill country environment. Adverse effects on natural character caused by physical changes to the margin of the stream and its tributary.	Moderate/high adverse biophysical effects. High adverse effect on landscape character. Natural character reduced from moderate to moderate/low (not significant).
Woodville Gateway: adverse biophysical effects, particularly to the north of this sector, due to embankments and vegetation removal. Adverse landscape character effects as a result of the Project works footprint and roundabout lighting.	Moderate/low adverse biophysical effects. Moderate adverse effect on landscape character.
Visual effects when the Project is viewed from a range of viewpoints.	Low adverse effect when viewed from Ashhurst. Moderate adverse effect when viewed from the existing State Highway 3 Bridge. High adverse effect when the new Manawatū Bridge is viewed from State Highway 3. Moderate adverse effect when viewed from the Te Āpiti wind farm lookout. Moderate adverse effect when viewed from the intersection of State Highway 3 and Hope Road.
The provision of pull-over or rest areas with views from the crest of the Ruahine Range to the east and west, if able to be provided.	Potential moderate positive visual effect.
Effects on archaeology and historic heritage values	
The possible discovery and modification of an archaeological site	A potential adverse effect that is appropriately managed by way of an accidental discovery protocol.
Effects on terrestrial ecology	
Impacts on old-growth forest, swamp maire, a rare seepage wetland ecosystem, kānuka and unnamed stream ecosystem, including the northern bridge landing and access from Saddle Road (CH4000-4400)	Subject to the defined effects envelope: - high adverse effects on old growth forest, seepage wetland and kānuka forest; - moderate/low adverse effects on swamp maire. Replacement planting and offsetting measures result in a net indigenous biological diversity gain.
Impacts on old-growth forest, advanced secondary broadleaved forests and secondary broadleaved forest and scrubland in QEII National Trust covenant areas	Subject to the defined effects envelope: - very high adverse effects on old-growth forest, advanced secondary broadleaved forests; - high adverse effects on secondary broadleaved forest and scrubland. Replacement planting and offsetting measures result in a net indigenous biological diversity gain.
Impacts on secondary broadleaved forest and scrublands, manuka, kānuka and divaricating shrublands, indigenous dominated seepage wetlands (moderate value) elsewhere in the proposed designation corridor.	Subject to the defined effects envelope, high to moderate adverse effects. Replacement planting and offsetting measures contribute to an overall net indigenous biological diversity gain (in accordance with One Plan Policy 13-4).

ACTUAL AND POTENTIAL EFFECTS ON THE ENVIRONMENT	POSITIVE/ADVERSE
Table key: Construction or temporary effects	Operational or permanent effects
Impacts on terrestrial invertebrates	Subject to replacement and offset planting creating new habitat, low or very low adverse effects.
Impacts on native lizards	Subject to replacement and offset planting creating new habitat, and the implementation of a Lizard Management Plan, low or very low adverse effects. Long term net gain as a result of increased habitat.
Impacts on long-tailed bats	Unknown level of effects. Precautionary approach implemented including further survey work and a Bat Management Plan (when necessary).
Impacts on avifauna	Subject to the implementation of an Avifauna Management Plan, low or very low adverse effects.
Impacts on tangata whenua values	
The possible discovery and modification of artefacts of importance to tangata whenua.	A potential adverse effect that is appropriately managed by way of an accidental discovery protocol.
Impacts on the natural environment, landscape and associated cultural values.	Potential adverse effects that are managed by a range of conditions, including through the implementation of: - a Tangata Whenua Values Monitoring and Management Plan (or Plans); - the ECDF and associated Landscape Management Plan; and - various measures described elsewhere to address effects on terrestrial ecology (and including replacement planting and offsetting measures resulting in a net indigenous biological diversity gain).
Economic impacts	
Benefits associated with project certainty, travel costs and agglomeration economies.	Significant positive effect.
Increased spending on goods and services, and the opportunity to manufacture and supply construction materials.	Moderate positive effect.
Property, land use and network utilities	
Disruption to the operation and maintenance of the Te Āpiti Wind Farm	Minor adverse effects, subject to detailed design and construction management measures to minimise impacts on the operation and maintenance of the wind farm, including on access to, and within the wind farm site.
Potential to damage or disrupt the operation and/or maintance of network utilities.	Minor adverse effects that are managed through outline plan requirements that provide for relocations and the on-going operation and maintance of network utilities.
Potential to damage or disrupt the operation and/or maintance of local roads and the need to integrate the Project with the local network.	Minor adverse effects that are managed through outline plan requirements and the requirements of a 'Network Integration Plan'.
Disruption to farm operation and fertiliser trials at the Ballantrae Hill Country Research Station.	Adverse effects that are minimised through the provision of on-going farm and trial site access and through limiting construction activities on the Research Station Property.

ACTUAL AND POTENTIAL EFFECTS ON THE ENVIRONMENT		POSITIVE/ADVERSE
Table key:	Construction or temporary effects	Operational or permanent effects
Risks to human health and ecosystems as a result of the disturbance of contaminated land.		A potential effect that is managed by future regional and NES Soil resource consent processes, along with the required written consent of Tararua District Council under section 177 of the RMA.
Potential impacts on access to properties that are severed or otherwise disrupted by the Project.		Subject to provision being made for alternative access to severed properties, and as a result of improvements to access on Saddle Road, the effects of the Project on access are assessed as neutral.
Natural hazards		
Potential risk to the Project, or downstream of the Project, as a result of a natural hazard event.		Risks are managed and minimised through the design and location of the Project such that there is a positive effect, when compared with the existing, and pre-existing situation.

27. TRAFFIC AND TRANSPORT

27.1 Introduction

This section provides an assessment of the actual and potential traffic and transport effects that result from the construction and operation of the Project and is informed by Technical Assessment 1: Transport that is included in Volume 3.

The effects of the Project have been assessed based on a range of assumptions, including in relation to rate of growth, and with reference to:

- a 'do-minimum' transport network that is the existing transport network, including the two alternative routes, taking into account proposed Ashhurst Improvement Works that the NZ Transport Agency is currently implementing; and
- predicted traffic travelling on the transport network, with and without the Project route, in 2041 (being the same reference year for road traffic noise predictions).

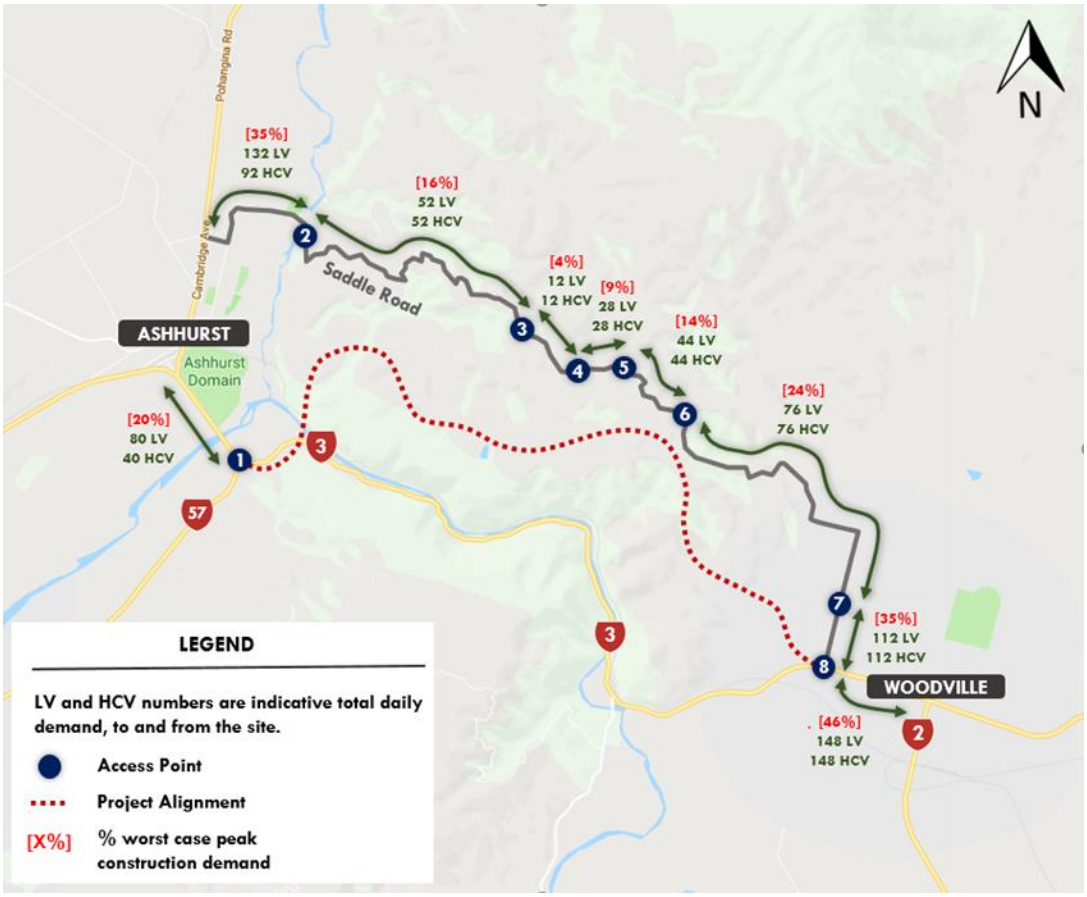
27.2 Assessment of Transport Effects – Construction

At this time a construction method has not been developed; instead, potential traffic volumes have been predicted based on a typical construction methodology, and assuming that construction will be completed in 4-5 years (plus a period during which enabling works are carried out). Using this method, construction traffic flows were estimated.

At the busiest phase of construction (pavement construction and sealing), it is predicted that up to 224 construction vehicles per day, 40% of which being heavy vehicles, will travel between Ashhurst and Saddle Road before entering the Project site through various construction access points. Up to 224 construction vehicles, 50% of which being heavy vehicles, are predicted to travel on Saddle Road/Woodlands Road to and from Woodville.

The following Figure 27 illustrates an estimated peak daily worst case scenario of construction traffic demand on Saddle Road between Woodville, Ashhurst and the various construction access points.

Figure 27 – Indicative Construction Traffic Demand (daily flows)



These volumes are predicted to occur during the busiest phase of construction (during pavement construction and sealing) entailing up to 224 construction vehicles per day travelling between Ashhurst and Saddle Road before entering the Project site through various construction access points. Forty percent of these are predicted to be heavy vehicles.

A further 224 construction-related vehicles, fifty percent of which being heavy vehicles, are predicted to travel on Saddle Road/Woodlands Road to and from Woodville.

The predicted construction traffic will have a high level of interaction with general through traffic on Saddle Road (and connection local roads) and will result in increases in overall traffic demand that may cause delays, particularly during peak periods.

The construction of the new Manawatū Gorge bridge and southern abutment will take place within the existing Manawatū Gorge Scenic Reserve car park near the entrance to the Scenic Reserve walkways. This area is to be configured so that both parking and access to the Scenic Reserve is maintained during construction.

The following table summarises the potential effects of Project-related construction traffic.

Table 17 – Potential Effects of Construction Traffic

TYPES OF EFFECT	SUMMARY OF EFFECTS
Safety and traffic effects	In terms of traffic effects, the construction of the Project will reduce the efficient performance of Saddle Road, particularly when travel occurs at peak times (when there are higher numbers of vehicles on the road). Nevertheless, construction is only a small proportion of the overall traffic flows and it is

TYPES OF EFFECT	SUMMARY OF EFFECTS
	predicted that delays to traffic flows from vehicles turning into, and out of, the site accesses will be acceptable. Delays to the traffic caused by larger construction vehicles may impact on the journey of through vehicles. Further, construction traffic may result in impacts on local roads including the efficiency of the Mulgrave Street/Cambridge Avenue and Cambridge Avenue/State Highway 3 intersections in Ashhurst. Construction traffic also has the potential to have an adverse effect on the existing Palmerston North – Gisborne railway line as a result of construction vehicles traversing the existing rail corridor. This has been discussed with KiwiRail and it is noted that the frequency of trains on this line is low. Construction traffic accessing the designation corridor along the steep and curved alignment of Saddle Road will have a minor potential adverse effect on the safety of Saddle Road for road users. Therefore, construction traffic is assessed as having moderate adverse traffic effects.
Parking effects and effects on vulnerable users	Construction traffic associated with the construction of new Manawatū River bridge and associated southern bridge abutment has the potential to have a minor adverse impact on access to recreational opportunities within, and parking areas for, the Manawatū Gorge Scenic Reserve. Increased traffic demand as a result of construction on Saddle Road (and other local roads) may also have a minor adverse impact on active users of the same roads.

27.3 Assessment of Transport Effects – Operation

Traffic Effects

Once completed, it is expected that the new route will be used by all traffic that would have previously used the Manawatū Gorge route and, therefore, demand on the existing alternative routes (Saddle Road and Pahīatua Track) and associated local roads will be alleviated such that they can revert to their original function as an arterial route and primary collector route respectively. In 2041 it is predicted that the Project will result in a demand reduction of up to 97% on Saddle Road and up to 43% on Pahīatua Track.

The Project is also predicted to have an impact on the performance of a number of intersections, including the proposed roundabout connections to the existing transport network. The following Table 18 summarises these impacts.

Table 18 – Potential Impacts on Intersection Performance

INTERSECTION	POTENTIAL IMPACTS
State Highway 3/York Street	Under the current and future 'do-minimum' scenario the majority of traffic uses York Street, while the Cambridge Avenue intersection has lower demand. The future performance of the York Street intersection is expected to be unacceptable with, or without, the Project. That is, the reduced intersection performance is as a result of predicted travel growth and travel demand, rather than as a direct outcome of the Project. The performance of the Cambridge Avenue/State Highway 3 intersection is expected to be acceptable without the Project and unacceptable with the Project. Intersection upgrades are currently proposed for both of these intersections as part of the NZ Transport Agency's Ashhurst Improvement Works. These upgrades will provide for an improvement of the performance of the road network in this locality and will be scaled to meet predicted future traffic volumes. The intersections will be aligned to cater for movements through
State Highway 3/Cambridge Avenue	

INTERSECTION	POTENTIAL IMPACTS
	Ashhurst (via Cambridge Avenue to Saddle Road) and so the intersection may need to be realigned to reprioritise movements back onto State Highway 3 once the Project is open.
Proposed roundabout intersection with State Highway 57	This roundabout has sufficient capacity to provide for future traffic demand following the construction of the Project. The roundabout also provides safe access to the Manawatū Gorge Scenic Reserve car parking area.
Proposed roundabout intersection with Woodlands Road	This roundabout has sufficient capacity to provide for future traffic demand following the construction of the Project. The roundabout also provides improved access and safety for users of Napier Road, Woodlands Road and Troup Road.
State Highway 2/State Highway 3 intersection in Woodville	The future performance of this intersection is expected to be unacceptable with or without the Project.

It is anticipated that the Project will result in a significant reduction in travel times for many key trips within the region, including a typical travel time saving of 10.8 minutes for trips between Palmerston North and Woodville. For trips from SH57/Pahīatua Track to Woodville, there is a predicted journey time saving of 24.3 minutes. The following Table 19 sets out travel time changes as a result of the Project.

Table 19 – Predicted Travel Times

ROUTE			CAR TRAVEL TIMES (MINUTES)			HEAVY VEHICLE TRAVEL TIMES (MINUTES)		
START	END	ROUTE	CURRENT	PROPOSED	DIFFERENCE	CURRENT	PROPOSED	DIFFERENCE
SH3 West/Feilding (intersection of Mulgrave St & Hillary Cres)	SH2 North (intersection of SH2 & Pinfold St)	Saddle Rd & Oxford Rd	21.2	12.3	-8.9	25.2	16.8	-8.4
	Woodville (intersection of SH3 & SH2)	Saddle Rd & Woodlands Rd	20.2	10.8	-9.4	24.1	15.0	-9.1
Ashhurst (intersection of SH3 & York St)	SH2 North (intersection of SH2 & Pinfold St)	Saddle Rd & Oxford Rd	22.1	11.8	-10.3	26.1	16.3	-9.8
		Saddle Rd & Woodlands Rd	22.6	11.8	-10.8	26.9	16.3	10.6
	Woodville (intersection of SH3 & SH2)	Saddle Rd & Woodlands Rd	21.1	10.3	-10.8	25.1	14.5	-10.6
Palmerston North (The Square)	SH2 South (intersection of SH2 & Mangahao Rd)	Pahīatua Track & Mangahao Rd	38.3	34.8	-3.6	44.0	40.8	-3.2
SH57 (intersection of SH57 & Pahīatua Track)	Woodville (intersection of SH3 & SH2)	Pahīatua Track & Ballance Valley Rd	28.5	14.9	-13.6	34.2	18.6	-15.6
	SH2 North (intersection of SH3 & SH2)	Pahīatua Track & Mangahao Rd	40.8	16.5	-24.3	48.4	20.7	-27.7

The Project includes crawler lanes and therefore, with predicted traffic flows, the Project route will provide a high 'level of service'.[31] It is also expected that reliability in travel times will significantly improve because the capacity of the proposed route will result in little to no difference between travel times in peak or off-peak periods.

The Project will also provide a high level of efficiency for all vehicles including emergency service vehicles and buses travelling between Palmerston North and Tararua District.

In all, the demand and distribution of traffic, alongside the anticipated performance, or level of service, of the Project (including significant travel time reductions and reliability) will result in significant positive traffic effects.

Resilience

The Project results in a significant positive effect in terms of resilience because the Project provides a high-quality alternative route as compared with the Pahīatua Track and Saddle Road. The Project will be designed to a standard that reduces the risk of incidents on the road and reduces the impacts of such incidents in terms of disruptions and closures. Examples include:

- the inclusion of wider sealed shoulders to provide space for vehicles to recover in the event of loss of control and, failing that, median wire rope barriers and edge protection to prevent 'run off road' and head-on crashes;
- structures, including cuts and fills, will be designed to withstand 1:2000 year events;
- the pavement will be designed to a standard that accommodates large volumes of heavy vehicles and, accordingly, requires a lower level of maintenance as compared to existing routes; and
- the inclusion of crawler lanes reduces the risk of disruption as a result of accidents or natural disasters because traffic can be diverted into the other lane or shoulder or into a contraflow.

The ongoing ability to use Saddle Road or Pahīatua Track as alternatives to the new road underscores the enhancement the Project will bring to the resilience of the broader regional roading network.

Safety

There has been an increased crash risk on Saddle Road and Pahīatua Track, primarily as a function of the sharp increase in traffic volumes, since the closure of the Manawatū Gorge route. The Project will result in a significant reduction in traffic demand on these routes and it is anticipated that crash risk will reduce to levels similar (or less) to the crash risk prior to the closure of the Manawatū Gorge route, taking into account the current on-going improvements to these routes.

The Project will be constructed to modern highway standards, as set out in the Preliminary Design Philosophy Report included in Part J, Appendix Three. These standards deliver a markedly improved crash performance when compared to the existing routes. Other safety features embedded in the design standards include the provision of wider sealed shoulders, near continuous passing opportunities, median and edge barriers and improved design speed and sight distances. The Project

[31] Determined with reference to the 'Highway Capacity Manual', Transportation Research Board of the National Academies, 2010.

is expected to achieve a KiwiRAP[32] star rating of between 4.1 to 4.5 (low to medium risk) that is a significant improvement on the 2-3 star rating (a road with deficiencies or major deficiencies) for the majority of the existing network.

The conversion of the State Highway 3/State Highway 57 and State Highway 3/Woodlands Road intersections to a roundabout configuration will improve the overall safety of these intersections as a result of reduced crossing conflict points and approach speeds. The roundabout intersections may reduce injury crashes by up to 82%.[33]

In all, the Project delivers a substantial reduction in crash risk and therefore has a significant positive effect in terms of safety.

Effects on Public Transport, Parking and Pedestrian and Cyclist Users

The Project results in a safer, more resilient, more reliable and faster route. This may attract more users to public transport and possibly lead to new public transport routes and services. As such the Project has a minor or greater (if new services are provided) positive effect on public transport.

While relatively long and steep, the road is expected to be used by recreational road cyclists and touring cyclists. It is anticipated that these cyclists will be accommodated on the 2.0m wide (as a minimum) shoulders on both sides of the road. These shoulders are a substantial improvement when compared to Saddle Road and Pahīatua Track.

The significant reduction in traffic demand on Saddle Road, Pahīatua Track and other local roads will make pedestrian and cycling activities on these roads safer and more enjoyable. It is also anticipated that the NZ Cycle Trail Touring Route on Pahīatua Track will be reinstated (it is currently closed due to safety concerns following the closure of the Manawatū Gorge route).

The Project will result in a significant increase in traffic on the existing State Highway 3 bridge over the Manawatū River east of Ashhurst and, given the width of the bridge, may have an impact on the safety of the limited number of recreational cyclists and pedestrians who use the bridge or discourage access to the Manawatū Gorge for recreation purposes. Provision is made for pedestrian and cycle access to the Manawatū Gorge Scenic Reserve off the proposed State Highway.

In all, the potential effects of the Project on pedestrians and cyclists are considered to be neutral.

In terms of effects on parking, the Project will result in the relocation or reconfiguration of the Manawatū Gorge Scenic Reserve car park in order to accommodate the southern bridge abutment. On the basis that this parking can, and is, provided elsewhere, parking effects are considered to be neutral.

Effects on Access

Any potential effects on access relate to properties that are severed by the proposed designation. The Project is not intended to provide direct access to properties from the new road as this would detract from the safe and efficient operation of the new road. In general, existing accesses from the existing road network to private property are retained. However, in some instances, accesses to properties are

[32] KiwiRAP is the New Zealand Road Assessment Programme. It is part of the International Road Assessment Programme, otherwise known as iRAP.
[33] 'High Risk Rural Road Guide', NZ Transport Agency, September 2011.

compromised or removed as part of the Project. In these instances, alternative accesses to the road network will be provided or the severed property will be purchased by the NZ Transport Agency.

Subject to provision being made for alternative access to severed properties, and as a result of access on Saddle Road being improved (by virtue of there being a significant reduction in traffic flows on Saddle Road following completion of the Project), the effects of the Project on access are assessed as neutral.

Technical Assessment 1: Transport in Volume 3 includes a detailed consideration of the impacts on access for all properties that are directly impacted by the proposed designation. This Assessment provides a preliminary indication of where changes to property accesses are necessary, and if so, how a new access may be provided.

27.4 Measures to Avoid, Remedy or Mitigate Adverse Traffic Effects

In order to appropriately manage and mitigate the actual and potential adverse effects of construction traffic on the transport network, including other road users, the following is proposed:

- the preparation, in consultation with key stakeholders, of a 'Construction Traffic Management Plan' ("CTMP") that:
    - manages and limits the movement of heavy vehicles associated with construction through Ashhurst at night and at peak times;
    - manages the movement of heavy vehicles on Saddle Road by limiting movements at peak times and by providing for access to the site (where possible) being gained from both sides of the Ruahine Ranges;
    - considers opportunities that may arise from the accelerated construction of the new Manawatū River bridge and new Hope Road bridge so that the bridges may be used to access the western and eastern ends of the Project without using Saddle Road;
    - provides for the early construction of accesses to private land; and
    - explores the possibility of using KiwiRail's network to deliver materials to the Manawatū River bridge site;
- the inclusion of a requirement for site and property accesses to be designed and maintained, as far as practicable, in accordance with the NZ Transport Agency's accessway standards[34] or Council standards (whichever is applicable and appropriate); and
- on-going engagement with KiwiRail, acknowledging that any effects on KiwiRail's network and infrastructure are able to managed separately by way of written consent under section 177 of the RMA (given KiwiRail's existing designation).

It is proposed to manage the potential construction and operational impacts on the Manawatū Gorge Scenic Reserve car park through the preparation of a 'Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan'. This Plan will detail how public access will be maintained during construction and how the car park will be reinstated at the completion of construction. The Plan will be developed in consultation with the Department of Conservation, Palmerston North City Council, tangata whenua and community representatives.

[34] NZ Transport Agency, 'Planning Policy Manual – for Integrated Planning and Development of State Highways', August 2007.

In order to provide for future opportunities for pedestrian and cycling activities, it is proposed that further design does not preclude opportunities for pedestrian and cycling connections between Ashhurst and the western end of the Manawatū Gorge and between Woodville and the eastern end of the Manawatū Gorge.

28. NOISE AND VIBRATION

28.1 Introduction

This section provides an assessment of the actual and potential effects of noise and vibration caused by the Project and is informed by Technical Assessment 2: Noise and Vibration that is included in Volume 3.

28.2 Operational Noise Effects

Operational noise assessment for roads is generally undertaken in accordance with NZS 6806.[35] There is no National Environmental Standard for operational road-traffic noise and the Palmerston North City, Manawatū and Tararua District Plans exclude the sound of vehicles on roads from the general noise standards.[36,]

NZS 6806 provides for road traffic noise to be predicted with reference to a year 10 to 20 years after the opening of the road. In this case 2041 is the year that is used. NZS 6806 sets the criteria for reasonable road-traffic noise to protect people living near roads from sleep disturbance and to provide a reasonable level of residential amenity as follows:

Table 20 – NZS 6806:2010 Road-Traffic Noise Criteria

CATEGORY	NEW ROAD CRITERIA	ALTERED ROAD CRITERIA
A (Primary)	57 dB $L_{Aeq(24h)}$	64 dB $L_{Aeq(24h)}$
B (Secondary)	64 dB $L_{Aeq(24h)}$	67 dB $L_{Aeq(24h)}$
C (Internal)	40 dB $L_{Aeq(24h)}$	40 dB $L_{Aeq(24h)}$

The majority of the Project is defined as a new road under NZS 6806, however, the proposed roundabouts at either extent of the designation corridor are defined as 'altered roads'. Due to changes in traffic volumes caused by the Project, the road-traffic noise effects on State Highway 3 from Cambridge Avenue to the Manawatū River and State Highway 3/State Highway 2 Vogel Street through Woodville to Pinfold Road have also been considered as if they were 'altered roads' under NZS 6806 for the purposes of assessment of the potential effects of the Project.

Under NZS 6806, noise levels are to be forecast and assessed to determine the predicted level of noise at sensitive locations known as 'Protected Premises and Facilities' (see below). Where practicable, the Category A (primary) criterion should be achieved. If this is not practicable, then

[35] Standards New Zealand (2010) NZS 6806:2010 *Acoustics – Road-traffic noise – New and altered roads.*
[36] Palmerston North City District Plan, Rule R6.2.6.2.1.b; Manawatū District Plan, Plan Change 55, Rule 3C.4.2.d.ii (except that airbrakes are not excluded); and Tarurua District Plan Rule, 5.4.1.2.a (adopting NZS 6802, which excludes road-traffic sound).

mitigation should be assessed against Category B. In situations where it is not practicable to comply with Categories A or B, then mitigation should be implemented to ensure the internal criterion in Category C is achieved.

NZS 6806 focuses on identifying and managing effects on 'Protected Premises and Facilities' ("PPFs"), which are noise sensitive locations. PPFs are defined by NZS 6806 and include, amongst other locations, existing houses, schools and visitor accommodation. NZS 6806 requires consideration of road-traffic sound at all PPFs within 100 metres of a road in an urban area defined by Statistics New Zealand, or within 200 metres of a road in a rural area. For the Project, the area is defined by Statistics New Zealand as rural, other than in Woodville and Ashhurst.

The assessment of operational noise effects is described in full in Technical Assessment 2: Noise and Vibration, included in Volume 3, but broadly involved:

- identifying PPFs in the vicinity of the designation corridor;
- modelling predicted sound levels across a range of scenarios;
- having a broad consideration of potential noise effects; and
- making recommendations for mitigation.

Road-traffic sound levels have been predicted for five scenarios using forecast traffic volumes provided in Technical Assessemnt 1: Transport:

- Pre-existing (2016) – demonstrates noise environment before the indefinite closure of the Manawatū Gorge route.
- Existing (2018) - the current road layout and traffic volume, including re-routed traffic passing through Ashhurst to use Saddle Road.
- Do-nothing (2041) – the current road layout but with predicted traffic volumes at 2041.
- Do-minimum (2041) – the new road layout (that is, with the Project) built without any specific noise mitigation and with predicted traffic volumes at 2041.[37]
- Project with mitigation (2041) – the new road layout (that is, with the Project) built and future 2041 traffic volumes and with recommended noise mitigation measures added.

Table 21, below, summarises the predicted noise effects of the Project in 2041 under the 'do-minimum' scenario where noise mitigation is not provided.

Table 21 – Summary of Road-Traffic Noise Effects

LOCALITY	SUMMARY OF EFFECTS – WITH NO MITIGATION
Ashhurst	When compared to the 'do-nothing' scenario, the Project results in a substantial reduction in traffic through Ashhurst and as a result road-traffic noise is reduced by approximately 7 dB at approximately 250 houses in Ashhurst. The Project results in most of these houses having a noise exposure of less than 57 dB $L_{Aeq(24h)}$, which is the most stringent criterion in NZS 6806 and a significant positive effect (although it is noted that this may be perceived as returning to the prior to the Manawatū Gorge closure (2016).
Ashhurst (Napier Road)	As a result of the Project, 16 PPFs on State Highway 3 between Cambridge Avenue and the Manawatū River move from noise levels mainly below NZS 6806 Category A

[37] Note that this is different from other 'do minimum' scenarios notes in this Report, such as the 'do minimum' option assessed as part of the Long List process described in Part E.

LOCALITY	SUMMARY OF EFFECTS – WITH NO MITIGATION
	to Category B (and in one case Category C). The noise level increase is modest at 4 dB, but results in noise exposures that are high and is a significant adverse effect.
Bridge to Bridge	Three PPFs will receive road-traffic noise levels within NZS 6806 Category A as a result of the Project.[38] Because these PPFs already experience road-traffic noise in the environment the noise effect is generally be minor. It is noted that sound characteristics from vehicles traversing the roundabout could cause significant disturbance (due to vehicles braking and accelerating) at nearby PPFs, if there are no controls to moderate driver behaviour.
New Manawatū River Bridge	Road-traffic noise is likely to be the most noticeable sound in the aural environment. In the context of an area that is dependent on vehicle access, and has historically been adjacent to a State highway, the adverse effect of road-traffic noise in this area is considered minor.
Western slope and Te Āpiti Wind Farm and ridge	There are no PPFs near the western slope or upper eastern slope. However, sound from trucks engine braking will be audible over a wide area, albeit at modest levels. This sound will be similar to trucks engine braking on the existing Saddle Road. As such, while there will be some variation in where the sound is heard, the noise effect will be minor.
Eastern slope	There are two PPFs near the lower eastern slope that are both predicted to receive road-traffic noise within NZS 6806 Category A and, as such, adverse effects will be minor. However, as compared to the current rural environment, the effect of engine braking noise at these PFFs may be significant.
Woodville gateway	There are numerous PPFs in the vicinity of the roundabout. The noise levels at most of these PPFs are predicted to be in NZS 6806 Category A and therefore any adverse noise effects will be minor, particularly because the PPFs are already affected by road-traffic noise. As for the western roundabout, sound characteristics from vehicles traversing the roundabout could cause significant disturbance at nearby PPFs if there are no controls to moderate driver behaviour.
Woodville outskirts	At the eastern extent of the designation corridor, the Project will result in a substantial reduction in traffic volumes on Woodlands, Oxford and Pinfold Roads. Compared to the scenario without the Project in 2041, road-traffic noise is reduced by 10 dB or more at approximately 25 houses on the outskirts of Woodville and is a significant positive effect (again, it is noted that this may be perceived as returning to the pre-existing situation).
Woodville	The Project results in a substantial increase in future traffic volumes using Vogel Street through Woodville (with traffic diverting from Oxford and Pinfold Roads onto State Highway 3). Without the Project 39 PPFs in Woodville are predicted to be in Categories B or C. This number increases to 50 PPFs with the Project. While the Project is only a contributing factor to existing high noise exposures, it worsens an unsatisfactory situation and is a significant adverse effect.

[38] The acoustics modelling for the PPF adjacent to the SH3 and SH57 intersection includes noise screening by an existing earth bund beside the property.

28.3 Operational Vibration Effects

There are no relevant New Zealand Standards, National Environmental Standard or district plan provisions that manage operational road-traffic vibration.[39] The NZ Transport Agency guidelines[40] rely on a criterion of 0.3 mm/s $v_{w,95}$ that is recommended by a Norwegian Standard, NS8170.[41]

On the basis that no PPFs are within 15 metres of the closest location of the proposed road or near potential bridge joints, operational vibration can achieve compliance with the 0.3 mm/s $v_{w,95}$ criterion and therefore, while vibration may be felt by people, the adverse road-traffic vibration effects will be minor.

While not quantified, it is also expected that the Project will have at least a minor positive effect due to a reduction in the occurrence of road-traffic vibration in Ashhurst.

28.4 Construction Noise and Vibration Effects

The NZ Transport Agency's guidelines[42] require that construction noise caused by the Project is measured and managed by New Zealand Standard NZS 6803.[43] This is consistent with the requirements of the Palmerston North City, Manawatū and Tararua District Plans.[44]

NZS 6803 establishes guideline criteria and management methods for construction noise. Table 22 sets out the criteria that apply to the Project.

