STATE HIGHWAY 1 AND STATE HIGHWAY 29 INTERSECTION UPGRADE

Assessment of Effects on the Environment

26 NOVEMBER 2021

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GLOSSARY OF ABBREVIATIONS

Abbreviation/acronym	Term
ADP	Accidental Discovery Protocol
AEE	Assessment of Effects on the Environment
AEP	Annual Exceedance Probability
ARI	Average Return Interval
BPO	Best Practice Option
C2P	Cambridge to Piarere
CAS	Crash Analysis System
CEMP	Construction Environment Management Plan
CLoS	Customer Levels of Service
CNVMP	Construction Noise and Vibration Management Plan
CoPTTM	Code of Practice for Temporary Traffic Management
dB	Decibel
DBC	Detailed Business Case
DOC	Department of Conservation
ESCP	Erosion and Sediment Control Plan
GPS 2021	Government Policy Statement on Land Transport 2021/22 – 2030/31
Ha	Hectares
HAIL	Hazardous Activities and Industries List
HCV	Heavy Commercial Vehicles
HNZPT	Heritage New Zealand Pouhere Taonga
HNZPTA	Heritage New Zealand Pouhere Taonga Act 2014
HSR	Highly Sensitive Receiver, as defined in the Transport Agency Guide to assessing air quality impacts from state highway projects (2015)
km	Kilometres
km^2	Square Kilometres
L/s	Litres per second
LTMA	Land Transport Management Act 2003
m	Metres
m^2	Square metres
m^3	Cubic metres
MfE	Ministry for the Environment
MfE Dust Guide	Ministry for the Environment Good Practice Guide for Assessing and Managing Dust 2016
MPDC	Matamata-Piako District Council
MPDP	Matamata-Piako District Plan
NES	National Environmental Standard

Abbreviation/acronym	Term
NES Air	Resource Management (National Environmental Standard for Air Quality) Regulations 2004
NES Electricity	Resource Management (National Environmental Standard for Electricity Transmission Activities) Regulations 2009
NES Freshwater	Resource Management (National Environmental Standards for Freshwater) Regulations 2020
NES Soil	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
NoR	Notice of Requirement
NPS	National Policy Statement
NPS Electricity	National Policy Statement on Electricity Transmission 2008
NPS Freshwater	National Policy Statement for Freshwater Management 2020
NZS 6803	New Zealand Standard NZS 6803:1999 “Acoustics – Construction Noise
NZS 6806	New Zealand Standard NZS 6806:2010 “Acoustics – Road traffic noise – New and altered roads”
NZUP	The Government’s New Zealand Upgrade Programme – Transport
ONRC	One Network Road Classification system
PPFs	Protected Premises and Facilities
PSI	Preliminary Site Investigation
PWA	Public Works Act 1981
RLTP 2018	2018 update to the Waikato Regional Land Transport Plan 2015 – 2045 | Tuhinga Hukihuki 2018 He Whakahou I Te Mahere Waka ā-Rohe o Waikato 2015-2045
Draft RLTP	Draft Waikato Regional Land Transport Plan 2021-2051 | Tuhinga Tauira Mahere Waka ā-Rohe o Waikato 2021-2051
Regional Plan	Operative Waikato Regional Plan
RMA	Resource Management Act 1991
SH(x)	State Highway (number)
SWDC	South Waikato District Council
SWDP	South Waikato District Plan
TTM	Temporary Traffic Management
TTMP	Temporary Traffic Management Plan
vpd	Vehicles per day
WA	Wildlife Act 1953
WRC	Waikato Regional Council
WRPS	Waikato Regional Policy Statement: Te Tauākī Kaupapahere Te-Rohe O Waikato 2016

1 INTRODUCTION

1.1 Introduction to this report

Waka Kotahi New Zealand Transport Agency (Waka Kotahi) is lodging two Notices of Requirement (NoRs) for alterations to designations in the Matamata-Piako District Plan (MPDP) and South Waikato District Plan (SWDP) and applications for regional resource consents to Waikato Regional Council (WRC), (collectively referred to as the Application) for the State Highway 1 (SH1) and State Highway 29 (SH29) Intersection Upgrade Project (the Project).

The Project is a new roundabout to be located on the western side of SH29, just north of the existing SH1 and SH29 intersection at Piarere.

Waka Kotahi lodges these NoRs to construct, operate and maintain the Project pursuant to sections 181(1) and (2) of the Resource Management Act 1991 (RMA), for:

- an alteration to designation D89 in the MPDP.
- an alteration to designation D451 in the SWDP.

Waka Kotahi is applying for resource consents from WRC in accordance with section 88 of the RMA, required for the construction, operation and maintenance of the Project, as detailed in Section 4: Statutory Applications sought under the RMA of this AEE.

Waka Kotahi requests that the NoRs and the resource consent applications be publicly notified under section 95A of the RMA.

1.2 The Requiring Authority/Applicant

Waka Kotahi is a Crown entity governed by a statutory board under the LTMA. As directed by the Ministry of Transport, Waka Kotahi's statutory objective as set out in section 94 of the LTMA is:

> *to undertake its functions in a way that contributes to an effective, efficient, and safe land transport system in the public interest.*

This objective forms one of Waka Kotahi's functions as set out in section 95(1)(a) of the LTMA. Waka Kotahi's other key function of relevance to the Project is:

> *to manage the State highway system, including planning, funding, design, supervision, construction, and maintenance and operations, in accordance with this Act and the Government Roading Powers Act 1989.*

In meeting its statutory objectives and undertaking its functions, Waka Kotahi must adhere to, among others, the operating principles set out in section 96 of the LTMA. These operating principles include an obligation to exhibit a sense of social and environmental responsibility. As well as Waka Kotahi's statutory functions, Waka Kotahi's activities are guided by government policies. The Government's primary direction-setting instrument for land transport is the GPS.

Waka Kotahi is a network utility operator under the RMA and is approved as a requiring authority under section 167 of the RMA for the following purposes:[1]

> *The construction and operation (including the maintenance, improvements, enhancement, expansion, realignment and alteration) of any State highway or motorway pursuant to the Government Roading Powers Act.*
>
> *For the purpose of constructing or operating (or proposing to construct or operate) and maintaining cycleways and shared paths in New Zealand pursuant to the Government Roading Powers Act 1989 and the Land Transport Management Act 2003.*

[1] Resource Management (Approval of Transit New Zealand as requiring Authority) Notice 1994 and Resource Management (Approval of NZ Transport Agency as a Requiring Authority) Notice 2015.

1.3 The SH1/SH29 intersection upgrade project

The Project is for the construction, operation and maintenance of a new roundabout at the intersection of SH1 and SH29 at Piarere.

The existing intersection has had a high number of crashes, with 1.9 injury crashes per year, (35 crashes in a 5 year period, one of which was fatal). The existing give-way controlled layout experiences significant delays on the SH29 approach, with delays in excess of 5 minutes in the weekend peak. These delays increase as traffic volumes through the intersection increase. This delay affects the safe operation of the intersection with drivers likely to accept increasingly smaller and less safe gaps in traffic. In addition, SH1 and SH29 are used by a wide range of vehicles, including, freight, tourist vehicles and commercial tourism transport companies.

The Project is now part of the Government's New Zealand Upgrade Programme – Transport (NZUP). NZUP involves the investment of $6.8 billion over the next ten years to support growth in six key regions, improve safety and provide travel choice across New Zealand. Safety is the primary focus of this Project. The roundabout will be built to a high standard to prevent deaths and serious injuries

The key components of the Project are:

a) A two-lane roundabout with a 60 m diameter central island

b) Realignment of parts of the SH1 and SH29 approaches to connect to the new roundabout

c) The roundabout will be elevated approximately 3.5 m above the existing ground level to provide for cycle and pedestrian underpasses

d) A stormwater management system, including a wetland pond, wetland and planted swales and a discharge structure and associated rip rap armour

e) Construction activities, including a construction compound, lay down area and establishment of construction access.

Any areas or dimensions outlined in the AEE are approximate and may change as the result of detailed design. The final design of the Project (including the design and location of ancillary components such as stormwater treatment devices), will be refined and confirmed at the detailed design stage. Construction of the roundabout is scheduled to start in late 2022 and is expected to take 18 months to complete.

Further details of the Project are contained in Section 6: Project description and Section 7: Construction of the Project and shown on the drawings in Volume 4: Drawing Set.

1.4 Alterations to designations and resource consents sought

1.4.1 Alteration to designations

The alterations to the designations within the MPDC and SWDC boundaries are:

- a change to the purpose of the designations.
- changes to the boundary of the designations.
- inclusion of new conditions that apply to the Project area.

The purpose of both designations will be changed to the following:

> *To construct, operate, maintain, and improve a state highway, cycleway and / or shared path, and associated infrastructure.*

The new areas of land required within each district boundary to be added to the designations are shown on the designation plans attached to the NoRs, detailed in section 4.2 of this AEE and shown in Volume 4: Drawing set. New conditions will apply to work within the Project area, as shown by the 'Extent of Works' shown on the designations attached to the NoR. The extent of the proposed alterations to these designations boundaries are sufficient to construct, operate and maintain the Project, and include land for access for construction purposes.

Once the Project is operational, Waka Kotahi will review the extent of the designation boundaries and may remove any parts that are not required for the safe and efficient long-term operation and maintenance of the Project. Waka Kotahi will inform the relevant district council(s) of its intent to remove part of the designations (if required) following the process set out in section 182 of the RMA.

Waka Kotahi will submit Outline Plans of Works to MPDC and SWDC under section 176A of the RMA once the Project has reached detailed design stage and prior to the commencement of the construction works.

1.4.2 Resource consents

Various resource consents are required for the construction, operation and maintenance of the Project. Sections 4.3 and 4.4 of this AEE describe the resource consents required under the Regional Plan and the NES Freshwater.

1.4.3 Later approvals

This AEE is based on the design drawings in Volume 4: Drawing Set and the indicative construction methodology in Section 7: Construction of the Project. Once a contractor is appointed and detailed design undertaken, additional approvals for the Project may be required and will be obtained prior to construction, including:

- Resource consents for soil disturbance under the NES Soil, and water takes for dust management.
- An Archaeological Authority from Heritage New Zealand Pouhere Taonga (HNZPT) to modify and or destroy known archaeological sites.
- A Wildlife Act Authority from the Department of Conservation (DOC) to catch, hold and / or relocate any protected species.

1.5 Structure of the Application and supporting documentation

Situated within the Waikato Region, the Project spans the administrative boundary of both MPDC and SWDC. Therefore, alterations to existing designations are required from both district councils.

The NoRs and resource consent applications are supported by this AEE, which is accompanied by technical assessment reports, design drawings and supporting information. The structure of the Application is set out in Table 1.5-1.

Table 1.5-1: Structure of the Application

Volume	Name	Contents
	Notices of Requirement to alter the existing designations	Forms for the NoRs (Form 18). Designation Plans showing the land to which the NoRs relate. Schedule of land directly affected by the NoRs. Proposed designation conditions.
	Resource Consent Applications	Resource consent application forms (Form 9). Schedule of land directly affected by the resource consents. Proposed resource consent conditions.
1	Assessment of Effects on the Environment Report	AEE (this report)
2	Tangata Whenua Statement and Engagement Report	Demonstration of meaningful engagement with tangata whenua, their recommendations and considerations.
3	Technical Assessment Reports	Technical reports assessing the effects of the construction, operation and maintenance of the Project.
4	Drawing Set	Design drawings – general layout plans and concept stormwater management plans.

Together, these documents provide background information for the Project, a description of the Project, and a comprehensive assessment of effects on the environment. This AEE has been prepared in accordance with the RMA and the associated and supporting information as required by the RMA, the MPDP, the SWDP and the Regional Plan.

2 BACKGROUND AND STRATEGIC CONTEXT FOR THE PROJECT

2.1 Overview

The existing intersection has safety issues and is considered one of the most dangerous intersections on the New Zealand roading network. Between 1 December 2015 and 30 November 2020, there have been 35 crashes at the intersection resulting in one fatality and 12 injury crashes. This intersection also experiences delays on the right turn movement from SH29 southbound to SH1 westbound, which impacts on efficient freight movements.

The existing intersection is an at-grade T-Intersection at the junction of two national state highways, with SH1 having priority over SH29. This intersection form does not align to the function of the corridors. Both state highways are nationally significant freight corridors and SH1 has tourism links. These links are important for connecting the three largest urban centres in the upper North Island, the Auckland and Tauranga ports and the Auckland International Airport.

2.2 Project Objectives

The Project Objectives are particularly relevant for the NoRs, as an assessment is required to consider whether the work and designation is reasonably necessary to achieve the Project Objectives under section 171(1)(c) of the RMA. Waka Kotahi's objectives for this Project are to:

- Improve safety for motorists and active mode users using the State Highway 1 and 29 intersection to minimise deaths and serious injuries.
- Accommodate any future extension of the Waikato Expressway from Cambridge to Piarere and any future walking and cycling connections.

2.3 National strategic context

In addition to funding normally provided through the National Land Transport Fund, the Government has contributed Crown funding directly to NZUP. As stated earlier, this Project is being funded and will be implemented under the NZUP.

NZUP is investing $6.8 billion to get New Zealand's cities moving, save lives and boost productivity. Safety is a big focus of these projects. New state highways will be built to a high standard to prevent deaths and serious injuries. The safety upgrades planned for existing roads, such as the SH1/SH29 intersection, will play a big role in getting people home safely. Investing in separated walking and cycling infrastructure will help to keep walkers and cyclists safe and encourage mode shift.

2.3.1 GPS 2021

The Government Policy Statement on Land Transport 2021 four key priorities are safety, better travel options, improving freight connections and climate change. The number of road deaths in New Zealand rose significantly between 2013-2017. The GPS recognises that deaths and serious injuries on New Zealand's roads should not be an inevitable cost of moving people and freight from place to place and that the transport system should protect people. Better travel options such as walking and cycling should work with roads, rail and public transport should also be provided.

2.3.2 Road to Zero

Road to Zero is NZ's Road Safety Strategy 2020-2030. It places human wellbeing at the heart of road transport planning and includes a vision of no deaths or serious injuries while travelling on our roads. As a step toward this vision, the Road to Zero sets a target of a 40% reduction in deaths or serious injuries by 2030. This target will be achieved through action in five key areas:

1. Infrastructure improvements and speed management
2. Vehicle safety

3. Work-related road safety
4. Road user choices
5. System management.

This strategy will be supported by a series of action plans over the next 10 years that will outline priority actions to deliver on the vision.

2.4 Regional strategic context

2.4.1 Waikato Regional Land Transport Plan 2021-2051

The RLTP 2021-2051 identifies SH1 and SH29 as a strategic area of focus for the Upper North Island between the years 2021-2031, noting that it is funded by NZUP. It identifies that the upgrade of the SH1/SH29 intersection will contribute to the following draft RLTP's objectives:

- An efficient and resilient land transport system that advances regional economic wellbeing, and facilitates the movement of people and freight on strategic corridors in the upper North Island.
- A safe, accessible transport system in the Waikato region, where no one is killed or seriously injured.

2.5 Need for the Project

The existing intersection layout of a T-Intersection at the junction of two national state highways is not a suitable layout for the volume and nature of traffic that uses the intersection. The high volume of through-traffic on SH1, combined with give-way controlled access from SH29, contributes to significant safety issues and undesirable traffic delays.

The intersection connects crucial transport corridors between Auckland, Waikato and the Bay of Plenty, supporting important freight transport and travel for a growing number of visitors and residents. The existing give-way controlled layout experiences significant delays on the SH29 approach, with waits extending over five minutes in the weekend peak. These delays affect the safe operation of the intersection, with drivers likely to accept increasingly smaller and less safe gaps in traffic. Traffic modelling shows that as traffic volumes increase, existing delays will get progressively worse, the level of service will reduce and crash risks increase.

The risk of crashes is already high, with the intersection among the most dangerous places on the New Zealand roading network. For the five year period to November 2020 there were 35 crashes reported at the intersection resulting in five deaths and serious injuries. The crash rate at the intersection is higher (worse) than that expected of at least 90% of similar intersections.

Some safety improvements at the intersection have been achieved by installing rural intersection activated warning signs (RIAWS) that impose a temporary speed limit of 60km/h on SH1 when vehicles approach the intersection on SH29.

The New Zealand Government has recognised the importance of the Project by prioritising funding to deliver this project as part of the NZUP Programme.[2]

2.6 The benefits to be delivered

The new roundabout layout will ensure that all traffic has a safe and efficient way of either turning of passing through. Vehicle speeds using the roundabout will be significantly lower than the existing situation, which minimises the impact of any crash that might still occur. Modelling indicates that the proposed roundabout will significantly improve safety, with crashes predicted to reduce by 93%, resulting in a significant reduction in deaths and serious injuries at this intersection.

[2] *Transport infrastructure upgrades to get NZ moving and prepared for the future*, Press Release, 29 January 2020 https://www.beehive.govt.nz/release/transport-infrastructure-upgrades-get-nz-moving-and-prepared-future

The proposed roundabout layout will also improve the overall performance of the intersection. Although through-traffic on SH1 will be slightly delayed by having to slow for the roundabout, there will be significantly reduced delays for traffic approaching from SH29 that will no longer need to give way to northbound SH1 traffic.

The new intersection roundabout layout will also:

- Improve route resilience and reliability. The improved safety will reduce the incidence of road closures resulting from crashes. If crashes do occur at the intersection, the additional pavement width will allow for single lane closures, reducing the likelihood of a full closure of the intersection.
- Provide grade separated crossings for pedestrians and cyclists that will eliminate the risks of conflict with motor vehicles. These crossings will have an important role in providing safe connections for the planned linkages of the Waikato River Trail and the Hauraki Rail Trail near the intersection.
- Improve stormwater management. Currently, stormwater runoff from the intersection is untreated. The Project will install effective and resilient stormwater management measures. Although the increase in impermeable surface area will increase the volume of surface runoff, the treatment measures are expected to achieve positive effects by improving the overall quality of water discharged from the intersection.
- Improve safety for nearby residents by providing safer access from SH1 and SH29 to their properties.

3 STATUTORY CONTEXT

3.1 Introduction

The purpose of this section is to set out the statutory framework against which the Project must be assessed and identifies the statutory authorisations sought under the RMA for the Project. Relevant statutory matters are set out, including the applicable RMA planning documents as well as other statutes relevant to the Project. It focuses particularly on the provisions of the RMA:

- Purpose and principles of the RMA (Part 2)
- Duties and restrictions (Part 3)
- NoRs for designations (Part 8)
- Resource consents (Part 6)

3.2 Resource Management Act 1991

The following sections outline the parts of the RMA relevant to this Application.

3.2.1 Purpose and principles (Part 2)

Section 5—Purpose

Consideration of the NoR and applications for resource consent are subject to Part 2 of the RMA. Part 2 (being sections 5 to 8) outlines the purpose and principles of the RMA.

Sustainable management is defined in section 5 of the RMA as:

(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 well-being 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—Matters of national importance

Section 6 of the RMA requires that in achieving the purpose of the RMA, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the matters of national importance. The following are section 6 matters considered relevant to this Project:

(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:

(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:

(h) the management of significant risks from natural hazards.

Section 7—Other matters

Section 7 requires that in achieving the purpose of the RMA, 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 section 7 matters as follows:

(a) kaitiakitanga:

(aa) the ethic of stewardship:

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

(c) the maintenance and enhancement of amenity values:

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

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

(h) the protection of the habitat of trout and salmon:

(i) the effects of climate change.

Section 8—Treaty of Waitangi

Section 8 requires 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).*

This section requires decision makers to take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

3.2.2 Duties and restrictions

Part 3 of the RMA sets out a number of restrictions on the use of resources (including land and water), and on activities that impact on resources (such as the discharge of contaminants). The relevant restrictions are outlined below:

Section 9 of the RMA imposes restrictions on the use of land. The Project will involve a number of land disturbance activities controlled under section 9(2) of the RMA. The proposed activities that would otherwise be permitted or require resource consent under district plan rules (section 9(3) of the RMA) will be authorised by alterations to designations. Resource consent will be sought from WRC for earthworks.

Section 13 of the RMA imposes restrictions on activities in, on, under and over the beds of lakes and rivers. The Project includes the installation of a culvert between two ephemeral watercourse in the Project area.

Section 14 of the RMA relates to any take, use, damming or diversion of water. The Project will require a permanent diversion of an ephemeral watercourse and a roadside drain during construction for the operation of the Project.

Section 15 of the RMA restricts discharges into or onto air, land or water. The Project will involve discharges to land and water during construction and operation.

Details of the resource consents required for the Project are outlined in sections 4.3 and 4.4 of this AEE.

3.2.3 Designations

The relevant effects that must be assessed under section 171 of the RMA are those that would be permitted or facilitated by the alteration to designations, over and above those that are currently permitted under the existing designation.

The alteration to the designation process is outlined in section 181(2) of the RMA. This section states that sections 168 to 176 of the RMA apply to a requirement for an alteration to designation as if the notice for an alteration were a requirement for a new designation.[3] Sections 168 to 176 of the RMA set out the process for determining a notice of requirement for a designation.

In the event the designation is confirmed it overrides the zoning provisions of the District Plan so the Project or the works may be implemented by the requiring authority in accordance with the designation, and any conditions attached to it.

[3] Sections 198AA to 198AO relate to time limits from which time periods are excluded in relation to designations and heritage orders.

Section 171 of the RMA requires MPDC and SWDC to, subject to Part 2 of the RMA, consider the effects on the environment of allowing the requirement having particular regard to the matters set out in Table 3.2-1.

Table 3.2-1: Matters MPDC and SWDC must have regard to for the NoRs

RMA requirement	AEE reference
Part 2 of the RMA	Section 11: Statutory Assessment
Any actual and potential effects on the environment	Section 10: Assessment of effects on the environment and the technical assessment reports in Volume 3
Any relevant provisions of a national or regional policy statement, a regional or district plan	Section 11: Statutory Assessment
Adequate consideration of alternative sites, routes or methods of undertaking the work	Section 8: Consideration of alternatives
Whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought	Section 11: Statutory Assessment
Any other matters the territorial authority considers reasonably necessary	

Section 176A of the RMA requires that an Outline Plan of Works must be submitted to a territorial authority before commencing construction of a project or work under a designation. Waka Kotahi will lodge an Outline Plan of Works prior to the start of construction.

3.2.4 Resource consents (Part 6)

WRC must consider applications for resource consents under section 104 of the RMA and may impose conditions under sections 108 and 108AA, if it decides to grant consents. As required by section 104 of the RMA, when considering an application for a resource consent, subject to Part 2 of the RMA, WRC must have regard to the matters set out in Table 3.2-2 below.

Table 3.2-2: Matters WRC must have regard to for resource consents

RMA requirement	AEE reference
Any actual and potential effects on the environment	Section 10: Assessment of effects on the environment and the technical assessment reports in Volume 3
Any measure proposed/agreed by the applicant for the purpose of ensuring positive effects on the environment	Section 10: Assessment of effects on the environment
Any relevant provisions of a national environmental standard, a national or regional policy statement, a regional or district plan	Section 11: Statutory Assessment
Any other matters the consent authority considers relevant and reasonably necessary to determine the application	

Resource consents under section 105

Section 105 of the RMA sets out further matters that must be considered in relation to the consents for the discharge of stormwater and sediment during construction, and for the discharge of stormwater arising from the operation of the Project.

The matters identified in section 105 of the RMA are described and assessed in Section 10: Assessment of effects on the environment of this AEE.

Restrictions on the power to grant consent under section 107

Section 107(1) of the RMA restricts the power to grant resource consent to discharge a contaminant or water where that discharge is likely, after reasonable mixing, to give rise to any of the number of specified types of adverse effects. This restriction is subject to the exceptions listed at section 107(2), including where there are exceptional circumstances, or where the discharge is of a temporary nature. Section 11: Statutory assessment of the AEE provides a detailed assessment of section 107 matters.