Table 22 – NZS 6803 Construction Noise Criteria

TIME OF WEEK	TIME PERIOD	$L_{AEQ(15\ MIN)}$	L_{AFMAX}
Weekdays	0630-0730	55 dB	75 dB
	0730-1800	70 dB	85 dB
	1800-2000	65 dB	80 dB
	2000-0630	45 dB	75 dB
Saturdays	0730-1800	70 dB	85 dB
	1800-0730	45 dB	75 dB
Sundays and Public Holidays	0730-1800	55 dB	85 dB
	1800-0730	45 dB	75 dB

In the absence of a New Zealand Standard or district plan provisions that address construction vibration, the following criteria in Table 23, taken from the NZ Transport Agency Guidelines[45] (based

[39] The Tararua District Plan does include a rule for general vibration, but the Standard referenced in the rule is out-of-date and has been withdrawn by Standards New Zealand.
[40] NZ Transport Agency (2013) *State highway construction and maintenance noise and vibration guide,* Version 1.0.
[41] Norwegian Standard NS 8176E:2005 *Vibration and shock – Measurement of vibration in buildings from land based transport and guidance to evaluation of its effects on human beings*.
[42] NZ Transport Agency (2013) *State highway construction and maintenance noise and vibration guide,* Version 1.0.
[43] Standards New Zealand (1999) NZS 6803:1999 *Acoustics – Construction noise.*
[44] Palmerston North City District Plan, Rule R6.2.6.2.1.f; Manawatū District Plan, Plan Change 55, Rule 3C.4.2.c; and Tararua District Plan, Rule 5.4.1.2.f.
[45] NZ Transport Agency (2013) *State highway construction and maintenance noise and vibration guide,* Version 1.0.

on standards from other countries), have been used to assess the vibration effects of the Project. The criteria include two categories for the assessment of annoyance (Category A) and building damage effects (Category B).

Table 23 – Construction Vibration Criteria

RECEIVER	LOCATION	DETAILS	CATEGORY A PPV	CATEGORY B PPV
Occupied PPFs	Inside the building	Night 2000h to 0630h	0.3 mm/s	1 mm/s
		Day 0630h to 2000h	1 mm/s	5 mm/s
Other occupied buildings	Inside the building	Day 0630h to 2000h	2 mm/s	5 mm/s
Unoccupied buildings	Building foundation	Vibration transient	5 mm/s	BS 5228-2[46] Table B.2
		Vibration continuous		50% of BS 5228-2 Table B.2

Construction activities that may generate noise include extensive earthworks, paving and compaction, piling, and construction traffic. Based on sound levels predicted and measured for these same activities on previous projects, it is straight-forward to comply with the 70 dB $L_{Aeq(15\ min)}$ daytime construction noise limit and 1 mm/s daytime vibration limit for occupied buildings at a distance of 200 metres. Increased noise screening and management can be required to maintain compliance at shorter distances, and for construction activities closer than 50 metres to PPFs it might not be practicable to comply with the daytime noise limit or the 5 mm/s unoccupied building vibration limit at all times.

Drawing N-12 in Volume 4 shows PFFs within 200m and 50m distances from the designation corridor and identifies the following areas where construction activities may be within 50 metres of PFFs:

- State Highway 3 and State Highway 57 intersection; and
- Woodville gateway.

On the basis that there are no structures being constructed in these localities, and subject to normal good practice being followed,[47] compliance can generally be achieved with the construction noise and vibration criteria in these areas and all other areas. Good practice may include temporary screening and the avoidance of site access points, yards, laydown areas and fixed plant close to PPFs.

Construction activities may cause temporary daytime disturbance to nearby residents, but most people should be able to continue normal domestic activities with only minor adjustments. Any night works near PPFs will be limited to short-term works that are required to connect to the existing road network and therefore the potential for sleep disturbance is similarly limited.

In all, and subject to good practice management, the adverse noise and vibration effects caused by construction activities in the designation corridor are assessed as minor.

[46] British Standard BS 5228-2:2009 *Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration*.
[47] As set out in the NZ Transport Agency guidelines.

In terms of noise associated with construction traffic, additional traffic passing through Ashhurst may exacerbate existing operational road-traffic noise disturbance, but occasional heavy vehicles and light vehicles will not be distinguishable from existing traffic and, as such, will have a minor adverse effect. That said, the transportation of bulk imported materials through Ashhurst could materially increase existing noise disturbance and, depending on the number of trucks, timing and duration, could have a significant adverse effect.

28.5 Measures to Avoid, Remedy or Mitigate the Adverse Effects of Noise

Operational Noise - Ashhurst (Napier Road) and Woodville (Vogel Street)

In order to address the significant adverse operational road-traffic noise effect that could arise from increased traffic volumes on State Highway 3 Napier Road, between Cambridge Avenue and the Manawatū River, and on State Highway 2/3 Vogel Street through Woodville it is proposed to use an asphaltic surface so that all PPFs along Napier Road, and most PPFs along Vogel Street, would be in NZS6806 Category A and residual adverse noise effects in these areas would be minor.

Operational Noise - Bridge to Bridge and Woodville Gateway Roundabouts

The adverse noise effects associated with vehicles braking and accelerating at the roundabout connections at either end of the route can be mitigated by encouraging gradual speed changes. For this Project bold landscape treatments that signal the presence of the roundabouts can achieve this. Such landscape treatments form part of the landscape design principles embedded in the ECDF (attached as Appendix Two to this Report). Further, the acoustics modelling relies on the presence of an existing earth bund around the PPF at the intersection of State Highway 3 and State Highway 57. It is recommended that the enhancement or replacement of this bund also be considered as part of the development and finalisation of the landscape principles in the ECDF, with the detail of this work to be discussed and agreed with the landowner.

Subject to these design principles and roundabout traffic lanes being at least 100 metres from PFFs, the residual adverse traffic-noise effects will be minor.

Operational Noise - Eastern Slope

In order to mitigate the potential adverse effects of engine braking noise, and the minor adverse effects of general road noise, on the two PPFs nearest the designation corridor on the lower eastern slope, the following mitigation is proposed to reduce the effects to minor:

- requiring that traffic lanes are more than 200 metres from the two PPFs; and
- either applying a low noise asphaltic road surface 1.5km from the roundabout up the eastern slope, or extending the concrete barriers from the bridge to provide noise mitigation. The treatment is to be developed as part of the finalisation of the ECDF, noting that barriers may not provide a preferred design outcome but are likely to afford better acoustic mitigation.

Construction Noise and Vibration

The potential adverse effects of construction noise and vibration are managed using conditions requiring a 'Construction Noise and Vibration Management Plan' ("CNVMP"). Such conditions are typical good practice for the management of State highway projects with the CNVMP providing a

framework that includes measures, procedures and standards to manage construction activities to mitigate any adverse effects.

The potential adverse effect of construction traffic passing through Ashhurst is addressed as part of the CTMP. Subject to the management of construction related heavy vehicle movements through Ashhurst through a CTMP, the residual noise effects are considered to be minor.

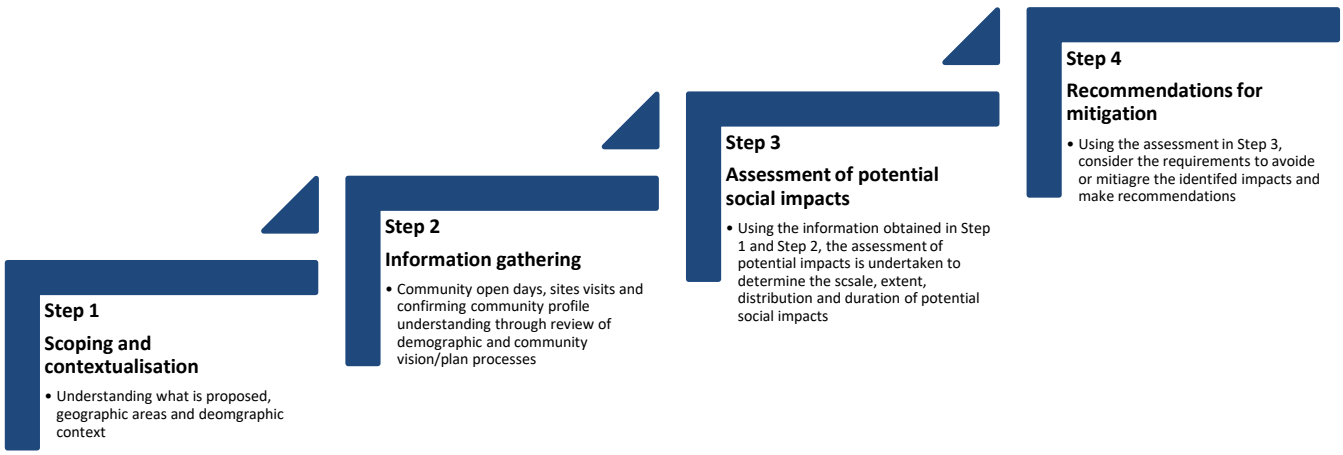
29. SOCIAL

29.1 Introduction and Assessment Methodology

This section provides an assessment of the Project in relation to actual and potential social effects and has been informed by Technical Assessment 3: Social Impact Assessment that is included in Volume 3.

The social effects of the Project have been assessed with reference to the International Association of Impact Assessment Guidelines and the NZ Transport Agency's *'Social Impact Guide (2016)'* and using a methodology that is summarised in the following Figure 28:

Figure 28 – Social Impact Assessment Methodology Overview



Social impacts have been considered at a regional, local and Project geographic scale that can be generally described as:

- Regional scale – the wider region that is dependent of State Highway 3 to travel over the Ruahine Ranges;
- Local community scale – the local communities that are impacted by the proposed designation; and
- Project extent – properties within or adjacent to the designation corridor.

With reference to the guidelines set out above, it is considered that the Project has the potential to impact on:

- way of life – how people carry out and get to their usual activities including access to, and between, communities and places where people work, live and play;
- community cohesion – connectivity between people, including impacts relating to severance and loss of communities;
- sustaining oneself – how people provide for themselves, including the viability of economic production; and
- quality of the environment – people's well-being, sense of places and identity and changes to the character and amenity of living environments.

29.2 Regional Social Impacts

Construction

The closure of the Manawatū Gorge route has resulted in significant disruption to people's daily activities. During construction of the Project, increased construction traffic using Saddle Road has the potential to result in delays and increased journey times that may exacerbate existing social impacts on people's way of life, on the ability of people to sustain oneself and for overall community social connectedness. Given the duration of construction, and the relative disruption (when compared to existing issues experienced on Saddle Road since the Gorge closure), this impact is not considered to be significant.

Construction of the new bridge over the Manawatū River will include the use of the Manawatū Gorge car park for construction activities. Any limitation or disruption to the parking facility will restrict access to the Manawatū Gorge Scenic Reserve (and walking tracks) and will therefore have a negative impact on people's way of life, particularly in respect of recreation opportunities. On the basis that the parking facilities and access to the car park and the Scenic Reserve for pedestrians and cyclists will be maintained during construction, the potential social impact is assessed as minor.

While the community has generally expressed very strong support for the Project, to some there is a perception of delays in the process leading to construction on the new road starting. It is likely that the duration of construction activities will extend and exacerbate the perception of disruption and delay over a greater timeframe.

Conversely, construction of the Project also has the potential to provide for enhanced socio-economic well-being of the region through increased business activity and the provision of direct, indirect and induced employment opportunities. These outcomes give rise to potential positive impacts both on people's way of life, particularly for the local community, and in terms of opportunities for residents in the community to sustain oneself (provide for their economic wellbeing).

While construction activity is likely to increase demand for rental and short-term accommodation, a review of rental availability, projected employment growth and hotel/motel occupancy, as well as future growth plans of Councils in the area, indicates that the region has the capacity to accommodate the increased demand arising from this construction work.

Operational

The Project results in greatly improved resilience, reliability and journey times for travel across the Ruahine Ranges. The new route facilitates better access to social services and facilities, education, healthcare, recreation and employment. Therefore, the Project is assessed as having positive social impacts in terms of community cohesion, way of life and communities' ability to provide for their

socio-economic well-being (sustaining oneself, achieved as a result of greater reliability for businesses and increased economic activity, along with reduced fuel and transportation costs).

The Project results in an improved safety performance and safer journey for users of the new route when compared to the alternative routes in the current road network (and closed route through the Gorge). The Project will reduce traffic on, and thus improve, the road safety performance of Saddle Road and Pahīatua Track. As a result, there are potential positive social impacts related to the reduction in the social consequences of injuries and deaths caused by road accidents.

29.3 Local Social Impacts – Ashhurst Community

The following Table 24 provides a summary of the potential social impacts of the Project on the Ashhurst community during construction and once the new route is opened.

Table 24 – Summary of Local Social Impacts on the Ashhurst Community

POTENTIAL SOCIAL IMPACT	CONSTRUCTION IMPACTS	OPERATIONAL IMPACTS
Way of life	Heavy vehicles associated with construction that access the site using Saddle Road have the potential to exacerbate the existing road traffic related impacts caused by the closure of the Manawatū Gorge. Effects include disruption to the way community members move within the community and increased traffic noise generated by heavy vehicles. Relative to the existing environment, and acknowledging the mitigation already undertaken by the NZ Transport Agency (Ashhurst Improvement Works), these effects are assessed as having low negative potential impacts that can be mitigated by on-going liaison and engagement with the community on construction activities and traffic management during construction.	Once operational, the Project will divert traffic out of Ashhurst resulting in the reinstatement of the valued way of life experienced by the community prior to the closure of the Manawatū Gorge route. On this basis, the Project is assessed as having a high positive impact on the Ashhurst community's way of life.
Community cohesion	Connectivity within the community will potentially be further disrupted by construction-related vehicles travelling through Ashhurst, resulting in severance due to increased difficulty crossing Salisbury Street.[48] Congestion on Saddle Road may also impact on the ability of Ashhurst community members to connect with other communities east of the Ruahine Ranges. Relative to the existing environment and due to the Ashhurst Improvement Works these effects are assessed as having a low to very low negative social impact.	Once operational, the Project will have a low positive social impact as a result of improved connectivity across Cambridge Avenue and Salisbury Street and across the Ruahine Ranges with communities to the east.
Sustaining oneself	While there is some disruption to businesses that rely on Saddle Road, it is anticipated that construction workers	The Project, when operational, will result in a quieter retail environment and a wider safer commute area for those that

[48] Although this needs to considered relative to the current volumes of traffic travelling through Ashhurst.

POTENTIAL SOCIAL IMPACT	CONSTRUCTION IMPACTS	OPERATIONAL IMPACTS
	will result in increased retail activity and use of services in Ashhurst. Considering these factors, construction is assessed as a potentially low positive impact on local residents' social-economic well-being. The Project may also give rise to new opportunities for people to sustain themselves, such as new businesses establishing to support the construction activity.	are employed or run businesses elsewhere. While this may result in a transition to reduced economic activity compared to that experienced during construction, overall this is assessed to be a potential low positive impact.
Quality of environment	When compared to the existing environment, construction traffic using Saddle Road to access the site will exacerbate existing traffic related impacts on the character, amenity values and health of residents experienced since the closure of Manawatū Gorge. The additional traffic is not significant and therefore the potential social impact is assessed as a low negative impact.	The diversion of traffic outside of Ashhurst will have a moderate to high positive social impact because the quiet and peaceful character, valued by the community, will be regained.

29.4 Local Social Impacts – Woodville Community

A summary of the potential social impacts of the Project during construction and following the opening of the new route are summarised in the following Table 25

Table 25 – Summary of Local Social Impacts on the Woodville Community

POTENTIAL SOCIAL IMPACT	CONSTRUCTION IMPACTS	OPERATIONAL IMPACTS
Way of life	Construction traffic using Saddle Road to access the site has the potential to exacerbate the existing road traffic related impacts caused be the closure of the Manawatū Gorge. Effects include disruption through closures and the slowing of travel times that, in turn, impact on the reliability of commuting and time spent at home. Relative to the existing environment, these effects are assessed as having a low negative potential impact.	The Project will provide a safer, more efficient, resilient and reliable connection to the west. This is a moderate to high positive social impact.
Community cohesion	The potential for construction activities to increase congestion and increase journey times may result in increased separation from communities east of the Ruahine Ranges.	The Project will result in a moderate positive impact for those in the Woodville community connected to the west, given the improved journey and therefore connectivity. The Project will also result in potential disruption to community cohesion and connectivity due to increased traffic volumes on Vogel Street (State Highway 2/3). This impact as assessed as a low negative impact on the basis that Vogel Street is already a key State highway route and has an established 'main street' area.

POTENTIAL SOCIAL IMPACT	CONSTRUCTION IMPACTS	OPERATIONAL IMPACTS
Sustaining oneself	While there is some disruption to businesses that rely on Saddle Road, it is anticipated that construction workers will result in increased retail activity and use of services in Woodville. This is assessed as a potentially low positive impact on residents' socio-economic well-being. The Project may also give rise to new opportunities for people to sustain themselves, such as new businesses establishing to support the construction activity.	The Project, when operational, will result in more traffic travelling through Woodville that has the potential to benefit local businesses. Further a safer and reliable journey to west of the Ruahine Ranges will also provide greater commuter opportunities and benefits to businesses that rely on this connection. This is assessed a potential moderate positive impact in terms of the community's ability to provide for their socio-economic well-being (sustaining oneself).
Quality of environment	The construction of the Project will not have an impact on the quality of the environment in Woodville.	The experience of travelling through the Manawatū Gorge has been valued by some residents of Woodville, however it is acknowledged that this connection has been lost by the closure of the Gorge route (rather than the Project itself). The new route provides a safer and more resilient journey that offers the ability to 'connect' another part of the Ruahine Ranges. This is assessed as a potential moderate positive social impact. The Project will also result in greater activity in Vogel Street. Some will consider this a positive impact in terms of increased vibrancy and activity, while others may consider increased traffic volumes to have a negative impact. On balance this is assessed as having a moderate positive impact.

29.5 Assessment of Social Effects within the Project Extent

The few landowners, businesses and residents within the area defined as the 'project extent' (local landowners and neighbours to the designation) may experience disruption to their daily activities, including disruption to property access and farm operations. This may include impacts on the ability of farms and other businesses to 'sustain oneself'. Some of these considerations are managed through Public Works Act 1981 processes.

Residents on State Highway 3 at both ends of the Project will experience changes to their visual and aural environment as a result of the Project. These residents currently experience low traffic volumes due to the closure of the Manawatū Gorge route and a generally rural outlook.

The Project will introduce a road into the visual environment and will result in an increase in traffic (and associated road-traffic noise), including during construction. The roundabout connections will also result in traffic lanes being closer to residences and will change the sound characteristics (as a result of vehicles slowing and accelerating). The potential impacts on the 'quality of the environment' are assessed as having a low negative social impact, compared to the existing environment, based on the limited severity and low number of people experiencing that impact.

The effects of noise on these residents is further considered, including proposed mitigation measures, in Section 28 of the Report (above). The visual effects of the Project are considered in Section 30 of this Report (below).

29.6 Measures to Avoid, Remedy or Mitigate Adverse Social Effects

The following key actions are proposed to mitigate the potential social effects of the Project that have been identified. These mitigation measures are in addition to measures proposed to address specific effects on the environment, such as noise effects, and construction management approaches:

- the appointment of a 'Community Liaison Person' (or personnel) for the duration of the construction phase of the Project to be the main and readily accessible point of contact for the community;
- the establishment of a complaints management register and associated procedures;
- the preparation of a 'Communications Plan' that sets out how and when engagement with the public, stakeholders, businesses and residents will occur before and during construction of the Project;
- the establishment of a 'Community Liaison Group' to provide opportunities for sharing project design information and addressing issues or concerns, particularly in relation to the management of construction activities; and
- in consultation with the Department of Conservation, Palmerston North City Council and community representatives, the preparation of a 'Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan' to detail how public access will be maintained during construction and how the car park will be reinstated.

30. LANDSCAPE, NATURAL CHARACTER AND VISUAL AMENITY

30.1 Introduction and Assessment Methodology

This Section provides an assessment of the actual and potential effects of the Project on landscape, natural character and visual amenity values and is informed by Technical Assessment 4: Landscape Visual and Natural Character that is included in Volume 3.

Landscape effects are assessed with reference to the landscape character areas (shown in Figure 10 and described in Table 5, both of which are included in Part B of this Report) and the Landscape Sectors that are shown in Chapter 4 of the preliminary Environmental and Cultural Design Framework ("ECDF") (attached as Appendix Two).

The extent of the study area, particularly in terms of visual effects is determined using a zone of theoretical visibility analysis ("ZTV"). Viewing audiences fall into two broad groups:

- resident population – those residents located in Ashhurst and environs, rural and rural lifestyle residents on properties south of Woodville, and residents on Saddle Road; and

- transient population – people using the roads, public spaces, and public facilities from where views of the proposed road may occur, albeit for short periods of time.

For all three elements – landscape, visual, and natural character effects – the assessment has been undertaken as relevant to the RMA approvals being sought at this time for the Project. That is, the NZ Transport Agency has lodged notices of requirement to designate land, and the effects of allowing the requirement have been assessed. The NZ Transport Agency will subsequently submit outline plans to the territorial authorities, which (among other things) will describe the height, shape, and bulk of the designated works, and the detailed measures to be implemented to mitigate adverse effects. The territorial authorities may request changes to those outline plans. Resource consents will also be sought in future to undertake works in waterbodies.

At this stage, therefore, assessments have been undertaken taking into account the dimensions of the designations sought, an indicative alignment within that area, and the measures available to mitigate adverse landscape, visual, and natural character effects.

Assessing Landscape Effects

The landscape effects of the Project have been assessed with reference to the magnitude of change and the sensitivity of the landscape to that change. In terms of landscape sensitivity, increased sensitivity is influenced by:

- statutory or legal recognition of special values or qualities;
- community shared and recognised values;
- culturally significant sites or associations; and
- high value biophysical features and streams, rare or threatened communities.

In terms of sensitivity, the landscape includes features recognised as 'Outstanding Natural Features and Landscapes' identified within Schedule G (Landscapes) of the Horizons One Plan as follows:

> "*l) The series of highest ridges and highest hilltops along the full extent of the Ruahine and Tararua Ranges, including within the Tararua and Ruahine Forest Parks;*
>
> *m) Manawatū Gorge, from Ballance Bridge to the confluence of the Pohangina and Manawatū Rivers, including the adjacent scenic reserve."*

The Manawatū District Council identifies the Pohangina River and river valley, and the ridgeline of the Ruahine Ranges, as outstanding landscapes in its District Plan and is also preparing a plan change that identifies nearby areas as an outstanding natural landscape or feature.

Schedule 3.3 of the Tararua District Plan identifies the following Natural Features and Landscape:

- Skyline of the Ruahine Ranges (scenic values, particularly when viewed from adjacent plains) and
- Manawatū Gorge, downstream of Ballance Bridge, including the adjacent Scenic Reserve (scenic, ecological and scientific values).

Landscape effects may be biophysical effects or effects on landscape character (including potential impacts on associative/shared and recognised values). Biophysical effects relate to the extent and significance of modification to landform, waterways, vegetation and habitats. Landscape character is derived from a combination of landform, land cover and land use that makes one area different from

another. Effects on landscape character relate to changes to land use and changes to existing elements in the landscape.

The introduction of the Project into the Manawatū/Tararua landscape has the potential to change the existing landscape character. The Project area also has varying levels of significance in terms of associative or shared and recognised values for tangata whenua and the wider community that are relevant to landscape sensitivity.

Assessing Natural Character Effects

Natural character, in an RMA context, relates to waterbodies and their margins and is a term used to describe the naturalness (or lack of modification) of these environments. The degree of natural character within an environment depends on the extent to which natural elements, patterns and processes occur and the nature and extent of modifications. For the purposes of assessing effects on natural character, the streams and rivers are considered to be comprised of three components: context, margin and active bed.

The highest degree of natural character occurs where there is least modification and the effect of different types of modifications varies with the context and may be perceived differently by different parts of the community.

The assessment of natural character is an assessment of condition or level of natural character and requires the inputs from a range of disciplines to consider the following attributes (grouped below):

- active bed – abiotic and biotic;
- margin – abiotic and biotic;
- context; and
- all river corridor – experiential.

Assessing the existing level of natural character involves a two-step process where firstly the degree of modification or degree of naturalness is determined on a five-point scale extending from very high to very low. A high level of natural character means the waterbody is less modified and vice versa. Those areas assessed as having high or very high natural character are reassessed to determine whether they are 'outstanding'.

A river or stream reach with 'outstanding' natural character should 'exhibit a combination of natural elements, patterns and processes that are exceptional in their extent, intactness, integrity and lack of built structures and other modifications'.[49] An area of outstanding natural character should encompass the entire width of the river corridor.

Natural character has been assessed at two scales: a broad-scale assessment and at a scale that focuses on change caused by the proposed Project through work (including construction) such as river and stream crossings. The broad-scale assessment is to provide context and a baseline, while the detailed assessment provides for a consideration of the existing level of natural character against which changes as a result of the Project are assessed. The detailed assessment considers natural character at the following crossings:

- the new Manawatū River bridge crossing (CH3600-4000);

[49] Boffa Miskell Limited derived definition.

- the crossing of a western stream (including QEII open space covenant and wetland at the northern approach to new Manawatū River bridge) (CH4000-5900);
- the more eastern QEII open space covenant stream crossing (CH 6100-6300);
- a stream crossing at eastern end of the Project (CH12800-13000); and
- a stream crossing at the western end for construction access to Saddle Road.

The assessment of effects on natural character is an assessment of the degree of change as a result of the Project. That is, the difference between the existing level of natural character and the level anticipated post-development (assuming normal construction methods and design).

A reduction in natural character from 'high' to 'moderate' or less is considered to "*significantly diminish the attributes and qualities of areas that have high natural character*"[50] because it requires several of the 10 assessment attributes (above) to reduce for the overall level of natural character to be affected.

Assessing Visual Effects

Visual amenity, as an element of amenity values, contributes to peoples' appreciation of the pleasantness and aesthetic coherence of a place and is a component of its overall amenity. The effects of visual change on the outlook and views of the viewing audience as a result of the Project are considered with reference to the scale and nature of the visual change and the nature of the viewing audience.

The nature of the viewing audience is related to the sensitivity of that audience and the value attached to views, where value relates to popularity or number of people affected and sensitivity and is typically represented by:

- nearby residents;
- people engaged in outdoor recreation;
- visitors to heritage areas or other visitor attractions; and
- communities where views contribute to landscape setting or local identity.

30.2 Assessment of Biophysical, Landscape Character and Natural Character Effects

Sector 1: Bridge to Bridge

In this sector, changes as a result of the Project include new sections of State Highway 57 and the new car park access road and roundabout connection, including associated LED lighting.

The flat topography in this area results in limited earthworks and, as such, the Project has low biophysical effects.

While the Project increases the footprint of the existing State highways, there is no substantial change to the landscape character of the area, given the presence of the existing roads. The addition of overhead lighting at the roundabout will affect what is currently a dark, rural environment. However,

[50] Horizons One Plan Objective 6-2.

the existing State Highway 57 and State Highway 3 intersection is lit. Effects of the Project on landscape character in this sector are assessed as moderate low.

The works in this sector do not encounter any major streams or wetlands and, therefore, effects on natural character are not assessed.

Sector 2: Manawatū River Crossing

Potential changes resulting from the Project in this sector relate to the addition of a large bridge structure across and within the river corridor, associated vegetation clearance and landform modification, and traffic activity (and associated noise).

The Project will result in moderate biophysical effects as a result of the landform modification and vegetation clearance that will be necessary to construct the bridge abutments and piers.

The new bridge crossing the Manawatū River, including its elevation (at approximately 30m above the river) and form, along with the introduction of traffic activity, will change the spatial, remote and quiet quality of the river environment, particularly for river users such as fishers, kayakers and people using the Manawatū Gorge Scenic Reserve car park. Further, the proximity of the bridge to Parahaki Island and the car park makes this area sensitive to change due to related associative values. As a result, the adverse effects for the new Manawatū River crossing on landscape character are assessed as high.

The existing level of natural character of this sector has been determined as moderate/high having regard to:

- the moderately degraded water quality of the river;
- the extent of modification along the river margins;
- in terms of context, the indigenous vegetation on the north bank and upstream to the Gorge and the relatively modified (farmland and shelter belts) south bank; and
- experiential values associated with the steep heavily vegetated slopes and swift flowing river of the Gorge.

As a result of the proposed designation, the level of natural character will reduce from moderate/high to moderate, due largely to the detrimental effect on the experiential qualities of the remoteness and naturalness of the river corridor, especially for people using the river. This scale of change to natural character is not considered to be significant. The Project will also result in the modification of the river margins due to physical works and the sheltering effects of the bridge deck.

Sector 3: Western Slope

This sector of the Project includes access tracks, spoil sites and stormwater management elements, cuts and fills, vegetation clearance, culverts and stream diversions, bridges over streams, embankments, and the loss or fragmentation of indigenous vegetation and habitats (including where the proposed designation traverses a raupō wetland and a QEII National Trust open space covenant). The nature and scale of the resulting changes depends on the Project alignment selected and detailed design. Alignment options and extent of vegetation loss are constrained by an ‘effects envelope’ that is embedded in the proposed designation conditions as a means to minimise ecological effects.

The Project will result in landform modification in order to accommodate disposal sites, construction access tracks and stormwater management features. Vegetation clearance and landform modification will also be necessary in the steep gullies within the QEII Trust covenant site, where substantial cuts

to the existing ground levels are necessary where the alignment crosses the two arms of the gully system in the headwaters of the stream by either bridge or culvert. The two stream tributaries join the main stream in an area that is anticipated to be covered by an embankment. Another stream flows from the Manawatū Gorge Scenic Reserve in this locality.

To facilitate construction, an access track from Saddle Road to the north bank of the Manawatū River will be formed by upgrading and widening an existing farm track (including associated vegetation clearance and earthworks), together with some new sections of track and also a new stream crossing via a bridge or culvert (the precise form of this will be determined as part of the resource consent process with Horizons Regional Council).

The biophysical effects in this sector are greatest at the upper stream crossing and lower part of the gully. Between these two areas, the stream catchment will remain physically unaltered but significant earthworks will be required to accommodate the width of the proposed road. In all, the landform modification, stream diversion and vegetation clearance will result in a moderate/high adverse biophysical effect.

In terms of landscape character, the lower end of this sector is part of the Manawatū River margin. This area has a relatively secluded and enclosed character, dominated by indigenous forest in the adjacent Manawatū Gorge Scenic Reserve and throughout the lower part of the gully. The proposed designation will result in a significant change to the landscape character in this area and a high adverse landscape character effect.

As the proposed designation corridor extends away from the river, the character is dominated by open grazed hill country, dissected by steep and densely vegetated gully systems. The Te Āpiti wind farm has already modified this hill country landscape with the introduction of turbines and access tracks. The Project, together with traffic movement and associated noise, will further change the landscape character of this rural landscape.

The access track from Saddle Road is located in the Pohangina River 'Outstanding Natural Landscape' (as identified in the Manawatū District Plan). While upgrading of the existing track for use as a construction access will result in widening and modification, it will not significantly impact on the landscape values of the 'Outstanding Natural Landscape'.

The existing level of natural character for this stream catchment (7A as shown on drawing C-10 in Volume 4) has been assessed as high due to the attributes and qualities of the largely unmodified active bed and margins, high aquatic values and ecosystem functioning.[51] While not fully intact, indigenous vegetation is generally continuous along the length of the stream. The QEII National Trust covenant area is fenced to exclude grazing stock and other parts of the gully are extremely steep, which generally restricts stock access.

In the lower catchment, based on the proposed 'effects envelope' that includes restrictions on the extent of vegetation removal, the Project results in a reduction in the level of natural character from high to moderate/high. At the upper crossing, as a worst-case, the level of natural character is reduced from high to moderate where the degree of naturalness is affected by the physical modification to the stream bed and margins, permanent structures, impacts on aquatic ecosystem functioning, vegetation removal and impacts on experiential qualities of a quiet, remote and largely natural stream gully.

[51] The freshwater ecology assessment has identified this stream as having a high value.

That said, when considered at an 'area' or catchment-scale, the modification to the stream is limited in length when compared to the total stream length. That is, at a 'whole of stream' scale the majority of the stream and its margins will remain in the current state and on this basis the level of natural character is assessed as being reduced from high to moderate/high as a result of the Project. The scale of change to natural character is not considered to be significant.

The proposed construction access from Saddle Road (an existing farm access track that is to be upgraded, including a new culvert or bridge) crosses a stream that has a high level of natural character. While the new structure will slightly reduce the level of natural character at the crossing site, overall, it will not significantly adversely affect the level of natural character of the stream.

Sector 4: Te Āpiti Wind Farm and Ridge

Across this sector, the Project includes substantial earthworks, access tracks, culverts and vegetation clearance. The proposed designation traverses a QEII National Trust open space covenant area, including three arms of stream headwaters, each of which has tributaries assessed as having high value. Earthworks and culvert crossings will modify the headwaters of the stream.

The physical change to the landforms within the proposed designation corridor is substantial due to the hilly topography and the amount of fill in the small gullies. The broad extent of the hill crest area has capacity to accommodate this scale of physical change, but the gullies less so. There is very little high value vegetation that needs to be removed, other than vegetation in the QEII covenant area. On the basis of the potential extent of earthworks and the removal of vegetation in the QEII covenant area, the level of biophysical effects is assessed as moderate.

In terms of landscape character, the Project introduces a new dominant new element to this area that changes the landscape character from farmland and wind farm to road environment and creates a barrier that results in a north/south separation. These changes are assessed as having a moderate/high effect on landscape character across this sector.

Natural character effects were considered for the stream and its margins within the QEII covenant area. The existing level of natural character of the entire stream (from its headwaters to the north of the designation corridor to the Manawatū River) has been assessed as being high.

The localised effects to the corridor crossing on the natural character of the stream are relatively high. This is due to the large footprint in all three arms of the gully due to the cutting down of the landform, installation of culverts, construction disturbance and associated vegetation removal. When considered at an area, or 'whole of stream' level, the adverse effects are diluted, and assessed as not being significant, because the majority of the stream is not disturbed by the Project, is situated in the Manawatū Gorge Scenic Reserve, and has a high level of natural character.

Sector 5: Eastern Slope

Within sector 5, as for much of the proposed designation corridor, the broken topography requires substantial earthworks across the length of the corridor as it traverses the multiple ridges and gullies. At the toe of the slope the proposed designation crosses a stream tributary and the stream into which it flows. The Project also requires the removal of three areas of secondary broadleaved forest, along with pine woodlots and mixed native/exotic scrub.