3.3 Planning and policy documents

The national, regional and district planning and policy documents relevant to the Project are listed below. A detailed assessment of the Project in relation to the relevant provisions of these documents is provided in Section 11: Statutory Assessment of this AEE.

3.3.1 National Policy Statements

National policy statements (NPS) are instruments issued under section 52 of the RMA. They state objectives and policies for matters of national significance. The following NPS are considered relevant to this Project.

NPS for Freshwater

The NPS Freshwater provides local authorities with direction on how to manage freshwater under the RMA. NPS Freshwater requires that freshwater is managed in a way that 'gives effect' to Te Mana o te Wai through involving tangata whenua, working with tangata whenua and communities to set out long-term visions The health and wellbeing of water bodies takes priority, followed by the essential needs of people, then other uses. Te Mana o te Wai encompasses six principles relating to the roles of tangata whenua and other New Zealanders in the management of freshwater, and these principles inform the NPS Freshwater and its implementation. Part 2 of the NPS Freshwater includes an objective and fifteen policies.

NPS Electricity

The National Policy Statement on Electricity Transmission (NPS Electricity) sets out high-level objectives and policies for managing the electricity transmission network under the RMA and seeks to achieve efficient transmission of electricity while managing adverse effects.

3.3.2 National Environmental Standards

National environmental standards (NES) are regulations issued under section 43 of the RMA. This section outlines the four NES relevant to the Project.

National Environmental Standards for Freshwater 2020

The NES Freshwater regulate activities that pose risks to the health of freshwater and freshwater ecosystems. The Project requires resource consent under the NES Freshwater. Section 4.4 of this AEE outlines the resource consents required under the NES Freshwater.

National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health 2011

The Soil NES is a nationally consistent set of planning controls and soil contaminant values. It ensures that land affected by contaminants in soil is appropriately identified and assessed before it is developed and if necessary, the land is remediated or the contaminants contained to make the land suitable for use.

No resource consents under the Soil NES are sought at this time, given the site specific nature of potentially contaminated sites. Therefore, resource consents from MPDC, and SWDC may be required depending on the presence, proposed management of any contaminated soil and human health risk. If consents are required under the Soil NES, the appointed contractor will be required to obtain the consents prior to the commencement of works.

National Environment Standards for Air Quality 2004

The NES Air aims to protect public health and the environment of New Zealand by, amongst other things setting national environmental standards for air quality. It is expected that the construction and operation of the Project will not trigger a requirement for resource consent under the NES Air.

National Environment Standards for Electricity Transmission Activities 2010

The NES Electricity sets out a national framework of permissions and consent requirements for activities on existing electricity transmission lines. Activities include the operation, maintenance and upgrading of existing lines setting out which transmission activities are permitted, subject to conditions to control environmental effects. The standards apply only to existing high voltage electricity transmission lines.

3.3.3 Ngāti Tūwharetoa, Raukawa and Te Arawa River Iwi Waikato River Act 2010 (Upper Waikato River Act)

The Upper Waikato River Act gives effect to the co-management deeds entered into between the Crown and Ngāti Tūwharetoa, Raukawa and Te Arawa River Iwi. The co-management arrangements related to the upper river of the Waikato River apply from Te Waiheke a Huka (Huka Falls) through to Karāpiro. The Crown and each iwi have agreed to the establishment of a co-governance framework, and participation of each iwi in it. The overarching purpose of the Upper Waikato River Act is to restore and protect the health and wellbeing of the Waikato River for present and future generations. The legislation recognises and supports Te Ture Whaimana o Te Awa o Waikato – the Vision and Strategy for the Waikato River (Vision and Strategy) and reaffirms functions and powers to the Waikato River Authority.

3.3.4 Ture Whaimana o Te Awa o Waikato – the Vision and Strategy for the Waikato River

The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 (Settlement Act) and the Upper River Act inserted the Vision and Strategy into the (then) operative WRPS. The Vision and Strategy applies to the area of the Waikato River from Huka Falls to Port Waikato and the Waipa River from its junction with the Pūniu River to its confluence with the Waikato River at Ngaruawahia and all it embraces. The Vision and Strategy is the primary direction setting document for the Waikato River and activities within its catchment that affect the Waikato River. It contains a vision statement and a suite of objectives and strategies for the restoration and protection of the health and wellbeing of the river. It prevails over any inconsistent provision in a NPS or NES issued under the RMA. The Vision and Strategy responds to four fundamental issues:

- The degradation of the Waikato River and the ability of Waikato River iwi to exercise mana whakahaere or conduct their tikanga and kawa.
- The relationships and aspirations of communities with the Waikato River.
- The cumulative effects of physical intervention, land use and subsurface hydrological changes on the natural processes of the Waikato River.
- The time and commitment required to restore and protect the health and wellbeing of the Waikato River.

3.3.5 Operative Waikato Regional Policy Statement

The WRPS provides an overview of the resource management issues of the Waikato region, and policies and methods to achieve integrated management of the natural and physical resources.

Section 1 of Part A of the WRPS states six significant resource management issues, and issues of significance to iwi authorities of the Waikato region. These are the state of resources; effects of climate change, providing for energy demand; managing the built environment; relationship of tangata whenua with the environment (te taiao); and health and wellbeing of the Waikato River catchment. Twenty-six objectives address the issues. The objectives identify the desired end state of the region's natural and physical resources. Part B of the RPS identifies what action is to be taken by whom and by what means to achieve the objectives identified in Part A of WRPS.

3.3.6 Operative Waikato Regional Plan

The WRP provides direction regarding the use, development and protection of natural and physical resources in the Waikato region. It contains modules covering Matters of Significance to Maori, Water, River and Lake Beds, Land and Soil, Air, and Geothermal Resources.

3.3.7 Matamata-Piako and South-Waikato District Plans

The Project is within both MPDC and SWDC boundaries. The surrounding land is zoned rural in both District Plans.

SH29 and SH1 are designated (D89) on the MPDC Planning Maps with the purpose stated as: State Highways in accordance with Transit NZ Act 1989.

SH1 is designated (D451) on the SWDC Planning Maps with the purpose stated as: To undertake all statutory requirements in accordance with the Land Transport Management Act 2003 and the Government Roading Powers Act 1989.

There are no conditions for either designation, and there are no other district plan planning matters that affect the area.

3.3.8 Joint Management Agreements

Joint management agreements (JMAs) are between a local authority and an iwi authority (or other group representing hapū) that provide for the parties to jointly perform the local authority's functions in relation to a natural or physical resource in all or part of the region/district. The following JMAs are in place in the area of the Project:

- Raukawa Settlement Trust with WRC and SWDC.
- Te Arawa River Iwi Trust with WRC and SWDC.

Generally these JMAs require the Councils to work under the principle of co-management, and establish schedules focussed on policy development for RMA planning documents, customary activities, monitoring and enforcement and provide the iwi authorities with information on applications for resource consent for the use of, or activities on the surface of the water in the Waikato River as soon as reasonably practicable after the application is received and before a determination is made under sections 95 to 95F of the RMA. The JMAs require the Council to take into account, and give appropriate weight to, any comments and/or reports received from the Raukawa Settlement Trust and/ or the Te Arawa River Iwi Trust.

3.4 Other legislative matters

This section provides a brief introduction to other legislation that are relevant to the Project. This section provides a context for other authorisations that may be necessary for the Project. Any authorisation required under other legislation are not applied for as part of this application package and the requirement for additional authorisations is stated for completeness only. These authorisations will be applied for at the appropriate phase of the Project.

3.4.1 Heritage New Zealand Pouhere Taonga Act 2014

Under the HNZPTA no person may modify or destroy an archaeological site unless an authority is granted by Heritage New Zealand Pouhere Taonga (HNZPT) whether or not the site is a recorded archaeological site. The potential effects of the Project on archaeological/heritage sites are discussed in Section 10: Assessment of effects on the environment of this AEE. An archaeological authority will be sought prior to the commencement of the construction works for the Project.

3.4.2 Wildlife Act 1953

The WA addresses the protection and control of wild animals and birds and the management of game. Most native birds, reptiles, bats and frogs are protected under the WA. Some native and some introduced bird species have limited protection. The potential effects of the Project on protected species are discussed in Section 10: Assessment of effects on the environment of this AEE.

3.5 Statutory acknowledgments

A statutory acknowledgement is an acknowledgement by the Crown that recognises the mana of a Tāngata whenua group in relation to specified areas - particularly the cultural, spiritual, historical and traditional associations with an area. These acknowledgements relate to 'statutory areas' which include areas of land, geographic features, lakes, rivers, wetlands and coastal marine areas, but are only given over Crown-owned land. The Project site is within three statutory acknowledgement areas as follows:

- The Raukawa Claims Settlement Act 2014
- The Ngāti Koroki Kahukura Claims Settlement Act 2014
- The Ngāti Hauā Claims Settlement Act 2014.

Councils must consider statutory acknowledgements when making decisions on whom to involve in the resource consent and designation process including hearings.

3.6 Other relevant matters

For resource consent applications, the consent authority must have regard to *any other matter the consent authority considers relevant and reasonable necessary to determine the application* (section 104(1)(c)). For NoRs, a consent authority must have particular regard to any other matters it considers reasonably necessary (section 171(1)(d)).

The RMA does not define what matters are to be considered under these sections, however, it is accepted that these can include matters outside the RMA, including non-statutory processes. Case- by-case consideration of what other matters are relevant, is made by the consent/territorial authority considering resource the resource consents and NoRs. Other matters that are particularly relevant for the Project are the following:

- Raukawa Environmental Management Plan
- Ngāti Hauā Environmental Management Plan.

It is noted that Ngāti Koroki Kahukura do not have an Environmental Management Plan (EMP). They choose to operate under Tai Tumu Tai Pari Tai a Ao, which is the EMP for Waikato-Tainui marae and hapū.

The Government's Road to Zero strategy and the GPS are further relevant matters to be considered.

4 STATUTORY APPROVALS SOUGHT UNDER THE RMA

4.1 Introduction

This section sets out the applications required for the construction, operation and maintenance of the Project being two NORs for alteration to the existing SH1 and SH29 designations and various resource consent applications.

4.2 Notices of requirement

Waka Kotahi has given notice for the designation of land required for the construction, operation and maintenance of the roundabout to MPDC and SWDC.

The application material includes Designation Plans showing the land to which the NoR relates, and a schedule of land directly affected by the NoR. The drawings in Volume 4 of the AEE also show the extent of the proposed designation, as altered. In summary the proposed alterations to the existing designations directly affects the following type of land ownership:

Ownership Type	Approximate area affected (ha)	No. of landowners
Private	13.37	4
Crown	2.43	N/A

Table 4.2-1 details the area of land to be included in the designations.

Table 4-2.1: Area of land to be designated

District Council	Address	Record of Title	Area to be designated (ha)
Matamata-Piako	1831A and 1833B SH1	SA69C/317	11.04
	2400 Maungatautari Road	806061	0.28
	1896 SH1	SA32A/615	2.44
	5969A and 5969B SH29	SA1701/33	0.50
South-Waikato	85 SH1	SA646/95	1.55

4.3 Applications for resource consent under the Regional Plan

The resource consents sought for the construction, operation and maintenance of the Project are identified in Table 4-3.1. Once detailed design is confirmed, other site specific consents, such as under the NES Soil, water takes for construction, and a wastewater discharge consent for the site office will be sought by the contractor.

Table 4-3.1: Resource consents sought

Activity	Reason
Land use (s9(2))	
Rule 5.1.4.15: Discretionary Activity Rule – Soil Disturbance, Roading, Tracking, Vegetation Clearance, Riparian Vegetation Clearance in High Risk Erosion Areas (HREA) earthworks	
a) Earthworks for construction of the roundabout, approach legs and haul road. b) Stockpiling of topsoil and cleanfill for reuse. c) Earthworks for the construction of stormwater infrastructure. d) Earthworks and vegetation clearance for an access track to the bottom of the southern gully. e) Earthworks for geotechnical activity to enable stabilisation of the Piarere slip. f) The subsequent discharge of contaminants into water or air.	a) Earthworks will be near the ephemeral watercourse on the eastern side of SH29. b) Wetland Pond is located near a HREA. Wetland Swale 01 is located near the ephemeral watercourse on the eastern side of SH29. Planted Swales 01 and 04 are near an overland flow path. The stormwater discharge structure and headwall with riprap is proposed to be constructed through an HREA. c) The access track is proposed to be constructed through an HREA. d) The earthworks related to the geotechnical activity to stabilise the Piarere slip is within a HREA.
Rule 5.2.5.3: Discretionary Activity Rule – Large Scale Overburden Disposal	
To discharge/use cleanfill/cut-to-fill materials in a High Risk Location being a floodplain.	Increase the elevation of the land for the roundabout.
Water permit (s14) — discharge of stormwater	
Rule 3.5.11.8: Discretionary Activity Rule – Discharge of Stormwater	
a) From the Wetland Pond to the unnamed river. b) From the Wetland Swale 01 to the eastern ephemeral watercourse. c) From the Wetland Swale 02 to the eastern ephemeral watercourse. d) From the roadside drain to the eastern ephemeral watercourse.	Discharge of stormwater into water, and/or into or onto land.
Water permit (s14) — diversion of watercourses	
Rule 3.6.4.13: Discretionary Activity Rule – Stopbanks, Diversions and any Associated Discharges of Water	
a) Permanent diversion of the overland flow path (watercourse diversion 01). b) Permanent diversion of roadside drain to ephemeral watercourse 03.	a) Watercourse diversion 01 diverts the current alignment of the overland flow path to the roadside drain. b) Watercourse diversion 03 is the diversion of the water in the roadside drain on the eastern side of SH29 through watercourse diversion 03 and to the ephemeral watercourse.

4.4 Activities requiring resource consent under the NES Freshwater

The Project falls within the definition of specified infrastructure given by the NPS Freshwater. The resource consents sought for the construction, operation and maintenance of the Project are identified as follows.

4.4.1 Culvert

Regulation 70(2) of the NES Freshwater provides for the placement of a culvert as a permitted activity where the conditions in regulation 70(2) are met. As part of the diversion of the overland flow path on the western side of SH29, a culvert will be installed that will not comply with Regulation 70(2)(d) in relation to culvert width.

As outlined in the Ecological Assessment in Volume 3, the watercourse on the western side of SH29 is likely to be an overland flowpath (but could be an ephemeral watercourse) and as such, would not fall within the NES Freshwater definition of a river or connected area.

However, as access to this land is not available, and the classification of the watercourse cannot be confirmed, resource consent is being sought as a precautionary approach. That is, should it be determined at the time of visiting the land that the watercourse is an ephemeral watercourse, it is likely that the culvert will not comply with the width required by Regulation 70(2)(d).

Therefore, Regulation 71 applies, and a Discretionary Activity resource consent is required.

4.4.2 Discharge of stormwater

As the discharge of stormwater will occur approximately 40 m to 50 m from a natural wetland, as defined in the NPS Freshwater, Regulation 45(4) of the NES Freshwater applies. This clause states that:

> *The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.*

Therefore, a Discretionary Activity resource consent is required.

4.5 Bundling of activities

The resource consents for this Project are appropriately bundled together and the most restrictive activity status applies. Accordingly, overall the resource consents for the Project are to be considered as a Discretionary Activity.

4.6 Activities considered to be permitted

4.6.1 Regional Plan

Watercourse diversion 02 provides flows to the new cross culvert (CU01) and maintains connectivity of the overland flow path from the west to the east. It ensures that the flows from the watercourse do not overtop the road and bypass the Piarere leg wetland swale (WS03). Regional Plan Rule 4.2.9.2 provides that the use, erection, placement of the culvert, and associated bed disturbance and the subsequent diversion and discharge of water through the culvert, is a permitted activity provided Conditions (a) to (p) are complied with. Demonstration of compliance with these conditions is provided in Appendix A.

4.6.2 NES Freshwater

The operation and maintenance of the stormwater discharge and erosion control structures is considered to be a permitted activity under Regulation 46 of the NES Freshwater.

The NES Freshwater does not apply to the construction of the stormwater discharge and erosion control structures, as the earthworks are within 100 m of the natural wetland, however they will not result in complete or partial drainage of all or part of the natural wetland under Regulation 45(3)(b) of the NES Freshwater.

Demonstration of compliance with the conditions in Clause 4 of Regulation 46 of the NES Freshwater. is provided in Appendix A.

4.7 Resource consent lapse periods

Section 125 of the RMA provides that a resource consent lapses, unless given effect to, five years after the date of commencement of the consent unless a date is specified in the consent. Waka Kotahi considers the standard five year lapse date to be appropriate for the Project.

4.7.1 Resource consent durations

Waka Kotahi is seeking resource consent with the following durations:

- Five years from the date of commencement in respect of consent required for construction activities.
- 35 years from the date of commencement for the stormwater discharge consent required for the long term operation of the Project.

5 THE EXISTING ENVIRONMENT

5.1 Introduction

This section provides a description of the existing environment within which the Project will be constructed and operated. The specialist technical assessment reports in Volume 3 of this AEE provide detailed descriptions of specific features relevant to each discipline. Noting that site visits have not occurred to the property on the western side. The following section provides a broad description of the Project area and surrounding environment, focusing on its historical and regional context and the built and natural environment. For the purposes of this Application, the Project area is defined as the land within the existing designations at the intersection of SH1 and SH29, along with the additional land within the proposed alterations to those designations.

The historical context of the Project area is described in detail in the Historic Heritage Assessment in Volume 3.

5.2 Transport environment

The transport environment of the Project area is described in detail in the Traffic and Transportation Assessment in Volume 3. The transport network within the Project area consists of SH1 and SH29. Figure 5.2-1 provides an aerial view of the SH1 and SH29 T-intersection. SH1 traffic is the priority movement, flowing approximately west-east through the intersection. A slip lane is provided for SH1 traffic to ease left on a large radius curve from SH1 eastbound to SH29 northbound.

The existing intersection has a high number of crashes, with 1.9 injury crashes per year, (35 crashes in a 5 year period, one of which was fatal) and it is expected that the operation of the intersection will continue to deteriorate. The existing intersection is among the most high crash risk locations in New Zealand. The existing give-way controlled layout experiences significant delays on the SH29 approach, with delays in excess of 5 minutes in the weekend peak. These delays increase as traffic volumes through the intersection increase. This delay affects the safe operation of the intersection with drivers likely to accept increasingly smaller and less safe gaps in traffic.

In August 2019, to improve the safety of the intersection, Waka Kotahi installed Rural Intersection Activated Warning Signs (RIAWS) on the SH1 approaches; approximately 180 m either side of the right-turn exit lane on SH29. The RIAWS are activated when there are vehicles approaching the intersection on SH29 to warn road users approaching on SH1. The RIAWS illuminate with a temporary speed limit of 60 km/h for road users on SH1; reduced from the posted speed limit of 100 km/h.

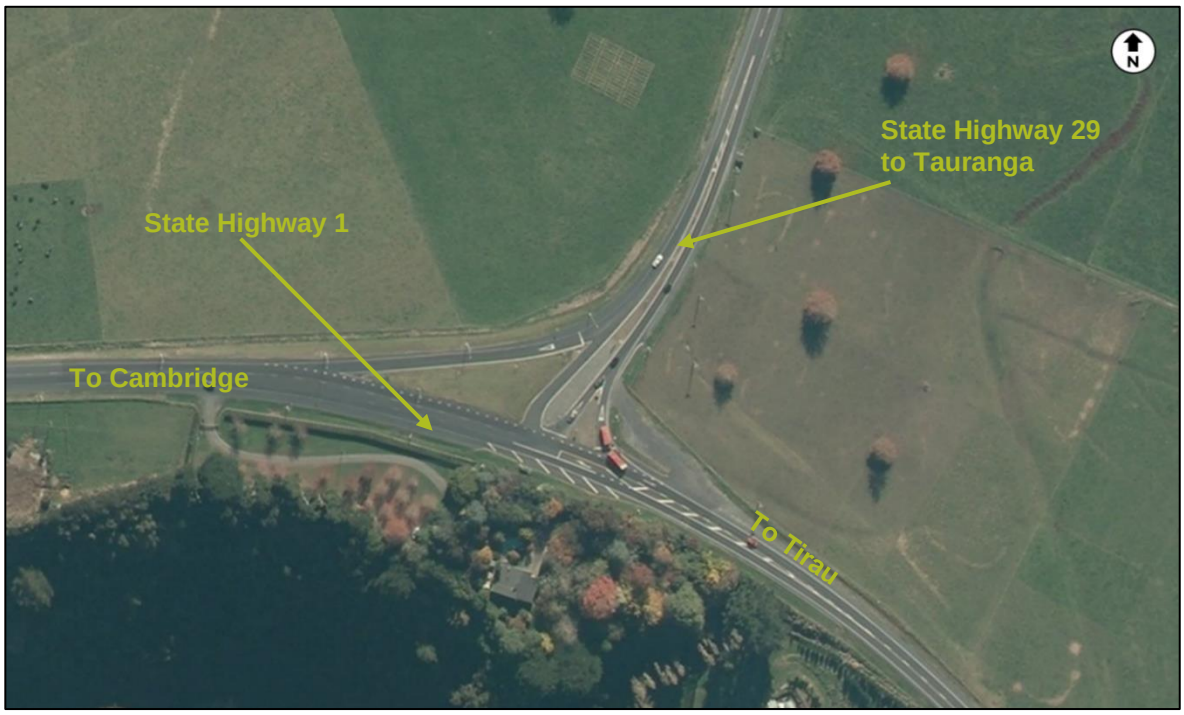

Figure 5.2-1: Aerial view of the intersection

5.2.1 Traffic volumes

The closest Waka Kotahi state highway traffic count sites to the intersection are:

- SH1 (North): 01N00580 - Karāpiro Telemetry Site (13 km from Project).
- SH29: 02900069 – 200m south of Totman Road (5 km from Project).
- SH1 (South): 01N00594 – 400m south of SH29.

Analysis of historic counts at the above sites indicates that there have been step changes in traffic flow on the approaches to the intersection as sections of the Waikato Expressway have opened. Prior to the opening of the Cambridge Section of the Waikato Expressway in 2015, the growth rates of traffic volumes in the area of the intersection were between 0.5%-0.9% which is significantly lower than the 2006 to 2019 rate of 2.3%.

Following the opening of the Cambridge Section in 2015, the growth rates increased significantly. The high growth rates between 2015 and 2019 are not expected to be sustained as any induced growth as a result of the completion of the Waikato Expressway is expected to occur in the years immediately following completion. It is expected the growth rates will revert to the linear growth rates between 2006 and 2019. The rate of 2.3% is conservative as it is greater than the underlying growth prior to the opening of the Cambridge Section of the Waikato Expressway.

5.2.2 State Highway 1

SH1 is classified as a national high-volume road under the current one road network classification (ONRC). It is the major transport corridor running north-south through New Zealand with the southern extent of the Waikato Expressway (Cambridge section) terminating approximately 17 km to the north of the intersection. In this location SH1 is a nationally significant freight corridor and has tourism links. SH1 has a role connecting the three largest urban centres in the upper North Island, two ports and the Auckland International Airport. It provides access to private properties and minor local roads.

The Annual Average Daily Traffic (AADT) in this location is 20,328 vehicles per day (vpd). 10.4% of the AADT is Heavy Commercial Vehicles (HCV) heading to the north via SH29 and 16.95% is HCV heading to the south via SH1.

5.2.3 State Highway 29

SH29 has a ONRC of national high-volume road with an AADT of 8,174 vpd with 16.85% HCV. It provides the connection between the ports of Auckland and Tauranga.

5.2.4 Local road network

Horahora Road is located approximately 1 km south of the intersection within the South Waikato District and is accessed from SH1. Horahora Road experiences traffic volumes of approximately 1,055 vpd with 20% HCV.

Maungatautari Road is approximately 1.6 km north of the intersection on SH1 in the Matamata Piako District. Maungatautari Road experiences traffic volumes of approximately 720 vpd with 10% HCV. Maungatautari Road is an alternative north-south route to SH1 but is less direct as it travels via Karāpiro Village. It has been required as a detour route in previous years where certain locations of SH1 have been blocked due to vehicle accidents.