The Project will result in biophysical effects of the Project associated with the physical change to the topography as a result of filling sections of gully, cutting through ridges and soil disposal sites. The removal of areas of secondary broadleaved native forest will cause additional biophysical effects

resulting from fragmentation and opening up the edges of these stands to the effects of wind and weeds. These biophysical effects are assessed as moderate/high.

The rugged landscape character of the eastern slope will be affected by the extensive earthworks required by the Project, and particularly the resulting altered topography of the existing hilly farmed landscape (including the extensive cut faces and disposal sites for excess material). Further, the Project will physically and visually bisect the hill country and introduce traffic activity to the rural environment. On the basis of these landscape changes the impact of the Project on landscape character in this sector is assessed as high.

In terms of effects on natural character, the stream and tributary that are traversed by the Project are not considered to be high-value streams for their freshwater qualities. The streams are already modified as a result of farming related activities and, as such, the existing natural character of stream and tributary is assessed as moderate.

Physical changes to the stream and tributary margins will have the greatest impact on natural character in this sector, resulting in a reduction in the level of natural character from moderate to moderate/low.

Sector 6: Woodville Gateway

In this sector, the Project results in changes related to earthworks (cuts and embankments) and the new 5-arm roundabout connection with Troup and Woodlands Roads, including associated LED lighting.

The Project will result in low biophysical effects over the majority of this sector because the flat topography does not necessitate significant earthworks. At the northern extent of this sector, where the proposed corridor gains elevation, embankments and vegetation removal give rise to moderate biophysical effects.

The presence of a new road corridor across the open farmland between the eastern rise and the intersection with State Highway 3 impacts on the rural character of the area. The Project results in a limited change (as a result of an increased footprint) to the character of the landscape at the southern extent of the sector (Woodlands Road), given the presence of the existing roads. The addition of overhead lighting at the roundabout will affect what is currently a dark, rural environment, however, the proximity of the roundabout to Woodville goes some way in reducing any incongruity. In all, the potential adverse effects of the Project on landscape character in this sector are assessed as moderate.

The works in this sector do not encounter any major streams or wetlands, and therefore effects on natural character are not assessed.

30.3 Assessment of Visual Effects

The extent of visual effects has been determined, firstly, through the use of ZTV maps to identify the extent of potential viewing audiences. Using the ZTV maps, field work has been undertaken to determine representative, publicly accessible, viewpoints. Because the proposed designation corridor traverses a rural and sparsely settled area, the selection of representative viewpoints is limited and focused on views from:

- Saddle Road;
- State Highway 3;

- State Highway 57;
- Ashhurst and Woodville townships; and
- areas used by the public, such as the Ashhurst Domain and the Manawatu Gorge Scenic Reserve walking tracks.

The following Table 26 describes the five representative viewpoint locations that have been selected for visual simulations (included in Volume 4 as LVA-05) and summarises the potential effects of the Project on the respective viewing audiences.

Table 26 – Summary of Visual Effects

REPRESENTATIVE VIEWPOINT LOCATION	SUMMARY OF EFFECTS
The Terrace, Ashhurst (LVA-06) From The Terrace on the eastern edge of Ashhurst there are panoramic views from residential properties across the Pohangina River flats to the western hill slopes of the Ruahine Range, the turbines of the Te Āpiti Wind Farm, the forest in the Manawatū Gorge Scenic Reserve and the Tararua Wind Farm in the distance.	From this viewpoint, landform and vegetation obscure the new bridge over the Manawatū River and much of the proposed designation corridor on the northern side of the Manawatū River. A short section of the proposed corridor on the mid slopes would be visible. On this basis, and because of the limited scale of the visual changes and the 1.9km viewing distance, it is concluded that the Project has low adverse visual effects when viewed from residential properties on the edge of Ashhurst.
State Highway 3 Bridge (LVA-07) Travelling east over the existing State Highway 3 bridge, there are transient panoramic views to the Ruahine Range with the forest of the Manawatū Gorge Scenic Reserve in the mid-ground and the turbines of the Te Āpiti wind farm silhouetted on the skyline. Vegetation on Pohangina River terrace and terrace, willows along the edge of the Manawatū River, and the native forest of the Manawatū Gorge Scenic Reserve provide the setting for the new Manawatū River bridge.	While landform, together with the stand of native vegetation on the river terrace, would partially obscure the proposed designation corridor on the northern side of the river, the views experienced by road users looking towards the new bridge include the additional modification into an area of landscape currently dominated by natural elements (albeit that the new bridge will be partially screened by exotic trees). Where not obscured as described above, the Project will be visible as it cuts through indigenous vegetation and rises on the western slope that extends along the northern side of the river. From this viewpoint the Project is assessed as having a moderate level of visual effect.
State Highway 3 Approach to new Manawatū Gorge Bridge (LVA-08) The new road approach to the new bridge is located on the river terrace to the east of the existing State Highway 3 and State Highway 57 intersection, and the southern abutment of the new bridge will be located on the edge of this terrace.	From the river terrace, the new bridge will be the prominent feature (irrespective of vegetation in the mid-ground providing some screening), crossing over the existing car park area against the backdrop of the dense forest of Manawatū Gorge Scenic Reserve beyond and wind turbines silhouetted on the skyline. Because of its scale and its contrast with the largely natural setting, the bridge dominates this area of the Manawatū River environment such that the level of visual effects in this locality are assessed as high.
Te Āpiti Wind Farm Lookout on Saddle Road (LVA-09) From the Te Āpiti Apiti wind farm lookout visitors observe wind turbines up-close in the context of an open, hummocky rural landscape. Further to the south, the Tararua wind farm is visible along the Tararua Ranges beyond the Manawatū Gorge.	From this viewpoint the Project, with areas of cut and fill modifying the undulating landform in the mid-ground. This will extend the degree of modification apparent along this area of the Ruahine Range, resulting in a moderate/low level of effect.
Junction of State Highway 3 and Hope Road (LVA-10)	In this context, the Project will be seen traversing the toe slopes of the Ruahine Range and will disrupt part of the broader natural landform with visible road

REPRESENTATIVE VIEWPOINT LOCATION	SUMMARY OF EFFECTS
Along the flat farm land west of Woodville, the view is characterised by rural land use extending onto the backdrop of the Ruahine Range. Much of the surrounding land cover is pasture with dispersed shelter belts, farm fences, farm buildings, pine woodlots and indigenous vegetation becoming more prevalent along the toe slopes. The 'crumpled' form of the skyline along the Ruahine Range and the presence of wind turbines within the Te Āpiti wind farm are also characteristic features.	embankments and cut slopes. This is assessed as having a moderate level of visual effect.

The Project has positive effects in that travellers descending from the Ruahine Range to the east and west will be afforded panoramic views of the river valley and plains. The Project will also provide safe stopping places at key locations to enable travellers to enjoy these views and also views of the Te Āpiti Wind Farm and the Manawatū Gorge Scenic Reserve.

30.4 Measures to Avoid, Remedy or Mitigate Adverse Effects on Landscape, Visual and Natural Character Values

In order to appropriately minimise and/or mitigate the actual or potential adverse effects of the Project on landscape, visual and natural character values, the following measures are proposed (and will be given effect through detailed design and the outline plan, or plans, submitted in respect of the Project):

- the inclusion of a specific requirement for the Project to be undertaken in general accordance with the preliminary Environmental and Cultural Design Framework ("ECDF") (included as Appendix 2) such that the future design of the Project achieves the design outcomes that are directed by the ECDF (including in relation to the form of structures, the minimising of effects on ecologically sensitive areas, managing the form and finish of earthworks, approaches to revegetation, the design of the roundabout connections and stopping places, and opportunities for walking and cycling);
- the requirement to further update the ECDF, in consultation with key stakeholders, to add 'flesh' to the 'Emerging Design Outcomes'[52] including through the completion of design review templates[53] to demonstrate how the established design outcomes are achieved;
- the preparation, in consultation with key stakeholders, of a 'Landscape Management Plan' ("LMP") that:
    - implements the outcomes required by the ECDF;
    - provides for the integration of permanent works with the surrounding landscape and topography (including the restoration of areas used for temporary, construction related works);
    - describes the approach to the identification of vegetation that is to be retained and the protection of that vegetation (including retirement from grazing);
    - establishes approaches to planting, including species selection, plant specifications, planting methods and programme and plant maintenance (including pest management);

[52] Set out in Chapter 3 of the preliminary ECDF.
[53] Appendix B to the preliminary ECDF.

  - provides for the integration with the required replacement and offset planting, including the planting to restore stream and wetland margins;
- the inclusion of an 'effects envelope' that establishes a maximum limit on the length of streams that can be disturbed (where the stream has existing high natural character) so as to limit the extent to which natural character may be diminished;
- the inclusion of a requirement, in consultation with the QEII National Trust, to design the Project to minimise impacts of the natural environment values of the QEII open space covenant areas, including possible restoration.
- as set out in relation to the management of effects on terrestrial ecology (described later in Part G):
  - the inclusion of an 'effects envelope' that establishes a maximum area of indigenous vegetation removal across a range of identified ecosystem types; and
  - the requirement for replacement and offset planting (at established environmental compensation ratios ("ECRs") where vegetation is cleared from any of the identified ecosystem types.

The following Table 27 illustrates how the measures to manage effects, described above, are deployed to address adverse effects across the sectors. Again, these measures will be given effect through the detailed design of the Project, and demonstrated in the outline plan, or plans, to be submitted with territorial authorities once detailed design has been undertaken.

Table 27 – Measures to Manage Adverse Effects on Visual, Landscape and Natural Character Values (by Sector)

SECTOR	MEASURES TO MANAGE ADVERSE EFFECTS
Sector 1: Bridge to Bridge	• The ECDF establishes design outcomes in relation to the form and finish of cut and fill batters and the roundabout connection. • In response to potential social and traffic impacts, a Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan provides for the on-going and future provision of car parking. • The LMP provides for landscape responses, including the shaping and the integration of earthworks and planting to mitigate effects. • LED lighting is managed through a requirement for on-going compliance with the relevant New Zealand Standard.
Sector 2: Manawatū River Crossing	• With reference to the Bridge and Retaining Wall Design Philosophy Report (included as Appendix Four), the ECDF sets out design parameters and opportunities for the form and architecture of the new bridge. • Indigenous vegetation on the northern bank of the Manawatū River that is removed will be replaced or offset at established ECRs and in accordance with an Ecological Management Plan ("EMP"). • The LMP provides for landscape responses, final shaping of earthworks including planting to mitigate effects and the retention of, and protection of, existing vegetation. • In response to potential social and traffic impacts, a Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan provides for the on-going and future provision of car parking.

SECTOR	MEASURES TO MANAGE ADVERSE EFFECTS
Sector 3: Western Slope Sector 4: Te Āpiti Wind Farm and Ridge	• An 'effects envelope' limits the extent of removal of indigenous vegetation within the identified ecosystems. • An 'effects envelope' limits the extent of stream disturbance for streams identified as having high natural character. • The ECDF establishes design outcomes in relation to the form and finish of cut and fill batters, the minimising of effects on waterbodies and ecologically sensitive areas (including waterbodies) and revegetation. • The LMP provides for landscape responses, including final shaping of earthworks, planting to mitigate effects and the retention and protection of. existing vegetation including possible retirement from grazing to enhance natural character values. • Indigenous vegetation that is removed will be replaced or offset at established ECRs and in accordance with an Ecological Management Plan. • Outline plan or plans are required to demonstrate how the design and construction of the Project, where practicable, minimises adverse effects on the QEII Trust covenant areas.
Sector 5: Eastern Slope	• The ECDF establishes design outcomes in relation to the form and finish of cut and fill batters, the minimising of effects on waterbodies and ecologically sensitive areas (including waterbodies) and revegetation. • The LMP provides for landscape responses, including planting to mitigate effects and the retention of, and protection of. existing vegetation.
Sector 6: Woodville Gateway	• The ECDF establishes design outcomes in relation to the form and finish of cut and fill batters, the minimising of effects on waterbodies and ecologically sensitive areas (including waterbodies), and the roundabout connection. • The LMP provides for landscape responses, including planting to mitigate effects. • LED lighting is managed through a requirement for on-going compliance with the relevant New Zealand Standard.

31. HISTORIC HERITAGE AND ARCHAEOLOGY

31.1 Introduction and Assessment Methodology

This section provides an assessment of the actual and potential effects of the Project on archaeology and other historic heritage values and has been informed by Technical Assessment 5: Historic Heritage and Archaeology that is included in Volume 3.

The methodology used to determine the archaeological and historic heritage environment has involved a desktop and field assessment including a review of:

- the New Zealand Archaeological Association's ("NZAA") site record database (ArchSite);
- District Plan heritage schedules (Manawatū District Plan, Tararua District Plan and Palmerston North City District Plan);
- HNZPT's New Zealand Heritage List/Rārangi Kōrero;
- relevant literature and archaeological reports;
- aerial photography and LiDAR imagery;
- early survey plans; and

- visual inspections of the corridor, with a particular focus on the western end of the designation corridor north of the Manawatū River.

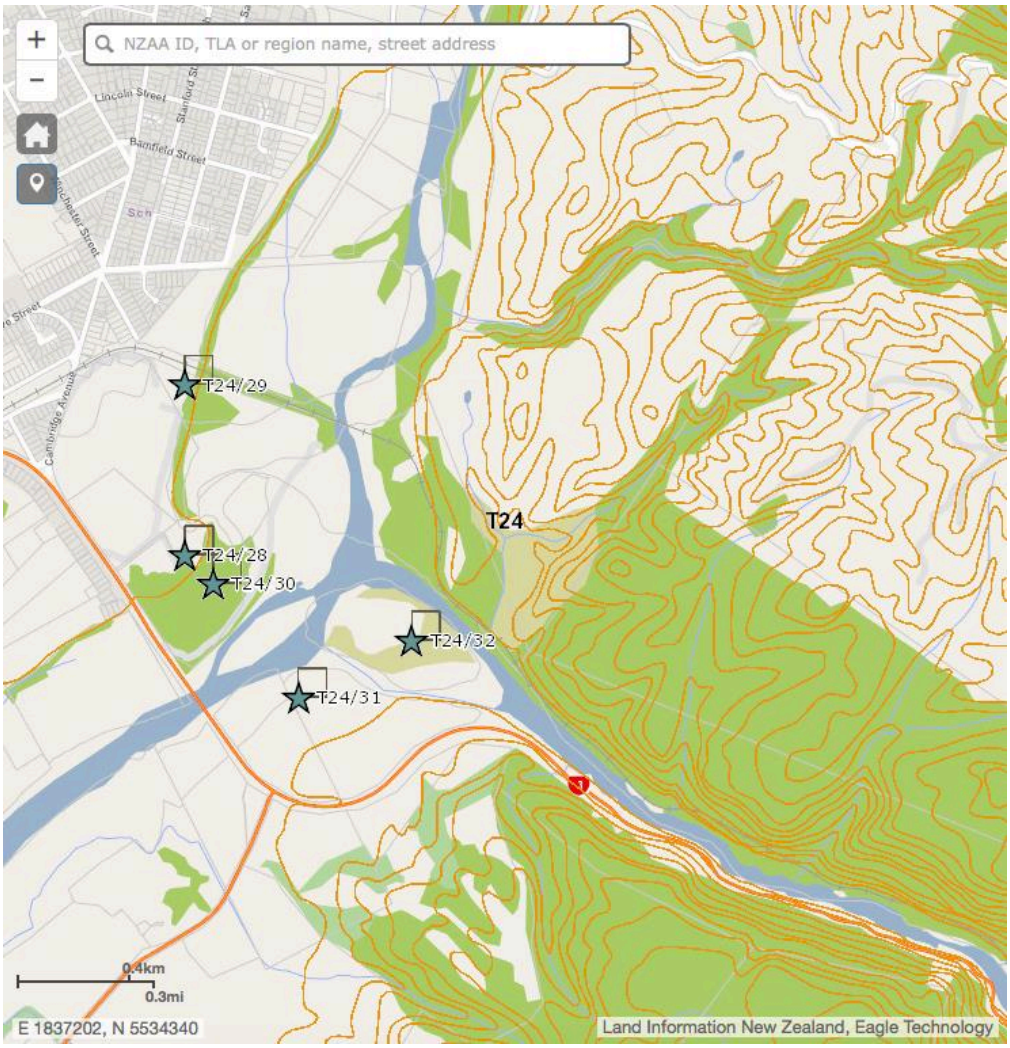
31.2 The Archaeological and Historic Heritage Environment

At the western extent of the designation corridor there are a number of archaeological sites recorded by the NZAA. These sites are associated with Māori settlement along the river terraces of the Manawatū River and near its confluence with the Pohangina River. These sites are listed in Table 28 and shown in Figure 29.

Table 28 – Recorded Archaeological Sites

NZAA SITE NUMBER	SITE DESCRIPTION	LOCATION RELATIVE TO THE DESIGNATION
T24/28	A Pā site within the Ashhurst Domain.	Located to the west and some distance from the designation corridor
T24/29	Garden soils on the river terrace on the western side of the Pohangina River.	
T24/30	Urupā located within the Ashhurst Domain. Also known as 'Otangaki', this site is included in the Schedule of Objects and Sites of Cultural Heritage Significance to Tangata Whenua (Schedule 17B) in the Palmerston North City District Plan.	
T24/31	A large grove of karaka trees along the Manawatū River terrace and slope above the river to the south of Parahaki Island (also known as) Moutere Island.	Located to the north and some distance from the designation corridor
T24/32	Moutere Island, located in the middle of the confluence of the Manawatū and Pohangina Rivers, and is also the recorded location of Parahaki Kāinga and urupā. This site is said to have been the home of Te Awe Awe (Rangitāne). Parahaki or Moutere Island is included in the Schedule of Objects and Sites of Cultural Heritage Significance to Tangata Whenua (Schedule 17B) in the Palmerston North City District Plan.	The closest recorded archaeological site to the designation corridor. The designation corridor deliberately avoids Parahaki/Moutere Island.

Figure 29 – NZAA ArchSite Recorded Archaeological Sites at the Western Extent of the Designation



In addition to the recorded NZAA sites it is noted that a Māori track (ara) over the Ahu(a)turanga Peak north of the Manawatū Gorge has previously been recorded. The route of such track/s is not known, however, camps alongside these tracks may result in archaeological evidence of temporary occupation, such as fires and food preparation. The peak known as Te Ahu a Turanga is a significant place for Rangitāne as a burial site of Rangitāne chiefs and a place of ritual and ceremonial practice.

To secure better communication, prior to 1867, European settlers also cut a cattle track over the Ahuaturanga spur, which joined a similar work on the eastern side of the Ruahine Ranges.

No Māori or early European sites are recorded on the eastern side of the Pohangina River and northern side of the Manawatū River. However, the possibility of other unrecorded archaeological evidence relating to Māori settlement and early European settlement and industry being present on the outskirts of Ashhurst cannot be discounted. The frequent paucity of visible surface evidence of Māori sites in the inland Manawatū area would indicate a potential for other unrecorded subsurface remains to be located along the banks of the Manawatū and Pohangina Rivers.

There are no archaeological or other historic heritage sites located within the steep inland Ruahine Ranges and alluvial flats west of Woodville within the Project area and it is considered that there is a low potential of unrecorded sites through this area.

The designation corridor is located immediately to the south of Parahaki/Moutere Island, which is located in the middle of the confluence of the Manawatū and Pohangina Rivers. As noted above, the island is recorded as T24/32 'Parahaki Kāinga (village)/Burials' and said to have been the home of Te Awe Awe (Rangitāne). Parahaki/Moutere Island is included in the Schedule of Objects and Sites of Cultural Heritage Significance to Tangata Whenua (Schedule 17B) in the Palmerston North City District Plan.

The existing State Highway 3 Manawatū Gorge route was completed in 1871, with the bridge in 1875, and the Palmerston North to Napier Railway line in 1891. Being of pre-1900 construction the current road and railway are both archaeological sites under the definition in section 6 of the HNZPTA.

There are a number of buildings and trees located in Ashhurst and Woodville townships that are associated with early European settlement and listed in schedules to the Palmerston North City District Plan and Tararua District Plan respectively. The designation corridor is located well clear of these townships and none of these sites will be impacted by the Project.

31.3 Assessment of Effects on Archaeology and Historic Heritage Values

No archaeological or other heritage sites have been identified within the designation corridor, either through historical information, previous investigations, or field survey. There are a number of recorded sites in the general locality that were within other earlier route options. These sites have been avoided as a result of the consideration of alternative routes that is detailed in Part E of this Report.

While the existing State Highway 3 Manawatū Gorge route and the Palmerston North to Napier railway line fall within the definition of an archaeological site in section 6 of the HNZPTA it is not anticipated that these structures will be affected by the Project.

At the western extent of the designation corridor, the new bridge over the Manawatū River and Palmerston North to Napier railway line at the mouth of the Manawatū Gorge will cross immediately south and east of Parahaki/Moutere Island and avoid the significant archaeological site T24/32 'Parahaki Kāinga (village)/Burials'. Near the confluence of the Manawatū and Pohangina Rivers, there is the potential for other unrecorded sites relating to pre-European and historic Māori settlement to be located along the riverbanks within the designation corridor. The river terraces were a location favoured by Māori for settlement and unrecorded sites could include kāinga and gardening sites.

The potential for unidentified archaeological sites in the steep inland hill country of the Ruahine Ranges is considered to be low and any sites are unlikely to be archaeologically significant given that this area was generally unsuitable for intensive Māori settlement.

On this basis, it is concluded that the Project does not have an adverse effect on known archaeological and other historic heritage values, but it is possible that the Project could have an adverse effect on archaeology values through the disturbance of unrecorded archaeological sites.

31.4 Measures to Avoid, Remedy or Mitigate Adverse Effects on Archaeology and Historic Heritage Values

In order to appropriately manage and mitigate any potential adverse effect on the values associated with any unrecorded archaeological site or sites within the designation corridor, it is proposed to

impose a condition on the designations relating to the discovery of archaeological remains. The condition proposed:

- reflects the NZ Transport Agency's 'Accidental Archaeological Discovery Specification' (P45);
- has been developed in conjunction with Rangitāne o Manawatū, Rangitāne o Tamaki Nui-ā-Rua, and Ngāti Kahungunu; and
- notes the requirement to comply with the HNZPT Act.

The proposed condition will also need to be discussed with Ngāti Raukawa, who are also understood to have an interest.

Prior to the commencement of construction activities, the NZ Transport Agency will apply for an Authority under section 44(a) of the HNZPTA to modify any unknown archaeological site or sites as a result of construction activities. The Authority is likely to include a requirement for archaeological monitoring of preliminary earthworks, and procedures for recording any archaeological evidence before it is modified or destroyed.

32. TERRESTRIAL ECOLOGY

32.1 Introduction and Assessment Methodology

This section provides an assessment of the Project in relation to actual and potential effects on terrestrial ecology and has been informed by Technical Assessment 6: Terrestrial Ecology, along with its accompanying appendices (included in Volume 3), with reference to the existing environment that is described in Part B of this Report.

The approach taken to the identification of terrestrial ecological values and the assessment of effects of the Project on those values is based on the 'Environment Institute of Australia and New Zealand Ecological Impact Assessment Guidelines 2018 ("EIANZ Guidelines"). The EIANZ Guidelines provide for ecological values to be determined with reference to the following criteria:

- representativeness;
- rarity/distinctiveness;
- diversity and pattern; and
- ecological context.

The EIANZ Guidelines then provide a matrix approach for the assessment of ecological effects. This approach incorporates an assessment of the ecological value of the existing environment along with a consideration of the magnitude of effects to arrive at a conclusion as to the level of actual or potential adverse effect. These values and effects are expressed on a scale of very high through to negligible.

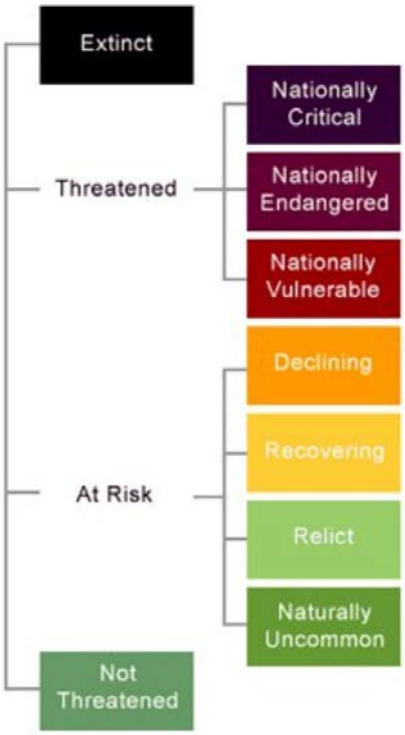
In determining the magnitude of effects of the Project (particularly in terms of valued ecosystems), it has initially been assumed that the Project may be reasonably constructed at any location within the proposed designation corridor. Therefore, initial assumptions in relation to the extent of vegetation or habitat that may be removed or disturbed (and associated magnitude of potential effects) is necessarily conservative. Where necessary, and in order to appropriately manage and reduce adverse

effects, the extent of works within the designation corridor has been confined through the development of an 'envelope' of acceptable effects.

The statutory significance of, and effects on, indigenous vegetation or habitats of indigenous fauna is further considered with reference to the ecological significance assessment criteria contained in One Plan Regional Plan Policy 13-5.

The ecological value of individual species of flora and fauna are also assessed with reference to the Department of Conservation's New Zealand Threat Classification System ("NZTCS"). The NZTCS is a tool for assigning a threat status to candidate taxa as shown in the following Figure 30.

Figure 30 – NZTCS Categories (Source: www.doc.govt.nz)



The EIANZ Guidelines and the Department of Conservation's 'Guidance on Good Practice Biodiversity Offsetting in New Zealand' (2014) were used to inform approaches to managing effects, including through offsetting.

The identification of ecological values has relied on the following:

- terrestrial vegetation and habitats: vegetation surveys, ecological condition assessments, orthophotography and oblique photograph review and literature review.
- indigenous fauna:
    - herpetofauna – desktop review (primarily of an earlier herpetofauna survey (2018)) and a site walk over;
    - terrestrial invertebrates – desktop investigations and a qualitative assessment of habitats;
    - bats – desktop review (primarily of an earlier bat monitoring survey (2018)) and a site walk over to undertake a qualitative assessment of habitat suitability;[54] and

[54] In addition, further bioacoustic surveys are scheduled for the summer of 2018/2019.

- avifauna – desktop review of earlier ecological surveys (2018) and (2009), data from the Ornithological Society of New Zealand, a scientific literature review, a site walk over and avifauna surveys.

32.2 Adverse Effects on Terrestrial Vegetation and Habitats

The majority of the proposed designation corridor traverses areas of exotic pasture. These areas are considered to have "low sensitivity", and as such the Project does not have an adverse effect on terrestrial vegetation and habitats in these areas (except in relation to the habitat of New Zealand pipit, addressed as part of effects on avifauna below).

The potential adverse effects on terrestrial vegetation and habitats over the remaining areas of the proposed designation corridor are considered with reference to:

- the northern bridge landing;
- the QEII National Trust covenant areas; and
- other valued areas.

Effects are assessed initially assuming clearance of all vegetation within the proposed designation without reference to any avoidance, remedying, mitigation or offsetting measures that are proposed to appropriately managed potential adverse effects.

Northern Bridge Landing (CH4000-4400)

The following ecosystem types in the northern bridge landing area are assessed as having very high (or high in the case of the stream ecosystem) ecological value and may be affected by the Project:

- threatened alluvial old-growth forests, of which <2.5% of the vegetation type remains regionally;
- a small remnant stand dominated by 14 mature swamp maire trees, which is a species classified as 'threatened-nationally critical' (de Lange et al., 2018);
- a rare seepage wetland ecosystem; and
- an unnamed stream ecosystem.

The first three of the above ecosystems are both highly vulnerable (they contain highly threatened species or ecosystems) and highly irreplaceable (there are few options for replacing or conserving the potentially affected biodiversity components elsewhere).

The construction and operation of the Project within the designation corridor at this location has the potential to result in very high adverse effects on the identified ecosystems due to vegetation loss and subsequent earthworks, depending on the detailed design of Project (for instance, the extensive use of embankments to traverse the area), such that the effects would not be able to be appropriately mitigated or offset.

As such, a bespoke avoidance and mitigation approach is required to be implemented in this area, as described below.

QEII National Trust Covenant Areas ('Western QEII' CH 5600-5800 and 'Eastern QEII CH6100-6400')

The Western QEII, where it is traversed by the proposed designation, contains very high value old-growth forest, high value broadleaved forest (in the advanced stages of regeneration) and high value freshwater tributaries.

The Project is assessed as having a very high level of adverse effect on the old-growth forest (very high magnitude effects on a very high value ecosystem) because, even when the gully at this location is bridged and the extent of earthworks limited, the removal of the majority of old trees (and resulting fragmentation and 'edge effects') results in permanent loss of an area of the forest ecosystem and compromises the ecological integrity of the remaining old-growth forest stands. Similarly, the Project results in a very high adverse effect on the advanced secondary broadleaved forest and high value tributaries (on the basis of a high magnitude of effect on high value ecosystems).

At the Eastern QEII, the Project is assessed as having a high level of effect (very high magnitude of effect on a moderate value ecosystem) on the basis that earthworks within the covenant area will result in the loss of legally protected secondary broadleaved forest.

Likewise, a particular management approach is required for these areas, as discussed below.

Other Valued Areas Within the Proposed Designation

In addition to those areas identified above, there are other areas where the management of potential adverse effects is necessary, particularly in relation to stream and gully crossings. That said, it is considered that the balance of the designation, in ecological terms, can accommodate the Project with minimal constraint,[55] on the basis that lower value terrestrial ecosystems can be more readily replaced (and habitat disruption mitigated) and that such replacement is achieved through the implementation of measures to mitigate and offset adverse effects.

32.3 Adverse Effects on Terrestrial Fauna

The potential adverse effects on terrestrial fauna (including lizards, terrestrial invertebrates, avifauna and bats, where present within the proposed designation corridor) that may result from the construction and operation of the Project can be summarised as:

- injury or mortality during vegetation clearance and earthworks;
- disturbance during critical nesting periods (birds);
- permanent loss of habitats;
- modification of habitats in the form of:
    - increased fragmentation and isolation due to reduced habitat connectivity;
    - creation of edge effects and consequential effects to composition, structure and food sources in retained habitats; and
    - invasions and corresponding impacts of non-native plant and animal species; and/or

[55] No limit is proposed on the removal of all native shrublands (4.12ha) and secondary broadleaved forests and scrublands (16.32ha).

- injury, mortality and disturbance (avifauna) as a result of road operations.

Terrestrial Invertebrates

While a desktop review has not identified the presences of 'at-risk' or 'threatened' invertebrates, parts of the proposed designation provide high quality habitats for terrestrial invertebrates. With reference to habitat type, the following Table 29 summarises the potential adverse effects of the Project on terrestrial invertebrates.

Table 29 – Potential Effects on Terrestrial Invertebrates

LOCATION AND HABITAT	ECOLOGICAL VALUE	MAGNITUDE OF EFFECT	LEVEL OF EFFECT	COMMENT
Bridge to Bridge Pine forest slash and roadside vegetation.	Low/ negligible	Low	Very low	Small amount of marginal and disturbed habitat lost. Existing invertebrate community likely to be tolerant of disturbance and able to colonise new habitats.
New Manawatū River Crossing River bank vegetation and native scrub.				
Western Rise Grazed mature native forest, kānuka forest, raupō wetland, secondary broadleaved forest, and mature tawa forest.	High	High	Very high	Native habitat loss with the greatest effect being the loss of established mature tawa forest. Effects include fragmentation, the creation of a barrier between habitats and associated edge effects. Invertebrate communities present in grazed mature native forest, scrub and raupō are likely tolerant of disturbance due to stock access and relative lack of understory habitat. Invertebrate communities in established tawa forest are potentially remnant and sensitive to disturbance and edge effects and may have limited dispersal and colonisation abilities.
Access from Saddle Road Small areas of kānuka forest.	Low/ negligible	Negligible	Very low	Minimal impact beyond grazed pasture and small areas of kānuka and therefore little to no impact on terrestrial invertebrates of ecological value.
Te Apiti Wind Farm and Ridge Kānuka scrub and secondary broadleaved forest in gullies, pondside vegetation and divaricate *Coprosma* vegetation.	Low/ negligible	Moderate	Low	Habitat is either recently protected or subject to significant pressure from stock grazing and trampling. Little habitat of value impacted. The Project introduces a barrier between large amounts of native vegetation to the north and the Manawatū Gorge Scenic Reserve.
Eastern Rise Kānuka and fern vegetation, kānuka and rush seep, secondary broadleaved forest, and pine forest.	Moderate	Moderate	Moderate	Area of secondary broadleaved forest with relatively stable and diverse understory habitats lost. The Project reduces the area of the remaining forest, increases edge effects, and introduces a barrier between existing habitats and vegetation to the east (noting that there are significant habitats located to the

LOCATION AND HABITAT	ECOLOGICAL VALUE	MAGNITUDE OF EFFECT	LEVEL OF EFFECT	COMMENT
				north and north east). Existing invertebrate community likely to be moderately tolerant of disturbance and able to colonise new habitats. However, the community may include species that colonise in later stage succession.
Woodville Gateway Small area of pine trees and grazed pasture.	Negligible	Low	Very low	Small amount of marginal and disturbed habitat lost. Existing invertebrate community likely to be tolerant of disturbance and able to colonise new habitats.

Herpetofauna

While surveys have not detected the presence of lizards, it is very likely 'at-risk' lizard species[56] are present in low densities within the proposed designation, particularly within areas where grazing does not occur and in habitats connected to remnant habitats such as the gully systems and habitats with existing connections to the Manawatū Gorge Scenic Reserve. With reference to habitat type, the following Table 30 summarises the potential adverse effects of the Project on terrestrial invertebrates.