5.2.5 Pedestrian and cycle networks

The intersection is not part of common cyclist or pedestrian routes due to the remote rural location, high traffic volumes, high speed environment, lack of safe facilities for active modes along either state highway (e.g. footpaths), and lack of safe crossing facilities at the intersection. However, occasional cycling events/rides use the intersection and it is a key node linking three future cycle trails, including the existing Waikato River Trail, the Te Awa Trail and the Hauraki Rail Trail.

Future planned cycle trails are proposed that will link to the Waikato River Trail via the SH1/SH29 intersection, so the demand for cyclists to use the intersection is expected to increase in the future.

5.3 Built environment

5.3.1 Land use

The Project is located within a rural environment and zoned as such under the relevant District Plans. The existing SH1 and SH29 are designated and consist of paved surfaces, road shoulders, stormwater drainage, and associated infrastructure. The land use is predominantly pastoral farming activities to the north of SH1. There are two dwellings immediately south of the existing intersection; one being approximately 50 m from SH1 and set within a dense planting of trees and shrubs. The other dwelling is approximately 150 m southeast of the existing intersection at a level below the highway and enclosed by established pine shelterbelts.

5.3.2 Network Utilities

A section of a Transpower NZ 110 kV transmission line Hinuera- Karāpiro A (HIN-KPO-A) runs in an east to west direction crossing SH29 approximately 350 m north of the existing intersection. Local supply powerlines follow the southern edge of SH1, crossing and re-crossing the highway just east of the existing intersection. The lines consequently connect to the local powerlines that run parallel but are set back from the eastern side of SH29. Other assets identified include:

- Chorus: underground telecommunications.
- Powerco: overhead distribution power lines crossing over SH1 along the Tirau approach.

5.3.3 Built heritage

The closest heritage site identified in the MPDP is Item 66 which is scheduled as Piarere School (Technical Institute) located at 5852 SH29 Piarere. The school is approximate 865 m to the north of the Project area.

5.4 Natural environment

The Project area is relatively flat and in farmland, mainly dairy pasture. To the south of the existing SH1, there are steep slopes dropping away to a gully area. The overall gully is orientated northeast to southwest and is graded toward the southeast where it joins a perennial unnamed river downstream of the Piarere Stream and upstream of the Waikato River. Immediately opposite the existing intersection is a dense cover of mixed exotic and native vegetation that includes mature pine trees near the Waikato River.

5.4.1 Geology

The generally flat land in the Project area is cross-bedded pumice sand, silt and gravel with interbedded peat. This type of soil is classified as Q3a and is a part of the Tauranga Group. Commonly known as the Hinuera Formation, this soil is highly variable and does not have a consistent percentage of sand, silt and clay, though it is typically expected to comprise approximately 60% sand, 30% silt and 10% clay.

5.4.2 Piarere slip

Of relevance to the location of the proposed roundabout is an area of known instability in the vicinity of the existing intersection. The instability area is known as the SH1 Piarere Slip and is currently undermining the existing SH1 pavement. It is proposed to repair this slip as part of the Project. Figure 5.4-1 below shows the location of the SH1 Piarere Slip.

Figure 5.4-1: SH1 Piarere Slip – location of known instability

5.4.3 Drainage catchments

The existing road corridors lie at the watershed of two catchments, the Waitoa River, which drains north to the Firth of Thames, and the Waikato River, which drains northwest to the Tasman Sea. Inspection of historical aerial photography and contour data indicates that at least part of the catchment north of SH1 discharges to the Waikato River – incised channels indicate steep, erodible soils, and potentially significant flow has occurred at some stage. The eastern side of the SH29 intersection originally flowed towards the Waitoa River in a meandering channel. The historic construction of SH1, and creation of farm drains on the northern side of SH1 have altered the natural drainage patterns in the area. All of these factors paint a picture showing the Waikato/Waitoa catchment boundary is ambiguous and may have changed more than once in the past.

5.4.4 Watercourses

5.4.4.1 Overland flow path on western side of SH29

WRC's online Water Classification maps indicates an unnamed watercourse on the western side of SH29. This watercourse is shown to start in the north-west of SH1 near the proposed roundabout location and heads to the north intersecting with SH29. As access to this land is not available, the existence of this watercourse has not been confirmed by a site visit. However, as aerial photos indicate this watercourse exists, as a precaution, it has been assumed that it does exist. The Project Ecologist considers that this watercourse in an overland flow path, which will be confirmed when access to the land becomes available.

5.4.4.2 Unnamed watercourse on eastern side of SH29

An unnamed watercourse is noted as Surface Water Class on WRC's online Water Classification maps. It is shown to run along the eastern boundary of SH29 from the north to the boundary of SH1 in the north. The waterway also flows across SH29 heading west toward the proposed location of the roundabout. When the Project Ecologist undertook a site visit to the eastern side of SH29 in January 2021 the watercourse was not flowing. The watercourse eventually flows to the Waitoa River to the north of the Project area and is likely to have been a headwater of the Waitoa River in the past.

The Project Ecologist confirms that this watercourse does not fall within the Regional Plan definition of Perennial Stream: *A stream that flows all year round assuming average annual rainfall*. Therefore, for the purposes of this Application, it is assumed that the watercourse falls within the Regional Plan definition of Ephemeral Stream: *Streams that flow continuously for at least three months between March and September but do not flow all year*.

5.4.4.3 Unnamed River

An unnamed river is located at the bottom of the western gully. This river is downstream of the Piarere Stream and upstream of the Waikato River. WRC's online Water Classification maps identifies that the unnamed river at this location has the following classifications: contact recreation, trout habitat and indigenous fish habitat. Macroinvertebrate communities were not sampled but are expected to include a range of taxa which comprise three orders of insects that are generally found in watercourses with good water quality.

The Ecological Assessment in Volume 3 states that the unnamed river flows in a southwest direction and is characterised by a slow flowing run with a depth of <0.2 m. Riparian vegetation on the true left bank of the unnamed river at the discharge point (within 20m) is fully vegetated and dominated by dense blackberry. The Ngāti Koroki Kahukura Trust have advised that kayakers use this river for recreation purposes and as part of tours to view and access an area of glow worms.

5.4.5 Natural wetland

While the vegetation on the true left bank of the unnamed river to the south of the Project area could not be accessed by the Project Ecologist, it appears to be dominated by species tolerant of wetted conditions and is considered to be a natural wetland under the NES Freshwater and NPS Freshwater.

5.4.6 Hydrogeology

The regional groundwater table in the Project area is relatively deep and is likely to be in the order of 10 m or more and drawn down in proximity to the gully features. Available historic ground investigation data in the immediate vicinity of the site comprising hand augers (0.9 m to 2.0 m bgl) and a borehole (25 m bgl) did not encounter groundwater. Perched water tables in the area may be relatively continuous at higher levels and may generate significant seepage from gully and terrace faces. It is also possible that temporary perched groundwater could exist during or shortly after high rainfall events.

5.4.7 Floodplain

Currently, the ephemeral watercourse and overland flow path near the existing intersection flow towards the Waitoa River and have capacity for low flow events less than the 2-year ARI (Annual Recurrence Interval). When rainfall exceeds the capacity of the ephemeral watercourse or overland flow path, a wide, shallow floodplain stores and conveys water to the north. Small culverts associated with the

drainage of SH1 currently pass minimal flow towards the Waikato River. Flood modelling results show that the majority of the existing road corridor has between 0.05 m and 0.5 m of flooding.

5.4.8 Vegetation and land cover

The land to the east and west of SH29 and to the north of the existing SH1 road corridor is dominated by grazed exotic pasture, with areas of rank grass and weeds along the roadside fence. There are also several scattered exotic pin oak and plane trees.

Land to the south of the existing SH1 road corridor within the western gully to the south of the Project area (location of the proposed stormwater wetland and discharge structure) consists of a mix exotic and native trees and scrub. The area is dominated by privet, blackberry, jasmine and ivy. Native vegetation is scattered throughout the gully area and includes mapou, cabbage tree, tree ferns, black mamaku and one large kanuka. Kanuka is, now classified as a '*Threatened*' species due to the threat of possible decline posed by the spread of myrtle rust. The Ecology Assessment notes that this species is common and widespread locally, regionally and nationally, and its threat classification is not considered to elevate the conservation status of the gully area.

Planning Map 16 of the MPDP shows that the land within the western gully is subject to a *Kaitiaki (Conservation) Zone* on the southern boundary of the site. When visiting this site, the Project Ecologist noted that this southern area is dominated by exotic vegetation and weeds in particular blackberry and privet as shown in Figures 5.4-2 and 5.4-3 below.

Figure 5.4-2: Unnamed river looking north-east showing the true right bank

Figure 5.4-3: Unnamed river looking west showing the true right bank

5.4.9 Birds

Native and common introduced bird species were recorded on the site visits undertaken by the Project Ecologists in early 2021. No species recorded are classified as *At Risk* or *Threatened.*

5.4.10 Lizards

During site visits in early 2021, the Project Ecologists undertook manual lizard searches within the highest value habitat. No lizards or evidence of lizards were observed during manual searching. While lizards are cryptic and can be difficult to detect when they are in low densities, based on the disturbed, isolated or steep nature of potential habitat, and no lizards being observed during manual searches it is reasonable to assume that native skinks (specifically copper skinks) are potentially absent from the area or are present in low densities.

Nocturnal spotlighting did not take place to detect the potential presence of arboreal species within the western gully but based on the dominant exotic invasive vegetation within the gully, avoidance of small areas of native vegetation within the gully, it is unlikely that an *At Risk* or *Threatened* arboreal geckos (e.g. forest gecko) are present.

5.4.11 Long-tailed bats

In addition to a review of relevant data, bat activity levels were monitored in February 2021 using ten Automated Bat Monitors (ABMs) that were deployed for 21 nights within the Project area and the surrounding areas in habitat which may be used by bats. Figure 5.4-4 below provides the locations of the ABMs. A total of 6,705 long-tailed bat passes were recorded across all ten monitors over the 21 nights the ABMS were deployed. It is important to note that the number of passes cannot be considered indicative of population size, as the movement of an individual bat can generate multiple passes.

Figure 5.4-4: Acoustic monitoring locations surveyed between February and March 2021. The blue points show historical records of bat activity taken from the DOC Bat BioWeb Database

5.4.11.1 Bat roost tree assessment

A total of 16 trees were assessed within the Project footprint to determine the suitability of these trees as potential bat roosts.

Thirteen of these trees are located on the eastern side of SH29 and were identified as pin oak of approximately 60-70 cm diameter at breast height (DBH). While no roost features were obvious from the ground, the amount of leaf cover made it difficult to determine if roost features were present further up the tree. Therefore, they are all assessed as having moderate suitability for a bat roost.

Three plane trees located on the western side of SH29 were viewed from across the road. However, as access has not been available to this property they could not be assessed. Therefore, they are all assessed as having moderate suitability for a bat roost.

There are three large pine trees at the top of the gully to the south of the Project area, which have a moderate to high roosting suitability. Other potential roost trees identified included several tree ferns with dense skirtings, cabbage trees and a mature kanuka. Figure 5.4-5 below provides a drone image of the gully area and provides the location of these trees identified above.

Figure 5.4-5: Drone image of western gully showing trees already identified as having moderate-high suitability for roosting bats

The presence of long-tailed bat, a 'Threatened' species, results in a Very High ecological value rating for the Project in terms of terrestrial fauna species. However, the habitat is of lower quality for long-tailed bat compared to habitat in the wider landscape.

6 PROJECT DESCRIPTION

6.1 Introduction

The Project is the construction operation and maintenance of a new two-lane roundabout connecting SH1 and SH29 north west of the location of the existing intersection at Piarere. This section gives a description of the Project and should be read in conjunction with the Project Drawings in Volume 4. The Project description in this section has informed the technical specialist assessment reports in Volume 3.

Any areas or dimensions outlined in this section are approximate and may change as the result of detailed design. The final design of the Project (including the design and location of ancillary components such as stormwater treatment devices, will be refined and confirmed at the detailed design stage.

6.2 Design of the roundabout

Figure 6.2-1 provides an illustration of the proposed layout of the roundabout, the existing and proposed designation boundaries and the proposed stormwater management infrastructure.

The design of the roundabout has been completed in accordance with Waka Kotahi's Register of network standards and guidelines, Road Engineering standards and Austroads Guide to Road Design (Austroads). The key design elements are outlined below:

- The central island is to be raised above the circulating carriageway using a traditional "upside-down saucer" design approach.
- The central island radius is 30 m or a 60 m diameter.
- The central island will be constructed using a standard mountable kerb and a 1 m wide concrete apron.
- The approaches to the roundabout will have a width of 3.5 m with a 2 m shoulder.
- The inside traffic lane will have a width of 5.10 m. The outside traffic lane will have a width of 4.9 m.

6.2.1 Elevation

The roundabout will be approximately 3.5 m above the existing ground level. The reasons for this are to:

- Lift the proposed highway and roundabout above the modelled flood levels for the area.
- Enable the construction of pedestrian/cyclist underpasses under the highways at or just above the existing ground level.

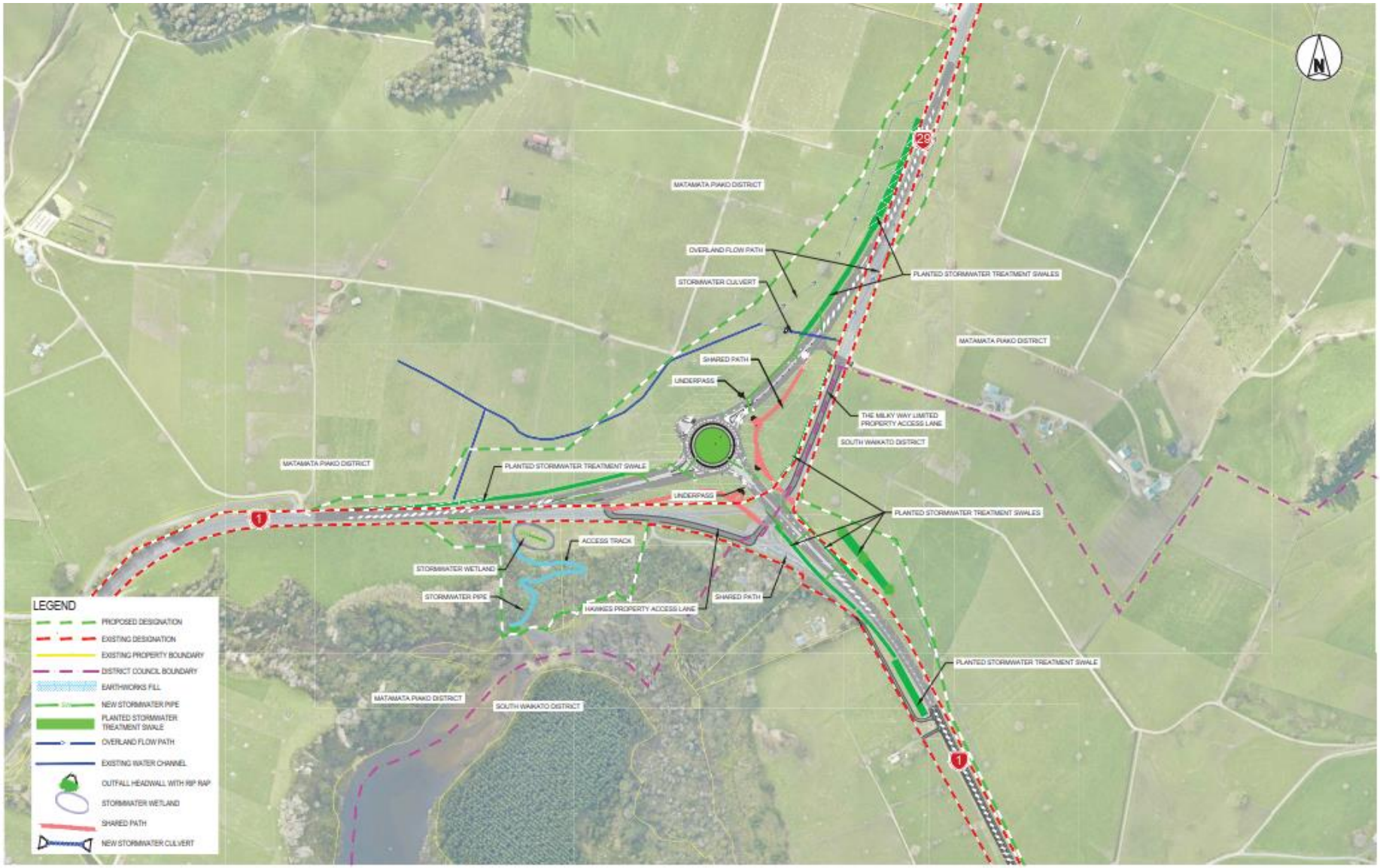

Figure 6.2-1: Proposed roundabout overall layout plan

6.2.2 Speed environment, design and posted speed

The posted speed at the intersection is proposed to remain at 100 km/h. The design speed for the roundabout approaches is 100 km/h, with an expected operating speed at the roundabout of 35 km/h. The design includes appropriate threshold treatments and other measures to ensure that a safe operating speed is achieved. Because the approaches to the new intersection will be realigned, vehicles approaching the new intersection will have a clear line of sight. This will allow adequate warning of the intersection form, thereby increasing safety at the intersection.

6.2.3 Design vehicle

The design vehicle for the intersection turning movements was all heavy vehicles as defined in *RTS 18 New Zealand on-road tracking curves for heavy motor vehicles.* This includes the 18 m 4-axle semi-trailer and 20 m B-Train.

6.2.4 Over-dimension vehicles

The design has taken into consideration the need to accommodate over-dimension vehicles through the intersection. The required clearance envelope is for a load 6 m high by 10 m wide, with a desirable 2 m and absolute 1 m horizontal clearance to allow for a possible off-centre load and for tracking variation.

6.2.5 Geotechnical design considerations

As outlined in Section 5.4.2 of this AEE, an area of known instability exists in the vicinity of the existing intersection near the gully area. Therefore, further geotechnical investigation will be undertaken to understand the extent of the gully and areas that have been filled and design a sound foundation for the new road to be constructed upon.

6.2.6 Walking and cycling facilities

Three cycling paths, Waikato River Trails, Te Awa River Ride, and the Hauraki Rail Trail are proposed to converge at the SH1/SH29 intersection. Therefore, two underpasses are proposed at the roundabout under the SH1 to Tirau leg and the SH29 leg of the roundabout. The underpasses are proposed to be a minimum of 2.5 m high by 2.5 m wide and will connect to the off-road paths. Sealed shoulders with a minimum width of 1.5 m will be provided for cyclists riding along the roadway components of the Project i.e. all three roundabout approaches. Cyclists will have the option to either use the off-road paths provided to go around the roundabout separated from the traffic or join the traffic lanes and ride through the roundabout with the traffic.

6.2.7 Operational drainage and stormwater management

The concept stormwater management design for the Project is illustrated on the Project Drawings in Volume 4 and described and assessed in the Stormwater Assessment in Volume 3.

The stormwater management for the existing and proposed road reserve sub-catchment areas includes capture and conveyance via piped network and/or planted swales and discharging to the ephemeral watercourses and an unnamed river.

The following tables (6.2-1 to 6.2-4) describe the concept stormwater management design for the four distinct areas of the Project as follows:

- Karāpiro Leg (SH1 north)
- Tirau Leg (SH1 south)
- Piarere Leg (SH29)
- Cycle and pedestrian underpasses.

Table 6.2-1: Proposed stormwater management for the Karāpiro Leg (SH1 north)

Stormwater Management	Location	Purpose
Constructed wetland pond (WP01)	On the land to the south of the approach leg.	Provides water quality treatment prior to discharging to the unnamed river.
Piped network with catchpits	Near the roundabout and the initial section of the road and median from the roundabout. Near the tie-of the existing SH1 to the north and south of the approach leg where a dual crossfall exists in the road.	Capture and conveyance of runoff from the roundabout and the road.
Planted swale (PS01)	On the northern side of the new approach leg.	Receives runoff from the piped network and receives surface runoff from the road. Provides additional treatment prior to runoff discharging to WP01.
Piped outlet and discharge structure (impact basin or stilling well)	On the land to the south of the approach leg.	Discharge from WP01 to unnamed river for water quality flow. To provide overflow from WP01 to discharge to the unnamed river during higher rainfall events greater than the 1 in 10-year ARI storm event. Localised energy dissipation of outlet flows to protect against erosion and sediment transportation.

In addition, the existing stormwater pipe that connects the roadside drains around the tie-in location of the Karāpiro Leg will be abandoned as the proposed road batter extent will fill both the roadside drains. The roadside drains will be regraded to convey the runoff to a suitable discharge location or will be connected to the proposed planted swales at the tie-in location of Karāpiro Leg with the existing SH1 north.

Table 6.2-2: Proposed stormwater management for the Tirau Leg (SH1 south)

Stormwater Management	Location	Purpose
Piped network with catchpits	Near the roundabout and the initial section of the road and median from the roundabout.	Capture and conveyance of runoff from the roundabout and the road.
Wetland swale (WS01)	On the north east side of the Tirau Leg.	Provides water quality treatment for runoff from the road. Provides connection with the new and existing roadside swales around the tie-in location with the existing SH1 south.
Wetland swale (WS02)	On the south west side of the Tirau Leg.	
Planted swale (PS02)	On the south west side of the Tirau Leg.	Receives runoff from the piped network and receives surface runoff from the road. Provides additional treatment prior to runoff discharging to WS01.
Planted swale (PS03)	On the north east side of the Tirau Leg.	
Piped outlets	From WS01 and WS02 to the ephemeral watercourse on the north east side of the Tirau Leg.	Discharge from WS01 to the ephemeral watercourse for water quality flow.

		To provide overflow from WP01 to discharge to unnamed river during higher rainfall events greater than the 1 in 10-year ARI storm event. Localised energy dissipation of outlet flows to protect against erosion and sediment transportation.

Table 6.2-3: Proposed stormwater management for the Piarere Leg (SH29)

Stormwater Management	Location	Purpose
Piped network with catchpits	Near the roundabout and the initial section of the road and median from the roundabout.	Capture and conveyance of runoff from the roundabout and the road.
Wetland swale (WS03)	On the western side of the Piarere Leg located around the tie-in location with the existing SH29.	Provides water quality treatment for runoff from the road. Provides connection with the roadside swale around the tie-in location with the existing SH29.
Planted swale (PS04)	On the western side of the Piarere Leg.	Receives runoff from the piped network and receives surface runoff from the road. Provides additional treatment prior to runoff discharging to WS03.
Piped outlet	From WS03 to the existing roadside swale around the tie-in location with the existing SH29.	Discharge from WP03 to the existing roadside swale for water quality flow. To provide overflow from WP03 to discharge to the existing roadside swale during higher rainfall events greater than the 1 in 10-year ARI storm event. Localised energy dissipation of outlet flows to protect against erosion and sediment transportation.

Table 6.2-4: Proposed stormwater management for pedestrian and cycle underpasses

Stormwater Management	Location	Purpose
Slot drain (ACO[4] drain or similar) and piped network	At the southern end of the Tirau Leg underpass entrance/exit point	Intercept and convey runoff from the underpass entrance/exit hardstand area.
Outlet	Downstream of each underpass	Infiltration device to dispose the runoff up to the 10% AEP event with secondary overland flows to the nearest roadside swale.
Grassed Swales	At each underpass entrance/exit point except the southern end of Tirau Leg underpass entrance/exit point	Intercept and convey runoff from the underpass entrance/exit hardstand area. Provides connection with the roadside swale or existing ephemeral watercourse.

[4] Modular channel units made with polymer concentre channels, together with grates from a variety of materials.

Infiltration Device	At southern end of Tirau leg underpass entrance/exit point	Soakage of runoff up to the 10% AEP event with secondary overland flow to the existing stormwater network on the southern side of the SH1/SH29 intersection.

Table 6.2-5 provides the catchment areas and volumes of the wetland pond and swales. The design and capacity of the stormwater infrastructure is be based on a 1 in 100 year average recurrence interval (ARI) 10 minute storm event based on NIWA[5] High Intensity Rainfall Design System (HIRDS). The HIRDS rainfall is adjusted for climate change projected though to 2120.

Table 6.2-5: Catchment areas and volumes of the wetland pond and swales

Stormwater Management	Catchment area (m^2)	Volume (m^3)
Wetland pond (WO01)	15,200	1,200
Wetland swale (WS01)	12,100	1,350
Wetland swale (WS02)	6,800	450
Wetland swale (WS03)	16,000	950

6.2.7.1 Capture and conveyance

Shallow planted swales are proposed as dual-purpose devices to provide pre-treatment and conveyance of stormwater flows for the proposed road. Shallow grassed swales are proposed to convey stormwater flows for the proposed underpasses. Swales are used where practicable to minimise the number of underground assets and to improve the reliability and resilience of the stormwater conveyance systems.

Runoff will be captured and conveyed via piped systems in locations where planted swales are not practical due to site constraints or the safety requirements of using a kerb and channel around the roundabout. Cycle friendly grates will be provided on all road catchpits to ensure safety of the road users.

6.2.7.2 Treatment Devices

Constructed wetlands and wetland swales are the preferred stormwater treatment devices to achieve water quality.

Constructability and maintenance access requirements were considered while assigning the locations of the wetland pond and each wetland swale. Forebays are included for each device to collect heavy sediment from the runoff prior to flowing through the rest of the device. The footprint areas for the treatment devices shown in the stormwater drawings have made allowance for an access track around their perimeters.

Landscaping, aesthetics and geometry of the wetland pond and wetland swales will be developed further in the detailed design phase. The design aims to provide high flow bypasses around wetlands, where it is not possible, overflow structures will be strategically used to discharge the high flows to avoid compromising the long-term performance of the system and reduce the maintenance requirements.

6.2.7.3 Typical outlets

The outlets to the planted swales, wetland pond, wetland swales, ephemeral watercourses and existing roadside swales will utilise a typical headwall / wingwall outlet structures with rip-rap apron protection.

6.2.7.4 Outlet to the unnamed river

The outlet to the unnamed river will comprise of a DN450 pipe directionally drilled to the base of the river. The proposed outlet structure will be either an impact basin or stilling well arrangement for energy dissipation of flows. Rip rap is required to extend to the base of the river approximately 10 m in length by 5 m wide. Vegetation clearance required to construct the outlet structure and rip rap armour is estimated to be between 30 m^2 to 60 m^2.

[5] National Institute of Water and Atmospheric Research.

6.2.7.5 Access track to the outlet structure

An access track from the top of the gully to the base of the unnamed river will be constructed to facilitate the construction of the outlet and erosion protection structures. This access track will follow the contours of the gully banks to reduce the steepness of descent of the access track. An indicative alignment of the access track is shown in Figure 6.2-1 above. The access track will be approximately 250 m in length and 4 m wide. Vegetation clearance associated with construction of the access track is approximately 1,000 m^2 (4 m x 250 m).

Following, completion of the construction of the outlet and erosion protection structures, the width of the access track will be reduced to a 1.5 m wide foot access track. The access track will be retained to allow for inspection and maintenance of the structures.

6.2.7.6 Culverts and watercourse diversions

Watercourse diversion WD01 has been incorporated to bypass the planted swale (PS04) and wetland swale (WS03) to maintain the existing overland flow regime heading northwards towards the Waitoa River catchment during large storm events.

There is an existing 375 mm diameter culvert under the existing highway SH29 that conveys flows from the ephemeral watercourse on the west to the existing roadside swale along SH29 to the east. Extension of this culvert clashes with the proposed planted swale network and will not meet the minimum cover requirements. Therefore, it is proposed that a 675 mm diameter culvert (cross culvert CU01) be installed to the south of the existing culvert further upstream where the clashes can be resolved, and cover requirement can be achieved. This culvert will require a watercourse diversion (WD02) to connect to the existing roadside swale on the east of SH29.

6.2.8 Network utilities

The Project will require the relocation of, and works within the vicinity of network utility infrastructure assets. Following engagement with the network utilities operators, Waka Kotahi has identified necessary relocation/protection work involved in the Project design and those works will be managed to minimise disruption and delays to construction and road users.

6.2.9 Landscape planting

Figure 6.2-2 provides a draft Landscape Concept Plan, which has been developed for the Project. Landscape planting will be provided in accordance with Waka Kotahi's P39 Standard Specification for Highway Landscape Treatments (P39).

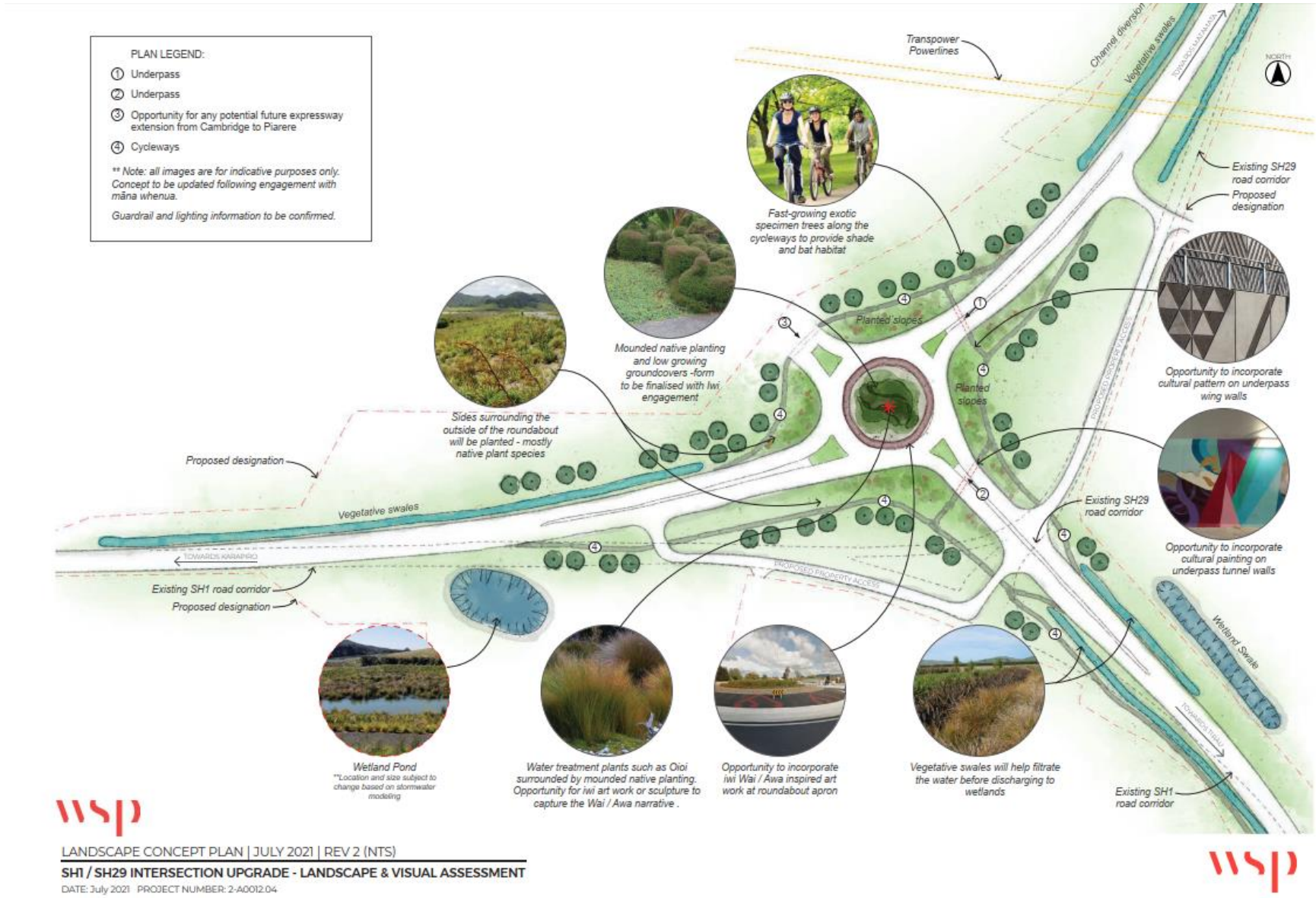

Figure 6.2-2: Draft Landscape Concept Plan

7 CONSTRUCTION OF THE PROJECT

7.1 Introduction

This section outlines a possible construction methodology for the Project to inform this assessment of environmental effects. It provides an overview of an indicative construction methodology and gives details of the main construction elements likely to be undertaken. The approach outlined is based on the experience Waka Kotahi has in developing and constructing road projects of a similar scale and nature.

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

- The detailed design of the Project.
- The construction, timing and staging and durations.
- The procurement method adopted for construction of the Project.

Once the contract has been awarded and a contractor is in place, the construction methodology will be further refined and developed in accordance with conditions of the designation or the resource consents.

7.2 Indicative construction programme

Waka Kotahi intends construction of the Project to start in late 2022 and it will take approximately 18 months to complete. The indicative construction programme is based on the following typical sequence of works:

a) Enabling works – such as geotechnical investigations, establishment of site yards and site offices, establishment of mitigation measures (such as erosion and sediment control measures, earth bunds and the relocation of services, such as power lines/cables, telecommunication utilities.

b) Setup traffic management and any temporary traffic diversions if required.

c) Site establishment – such as establishment of stormwater diversions, clearing and stripping of topsoil, construction of culvert and temporary haul roads.

d) Carry out bulk earthworks such as construction of cuts, relocation of fill material, fill embankments, and cut to waste of unsuitable soils.

e) Construction of stormwater infrastructure and structures.

f) Construct pavement and surfacing.

g) Install traffic services (such as barriers, lighting, signs, road marking)

h) Topsoil batters, landscaping and fencing.

For the construction programme and sequence, the key activities are earthworks and pavements, as these are the longest duration activities and follow on from each other to some extent. Earthworks are anticipated to be the longest duration activity (up to one and a half seasons). Pavement and surfacing cannot be constructed until the relevant earthworks are finished and any settlement is substantially complete.

The specific staging of work will be dependent on the method of procurement and contractor expertise, land acquisition, the availability of contractors and other resources, such as materials and construction equipment.

7.3 General construction aspects

7.3.1 Enabling works

Prior to the main phase of construction, there are a number of early activities that will be required to facilitate construction. These will include the following and similar activities:

- geotechnical investigations and land investigations.
- formation of access for geotechnical investigations.
- establishment of site yards, site offices, site access points and fencing.
- constructing and sealing site access roads.
- relocation of services.
- establishment of mitigation measures (such as erosion and sediment control measures, earth bunds and screen planting).

7.3.2 Earthworks

Table 7.3-1 provides indicatives areas and volumes of the earthworks required. The contractor will undertake a more detailed analysis.

Table 7.3-1: Earthwork quantities and distribution

Component	Areas / Volumes
Total site area (including existing road corridor)	198,750 m^2
Total earthworks footprint	79,000 m^2
Topsoil strip/stockpile/re-spread	24,000 m^3
Imported fill	90,000-95,000 m^3
Granular pavement and surfacing	45,000m^3

7.3.3 Erosion and sediment control

Earthworks will be managed during construction in accordance with erosion and sediment control practices that are consistent with:

- WRC's guideline Erosion & Sediment Control Guidelines for Soil Disturbing Activities TR2009/02 (Waikato Regional Council, 2009); and
- Waka Kotahi's Erosion and Sediment Control Guidelines for State Highway Infrastructure 2014.

Management of construction activities associated with works in and around watercourses is vital to immobilise sediment. Therefore, a draft Erosion and Sediment Control Plan (ESCP) is attached as Appendix A to the Stormwater Assessment in Volume 3. A final ESCP will be prepared by the contractor and provided to WRC for certification.

Sediment control measures to be implemented on site are likely to include up to nine sediment ponds. The construction site will be demarcated by a network of clean water bunds and silty water channels to effectively keep clean water out and dirty water inside the cordon. Silt fences will be used to cordon off smaller areas (generally less than 3 ha), as well as to provide extra protection around watercourses and culvert entries. As spoil will be trucked off-site, a stabilised construction entrance and, if required, a wheel wash facility will be constructed at each point where heavy vehicles will leave the site, as shown on the draft ESCP.

7.3.4 Water use requirements for construction activities

Water will be required for construction activities, such as dust suppression. Resource consent for water takes is not being sought at this time. The contractor will be required to obtain a water supply, for the construction of the Project, and the potential source is not yet known. If the contractors chosen source requires resource consent, consent will need to be obtained from WRC prior to the commencement of works.

7.3.5 Construction traffic

The estimated number of heavy earth moving vehicles on-site is anticipated to be fifteen, including four excavators, one front end loader and eight trucks. During the fill import stage, up to twenty truck and trailer units per hour are likely to transport fill material from two nearby quarries.

There will likely be up to three possible access points to the site, SH1 at the western end of the construction footprint, SH29 at the northern end, and immediately to the north of the existing intersection. One haul road is proposed to be constructed at the SH1 access point and extend north to the access point at SH29.

For the majority of the construction works, SH1 and SH29 will be able to remain at their operational posted speed limit. However, the contractor may choose to adopt a temporary speed reduction as a safety precaution to accommodate for vehicles slowing down to turn into and out of the site. Given that most of this construction will occur offline from the existing state highway alignment, the speed reduction required is less than that typically required for a more constrained work site. In the later stages of construction, the implementation of a lowered posted speed limit will be required at the connecting points and overlap of the new alignment with the existing state highway network.

The contractor will be required to implement temporary traffic management controls in accordance with the Code of Practice for Temporary Traffic Management (CoPTTM) to ensure that the temporary traffic management (TTM) measures are put in place and the impacts on traffic are minimised as much as practicable.

The proposed TTM measures are discussed and assessed in Section 10.3 Construction traffic of this AEE and detailed in the Transportation Assessment in Volume 3.

7.3.6 Culvert and watercourse diversions

The watercourse to be diverted is located on the western side of SH29. One of the diversions is to the new culvert under SH29 and the other is to ensure the flows do not overtop the road and to bypass the new wetland swale (WS03).

As the watercourses are identified as having ephemeral flows, it is unlikely they would have flows at the time of the works. However, provision for bypass pumping may be required for the diversions and culvert construction if flows are present.

The construction sequence for the permanent watercourse diversions will ultimately be determined by the contractor, but is likely to be as follows:

- Excavate the new channels to their required dimensions, leaving a plug of earth at either end so that excavation takes place in dry conditions.
- Stabilise the new channel and install any required bed form and riparian planting.
- Remove the downstream plug and temporarily stabilise, followed by the upstream plug, and utilise the diversion by damming the existing channel with sand bags or similar.
- Create a dam behind the sand bags and install any required bend armouring.

Culvert construction is likely to follow a generally similar sequence:

- Construct the new culvert alongside the existing watercourse keeping an earth plug at either end to create dry conditions. Alternatively, stop flow in the watercourse by temporary damming or bypass pumping, so that the pipe can be constructed within the existing watercourse.
- Remove the earth plugs or sand-bag dams and introduce flow once the pipe is installed.

For the diversions and culvert construction, the contractor will make provision to stop work and stabilise the site sufficiently safely to convey any storm flow that arises during construction. Suitable methods might include pinned geotextile, rock placement, or using the installed pipes as a flood conduit.

7.3.7 Hazardous substances and materials

Construction activities and site works will include the use of machinery, which will require refuelling on-site. As such, a supply of fuels and oils will be required to be stored within the designation boundary. The management of hazardous substances and materials, including storage, handling, transport and disposal will be subject to specific management practice and industry guidelines (such as using bunded areas, availability of spill kits). This management will minimise potential effects on the health and safety of the workers from exposure to hazardous substances and minimise the potential for adverse effects on the environment.

7.3.8 Construction management plans

Construction of the Project will be managed through the development and implementation of a suite of management plans typical of roading projects. The construction management plans form an integral part of how construction activities are managed to address the social, environmental and cultural effects identified in Section 10: Assessment of effects on the environment of this AEE.

8 CONSIDERATION OF ALTERNATIVES

8.1 Introduction

This section summarises the consideration that has been given to alternative sites, routes and methods for undertaking the Project (section 171(1)(b) of the RMA).

8.2 Background

Prior to the decoupling of the Project from the Cambridge to Piarere project (a future expressway extension from Cambridge to Piarere), Waka Kotahi, since 2015, has considered various route options and corridor options as part of the C2P business case process, which included the SH1/SH29 intersection. Of relevance to the Project, this work led to Waka Kotahi recommending that the form of the SH1/SH29 intersection should be a roundabout in close proximity to the existing SH1/SH29 intersection.

Options for the form of the intersection that were considered as part of the earlier C2P DBC Options Report (2018) included an at-grade roundabout and two variations of a grade-separated interchange (with two different route alignments for each). The intersection concepts were based on the desire to have full access and movements provided where three routes (SH1 north, SH1 south, SH29) meet, as all of the routes have the same One Network Road Classification (ONRC). The two roundabout options performed better than the grade separated intersections, with less effects and good performance in terms of traffic capacity. It was considered that the grade separated interchange options did not provide significant investment benefits over the roundabout options, and those options were discarded. In including the SH1/SH29 intersection project in the NZUP, the Government confirmed that the intersection upgrade should be a roundabout.

8.3 Evaluation framework and process

Following decoupling of the Project from the C2P project and its inclusion in the NZUP, the Project team considered four alternatives for the location of the proposed roundabout in the vicinity of the existing SH1/SH29 intersection, as follows:

- Option A: directly over the existing intersection
- Option B: to the immediate south of the existing intersection
- Option C: a roundabout located to the north of SH1 and to the west of SH29
- Option D: a roundabout located to the north of SH1 and to the east of SH29.

Option A was discarded at an early stage of the assessment because its construction directly over the existing intersection would have considerable impacts on the operation of the state highways. It would require significant traffic management, increasing health and safety risks for the contractors and community and lengthening the construction period. Another relevant factor was that this option would not address existing instability issues at the SH1 Piarere slip.

Option B was also discarded early on, because there is not sufficient land to the south of the existing intersection.

A Multi Criteria Assessment (MCA) tool was used to assess the remaining Options C and D. The MCA involves assigning scores to a set of chosen criteria for each alternative. The criteria were based on various environmental, social, cultural and economic factors, and assessed by the Project's independent technical specialists and tangata whenua.

For their assessments, the specialists used desktop information and undertook a site visit to the land on the eastern side of SH29. As land access was not available on the western side of SH29, the technical specialists made observations from the road boundary and aerial photos across this property.

Option C performed consistently better than Option D for a number of criteria, being archaeology and heritage, noise/vibration, social, stormwater, safety, impacts on farming operations, and cultural matters.

Tangata whenua indicated their preference for Option C. Although not assessed as part of the MCA, it is noted that Option C is better located to connect to the existing State Highway 1 network than Option D.

Based on the options assessment, Waka Kotahi selected Option C (the western side of SH29).

9 ENGAGEMENT AND CONSULTATION

To date, Waka Kotahi has engaged with its Treaty partners, key stakeholders and directly affected landowners, as outlined below.

9.1 Tangata whenua

Waka Kotahi recognises and respects Te Tiriti o Waitangi (the Treaty of Waitangi) and will work with Māori as partners to build strong, meaningful and enduring relationships to achieve mutually beneficial outcomes. Tangata whenua for this location are Ngāti Koroki Kahukura, Ngāti Hauā, Raukawa Charitable Trust and Waikato-Tainui. Ngāti Koroki Kahukura and Ngāti Hauā agreed to lead out this consultation process with the support of Raukawa Charitable Trust.

Regular hui with tangata whenua representatives and Waka Kotahi have occurred from late 2020. The intent of the hui has been to provide updates on the development of the Project, and to seek feedback in relation to any matters of significance to tangata whenua, including cultural and environmental matters. Representatives of Ngāti Koroki Kahukura and Ngāti Hauā also attended the site visit with, Waka Kotahi and the Project's technical specialists.

Te Huia Ltd on behalf of the tangata whenua provided a Tangata Whenua Statement and Engagement Report, a copy of which is provided in Volume 2 of the AEE.

This report states that the Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa support the location of the roundabout on the western side of SH29 and the lodgement of the NoR and resource consent applications with the relevant councils. Te Whakakitenga o Waikato-Tainui endorses the recommendations and position statement of the tangata whenua as presented in the report.

9.2 Consent Steering Group

A consent steering Group (CSG) was established in September 2020. The CSG included representatives from Waka Kotahi, WSP, MPDC, SWDC, WRC, DOC and NZHPT. The intent of the CSG was to:

- bring Waka Kotahi and regulatory authority representatives together from an early stage to establish the statutory approval requirements, process, outcomes and timeframes.
- fully inform CSG members of Project developments.
- facilitate and streamline the pre-lodgement, lodgement and processing of the required statutory applications for the Project.
- to inform the level of information that will be provided in the AEE.

The CSG met initially in September and December of 2020 and again in March 2021. Following this, regular email communication and meetings have occurred, as required.

9.3 Affected landowners

Meetings have been held with the landowners whose land is required to undertake the Project, since late 2020. The purpose of these meetings was to advise of the final proposed location of the roundabout, provide information about the Project design and to seek feedback from those parties.

9.4 Utility companies

Ongoing consultation with utility companies including: Transpower, Powerco, Chorus and Vocus.

9.5 Feedback

Several matters have been raised throughout the engagement process , mainly in relation to potential effects of the Project in terms of noise, dust, vibration, drainage, trees, utilities, property access arrangements, and the RMA and PWA processes. The Project Team has considered this feedback and responded where appropriate.

9.6 Summary

Waka Kotahi is committed to maintaining open dialogue with affected landowners and the wider community as this Project progresses through the consenting process. In parallel, the PWA process for land acquisition will also be taking place. Whilst the effects assessment has demonstrated that the potential environmental effects of the Project are largely localised, in recognition of the wider community's interest in state highway projects, Waka Kotahi requests that the NoRs and the resource consent be publicly notified.

10 ASSESSMENT OF EFFECTS ON THE ENVIRONMENT AND PROPOSED MITIGATION

10.1 Introduction

This section summarises the actual and potential effects of construction of the Project, followed by effects of operation and maintenance of the Project. Avoidance of adverse effects has been the first principle for the design of the Project. Where this is not possible, mitigation measures are proposed and are reflected in the proposed designation and consent conditions. The technical reports supporting the assessments are contained in Volume 3 of the AEE.

The most significant positive effects of the Project relate to safety improvements for road users and an improved journey time for freight. It also provides improved connectivity for pedestrians and cyclists. The other significant positive effect include an improved quality of stormwater discharges into the surrounding watercourses.

10.2 Earthworks and erosion and sediment control

10.2.1 Introduction

This section assesses the actual and potential effects of land disturbance activities (earthworks and vegetation clearance) during construction. It includes consideration of the erosion and sediment control measures that will be used to minimise sediment discharges from construction stormwater. This assessment is informed by the Stormwater Assessment in Volume 3 and the draft ESCP in Appendix B of the Stormwater Assessment. The ecological effects of vegetation removal are addressed in Section 10.7: Ecology of this AEE.

Best practice in the Waikato Region is generally considered to be compliance with WRC's *Erosion & Sediment Control Guidelines for Soil Disturbing Activities* or similar design. In addition, Waka Kotahi has its own guidelines, *Erosion and Sediment Control Guidelines for State Highway Infrastructure*.

10.2.2 Sediment discharges

The land disturbance activities anticipated during the construction of the Project are set out in Section 7: Construction of the Project of this AEE. In summary, a number of activities have the potential to generate sediment (including contaminant-laden sediment) including:

- Earthworks, including bulk earthworks, tracking and trenching where rainfall encounters exposed earth.
- Works in and around streams (e.g. a culvert and stream diversions) that disturb and entrain sediment.
- Disturbance from construction of the road embankment, landscape features and stormwater infrastructure.