Table 30 – Potential Effects on Herpetofauna

LOCATION AND HABITAT	ECOLOGICAL VALUE	MAGNITUDE OF EFFECT	LEVEL OF EFFECT	COMMENT
Bridge to Bridge Pine forest slash and roadside vegetation.	High	Low	Low	Removal of a small amount of roadside vegetation and wood debris. Any lizards present are likely to be at a very low density.
New Manawatū River Crossing River bank vegetation and native scrub.	High	Low	Low	Small amount of riparian vegetation lost. Flooding likely a major constraint for lizard presence for most of this area.
Western Rise Grazed.	High (excluding raupō wetland)	High	Very high	Loss of a large amount of high quality habitat that has high connectivity to large intact forest remnants to the east and west including the Manawatū Gorge Scenic Reserve. Permanent reduction in the value or remaining habitat due to fragmentation, disturbance and edge effects.
Access from Saddle Road Small areas of kānuka forest.	High	Low	Low	Habitats of high value peripheral to designation and the majority of potential habitats are avoided.
Te Āpiti Wind Farm and Ridge Kānuka scrub and secondary broadleaved forest in gullies, pondside	High	High	Very high	Loss of a 200-300m length of gully vegetation across all vegetated gullies within the designation including habitat connected to the Manawatū Gorge Scenic Reserve. Habitat loss and fragmentation isolates vegetation to the north of the designation from the Manawatū Gorge

[56] These species are listed in Part B of this Report.

LOCATION AND HABITAT	ECOLOGICAL VALUE	MAGNITUDE OF EFFECT	LEVEL OF EFFECT	COMMENT
vegetation and divaricate *Coprosma* vegetation.				Scenic Reserve and reduces the value of remaining habitats.
Eastern Rise Kānuka and fern vegetation, kānuka and rush seep, secondary broadleaved forest, and pine forest.	High	High	Very high	Loss of, or fragmentation of, a large area of regenerating broadleaved forest and native and non-native scrub habitat - reducing the value of remaining habitats.
Woodville Gateway Small area of pine trees and grazed pasture.	Negligible	Negligible	Very low	Little to no habitat present or impacted. Loss of grazed pasture and a small amount of pine trees is unlikely to impact native lizard species that are potentially present.

Bats

As stated in Part B, bioacoustics monitoring has failed to detect long-tailed bats and the probability of bats being present in the designation corridor is low. Until the presence of bats, or otherwise, is determined the potential adverse effects on bats is unknown. Further bioacoustics monitoring is scheduled to occur in the coming summer months.

Avifauna

The proposed designation corridor is potentially used by 19 notable indigenous bird species for various activities (such as nesting, foraging and/or roosting). Table 7 in Part B of this Report lists these species and confirms that there are four 'threatened species' and fifteen 'at-risk' species. These species are considered to have very high or high ecological value respectively.

With reference to habitat type, the following Table 31 summarises the potential adverse effects of the Project on the notable indigenous bird species.

Table 31 – Potential Effects on Avifauna

LOCATION AND HABITAT	ECOLOGICAL VALUE	MAGNITUDE OF EFFECT	LEVEL OF EFFECT	COMMENT
Bridge to Bridge Grazed pasture, planted native vegetation, weed dominated cutover pine.	Low	Negligible	Very low	No nesting or core habitats for at-risk or threatened birds and large amounts of suitable habitats nearby. Small amount of marginal and disturbed habitat lost.
New Manawatū River Crossing Manawatū River and gravel/boulder riverbed.	High	Moderate	High	Potential disturbance, temporary reduction in food quality, and mortality of breeding banded and/or black-fronted dotterels on gravel/shingle habitats. Potential loss of small amounts of gravel habitat depending on bridge design. No nesting or core habitats for other at-risk or threatened species. If displaced by construction works, plentiful, suitable habitat is available nearby.

LOCATION AND HABITAT	ECOLOGICAL VALUE	MAGNITUDE OF EFFECT	LEVEL OF EFFECT	COMMENT
Western Rise Kānuka forest, raupō wetland, secondary broadleaved forest, mature tawa forest.	High	Moderate	High	Potential disturbance and mortality of low numbers of breeding whitehead in established forest areas. Extensive, alternative nesting habitat available in contiguous Manawatū Gorge Scenic Reserve. Potential disturbance of foraging/roosting cryptic marsh birds in raupo wetland. Loss of relatively small amount of wetland and forest habitats which may be used only occasionally by at risk or threatened birds.
Access from Saddle Road Grazed pasture and small areas of kānuka.	Low	Negligible	Very low	No nesting or core habitats for at-risk or threatened birds. Loss of a relatively small amount of agricultural habitat and kānuka which are common and dominant in the landscape.
Te Apiti Wind Farm and Ridge Native scrub with scattered broadleaf and larger emergent rewarewa trees.	Low-Moderate	Low	Very low/low	No nesting or core habitats for at-risk or threatened birds and large amounts of suitable habitats nearby. Loss of relatively small amount of scrub and secondary forest habitats which are used occasionally by at risk or threatened birds.
Eastern Rise Regenerating secondary broadleaved forest, and pine forest.	Low-Moderate	Low	Very low/low	No nesting or core habitats for at-risk or threatened birds and large amounts of suitable habitats nearby. Loss of relatively small amount of secondary forest habitats which are used occasionally by at risk or threatened birds.
Woodville Gateway Cropped and grazed pasture.	Low	Negligible	Very low	No nesting or core habitats for at-risk or threatened birds. Loss of a relatively small amount of agricultural habitats which are common and dominant in the landscape.

32.4 Measures to Avoid, Remedy or Mitigate Adverse Effects on Terrestrial Ecology

Terrestrial Vegetation and Habitat

In order to address adverse effects on terrestrial vegetation and habitats, the proposed designation conditions:

- 'lock in' experts' recommendations about avoiding certain effects on valued habitats within the proposed designation;
- incentivise further minimisation of the Project's adverse effects through the detailed design process; and
- require that a net indigenous biological diversity gain be achieved, in accordance with Policy 13-4 of the One Plan.

That is, to reduce the adverse effects of the Project on high and very high value ecosystems an 'effects envelope' approach has been developed. The effects envelope establishes parameters within which the Project is to be designed. These parameters allow for construction of the Project (likely a viaduct at the northern end of the new Manawatū River, for example, unless another design and construction methodology can be devised to enable construction effects to remain within the envelope) in a manner that would reduce the magnitude and duration of adverse ecological effects on ecological features of very high and high ecological value to an acceptable (moderate magnitude and of a duration of 25 years or less) level, when considered alongside offsetting undertaken to achieve a net biological diversity gain and other mitigation measures.

The effects envelope is established by a condition proposed to be imposed on the designation that establishes a maximum area of vegetation removal within identified ecosystem types. For instance:

- no more than 0.1ha of threatened old-growth alluvial forest in the northern bridge landing area can be removed, resulting adverse effects of moderate magnitude (as opposed to very high magnitude) and no more than long-term duration (as opposed to permanent) – providing for a limited loss of canopy or emergent tiers, or loss of forest vegetation; and
- all threatened – nationally critical swamp maire should be retained resulting in a low or negligible (with limited and controlled trimming) magnitude of effect and no permanent effect;

The following Table 32 summarises the reduction of the magnitude and level of potential adverse effects achieved by the effects envelope.

Table 32 – Summary of Reduction of Level of Effects as a Result of the Effects Envelope

ECOSYSTEM TYPE	EFFECTS WITHOUT ENVELOPE		EFFECTS ENVELOPE MAX. AREA OF REMOVAL (HA)	EFFECTS WITH ENVELOPE	
	MAGNITUDE OF EFFECT	LEVEL OF EFFECT		MAGNITUDE OF EFFECT	LEVEL OF EFFECT
Northern Manawatū River Crossing (CH4000-4400)					
Old-growth forests (alluvial) CH4000-4400	Very high	Very high	0.10	Moderate	High
Swamp maire	Very high	Very high	0.0	Low/ negligible	Moderate/low
Raupō dominated seepage wetlands (high value)	Very high	Very high	0.13	Moderate	High
Kānuka forests	Very high	Very high	1.0[57]	Moderate	High
Saddle Road Access to CH4000					
Old-growth forests (alluvial) Saddle Road access	Very high	Very high	0.05	Moderate	High
Western QEII Covenant (CH5600-5800)					
Old-growth forests (hill country)	Very high	Very high	1.0	Very high[58]	Very high

[57] An additional 3.32 hectares of kānuka removal is provided for, where this removal is elsewhere in the designation.
[58] While the recorded magnitude of effect is not substantially reduced, the effects envelope (in this situation) achieves the greatest practicable degree of reduction.

ECOSYSTEM TYPE	EFFECTS WITHOUT ENVELOPE		EFFECTS ENVELOPE MAX. AREA OF REMOVAL (HA)	EFFECTS WITH ENVELOPE	
	MAGNITUDE OF EFFECT	LEVEL OF EFFECT		MAGNITUDE OF EFFECT	LEVEL OF EFFECT
Advanced secondary broadleaved forests	Very high	Very high	0.5	High	Very high
Designation-wide (including Eastern QEII Covenant CH6100-6400)					
Secondary broadleaved forests and scrublands	Very high	High	16.32[59]	Very high	High

In addition to the effects envelope described above (that achieves a level of avoidance of potential adverse effects on terrestrial vegetation and habitats), the following is proposed to appropriately manage (by mitigating and offsetting) remaining adverse effects:

- the inclusion of a requirement to undertake replacement and offset planting to address vegetation clearance from identified ecosystem types, and subject to the maximum areas prescribed by the effects envelope described above, at defined environmental compensation ratios ("ECRs");
- an ability to reduce the amount of replacement planting (proportionate and in accordance with the ECRs) where the actual vegetation clearance undertaken is less than the maximum provided for by the effects envelope (effectively incentivising the minimising of vegetation removal);
- the preparation, in consultation with the Department of Conservation and tangata whenua, of an Ecological Management Plan ("EMP") that:
    - includes a summary of terrestrial ecology and biodiversity values;
    - includes the bat, lizards and avifauna management plans (described below);
    - sets out how vegetation to be removed will be identified;
    - requires staff inductions and ecological training;
    - provides for the salvage and transfer of soils and other material;
    - confirms the location, extent and management of areas for replacement and offset planting, including protection, ecosourcing, pest management and maintenance (noting that this may achieve the requirements of the Landscape Management Plan and address severance, fragmentation and edge effects); and
    - provides for the cultural re-use of natural material and opportunities for community participation in planting.
- the inclusion of a requirement for an assessment of the measures taken to manage adverse effects (including those in the EMP) to determine the extent of any further offsetting that may be necessary to achieve a net indigenous biological diversity gain, in consultation with tangata whenua and the Department of Conservation and with reference to Policy 13-4 of the Horizons One Plan;
- the inclusion of design outcomes to minimise impacts on ecologically sensitive areas in the ECDF;

[59] Where, within the eastern QEII covenant, the footprint of works requiring the removal of secondary broadleaved forests and scrublands is limited to a maximum of 20m beyond the extent of fill and 5m beyond the extent of cut.

- an at-risk and threatened flora and fauna discovery protocol to address circumstances where an at risk or threatened species (that is not addressed by other designation conditions) is encountered;[60] and
- the inclusion of a requirement, in consultation with the QEII National Trust, to design the Project to minimise impacts of the natural environment values of the QEII open space covenant areas, including possible restoration.

Again, the proposed conditions require an indigenous biological diversity net gain position to be achieved. Put another way, implementing the Project will have **net benefits** in respect of terrestrial ecology values. This will be achieved by incentivising a design that minimises effects, implementing an effective offset of adverse effects, and making additional enhancements to ensure that benefits accrue (in line with One Plan policy).

Terrestrial Fauna

Terrestrial Invertebrates

Mitigation for potential impacts on terrestrial invertebrates is the creation of new habitats and enhancement of remaining habitats with a focus on improving ecosystem health factors such as reducing edge effects, mammalian predation, and grazing disturbance. This can be achieved through fencing off vegetation, conducting predator control, and ensuring mitigation plantings are contiguous with large, established, high value habitats.

The replacement and off-set planting proposed (as described above and required by the proposed designation conditions) results in the proposed designation having a low magnitude of effect on terrestrial invertebrates and, coupled with the high to negligible ecological values across the designation, the level of ecological effect of the Project is assessed as low or very low.

Herpetofauna

In order to address the potential impacts on lizards that may be present in the proposed designation corridor, the preparation of a Lizard Management Plan is proposed, in consultation with tangata whenua and the Department of Conservation. The Lizard Management Plan establishes a methodology for the survey, salvage and release of lizards (including identifying appropriate release sites).

On the basis of the procedures set out in the Lizard Management Plan, and subject to the replacement and off-set planting proposed (creating habitat) and associated pest control, as described above and required by the proposed designation conditions, the proposed designation is assessed as having a low magnitude of effect on native lizards that may be present. Having regard to the high to negligible ecological values across the designation, the level of ecological effect of the Project is assessed as low or very low.

In the long term, as a result of increased habitat availability, there is likely to be a net gain in the populations of native lizards within the wider area.

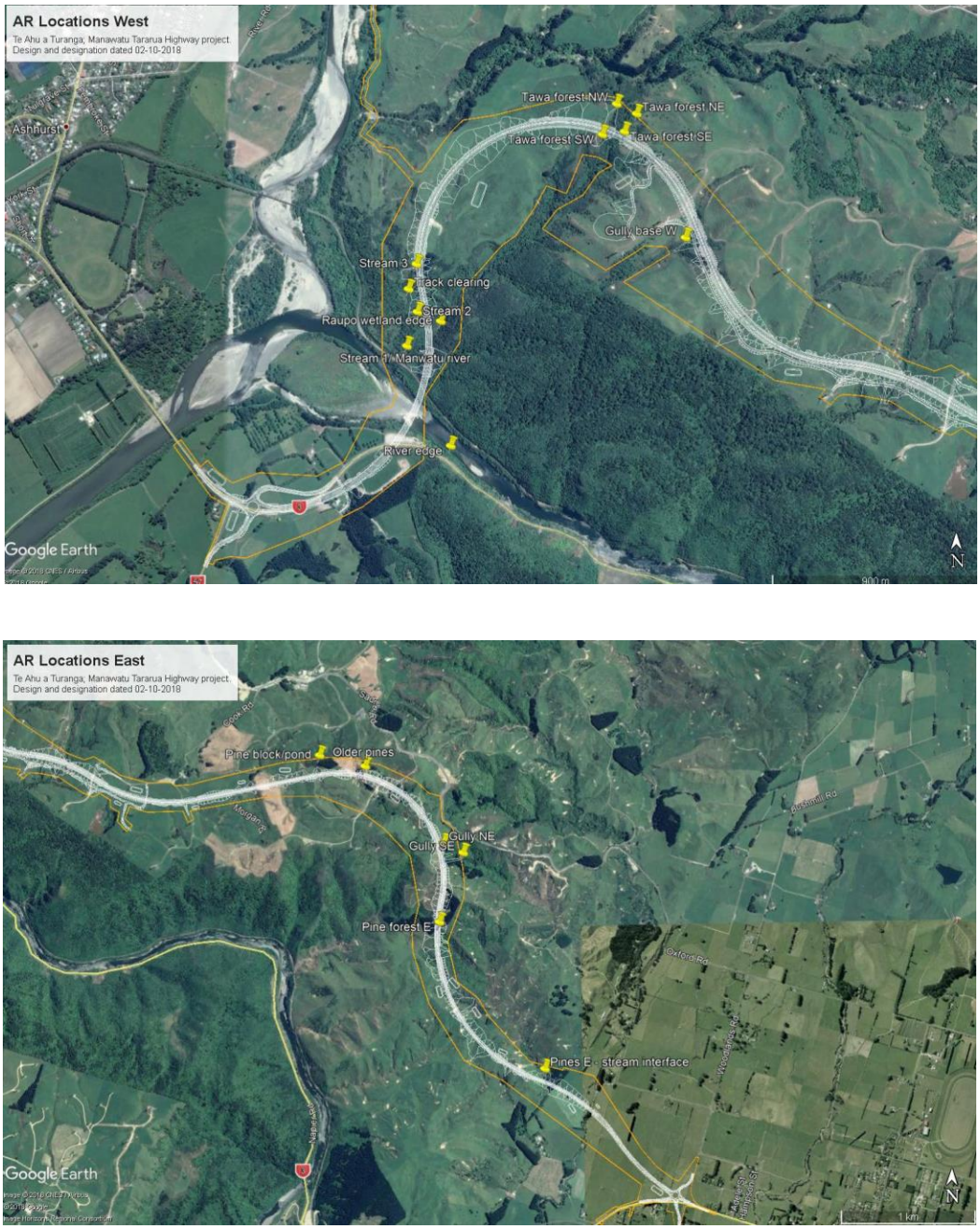
Bats

As previously noted, the likelihood of long-tailed bats being present at low densities within the proposed designation is considered to be low. A further bioacoustics survey is proposed to determine whether bats are present and to clarify the necessary effects management pathway. The following

[60] Also addresses potential effects associated with the discovery of at-risk and threatened indigenous fauna.

Figure 31 identifies the proposed location of bioacoustics receivers used to undertake the survey (the proposed monitoring, and locations of the monitoring stations, is currently being discussed with the Department of Conservation).

Figure 31 – Bioacoustic Survey Locations



Should the bioacoustics survey indicate the presence of bats in the proposed designation corridor, a Bat Management Plan is required to be prepared (in consultation with tangata whenua and the Department of Conservation). The Bat Management Plan, if required, will include procedures for bat roost removal (and the retention of active roosting site) and any necessary habitat replacement and pest control measures.

Avifauna

In order to address the potential impacts on the 19 notable indigenous bird species that may use the designation corridor for various activities (such as nesting, foraging and/or roosting), the preparation of an Avifauna Management Plan, in consultation with tangata whenua and the Department of Conservation, is proposed. The Avifauna Management Plan:

- sets out procedures to deter and manage black-fronted dotterels and banded dotterels in the Manawatū River riverbed;
- provides for a pre-construction survey in old-growth forests to identify any nesting whiteheads (September to January) and the management of any whiteheads that are found to be present;
- manages the clearance or mowing of rank grass (August to March) to avoid nesting pipit;
- provides for a pre-construction survey in the raupō dominated seepage wetlands for cryptic swamp bird species;
- seeks to minimise disturbance to the freshwater ponds located between CH9200 and CH9600 in order to maintain possible habitat for Australian coot and New Zealand dabchick.

On the basis of the procedures set out in the Avifauna Management Plan (and the measures to manage effects on other fauna described above), the Project will have a negligible to low magnitude of effect on avifauna present (or potentially present) in the proposed designation corridor. Coupled with the high to low ecological values of the identified avifauna, the actual or potential adverse effects of the Project on avifauna are assessed as low to very low.

All terrestrial species

As the proposed designation conditions require an indigenous biological net gain position to be achieved, residual adverse effects on terrestrial fauna will be more than fully offset by the NZ Transport Agency (to the extent required by Policy 13-4 of the One Plan), working in consultation with tangata whenua and the Department of Conservation.

Overall, implementing the Project will have net benefits in respect of terrestrial ecology values.

33. TANGATA WHENUA VALUES

33.1 Introduction and Approach

This section sets out the NZ Transport Agency's approach to understanding cultural values and issues of significance to tangata whenua. In this regard, Rangitāne o Manawatū, Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua), Ngāti Kahungunu ki Tāmaki Nui-ā-Rua and Ngāti Raukawa have identified an interest in the Project.

The NZ Transport Agency's approach is:

- underpinned by the NZ Transport Agency's commitment, as a Crown agency, to a partnership based approach with tangata whenua that reflects the principles of the Treaty of Waitangi/Te Tiriti o Waitangi; and
- informed by on-going engagement, including formal hui, informal meetings, site visits and site walk-overs, described in Part F of this Report.

The NZ Transport Agency appreciates and respects that issues such as 'areas of interest' and mana whenua are for Māori to determine in accordance with tikanga and it is not the role of the NZ Transport Agency to seek to define those matters. The NZ Transport Agency seeks to operate in a manner that is respectful of tikanga and seeks to ensure that Māori who identify with an area have the ability to express that, if they wish to do so, through the statutory processes. Consequently, an open and inclusive approach is adopted. The NZ Transport Agency acknowledges there will be different layers and strengths of history, association and interests, and again the NZ Transport Agency has no role in defining or resolving those matters.

In terms of the Treaty of Waitangi/Te Tiriti o Waitangi, it is recognised that Treaty settlements provide important context to the Project. The description of the cultural environment, included in Part B of this Report, acknowledges the Rangitāne o Manawatū Claims Settlement Act 2016, the Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) Claims Settlement Act 2017 and the initialled Deed of Settlement between the Crown and Ngāti Kahungunu ki Wairarapa Tāmaki Nui-ā-Rua. These, and accompanying, documents describe tangata whenua relationships with land that is identified as their respective areas of interest (including land that is subject to the proposed designations). Of note, the Rangitāne o Manawatū Claims Settlement Act 2016 includes statutory acknowledgements and accompanying statements of association in respect of:

- Manawatū Gorge Scenic Reserve;
- Manawatū River and tributaries; and
- Pohangina River.

The Rangitāne o Manawatū Settlement Act, in relation to these statutory acknowledgements, places obligations on consent authorities, the Environment Court and Heritage New Zealand Pouhere Taonga.

Likewise, the Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) Claims Settlement Act 2017 includes a statutory acknowledgement on respect of the Manawatū River and tributaries.

It is also acknowledged that Parahaki Island is Māori freehold land under Te Ture Whenua Maori Act 1993, and the NZ Transport Agency has separately engaged with the trustees of the Te Āpiti Ahu Whenua Trust, who represents the owners of the Island, to understand relationships and values associated with Parahaki Island so that the Project may properly recognise and provide for those relationships and values.

Part B of this Report includes a description of Māori settlement and briefly establishes context in terms of the cultural environment.

33.2 Identification of Cultural Values

The matters listed above, and particularly on-going engagement as part of the development of the Project, have informed the NZ Transport Agency's preliminary understanding of tangata whenua relationships with the land, water, sites, wāhi tapu, and other taonga and associated cultural values. This has, in turn, shaped the development of the Project from option identification and assessment through to the refinement of the proposed designations. Examples include the avoidance of Parahaki

Island – an area of Māori freehold land and the site of historic burials – and the consideration of potential river hydrology impacts on the Island[61] and the avoidance of known archaeology sites.[62]

Cultural values have now been articulated by Rangitāne, Ngāti Kahungunu ki Wairarapa Tāmaki Nui-ā-Rua, and Ngāti Raukawa, through the following Cultural Values Statements in Volume 3:

- 'Te Ahu a Turanga';
- 'Statement of Kahungunu ki Tāmaki Nui-a-Rua Trust'; and
- 'Te Manawaroatanga'.

The NZ Transport Agency respects that these are statements made by the iwi in relation to their own values, and that they are not NZ Transport Agency statements. These statements, and any subsequent revisions, will form the basis of a collaborative approach to the design of the Project.

33.3 Providing for Tangata Whenua Relationships and Values and Managing Cultural Effects

The Cultural Values Statements identify values that have the potential to be impacted by the construction and operation of the Project, both in terms of the physical works and in terms of the way such works are undertaken. In this regard, the following describes the NZ Transport Agency's initial approach to:

- recognising and providing for identified cultural values in the context of the Project; and
- managing actual and potential effects of the Project on those values.

In this regard, it is recognised that the process of identifying the potential effects of the Project, and development of options to avoid, remedy and mitigate these effects is an iterative process. This is particularly the case for this Project, given that the detailed design of the road alignment follows this designation process, as do the applications for necessary resource consents and the submission of outline plans. It is anticipated that matters such as cultural and spiritual values associated with water will be addressed in greater detail as part of the future resource consent and related processes.

Environmental and Cultural Design Framework and Te Aranga Principles

The preliminary Environmental and Cultural Design Framework ("ECDF") (attached as Appendix Two) sets out the overarching design principles and 'vision' that will be applied to the final design of the Project and incorporates Te Aranga Māori Design Values and Principles that, in turn, are guided by the values incorporated in the Project vision of rangatiratanga, kaitiakitanga, manaakitanga, wairuatanga, whanaungatanga and mātauranga.

Te Aranga Principles are delivered through the development and design of the Project with examples of Project specific application of these Principles including:[63]

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[61] Described in the Bridge and Retaining Wall Design Philosophy Report included as Appendix Four.
[62] Described in Technical Assessment 5: Historic Heritage and Archaeology, included in Volume 3.
[63] Many of these Principles are articulated as opportunities for the celebration of cultural values (in Section 2.4 of the ECDF, attached as Appendix Two) as follows:
"*- Landmarks and carvings could provide reference to site history.*
- Artistic elements could be incorporated into the design of highway elements.

- reviving and recording traditional and ancestral names;
- identifying appropriate names for the road and features in partnership with tangata whenua;
- reusing and recycling waste materials, where appropriate;
- referencing tangata whenua values and narratives in design; and
- opportunities for tangata whenua to have further specific roles in relation to the Project such as seed collection, planting vegetation, propagation and/or environmental maintenance.

In all cases, the application of the design principles is proposed to be undertaken in a process of ongoing engagement with tangata whenua.

Design of the Project

Proposed designation conditions also provide opportunities for the on-going participation of tangata whenua in the design of the Project, including input into:

- the review and update of the ECDF;
- the preparation of the Landscape Management Plan;
- the preparation of the Lizard Management Plan;
- if required, the preparation of the Bat Management Plan;
- the preparation of the Avifauna Management Plan;
- the preparation of the Ecological Management Plan;
- the finalisation of an accidental discovery protocol, or protocols; and
- the preparation of the Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan.

The proposed designation conditions also specifically provide for consultation with the Te Āpiti Ahu Whenua Trust as part of the preparation of any outline plan for works related to the bridging of the Manawatū River, including any piers, abutments, the northern and southern approaches, and associated construction access. The proposed conditions require that responses to any feedback provided by the Trust are also provided as part of the outline plan.

It is acknowledged that the ecological outcomes achieved through conditions imposed on the designation (being a net indigenous biological diversity gain) also achieve outcomes in respect of the management of impacts on cultural values.

Tangata Whenua Monitoring and Management Plan

In addition to the opportunities identified in the ECDF, the recognition of cultural values is also embedded in the proposed designation conditions through the requirement for a Tangata Whenua Values Monitoring and Management Plan (or Plans) ("TVMMP"), prepared by a person (or persons) endorsed by tangata whenua.

- Bridge design could be inspired by the origin story of the gorge to represent cultural narratives.
- Bridging over areas with high ecological values.
- Naming of the highway features including bridges should be in collaboration with Tangata Whenua.
- Cultural harvest plantings if appropriate."

The stated purpose of the Plan or Plans is "*to recognise and provide for the tangata whenua values of the area and to develop mechanisms and processes to seek to avoid or minimise potential impacts on those values through the implementation of agreed monitoring and mitigation measures*".

The condition requires the TVMMP to set out approaches to preconstruction activities that may include, but not be limited to:

- dedication of the road corridor;
- cultural protocols and cultural site inductions;
- cultural monitoring activities;
- measures to realise opportunities for the reuse of natural materials/trees, participation in planting, fish surveys and/or transfer, species monitoring and translocation; and
- detailed accidental discovery protocol procedures.

Archaeology

While the proposed designation corridor avoids recorded archaeological sites, Technical Assessment 5: Historic Heritage and Archaeology concludes that, near the confluence of the Manawatū and Pohangina Rivers, there is the potential for other unrecorded sites relating to historic Māori settlement because the river terraces were a location favoured by Māori for settlement and unrecorded sites could include kāinga and gardening sites.

The potential to disturb unrecorded sites is managed by the requirement for an accidental discovery protocol that is prepared in consultation with tangata whenua and includes:

- details of contractor training;
- general procedures following any accidental discovery, including the requirement to immediately cease construction activities in the vicinity of the discovery and the requirement to notify parties;
- specific procedures in the event that kōiwi tangata are discovered;
- procedures for the custody of taonga (excluding kōiwi tangata) or material found at an archaeological site; and
- activities that must be undertaken before construction activities in the vicinity of the discovery can recommence.

34. ECONOMICS

This section considers the potential transport economic benefits of the Project and also presents the findings of 'Manawatu Gorge Alternatives – Assessment of the Wider Economic Benefits of the Shortlisted Options' ("EY Report") insofar as the conclusions of that assessment are relevant to the proposed designation corridor.[64]

34.1 Transport Benefit to Cost Ratio

[64] Prepared by EY to support the DBC (dated 16 March 2018).

The benefit to cost ratio ("BCR") of the Project has been calculated in accordance with the NZ Transport Agency's Economic Evaluation Manual. The BCR is the ratio of the net present value ("NPV") of the transportation benefits of the Project divided by the NPV of the construction and maintenance costs associated with the Project. Both the benefits and costs are assessed relative to the 'Do Minimum' scenario, which in the case of this Project is to continue to utilise and maintain the existing transport network. The direct benefits, as reported in the DBC for the Project, are estimated to be approximately $60,000 per day (which equates to more than $22M per annum). The BCR calculations provided in the DBC show a BCR of 1.8, which means that a benefit (or return) of $1.8 dollars is anticipated for every dollar spent.

When calculating the BCR, it is relevant to also consider the assumptions used in the assessment and how the benefits and costs (and therefore the return on investment) might vary if the assumptions changed. The key assumptions are the discount rate (a reflection of the 'opportunity cost' of money - the rate at which society is willing to trade off present benefits and costs against future benefits and costs), traffic growth, the effect of road closures, and the consequence of project cost escalation. This sensitivity analysis (provided in the DBC) shows that the BCR may be as low as 1.3 or as high as 2.4.

Whilst these calculations were undertaken during the DBC phase of investigations, the subsequent phases of investigation have not materially adjusted the Project cost or other factors to suggest that the BCR may reduce below 1.0 (that is, it is still expected that the benefit (or return on investment) will exceed one dollar for every dollar spent.)

34.2 The Existing Situation and Impact of Delayed Construction

Feedback from a number of key stakeholders indicates that the closure of the Manawatū Gorge route has led to decreased efficiency and reliability and significant increases in freight costs that may, in turn, have an impact on input and consumer prices in the Region. Such costs are reflected in the assessed economic impact if the Gorge route is not restored or replaced. That is, it is estimated in the EY Report that under a 'do-nothing' scenario the economy would lose $279m (at present value) of output over the next 40 years. This is due to the:

- Gross Domestic Product ("GDP") effects of lost investment on GDP of $82M (NPV) or $7M (nominal dollar) per annum;
- impact of increased freight costs on output of $130M (NPV) or $9M (nominal dollars) per annum;
- agglomeration efficiencies forgone relative to a restored or replaced route scenario of $67M (present value) or $5M (nominal dollars) per annum.

Therefore, a 1-year delay to restoration or replacement of the Gorge route, in nominal terms, costs the economy $21M (in nominal dollars). This is in addition to the direct benefits of the Project of more than $22M per annum, as outlined above.

34.3 Economic Effects During Construction

Construction activities will have a positive impact on the local and regional economy. The Project is anticipated to take approximately 6 years to build and at its peak would employ approximately 250

people.[65] As described in relation to social impacts, the presence of construction workers will likely result in increased spending on goods and services, particularly in Woodville, Ashhurst and Palmerston North. In addition, local suppliers will benefit from the manufacture and supply of materials.

34.4 Economic Effects of Operation

There will be positive economic effects as a result of the on-going operation of the Project. The EY Report notes that following any unplanned outage (such as the closure of the Gorge route), recovery proceeds in a typical pattern and that, once the 'rebuild' is complete, some of the costs imposed by the outage reduce as the economy returns to its pre-disruption state. There can also be a level of additional growth (exceeding previous trends) if opportunities to 'build back better' have been realised. In this case, the Project results in improved efficiency and resilience (including improved travel times), when compared to the original (closed) Manawatū Gorge route, such that the operation of the Project may provide an opportunity for growth.

The EY report consider three key economic benefits as follows:

- benefits of certainty – committing to a clear plan will release industry investment;
- productivity benefits of reduced transport costs – decreasing transport costs will free up money for more productive uses; and
- agglomeration benefits – improving travel times essentially brings firms closer together, making them more productive.

With reference to these benefits, the EY Report estimates that, over 40 years, the total wider economic benefits of a restored or replaced route are at least $183M (NPV) excluding transport benefits (that are set out above).

The State highway network is the 'backbone' of the regional and freight economy. The Project adds a resilient, safe and reliable new route to the State network to replace the closed Manawatū Gorge route.

35. PROPERTY, LAND USE AND NETWORK UTILITIES

This section considers direct impacts of the Project on property, land use and assets in the proposed designation corridor. Social effects, in this regard (referred to as 'project extent') are addressed above and in Technical Assessment 3: Social Impact Assessment in Volume 3.

For those properties where land is required either permanently or for construction, the acquisition or lease of land will be undertaken by the Crown through the PWA process. The PWA establishes acquisition and compensation processes and as such, the acquisition of land is not considered further here.

[65] This estimate of potential construction workers is based on the NZ Transport Agency's Huntly Bypass Project, which involves a similar scale of construction.

The Project has an impact on relatively few properties. That is, approximately 20 residences are identified as adjoining or within 200m of the Project and 10 properties directly impacted. As detailed in Part B of this Report, land uses, activities and assets within or adjoining the Project include:

- residential dwellings;
- lifestyle blocks;
- pastoral land and woodlots;
- a research farm property (AgResearch's Ballantrae Hill Country Research Station);
- a closed landfill;
- network utilities and infrastructure, as listed below and including Te Āpiti wind farm;
- QEII National Trust open space covenant land; and
- natural bush and waterbodies.