A Universal Soil Loss Equation (USLE) has been used to determine the potential sediment yield associated with the Project. The USLE calculations indicate that without proper mitigation measures during construction, 4,934 tonnes of soil could be lost over an 18-month construction period. A further 22 tonnes could be mobilised during the two-month site re-establishment phase.

However, with appropriate erosion and sediment controls installed for the Project, this sediment yield is predicted to reduce to 620 tonnes.

10.2.3 Effects of sediment discharge on the receiving environment

Land disturbance activities during construction of the Project can increase the potential for erosion of disturbed earth during rainfall events, which in turn leads to an increased risk of sediment-laden stormwater runoff being discharged to the receiving environment. Excess amounts of sediment in waterways can lead to effects on aquatic flora and fauna and water quality.

Works in watercourses such as the temporary and permanent diversions and the construction of a culvert and other structural elements have the potential to disturb freshwater species and to increase the sedimentation of stream beds. Generally, the existing ephemeral watercourses in the Project area are of low ecological value. However, the unnamed river supports a range of freshwater species. The values of this watercourse and the mitigation measures for construction effects on water bodies are discussed in Section 10.7: Ecology of this AEE.

The draft ESCP has been prepared to demonstrate how erosion and sediment control could be delivered for the Project. The ESCP will be finalised once the construction contractor(s) is appointed and detailed design, as required by the proposed conditions.

10.2.4 Conclusion

The assessment of erosion and sediment control and the draft ESCP demonstrates that best practice erosion and sediment control measures can be applied. With those measures in place, the estimated sediment yield is significantly reduced and it is considered that the construction works will have negligible to less than minor adverse effects on the environment.

10.3 Construction traffic

10.3.1 Introduction

This section presents the findings of investigations undertaken to determine the potential construction traffic effects of the Project, as set out in more detail in the Traffic and Transportation Assessment in Volume 3 of this AEE.

10.3.2 Assessment of construction traffic effects

During construction of the Project, there may be reduced speed environments, detours, narrowing or closure of lanes and temporary traffic signalling resulting in temporary traffic impacts on the State highway network. For the most part the Project is constructed 'offline', which limits the effects on the State highway network. The import fill stage will result in additional HCVs on the road, however due to the small scale of the Project the effects are negligible.

The proposed conditions require the preparation of a Construction Traffic Management Plan (CTMP) in accordance with Waka Kotahi's CoPTTM, which is best practice for the safe and efficient management and operation of temporary traffic management. The CTMP will include measures to mitigate effects on private property access.

10.3.3 Conclusion

Construction traffic has the potential to impact the State highway network if not appropriately managed. Based on the findings of the Traffic and Transportation Assessment, and with the proposed mitigation being a CTMP, it is considered that the overall traffic effects from construction of the Project will be less than minor.

10.4 Construction air quality

10.4.1 Assessment of construction air quality effects

The primary air quality effect from construction of the Project will be dust from construction activities. Waka Kotahi's guide to assessing air quality impacts from state highway projects[6] identifies that the potential air quality risk associated with road construction impacts is largely determined by the number of sensitive receivers within 200m of consideration activities.

For the Project, the unnamed river and three nearby residences will be within 200m of some construction activities. An assessment of potential dust effects identified that unless effective mitigation measures are implemented, these residences and the tributary are at moderate risk of some dust effects.

[6] Guide to assessing air quality impacts from state highway projects v2.3 October 2019.

Measures for controlling dust during Project construction will be incorporated into the Construction Environmental Management Plan (CEMP), which must also include a response plan containing additional management measures to be undertaken in the event of off-site dust impacts. Typical management measures would be expected to include:

- Minimising exposed soil and stabilising all disturbed soil as soon as practical.
- Using water sprays and/or water carts on the access and local roads.
- Removing any dust creating material from the site as soon as practical.
- Avoiding dust generating works during dry and windy conditions.

With the requirements for dust management measures to be included in the CEMP, and general industry good practice, it is expected that any adverse effects from dust will be minimal and temporary.

10.4.2 Conclusion

Overall, it is considered that with industry best practice mitigation measures in place, the adverse effects on air quality arising from the construction of the Project will be reduced to a minor level.

10.5 Construction noise and vibration

10.5.1 Introduction

This section outlines the assessment of effects of noise and vibration associated with the construction of the Project. This section is informed by Noise and Vibration Report in Volume 3.

10.5.2 Existing noise environment

Noise and vibration measurements in the vicinity of the existing intersection were undertaken in February 2021. Details of the measurements can be found in Appendix A of the Noise and Vibration Report in Volume 3. These measurements show that daytime environmental noise in the vicinity of the existing intersection is dominated by road traffic noise at all of the locations monitored. There is still a relatively high volume of traffic, which continues to dominate the ambient noise level for most of the night. There are no other permanent sources of significant noise in the area, though intermittent noise sources typical of a rural environment will contribute to the ambient noise from time to time (e.g. livestock, wind, farm equipment). The proximity of the highways means this area is noisier than a typical rural environment.

10.5.3 Assessment of construction noise

NZS 6803 is the most commonly used standard to assess construction noise, and will be applied to the Project, consistent with provisions in both the MPDP and SWDP. The construction programme for the Project has not yet been planned, but is expected to be typical of road construction projects of similar magnitude undertaken elsewhere in the country. Conservative estimates of the noise emissions from typical construction activities activity, evaluated against the 'long duration' day-time criteria in NZS 6803, result in a critical distance of approximately 70 metres. No dwellings are within 70 m of the main area of works for this Project, and therefore construction noise is likely to be within the limits of NZS 6803 for most activities. However, some activities occurring around the tie-ins to existing roads may exceed the noise limits at adjacent receivers unless noise is managed.

The most effective way to mitigate construction noise is through good on-site management and communication with sensitive receivers. Therefore, a Construction Noise and Vibration Management Plan (CNVMP) will be prepared. The CNVMP will provide a framework for the development and implementation of the BPO for the management of construction noise (and vibration effects). The CNVMP shall be prepared in accordance with Annex E2 of NZS 6803 and the Waka Kotahi *State highway construction and maintenance noise and vibration guide* (version 1.1, 2019).

10.5.4 Construction vibration

The primary sources of vibration are expected to be bulldozers, excavators, and vibratory rollers. Piling work is not expected to be required. There is no New Zealand standard for managing vibration, but the limits in the Waka Kotahi's *State Highway Construction and Maintenance Noise and Vibration Guide* are often used for similar projects. Extrapolating from similar projects (albeit with potentially different soils), vibration effects on people are unlikely for separation distances of greater than 50 m, and vibration effects on buildings are unlikely for distances greater than 20 m. Vibration is therefore unlikely to cause adverse effects for the majority of the Project duration, although cannot be discounted during works closer to the sensitive receivers.

10.5.5 Conclusion

Overall, it is considered that with the implementation of the CNVMP, the adverse effects of noise and vibration arising from the construction of the Project will be reduced to a minor level.

10.6 Historic heritage and archaeology

10.6.1 Introduction

This section identifies potential effects of the construction of the Project on archaeology and built heritage. This section has been informed by the Historic Assessment in Volume 3 of this AEE.

10.6.2 Assessment of effects on archaeological sites and built heritage

The Historic Assessment in Volume 3 of this AEE considers it is unlikely that the Project is within an area of a former intensive Māori occupation, and there is no current evidence to suggest that this area was a focus of horticultural activity. There are no recorded archaeological sites located within the Project footprint. The single listed item on the New Zealand Heritage List / Rārangi Kōrero, Piarere School, is well outside the proposed designation footprint and will not be affected.

As there is a minor risk that subsurface archaeological deposits and features could be exposed by the earthworks required to construct the roundabout. Waka Kotahi will apply for an archaeological authority from Heritage New Zealand Pouhere Taonga prior to commencement of construction works. An authority will help to manage the risk of modifying archaeological remains, in the event they are discovered during construction. tangata whenua have been engaged with this assessment and have included protocols for discovery.

10.6.3 Conclusion

There are no recorded archaeological sites within the Project designation boundaries. It is considered that there are no adverse effects on the known sites and the risk of effects on an unknown site can be appropriately managed through an archaeological authority under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPT Act), and an accidental discovery protocol condition.

10.7 Ecology

10.7.1 Introduction

This section summarises the findings of the assessment of the actual and potential ecological effects arising from the construction and operation of the Project. The assessment is informed by the Ecology Assessment in Volume 3.

10.7.2 Assessment of effects on ecology

10.7.2.1 Effects on vegetation

Vegetation removal on the eastern and western sides of SH29 will impact predominately exotic pasture and weeds. Three exotic trees on the western side of SH29 and three exotic trees on the eastern side of SH29 need to be removed.

The construction of the access track of approximately 250 m in length to the stormwater discharge and erosion protection structures at the gully floor will result in approximately 1,000m² of vegetation removal. The construction of the discharge and erosion protection structures at the bottom of the gully area will result in approximately 30 m² to 60 m² of vegetation removal. The exact locations of both the access track and the discharge and erosion protection structures will be confirmed during detailed design.

The construction of both the access track and the discharge and erosion protection structures will result in removal of predominantly exotic privet, but will also include a small amount of native vegetation. It is intended that that any native trees or concentrated areas of native vegetation and the higher value potential bat roost trees will be retained as the access track design is refined. The most effective way to mitigate the vegetation removal is through a Vegetation Management Plan (VMP) which is proposed as a condition of the resource consents. The VMP will detail restoration and riparian planting enhancement within this property.

10.7.2.2 Effects on birds

The Ecology Assessment concludes that there will be less disturbance to birds than the current situation, as the roundabout will be located a greater distance away from the exotic and native vegetation south of the site and traffic speeds will be reduced. The removal of some vegetation (predominantly exotic) would reduce available habitat for native birds. However, the proposed restoration planting will provide better quality habitat for local bird communities. In addition a condition is proposed requiring a nesting survey for native birds prior to any vegetation clearance. Should a native bird nest be found works shall be delayed until the hatchlings or nestlings have fledged. Therefore, the overall level of effect on birds will be negligible, and there may be positive effects once that vegetation is established.

10.7.2.3 Effects on lizards

While no lizards were found during site visits and the habitat within the designation footprint on the western and eastern sides of SH29 is not considered to be suitable habitat for native lizards, there is potential for lizards to be present in the gully, where there are some areas of dense vegetation. Consequently, there is potential for impacts on copper skinks, including habitat loss with vegetation removal, and injury or mortality during construction. A condition is proposed requiring the preparation and implementation of a Lizard Management Plan.

10.7.2.4 Effects on bats

Potential effects on long-tailed bats from the construction and operation of the Project may arise from habitat loss or fragmentation, injury or death during potential roost tree removal or collision with vehicles. The Ecology Assessment identifies that the access track within the gully will result in an approximate 4 m gap in the vegetation for around 250m, resulting in the creation of edges and a flyway that will be minimally disturbed, once constructed. This is a habitat favoured by bats, and as such, this is a positive effect.

The Ecology Assessment observes that bats are already active across the intersection even with the current lighting, which is not what be described as best practice for bats. These lights will be replaced with lighting that complies with AS/NZS 1158 *Lighting for roads and public spaces*, which incorporates warm-colour LEDs, considered best practice lighting for bats. This change in road lighting is considered to result in positive effects for bats.

A Bat Management Plan (BMP) is appended to the Ecology Assessment. The BMP outlines measures to avoid, remedy or mitigate potential effects on long-tailed bats. The BMP includes Vegetation Removal Protocols to be implemented prior to removal of all vegetation associated with the Project, to avoid mortality or injury to long-tailed bats. The BMP also requires that the design and location of the access track in the gully area minimises the removal of moderate to high value bat roosting trees. The VMP will include details of of any tree protection and supplementary planting of both exotic and native trees species to provide bat roosting habitat and to encourage bats to commute.

Overall, it is concluded that the change in effects as a result of the alteration to designations will be minor.

10.7.2.5 Effects on watercourses and aquatic ecology

Construction works have the potential to discharge sediment and contaminants into the aquatic habitats. Sedimentation in waterways can have numerous negative impacts on aquatic environments.

Culvert installation (CU01) and the stream diversions will disturb the overland flow path on the western side of SH29. While this watercourse appears to be an overland flow path, if it is confirmed to be an ephemeral stream, these works would result in minimal loss of aquatic habitat and stream function.

Stormwater runoff from the existing impervious surfaces is not currently being treated before reaching watercourses in the area. As it is proposed to treat stormwater runoff via a wetland pond, wetland swales and planted wetlands, the result will be an improved water quality reaching the watercourses within the area, which is an overall positive effect.

Stormwater, after being treated through the natural wetland pond on the southern side of SH1, is proposed to be discharged to the unnamed river. However, as the stormwater is being treated and the volume discharged is very low, this is not expected to adversely affect the natural wetland or the nearby Significant Natural Area.[7] The natural wetland will not be impacted by the vegetation removal required for the construction of the discharge and erosion protection structures.

The stormwater discharge footprint in the western gully will result in the loss of some water inputs from this catchment and into the unnamed river. While the surface runoff from the road is minimal this may reduce the time period this ephemeral watercourse does flow during wetter months, pushing the head of the watercourses further downstream.

Other mitigation includes:

- Suitable controls for contaminants around watercourses will be in place during construction to prevent and respond to potential spills and contamination.
- Implementation of erosion and sediment control measures to minimise sediment reaching the watercourses.

10.7.3 Conclusion

The Project will have minimal effects on the ecological values in most areas, but includes mitigation where possible and also offers the opportunity to restore and enhance other ecological values resulting in positive effects. Based on the small catchment area, and highly modified, degraded ephemeral nature of the watercourses on the eastern and western side of SH29, any potential effects are considered minor. The improved quality of stormwater discharges into the surrounding watercourses including the Waikato River is a positive effect of the Project.

10.8 Landscape and visual

10.8.1 Introduction

This section summarises the findings of the assessment of the landscape and visual effects arising from the construction and operation of the Project, in the Landscape and Visual Assessment in Volume 3.

10.8.2 Visual effects assessment

The Project replaces the existing T-intersection with a reconfigured feature being an elevated roundabout to the north west of the existing intersection. Views to the roundabout will be primarily from the properties adjoining and viewing the existing state highways and from users of the state highways.

Other than the SH1 eastern approach leg from Tirau, there are no public viewpoints of the Project from the east. The Milky Way Limited dairy farm occupies the flat land on the eastern side of the SH29, with the farmhouse being located around 200 m from the existing highway. The view from the farmhouse to the new roundabout will be around 50 m further than the view to the existing highway. Due to the height of a hedge and intervening trees beyond the hedge, plus distance, the elevated roundabout will not be

[7] Upper Lake Karāpiro BE35UP068 located within the South Waikato District Plan approximately 60m to the south of the proposed discharge structure

visible from the front of the farmhouse. Therefore visual effects on this property are considered negligible.

As with the views from the east, there are no public viewpoints to the west other than the SH1 western approach leg from Cambridge. The TDL dairy farm occupies the flat land on the west side of SH29. The property has several farmhouses; the closest of which is set 700 m back from SH29, and 250 m from SH1. The Project will be visible across the intervening paddocks where several large mature shade trees will partially break the view to the elevated roundabout and its northern and western approach legs. The dwelling's setback of approximately 600 m from the roundabout will lessen the minor visual effects relative to this farmhouse to a less than minor effect. Any remaining visual effects will decrease further once the landscape treatment on the north-western aspect of the Project has established over a five to seven year period.

Immediately south of the existing intersection, two dwellings, the Hawkes-Gillespie and Senior-Kinsman dwellings are screened from SH1 by shelterbelts and hedges. The Senior-Kinsman dwelling to the southeast is also situated on a terrace below the highway. As a result, the Project will be screened from these dwellings. The proposed roundabout will also be approximately 100 m further away from these dwellings relative to the existing intersection, resulting in a positive amenity effect.

10.8.3 Landscape effects assessment

The landscape within the study area of the Project is highly modified farmland dominated by roading infrastructure. The local topography is relatively flat and there are various mature shade trees along fence lines and within the local paddocks. The Project is on a small scale relative to that of the study area and the wider valley, along with minimal effect on landcover and is not introducing a new land use.

The roundabout will be planted in accordance with Waka Kotahi's P39 specification for highway landscape treatments. The P39 specification has a range of performance criteria set down to achieve the quality landscape outcomes sought by Waka Kotahi. These include ground preparation expectations, eco-sourcing requirements, plant stock quality, species diversity, plant establishment expectations and establishment management requirements.

A Landscape Concept Plan will be prepared in consultation with the Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa and will include landscape planting, including planting of the highway approach batters, the centre of the roundabout and the stormwater wetland and swales. Once these measures have been implemented and established, it is considered that any residual, adverse landscape and visual effects of the intersection upgrade will, at most, be negligible.

10.8.4 Conclusion

The Project will have minimal visual effects and effects on the landscape values of the areas, but includes mitigation in the form of landscape planting. It is considered that once these measures have been implemented and established, any residual, adverse landscape and visual effects of the intersection upgrade will, be less than minor.

10.9 Contaminated land

This section discusses the findings of the Preliminary Site Investigation (PSI). To identify known and potentially contaminated sites, a PSI was undertaken within the Project area, a copy of which is contained in Volume 3 of the AEE. The PSI identified that:

- an activity on the Hazardous Activities and Industries List (HAIL) occurred historically on part of the land at 1898 SH1. Council records describe this property as the location of a service station from 1970 to 1980, however, aerial imagery indicates a service station could potentially have been present since 1961.
- as the Project involves rural land, there is a potential to encounter contaminated soil from existing and historic land uses in the area, such as farming/horticulture practices and farm dumps.

The PSI concludes that further soil sampling in the form of a Detailed Site Investigation should occur on the land where the service station was situated to determine if contaminants are present and to identify any resource consent required under the NES Soil.

As stated earlier no resource consents under the NES Soil are sought at this time. Therefore, any resource consents required from MPDC, SWDC or WRC will be obtained by the contractor prior to construction commencing, depending on the presence and, proposed management of any contaminated soil.

10.10 Network utilities

The Project area contain existing network utilities infrastructure including Transpower and Powerco transmission and distribution lines. Chorus also has underground telecommunications cables in the area. The Project team has engaged with the network utility operators to identify the relocation and/or protection of network infrastructure and to develop appropriate measures to avoid adverse effects on this infrastructure.

There are well-established procedures across the industry associated with the relocation and/or protection of network utilities. Where practicable, the necessary mitigation works will be undertaken as enabling works to the main Project construction works. In addition all works will need to comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances 2001.

10.10.1 Assessment of effects

10.10.1.1 Transpower

The Project team has engaged in discussions with Transpower in regards to its electricity transmission lines in the vicinity of the Project. The existing HIN-KPO-A transmission towers and lines will need to be relocated. Transpower is currently considering options for this relocation, which is likely to require approvals under the NES Electricity. Transpower will apply for any consent required, separate from this Application. Transpower-specific designation conditions are proposed to address any actual and potential effects on Transpower assets, particularly during construction. An Electricity Infrastructure Construction Management Plan (EICMP) will be prepared in consultation with Transpower prior to construction commencing for works within fifty metres of the centreline of the HIN-KPO-A assets.

10.10.1.2 Powerco

The Project team has engaged in discussions with Powerco in regards to its electricity distribution lines in the vicinity of the Project. The existing above ground poles and distribution lines are able to be placed underground and this can be undertaken in such a way (either before works commence or suitably scheduled during construction), to avoid effects on these services during construction.

10.10.1.3 Chorus

The Project team has engaged in discussions with Chorus in regards to their underground telecommunications cables in the vicinity of the Project. These telecommunications cables are able to be relocated away from the Project works. This can be undertaken in such a way (either before works commence or suitably scheduled during construction), to avoid effects on these services during construction.

10.10.2 Conclusion

Waka Kotahi and its contractor will continue to engage with affected operators during detailed design to ensure that any relocation, diversion or protection of network utilities will meet their requirements . Contractual agreements will be developed with each affected network utility operator for detailed design and construction. In addition, Waka Kotahi proposes designation conditions to ensure that the construction of the Project does not adversely impact on the ongoing operation of these network utility operations.

10.11 Operational stormwater

10.11.1 Introduction

This section assesses the actual and potential effects of the Project on stormwater quantity and quality. Stormwater generated by impermeable surfaces associated with the new roundabout requires treatment The stormwater approach for the Project is set out in Section 6.2.7:Operational drainage and stormwater

management of this AEE. The locations of the proposed stormwater infrastructure are shown in the concept stormwater drawings in Volume 4 and further details are set out in the Stormwater Assessment in Volume 3.

10.11.2 Assessment of effects arising from stormwater management during operation

10.11.2.1 Stormwater quality

The total impermeable road surface area of the Project is 42 ha. This includes 11 ha of additional road area, on top of 31 ha of existing road surfaces (on SH29 and SH1). The stormwater runoff from the existing roads is not currently treated before discharging to the environment. The stormwater runoff from new and existing road surfaces (that is, all 42 ha) will now be captured and passed through stormwater treatment devices (wetland pond, and wetland and planted swales) to remove any sediment or contaminants, which will improve the quality of the stormwater discharging into the environment.

10.11.2.2 Stormwater quantity

The creation of the additional impervious surfaces can cause stormwater to be discharged at a faster rate, and in greater volumes, which has the potential to cause flooding and increase the rate of erosion within the receiving watercourses. These potential effects have been modelled, together with other stormwater changes. Any such effects have been shown to be negligible, and therefore no mitigation is required.

In terms of the effects from the discharge of stormwater into the gully area, these can be avoided by locating the structure with a low-gradient, low-energy situation and by providing energy dissipation and scour protection.

10.11.3 Conclusion

Stormwater runoff from new and existing impermeable surfaces associated with the Project will be treated before discharge to remove the majority of contaminants. This will result in an improvement in stormwater quality being discharged. The effects of discharging an increased quantity of stormwater into the receiving environment are considered negligible. Therefore, overall, the effects of the Project on stormwater are positive.

10.12 Operational traffic

10.12.1 Introduction

This section presents the conclusions of actual and potential effects of the Project on operational traffic and transport. This includes predicted changes in travel times, traffic flows. Details of the existing environment, methods and findings of transport investigations are contained in the Traffic and Transport Assessment contained in Volume 3 of this AEE.

10.12.2 Predicted traffic volumes

Applying a growth rate of 2.3% to the existing daily flows, the flows described in Table 10.12-1 are what could be expected on the approaches to the intersection in the future irrespective of the Project.

Table 10.12-1: Future predicted traffic volumes (vpd)

	Year 2021	Year 2031	Year 2061
SH1 north	21,253	25,878	39,754
SH1 south	12,309	15,072	23,359
SH29	8,550	10,430	16,071

Some additional flow is expected to be attracted to the SH1 route after the opening of the Hamilton Section of the Waikato Expressway in mid-2022; modelling indicates that this could be a further 500 vpd. While the 2.3% growth rate adopted does not specifically include this additional 500 vpd, it is deemed conservative enough to cover it.

10.12.3 Assessment of operational transport effects

The Project is estimated to result in a 93% reduction in reported injury crashes upon opening. This is a significant positive effect of the Project and will be sustained in the future. Modelling undertaken of the intersection with and without the Project shows that in a weekend peak (3 to 4pm) in 2034, the SH29 approach will have a delay of almost 33 minutes without the Project and a 16 second delay with the Project. The current delay is 5 minutes. This is a significant positive effect on the efficiency of the State Highway 1 and 29 networks.

Other significant positive traffic and transport effects (i.e. benefits) of the Project are:

- Significantly improved safety for the users of the intersection.
- Improved pedestrian and cycling crossing safety through provision of an underpass and shared paths.
- Improved network resilience through additional space for lane closures and fewer crashes requiring partial or full closures.
- Improved safety for adjacent residents accessing SH1 and SH29, but with a minor increase in travel time and distance for them.

10.13 Operational noise and vibration

10.13.1 Introduction

This section presents the findings of the assessment of noise and vibration effects once the intersection is operational. This section is informed by Noise and Vibration Report in Volume 3.

10.13.2 Sensitive receivers

Sensitive receivers for noise are referred to as *Protected Premises and Facilities* (PPFs). PPFs are defined in NZS 6806[8] as buildings used for noise-sensitive activities, such as residential activities, marae, some education activities, and overnight patient medical care. The same receivers are considered sensitive to vibration. A power pylon structure which is sensitive to vibration is located immediately to the east of SH29, approximately 335 m north of the existing SH1/SH29 intersection.

The sensitive receivers identified for the noise and vibration assessment are shown below in Table 10.13-1. The proposed roundabout layout, the existing intersection layout, and the location of the sensitive receivers is shown in Figure 10.13-1.

Table 10.13-1: Sensitive receivers (PPFs)

Address	Type	Distance to nearest part of the Project road alignment (m)
5969A SH29	Residential dwelling	200
5969B SH29		300
2 SH1		80
36 SH1		55
38 SH1		60
1831A SH1		260
Power pylon	Structure (vibration only)	30

[8] New Zealand Standard NZS 6806:2010. Acoustics – Road-traffic noise – New and altered roads.

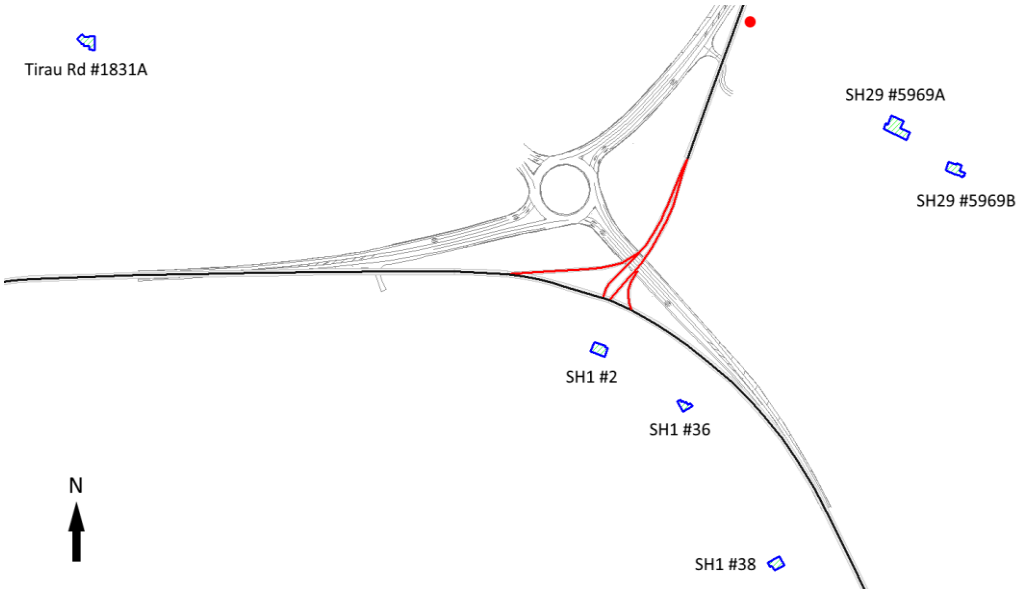

Figure 10.13-1: Project layout, showing existing roads (bold black and red lines), the proposed roundabout layout (grey), PPFs (blue), and the closest power pylon (red dot)

10.13.3 Assessment of operational traffic noise effects

Potential noise from operation of the Project is assessed against NZS 6806. This Standard provides a methodology and criteria for assessing the effects of road traffic noise on PPFs, and outlines a process to determine if mitigation is required. It assesses noise from altered roads differently to noise from new roads, as receivers are generally less sensitive to noise from an existing road that has been altered. The assessment against the NZS 6806 criteria is that noise levels with the Project will remain acceptable at all PPFs, and therefore, no noise mitigation is required.

While a large proportion of traffic, including heavy traffic, already slows for the existing intersection, acceleration and deceleration of vehicles will increase as a result of the roundabout. The sound of high-speed through-traffic will however be less prominent. Therefore, there will be a shift rather than a step-change in noise characteristics, which will become familiar to the receivers and at most, a minor effect. As such, no noise mitigation is required.

10.13.4 Assessment of operational vibration effects

The conclusion of the assessment of the potential vibration effects from the Project is that it is expected to decrease at nearby sensitive receivers relative to the existing situation, though the change may be unnoticeable to people. Further to this, the proposed alignment of the roundabout will generally move traffic further away from PPFs or maintain a similar separation distance.

The new Stone Mastic Asphalt (SMA) surface of the roundabout will be constructed to Waka Kotahi's requirements, so that the roughness of the road surface does not exceed 60 NAASRA counts. This will also likely lead to reduced vibration levels near the proposed roundabout.

10.13.5 Conclusion

As the operation of the roundabout will not result in noticeable changes to noise or vibration effects, no mitigation measures are required.

10.14 Operational air quality

Air discharges from operation of the Project will be the same as those from the existing use of the intersection. Accordingly, there will be no change in air quality effects as a result of the Project.

10.15 Proposed mitigation and conditions

Key to the delivery of the Project, including the management of effects, is the development and implementation of a suite of mitigation measures covering detailed design, construction and management plans. Conditions are proposed for the designation and resource consents that require such mitigation measures. These conditions have been developed to ensure that the potential adverse effects that may arise from the final design and construction, and operation of the Project will be adequately avoided, remedied or mitigated. The proposed conditions are located in Appendix B of this AEE.

11 STATUTORY ASSESSMENT

11.1 Introduction

The following section provides analysis of the Project against the relevant legislative framework within which the designations and resource consents are sought. Section 3 of this AEE has set out the relevant statutory framework and provisions of the RMA.

11.2 Consideration of notices of requirement

Waka Kotahi proposes to alter the boundaries of the existing designations and their purposes to authorise the Project. Section 171(1) requires that when considering notice of requirement, the consent authority must, subject to Part 2 of the RMA, consider the effects on the environment of allowing the requirement, having particular regard to, planning and policy documents, whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work, whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought and any other matter.

Section 181(2), provides that those same matters are to be considered 'with any necessary modifications', in relation to a notice of requirement for an alteration as if it were a notice of requirement for a new designation. These section 171 matter are discussed below.

11.2.1 Section 171 considerations

11.2.1.1 Section 171(1) - effects on the environment

Consideration of the Project against the matters within Part 2 of the RMA is set out below.

The Project will have some positive effects and any adverse effects can be adequately mitigated to a minor level. The effects on the environment associated with the NoRs and the proposed measures to avoid, remedy or mitigate the adverse effects of the Project are assessed in Section 10 of this AEE.

The Project will have significant positive transport effects (benefits) at a local and regional level, as it will significantly improve the safety of the intersection. The upgrade of the intersection also results in improved safety for residents' access to the state highways, increased network resilience and improved performance of the intersection. Another positive effect is improved quality of stormwater discharges into the surrounding watercourses, including the Waikato, Waitoa and unnamed rivers. A summary of other effects is outlined below.

- Appropriate erosion and sediment control measures and practices can be applied to significantly reduce the estimated sediment yield, so that the construction works will have negligible to minor adverse effects.
- Construction traffic effects can be mitigated to a minor level via the implementation of a CTMP.
- Air quality (dust) effects during construction can be managed. The Project itself, once completed, will not generate adverse air quality effects.
- The implementation of a CNVMP will manage construction noise and vibration effects to comply with the construction noise and vibration standards, to the extent practicable.
- Any effects on unknown archaeological sites can be appropriately managed through an archaeological authority under the HNZPT Act.
- There will be minimal effects on ecological values in most areas, but mitigation is proposed where effects may occur. There is also opportunity to restore and enhance other ecological values resulting in some positive ecological effects.
- Landscape planting will form part of the design of the roundabout and once implemented and established, any residual, adverse landscape and visual effects of the intersection upgrade will, at most, be less than minor.
- Adverse operational traffic effects are negligible or minor and are heavily outweighed by the significant positive safety effects. Therefore, no additional mitigation is required over and above the design standards already incorporated into the Project.

- As the operation of the roundabout will not result in noticeable changes to noise or vibration effects, no mitigation measures are required. Overall, it is considered that the Project will have significant benefits, while any adverse effects (both during construction and longer term) will be able to be appropriately avoided, remedied or mitigated.

11.2.1.2 Section 171(1)(a) - planning and policy documents

Section 3.3 of the AEE outlines the applicable planning and policy documents to the Project. Outlined below is the assessment of the Project against relevant objectives and policies of those documents.

NPS Freshwater

The fundamental concept of the NPS Freshwater is Te Mana o te Wai, this concept refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community. With this concept in mind, the stormwater treatment proposed as part of the Project will achieve a positive water quality benefit by improving the quality of the stormwater discharge from the Project. This will assist in restoring the health of the Waikato, Waitoa and unnamed rivers.

Effects on the natural wetland near the Waikato River are being avoided as far as practicable and where they cannot be, mitigation is proposed such as replanting near the watercourses.

Tangata whenua have provided input into development of the Project, in particular relating to freshwater values.

A natural wetland is located on the true left bank of the unnamed river. The Project will not impact on the extent of the natural wetland, and measures such as erosion and sedimentation control will ensure the natural wetland's values are maintained throughout the construction and operation of the Project. The Project is therefore considered to respond positively to Te Mana o te Wai.

NPS Electricity

The NPS Electricity sets out high-level objectives and policies for managing the electricity transmission network under the RMA, and seeks to achieve efficient transmission of electricity whilst managing adverse effects. Whilst the Project has sought to minimise impact on transmission assets, the design will require the relocation of some towers and increasing the height of a transmission line. Having particular regard to the NPS Electricity, Waka Kotahi and Transpower have been working closely together to develop a solution for modification and of the transmission lines and relocation of towers affected by the Project whilst appropriately managing adverse effects and maintaining security of supply ensuring consistency with the intent of this NPS.

Waikato Regional Policy Statement

The RPS is set out in three substantive parts. This structure addresses the requirement for integrated management. In so doing it advances the understanding of the inter-connected nature of resource management through the explicit identification of objectives that are relevant to the management of more than one resource. Six significant resource management issues are identified. All issues are of direct relevance to the Project, other than Issue 1.3 (Providing for energy demand).

Issue 1.1 State of resources

Relevant objectives: 3.1, 3.2, 3.4, 3.9, 3.10, 3.14, 3.16, 3.19, 3.25
Relevant policies 4.1, 8.1, 11.1

The RPS states that the natural and physical resources include air, water, energy, minerals, soil, plants, animals and the things we build, such as infrastructure. The RPS acknowledges that in many ways, the use of natural and physical resources is resulting in their declining quality and quantity or availability.

The existing SH1/SH29 intersection is a physical resource in a declining state, in that it does not provide a safe intersection for road users. The upgrading of this intersection has the potential to adversely affect the surrounding natural resources, such as soils and vegetation, and the animals that use this natural resource. However, as outlined above, these effects (both during construction and longer term) are able to be appropriately avoided, remedied or mitigated. The Project will achieve improved stormwater treatment for the wider catchment area of the Waikato River, thereby improving the water quality of discharges to this environment.

Issue 1.2 Effects of climate change
Relevant objectives: 3.1, 3.2, 3.6, 3.8, 3.19, 3.24
Relevant policies 13.1

The majority of the existing road corridor and farm buildings in the area have between 0.05m and 0.5m of flooding. The flood level has informed the design with anticipated climate changes levels built into the design. The stormwater modelling undertaken demonstrates that the management of stormwater for the Project will not result in an increase in flood levels.

Issue 1.4 Managing the built environment
Relevant objectives: 3.1, 3.2, 3.6, 3.10, 3.12, 3.24, 3.25
Relevant policies 6.1, 6.6, 11.1,13.1, 14.1

Development of the built environment including infrastructure has the potential to positively or negatively impact on the ability to sustainably manage natural and physical resources and provide for people's wellbeing. The RPS directs that while addressing this issue, specific focus should be directed to the need to use existing infrastructure efficiently and to maintain and enhance that infrastructure and the integrated relationship between land use and development, and the transport infrastructure network.

While the Project will improve the safety of the existing intersection, it will result in the removal of around 10 hectares of farm land currently used for primary production. The RPS seeks to maintain or enhance the life supporting capacity of the soil resource. Farm land also plays an important role in providing for the economic, social and cultural wellbeing of people and communities. Therefore, to minimise this effect, at the completion of construction, Waka Kotahi, intends to review the extent of the designation boundaries and remove those parts of the designation over land that will not be required for the long term operation and maintenance of the Project.

When managing the built environment the RPS directs at Policy 6.6 that particular regard be given to the protection of the effectiveness and efficiency of regionally significant infrastructure. In addition, particular regard should also be given to the benefits that can be gained from the development and use of regionally significant infrastructure. As outlined in this AEE the existing intersection is in a state of decline, it is unsafe for road users and causes delays to those users. The NoR and resource consent applications will enable Waka Kotahi to upgrade the intersection, which is regionally significant infrastructure, so that it is safe and efficient for road users.

Issue 1.5 Relationship of tangata whenua with the environment (te taiao), and
Issue 1.6 Health and wellbeing of the Waikato River catchment
Relevant objectives: 3.1, 3.2, 3.4, 3.8, 3.9, 3.10, 3.12, 3.13, 3.14, 3.16, 3.18, 3.19
Relevant policies 4.1, 8.1, 10.1, 11.1

Waka Kotahi recognises and respects Te Tiriti o Waitangi (the Treaty of Waitangi) and seeks to work with Māori as partners.

Regular hui have been held with tangata whenua to seek feedback in relation to matters of significance to the tangata whenua, including cultural and environmental matters. Waka Kotahi acknowledges that the environment is a taonga that must be managed carefully and that Māori have a responsibility and obligation of care over their communities and environments. This engagement means that tangata whenua values are embedded in the Project. The Project has sought to give priority to restoring freshwater bodies, ecological systems and in particular the Waikato River and its tributaries, which aligns with the goals set out in the Vision and Strategy.

Te Ture Whaimana o Te Awa o Waikato - Vision and Strategy for the Waikato River
The Project results in an improvement of the quality of stormwater discharges reaching the Waikato River. In addition, the mixed vegetation species being removed at the bottom of the gully near the unnamed river (that flows into the Waikato River) will be replanted with native species. This riparian planting is valuable for the unnamed river as it provides for buffering, sediment control, and shading effects to maintain cool water temperatures, provision of food sources and cover for native fish. All of these positive effects align with the objectives set out in the Vision and Strategy.

Matamata-Piako District Plan

The majority of the Project is located within the Matamata-Piako district. This section provides an analysis against the relevant objectives and policies of the MPDP.

Tangata whenua
Relevant objective 2.4.3 O1
Relevant policy 2.4.3 P1

The objective seeks to maintain and encourage kaitiaki responsibility (guardianship) of Maori by implementing a partnership approach to the sustainable management of the District's natural and physical resource. Throughout this Project, tangata whenua, have been able to inform the Project design to include the protection of lands, waters, sites, waahi tapu (sacred sites) and other taonga (treasures).

Natural environment
Relevant objective 3.1.2.2 O1
Relevant policy 3.1.2.2 SP2

Objective O1 seeks to retain and enhance the varied landscape of the district. Policy SP2 seeks to encourage landowners to plant trees which reflect the native character of the ecological district. The Project will protect and restore habitat especially for the long-tailed bat and native birds. The construction of an access track within the gully results in a large gap in the vegetation for around 250 m which creates edges and a flyway that bats are known to favour. Restoration planting including native species is proposed in the gully area, which will enhance their spatial extent and overall enhance the biodiversity of the locality.

Natural hazards
Relevant objective 3.2.2.1 O1
Relevant policy 3.2.2.1 P2

The above objectives and policy seeks to minimise the flood risk for people and buildings The majority of the existing road corridor and farm buildings in the area have between 0.05 m and 0.5 m of flooding. This flood level has informed the design with anticipated climate changes levels built into the design. The stormwater modelling demonstrates that the management of stormwater for the Project will not result in an increase in flood levels in the area.

Land and development
Relevant objectives 3.3.2.1
Relevant policies 3.3.2.1 P1, P2, P3

This objective and policies seek to maintain and enhance the District's land resource and avoid, remedy or mitigate any adverse effects on soils.

Adverse effects can result from earthworks such as an increase in erosion and sedimentation of the soil resource which can reach waterways. The draft ESCP demonstrates that best practice erosion and sediment control measures can be applied. With those measures in place, the estimated sediment yield is significantly reduced and it is considered that the construction works will have negligible to less than minor adverse effects on the environment. The Project will remove around 10 ha of land from primary production purposes. Therefore, to minimise this effect, at the completion of construction, Waka Kotahi, intends to review the extent of the designation boundaries and remove those parts of the designation over land that will not be required for the long term operation and maintenance of the Project.

W*orks and network utilities*
Relevant objectives 3.7.2.1 O1, O2
Relevant policies 3.7.2.1 P1, P3

The above objectives and policies acknowledge the importance of network utilities and seeks to protect them from in compatible land-uses and adverse effects. The Project area contains existing network utilities infrastructure, including Transpower and Powerco transmission and distribution lines. The Project team has engaged with the network utility operators to identify the relocation and/or protection of network infrastructure and to develop appropriate measures to manage adverse effects on this infrastructure during the construction and operation of the Project.

There are well-established procedures across the industry associated with the relocation and/or protection of network utilities. These procedures respond to the above objectives and policies by ensuring that effects to the network utilities infrastructure is avoided to the extent practicable, so that outages are avoided.

Transportation
Relevant objectives 2.4.7 O1, O2, 3.8.2 O1, O2, O3,O6, O8
Relevant policies 2.4.7 P1, P2, 3.8.2 P1, P2, P3, P14, P21

These objectives and policies recognise that components of the Region's significant transport infrastructure located within the District are a key factor in the maintenance and growth of the economy. These corridors facilitate the shipment of goods and therefore they are of national significance in facilitating the growth of the economy. Objective O2 seeks to ensure that transport networks are safe.

SH1 and SH29 are recognised as significant transport infrastructure within the district. This Project will upgrade regionally significant infrastructure, which has significant safety benefits. Further the inclusion of underpasses and a shared path responds positively to Objective O6 which seeks to maximise safety and convenience for pedestrians and vehicular traffic on all sites.

South-Waikato District Plan
An area of 1.55 hectares is proposed to be designated in the SWDP. This area is to encompass a roadside drain on the eastern side of SH29 and a planted and wetland swale on the north eastern side of SH1. Therefore, the effects in this district are limited and relate to tangata whenua values, the rural land resource and infrastructure and development. As such, this assessment is limited to those subject matters.

Tangata Whenua Values
Relevant objectives 3.3.1, 3.3.2, 3.3.3, 3.3.6, 3.3.7
Relevant policies 3.4.1, 3.4.2, 3.4.3, 3.4.5, 3.4.6

The whole of the South Waikato district falls within the Raukawa rohe. Raukawa and the Te Arawa River Iwi are tangata whenua in the district. In accordance with their Treaty settlement of 2014, Ngāti Koroki Kahukura are also recognised river iwi, as they occupy tribal boundaries from Karāpiro to Arapuni. The objectives and policies relevant to this Project relate to the restoration of the Waikato River and its tributaries. Stormwater runoff from the existing impervious surfaces is not currently being treated before reaching watercourses and the Waikato River. As it is proposed to treat the stormwater via a wetland pond, wetland swales and planted wetlands, the result will be improved water quality reaching the watercourses within the area, which contributes to the restoration of the Waikato River.

The district's rural areas
Relevant objectives 5.2.1, 5.2.5, 5.2.8
Relevant policies 5.3.1, 5.3.21

The SWDP recognises that the rural land resource is one of the most valued natural and physical resources in the district and that a large proportion of the rural area is located within the catchments of the Waikato River catchment. Also of importance in the district is electricity infrastructure, and providing an appropriate buffer is a matter of national importance for SWDC to consider.

The upgrading of the intersection (which is considered significant infrastructure) will have impacts on the surrounding farm land, however there is a need to upgrade the intersection to improve its safety at this location. Waka Kotahi recognises that farm land plays an important role in providing for the economic, social and cultural wellbeing of people and communities. Therefore, to minimise this effects, at the completion of construction, Waka Kotahi, intends to review the extent of the designation boundaries and remove the designation over the land that will not be required.

The works required for the upgrading of this intersection has the potential to adversely affect the surrounding natural rural resources such as soils and vegetation. Overall, provided that the proposed designation conditions are implemented, the effects of the Project will be no more than minor. In addition, the effects from the discharge of water and earthworks will be avoided and or mitigated through the implementation of the proposed regional consent conditions.

Notably, the Project will achieve improved stormwater treatment for the wider catchment area of the Waikato River, thereby improving water quality of discharges to this environment.

Whilst the Project has sought to minimise impact on transmission assets, the design will require the relocation of some towers and increasing the height of a transmission line. These works will be undertaken by Transpower.

Infrastructure and development
Relevant objectives 7.2.1, 7.2.3
Relevant policies 7.3.16, 7.3.21, 7.3.22

The District Plan recognises that infrastructure plays a key role in New Zealand's economy and prosperity, and underpins the district's future. Objective 7.2.1 seeks to ensure that a safe, integrated and efficient sustainable transportation network is maintained and enhanced to support the social and economic wellbeing of people and communities in the District including provision for active transport and physical activity options. The Project will provide a safe intersection and includes provision for cyclists and pedestrians which is considered to support the wellbeing of people and communities. Policy 7.3.16 enables infrastructure where the associated effects are avoided, remedied or mitigated.

The upgrading of this intersection has the potential to adversely affect the surrounding natural resources, such as soils and vegetation, and the animals that use this natural resource. However, as outlined above, these effects (both during construction and longer term) are able to be appropriately avoided, remedied or mitigated. The Project will achieve improved stormwater treatment for the wider catchment area of the Waikato River, thereby improving water quality of discharges to this environment.

Conclusion
This assessment concludes that the NoRs are consistent with the relevant objectives and policies.

11.2.1.3 Section 171(1)(b) - adequate consideration of alternative sites, routes or methods
The alternatives assessment process undertaken in the development of the Project is explained in detail in Section 8. This process has been thorough and robust in terms of the requirements of section 171(1).

11.2.1.4 Section 171(1)(c) - whether the work and alterations are reasonably necessary
The objectives for the Project are outlined in section 2.2 of this AEE. The Project is assessed as being necessary to achieve the objectives of the requiring authority for the reasons set out below.

Necessity of the Project to achieve the objectives
The existing intersection has experienced a high number of crashes, as the existing give-way controlled layout experiences significant delays on the SH29 approach, with delays in excess of 5 minutes in the weekend peak. These delays increase as traffic volumes through the intersection increase and affect the safe operation of the intersection with drivers likely to accept increasingly smaller and less safe gaps in traffic. In addition, SH1 and SH29 are used by a wide range of vehicles, including, freight, tourist vehicles and commercial tourism transport companies. As detailed in Section 10.12 of this AEE, the Project will deliver significant positive traffic and transport effects (i.e. benefits) namely:

- Significantly improved safety for the users of the intersection.
- Improved overall performance of the intersection for users of the roundabout, including freight vehicles, with significantly reduced delays for traffic approaching from SH29 as a result of no longer giving way to northbound SH1 traffic and only minor increase of delays for SH1 northbound and southbound traffic.
- Improved pedestrian and cycling crossing safety through provision of an underpass and shared paths.
- Improved network resilience through additional space for lane closures and fewer crashes requiring partial or full closures.
- Improved safety for adjacent residents accessing SH1 and SH29, with a minor increase in travel time and distance for them.
- The proposed roundabout is being designed to accommodate any future extension of the Waikato Expressway from Cambridge to Piarere.

The Project is therefore reasonably necessary to meet the Project objectives.

Necessity of the alteration to designations to achieve Waka Kotahi's objectives

The alterations to the existing designations are reasonably necessary as a planning mechanism to achieve Waka Kotahi's objectives. The altered designations will enable Waka Kotahi to undertake the Project in an integrated manner in both Matamata-Piako and South-Waikato districts. The inclusion of the altered designations in the district plans clearly identifies the location and intended use of that land, and protects it from future development that may prevent or hinder the Project. Designations are well understood by district councils as a mechanism to enable infrastructure improvements, and the Outline Plan process provides the district councils with opportunities for further involvement as the design develops further.