In addition to effects that have been addressed in relation to social impacts, traffic and transport effects, noise and vibration effects and impacts on natural values (landscape, visual amenity, natural character and terrestrial ecology), effects of the Project on property and land use are as follows, and as addressed in further detail below:

- disrupted property access, including the 'left-in, left-out' configuration and access for the movement of stock;
- impacts on the operation and maintenance of network utilities and infrastructure, including on-going access; and
- impacts on the on-going use of a property (as it is for its existing purpose), and particularly in relation to the Te Āpiti wind farm, the Ballantrae Hill Country Research Station and the closed Woodville landfill.

As with all adverse effects, the potential adverse property and land use effects of the Project have been firstly addressed as part of the consideration of alternatives, summarised in Part E of this Report (for instance, the avoidance of Parahaki Island and the Manawatū Gorge Scenic Reserve). More recent route refinement and development has had a particular focus on minimising the impacts on directly affected properties, for instance through the development of property access options, and indicative alignment considerations that have led to adjustment to the extent of the proposed designations. In this regard, it is also noted that the statutory impact of the designation will be reduced following the completion of construction.

35.1 Network Utilities and Infrastructure

The following network utilities and infrastructure are located within or near the proposed designation:

- KiwiRail's Palmerston North to Gisborne railway;
- Meridian's Te Āpiti wind farm;
- First Gas' Tararua high pressure gas transmission pipeline;
- Transpower's Mangamaire – Woodville A 110kV National Grid transmission line;
- telecommunications and electricity supply infrastructure; and
- municipal infrastructure including local roads and water supply.

Te Āpiti Wind Farm

The proposed designation corridor traverses Te Āpiti wind farm and as such, subject to detailed design, has the potential to impact the on-going operation and maintenance of the wind farm, including through the:

- removal of a turbine (or turbines);
- destabilisation of turbine foundations as a result of earthworks;
- disruption of access to (and within) the wind farm site as a result of physical relocation of the access tracks and interaction with construction activities;
- disruption of fibre optic and electricity cabling as a result of relocation activities; and
- changes to the wind environment as a result of replacement and offset planting in the vicinity of turbines.

While subject to on-going discussions with Meridian, the following is proposed to address the potential effects listed above (including by way of designation conditions):

- as part of enabling works, the realignment or rationalisation of some turbine access tracks and associated electricity and fibre optic cables (including provision for maintenance access to cables underneath the new State highway being provided by ducting or similar);
- the provision of permanent vehicle access within the wind farm site, and across the new State highway, via an underpass and new access tracks (designed to geometric standards that matches or exceed existing);
- the provision of direct access from the new State highway for over dimension vehicles;
- the provision for on-going access during construction, as far as practicable, to the wind farm and all retained turbines;
- re-fencing, as required;
- a requirement for the NZ Transport Agency to consult with Meridian as part of the preparation of the ECDF, LMP and EMP;
- the provision for specific consideration being given to minimising effects of any mitigation or offset planting on the wind environment, where such effects impact on the power output of the wind farm;
- a requirement that any outline plan for works within the wind farm, prepared in consultation with Meridian, includes details in relation to construction access, site management and security, contractor training, compliance with NZECP 34:2001 and the separation of works from turbines.

Other Network Utilities and Infrastructure

The following Table 33 summarises the potential effects of the Project on network utilities and in some circumstances more specific, approaches to managing these effects. Consultation has occurred with most network utility operators. The proposed measures to manage potential adverse effects reflects:

- NZ Transport Agency's typical approach to the relocation of, and protection of, network utilities as part of construction projects;
- any outcomes of discussions with network utility operators.

Table 33 – Potential Effects on Network Utilities

NETWORK UTILITY	ACTUAL OR POTENTIAL EFFECTS	PROPOSED MEASURES TO MANAGE EFFECTS
Palmerston North to Gisborne railway	Effects related to the rail network may include: - disruption to rail operations, and impacts on the safety of those operations as a result of construction works; - potential safety risks to construction activities near and across the corridor (as part of temporary construction access); - the impact of a permanent bridge structure crossing the corridor.	The proposed designation conditions include the requirement for any outline plan describing works near the rail corridor to be prepared in consultation with KiwiRail and to address measures to manage potential adverse effects. It is noted that that the rail corridor is subject to a designation in the Manawatū District Plan, for which KiwiRail is the requiring authority. This earlier designation means that any effects of the Project on the rail corridor may be managed through the requirement for the NZ Transport Agency to obtain the written consent of KiwiRail for the Project within KiwiRail's designation under section 177 of the RMA.
Mangamaire – Woodville A 110kV National Grid transmission line	The Project may have the following adverse effects on the transmission line: - restricting maintenance access to transmission line support structures and/or conductors; - disruption to supply as a result of any necessary relocation of the transmission line; - dust causing arcing of conductors; - risks of electrical hazards associated with machinery working near conductors; - risk of electrical hazards associated with new structures near transmission line support structures and/or conductors; and - earthworks and vibration undermining support structures and the operation of the transmission line.	It is proposed to manage the potential adverse effects of the Project on the National Grid through the inclusion of a requirement for any outline plan describing works near the National Grid to be prepared in consultation with Transpower and to address the following: - demonstrate how construction achieves compliance with the NZECP 34:2001; - measures to control induced and transferred voltages and earth potential rise; - additional management measures such as fencing or hurdles; - dust suppression measures; - the timing of any necessary outage (if any); - details of contractor training, and Transpower's involvement in that training. Any relocation of the transmission line that might be necessary will be confirmed as a result of detailed design. If necessary, resource consents (NESETA and regional) will be sought.
Tararua high pressure gas transmission pipeline	While the part of the proposed designation that is intended to provide for the new State highway does not traverse First Gas' gas transmission pipeline, construction site access from Saddle Road will. Achieving site access over the pipeline may have an adverse effect on the integrity of the pipe structure, particularly given the anticipated heavy vehicle movements.	The proposed designation conditions include the requirement for any outline plan describing works that traverse the gas transmission pipeline to be prepared in consultation with First Gas so that necessary measures to protect the pipeline can be confirmed.
Electricity distribution Telecommunications	Potential effects on these electricity distribution, telecommunications and water supply networks include: - continuity of supply during construction;	In order to manage the potential effects on network utiliites generally, the proposed designation conditions include a requirement for any outline plan to, in

NETWORK UTILITY	ACTUAL OR POTENTIAL EFFECTS	PROPOSED MEASURES TO MANAGE EFFECTS
Water supply infrastructure	- maintenance access during construction; - disruption due to necessary temporary or permanent relocation of the network/s; - machinery strike during construction.	consultation with the relevant network utility operator/Council: - the scope, location and timing of works to relocate network utilities and any measures necessary to provide for the identification of, safety and protection of network utilities; and - the maintenance of permanent practical ongoing access to existing and relocated network utilities, including reasonable and emergency access during construction of the Project. In terms of electricity distribution, the designation also confirms the requirement to comply with NZECP 34:2001.
Local roads	Effects on local roads include disruption during construction and the need for appropriate connection or 'tie-in' at the completion of the Project.	Construction effects on local roads are generally managed through the implementation of a CTMP. The CTMP manages construction traffic movements and any adverse effects on the local road network. One example is the requirement to manage loads on heavy vehicles, including covering loads of fine material and the removal of any material deposited or spilled on public roads. Operational, or 'tie-in' matters are address through the implementation of a Network Integration Plan (that details, in consultation with the Councils), how this interface is managed. It is also noted that the NZ Transport Agency has assumed responsibility (by agreement) for the management and maintenance of the Saddle Road route that does not terminate until the Project is operational. This agreement effectively manages any impacts on Saddle Road. Further, the Community Liaison Group (established by designation condition) is charged with reporting any Project related issues in respect of the local road network.

35.2 Specific Property and Land Use Matters

Ballantrae Hill Country Research Station

AgResearch's Ballantrae Hill Country Research Station is the site of a nationally important long-term fertiliser trial site. The Project traverses the Research Station and, as such, has the potential to impact on the operation of the property and the fertiliser trials. Part F of this Report describes on-going engagement with AgResearch that has occurred to assist the NZ Transport Agency to understand the magnitude of potential impacts, and possible options to avoid, minimise or mitigate identified effects.

Having regard to the consultation that has occurred, potential impacts on the Research Station have been factored into the NZ Transport Agency's consideration of alternatives, as detailed in Part E of this Report, including the route refinement and development processes.

Complete avoidance of the site has not proven possible, given the constraints of Saddle Road to the north and steep topography to the south. In order to appropriately manage impacts on Ballantrae Hill Country Research Station, including on farm operations and the fertiliser trial sites, a designation condition is proposed that requires any outline plan for works over the Research Station site, in consultation wth AgResearch, to minimise such impacts including by limiting the extent of construction works on the site (including fill areas and stormwater treatment facilities) and by providing for on-going farm and trial site access and stock movement arrangements during construction.

Effects on Property Access

Any potential effects on access are related to properties that are severed by the proposed designation. While seeking to improve safety through limiting direct access to the proposed road, where access to a property is compromised or removed as part of the Project, alternative access to the road network will be provided or the severed property will be purchased by the NZ Transport Agency.

Alternative access may include, in this instance, the provision of underpasses in a number of circumstances (including for the Ballantrae Hill Country Research Station and Te Āpiti wind farm).

Subject to provision being made for alternative access to severed properties, and as a result of improvements to access on Saddle Road (following completion of the Project), the effects of the Project on access are assessed as neutral.

Woodville Borough Closed Landfill and Other Possible Contaminated Sites

The closed Woodville Borough landfill, located off Saddle and Morgan Roads, is the only known contaminated site within the designation corridor.

There are also six further potentially contaminated sites idenfied within the corridor. These sites are identified as being potentially contaminated (lower risk) due to historic or current land uses (as opposed investigations confirming the presence of hazardous substances above background concentrations). These sites are stockyards and a transport yard as follows:

- 1630 Napier Road (stockyard);
- 1630 Napier Road (transport yard);
- Morgan Road (stockyard);
- eastern rise (two stockyards); and
- opposite 49846 Napier Road (stockyard).

In terms of potential adverse effects, the disturbance of contaminated land may result in the discharge of contaminants to air, groundwater and surface water. Such discharges may also have adverse effects on human health and the environment. These matters are properly managed as part of the future regional consenting process and by any resource consent that may be required for activities regulated by the Resource Management (National Environmental Standard for Assessment and Managing Contaminations in Soil to Protect Human Health) Regulations 2011 ("NES Soil").

While the Project is not expected to traverse or disturb the known landfilled area of the Woodville landfill site, the NZ Transport Agency intends to take a precautionary approach to the management of this site, and other potentially contaminated sites. This will be through a staged approach involving testing prior to the detailed design and construction of the Project, followed by the management of land disturbance works, where assessed as necessary, through established controls and procedures for the excavation, handling and disposal of contaminated soil and waste material. It is likely that these controls will be described in a Contaminated Land Management Plan ("CLMP"), required as part of the future resource consent processes referred to above.

As previously noted, the former landfill is subject to a designation for 'waste disposal' in the Tararua District Plan, for which Tararua District Council is the requiring authority. This earlier designation means that the impact of the Project on the landfill site may be further managed through the requirement for the NZ Transport Agency to obtain the written consent of Tararua District Council for the Project within the landfill designation under section 177 of the RMA.

36. NATURAL HAZARDS

Part B of this Report identifies seismic activity, river flooding and geology and terrain (giving rise to potential for slips in significant weather events) as the possible natural hazard risks to the Project.

With reference to the Preliminary Design Philosophy Report (included as Appendix Three) and the Bridge and Retaining Wall Design Philosophy Report (Appendix Four), these risks are managed and minimised by:

- locating the designation corridor almost entirely outside of identified flood hazard areas identified in District Plans (with the exception of the southern bridge abutment of the existing Ashhurst Bridge and possibly the construction site access from Saddle Road to CH4000);
- constructing the new Manawatū River bridge approximately 25-30 metres above the River;
- providing for detailed hydraulic studies as part of the detailed design stage to confirm the proposed design and location of pier positions for new Manawatū River bridge are appropriate and do not create any adverse effects on the existing river banks or to Parahaki Island immediately downstream of the bridge site;
- providing for a site specific seismic hazard study to confirm seismic loadings for bridges, retaining walls and embankments on the Project upon which a 'low-damage' design approach can be applied to reduce both damage and disruption, and therefore improve resilience (particularly when compared to existing risks); and
- providing for the use of mechanically stabilised earth ("MSE") walls for vertical retaining walls and reinforced soil embankments ("RSE") for embankments detailed with 45° (or steeper) slopes.

PART H:
MANAGEMENT OF EFFECTS ON THE ENVIRONMENT

Part H: Management of Effects on the Environment

37. INTRODUCTION

Part H of this Report further describes the measures proposed to avoid, remedy, mitigate and offset the actual or potential adverse effects of the Project on the environment, including construction effects, that have been identified in Part G of this Report.

The process undertaken to identify and refine the proposed designation corridor (as described in Part E) has sought to avoid adverse effects. Where it has not been practicable to avoid adverse effects through the identification of the proposed designation corridor, the measures set out in this part of the Report, and particularly as they are formalised in the proposed designation conditions, will avoid, remedy, mitigate and offset actual and potential adverse effects of the Project.

The following:

- sets out the general approach to the delivery of the Project, including the outline plan process and future resource consents;
- describes the proposed management plan framework; and
- proposes a range of conditions to be imposed on the designations to embed the management plan framework and achieve appropriate management of adverse effects.

38. APPROACH TO THE DELIVERY OF THE PROJECT

The NoRs are the first stage of 'consenting' for the Project. The NoRs identify a designation corridor within which a yet-to-be-designed road can be constructed, operated and maintained. Conditions imposed on the designations, as proposed below, provide the parameters within which the subsequent design of the Project must be undertaken. These parameters respond to environmental and site constraints; ensure that actual or potential adverse effects of the Project are appropriately managed; and provide for appropriate community and stakeholder engagement over the life of the Project. The conditions also provide for the designations to be reduced in size following the completion of construction.

Resource consents that are required from Horizons, and other necessary approvals, will be sought once the design of the Project has sufficiently progressed. It is possible consents for enabling works

may be separately sought, while an outline plan (or plans) may be submitted in parallel with (or follow) the more comprehensive application for resource consents.

Securing the designation corridor as an initial, and separate, stage is necessary to enable the Project to be constructed over the most efficient timeframe and in a manner that addresses the urgent need for a safe, efficient, reliable and resilient route across the Ruahine Range to replace the closed Manawatū Gorge Route.

The following Table 34 identifies the matters addressed in the conditions proposed as part of the NoRs and also the matters that are to be addressed as part of future resource consents from Horizons or the Councils (including those that are addressed in both, and those that may be required by national environmental standards). The framework set out in Table 34 demonstrates how the conditions reflect the respective council functions set out in sections 30 and 31 of the RMA; are developed to avoid conflict or duplication; and are consistent with the consent requirements in the One Plan.

Table 34 – Matters Addressed in Designation and Resource Consent Conditions

DESIGNATION CONDITIONS	FUTURE RESOURCE CONSENT CONDITIONS
Extent and duration of designation Outline plan content Engagement and community participation Historic heritage and archaeological Social Traffic and transport Landscape and visual Road traffic noise and vibration Network utilities and infrastructure Property impacts	Freshwater ecology Water quality/discharges to water Air quality/discharges to air Works in, on and over the bed of a river (including diversion) Earthworks and land disturbance/discharges to land Electricity transmission activities Management of contaminated land
Natural character Construction management Terrestrial ecology/indigenous vegetation clearance Cultural values	

In order to assess the actual and potential effects on the environment of the Project for the purposes of the proposed designations (that is, the effects of "allowing the requirement(s)", in terms of section 171 of the RMA), the effects are understood:

- with reference to the existing environment, as described in Part B of this Report (including the existing transport network, with the Manawatū Gorge route indefinitely closed); and
- on the basis of realistic and technical feasible road alignments that may be accommodated within the designation, as described in Part C of this Report, including relevant road design standards and specifications that are further set out in the Preliminary Design Philosophy Report (included as Appendix Four).

Conditions are proposed to be imposed on the designations (including the requirement for a comprehensive suite of management plans) for the delivery, operation and maintenance of the Project that respond to the assessment of effects, and that are underpinned by the following principles:

- all works are to be undertaken in compliance with applicable current New Zealand standards and legislation;

- the construction and operation of the Project will avoid, remedy or mitigate adverse effects to an appropriate level;
- in some circumstances, an 'envelope' of effects sets the maximum adverse effects that can be caused by the Project;
- an integrated and collaborative approach has been, and will continue to be, used to develop the design and the methods to avoid, remedy or mitigate actual and potential effects;
- the NZ Transport Agency will maintain on-going engagement with the Councils, tangata whenua, directly affected parties, other key stakeholders and the community; and
- the outline plan process provides for continued refinement to approaches to the management of effects and enables on-going integration, collaboration and engagement.

38.1 The Role of the Outline Plan Process

Section 176A of the RMA sets out the process that the NZ Transport Agency, as requiring authority, must follow in order to progress a work enabled by a designation. The process entails the requiring authority submitting an outline plan or plans to a council. The council then reviews and may provide input (by requesting changes) to the detailed design and construction methodology, amongst other matters. A requiring authority may submit one or more outline plans to reflect project phases or construction sequencing.

An outline plan must detail the following information, in accordance with section 176(3) of the RMA:

- the height, shape, and bulk of the public work, project, or work;
- the location on the site of the public work, project, or work;
- the likely finished contour of the site;
- the vehicular access, circulation, and the provision for parking;
- the landscaping proposed; and
- any other matters to avoid, remedy, or mitigate any adverse effects on the environment.

An outline plan (or outline plans) for the Project will thus demonstrate and explain how the Project meets the conditions of the designations. The outline plan will also include particular information that is required by the designation conditions including the suite of management plans and details of further engagement with various parties. The outline plan will also include a communications plan and accidental discovery protocol (for archaeological sites).

In this way, the outline plan, or plans, will allow for a more comprehensive confirmation of the mitigation of any potential effects once design has progressed and a construction methodology has been finalised. The details within any outline plan will (and must) address the actual or potential effects of the works and how they will be mitigated. For example, the detailed design will necessitate a specific assessment of potential visual effects, especially if new structures are introduced, and specific mitigation will be devised (and incorporated into the outline plan) to address these effects. Currently, the assessment is based on generic design elements with generic responses, but with the knowledge that the potential effects can be adequately mitigated.

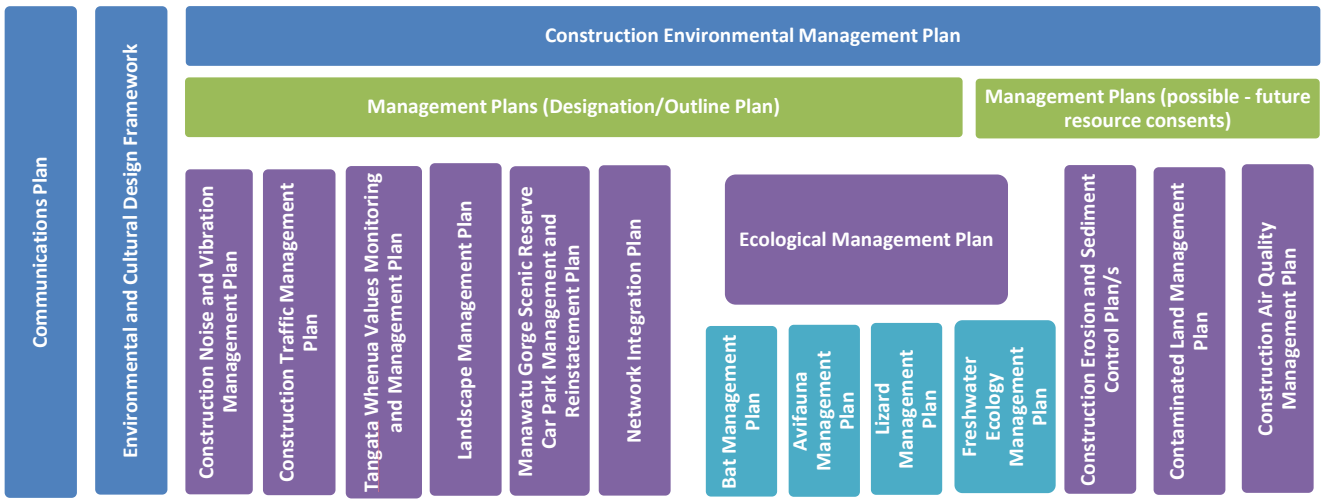
38.2 Management Plans

The proposed framework of management plans required to avoid, remedy and mitigate actual and potential adverse effects of the Project is shown in Figure 32. Figure 32 includes those management

plans that are required by the proposed designation conditions and those that it is anticipated will be prepared, updated or augmented as required by future resource consent conditions.

The management plans will be prepared in the manner set out in designation conditions (or future resource consent conditions), and including the information, consultation and details required by those conditions. That is, management plans implement the controls set by conditions. Management plans are included in the required outline plan, or plans, so that the Council/s may review the plans and request any changes.

Figure 32 – Proposed Management Plan Framework



Construction Environmental Management Plan

The management plans are brought together under the 'umbrella' of a broader Construction Environmental Management Plan ("CEMP"). The CEMP is an overarching document prepared in order to meet the proposed designation conditions (and future resource consent conditions), relevant legislation and the NZ Transport Agency's environmental objectives. The other management plans generally fall under, and are Appendices to, this main plan.

The CEMP will cover all anticipated construction elements and provide details of:

- environmental policy, objectives and performance standards;
- staff and contractors' responsibilities;
- training requirements for employees, sub-contractors and visitors;
- environmental incident and emergency management;
- environmental complaints management;
- compliance monitoring;
- reporting;
- environmental auditing; and
- corrective action/s.

The CEMP and supporting plans may require review and amendment during the life of the Project to reflect changes to activities, risks, mitigation measures, responsibilities and management processes. The ability to make changes to management plans is critical to continually improving the effectiveness of the management plans and the mitigation measures that they provide. The proposed conditions provide for this flexibility, including a framework to enable inconsequential amendments to be made to the management plans without the need for a further outline plan to be submitted.

The following Table 35 provides a general summary of the content of the management plans that are required by the proposed conditions to be imposed on the designations.

Table 35 – Summary of Management Plan Content

MANAGEMENT PLAN	CONTENT
Construction Noise and Vibration Management Plan	The CNVMP set out the methods for the control of noise and vibration associated with the construction of the Project in order to comply with the standards established by a designation condition. The CNVMP includes: • a summary of construction practices, management and mitigation; • standards and monitoring procedures; • staff training and site behaviour requirements; and • communications and contact information.
Construction Traffic Management Plan	The CTMP is to minimise construction effects on traffic safety and efficiency and details the following: • site access routes and access points; • temporary traffic management measures and signs; • limitations on vehicle movements through Ashhurst; • provision for pedestrians and cycling; and • provision for on-going access to private properties, including to Te Āpiti wind farm.
Network Integration Plan	The NIP provides for the integration of the Project with the existing roading network.
Tangata Whenua Values Monitoring and Management Plan	The TVMMP is to recognise and provide for the tangata whenua values of the area, and to establish approaches to avoid or mitigate impacts on those values. The plan (or plans) include: • cultural protocols and inductions; • monitoring activities; • preconstruction activities and dedication/s; • opportunities to reuse materials; and • opportunities to participate in ecological management activities.
Landscape Management Plan	The LMP provides for the mitigation of effects on landscape, visual amenity and natural character values and implements the Environmental and Cultural Design Framework ("ECDF"), described below. The LMP addresses: • the integration of permanent works into the landscape; • the associated planting, including its maintenance; • the approach to vegetation that is retained.
Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan	The Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan provides for the maintenance of access to the Manawatū Gorge Scenic Reserve during construction and sets out the requirements for permanent reinstatement of the car park facilities.
Ecological Management Plan	The EMP details measures to manage the various ecology effects associated with the construction and operation of aspects of the Project enabled by the designations (that is, the ecological effects of allowing the requirements), and includes specific bat, avifauna and lizard management plans. The EMP also:

MANAGEMENT PLAN	CONTENT
	• confirms the ecological values and potential effects; • sets out site staff induction procedures; • details how vegetation for removal will be identified; • confirms the location and extent of replacement and offset planting (including its protection, ecosourcing, timeframes and maintenance; and • provides for any further offsetting necessary to achieve a net indigenous biological diversity gain.

Communications Plan

The proposed designation conditions also require the preparation and implementation of a communications plan. The purpose of the communications plan is to define proactive and reactive communications protocols to keep the community and stakeholders engaged and informed. The communications plan:

- embeds the details of an appointed project liaison person;
- describes the various audiences for communication; and
- sets out communications methods, including through a community liaison group (that provides both a mechanism for the dissemination of information and for obtaining community input to the Project.

Environmental and Cultural Design Framework

The design of the Project is supported by an ECDF that has been developed in consultation with local iwi, councils and stakeholders. The ECDF sets out the overarching design principles and 'vision' that will be applied to the final design of the Project and incorporates Te Aranga Māori Design Values and Principles that, in turn, are guided by the values of rangatiratanga, kaitiakitanga, manaakitanga, wairuatanga, whanaungatanga and mātauranga.

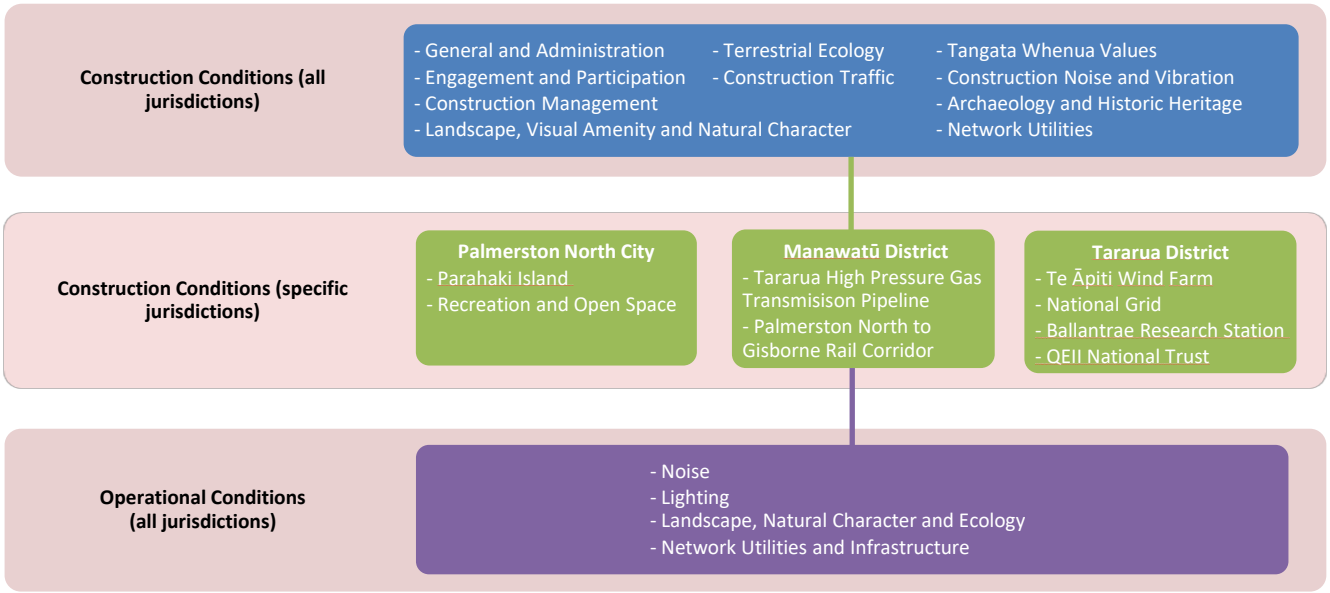
The preliminary ECDF (attached as Appendix Two) provides a design framework within which the design of the proposed Project will be developed. It identifies design principles, constraints and opportunities that guide the design of the Project. The ECDF will be further developed, in consultation with stakeholders, to include design solutions that respond to designation (and future resource consent) conditions and inform the design of the Project, including the management plans listed above; the updated ECDF will not, however, derogate from the principles in the preliminary ECDF.

39. PROPOSED DESIGNATION CONDITIONS

The NZ Transport Agency proposes a suite of conditions to be imposed on the designations to manage the effects of the Project in the manner described above.

The framework of the designation conditions is set out in the following Figure 33. This Figure distinguishes the conditions that apply to the construction of the Project, and its on-going operation and maintenance, across all council jurisdictions and those conditions that apply to the construction of this Project in a single jurisdiction (that is, where the condition relates to works that are only relevant to the designation that is administered by one of the Councils).

Figure 33 – Designation Conditions Framework



39.1 Definitions and Abbreviations

The following Table 36 includes a list of abbreviations and defined terms that are specifically used in the proposed designation conditions.

Table 36 – Proposed Designation Conditions Definitions and Abbreviations

ABBREVIATION/TERM/ ACCRONYM	TERM/DEFINITION
AgResearch	AgResearch Limited
BS	British Standard
CEMP	Construction Environmental Management Plan
CH./Chainage	A distance measured along a straight line. For this Project, chainage is measured in metres and starts from the western extent of the Project.
CNVMP	Construction Noise and Vibration Management Plan
CTMP	Construction Traffic Management Plan
Council/s	means Palmerston North City Council, Manawatū District Council or Tararua District Council.
dB	Decibel
District Plan	means Palmerston North City District Plan, Manawatū District Plan or Tararua District Plan.
ECDF	Te Ahu a Turanga Environmental and Cultural Design Framework
ECR	Environmental compensation ratio
EMP	Ecological Management Plan
First Gas	First Gas Limited

ha	hectares
Horizons	Manawatū Whanganui Regional Council, also known as Horizons Regional Council
KiwiRail	KiwiRail Holdings Limited
km	Kilometre
$L_{Aeq(15min)}$	Time-average sound level over a 15 minute hour period, measured in dB
$L_{Aeq(24h)}$	Time-average sound level over a twenty-four hour period, measured in dB
L_{AFmax}	Maximum sound level, measured in dB
LMP	Landscape Management Plan
m	metres
MDC	Manawatū District Council
MGSR	Manawatū Gorge Scenic Reserve
MGSR Car Park Plan	Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan
mm/s	Millimetres per second
National Trust	QEII National Trust
NESETA	Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009
NES Soil	Resource Management (National Environmental Standard for Assessment and Managing Contaminations in Soil to Protect Human Health) Regulations 2011
NIP	Network Integration Plan
NoRs	Notices of Requirement for a Designation
NZECP 34:2001	New Zealand Electrical Code of Practice for Electrical Safe Distances
NZS	New Zealand Standard
NZ Transport Agency	New Zealand Transport Agency
PNCC	Palmerston North City Council
PPFs	Protected premises and facilities
Project	Te Ahu a Turanga; Manawatū Tararua Highway Project
QEII Trust	Queen Elizabeth the Second National Trust, also know as the QEII National Trust.
Requiring Authority	has the same meaning as section 166 of the RMA and, in the case of the NoR, is the NZ Transport Agency.
RMA	Resource Management Act 1991
TDC	Tararua District Council
Transpower	Transpower New Zealand Limited
TVMMP	Tangata Whenua Values Monitoring and Management Plan

39.2 Draft Construction Conditions (common to all jurisdictions)

REF	DRAFT CONDITIONS
General and Administration	
1.	**General** a) Except as modified by the conditions below, and subject to detailed design and accompanying outline plan/s, the Project must be undertaken in general accordance with the following information provided in 'Te Ahu a Turanga; Manawatū Tararua Highway Project, Notices of Requirement for Designations', dated 31 October 2018: i. Volume 2: Assessment of Effects on the Environment and Supporting Material Parts A to G; ii. Volume 2: Part J, Appendix Two – 'Te Ahu a Turanga Environmental and Cultural Design Framework (Preliminary Urban and Landscape Design Framework)'; iii. Volume 2: Part J, Appendix Three – Preliminary Design Philosophy Report; iv. Volume 2: Part J, Appendix Four – Bridge and Retaining Wall Design Philosophy Report; v. Volume 4, Plans and Drawings: A. Land Requirement Plans LR-00 to LR-11; B. Designation Plans D-00 to D-10. b) Where there is inconsistency between the documents listed above and the requirements of these conditions, these conditions prevail.
2.	**Post-construction review of designation width** As soon as practicable following completion of construction of the Project, the Requiring Authority must: a) review the width of the area designated for the Project; b) identify any areas of designated land that are no longer necessary for the on-going operation, maintenance of the State Highway or for on-going measures to mitigate or offset adverse effects of the Project; and c) give notice to the Council/s in accordance with section 182 of the RMA seeking the removal of those parts of the designation identified in (b) above.
3.	**Post-construction removal of conditions** The following conditions relate to the construction of the Project and only apply to construction activities, such that, once construction of the Project is complete these conditions will no longer apply and can be removed as part of any subsequent District Plan review: a) Conditions 1 to 26 b) Conditions M1 and M2, c) Conditions PN1 and PN2; and d) Conditions T1 to T4. For the avoidance of doubt, none of these conditions prevent or apply to works required for the ongoing operation or maintenance of the State Highway within the designation where the provisions of section 176A of the RMA apply.
4.	**Lapse period** The designation shall lapse if not given effect to within 10 years from the date on which it is included in a District Plan under section 175 of the RMA.