11.2.1.5 Section 171(1)(d) – any other matters

GPS 2021 and Road to Zero are relevant other matters and as the Project is within three statutory acknowledgement areas, an assessment follows of these matters.

GPS 2021

The four key priorities of the GPS 2021 are safety, better travel options, improving freight connections and climate change. Notably this Project align with all four priorities. It significantly improves the safety of the intersection, it provides a safer environment for pedestrians and cyclists through the inclusion of underpasses and shared paths, the improved, safety, resilience and efficiency of the intersection will improve the movement of freight and the effects of climate change have been considered through the incorporation of predicted changes in climate in the stormwater design standards for the Project.

Road to Zero

Road to Zero places human wellbeing at the heart of road transport planning and includes a vision of no deaths or serious injuries while travelling on our roads. This Project is a step toward this vision, as it will help to reduce deaths and/or serious injuries.

Raukawa Environmental Management Plan

The Plan is a statement of Raukawa issues, aspirations, and priorities in relation to the environment. The Plan provides a statement of Raukawa values, experiences, and aspirations pertaining to the use and management of the environment.

The Plan states that Raukawa are a people of three rivers: Waikato, Te Waihou, and the Upper Waipā. They see all water as a connected and living entity, including: constituent parts, intrinsic values, and meta-physical being. Freshwater is essential to their physical, social, cultural, environmental, and economic wellbeing. Raukawa's vision is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all its embraces for generations to come.

The Project is entirely consistent with this strategy, being a step on a path towards restoring the Waikato River.

Ngāti Hauā Environmental Management Plan

Ngāti Hauā have developed the plan to express and articulate their values, frustrations, aspirations and position statements in relation to their taiao. The topics the plan covers in relation to this Project are the health and wellbeing of their lands, air, waters and wetlands. The Plan outlines ways to support and enable their roles as tangata whenua and kaitiaki.

Section 9 of the Plan outlines policies in relation to sustainable land use and development. Earthworks will be required to construct the roundabout and the disturbance of the soil has the potential to result in sediment reaching waterways, and an increase in erosion susceptibility. The assessment of erosion and sediment control and the draft ESCP demonstrates that appropriate erosion and sediment control measures and practices will be applied. With those measures in place, the estimated sediment yield is significantly reduced and it is considered that the construction works will have negligible to less than minor adverse effects. Section 11 of the Plan relates to water and described the importance of water to Ngāti Hauā. This section outlines that Te Mana o Te Wai represents the holistic health and well-being of a water body. One of the objectives requires that the mauri of freshwater is restored. The treatment of the stormwater discharges that occurs as part of the Project will contribute to this objective.

Section 12 relates to wetlands. Ngāti Hauā seek to protect, restore and enhance the mauri of wetlands and associated ecosystems. Stormwater, after being treated through the wetland pond on the southern side of SH1, is proposed to be discharged to the unnamed river in the gully. However, as the stormwater

is being treated and the volume discharged is very low, this discharge is not expected to adversely affect the wetland. The natural wetland will not be impacted by the vegetation removal required for the construction of the discharge and erosion protections structure.

11.3 Consideration of resource consent applications

11.3.1 Section 104 assessment

Section 104(1) requires that when considering an application for a resource consent, the consent authority must, subject to Part 2 of the RMA, have regard: actual and potential effects on the environment, planning and policy documents and any other matters.

11.3.1.1 Section 104(1)(a) - effects on the environment

Section 11.2.1 above provides a summary of the effects on the environment with respect to the notices of requirements. The outcomes from this assessment are directly applicable to the section 104(1)(a) consideration.

11.3.1.2 Section 104(1)(b) - planning and policy documents

Section 11.2.1 above is an assessment of the Project against the relevant objectives and policies of the applicable planning and policy documents to the Project. The outcomes from this assessment are directly applicable to the section 104(1)(b) consideration. In addition to these planning and policy documents, an assessment of the relevant provisions of the Regional Plan is outlined below.

Waikato Regional Plan

Resource consents are required under the Regional plan in relation to earthworks, vegetation clearance, stormwater discharges and for the diversions of an ephemeral water course. The sections of relevance to this Application are:

- Section 2: Matters of significant to Māori
- Section 3: Water module
- Section 4: River and lake bed module
- Section 5 Land and soil module

Section 2 Matters of significance to Māori

Relevant objective 2.3.2
Relevant policies 2.3.3 Policy 1 and 2

Waka Kotahi acknowledges that the environment is a taonga that must be managed carefully and that Māori have a responsibility and obligation of care or kaitiakitanga over their communities and environments. Ngāti Koroki Kahukura, Ngāti Hauā, Raukawa and Waikato-Tainui are tangata whenua of the area and through their partnership with Waka Kotahi that have been enabled to give effect to kaitiakitanga.

The Project has recognised tangata whenua cultural values, particularly with regards to the mauri of, and the relationships of tangata whenua with the natural and physical resources including freshwater. The Project provides for a significant improvement of the water quality entering the Waikato River catchment by providing wetland pond treatment.

Overall, the Project has sought to give priority to restoring freshwater bodies and particular the Waikato River, which aligns with the objectives set out in the Vision and Strategy.

Section 3 Water module

Relevant objectives 3.1.2, 3.A.1, 3.5.2
Relevant policies 3A.2, Policy A4 and B7 of the NPS Freshwater, 3.2.3, 3.5.3

Objective 3.1.2 of this section sets out the desired end point for management of water bodies in the Region, in particular, the net improvement of water quality and the avoidance of significant effects on aquatic ecosystems. This Project responds to this objective by contributing to the improvement of the water quality in the area, by providing treatment of the stormwater runoff from the road before discharging to the environment. The discharge of stormwater near the natural wetland in the gully, will avoid effects on the natural wetland and can contribute towards improving its life-supporting capacity as

any contaminants will be removed before reaching it. The provision of fish passage is required to be maintained or improved. One culvert will be installed under the SH29 approach leg and fish passage will be provided as required by the NES Freshwater. Stormwater runoff from the existing impervious surfaces is not currently being treated before reaching watercourses in the area. As it is proposed to treat the stormwater via a wetland pond, wetland swales and planted wetlands, the result will be an improved water quality reaching the watercourses within the area, which is an overall positive effect.

Section 4 River and lake bed module
Relevant objective 4.3.2
Relevant policy 4.3.3 Policy 1

This objective and policy seek to ensure that alterations to the bed of the watercourses are managed in a way to avoid adverse effects on the environment and adversely affect the relationship tangata whenua as kaitiaki have with their identified taonga.

The watercourse diversions that are required relate to the ephemeral stream on the western side of SH29 located in grazed pasture, and their ecological values are consequently relatively low. The new channels will replicate the form and morphology of existing natural channels where ever practicable. The objective and policy of the Regional Plan is achieved through the avoidance of effects.

Section 5 Land and soil module
Relevant objective 5.1.2
Relevant policy 5.1.3 Policy 2

Objective 5.1.2 seeks to achieve a net reduction in accelerated erosion across the region. Policy 2 seeks to minimise the adverse effects of soil disturbance and vegetation clearance in high risk erosion areas. The assessment of erosion and sediment control and the draft ESCP demonstrates that appropriate erosion and sediment control measures and practices can be applied. With those measures in place, the estimated sediment yield is significantly reduced and it is considered that the construction works will have negligible to less than minor adverse effects water quality.

11.3.1.3 Section 104(1)(c) – any other matters

Section 11.2.1 above provides an assessment of the Project against any other matters. The outcomes from this assessment are directly applicable to the section 104(1)(c) consideration.

11.3.2 Section 105 assessment

The applications for discharge permits involve discharges to water and/or into land. Therefore, the additional matters in section 105 are relevant.

11.3.2.1 Nature of the discharge and the sensitivity of the receiving environment

The nature of the proposed discharge and sensitivity of the receiving environment in relation to the discharges of stormwater during construction and operation are outlined in Section 5.4: Natural environment and Section 10.11: Operational stormwater of this AEE.

In summary, the nature of the discharges will be as follows:

- During construction there will be discharges of treated sediment laden stormwater to water from earthworks. Once operational, stormwater for the new impervious road surfaces will be collected and conveyed to either the wetland pond and discharged to the unnamed river, or to the wetland pond and/or planted swales and discharge to the ephemeral watercourses.
- The Project will involve discharges of dust during construction associated with the earthwork activities.

The sensitivity of the receiving environment can be summarised as follows:

- WRC's online Water Classification maps show that the unnamed river at this location has the following classifications: contact recreation, trout habitat and indigenous fish habitat.
- The unnamed ephemeral watercourse and overland flow path is classified as a surface water class.

11.3.2.2 Possible alternative methods of discharge and the applicant's reasons for the proposed choice

This location has limited alternative options and receiving environments for the proposed discharges. The existing road corridors lie at the watershed of two catchments, the Waitoa River, which drains north to the Firth of Thames, and the Waikato River, which drains north-west to the Tasman Sea.

The Project team investigated discharging all of the stormwater from the Project to the Waitoa River catchment. A discharge to the Waitoa River catchment would result in more land being required on the western side of existing intersection to accommodate a large pond to cater for attenuation and extended detention and another two additional ponds on the west of SH29 and the north of SH1, all within private land. In addition, the existing roadside drains and the ephemeral watercourses would require deepening to enable their use as outlet options from the ponds. Alternatively, the discharge to the Waikato River, requires less stormwater infrastructure in private land (the one pond is located in Crown land) and less works (and as such less effects) within the watercourses.

Discharges to water during construction

During construction of the Project, water will discharge to the Waitoa catchment receiving environment. This discharge will largely consist of sediment runoff from earthworks and general construction activities. Some discharges are an unavoidable part of the construction process and cannot practically discharge to an alternative receiving environment due to their geographic location. There are a range of methods for erosion and sediment controls, and a draft ESCP is provided in the Stormwater Assessment in Volume 3 of this AEE. The draft ESCP has been designed using industry best practice methodology and *WRC's Erosion and sediment control: guidelines for soil disturbance activities (TR2009/02)* to minimise the effects on the environment.

Discharges to water during operation

The stormwater runoff from this part of the existing state highway network is not treated. This Project results in the stormwater being treated before discharging to the receiving environments, either the Waikato River or the ephemeral watercourse to the Waitoa catchment.

The consideration of options and choice of treatment methods has involved many elements which has included the following documents:

- WRC - Stormwater management guideline (TR2020/07)
- WRC - Stormwater runoff modelling guideline (TR2020/06)
- WRC - Best practice guideline for waterway crossings (TR2006/25R)
- Waka Kotahi - P46 state highway stormwater specifications
- Waka Kotahi - stormwater treatment standard for state highway infrastructure
- Waikato Regional Infrastructure Technical Specifications.

11.3.3 Section 107 assessment

Section 107(1) sets out restrictions on granting discharge permits. If, after reasonable mixing, the contaminant or water discharge is likely to give rise to certain effects, as listed in section 107(1)(c) to (g) the discharge permit cannot be granted.

With the proposed mitigation measures implemented, the discharges are very unlikely to give rise to the adverse effects listed in section 107(1). Long-term stormwater discharges will be treated, and this is expected to result in reduced contaminant loads being discharged to the Waikato and Waitoa Rivers than currently occurs.

Accordingly, it is considered that the Project is very unlikely to give rise to the adverse effects listed in section 107, and as such, the discharge permits can be granted.

11.4 Part 2 Assessment

11.4.1 Section 5 — Purpose

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, for the reasons outlined below.

The Project provides safety, community, social and transport benefits by:

- Significantly improved safety for the users of the intersection.
- Improved overall performance of the intersection for users of the roundabout including freight vehicles.
- Improved pedestrian and cycling crossing safety through provision of underpasses and shared paths.
- Improved network resilience through additional space for lane closures and fewer crashes requiring partial or full closures.
- Improved safety for adjacent residents accessing SH1 and SH29.
- Improved reliability for freight movements resulting in economic benefits.
- Improving the mauri and cultural wellbeing through early engagement with tangata whenua.

Sustainable management also involves the promotion of the matters in section 5(2) (a) through to (c) of the RMA. In this regard, the Project:

- will sustain the potential of natural and physical resources for future generations by delivering positive environmental benefits for water quality discharges.
- is intended to meet the growing transportation needs of the Region.
- will safeguard the life supporting capacity:

  − of water – although there will be a short term adverse effect on water quality from sediment discharges, there will be important long term benefits arising from stormwater treatment and an improved water quality discharging to the Waikato and Waitoa Rivers.

  − of soils – by the management of construction works.

  − of ecosystems – by avoiding (where practicable), remedying and mitigating the adverse effects on flora and fauna in the locality.

The concept design of the Project avoids, remedies and mitigates the majority of adverse effects on the environment, and through mitigation measures required by the proposed conditions. Therefore, it is considered that the Project will achieve the RMA's purpose of sustainable management of natural and physical resources, while enabling people and communities to provide for their health and safety.

11.4.2 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 specific matters:

- The natural character of the wetland will be preserved. Stormwater runoff from new and existing impermeable surfaces associated with the Project will be treated before discharge to remove the majority of contaminants. This will result in an improvement in stormwater quality being discharged as the runoff from the existing road surface is not currently treated. Therefore, overall the effects of the Project on the wetland are positive.
- Waka Kotahi acknowledge that the environment is a taonga that must be managed carefully and that that Māori have a kaitiaki responsibility and obligation of care over their communities and environments. Meaning that tangata whenua values are embedded in the Project. The Project has sought to give priority to restoring freshwater bodies and particular the Waikato River which aligns with the objectives set out in the Vision and Strategy.

- An archaeological authority will be obtained from HNZPT to ensure that if any unknown heritage sites are identified during construction they are protected appropriately.

11.4.3 Section 7 — Other matters

The Project has had particular regard and appropriately responded to the matters in section 7 of the RMA. In particular:

- The kaitiakitanga and the ethic of stewardship of tangata whenua has been recognised through Waka Kotahi's engagement with tangata whenua throughout the Project's development. This will continue through the construction phase.
- The Project will significantly improve the safety of the intersection while increase efficiency by reducing congestion for those utilising this area of the State highway network. In this respect, it will contribute to the efficient use and development of the State highway network as a physical resource in terms of section 7(b).
- The maintenance and enhancement of amenity values is recognised in the assessment of effects. The Projects effects on amenity relate to noise and air quality during construction, will be managed through implementation of construction management plans, adopting best practice techniques.
- The Waikato River in this location is classified as habitat for trout. The stormwater discharges from the Project reaching the Waikato River will be of an improved quality to what currently exists, therefore assisting in protecting trout habitat.
- The effects of climate change have been considered through the incorporation of predicted changes in climate in the stormwater design standards for the Project.

11.4.4 Section 8 — Te Tiriti o Waitangi (Treaty of Waitangi)

Waka Kotahi as a Crown agency recognises its role by taking into account the principles of the Treaty of Waitangi and upholding its duty of partnership with tangata whenua. Principles of the Treaty of Waitangi have been taken into account through meaningful engagement with the relevant tangata whenua early in the development of the Project.

Waka Kotahi is responsible for delivering an integrated transport system and have an important role to play in finding opportunities to better respond to Māori aspirations while delivering transport solutions. This partnership and relationship will be maintained in the subsequent phase of the Project.

12 CONCLUSION

SH1 and SH29 are significant transport infrastructure within the district and state highway network. The existing intersection is among the most high crash risk locations on the New Zealand. The existing give-way controlled layout experiences significant delays on the SH29 approach, with delays in excess of 5 minutes in the weekend peak (expected to rise to 33 minutes by 2034 if left unchanged). This delay affects the safe operation of the intersection with drivers likely to accept increasingly smaller and less safe gaps in traffic.

The Project provides safety, community, social and transport benefits by significantly improving the safety for the users of the intersection. The provision of underpasses and shared paths improves pedestrian and cyclist crossing safely through the intersection. This will help save lives and prevent serious injuries

The upgrading of this intersection has the potential to adversely affect the surrounding natural resources, such as soils and vegetation, and the animals that use this natural resource. However, as outlined in this AEE, these effects (both during construction and longer term) are able to be appropriately avoided, remedied or mitigated. The Project will improve stormwater treatment for the Project area, thereby improving water quality of existing discharges to this environment.

Key to the delivery of the Project, including the management of effects, is the development and implementation of a suite of mitigation measures. Based on the recommended mitigation and monitoring measures, conditions are proposed for both the designation and resource consents. These conditions have been developed to ensure that the potential adverse effects that might arise from the final design and construction, and operation and maintenance of the Project will be negligible.

Taking into account the positive effects of the Project and the proposed measures to avoid, remedy and mitigate adverse effects, the Project is consistent with the purpose and principles of the RMA. The Project also furthers the Vision and Strategy for the Waikato River by achieving relevant objectives guided by tangata whenua.

The Project upholds the sustainable management purpose of the RMA, adequately provides for Part 2 matters, and is consistent with the relevant planning documents. The purpose of the RMA with regards to the sustainable management of natural and physical resources will be achieved by confirming the alterations to the existing designations and granting the applications for resource consent for the Project.

APPENDIX A:
PERMITTED ACTIVITY ASSESSMENT

APPENDIX A: REGIONAL PLAN AND NES FRESHWATER ASSESSMENT

WAIKATO REGIONAL PLAN	
Permitted Activity Assessment for watercourse diversion WD02 and to culvert 01	
Rule 4.2.9.2 Permitted Activity Rule – Culverts for Catchments Not Exceeding 100 Hectares	
Unless controlled by Rule 4.2.9.1 and Rule 4.2.5.1 the following activities: 1. The use, erection, reconstruction, placement, alteration or extension of a culvert, and associated bed disturbance, in or on the bed of a river or lake for a catchment area not exceeding one square kilometre (100 hectares) upstream of the culvert, and 2. The subsequent diversion and discharge of water through the culvert, and 3. Any discharge of sediment associated with construction activities; and 4. The associated deposition of construction materials. are permitted activities subject to the following conditions:	WD02 provides flows to the new cross culvert (CU01) and maintains connectivity of the overland flow path from the west to the east. It ensures that the flows from the overland flow path do not overtop the road and bypasses the Piarere leg wetland swale (WS03). WD02 is located on the western side of SH29. Rule 4.2.9.1 relates to culverts with a catchment under 5ha as such not relevant. Rule 4.2.5.1 relates to existing lawfully established structures as such not relevant. The use, erection and placement of CU01 and the subsequent diversion (WD02) and discharge of water through the culvert complies with the conditions as outlined below, as such is a permitted activity.
a. Any such culvert shall be designed so that a two percent annual exceedance probability (1 in 50 year) flood event shall not cause any increase in upstream water levels which causes flooding on neighbouring properties.	**Complies** The culvert is designed to comply with this requirement.
b. The structure shall provide for the safe passage of fish both upstream and downstream.	**Complies** Fish passage will be provided.

c. There shall be no obstruction of debris that causes flooding on neighbouring properties.	**Complies** The culvert is designed to comply with this requirement.
d. The culvert invert shall be submerged when water is flowing.	**Complies** The culvert is designed to comply with this requirement.
e. Culverts shall be designed to safely overtop without causing structural failure, or include a spillway to ensure safe passage of flood flows where the two percent annual exceedance probability flood flow will overtop the embankment over the culvert.	**Complies** The culvert is designed to comply with this requirement.
f. The structure shall not cause; i. water depth upstream to exceed three metres, and ii. the water level immediately upstream to exceed the water level immediately downstream by more than three metres.	**Complies** The culvert is designed to comply with this requirement.
g. The construction works shall comply with the suspended solids discharge standards as set out in Section 4.2.21.	**Complies** The overland flow path is ephemeral and the culvert will be installed in the drier months of the year, thus it is unlikely to be a suspended solids discharge. However, should the works occur at a time the overland flow path is flowing, the works will comply with the standards set out in section 4.2.21.
h. This Rule does not apply within a Natural State water body as identified in the Water Management Class Maps of this Plan.	Not Applicable, the overland flow path is shown as a surface water class on WRC online maps.
i. All equipment and surplus construction materials shall be removed from the river or lake bed and the floodplain on the completion of that activity.	**Will comply** Standard construction practices will be employed which will ensure compliance with this condition.
j. No contaminants (including, but not limited to, oil, hydraulic fluids, petrol, diesel, other fuels, paint or solvents, but	**Will comply**

excluding sediment) shall be discharged to water from the activity	Standard construction practices will be employed which will ensure compliance with this condition.
k. The owner of the structure shall inform the Waikato Regional Council in writing, at least 10 working days prior to commencing construction, of the location of the structure and whether that structure is located within a flood control or drainage scheme managed by the Waikato Regional Council or a territorial authority.	**Will comply** Waka Kotahi will ensure compliance of this condition.
l. The activity shall not disturb any archaeological site or waahi tapu as identified at the date of notification of this Plan, in any district plan, in the NZ Archaeological Association's Site Recording Scheme, or by the Historic Places Trust except where Historic Places Trust approval has been obtained	**Will Comply** The works will be subject to an archaeological authority approval from Heritage New Zealand.
m. In the event of any waahi tapu that is not subject to condition l) being identified by the Waikato Regional Council to the person undertaking the use, erection, reconstruction, placement, extension or alteration, the activity shall cease insofar as it may affect the waahi tapu. The activity shall not be recommenced without the approval of the Waikato Regional Council.	**Will Comply** The works will be subject to an archaeological authority approval from Heritage New Zealand.
n. Any erosion occurring as a result of the structure or diversion and discharge of water shall be remedied as soon as practicable	**Will comply** Standard construction practices will be employed which will ensure compliance with this condition.
o. No discharge shall be made outside of the natural catchment.	**Complies** The discharge will remain within the Waitoa River catchment.
p. This rule shall not apply to activities located in, on, under or over the bed of a river or lake that is a Significant Geothermal Feature.	Not Applicable

Advisory Notes: Where a waahi tapu site is identified whilst undertaking the activity, the process that Waikato Regional Council will follow in order to implement condition m) is set out in Section 2.3.4.22 of this Plan. Where a structure or activity is to be located in, on, under or over the bed of a water body that is Significant Geothermal Feature, Rules 7.6.6.1 to 7.6.6.3 shall apply. Significant Geothermal Features are defined in the Glossary, and in Development and Limited Development Geothermal Systems, identified on maps in Section 7.10 of this Plan.

NES FRESHWATER

Maintenance and operation of specified infrastructure and other infrastructure	
Regulation 46 Permitted Activities	
(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a permitted activity if it— (a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and (b) complies with the conditions.	**Not Applicable** The stormwater discharge and erosion control structures are setback more than 10 m from the natural wetland.
(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a permitted activity if it— (a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and (b) complies with the conditions.	
(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a permitted activity if it— (a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and (b) complies with the conditions.	This regulation is applicable to the ongoing operation and maintenance of the stormwater discharge and erosion control structures are setback more than 10 m from the natural wetland.