REF	DRAFT CONDITIONS
Outline Plan or Outline Plans	
5.	**Outline plan or outline plans** a) An outline plan or plans must be prepared and submitted to the relevant Council in accordance section 176A of the RMA. b) The outline plan or plans may be submitted in part or in stages to address particular design or construction aspects or stages of the Project. c) The following must be included in an outline plan or plans (as relevant to the particular design or construction matters being addressed): i. a Communications Plan prepared in accordance with Condition 7. ii. a Construction Environmental Management Plan ("CEMP") prepared in accordance with Condition 10 that includes: A. a Construction Traffic Management Plan ("CTMP") prepared in accordance with Condition 22; B. a Construction Noise and Vibration Management Plan ("CNVMP") prepared in accordance with Condition 21; C. a Tangata Whenua Values Monitoring and Management Plan ("TVMMP") prepared in accordance with Condition 23; D. a Ecological Management Plan ("EMP") prepared in accordance with Condition 17 and including: • a 'Bat Management Plan' (Condition 15); • a 'Lizard Management Plan' (Condition 14); and • an 'Avifauna Management Plan' (Condition 16). E. a Landscape Management Plan ("LMP") prepared in accordance with Condition 12; and F. a Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan ("MGSR Car Park Plan") prepared in accordance with Condition PN2; iii. the Te Ahu a Turanga Environmental and Cultural Design Framework ("ECDF") prepared in accordance with Condition 11; and iv. a finalised accidental discovery protocol, where required by and in accordance with Condition 24. d) The documents and plans referred to in clause (c) above may be amended to reflect changes in design, construction methods or the management of effects without the need for a further outline plan where: i. the amendment proposed is provided in writing to Council; and ii. the amendment does not result in a materially different outcome to that described in the original plan. e) The outline plan or plans must demonstrate how the following is achieved: i. the maximum length of the following streams (shown on Drawing C-10) that is permanently disturbed by diversion or other physical modifications must not exceed: A. QEII Trust west (stem 7A): 350m; and B. QEII Trust east (stems 6A, 6B and 6C): 460m. ii. the maximum area of indigenous vegetation removal must not exceed the following within the ecosystems types identified on Designation Plans D-01 to D10: **Ecosystem type** / **Maximum area (ha)** Secondary broadleaved forests with old-growth signatures / 3.07

REF	DRAFT CONDITIONS

Old-growth treelands	0.41
Kānuka forests (CH4000-4400)	1.0
Kānuka forests (elsewhere in the designation)	3.52
Advanced secondary broadleaved forests (CH5600-5800)	0.5
Advanced secondary broadleaved forests (elsewhere in the designation)	2.43
Secondary broadleaved forests and scrublands	16.32
Mānuka, kānuka and divaricating shrublands	3.47
Old-growth forests (alluvial)	0.15
Old-growth forests (hill country)	1.0
Raupō dominated seepage wetlands (high value)	0.13
Indigenous-dominated seepage wetlands (moderate value)	0.56

iii. traffic lanes of the roundabouts must be more than 100 metres from dwellings existing on 31 October 2018;

iv. traffic lanes must be more than 200 metres from the dwellings at 49807 State Highway 3 and 75 Hope Road, Woodville existing on 31 October 2018;

v. in addition to the specific matters addressed in Conditions 26, M1, M2, T1 and T2, the scope, location and timing of works to relocate network utilities and any measures necessary to provide for the identification of, safety and protection of network utilities (in consultation with the network utility operator/Council);

vi. the maintenance of permanent practical ongoing access to existing and relocated network utilities and the Te Āpiti wind farm turbines (where retained), including reasonable and emergency access during construction of the Project.

f) the following conditions are also relevant to the content of an outline plan or outline plans:

i. Condition PN1: Outline plan – Parahaki Island;

ii. Condition M1: Outline plan – Tararua High Pressure Gas Transmission Pipeline;

iii. Condition M2: Outline plan – Palmerston North to Gisborne Rail Corridor;

iv. Condition T1: Outline plan - Te Āpiti Wind Farm

v. Condition T2: Outline plan – Mangamaire – Woodville A 110kV National Grid transmission line;

vi. Condition T3: Outline plan – Ballantrae Farm Research Station; and

vii. Condition T4: Outline plan – QEII National Trust open space covenants.

Engagement and Participation

6. **Community Liaison Person**

a) A Community Liaison Person must be appointed by the Requiring Authority as the main and readily accessible point of contact for persons affected by construction works for the duration of the construction phase of the Project.

b) The Community Liaison Person is to be available by telephone during reasonable hours per day (for example, 6am to 10pm), seven days per week.

c) If the Community Liaison Person is not available for any reason, an alternative person must be nominated.

d) The Requiring Authority must take appropriate steps to advise the Community Liaison Person's name, telephone and email contact details.

REF	DRAFT CONDITIONS
7.	**Communications Plan** a) Prior to the commencement of construction activities, the Requiring Authority must prepare a Communications Plan that sets out procedures detailing how the public, stakeholders and residents will be communicated with throughout the construction of the Project. b) The Communications Plan must accompany any relevant outline plan prepared in accordance with Condition 5. c) As a minimum, the Communications Plan must include: i. Details of the Project Liaison Person (Condition 6), including the ways in which their contact details will be found, such as on the Project website and at site access points. ii. A list of stakeholders, organisations, businesses and residents who will be communicated with. iii. Methods of consultation and matters to be discussed, including: A. proposed hours of construction activities where these are outside of normal working hours or on weekends or public holidays; B. methods to deal with concerns raised about such hours; C. methods to provide early notification to businesses of construction activities, particularly any such activities that will or may impact on Saddle Road (and use of Saddle Road for traffic); D. methods to communicate on any temporary traffic management measures, including disruption of, or changes to, pedestrian and cycling routes and the reinstatement of those routes disrupted by closure of State Highway 3 through Manawatū Gorge (such as the Saddle Road/Pahīatua cycleway route); and E. methods to communicate on any disruption of, or changes to, access to the Manawatū Gorge Scenic Reserve walkways (and/or the Manawatū Gorge Scenic Reserve car park during construction. iv. Details of communication activities proposed including: A. publication of newsletters, or similar, and proposed delivery areas; B. information days, open days or other mechanisms to facilitate community engagement; C. newspaper advertising; D. notification and consultation with business owners and operators and individual property owners and occupiers with premises/dwellings within 100 metres of active construction, and for all businesses in Woodville and Ashhurst. v. Details of the Project website for providing information to the public.
8.	**Community Liaison Group** a) The Requiring Authority must establish a Community Liaison Group at least 30 working days prior to the commencement of construction. b) The purpose of the Community Liaison Group is to: i. share information on: A. detailed design, including planned landscaping; B. key project milestones; C. rest areas or viewing points that are integrated with the Project; D. opportunities (if any) to integrate the Project design with public access / walkway opportunities to areas such as the Manawatū Gorge; and

REF	DRAFT CONDITIONS
	E. opportunities (if any) for pedestrian access across the new Manawatū River bridge to provide views to the Manawatū Gorge; ii. report and respond to concerns and issues raised in relation to construction activities, particularly in respect of the existing local roads such as Saddle Road and Pahīatua Track; and iii. monitor any effects on the community arising from construction activities. c) The Community Liaison Group must hold meetings at least once every three months throughout the construction period and until six months after following completion of construction so that on-going monitoring information can be shared, discussed and responded to. d) In addition to the Project Liaison Person and representatives of the Requiring Authority and the construction contractor, the Requiring Authority will invite representatives of the following entities (at least) to be members of the Community Liaison Group: i. Ashhurst community (at least 3) and Woodville community (at least 3), Dannevirke (1), Palmerston North (1) – noting for accessibility it may be appropriate for the groups to meet separately in Woodville and Ashhurst; ii. Ashhurst School; iii. respective Councils, and including Horizons; and iv. the Department of Conservation. e) The Requiring Authority must prepare an agenda and record minutes for each meeting. f) The Requiring Authority must meet all reasonable costs associated with resourcing the Community Liaison Group.
9.	**Complaints management** a) At all times during construction, the Requiring Authority must maintain a permanent register of any public or stakeholder complaints received in relation to adverse effects of the construction of the Project. b) The register must include: i. the name and contact details (if supplied) of the complainant; ii. the nature and details of the complaint; and iii. location, date and time of the complaint and the alleged event giving rise to the complaint; iv. the weather conditions at the time of the complaint (as far as practicable), including wind direction; v. other activities in the area, unrelated to the Project, that may have contributed to the complaint; vi. the outcome of the Requiring Authority's investigation into the complaint; vii. measures taken to respond to the complaint. c) The Requiring Authority must respond to the complainant as soon as reasonably practicable, as appropriate to the urgency of the circumstances, and within 10 working days at the latest.
Construction Management	
10.	**Construction Environmental Management Plan** a) Prior to the commencement of construction, the Requiring Authority must prepare a Construction Environmental Management Plan ("CEMP") that sets our measures to comply with the designation conditions and to appropriately manage any adverse effects of construction activities.

REF	DRAFT CONDITIONS
	b) The CEMP must accompany any relevant outline plan prepared in accordance with Condition 5 and also include the following suite of management plans: i. CTMP prepared in accordance with Condition 22; ii. CNVMP prepared in accordance with Condition 21; iii. TVMMP prepared in accordance with Condition 23; iv. EMP prepared in accordance with Condition 17; v. LMP prepared in accordance with Condition 12; and vi. MGSR Car Park Plan prepared in accordance with Condition PN2. c) The CEMP must include (as a minimum): i. the roles and responsibilities of staff and contractors; ii. the environmental policy basis and relevant performance standards and conditions that are achieved by the implementation of the CEMP; iii. a description of the Project including: A. the construction programme and staging approach; B. construction methodologies; C. a detailed site layout; D. the design and management specifications for all earthworks on-site, including disposal sites; and E. the design of temporary lighting for construction works and construction support areas; iv. a description of training requirements for all site personnel (including employees, sub-contractors and visitors); v. environmental incident and emergency management procedures; vi. environmental complaints management measures; vii. compliance monitoring, environmental reporting and environmental auditing requirements; viii. the details for emergency contact personnel who must be contactable 24 hours, 7 days a week; ix. site security arrangements; x. an accidental discovery protocol, where required by and in accordance with Condition 24; xi. a requirement for a copy of the CEMP to be held at all site offices. xii. methods for amending, augmenting and updating the CEMP, including, but not limited to, in response to future resource consent conditions and as provided for by Condition 5(d).
Landscape, Visual Amenity and Natural Character	
11.	**Environmental and Cultural Design Framework** Prior to the commencement of construction, the Requiring Authority must review and update the preliminary ECDF. The updated ECDF must: a) be prepared by a suitably qualified person; b) accompany any relevant outline plan prepared in accordance with Condition 5; c) be prepared in accordance with the NZ Transport Agency's: i. 'Urban Design Guidelines: Bridging the Gap (2013)'; ii. 'Landscape Guidelines (Final Draft) September 2014'; and iii. 'Bridge Manual (Third Edition, 2016)';

REF	DRAFT CONDITIONS
	d) take into account the outcomes of consultation with tangata whenua, the Department of Conservation, the Councils, Horizons, the QEII National Trust, the Te Āpiti Governance Group and Meridian; and e) demonstrate as a minimum, including through the completion of the design review template (attached as Appendix B to the preliminary ECDF) how the 'Emerging Design Outcomes' in Chapter 3 of the preliminary ECDF are achieved. This may be by reference to supporting design documents and management plans, including the LMP and EMP required by Condition 12 and Condition 17 respectively.
12.	**Landscape Management Plan** Prior to the commencement of construction, the Requiring Authority must prepare a Landscape Management Plan ("LMP") to address the potential adverse effects of the Project on landscape, visual amenity and natural character values. The Landscape Management Plan forms part of the CEMP required by Condition 10 and must: a) be prepared by a suitably qualified person; b) accompany any relevant outline plan prepared in accordance with Condition 5; c) be consistent with, and implement the outcomes of, the ECDF, including as updated in accordance with Condition 11; d) take into account the outcomes of consultation with tangata whenua, the Department of Conservation, the Councils, Horizons, the QEII National Trust, the Te Āpiti Governance Group and Meridian; and e) as a minimum: i. describe how permanent works, such as earthworked areas, are integrated into the surrounding landscape and topography, including (but not limited to) the restoration of areas used for temporary work and construction yards; ii. describe how vegetation that is to be retained is identified and protected and retired from grazing, including by physical protection through stock exclusion and fencing; iii. with reference to the 'Landscape Sectors and Focus Areas' set out in Chapter 4 of the preliminary ECDF, describe proposed planting including: A. plant species, plant/grass mixes, seed/plant sources and sizes (at time of planting); B. plant layout, spacing and densities; C. planting methods, including ground preparation, mulching and any trials; D. plant and animal pest management strategies; E. a planting programme that is staged with reference to the construction programme and requires planting to be completed within the three planting seasons of the completion of construction in any given Landscape Sector; and F. measures to monitor and manage all planting so that plants establish and those that fail to establish are replaced over a 5 year period or in the case of mass plantings, until 80% canopy cover is achieved; iv. Give particular consideration to: A. the integration of works required by the LMP with the replacement and offset planting required by Condition 13, and managed by Condition 17 (such that planting required by Condition 13 may also be considered to achieve the outcomes of the ECDF and LMP; B. minimising effects of any planting within the Te Āpiti wind farm on the wind environment, where such effects impact on the power output of a Te Āpiti wind farm turbine or turbine; and C. opportunities for planting to stream/riparian and wetland margins to restore natural character values.

<table>
<tr><th>REF</th><th>DRAFT CONDITIONS</th></tr>
<tr><td colspan="2">Terrestrial Ecology</td></tr>
<tr><td>13.</td><td>
Replacement and offset planting
Replacement and offset planting must:
a) be provided in accordance with the following table, except that where vegetation clearance is less than the maximum area, the area for replacement planting can be revised proportionately and in accordance with the environmental compensation ratios (“ECR”) applied to slope-corrected measures of affected vegetation:
<table>
<tr><th>Ecosystem type</th><th>Maximum area (ha)</th><th>ECR</th><th>Replacement/offset planting area (ha)</th></tr>
<tr><td colspan="4">Replacement planting</td></tr>
<tr><td>Secondary broadleaved forests with old-growth signatures</td><td>3.07</td><td>5</td><td>15.35</td></tr>
<tr><td>Old-growth treelands</td><td>0.41</td><td>5</td><td>2.05</td></tr>
<tr><td>Kānuka forests</td><td>4.52</td><td>5</td><td>22.6</td></tr>
<tr><td>Advanced secondary broadleaved forests</td><td>2.93</td><td>4</td><td>11.72</td></tr>
<tr><td>Secondary broadleaved forests and scrublands</td><td>16.32</td><td>3</td><td>48.96</td></tr>
<tr><td>Mānuka, kanuka and divaricating shrublands</td><td>4.12</td><td>1</td><td>4.12</td></tr>
<tr><td colspan="4">Offset planting</td></tr>
<tr><td>Old-growth forests (alluvial)</td><td>0.15</td><td>12</td><td>1.8</td></tr>
<tr><td>Old-growth forests (hill country)</td><td>1.0</td><td>10</td><td>10</td></tr>
<tr><td>Raupō dominated seepage wetlands (high value)</td><td>0.13</td><td>4</td><td>0.52</td></tr>
<tr><td>Indigenous-dominated seepage wetlands (moderate value)</td><td>0.56</td><td>2</td><td>1.12</td></tr>
</table>
b) include the planting of swamp maire at the following rates:
i. 1:100 swamp maire must be planted where:
A. more than 10% of live growth is pruned from a swamp maire; and
B. where the extent of pruning is determined by a suitably qualified arborist;
ii. 1:200 where a swamp maire inadvertently dies as a result of nearby construction activities.
</td></tr>
<tr><td>14.</td><td>
Lizards
Prior to the commencement of construction, the Requiring Authority must prepare a Lizard Management Plan to manage the potential adverse effects of the Project on lizards. The Lizard Management Plan must form part of the EMP required by Condition 17 and:
a) be prepared by a suitably qualified ecologist;
b) take into account the outcomes of any consultation with tangata whenua and the Department of Conservation;
c) describe the methodology for survey, salvage and release, including the identification of potential habitats for survey and planned and opportunistic relocations;
d) identify release sites (which may include the Manawatū Gorge Scenic Reserve, subject to permission being granted by the Department of Conservation) and confirm any
</td></tr>
</table>

REF	DRAFT CONDITIONS
	works necessary to protect such sites from predation or disturbance (when the sites are not in the Manawatū Gorge Scenic Reserve); and e) be updated to achieve consistency with any authorisation given by the Director-General of Conservation under section 53 of the Wildlife Act 1953.
15.	**Bats** a) Prior to the commencement of construction and between the months of November to March, the Requiring Authority must engage a suitably qualified person to undertake a bioacoustic survey. The survey methodology will be agreed with the Department of Conservation. b) Where the investigations required by clause (a) identify the presence of bats in the designation, the Requiring Authority must prepare a Bat Management Plan to manage the potential adverse effects of the Project on bats. The Bat Management Plan must form part of the EMP required by Condition 17 and: i. be prepared by a suitably qualified ecologist; ii. take into account the outcomes of any consultation with tangata whenua and the Department of Conservation; iii. include procedures for bat roost removal (including measures to retain and monitor any active roosting site); iv. where necessary, set out an approach to habitat replacement and pest control; and v. be updated to achieve consistency with any authorisation given by the Director-General of Conservation under section 53 of the Wildlife Act 1953.
16.	**Avifauna** Prior to the commencement of construction, the Requiring Authority must prepare an Avifauna Management Plan to manage the potential adverse effects of the Project on avifauna. The Avifauna Management Plan must form part of the EMP required by Condition 17 and: a) be prepared by a suitably qualified ecologist; b) take into account the outcomes of any consultation with tangata whenua and the Department of Conservation; c) in the Manawatū River riverbed: i. describe the measures necessary (prior to the July to March breeding season) to deter black-fronted dotterels and banded dotterels from nesting; ii. set out the methodology for a pre-construction survey to identify any nesting dotterels; iii. if nesting dotterels are present, require either: A. the establishment an exclusion area around the nesting area within which works may not be undertaken until nesting activities are completed; or B. the relocation (by herding) of the dotterels, under the supervision of a suitably qualified person; d) for any vegetation clearance between the months of September and January in the old-growth forests (alluvial) and old-growth forests (hill country), as shown on the Designation Plans D-01 to D-10: i. set out the methodology for a pre-construction survey to identify any nesting whiteheads; ii. if nesting whiteheads are present, require the establishment of an exclusion area around the tree containing the nest and immediately 177djacent trees within which works may not be undertaken until nesting activities are completed. e) for any clearance or mowing of rank grass between the months of August and March:

REF	DRAFT CONDITIONS
	i. set out the methodology for a pre-construction survey to identify any nesting pipit; ii. if nesting pipit are present, require the establishment of an exclusion area around the nesting area within which works may not be undertaken until nesting activities are completed. f) prior to any works occurring in the raupō dominated seepage wetlands, as shown on Designation Plan D-02, set out the methodology for a pre-construction survey for cryptic bird species. g) consider opportunities to minimise disturbance to the freshwater ponds located between CH9200 and CH9600 in order to maintain possible habitat for Australian coot and New Zealand dabchick. h) be updated to achieve consistency with any authorisation given by the Director-General of Conservation under section 53 of the Wildlife Act 1953.
17.	**Ecological Management Plan** a) Prior to the commencement of construction, the Requiring Authority must prepare an Ecological Management Plan ("EMP") to address the potential adverse effects of the Project on ecological and biodiversity values. The EMP forms part of the CEMP required by Condition 10 and must: i. be prepared by a suitably qualified person, or persons; ii. accompany any relevant outline plan prepared in accordance with Condition 5; iii. as a minimum: A. summarise the terrestrial ecology and biodiversity values and effects of the Project; B. take into account the outcomes of any consultation with tangata whenua, the Department of Conservation and any other party having a direct interest in the land subject to replacement and offset planting required by Condition 13; C. include the bat, lizard and avifauna management plans required by Conditions 14, 15 and 16; D. detail how vegetation to be removed will identified on site; E. set out site staff induction procedures in respect of ecological requirements, including measures to prevent the introduction of pest plants; F. consider opportunities for: • the reuse of natural materials and felled trees by tangata whenua; and • community participation in planting; G. provide for the salvage and transfer of soils, coarse woody material or debris and leaf litter for use in areas of replacement and retirement planting; H. confirm the location of, and extent of, areas for replacement and offset planting required by Condition 13, and any retirement areas identified under clause (b), and set out the management of these areas, including: • legal and physical protection (through stock exclusion and fencing) in perpetuity; • a requirement for all plants to be eco-sourced; • a requirement for all planting to be completed within 3 planting seasons following the completion of construction; • measures to manage all planting so that plants establish and those that fail to establish are replaced;

REF	DRAFT CONDITIONS
	• when within the Te Āpiti wind farm, minimising effects of any planting on the wind environment, where such effects impact on the power output of a Te Āpiti wind farm turbine or turbines; • canopy gap planting in any areas that are retired in accordance with clause (b); • an animal pest management plan to manage possums and rats to achieve and maintain a 5% residual trap catch/tracking index score (or equivalent monitoring method); • a plant pest management plan targeting species that threaten replacement plantings, forest regeneration, and/or forest succession in all planting areas and the regeneration of any retirement areas; • a requirement that replacement planting, plant maintenance and plant pest management continues until 80% canopy cover is achieved in the planting and any retirement areas. b) Taking into account the measures to avoid, remedy, mitigate or offset adverse ecology effects (and including the measures to be undertaken as described in the EMP), the Requiring Authority must, in consultation with the Department of Conservation and tangata whenua: i. determine the extent of any further offsetting necessary to achieve a net indigenous biological diversity gain with reference to the direction given by Policy 13-4 of the Horizons One Plan; ii. where further offsetting is necessary, this may include (but not be limited to) the retirement of areas (where available) within the areas shown for this purpose on Figure 6.A.9 (in Appendix 6.A to Technical Assessment 6: Terrestrial Ecology), the retirement of additional areas in an alternative location, additional offset planting and/or additional pest management measures; iii. the required offsetting activities must be managed in accordance with the management framework set out in the Ecological Management Plan and Condition 31.
18.	**At risk or threatened flora and fauna discovery protocol** a) In the event of discovery or any 'at risk' or 'threatened' flora or fauna (as defined by the Department of Conservation's New Zealand Threat Classification System) within the designation that is not specifically addressed by Conditions 13, 14, 15, 16 or 17, the Requiring Authority must determine a course of action: i. based on the advice of a suitably qualified ecologist; ii. with reference to the EMP framework; iii. taking into account the outcomes of any consultation with tangata whenua and/or the Department of Conservation. b) The Requiring Authority must provide written advice to Councils setting out the course of action determined in accordance with clause (a).

<table>
<tr><th>REF</th><th>DRAFT CONDITIONS</th></tr>
<tr><td colspan="2">Construction Noise and Vibration</td></tr>
<tr><td>19.</td><td>Measurement and assessment – construction noise
Construction noise must, as far as practicable, comply with the following criteria in accordance with NZS 6803:1999:
<table>
<tr><th>Time of Week</th><th>Time Period</th><th>$L_{Aeq(15\ min)}$</th><th>L_{Afmax}</th></tr>
<tr><td rowspan="4">Weekdays</td><td>0630-0730</td><td>55 dB</td><td>75 dB</td></tr>
<tr><td>0730-1800</td><td>70 dB</td><td>85 dB</td></tr>
<tr><td>1800-2000</td><td>65 dB</td><td>80 dB</td></tr>
<tr><td>2000-0630</td><td>45 dB</td><td>75 dB</td></tr>
<tr><td rowspan="2">Saturdays</td><td>0730-1800</td><td>70 dB</td><td>85 dB</td></tr>
<tr><td>1800-0730</td><td>45 dB</td><td>75 dB</td></tr>
<tr><td rowspan="2">Sundays and Public Holidays</td><td>0730-1800</td><td>55 dB</td><td>85 dB</td></tr>
<tr><td>1800-0730</td><td>45 dB</td><td>75 dB</td></tr>
</table></td></tr>
<tr><td>20.</td><td>Measurement and assessment – construction vibration
Construction vibration must, as far as practicable, comply with the following criteria, where:
a) measurement is in accordance with ISO 4866:2010 Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures; and
b) BS 5228-2 is British Standard BS 5228-2:2009 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.
<table>
<tr><th>Receiver</th><th>Location</th><th>Details</th><th>Category A PPV</th><th>Category B PPV</th></tr>
<tr><td rowspan="2">Occupied PPFs</td><td rowspan="2">Inside the building</td><td>Night 2000h to 0630h</td><td>0.3 mm/s</td><td>1 mm/s</td></tr>
<tr><td>Day 0630h to 2000h</td><td>1 mm/s</td><td>5 mm/s</td></tr>
<tr><td>Other occupied buildings</td><td>Inside the building</td><td>Day 0630h to 2000h</td><td>2 mm/s</td><td>5 mm/s</td></tr>
<tr><td rowspan="2">Unoccupied buildings</td><td rowspan="2">Building foundation</td><td>Vibration transient</td><td rowspan="2">5 mm/s</td><td>BS 5228-2 Table B.2</td></tr>
<tr><td>Vibration continuous</td><td>50% of BS 5228-2 Table B.2</td></tr>
</table></td></tr>
</table>

REF	DRAFT CONDITIONS
21.	**Construction Noise and Vibration Management Plan** a) Prior to the commencement of construction activities, the Requiring Authority must prepare a Construction Noise and Vibration Management Plan ("CNVMP") to demonstrate how compliance with the criteria in Conditions 19 and 20 will be achieved for the duration of construction of the Project. b) The CNVMP must be prepared by a suitably qualified person and in general accordance with the requirements of Annex E2 of NZS 6803:1999. c) The CNVMP forms part of the CEMP required by Condition 10 and must accompany any relevant outline plan prepared in accordance with Condition 5. d) The CNVMP must include, as a minimum: i. a description of the construction work, anticipated equipment/processes and their scheduled durations; ii. the hours of operation, including times and days when activities causing noise and/or vibration would occur; iii. the construction noise and vibration criteria for the Project; iv. identification of affected houses and other sensitive locations where noise and vibration criteria apply; v. methods and frequency for monitoring and reporting on construction noise and vibration; vi. procedures for maintaining contact with stakeholders, notifying or proposed construction activities and handling noise and vibration complaints (consistent with the Communications Plan and complaints register); vii. construction equipment operator training procedures and expected construction site behaviours; and viii. contact numbers for key construction staff, staff responsible for noise assessment and council officers.
Construction Traffic	
22.	**Construction Traffic Management Plan** Prior to the commencement of construction, the Requiring Authority must prepare a Construction Traffic Management Plan ("CTMP") to minimise adverse effects on property access, traffic safety and efficiency as a result of construction activities. The CTMP forms part of the CEMP required by Condition 10 and must, as a minimum: a) be prepared by a suitably qualified person; b) accompany any relevant outline plan prepared in accordance with Condition 5; c) take into account the outcomes of any consultation with the Councils; d) set out the numbers, frequencies, routes and timing of construction traffic movements; e) identify site access routes and access points for heavy vehicles and describe measures to: i. manage the movements of heavy vehicles on Saddle Road during peak times; and ii. provide for access to the site to be gained (where possible) from both sides of the Ruahine Ranges; f) describe methods to manage local and network wide effects of the construction of individual elements of the Project including, as a minimum, the roundabout connections at Ashhurst and Woodville including temporary traffic management measures; g) describe methods to limit the movement of heavy vehicles through Ashhurst at night and peak times;

REF	DRAFT CONDITIONS
	h) give consideration to opportunities to reduce adverse effects though: i. use of KiwiRail's infrastructure to delivery construction materials the Manawatū River bridge site; ii. accelerated construction of the Manawatū River bridge and Hope Road bridge so that these bridges may be used to access the site; i) set out how the current provision for pedestrian and cycling activities is maintained; j) detail measures to provide on-going vehicle access to private properties, including the Te Āpiti wind farm, and limit the adverse effects of construction and severance, including by forming any new permanent accesses at the earliest opportunity; and k) confirm the management approach to loads on heavy vehicles, including covering loads of fine material and the timely removal of any material deposited or spilled on public roads.
Tangata Whenua Values	
23.	**Tangata whenua values monitoring and management** a) Prior to the commencement of construction, the Requiring Authority must prepare a Tangata Whenua Values Monitoring and Management Plan (or Plans). The Plan (or Plans) must be prepared by a person (or persons) endorsed by tangata whenua. b) The purpose of the Tangata Whenua Values Monitoring Plan (or Plans) is to recognise and provide for the tangata whenua values of the area and to develop mechanisms and processes to seek to avoid or minimise potential impacts on those values through the implementation of agreed monitoring and mitigation measures. c) The Tangata Whenua Values Monitoring Plan (or Plans) must include (but not be limited to): i. setting out pre-construction activities, including site dedication; ii. establishing cultural protocols and procedures for cultural inductions; iii. describing specific monitoring activities to be undertaken; iv. confirming the roles and responsibilities of personnel in respect of clauses (i) to (iv); v. approaches to realising opportunities to reuse natural materials/trees, participation in planting, fish surveys and/or transfer, species monitoring and translocation; vi. setting out the detailed accidental discovery protocol procedures development under Condition 24.; and vii. any other matters or measure to avoid or mitigate potential impacts on tangata whenua values, customs and practices.
Archaeology and Historic Heritage	
24.	**Accidental discovery protocol** a) Prior to the commencement of construction activities, the Requiring Authority must finalise an accidental discovery protocol to be implemented in the event of accidental discovery of cultural or archaeological artefacts during construction of the Project. b) The accidental discovery protocol must be prepared in consultation with the tangata whenua and must include, but not be limited to: i. details of contractor training regarding the possible presence of cultural or archaeological sites or material; ii. general procedures following the accidental discovery of possible archaeological sites, kōiwi tangata, wāhi tapu or wāhi taonga, including the requirement to immediately cease construction activities in the vicinity of the discovery and the requirement to notify parties; iii. specific procedures in the event that kōiwi tangata are discovered;

REF	DRAFT CONDITIONS
	iv. procedures for the custody of taonga (excluding kōiwi tangata) or material found at an archaeological site; v. activities that must be undertaken before construction activities in the vicinity of the discovery can recommence, including appropriate tikanga, recording, recovery of artefact and consultation. c) The accidental discovery protocol referred to in clauses (a) and (b) above does not apply, and need not be implemented in the event that: i. an Authority is sought under section 44(a), and granted under section 48, of the Heritage New Zealand Pouhere Taonga Act 2014; and ii. that Authority provides for an accidental discovery protocol that includes the matters listed in clauses (a) and (b).
Network Utilities	
25.	**Electrical safe distances** Construction activities and structures must be designed and undertaken to comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001).
26.	**Network Integration Plan** Prior to the commencement of construction, the Requiring Authority must prepare a Network Integration Plan ("NIP") to demonstrate how the Project integrates with the existing local road network and with future, planned, improvements to the network. The NIP must be prepared in consultation with the relevant road controlling authority and, as a minimum, include details of proposed works at the interface between the State highway and the local road network, including road surfacing, road markings and signs.

39.3 Draft Construction Conditions (Palmerston North City only)

REF	DRAFT CONDITIONS
Parahaki Island	
PN1.	**Outline plan – Parahaki Island** Where an outline plan, or plans, describes works related to the bridging of the Manawatū River, including any piers, abutments and the northern and southern approaches (and associated construction access), the Requiring Authority must: a) consult with the Te Āpiti Ahu Whenua Trust for the purpose of recognising the values of Parahaki Island and providing for those values including by: i. minimising, as far as practicable, any impact of the construction activities or Manawatū River bridge piers on Parahaki Island; ii. identifying opportunities to recognise the historical and cultural significance of Parahaki Island in the design of Manawatū River bridge and approaches to the bridge; iii. identifying opportunities for landscape or ecological mitigation planting [link to other conditions] on Parahaki Island. b) as a minimum, include the following in the outline plan: i. details of the consultation undertaken with the Te Āpiti Ahu Whenua Trust, including comments made in relation to the matters listed in (a) and any measures taken by the Requiring Authority to respond to these comments.

Recreation and Open Space	
PN2.	**Manawatū Gorge Scenic Reserve car park** a) Prior to any construction works that affect access to or use of the Manawatū Gorge Scenic Reserve car park, and/or access to the Manawatū Gorge walking tracks, a 'Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan' ("MGSR Car Park Plan") must be prepared. b) The MGSR Car Park Plan must be prepared in consultation with the Department of Conservation, Palmerston North City Council, tangata whenua and community representatives and with reference to the ECDF. c) The MGSR Car Park Plan must include, as a minimum: i. details of how public access will be maintained over duration of construction activities, including reinstatement works; ii. details of reinstatement of land used for construction including: A. removal of structures, plant and materials associated with construction (unless otherwise agreed with the landowner); B. replacement or reinstatement of formal parking areas, boundary fences, landscaping and information / signage; C. reinstatement of grassed areas to a similar condition as existed prior to construction; D. replacement of trees and other planting removed as part of construction activities; and E. details of way finding and interpretation signs within and adjacent to the Manawatū Gorge Scenic Reserve car park (including to the walking tracks and potential opportunities identified for pedestrian viewing opportunities on the new Manawatū River bridge).

39.4 Draft Construction Conditions (Manawatū District only)

REF	DRAFT CONDITIONS
Network Utilities	
M1.	**Outline plan – Tararua High Pressure Gas Transmission Pipeline** Where an outline plan, or plans, describes works that traverse the Tararua High Pressure Gas Transmission Pipeline, the Requiring Authority must: a) Consult with First Gas in order to develop any necessary measure to ensure that no construction activities, and particularly site access, cause material damage to the pipeline. b) Include details of the consultation undertaken and any measures to protect the pipeline in the outline plan.
M2.	**Outline plan – Palmerston North to Gisborne Rail Corridor** Where an outline plan, or plans, describes works within or adjacent to the Palmerston North to Gisborne rail corridor, the Requiring Authority must: a) Consult with KiwiRail for the purpose of appropriately managing any potential adverse effects of the Project (including as a result of access across the corridor) on the continued operation, maintenance and upgrading of the rail line. b) Include details of the consultation undertaken and any measures to manage potential adverse effects in the outline plan. c) Set out how any measures to manage potential adverse effects identified in accordance with clause (b) may be reviewed and updated, as necessary.

	Advice Note: Written consent from KiwiRail under section 177(1)(a) of the RMA is required independent of this condition.

39.5 Draft Construction Conditions (Tararua District only)

REF	DRAFT CONDITIONS
Network Utilities and Infrastructure	
T1.	**Outline plan – Te Āpiti Wind Farm** Where an outline plan or plans describes works within the Te Āpiti wind farm site, the Requiring Authority must: a) consult with Meridian Energy Limited ("Meridian") for the purpose of designing and constructing the Project to minimise, as far as practicable, impacts on the wind farm; and b) as a minimum, include the following in the outline plan: i. details of the consultation undertaken under clause (a); ii. details of on-going access arrangements during construction, including the management of construction traffic within the wind farm; iii. where construction activities (other than for the relocation of services and access) are within 60 metres of any turbine that is to be retained, advice from a suitably qualified person in relation to any potential impact on the safe and efficient operation of that turbine; iv. confirmation of compliance with NZECP 34:2001; v. details of site management and security; and vi. arrangements for site inductions and contractor training, including Meridian's involvement in that training.
T2.	**Outline plan – Mangamaire – Woodville A 110kV National Grid transmission line** Where an outline plan, or plans, describes works in the vicinity of the Mangamaire – Woodville A 110kV transmission line, the Requiring Authority must: a) consult with Transpower New Zealand Limited in order to: i. demonstrate how construction works and associated activities are designed and undertaken to comply with NZECP 34:2001; ii. develop measures to control induced and transferred voltages and earth potential rise where conductive material is within 8 metres of the transmission line support structures; iii. identify areas where additional management measures are necessary such as fencing or hurdles; iv. confirm timing for any outage that may be necessary; v. confirm measures to manage the effects of dust that may damage the National Grid transmission lines; and vi. confirm details of contractor training, and Transpower's involvement in that training, for those working within 8 metres of the transmission line support structures or within the maximum extent of conductor swing (at maximum operating temperature). b) Details of the consultation undertaken and measures to achieve the matters listed in (a) must be included in the outline plan.

Ballantrae Hill Country Research Station	
T3.	**Outline plan – Ballantrae Farm Research Station** Where an outline plan, or plans, describes works within the Ballantrae Hill Country Research Station, the Requiring Authority must: a) consult with AgResearch Limited for the purpose of designing and constructing the Project to minimise impacts, as far as practicable, on the farm operations and fertiliser trial sites at Ballantrae Farm Research Station; and b) as a minimum, the outline plan must: i. set out details of the consultation undertaken under clause (a); ii. demonstrate how the extent of construction works on the site (including fill areas and stormwater treatment facilities) is limited; and iii. describe details of on-going farm and trial site access and stock movement arrangements during construction.
QEII National Trust Open Space Covenants	
T4.	**Outline plan – QEII National Trust open space covenants** Where an outline plan, or plans, describes works within the areas subject to QEII Trust open space covenants (shown on Plan C-06), the Requiring Authority must: a) consult with the National Trust for the purpose of designing and constructing the Project to minimise impacts, as far as practicable, on the natural environment values of the area subject to the covenant; and b) as a minimum, the outline plan must: i. set out details of the consultation undertaken under clause (a); ii. demonstrate how the extent of construction works on the site is limited (including by Condition 5(e)); and iii. describe any restoration that may be proposed (including as part of the LMP required by Condition 12).

39.6 Draft Operational Conditions (common to all jurisdictions)

REF	DRAFT CONDITIONS
Noise	
27.	**Road surfacing** Prior to the opening of the new road, a low noise road surface must be laid on: [show on plan] a) State Highway 3 Napier Road between Cambridge Avenue and the Manawatū River; and b) Vogel Street in Woodville.
28.	**Traffic separation** a) traffic lanes of the roundabouts must be more than 100 metres from dwellings existing on 31 October 2018; b) traffic lanes must be more than 200 metres from the dwellings at 49807 State Highway 3 and 75 Hope Road, Woodville existing on 31 October 2018.
29.	**49807 State Highway 3 and 75 Hope Road, Woodville** In order to control sound levels at the dwellings at 49807 State Highway 3 and 75 Hope Road, Woodville existing on 31 October 2018, either:

	a) a low noise road surface must be laid on the main alignment from the eastern roundabout extending at least 1.5 kilometres to the west of the roundabout; or b) TL5 concrete barriers must be provided.
Lighting	
30.	**Operational lighting** Lighting must be designed, maintained and operated to comply with *AS/NZS 1158 Lighting for Roads and Public Spaces*.
Landscape, Natural Character and Ecology	
31.	**Landscape, replacement and offset planting maintenance** Nothwithstanding Condition 3, any planting required by, and managed by, Conditions 12, 13 and 17 must be maintained and managed in accordance with the measures set out in the LMP and EMP.
Network Utilities and Infrastructure	
32.	**Written consent under section 176 of the RMA - Te Āpiti Wind Farm** The Requiring Authority must not require Meridian to seek written consent under section 176 of the RMA for work that can occur in accordance with the resource consent for the Te Āpiti wind farm (dated 3 September 2003) where that work does not encroach on, or impact on, the construction or operational of the State highway. To the extent that written approval is required, this condition shall constitute written approval.

PART I: STATUTORY MATTERS

Part I: Statutory Matters

40. INTRODUCTION

The following provides an assessment of the statutory matters that are relevant to the Project under the RMA. The assessment is particularly guided by the requirements of section 171(1), which sets out the matters that must be considered by a territorial authority in making a recommendation on a notice of requirement. As such, this assessment generally follows the hierarchy of applicable planning documents and concludes with an assessment in relation to Part 2 of the RMA.

The applicable RMA planning documents, and the provisions of those planning documents that are considered (by NZ Transport Agency and the Councils) to be relevant to the consideration of the NoRs are included in Appendix One. This assessment is made with reference to the preceding Parts of this Report, including:

- Part E: Consideration of Alternatives;
- Part F: Consultation and Engagement;
- Part G: Assessment of Effects on the Environment; and
- Part H: Management of Effects on the Environment.

Where necessary the extent of relevance and weight attributed to any particular provision is indicated in the following assessment.

41. NATIONAL POLICY STATEMENTS

41.1 National Policy Statement for Renewable Electricity Generation

Provisions Identified as Relevant: Objective A, Objective A – Policy A, Objective B – Policy B, Objective C – Policy C1, and Objective D – Policy D

The Objective of the NPSREG is to recognise the national significance of renewable electricity generation activities by providing for new and existing generation activities so that the proportion of New Zealand's electricity that is generated from renewable sources meets Government targets. Objective A – Policy A, Objective B – Policy B and Objective C – Policy C1 place positive obligations on decision-makers to (respectively):

- recognise and provide for the national significance of renewable electricity generation activities including a range of listed benefits of renewable electricity generation activities;
- have particular regard to the maintenance of generation output of existing renewable electricity generation activities (noting that minor reductions can have a cumulatively significant effect); and

- have particular regard to a listed range of constraints to the development of existing and new renewable electricity generation activities.

In terms of Objective B – Policy B, the Project may necessitate the removal of a turbine, or turbines, that in turn may result in a reduction in generation output. However, in developing the Project, and consistent with Policy B, the NZ Transport Agency has had particular regard to location of the designation corridor in order to avoid or minimise the loss of turbines as a result of the Project. Further, the NZ Transport Agency has explored opportunities to relocate, rather than remove, turbines from the wind farm with Meridian. On this basis, and having regard to the local and regional context, the removal of one (and possibly two) turbines from the existing wind farm does give rise to a significant cumulative adverse effect on national, regional and local electricity output.

The potential effects of the Project on the Te Āpiti wind farm are identified in Part G of this Report, including a range of measures to manage these effects, such as the provision for on-going access to, and within, the wind farm and measures to protect existing turbines from the effects of nearby works. The NZ Transport Agency is committing (through conditions) to implement these measures in close consultation with Meridian. Subject to these measures, the Project does not compromise the on-going operation of the wind farm and the benefits that accrue as a result, and is therefore consistent with Policies A and C1.

Objective D – Policy D requires decision-makers to manage activities to avoid reverse sensitivity effects on existing renewable electricity generation activities. In this regard, the Project is not an activity that is sensitive to the effects of the Te Āpiti wind farm such that, once established, the Project would constrain the operation of the existing wind farm (due to the adverse effects of the wind farm). Therefore, there is no reverse sensitivity effect to manage in this instance.

41.2 National Policy Statement on Electricity Transmission

Provisions Identified as Relevant: Objective, Policy 1, Policy 2, and Policy 10

The Objective of the NPSET seeks to recognise the national significance of the National Grid by facilitating its development while managing effects of, and effects on, the network. Policies 1 and 2 require decision-makers to recognise and provide for:

- the benefits of electricity transmission; and
- the effective operation, maintenance, upgrading and development of the National Grid.

Policy 10 provides for the protection of the National Grid from the effects of other activities such that the network is not compromised.

The potential impacts of the Project on the National Grid are set out in Part G and relate to the potential need to relocate poles on the Mangamaire – Woodville A 110kV transmission line and impacts associated with works in the vicinity of the transmission line. Designation conditions are proposed to manage the potential impacts on the National Grid such that the benefits of the electricity transmission are realised and the on-going operation, maintenance, upgrading and development of the National Grid is not compromised (consistent with the policy outcomes in the NPSET).

41.3 National Policy Statement for Freshwater Management

Provisions identified as relevant: Objective AA1, Water Quality Objective A1, A2, A3 and A4; Water Quantity Objective B4, Integrated Management Objective C1, and Tangata Whenua Roles and Interests Objective D1

The NPSFWM addresses (as a matter of national significance) the management of freshwater through a framework that considers and recognises Te Mana o te Wai as an integral part of freshwater management. The NPSFWM directs regional councils, in consultation with their communities, to set objectives for the state of freshwater bodies in their regions and to set limits on resource use to meet these objectives. The NPSFWM includes a range of Objectives that are achieved through Policies that, in turn, give specific direction to regional councils.

As set out in Part H of this Report, the impacts of the Project on freshwater matters are to be considered as part of future regional resource consent processes, consistent with regional council functions and alongside the development of detailed design and a confirmed construction methodology.

That said, to the extent that the Project is able to respond to the objectives of the NPSFWM as part of the NoRs, the proposed designation provides:

- a corridor within which a road can be constructed, which has been identified taking into account potential effects on freshwater ecology; that is, the corridor provides space and good options appropriately to avoid, remedy, or mitigate effects on freshwater resources;
- adequate area to accommodate stormwater treatment and erosion and sediment control measures that will be integrated in the detailed design of the Project;
- an 'effects envelope' to manage the potential effects on the natural character of high value streams such that ecosystem processes are protected;
- a management plan framework that foreshadows the implementation of an appropriate regime for the management of effects on freshwater resources; and
- formalised opportunities (through proposed designation conditions) for continued tangata whenua involvement in the development of the Project design, including in relation to the management of freshwater and associated ecosystems.

On this basis, allowing the requirements is consistent with, and does not compromise the ability for the Project to achieve, the Objectives of the NPSFWM.

42. REGIONAL POLICY STATEMENT – HORIZONS ONE PLAN (PART 1)

42.1 Chapter 2: Te Ao Māori

Provisions identified as relevant: Objective 2-1, Policy 2-2, and Policy 2-4

Objective 2-1 seeks that:

- regard be had to the mauri of natural resources to enable hapū and iwi to provide for their well-being;
- kaitiakitanga be given particular regard; and
- the relationship of hapū and with the ancestral lands, water, sites, wāhi tapu and other taonga be recognised and provided for.

This Objective 2-1 is implemented by Policy 2-2 that provides for the identification of, and protection of, wāhi tapu, wāhi tupuna and other sites of significance, while Policy 2.4 references a table of resource issues of significance to hapū and iwi that "*must be addressed*".

NZ Transport Agency's approach to recognising and providing for tangata whenua values (including managing potential adverse effects on those values) is set out in Part G of this Report and includes the provision for cultural values to be directly articulated by tangata whenua and subsequently managed in the context of the Project. This approach achieves Objective 2-1 and goes beyond the extent of protection required by Policy 2-2, given that the proposed designation is not over any of the areas that Policy 2-2 directs must be protected (clause (a)).

In terms of clauses (c) and (d) of Policy 2-2, the Project provides for the disturbance of unidentified sites of significance through the development of an accidental discovery protocol in consultation with tangata whenua.

42.2 Chapter 3: Infrastructure, Energy, Waste, Hazardous Substances and Contaminated Land

Infrastructure

Provisions identified as relevant: Objective 3-1, Policy 3-1, Policy 3-2, and Policy 3-3

These provisions seek that regard be had to the benefits of regionally and nationally important infrastructure (including the road and rail network as identified in the RLTP) by providing for their establishment, operation, maintenance and upgrading.

Policy 3-3 establishes a framework for the management of adverse effects arising from the establishment, operation, maintenance and upgrading of infrastructure. This framework provides for minor adverse effects to be allowed, and more than minor effects to be avoided, remedied or mitigated – taking into account:

- the need for the infrastructure;
- functional, operational or technical constraints that require the infrastructure to be located or designed in the manner proposed;
- whether there are any reasonably practicable alternative locations or designs; and
- whether more than minor adverse effects that cannot be adequately avoided, remedied or mitigated can be offset.

The Project delivers a wide range of benefits including significantly positive transport, social and economic impacts, as set out in Part G and, as such, achieves the RPS Objective.

In terms of effects, it is acknowledged that the Project will result in a range of adverse effects on the environment, particularly on the natural environment. These effects are also presented in Part G. The policy framework that applies specifically to infrastructure allows for minor effects and provides for the management of more than minor effects, to be considered in light of a range of considerations. In

terms of these considerations, the need for the Project is clearly reflected by its NLTP and RLTP priority, while the constraints and alternatives consideration are summarised in Parts E and G.

Having regard to the proposed designation conditions in Part H, including the offsetting of effects on terrestrial ecology, the effects of the Project are managed in a manner that is consistent with these provisions.

Policies 3-2 addresses the adverse effects of other activities on regionally or nationally important infrastructure and requires that these effects are avoided as far as reasonably practicable.

The Project seeks to avoid, as far as reasonable practicable, any potential adverse effects on network utilities and infrastructure including the National Grid, the high pressure gas transmission network and Te Āpiti wind farm. This is achieved through a range of measures that are described in Part G and embedded in the proposed designation conditions in Part H.

Energy

Provisions identified as relevant: Objective 3-2, Policy 3-6, and Policy 3-7

The Objective seeks an improvement in the efficiency of the end use of energy and an increase in the use of renewable energy resources. Policy 3-6 requires the Regional Council and Territorial Authorities to have particular regard to, amongst other matters, the benefits of the use and development of renewable energy resources while Policy 3-7 provides for Territorial Authorities to ensure that sustainable transport options can be integrated into land use development.

The Project does not compromise the on-going operation of the wind farm and the benefits that accrue as a result and, as such, is consistent with these RPS provisions (as explained above).

In terms of energy use, the Project results in substantial travel time gains, on a less steep road than the alternative routes, such that overall vehicle operating costs and fuel consumption are reduced. The reduction in vehicle operating costs effected by the Project has been estimated as $139M (as explained in the DBC).

To the extent that Policy 3-7 is relevant to the Project (and a NoR), the Project provides new opportunities for reliable and efficient public transport connections across the Ruahine Range. The Project contributes towards a safer cycling and walking environment by reducing traffic on the Pahīatua Track and thereby allowing the National Cycle Route link to be reopened. Further, the Project does not preclude the future integration of sustainable transport options.

Waste and Contaminated Land

Provisions identified as relevant: Objective 3-5, Policy 3-8, and Policy 3-15

These provisions seek that the Regional Council and Territorial Authorities work together to minimise waste; ensure it is disposed of appropriately; manage effects of hazardous substances; and manage adverse effects of contaminated land. The relevant implementing Policies apply a waste management hierarchy and a framework for the management of priority contaminated land (that would apply to the Woodville landfill site).

In terms of waste management, the ECDF includes the reuse and recycling of waste materials as a "project specific principle" and includes the reuse of plant material, logs and seed source forest duff as a design outcome. Realising opportunities for cultural reuse of natural materials is a matter to be addressed in the Tangata Whenua Values Monitoring and Management Plan.

The Woodville landfill site is managed in the manner set out in Part G by firstly avoiding works in or over the area that has been 'landfilled', but also taking a precautionary approach (consistent with Policy 3-15) by testing and developing management approaches, as necessary.

42.3 Chapter 4: Land

Provisions identified as relevant: Objective 4-2 and Policy 4-2

These provisions generally provide for the regulation of vegetation clearance, land disturbance, forestry and cultivation activities to ensure that accelerated erosion and increased sedimentation in water bodies are avoided, as far as reasonably practicable, or otherwise remedied or mitigated.

The Project includes the clearance of vegetation and land disturbance activities within the proposed designation corridor. The extent of these works is to be determined and managed through detailed design, and further authorised by future resource consent and outline plan processes.

To the extent that the Project is able to respond to these provisions at this stage, the proposed designation:

- includes a management plan framework that foreshadows the implementation of an appropriate regime for the management of effects as a result of vegetation clearance and land disturbance;
- includes adequate area to accommodate stormwater treatment and erosion and sediment control measures that will be integrated in the detailed design of the Project;
- sets out clear design outcomes in the ECDF in relation to earthworks, slope treatments and top soil management; and
- sets out standards for the design of construction and operational stormwater management (included in the Preliminary Design Philosophy Report in Appendix Three)

One this basis, confirming the designations is consistent with, and does not compromise, the ability for the Project to achieve, the outcomes sought by these provision.

42.4 Chapter 5: Water

Provisions identified as relevant: Objective 5-1, Objective 5-2, Objective 5-4, Policy 5-1, Policy 5-3, Policy 5-4, Policy 5-5, Policy 5-6, Policy 5-9, Policy 5-10, Policy 5-22, Policy 5-23, Policy 5-24, Policy 5-25, and Policy 5-26

The Chapter 5 provisions that are identified as relevant relate to the management of:

- water bodies;
- surface water and groundwater quality;
- the beds of rivers and lakes;
- point source discharges of contaminants to land and water; and
- activities in, on, under, or over the beds of lakes and rivers.

As with the NPSFWM, the impacts of the Project on the matters listed above are considered as part of future regional resource consent processes, consistent with regional council functions and alongside the development of detailed design and a confirmed construction methodology.

To the extent that the Project is able to respond to these provisions as part of the NoRs, the proposed designation provides:

- a corridor within which a road can be constructed with opportunities to appropriately to avoid, remedy, or mitigate effects on freshwater resources;
- adequate area to accommodate stormwater treatment and erosion and sediment control measures that will be integrated in the detailed design of the Project;
- an 'effects envelope' to manage the potential effects on the natural character of high value streams such that ecosystem processes are protected;
- a requirement for hydrological studies to confirm an appropriate approach to bridge design; and
- a management plan framework that foreshadows the implementation of an appropriate regime for the management of effects on water resources and water bodies.

In terms of freshwater resources and water bodies, allowing the requirements is generally consistent with the provisions of Chapter 5 to the extent that the proposed designation does not compromise the ability for the Project to be undertaken in a way that is consistent with the management framework established by the provision.

42.5 Chapter 6: Indigenous Biological Diversity and Historic Heritage

Indigenous Biological Diversity

Provisions identified as relevant: Objective 6-1 and Policy 6-2

Objective 6-1 seeks to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna, and maintain biodiversity. Policy 6-2 directs how this is achieved including by applying Regional Plan Policies 13-4 and 13-5 and Schedule F to the One Plan.

The potential impacts of the Project on indigenous biological diversity have been assessed with reference to the One Plan provisions. As a result of initial assessments that effects may be significant (based on the theoretical scenario of vegetation clearance across the entire designation corridor), an 'effects envelope' approach has been taken to minimise adverse effects, whereby designation conditions prescribe a maximum amount of vegetation than can be removed from particular ecosystem types.

Further, and consistent with Policy 13-4, a replacement planting and offsetting approach (embedded in designation conditions) responds to the reduced extent of vegetation and habitat removal such that the Project is able achieve the net biological diversity gain required by the One Plan. Put another way, enabling the Project will protect, and indeed enhance, biodiversity values.

Allowing the requirements is therefore consistent with the outcomes sought by the relevant provisions.

Historic Heritage

Provisions identified as relevant: Objective 6-3

The Objective requires the protection of historic heritage from activities that would reduce heritage qualities.

No archaeological or other heritage sites have been identified within the designation corridor, and sites identified in the broader Project area have been avoided as part of the route selection process.

An accidental discovery protocol manages the potential for works to disturb unidentified archaeological sites. On this basis the Project achieves the protection sought by Objective 6-3.

Natural Character

Provisions identified as relevant: Objective 6-2, Policy 6-8, and Policy 6-9

Insofar as the provisions relate to this phase of RMA approvals for the Project, they set out where a development may be appropriate and seek that:

- the natural character of rivers and their margins are protected from inappropriate development;
- adverse effects on the natural character of rivers and their margins are avoided where they would significantly diminish the attributes and qualities of areas that have high natural character, and avoided remedied and mitigated in all other cases; and
- rehabilitation and restoration is undertaken, where appropriate.

The Project has specifically been refined, with input from a team of experts, to respond to the policy direction in the One Plan regarding natural character. In particular, where the existing natural character of a stream has been assessed as high, an effects envelope has been applied to ensure that the Project does not significantly diminish the values of the stream (that is, the extent of disturbance is limited such that the assessed high natural character areas are not significantly affected).

Further, the proposed designation conditions provide the opportunity for rehabilitation and restoration of stream margins.

On the basis that disruption is limited for the high value streams, allowing the requirements achieves the outcomes sought by these provisions.

Outstanding Natural Features and Landscapes

Provisions identified as relevant: Objective 6-2, Policy 6-6, and Policy 6-7

The provisions provide a framework for the assessment of outstanding natural features and landscapes, along with provisions to manage natural features and landscapes listed as regionally outstanding. These include the highest ridges and hill tops of the Ruahine Range and Manawatū Gorge, from Ballance Bridge to the confluence of the Pohangina and Manawatū Rivers, including the adjacent scenic reserve.

The landscape effects of the Project vary from low in some sectors to high in others. The areas where there are high adverse effects are where there are potential large-scale biophysical changes as a result of earthworks, together with removal of areas of high-value indigenous vegetation (which in several places is protected by Queen Elizabeth II Trust ("QEII") open space covenants).

The designation corridor also traverses two Outstanding Natural Landscapes (Manawatū Gorge and the Ruahine Ridgeline). Conditions are proposed to limit the extent of clearance of the highest-value vegetation types; nonetheless, in several places where these high adverse biophysical changes occur, there will also be high adverse effects on landscape character.

In this regard, and with reference to Policy 3-3, it is not reasonably practicable to avoid the adverse effects of the construction of the new State highway through the identified Outstanding Natural Landscapes and in such circumstances, effects may be remedied or mitigated (as required by Policy 6-6). Part G of this Report includes a description of the range of measures to remedy or mitigate adverse effects in a manner that is consistent with Policy 6-6.

Public Access

Provisions identified as relevant: Policy 6-10

This Policy provides that activities within or near rivers provide public access. The Project does not directly provide for public access to rivers but does, through the provision of the Manawatū Gorge Scenic Reserve Car Park Management and Reinstatement Plan, provide for on-going access (including during construction) to the Scenic Reserve, including the walking tracks through the Manawatū Gorge.

42.6 Chapter 7: Air

Provisions identified as relevant: Objective 7-1, Objective 7-2, Policy 7-1, Policy 7-2, Policy 7-3, and Policy 7-4.

The Objectives require that a standard of ambient air quality is maintained and establishes fine particle levels. Policies refer to the NES Air and regional standards (and align regulation to these standards). Policy 7-4 also addresses issues relating to incompatible land uses.

As set out in Part H of this Report, matters related to air quality and discharges to air are to be considered in detail as part of future resource consent processes and it is anticipated (as indicated in Figure 32) that an analysis of air quality effects, including the development of an approach to managing those effects through a 'Construction Air Quality Management Plan', is undertaken at that time.

That said, the indicative approach to construction of the Project set out in Part C of this Report, along with the management plan condition framework established in Part H, directly foreshadow the management of discharges as a result of construction activities.

In all, confirming the proposed designation does not preclude the management of air discharges to achieve the standards established by these provisions, and (subject to the implementation of a Construction Air Quality Management Plan) does not give rise to the incompatibility issues addressed by Policy 7-4.

42.7 Chapter 9: Natural Hazards

Provisions identified as relevant: Objective 9-1, Policy 9-3, Policy 9-4, and Policy 9-5

The Objective seeks that the adverse effects of natural hazard events on, amongst other matters, infrastructure are avoided and mitigated. The Objective is achieved by Policies that provide clear direction around the avoidance of increased risk, except where certain circumstances apply, and applying a precautionary approach to the effects of climate change. Policy 9-3 particularly relates to the placement of new critical infrastructure.

The natural hazard risks that are relevant to the Project are described in Part B of this Report. The way in which the identified risks are managed by the location and design of the Project is described in Part G. In terms of location, this includes the significant height of the new Manawatū River bridge above the river and design measures (including detailed studies) to inform the appropriate standards that apply to bridges, structures and slopes. These measures specifically include considering the potential impacts of new structures 'downstream'.

In this way the Project appropriately avoids or mitigates potential natural hazard effects in a manner that achieves the identified Objective and Policies. In fact, when compared to the existing environment, the Project provides a solution that is substantially more resilient to seismicity, flooding

and other significant weather-event-related natural hazards such that the risks and impacts of natural hazards are reduced.

In terms of climate change, standards applied to the design of slopes and retaining structures, along with future hydrological studies to inform bridge design, reflect an appropriate precautionary approach to the effects of climate change.

43. REGIONAL PLAN – HORIZONS ONE PLAN (PART 2)

43.1 Chapter 13 – Land Use Activities and Indigenous Biological Diversity

Provisions identified as relevant: Objective 13-1, Objective 13-2, Policy 13-4, and Policy 13-5

To the extent that the Regional Plan provisions are relevant to an NoR process, the matters set out therein have been addressed above, in the context of the assessment of the relevant provisions of Chapter 4 and Chapter 6 of the RPS.

43.2 Chapter 14 – Discharges to Land and Water

Provisions identified as relevant: Objective 14-1 and Policy 14-9

To the extent that the Regional Plan provisions are relevant to an NoR process, the matters set out therein have been addressed above, in the context of the assessment of the relevant provisions of the NPSFWM and RPS Chapter 5.

43.3 Chapter 15 – Discharges to Air

Provisions identified as relevant: Objective 15-1

The Objective requires the management of air quality in a manner that has regard to maintaining or enhancing ambient air quality, meeting the national and regional standards, and managing air quality so as to not be detrimental to amenity values.

As for RPS Chapter 7, it is noted that matters related to air quality and discharges to air are to be considered as part of future resource consent processes; it is anticipated that an analysis of air quality effects, including the development of an approach to managing those effects through a 'Construction Air Quality Management Plan', is undertaken at that time (when the analysis can be done with reference to a detailed design and construction methodology).

As previously noted, the indicative approach to construction of the Project set out in Part C of this Report, along with the management plan condition framework established in Part H, directly foreshadow the management of discharges as a result of construction activities.

It is considered that the proposed designation is consistent with Objective 15-1 to the extent that allowing the requirements does not preclude the management of air discharges to achieve the outcomes sought by the Objective.

43.4 Chapter 17 – Activities in Artificial Watercourses, Beds of Rivers and Lakes, and Damming

Provisions identified as relevant: Objective 17-1

To the extent that Regional Plan Objective 17-1 is relevant to an NoR process, the matters set out therein have been addressed in the context of the assessment of the relevant provisions of RPS Chapter 5.

44. DISTRICT PLANS

Section 171(1)(a)(iv) of the RMA provides that particular regard must be had to the relevant provisions of a plan or proposed plan, when considering a NoR. In this instance the following three District Plans are relevant (with the provisions considered relevant by the Councils and NZ Transport Agency reproduced in Appendix One):

Palmerston North City District Plan ("PNCDP");

Manawatū District Plan ("MDP"); and

Tararua District Plan ("TDP").

The following provides a consolidated consideration of the relevant provisions of the three District Plans organised by topic (so as to avoid repetition).

44.1 Tangata Whenua Values

Provisions identified as relevant:

PNCDP: Section 2: Objective 15 and Objective 17, Section 3: Objective 1, Policy 1.2, Policy 1.4, Objective 2, Policy 2.1, Policy 2.2, Policy 2.3, Objective 4, Section 17 (17.3B): Objective 1, Policy 1.1, Policy 1.2, Policy 1.3, and Policy 1.4

MDP: Chapter 4, Objective 2, Section 4, 4.2 General Objectives, Objectives LU 4, Policy e., Policy f., Policy g., and Chapter 9, Objective EWA 2, Policy c

TDP: 2.10.2.1 Objective, 2.10.2.2 Policy a., 2.10.3.1 Objective, and 2.10.3.2 Policy a

NZ Transport Agency's approach to recognising and providing for tangata whenua values (including managing potential adverse effects on those values) is set out in Part G of this Report. It includes the provision for cultural values to be directly articulated by tangata whenua and subsequently managed in the context of the Project.

The proposed designation conditions recognise and provide for tangata whenua values including by:

- requiring that the Project incorporates Te Aranga Principles of design;
- providing multiple opportunities to provide input to the development of the Project design and associated plans to manage effects;
- requiring the preparation of, and implementation of, a Tangata Whenua Values Monitoring and Management Plan; and
- putting in place an accidental discovery protocol.

The relevant provisions generally provide protection for identified sites of cultural significance. During the option assessment process, and the subsequent preferred option development process, known sites of cultural significance (notably Parahaki Island) have been avoided. The proposed designation therefore does not traverse any identified areas and therefore the provisions in this regard are of limited relevance to the Project.

44.2 Natural Landscapes and Features (including Natural Character and Significant Habitats of Indigenous Fauna)

Provisions identified as relevant:

PNCDP: Section 2: Objective 17, and Objective 18

MDP: Chapter 4, 4.3.3 Outstanding Landscapes, Objective LU 9, Policy a

TDC: 2.6.4.1 Objective and 2.6.4.2 Policy a., Policy b., and Policy c.

The provisions generally provide a framework for the protection of a range of matters of national importance under section 6 of the RMA.

The ways in which the Project responds to these matters, and the provision of the relevant planning documents, is explained in detail above in relation to RPS Chapter 6 and is not repeated here.

44.3 Infrastructure and Network Utilities

Provisions identified as being relevant:

PNCDP: Section 2 Objective 2, Objective 3, Objective 9, Objective 23, Objective 25, Section 23, Objective 1, Objective 2, Policy 2.2, Policy 2.3, Policy 2.4, Objective 3, Policy 3.1, Policy 3.3, Policy 3.7, Policy 3.8, and Policy 3.9[66]

MDC: Objective 1, Policy 1.1, Policy 1.2, Policy 1.4, Policy 1.5, Objective 2, Policy 2.2, Policy 2.3 Objective 3, Policy 3.1, and Policy 3.2

TDC: 2.8.2.1 Objective, 2.8.2.2.a., Policy d., and Policy e

The District Plan infrastructure and network utility provisions generally recognise and provide for regionally and nationally important infrastructure by enabling its establishment, maintenance, upgrade and development. As with RPS Policy 3-3, the provisions set out similar frameworks for the management of effects of regionally and nationally important infrastructure (including constraints to the management of effects, such as technical, functional and operational requirements).

The Project delivers a wide range of benefits including significantly positive transport, social and economic impacts, as set out in Part G, and as such is generally consistent with the enabling infrastructure and network utility provisions.

In terms of effects, it is acknowledged that the Project will result in a range of adverse effects on the environment, particularly on the natural environment. The policy frameworks in the three District Plans generally apply an 'avoid, remedy, mitigate' approach to those effects, and record a range of relevant considerations. The MDP provides more stringent tests in relation to some protected areas (although these provisions are subject to appeal).

[66] Objective 3 and Policy 3.2 are provisions of Plan Change 55 that remain subject to appeal.

Having regard to the proposed designation conditions in Part H, including the offsetting of effects on terrestrial ecology, it is considered that the effects of the Project are managed in a manner that is consistent with these provisions.

The provisions also address the management of adverse effects of other activities on network utilities and infrastructure. The Project seeks to avoid, as far as reasonably practicable, any potential adverse effects on network utilities and infrastructure including the National Grid, the high pressure gas transmission network and Te Āpiti wind farm. This is achieved through a range of measures that are described in Part G and embedded in the proposed designation conditions in Part H. Any residual effects, such as on the wind farm, will be managed carefully in consultation with infrastructure providers.

The PNCDP includes a policy that encourages the use of designations.

It is noted that some infrastructure provisions relate directly to servicing infrastructure (for subdivision and land development). These provisions are not considered to have particular relevance to the Project.

44.4 Transport

Provisions identified as relevant:

PNCDP: Section 2: Objective 24, Section 20:[67] *Objective 1, Policy 1.2, Policy 1.3, Policy 1.4, Policy 1.5, Policy 1.6, Objective 2, Policy 2.1, Policy 2.2, and Policy 2.4*

MDP: Chapter 38, Objective 1, Policy 1.1, Policy 1.2, Objective 2, Policy 2.2, Policy 2.3, Policy 2.4, Policy 2.5, Objective 3 Policy 3.1, Policy 3.2, Policy 3.3, Policy 3.5, and Policy 3.6

TDC: 2.8.3.1 Objective, 2.8.3.2 Policy b, Policy c., Policy f., Policy g, and Policy h

The District Plan provisions relating to transport generally seek efficient and safe transport networks (for people and goods) and provide for the development of new roads. Policies establish road hierarchies to support the road functions and the broader transport network. Design and safety standards are introduced through policy.

The Project, in achieving the Project objectives, will result in a more resilient, safe and efficient connection that delivers significant transport benefits through improved travel times and improved journeys for all road users (from cyclists to freight operators). As such, in this regard the Project is entirely consistent with the District Plan policies.

Effects of the land transport network are generally managed by an 'avoid, remedy or mitigate' approach, with some policies giving direct consideration to impacts on amenity values. In this case, and with reference to noise and social effects, the Project is relatively isolated such that very few people will experience direct adverse effects associated with the operation of the road. Where there is the potential for road traffic noise to cause an adverse effect, mitigation measures are established by proposed designation conditions.

Policies encourage walking and cycling as alternate modes. In this regard, the Project will accommodate cyclists on the road shoulder, and reduced traffic demand on Saddle Road and Pahīatua

[67] The majority of Section 20 provisions are part of Plan Change 22 A – G and, as such, are not operative.

Track are expected to result in these routes being more attractive for active modes. Further, the Project is to be designed so as not to prevent cycling facilities on the Ashhurst Bridge in the future.

The MDP requires that new roads are integrated with the existing network. This is specifically achieved through a condition that requires a network integration plan to be developed.

The TDP provides for the safe and efficient operation of airstrips in the District, in this regard, the Project may result in the relocation of an existing farm airstrip near Hope Road.

As for network utilities and infrastructure, it is noted that some transport provisions directly relate to servicing matters and standards for subdivision and land development. These provisions are not considered to have particular relevance to the Project.

44.5 Urban Provisions

Provisions identified as relevant: TDP: Objective 2.2.2.1, 2.2.2.2 Policy c., 2.2.4.1 Objective, and 2.2.4.2 Policy B

The TDP includes provisions that enable the establishment of a range of activities and ensure that adverse effects are avoided, remedied or mitigated.

To the extent that these provisions apply to Woodville, and have the purpose of encouraging 'vitality' of urban areas, it is considered that the Project is consistent with this Policy on the basis that the Project will contribute to a vibrant, busy main street.

44.6 Rural Provisions

Provisions identified as relevant:

PNCDP: Section 9 Objective 2, Policy 2, Policy 2.3, Objective 3, Policy 3.3, Objective 4, Policy 4.1, Policy 4.2, and Policy 4.3

MDP: Section 4, 4.3.1, Objective LU 7, Policy a., Policy d., Objective LU 8, Policy a., Policy b., Policy d., and Policy e

TDP: 2.3.3.2 Objective, 2.3.3.2 Policy b., Policy 2.3.4.1 Objective, 2.3.4.2 Policy a., Policy b., and Policy c.

The District Plan provisions that relate to rural areas generally provide for a range of activities to establish in situations where:

- the soil resource is protected (MDC);
- rural character and amenity is maintained, including through the management of visual effects;
- the environment is enhanced by planting 'spare' areas (MDC);
- reverse sensitivity effects are managed; and
- the diversity of the community is enhanced (PNCDP).

To the extent that these provisions are directly relevant to the Project, the proposed designation is generally consistent with the policy outcomes to the extent that Project does not have a significant visual effect or impact on rural character, and residual effects will be minimised through implementation of the ECDF and Landscape Management Plan. The Project does not have an impact on the soil resource within MDC's jurisdiction, and instead provides the opportunity for planting and retirement as part of the ecological mitigation package.

44.7 Historic Heritage

Provisions identified as relevant:

PNCDP: Section 2: Objective 16

MDP: Chapter 3A Objective 3, Policy 3.1 and Policy 3.2[68]*, and Chapter 3D Objective 1*

The District Plan provisions generally seek the preservation and protection of historic heritage (and associated value). No archaeological or other heritage sites have been identified within the designation corridor. Sites identified in the broader Project area have been avoided as part of the route selection process. An accidental discovery protocol manages the potential for works to disturb unidentified archaeological sites. On this basis the Project achieves the outcomes sought in the identified provisions.

44.8 Notable Trees

Provisions identified as relevant: PNCDP, Section 17 (17.3C): Objective 1, Policy 1

There are no identified or scheduled notable trees within the designation corridor and therefore the identified provisions have little to no relevance to the Project.

44.9 Esplanade Management/Waterbodies and their Margins

Provisions identified as relevant:

MDP: Section 6 Objective EM1, Objective EM2, Objective EM3, Objective EM4, Objective EM5, Objective EM6, Policy c., Policy d, and Policy f

TDP: 2.6.6.1 Objective, 2.6.6.2 Policy a., Policy b., and Policy e

In the context of Rivers and as relevant to the Project, the provisions provide for the maintenance and enhancement of public access (including to the Pohangina River and Manawatū River), opportunities for recreational use, the preservation of natural character, the protection of indigenous vegetation and habitats, and the promotion of riparian management practices.

The Project will not impact on public access to or along the margins of any river (except where necessary for construction activities). As described above in relation to natural character, the Project provides for the preservation of the natural character of high value streams and margins by confining stream crossings (and associated disruption) to an effects envelope. In some circumstances, replacement, mitigation and offset planting, and measures such as retirement and protection margins, may result in some enhancement of the natural character of stream and river margins.

Riparian management and river control matters will be addressed as part of future regional resource consent.

[68] Objective 3 and Policy 3.2 are provisions of Plan Change 55 that remain subject to appeal.

44.10 Energy and Water Use and Air Quality

Provisions identified as relevant: MDP: Chapter 9 Objective EWA, Policy d., Policy e., and Policy f.

These provisions seek to help manage effects of activities including discharges to air. Accompanying Policies provide for recognising the benefits of tree planting in relation to atmospheric CO_2 and improving water quality, taking water and air quality into account in decision-making, and the location of activities that discharge to air away from residential areas.

As noted above, matters related to air and water quality (including discharges to air and water) are to be addressed as part of future resource consent processes. That said, the Project is consistent with these Policies in respect of the proposed tree planting and to the extent that allowing the requirements does not preclude the future management of air discharges to achieve the outcomes sought by these provisions.

44.11 Earthworks

Provisions identified as relevant:

PNCDP: Section 6 Objective 1, Policy 1.1, Policy 1.2, Policy 1.3, and Policy 1.4[69]

MDP: Chapter 3D, Objective 1, Policy 1.1, Policy 1.2, Policy 1.3, Policy 1.4, Objective 2, Policy 2.1, Policy 2.2, Policy 2.3, Policy 2.4, and Objective 3

The District Plan provisions for earthworks address the management of effects of earthworks generally (including in relation to scale) and then provide particular management approaches in protected areas or land forms; in relation to natural hazard risks; and when near the National Grid.

The proposed designation corridor has been developed to provide sufficient width (and certainty) to accommodate a road that meets the design parameters (included in the Preliminary Design Philosophy Report). The extent and location of earthworks within the corridor will be determined as part of the detailed design of the Project, and confirmed by future resource consents and outline plan. In this regard it is noted that many of the adverse effects of earthworks are matters that are addressed as part of a regional consent process.

To the extent that the Project is able to respond to these provisions as part of the NoRs, the proposed designation provides:

- a corridor within which a road can be constructed with acceptable effects;
- adequate area to accommodate earthworks and the erosion and sediment control measures that may be necessary to manage them;
- clear design outcomes in the ECDF in relation to earthworks, slope treatments and topsoil management; and
- a management plan framework that foreshadows the implementation of an appropriate regime for the management of effects on water resources and water bodies.

Conditions provide for the appropriate management of earthworks in the vicinity of the National Grid to ensure that the network is not compromised.

[69] This Policy is part of Plan Change 22 A – G and, as such, is not operative.

44.12 Natural Hazards

Provisions identified as relevant:

PNCDP: Section 2: Objective 19, Section 9 Policy 2.5 and Section 22: Objective 2, Policies 2.1, 2.2, 2.3, and 2.6[70]

MDP: Objectives NH1 and NH2, policy d. and policy f.

TDP: 2.5.2.1 Objective and 2.5.2.2 Policy b

The relevant provisions seek to manage the risks and impacts of natural hazards by controlling development to avoid, remedy or mitigate these effects, and in some cases reduce the impact of natural hazard events. PNCDP Policy 2.3 relates to the Flood Protection Zone, which is traversed by the Project in the vicinity of the southern Ashhurst Bridge abutment, and seeks to control development in this Zone.

The natural hazard risks that are relevant to the Project are described in Part B of this Report. The way in which the identified risks are managed by the location and design of the Project is described in Part G.

The location of the Project, and the range of design standards that apply, appropriately avoid or mitigate potential natural hazard effects in a manner that achieves the identified District Plan objectives and policies. In fact, when compared to the existing environment, the Project provides a solution that is substantially more resilient to seismicity, flooding and other significant weather-event-related natural hazards such that the risks and impact of natural hazards is reduced.

44.13 Amenity Values, Land Use and Environmental Quality

Provisions identified as relevant:

PNCDP: Section 2 Objective 10

TDP: 2.6.2.1 Objective, and 2.6.2.2 Policy a.

MDP: Section 4 Objective LU 1, Objective LU 2, Objective LU 3, Objective LU5, Objective LU6, Policy a., Policy b., and Policy e.

The MDP includes a suite of provisions that generally relate to the management of activities to protect amenity values and to provide for the District residents' social, economic and cultural well-being and their health and safety. The TDP includes similar provisions, that also make reference to minimum environmental standards.

The Project will provide for social, economic and cultural well-being of residents, and their health and safety, by providing for the economic, transport and social benefits set out in Part G.

In terms of amenity values, and with reference to noise, social and visual effects (as set out in Part G) it is noted that the Project is relatively isolated such that very few people will experience direct effects associated with the operation of the road. Where there is the potential for road-traffic noise to cause an adverse effect, mitigation measures are established by proposed designation conditions. Conversely, the Project will deliver substantial amenity benefits to the Ashhurst community once the Project is operational.

[70] Amendments to Objective 2 and new Policy 2.6 are part of Plan Change 22 A – G and, as such, are not operative.

44.14 Noise

Provisions identified as relevant:

PNCDP: Section 2 Objective 22, and Section 9 Policy 3.1

MDP: Chapter 3C Objective 1, Policy 1.1, Policy 1.3, and Section 4, Objective LU 25

The relevant provisions generally seek to manage the adverse effects of noise, including by complying with relevant New Zealand Standards (and in some cases exceeding those requirements) and through appropriate mitigation. The Project results in significant positive effects where road-traffic noise effects on significant parts of the Ashhurst community are reduced as a result of the Project, and minor adverse effects elsewhere (subject to the mitigation proposed). The Project is therefore consistent with the relevant provisions.

44.15 Recreation

Provisions identified as relevant: PNCDP: Section 2, Objective 21, Section 15, Objective 1 and Policy 1.1 (Water Recreation Zone)

The provisions support a diverse range of recreation activities, including on the surface of waterbodies such as the Manawatū and Pohangina Rivers, and seek to manage the effects of activities on the surface of significant lakes, rivers and streams.

While there may be short duration impacts on the use of the Manawatū River in order to safely undertake the construction of the new bridge, the Project does not preclude the use of the surface of the Manawatū and Pohangina Rivers for recreation activities. Opportunities have been identified for the Project to provide enhanced access to the River (enabling greater access for recreational use). The Project therefore achieves this Policy.

Further, the Project achieves the outcomes sought in terms of recreation opportunities to the extent that it provides for the maintenance of access to the Manawatū Gorge for the duration of construction through the provision of the Manawatū Gorge Scenic Reserve Car Park Reinstatement Management Plan.

44.16 Renewable Electricity Generation

Provisions identified as relevant: TDP: 2.8.4.1 Objective, 2.8.4.2 Policy a., and Policy b.

The Project does not compromise the on-going operation of the wind farm and the benefits that accrue as a result and, as such, is consistent with these RPS provisions.

Policy b. relates to the effects of wind farms and is not considered relevant.

44.17 Urban Design

Provision identified as relevant: PNCDP: Section 2 Objective 11

To the extent that Objective 11 is relevant to the development of a State highway in a rural environment, the Project will be guided by the ECDF that is consistent in form to a preliminary Urban and Landscape Design Framework prepared in accordance with NZ Transport Agency's Urban Design Guidelines and NZ Transport Agency's Landscape Guidelines.

44.18 Waste, Hazardous Substances and Contaminated Land

Provisions identified as relevant:

PNCDP: Section 2: Objective 27

MDP: Chapter 4 Objective LU 26 and Policy f.

TDP: 2.9.2.1 Objective, 2.9.2.2 Policy a., 2.9.3.1 Objective, 2.9.5.1 Objective, 2.9.5.2 Policy a.; 2.9.6.1 Objectives, and 2.9.6.2 Policy a.

In terms of waste management, the ECDF includes the reuse and recycling of waste materials as a "project specific application" and includes the reuse of plant material, logs and seed source forest duff as a design outcome. Realising opportunities for cultural reuse of natural materials is a matter that is addressed in the Tangata Whenua Values Monitoring and Management Plan.

The Woodville landfill site is to be managed in the manner set out in Part G by, firstly, avoiding works in or over the area that has been 'landfilled', but also taking a precautionary approach by testing and developing management approaches, as necessary, to protect human health.

While subject to detailed design, the management of construction and operational stormwater will be undertaken in accordance with the Preliminary Design Philosophy Report, included as Appendix Three.

It is anticipated that the handling, transportation and storage of any hazardous substances (where necessary to support construction activities) will be appropriately managed by the Hazardous Substances and New Organisms Act 1996 in a manner that is consistent with the relevant provisions.

44.19 Cross Boundary Issues

Provisions identified as relevant: TDP: 2.11.2.1 Objective, 2.11.2.2 Policy b

These provisions seek a coordinated and integrated approach to resource management issues across boundaries through cooperation, joint hearings and addressing issues in an integrated manner.

The NZ Transport Agency has taken a collaborative approach to the Project, including the development of the NoRs. This approach has included regular planning liaison meetings with representatives from the Councils and Horizons. The NoRs are now being administered and considered jointly by PNCC, MDC and TDC. Such an approach achieves the outcome sought by the relevant provisions.

45. STATUTORY CONSIDERATIONS RELEVANT TO THE PROPOSED DESIGNATIONS

45.1 Adequate Consideration of Alternatives (section 171(1)(b))

Section 171(1)(b) requires the territorial authority, when considering an NoR, to have particular regard to whether adequate consideration has been given to alternative sites, routes and methods for undertaking the work (where the requiring authority does not have an interest in the land sufficient

for undertaking the work, or the work is likely to have a significant adverse effect on the environment). This entails the territorial authority considering whether a requiring authority has given adequate (and not arbitrary or cursory) consideration to alternatives; thus the inquiry focuses on the process followed to consider alternatives, rather than the outcome; in particular, the RMA does not require the 'best' or 'most preferred' option (if any) to be selected.

The process by which the NZ Transport Agency has considered alternative sites, routes, and methods for the Project, as summarised in Part E of this Report, has involved:

- identifying a broad range of alternative routes to be assessed (including tunnel options, and adding further hybrid routes during the process as additional information came to light);
- implementing an MCA process, with inputs from tangata whenua, stakeholders, and technical specialists, in respect of a Long List of eighteen and a Short List of four alternative routes, and to inform an assessment of sub-options for connections around Ashhurst;
- selecting a preferred route and developing a proposed designation, involving further consideration of alternatives using increasingly comprehensive information; and
- as part of those processes, assessing effects on landowners, social and other environmental effects, key RMA considerations and relevant statutory planning instruments, alignment with Project objectives, and strategic considerations (including Project risk, cost, and wider transport networks).

The alternatives consideration process was robust, comprehensive and iterative, and included significant engagement with stakeholders and assessments undertaken by independent technical experts, such that it clearly meets the relevant statutory test in section 171(1)(b).

45.2 Reasonably Necessary to Achieve Objectives (section 171(1)(c))

Section 171(1)(c) of the RMA provides that when considering a NoR a territorial authority must have particular regard to "*whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought*". In the context of section 171(1)(c), 'reasonably necessary' is to be understood as requiring something less than 'absolutely necessary' or essential. It is also important to note that, as a requiring authority, the NZ Transport Agency is able to establish its own priorities and objectives in relation to the State highway network, provided those objectives do not predetermine the consideration of alternatives.

The Project objectives respond directly to the defined 'problems' arising from the closure of the Manawatū Gorge route and reflect the Project's primary function as an important link on the transport network. The objectives are:

- To reconnect the currently closed Manawatū Gorge State Highway 3 with a more resilient connection.
- To reconnect the currently closed Manawatū Gorge State Highway 3 connection with a safer connection than the Saddle Road and Pahīatua Track.
- To reconnect the currently closed Manawatū Gorge State Highway 3 with a more efficient connection than the Saddle Road and Pahīatua Track.

As set out in Part G of this Report, the Project is expected to (when compared to the Saddle Road and Pahīatua Track routes):

- significantly reduce crash risk and therefore similarly reduce traffic-related deaths and serious injuries;
- result in substantially improved travel times (for instance 12.1 minutes per trip for general traffic, and 13.8 minutes per trip for freight that currently use the Saddle Road); and
- perform well in response to a range of natural hazards due to its location and the use of superior design standards.

The Project is therefore considered necessary to meet the Project objectives.

In terms of the use of designations to provide for the Project, this mechanism is considered reasonably necessary to achieve the Transport Agency's objectives on the basis that a designation:

- protects the land from other development;
- provides certainty that the Project can be maintained and operated efficiently in the future;
- provides certainty to the community in relation to the nature of the work and the location of the Project; and
- enables the early confirmation of a corridor within which detailed design can proceed, with the ability for further consideration of the effects of the design through the outline plan process and future regional resource consents.

45.3 Other Matters (section 171(1)(d))

Section 171(1)(d) of the RMA provides that, when considering a NoR, a territorial authority must have particular regard to "*any other matter the territorial authority considers reasonably necessary in order to make a recommendation on the requirement*". 'Other matters' that may be identified as relevant are typically other statutes (such as those identified in Part D of this Report) and non-RMA planning documents. Those that are considered directly relevant are described briefly in **Error! Reference source not found.** below:

Table 37 – Other Relevant Matters

OTHER MATTER	DISCUSSION
Other statutes	
Land Transport Management Act 2003 ("LTMA")	The LTMA provides the statutory framework for the management of New Zealand's land transport network. The purpose of the LTMA, as set out at section 3, is *"to contribute to an effective, efficient, and safe land transport system in the public interest"*. The NZ Transport Agency's objective is set out in section 94: "*The objective of the Agency is to undertake its functions in a way that contributes to an effective, efficient, and safe land transport system in the public interest.*" The Project objectives are consistent with the NZ Transport Agency's legislative purpose and purpose of the LTMA so that, in achieving its stated objectives, the Project is consistent with the LTMA.
Rangitāne o Manawatu Claims Settlement Act 2016	The Rangitāne o Manawatu Claims Settlement Act describes the significant and abiding relationship between Rangitāne o Manawatu and the land that is identified as their 'area of interest'. This includes land that is to be designated for the Project. The Act identifies a number of statutory acknowledgement areas (Manawatū River and tributaries, Manawatū Gorge Scenic Reserve and Pohangina River) that consent authorities must have regard to under in section 30 of the Act. The relationship of Rangitāne o Manawatū to the land and these areas has been a particular consideration in the development of the Project, and is embedded in the ECDF.

OTHER MATTER	DISCUSSION
Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) Claims Settlement Act 2017	The Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) Claims Settlement Act describes the significant and abiding relationship between Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) and the land that is identified as their 'area of interest'. The Act includes a statutory acknowledgement of the Manawatū River and its tributaries that consent authorities must have regard to under section 29 of the Act. The relationship of Rangitāne Tū Mai Rā (Wairarapa Tamaki nui-ā-Rua) to the land and the Manawatū River has been a particular consideration in the development of the Project, and is embedded in the ECDF.
Heritage New Zealand Pouhere Taonga Act 2014	The HNZPT Act establishes Heritage New Zealand Pouhere Taonga. Section 42 of the Act provides that an archaeological site, recorded or not, may not be damaged or destroyed unless an Authority to modify the site is granted. While no known or recorded archaeological sites will be damaged or destroyed during construction of the Project, it is anticipated that unidentified sites may be within the designation corridor. For this reason, the NZ Transport Agency is seeking an Authority under section 44(a) of the HNZPT Act.
Te Ture Whenua Maori Act 1993	The Te Ture Whenua Maori Act 1993 establishes the following principles of the Act in its preamble: *"Nā te mea i riro nā te Tiriti o Waitangi i motuhake ai te noho a te iwi me te Karauna: ā, nā te mea e tika ana kia whakaūtia anō te wairua o te wā i riro atu ai te kāwanatanga kia riro mai ai te mau tonu o te rangatiratanga e takoto nei i roto i te Tiriti o Waitangi: ā, nā te mea e tika ana kia mārama ko te whenua he taonga tuku iho e tino whakaaro nuitia ana e te iwi Māori, ā, nā tērā he whakahau kia mau tonu taua whenua ki te iwi nōna, ki ō rātou whānau, hapū hoki, a, a ki te whakangungu i ngā wāhi tapu hei whakamāmā i te nohotanga, i te whakahaeretanga, i te whakamahitanga o taua whenua hei painga mō te hunga nōna, mō ō rātou whānau, hapū hoki: ā, nā te mea e tika ana kia tū tonu he Te Kooti, ā, kia whakatakototia he tikanga hei āwhina i te iwi Māori kia taea ai ēnei kaupapa te whakatinana.* *Whereas the Treaty of Waitangi established the special relationship between the Maori people and the Crown: And whereas it is desirable that the spirit of the exchange of kawanatanga for the protection of rangatiratanga embodied in the Treaty of Waitangi be reaffirmed: And whereas it is desirable to recognise that land is a taonga tuku iho of special significance to Maori people and, for that reason, to promote the retention of that land in the hands of its owners, their whanau, and their hapu, and to protect wahi tapu: and to facilitate the occupation, development, and utilisation of that land for the benefit of its owners, their whanau, and their hapu: And whereas it is desirable to maintain a court and to establish mechanisms to assist the Maori people to achieve the implementation of these principles."* Parahaki Island is Māori freehold land as defined by section 129 of Te Ture Whenua Maori Act, and is therefore subject to the provisions of Act. The Project achieves the principles of the Act (as set out above) by avoiding Parahaki Island such that values associated with the Island are recognised and the land is retained for the use of its owners.
Wildlife Act 1953	The Wildlife Act deals with the protection and control of wild animals and birds and the management of game. The Project will likely require an authorisation, or authorisations, required be section 53 of the Wildlife Act, in relation to the disturbance of any protected wildlife. It is anticipated that any authorisation require management plans akin to those required for lizards and avifauna by the proposed designation conditions.
Queen Elizabeth the Second National Trust Act 1977	The Queen Elizabeth the Second National Trust Act established the Queen Elizabeth II National Trust. The Act sets out the functions and powers of the Trust, including in respect of land that is subject to a 'QEII covenant'. The Project traverses two QEII covenant areas, and the NZ Transport Agency is working with the QEII Trust in respect of those areas and the proposed designation conditions include a requirement to consult with the QEII Trust with a view to minimising effects on these areas.

OTHER MATTER	DISCUSSION
Transport related plans and policies	
Government Policy Statement on Land Transport: 2018/19 - 2027/28	The GPS, prepared under the LTMA, sets Government's strategy to guide land transport investment over a 10 year period. The GPS identifies safety and access as the key strategic land transport priorities for the Government, alongside the environment and value for money as supporting priorities. The Project is directly aligned with the GPS priorities through improved travel time, increased resilience, a safer journey and the provision of greater access for all road users. In addition, value for money has been a key consideration in planning for the new connection and identifying a preferred designation corridor.
National Land Transport Programme 2018 – 2021	The NLTP gives effect to the GPS forecasts of activities and expenditure. The NLTP identifies the Project as a key priority and confirms an initial investment for its design and construction.
Horizons Regional Land Transport Plan 2015 - 2025 (2018 review)	The RLTP sets out the strategic direction for land transport in the Region. The RLTP recognises a replacement route for the Manawatū Gorge as a key focus area and states that: *"It is critical for regional economic growth that the focus remains on the development of an alternative to the Manawatū Gorge as the principal east-west link between Manawatū and Hawke's Bay. Completion of a new route must ensure an improvement to the resilience and availability of the route as well as realising opportunities for connectivity to land use development, freight hubs and efficiency, and tourism."* The RLTP identifies an alternative to the Manawatū Gorge route as the first priority project for funding purposes and therefore the Project is fundamental to the achievement of this Plan.
Horizons Regional Council Region Pest Management Strategy 2017 - 2037	This Strategy identifies the main pests and pest management projects in the Region. The Strategy is relevant to the extent that it will inform the development of construction and mitigation strategies.
Manawatū River Leaders Accord	In August 2010, members of the Manawatū River Leaders' Forum signed an Accord to take action to improve the state of the Manawatū River. The Accord set out a focus, vision, and goals for the River. Specific goals set out in the Accord are: *"1. The Manawatū River becomes a source of regional pride and mana.* *2. Waterways in the Manawatū Catchment are safe, accessible, swimmable, and provide good recreation and food resources.* *3.The Manawatū Catchment and waterways are returned to a healthy condition.* *4. Sustainable use of the land and water resources of the Manawatū Catchment continues to underpin the economic prosperity of the Region."* One of the commitments set out in the Accord was to establish an Action Plan to clean up the river. To the extent relevant, the Project achieves the specified goals, including by appropriately managing adverse effects on natural character, providing for on-going access to the Gorge, and through broader economic benefits.
Local government plans and policies	
Growing Manawatū - Manawatū District Council Economic Growth Strategy	This Strategy seeks to support the growth of the region's economy and enable resilience to foreseeable external influences. The Strategy references the *"uncertainty around the future of the Manawatū Gorge on SH3 impacting on freight costs to Tararua Region and the Hawkes Bay"* as a weakness in the SWOT assessment undertaken. The certainty provided by the now identified location and construction completion date will address this identified weakness and negate the need for planning to address that uncertainty.

OTHER MATTER	DISCUSSION
Parks and reserves	
Te Āpiti Master Plan (draft)	A Te Āpiti Master Plan is being prepared at the direction of the Manawatū Gorge Governance Group (which includes the Councils, Iwi and the Department of Conservation). The Master Plan will be completed in December 2018. It is understood that the Master Plan is intended to coordinate approaches to operations, management, development, and renewal activities. The Master Plan sets out the long-term vision for Te Āpiti and is likely to include a range of aspirations across four key focus areas (cultural, environment, recreation, education and leadership). It is possible that the Master Plan will be relevant to the Project in terms of access to activities in Te Āpiti and interaction with the detailed design of the Project (including mitigation measures).

46. PART 2 ASSESSMENT

The purpose of the RMA, in section 5(2), is to promote the sustainable management of natural and physical resources. In achieving this purpose, it is often necessary to balance competing resource values and benefits and adverse effects associated with a proposal. A designation for a major public work such as the Project requires a consideration of the local, regional or national benefits that may accrue and the more localised adverse effects that the designation might have on the environment.

46.1 Section 5 – Purpose and Principles

In terms of section 5 of the RMA, the Project will enable people and communities to provide for their social, economic and cultural wellbeing and for their health and safety, by providing:

- for the economic benefits, including increased economic activity during construction and the operational benefits of certainty, productivity benefits and agglomeration benefits;
- transport benefits through improved efficiency, reliability, safety, resilience and travel times, including improved journeys for all road users from cyclists to freight operators; and
- for social benefits in terms of connectivity, community cohesion, reduced consequences of crashes and injuries, and particularly in terms of community outcomes in Ashhurst.

Sustainable management also involves the promotion of the matters in section 5(2)(a) to (c) of the RMA. In this regard, the following conclusions from the planning assessment in Part G are made:

- The Project does not compromise the potential of natural and physical resources to meet the needs of future generations because, with respect to natural resources (and particularly biodiversity), the Project will result in a net indigenous biological diversity gain such that the Project enhances the natural environment for future generations (including the life supporting capacity of ecosystem). Further, in terms of physical resources, such as the network utilities and infrastructure, the proposed designation conditions manage any effects on a range of physical resources such that their ability to endure is not compromised.
- To the extent relevant to the NoRs, the Project safeguards the life supporting capacity of air, water, soil and ecosystems through the implementation of a comprehensive management plan framework that provides for a co-ordination approach to the management of construction works to meet environmental outcomes.
- The adverse effects of confirming the proposed designation are appropriately managed by:

- avoiding effects, where practicable (including through the use of effects envelopes;
- then remedying and mitigating the majority of effects, including through the implementation of measures set out in Part H; and
- offsetting residual effects (in respect of indigenous biodiversity and with reference to Policy 13-4 of the One Plan).

46.2 Section 6 – Matters of National Importance

The Project recognises and provides for the matters within section 6 of the RMA. In particular, the Project recognises and provides for the following:

- Subject to considerations relevant to future regional resource consent processes, the Project provides for the preservation of the natural character of streams and margins by confining stream crossings (and associated disruption) to an effects envelope. In some circumstances, replacement, mitigation and offset planting, and measures such as retirement and protection margins, may result in some enhancement of natural character (section 6(a)).
- The designation corridor traverses two outstanding natural landscapes (Manawatū Gorge and the Ruahine ridgeline). The Project cannot avoid crossing these outstanding natural landscapes, however effects on the Ruahine ridgeline are limited by the likely location of the alignment in cut. Effects at the Manawatū River crossing are primarily mitigated by bridge design (section 6(b)).
- The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna is achieved, in part, by an effects envelope in the first instance along with replacement and offset planting measures and any other measures that are necessary such that the Project results in a net biological diversity gain. Subject to designation conditions, any effects on indigenous fauna are assessed as low or very low[71] (section 6(c)).
- The Project will not impact on public access to or along the margins of any river (except where necessary for construction activities (section 6(d).
- The relationship of tangata whenua and their culture and traditions with their ancestral lands, water, sites, wāhi tapu and other taonga has been recognised and provided through embedding Māori cultural values in the Project, including through the incorporation of Te Aranga principles (via the ECDF) and provision of on-going input to the development of the Project design (section 6(e)).
- The protection of historic heritage has been recognised and provided for through the route selection which avoids any direct effect on scheduled heritage sites (section 6(f)).
- The Project does not impact on any recognised customary rights (section 6(g)).
- Natural hazard risks (although not assessed as significant) are appropriately managed through the location and design of the Project (section 6(h)).

[71] Noting that further bioacoustic surveys are necessary to determine the presence/absence of long-tailed bats.

46.3 Section 7 – Other Matters

The Project has had particular regard and appropriately responded to the matters in section 7 of the RMA, and in particular:

- The kaitiakitanga of tangata whenua has been recognised through engagement at all stages of the Project, the independent preparation of cultural values statements and the required Tangata Whenua Values Monitoring and Management Plan (section 7(a)).
- The ethic of stewardship has been recognised in the engagement with and participation of community groups who have a specific interest in and exercise stewardship over particular resources (section 7(aa)).
- The Project provides for the efficient development of the Project, as a physical resource of critical importance to the Region (as identified by the RLTP) (section 7(b)).
- The significant transport benefits that are realised by the Project, including reduced travel times, will deliver fuel savings and therefore greater efficiency of the end use of energy (section 7(ba)).
- The selection of, and refinement of, the designation has sought to avoid adverse effects on existing amenity values. In many circumstances, such as in Ashhurst (when compared to the existing environment), amenity values are enhanced as a result of the Project (section 7(c)).
- The impacts of the Project on significant ecosystems are managed by an effects envelope, replacement and offset planting measures and any other measures that are necessary to achieve a net biological diversity gain (section 7(d)).
- The selection of the designation corridor, refinement of the corridor, and the consideration of the effects of allowing the requirements have been informed by a range of expert effects assessments, with a view to achieving an outcome that avoids and minimises adverse effects on the environment (to the extent practicable). While the Project results in a permanent change to the existing environment, this iterative evaluation process has minimised the impact of the Project while achieving the Project objectives and realising a range of benefits (section 7(f)).
- In terms of finite characteristics, the Project responds to the presence of a remnant stand of threatened – nationally critical swamp maire by providing for their retention (section 7(g)).
- While the Project has the potential to disrupt the Te Āpiti wind farm it does not compromise the on-going operation of the wind farm and the benefits that accrue as a result (section 7(j)).

46.4 Section 8 – Treaty of Waitangi (Te Tiriti o Waitangi)

The NZ Transport Agency, as a Crown agency, has a commitment to a partnership-based approach with tangata whenua that reflects the principles of the Treaty of Waitangi/Te Tiriti o Waitangi. This approach is reflected in the on-going engagement between parties and a collaborative approach to the design of the Project (including as embedded in proposed designation conditions).

46.5 Part 2

In all, while the Project will result in adverse effects on the environment, when considering the significant regional and local benefits of the Project, alongside the measures proposed to avoid, remedy and mitigate (and offset) the actual or potential adverse effects, the Project achieves the purpose and principles of the RMA.

47. CONCLUSION

The Project is a key priority for the NZ Transport Agency (as reflected in the National Land Transport Programme 2018 – 2021) and is described in Horizons' Regional Land Transport Plan as being *"critical for regional economic growth"*.

- The Project will result in substantial safety improvements, improved efficiency through a significant reduction in travel times, and improved network resilience.
- The Project is consistent with the objectives and policies of the relevant national and regional statutory planning documents.
- The Project is generally consistent with the relevant policies of the Palmerston North City District Plan, the Manawatū District Plan and the Tararua District Plan.
- The Project will enable communities at a local, regional, and national level to provide for their social, economic, and cultural wellbeing.
- The Project will sustain the potential of natural and physical resources for future generations, and safeguard the life-supporting capacity of air, soils, water, and ecosystems.
- The adverse effects on the environment of allowing the NoRs will be sufficiently avoided, remedied, or mitigated to satisfy the requirements of section 5 of the RMA.
- The Project provides for, and has appropriately responded to, the matters in sections 6, 7, and 8 of the RMA.
- The sustainable management purpose of the RMA will be achieved by confirming the NoRs.