Conditions (4) The conditions are that— (a) the activity must comply with the general conditions on natural wetland activities in regulation 55 (but regulation 55(2), (3)(b) to (d), and (5) do not apply if the activity is for the purpose of maintaining or operating hydro-electricity infrastructure); and	See assessment of Regulation 55 below, which demonstrates compliance with this regulation.
(b) the activity must not be for the purpose of increasing the size of the specified infrastructure or other infrastructure; and	The ongoing operation and maintenance of the infrastructure will not be for this purpose.
(c) the activity must not result in the formation of new pathways, boardwalks, or other accessways; and	The ongoing operation and maintenance of the infrastructure will not be for this purpose.
(d) if the activity is vegetation clearance, earthworks, or land disturbance, the activity must not occur over more than 500 m^2 or 10% of the area of the natural wetland, whichever is smaller; and	The ongoing operation and maintenance of the infrastructure will not be for this purpose.
(e) if the activity is earthworks or land disturbance,— (i) trenches dug (for example, to maintain pipes) must be backfilled and compacted no later than 48 hours after being dug; and (ii) the activity must not result in drains being deeper, relative to the natural wetland's water level, than they were before the activity.	The ongoing operation and maintenance of the infrastructure will not be for this purpose.
(5) However, the condition in subclause (4)(d) does not apply if the earthworks or land disturbance is for planting.	
Regulation 55 General conditions on natural wetland activities	
(1) This regulation applies if a regulation in this subpart refers to the compliance of an activity with the general conditions in this regulation.	Regulation 46(4)(a) refers to compliance with regulation 55
General condition for permitted activities: prior notice of activity	**Will comply**

(2) If this regulation applies in relation to a permitted activity, the 1 or more persons responsible for undertaking the activity must, at least 10 working days before starting the activity, provide the relevant regional council with the following information in writing: (a) a description of the activity to be undertaken; and (b) a description of, and map showing, where the activity will be undertaken; and (c) a statement of when the activity will start and when it is expected to end; and (d) a description of the extent of the activity; and (e) their contact details.	Waka Kotahi will ensure compliance with this condition.
General conditions: water quality and movement (3) The general conditions relating to water quality and movement are as follows: (a) the activity must not result in the discharge of a contaminant if the receiving environment includes any natural wetland in which the contaminant, after reasonable mixing, causes, or may cause, 1 or more of the following effects: (i) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials: (ii) a conspicuous change in colour or visual clarity: (iii) an emission of objectionable odour: (iv) the contamination of freshwater to the extent that it is not suitable for farm animals to drink: (v) adverse effects on aquatic life that are more than minor; and (b) the activity must not increase the level of flood waters that would, in any flood event (regardless of probability), inundate all or any part of the 1% AEP floodplain (but see subclause (4)); and	**Complies** Resource consent is being sought for the discharge of stormwater 40 m to 50 m from a natural wetland. In addition, the operation and maintenance of the infrastructure is not anticipated to result in the effects outlined in clauses 3 (a) to (e).

(c) the activity must not alter the natural movement of water into, within, or from any natural wetland (but see subclause (5)); and (d) the activity must not involve taking or discharging water to or from any natural wetland (but see subclause (5)); and (e) debris and sediment must not— (i) be placed within a setback of 10 m from any natural wetland; or (ii) be allowed to enter any natural wetland.	
(4) Subclause (3)(b) does not apply if the person undertaking the activity— (a) owns or controls the only land or structures that would be affected by a flood in all or any part of the 1% AEP floodplain; or (b) has— (i) obtained written consent to undertaking the activity from each person who owns or controls the land or structures that would be affected by a flood in all or part of the 1% AEP floodplain, after informing them of the expected increase in the level of flood waters; and (ii) satisfied the relevant regional council that they have complied with subparagraph (i).	The operation and maintenance of the infrastructure is not anticipated to result in flooding effects.
Despite subclause (3)(c) and (d), the temporary taking, use, damming, or diversion of water around a work site, or discharges of water into the water around a work site, may be undertaken if the following conditions are complied with: (a) the activity must be undertaken during a period when there is a low risk of flooding; and (b) the activity must be undertaken only for as long as necessary to achieve its purpose; and (c) before the activity starts, a record must be made (for example, by taking photographs) of the original condition of any affected natural wetland's bed profile and hydrological regime that is	The operation and maintenance of the infrastructure is not anticipated to result in these effects.

sufficiently detailed to enable compliance with paragraph (d) to be verified; and (d) the bed profile and hydrological regime of the natural wetland must be returned to their original condition no later than 14 days after the start of the activity; and (e) if the activity is damming, the dam must be no higher than 600 mm; and (f) if the activity is a diversion that uses a pump, a fish screen with mesh spacing no greater than 3 mm must be used on the intake.	
(6) In subclauses (3) and (4), 1% AEP floodplain means the area that would be inundated in a flood event of a size that has a 1% or greater probability of occurring in any one year.	The operation and maintenance of the infrastructure is not anticipated to result in flooding effects.
General condition: earth stability and drainage (7) The general condition relating to earth stability and drainage is that the activity must not create or contribute to— (a) the instability or subsidence of a slope or another land surface; or (b) the erosion of the bed or bank of any natural wetland; or (c) a change in the points at which water flows into or out of any natural wetland; or (d) a constriction on the flow of water within, into, or out of any natural wetland; or (e) the flooding or overland flow of water within, or flowing into or out of, any natural wetland.	The operation and maintenance of the infrastructure is not anticipated to result in earth stability and / or drainage effects.
General conditions: earthworks, land disturbance, and vegetation clearance (8) The general conditions on earthworks, land disturbance, and vegetation clearance are as follows:	The operation and maintenance of the infrastructure is not anticipated to result in the need for earthworks, land disturbance, and vegetation clearance.

(a) during and after the activity, erosion and sediment control measures must be applied and maintained at the site of the activity to minimise adverse effects of sediment on natural wetlands; and (b) the measures must include stabilising or containing soil that is exposed or disturbed by the activity as soon as practicable after the activity ends; and (c) the measures referred to in paragraph (b) must remain in place until vegetation covers more than 80% of the site; and (d) if the activity is vegetation clearance, it must not result in earth remaining bare for longer than 3 months.	
The general conditions relating to vegetation and bird and fish habitats are as follows: (a) only indigenous species that are appropriate to a natural wetland (given the location and type of the natural wetland) may be planted in it; and (b) the activity must not result in the smothering of indigenous vegetation by debris and sediment; and (c) the activity must not disturb the roosting or nesting of indigenous birds during their breeding season; and (d) the activity must not disturb an area that is listed in a regional plan or water conservation order as a habitat for threatened indigenous fish; and (e) the activity must not, during a spawning season, disturb an area that is listed in a regional plan or water conservation order as a fish spawning area	The operation and maintenance of the infrastructure is not anticipated to result in the need planting or impact bird and or fish habitats.
General condition: historic heritage (10) The general condition relating to historic heritage is that the activity must not destroy, damage, or modify a site that is protected by an enactment because of the site's historic heritage (including, to avoid doubt, because of its significance to Māori), except in accordance with that enactment.	The operation and maintenance of the infrastructure is not anticipated to impact on historic heritage.

(11) In subclause (10), enactment includes any kind of instrument made under an enactment.	
General conditions: machinery, vehicles, equipment, and construction materials (12) The general conditions on the use of vehicles, machinery, equipment, and materials are as follows: (a) machinery, vehicles, and equipment used for the activity must be cleaned before entering any natural wetland (to avoid introducing pests, unwanted organisms, or exotic plants); and (b) machinery that is used for the activity must sit outside a natural wetland, unless it is necessary for the machinery to enter the natural wetland to achieve the purpose of the activity; and (c) if machinery or vehicles enter any natural wetland, they must be modified or supported to prevent them from damaging the natural wetland (for example, by widening the tracks of track-driven vehicles or using platforms for machinery to sit on); and (d) the mixing of construction materials, and the refuelling and maintenance of vehicles, machinery, and equipment, must be done outside a 10 m setback from any natural wetland.	If the use of machinery is required for the maintenance of the infrastructure if required will not be within the natural wetland.
General conditions: miscellaneous (13) The other general conditions are as follows: (a) the activity must be undertaken only to the extent necessary to achieve its purpose; and (b) the activity must not involve the use of fire or explosives; and (c) if there is existing public access to a natural wetland, the activity must not prevent the public from continuing to access the natural wetland (unless that is required to protect the health and safety of the public or the persons undertaking the activity); and (d) no later than 5 days after the activity ends,—	Waka Kotahi will ensure that the operation and maintenance of the infrastructure will comply with the requirements of this condition.

(i) debris, materials, and equipment relating to the activity must be removed from the site; and (ii) the site must be free from litter.	

APPENDIX B:

PROPOSED DESIGNATION AND RESOURCE CONSENT CONDITIONS

SH1/29 Alteration to Designation conditions

Definitions and explanation of terms

The table below defines the acronyms and terms used in the conditions.

Abbreviation/term	Meaning/definition
Application	The notices of requirement and applications for resource consents and supporting information for the State Highway 1 and State Highway 29 Intersection Upgrade Project dated 26 November 2021.
Best Practicable Option or BPO	Has the same meaning as in section 2 of the Resource Management Act 1991.
CEMP	Construction Environmental Management Plan
CNVMP	Construction Noise and Vibration Management Plan
Construction Works	Activities undertaken to construct the Project, excluding Enabling Works.
Council	South Waikato District Council and/or Matamata-Piako District Council.
CTMP	Construction Traffic Management Plan
EIMP	Electrical Infrastructure Management Plan
Enabling Works	Includes the following and similar activities: • geotechnical investigations and land investigations • formation of access for geotechnical investigations • establishment of site yards, site offices, site access points and fencing • constructing and sealing site access roads • relocation of services • establishment of mitigation measures (such as erosion and sediment control measures, earth bunds and screen planting)
HIN-KPO-A	Transpower NZ Ltd.'s Hinuera- Karapiro A 110 kV transmission line assets which include: • The existing HIN-KPO-A transmission line which spans poles 53, 54 and 55; and • Any proposed new or relocated transmission line assets (spans and/or support structures) required as a result of the Project.
Network Utility Operator	Has the same meaning as set out in section 166 of the Resource Management Act 1991.

Abbreviation/term	Meaning/definition
NOR	Notice of Requirement
NZECP	New Zealand Electrical Code of Practice for Electrical Safe Distances 2001, or any subsequent version.
NZS 6803	New Zealand Standard 6803:1999: Acoustics – Construction Noise, or any subsequent version.
Project	The construction, operation and maintenance of the State Highway 1 and State Highway 29 Intersection Upgrade Project at Piarere, including the western and south-eastern SH1 approaches and the SH29 approaches to the intersection.
Project representative	The person or persons appointed by the Requiring Authority to be the main and readily accessible point of contact for persons wanting information about the Project or affected by the Construction Works.
Requiring Authority	Waka Kotahi NZ Transport Agency
RMA	Resource Management Act 1991
SCMP	Stakeholder and Communications Management Plan
Start of Construction	The time when the Construction Works, or works referred to in a specific condition, start.
Suitably Qualified Person	A person (or persons) who can provide sufficient evidence to demonstrate their suitability and competence in the relevant field of expertise.
Waka Kotahi	Waka Kotahi NZ Transport Agency

Matamata-Piako District Council

Ref	Notice of Requirement
Designation 89 (NOR 1)	Alteration to Designation 89 purpose to construct, operate, maintain and improve a state highway, cycleway and / or shared path, and associated infrastructure.

South Waikato District Council

Ref	Notice of Requirement
Designation 451 (NOR 2)	Alteration to Designation 451 purpose to construct, operate, maintain and improve a state highway, cycleway and /or shared path, and associated infrastructure.

Condition Number	Applies to:	Condition
General Designation Conditions		
1.	NoR 1 NoR 2	Except as provided for in the conditions and subject to the final design, the Project shall be undertaken in general accordance with the following plans and information submitted with the Application dated 26 November 2021: (a) Resource Consent Application and Notices of Requirement and Assessment of Effects on the Environment dated 26 November 2021; (b) The Project's Specialist Reports in Volume 3 of the Resource Consent Application and Notices of Requirement and Assessment of Effects on the Environment dated 26 November 2021; and (c) The Project Drawings in Volume 4: Drawing Set of the Resource Consent Application and Notices of Requirement and Assessment of Effects on the Environment dated 26 November 2021. Where there may be an inconsistency between the documents listed in this condition and the specific requirements of these conditions, these conditions shall prevail.
2.	NoR 1 NoR 2	The Requiring Authority shall arrange and conduct an on-site meeting including the Project representative and appropriate contractor representative(s) and the Council prior to the Start of Construction. The following information shall be made available at the meeting: (a) Timeframes for key stages of the works;

		(c) Details of the Project representative(s), including their contact details (phone and email address); and (d) Contact details of the site contractor and other key contractors.
3.	NoR 1 NoR 2	Except where explicitly provided for, the construction related conditions of this designation do not apply to works associated with the on-going operation and maintenance of the state highway following construction.
Stakeholder Engagement and Communications Conditions (CC)		
4.	NoR 1 NoR 2	(a) The Requiring Authority shall prepare a **Stakeholder and Communications Management Plan (SCMP)** prior to the Start of Construction. The objective of the SCMP is to identify how the public and stakeholders (including directly affected and adjacent owners and occupiers of land) will be communicated with throughout the Construction Works. To achieve the objective, the SCMP shall include: (i) the contact details for the Project representative(s). These details shall be on the Project website, or equivalent virtual information source, and prominently displayed at the main entrance(s) to the site(s); (ii) the procedures for ensuring that there is a contact person available for the duration of the Construction Works, for public enquiries or complaints about the Construction Works; (iii) methods for engaging with Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa, to be developed in consultation with Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa; (iv) a list of stakeholders, organisations, businesses and persons who will be communicated with; (v) methods to communicate the proposed hours of the Construction Works outside of normal working hours and on weekends and public holidays, to surrounding residents; and (vi) linkages and cross-references to communication methods set out in other conditions and management plan(s) where relevant. (b) The SCMP shall be submitted to the Council for information 20 working days prior to the Start of Construction.
5.	NoR 1 NoR 2	(a) At all times during the Construction Works, a record of any complaints received about the Construction Works shall be maintained. The complaints register shall include:

		(i) The date, time and nature of the complaint; (ii) The name, phone number and address of the complainant (unless the complainant wishes to remain anonymous); (iii) Measures taken to respond to the complaint or confirmation of no action if deemed appropriate (including a record of the response provided to the complainant); (iv) The outcome of the investigation into the complaint; and (v) Any other activities in the area, unrelated to the Project that may have contributed to the complaint, such as non-project construction, fires, traffic accidents or unusually dusty conditions generally. (b) A copy of the complaints register required by this condition shall be made available to the Council upon request as soon as practicable after the request is made. (c) Complaints related to the Construction Works shall be responded to as soon as reasonably practicable and as appropriate to the circumstances.
Construction Environmental Management Plan (CEMP)		
6.	NoR 1 NoR 2	(a) The Requiring Authority shall prepare a **Construction Environmental Management Plan (CEMP)** prior to the Start of Construction. The objective of the CEMP is to set out the management procedures and construction methods to be undertaken to avoid, remedy or mitigate any adverse effects associated with the Construction Works as far as practicable. To achieve the objective, the CEMP shall include: (i) the roles and responsibilities of staff and contractors; (ii) details of the Project Manager and the Project representative(s), including their contact details (phone and email address); (iii) the Construction Works programmes and the staging approach, and the proposed hours of work; (iv) the proposed site layouts (including construction yards), locations of refuelling activities and construction lighting; (v) methods for controlling dust and the removal of debris and demolition of construction materials from public roads or places; (vi) response plan containing additional management measures that will be undertaken in the event of off-site dust impacts; (vii) methods for providing for the health and safety of the general public;

		(viii) measures to mitigate flood hazard effects such as siting stockpiles out of floodplains, minimising obstruction to flood flows, actions to respond to warnings of heavy rain; (ix) procedures for incident management; (x) procedures for the refuelling and maintenance of plant and equipment to avoid discharges of fuels or lubricants to watercourses; (xi) measures to address the storage of fuels, lubricants, hazardous and/or dangerous materials, along with contingency procedures to address emergency spill response(s) and clean up; (xii) how provision is to be made for a cultural induction programme of the contractor's staff by Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa. The frequency and content of these inductions to be agreed with Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa; and (xiii) methods for amending and updating the certified CEMP as required. (b) The CEMP shall be prepared having regard to the Waka Kotahi Guideline for Preparing Environmental and Social Management Plans (April 2014), or any subsequent version. (c) At least 20 working days prior to the Start of Construction, the Requiring Authority shall submit the CEMP to the Council for certification that the CEMP satisfies the requirements of this condition. (d) The Requiring Authority shall implement the certified CEMP for the duration of the Construction Works. (e) Any changes to the certified CEMP shall be confirmed in writing by the Requiring Authority and certified in writing by the Council, prior to the implementation of any changes proposed. (f) The Requiring Authority shall ensure that a copy of the certified CEMP, including any certified amendments, is kept onsite and this copy is updated within 10 working days of any amendments being approved.
Construction noise and vibration		
7.	NoR 1 NoR 2	(a) The Requiring Authority shall prepare a **Construction Noise and Vibration Management Plan (CNVMP)** prior to the Start of Construction. The objective of the CNVMP is to provide a framework for the development and implementation of the BPO for the management of the Construction Works noise and vibration effects and shall set out how compliance with the construction noise and vibration standards set out in Conditions 8 and 9 below will be achieved, to the extent practicable.

<table>
<tr><td></td><td></td><td>(b) The CNVMP shall be prepared in accordance with Annex E2 of NZS 6803 and the State highway construction and maintenance noise and vibration guide (Waka Kotahi version 1.1, 2019 or any subsequent version).
(c) At least 20 working days prior to the Start of Construction, the Requiring Authority shall submit the CNVMP to the Council for certification that the CNVMP satisfies the requirements of this condition.
(d) The Requiring Authority shall implement the certified CNVMP for the duration of the Construction Works.
(e) Any changes to the certified CNVMP shall be confirmed in writing by the Requiring Authority and certified in writing by the Council, prior to the implementation of any changes proposed.
(f) The Requiring Authority shall ensure that a copy of the certified CNVMP, including any certified amendments, is kept onsite and this copy is updated within 10 working days of any amendments being approved.</td></tr>
<tr><td>8.</td><td>NoR 1
NoR 2</td><td>Noise from the Construction Works shall comply with the following criteria in accordance with NZS 6803 as far as practicable:
<table>
<tr><th>Day of week</th><th>Time</th><th>dB $L_{Aeq(15min)}$</th><th>dB L_{Amax}</th></tr>
<tr><td colspan="4">Buildings containing activities sensitive to noise</td></tr>
<tr><td rowspan="4">Weekdays</td><td>0630 – 0730</td><td>55</td><td>75</td></tr>
<tr><td>0730 – 1800</td><td>70</td><td>85</td></tr>
<tr><td>1800 – 2000</td><td>65</td><td>80</td></tr>
<tr><td>2000 – 0630</td><td>45</td><td>75</td></tr>
<tr><td rowspan="4">Saturdays</td><td>0630 – 0730</td><td>45</td><td>75</td></tr>
<tr><td>0730 – 1800</td><td>70</td><td>85</td></tr>
<tr><td>1800 – 2000</td><td>45</td><td>75</td></tr>
<tr><td>2000 – 0630</td><td>45</td><td>75</td></tr>
<tr><td rowspan="4">Sundays and Public Holidays</td><td>0630 – 0730</td><td>45</td><td>75</td></tr>
<tr><td>0730 – 1800</td><td>55</td><td>85</td></tr>
<tr><td>1800 – 2000</td><td>45</td><td>75</td></tr>
<tr><td>2000 – 0630</td><td>45</td><td>75</td></tr>
<tr><td colspan="4">Other occupied buildings</td></tr>
<tr><td rowspan="2">All days</td><td>0730 - 1800</td><td>70</td><td>n/a</td></tr>
<tr><td>1800 - 0730</td><td>75</td><td>n/a</td></tr>
</table></td></tr>
</table>

<table>
<tr>
<td>9.</td>
<td>NoR 1
NoR 2</td>
<td>Vibration from the Construction Works shall comply with the following criteria as far as practicable:
<table>
<tr><th>Receiver</th><th>Details</th><th>Category A</th><th>Category B</th></tr>
<tr><td rowspan="2">Occupied Activities sensitive to noise</td><td>Night-time 2000h - 0630h</td><td>0.3mm/s ppv</td><td>1mm/s ppv</td></tr>
<tr><td>Daytime 0630h - 2000h</td><td>1mm/s ppv</td><td>5mm/s ppv</td></tr>
<tr><td>Other occupied buildings</td><td>Daytime 0630h - 2000h</td><td>2mm/s ppv</td><td>5mm/s ppv</td></tr>
<tr><td rowspan="2">All other buildings</td><td>At all other times
Vibration transient</td><td>5mm/s ppv</td><td>BS 5228-2*
Table B2</td></tr>
<tr><td>At all other times
Vibration continuous</td><td>5mm/s ppv</td><td>BS 5228-2*
50% of Table B2 values</td></tr>
</table>
*BS 5228-2:2009 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.

Advisory Note: Measurements of construction vibration shall be undertaken 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.</td>
</tr>
<tr>
<td>10.</td>
<td>NoR 1
NoR 2</td>
<td>(a) If during the Construction Works noise or vibration levels from the Construction Works are predicted to exceed the noise criteria in Condition 8 above or the Category A vibration criteria in Condition 9 above, then a Suitably Qualified Person shall be engaged to identify specific BPO measures to manage the effects of the specific construction activity.

(b) The measures shall be added as a schedule(s) to the CNVMP and implemented by the Requiring Authority for the duration of the relevant works.

(c) Where practicable, the schedule(s) shall be provided to the Council for information within five working days before the specific construction activity is undertaken.</td>
</tr>
</table>

Construction Traffic Management Plan		
11.	NoR 1 NoR 2	The Requiring Authority shall prepare a **Construction Traffic Management Plan (CTMP)** prior to the Start of Construction in accordance with Waka Kotahi's Code of Practice for Temporary Traffic Management. The objective of the CTMP is to avoid, remedy or mitigate, as far as practicable, adverse construction traffic effects of the Project. To achieve this objective, the CTMP shall include methods to maintain vehicle access to property where practicable, or to provide alternative access arrangements when maintaining vehicle access is not practicable. The Requiring Authority shall provide the CTMP to Council for information.
Network Utilities		
12.	NoR 1 NoR 2	The Requiring Authority shall manage the Construction Works so that they do not adversely impact on the ongoing safe and efficient operation of Network Utility Operations. The scope, timing and methodology for utility protection and / or relocation works shall be developed in consultation with the relevant Network Utility Operator to ensure ongoing safe and efficient operation for the required works.
Transpower NZ Ltd		
Design		
13.	NoR 1 NoR 2	Temporary and permanent works shall be designed to mitigate Earth Potential Rise (EPR) where the use of conductive materials for road infrastructure (e.g. metallic barriers, lighting, noise walls) or relocated network utilities are within 50 metres of the Hinuera - Karapiro A (HIN-KPO-A) 110kV transmission assets.
14.	NoR 1 NoR 2	Temporary and permanent works shall be designed so that the vertical clearance provided between the transmission line conductors and the finished road level is a minimum of 9.5 metres for the HIN-KPO-A 110kV transmission line.
15.	NoR 1 NoR 2	Temporary and permanent works shall be designed to maintain a comparable standard of access to the HIN-KPO-A 110kV transmission assets for maintenance at all reasonable times, and emergency works at all times.
Planting		
16.	NoR 1 NoR 2	Proposed planting and the ongoing maintenance of trees and vegetation in the vicinity of overhead transmission lines shall comply with the Electricity (Hazards from Trees) Regulations 2003.
17.	NoR 1	Species planted within 12 metres of the centreline of the HIN-KPO-A 110kV transmission line shall not exceed 2 metres in height. When

	NoR 2	planted, trees (at full maturity height) shall not be able to fall within 4 metres of a transmission line conductor at maximum swing.
Electrical Infrastructure Management Plan (EIMP)		
18.	NoR 1 NoR 2	An **Electrical Infrastructure Management Plan (EIMP)** shall be prepared prior to the start of construction works within 50 metres of the HIN-KPO-A 110kV transmission assets. The EIMP shall be prepared by a suitably qualified person in consultation with Transpower. The purpose of the EIMP is to set out the management procedures and construction methods to be undertaken so that works are safe and any potential adverse effects of works on Transpower assets are appropriately managed.
19.	NoR 1 NoR 2	To achieve the purpose, the EIMP shall include: (a) Roles and responsibilities of staff and contractors responsible for implementation of the EIMP. (b) Drawings showing proposed works in the vicinity of, or directly affecting, the HIN-KPO A 110kV transmission assets. (c) Proposed staff and contractor training for those working near the transmission assets. (d) Proposed methods to comply with Design Conditions 13, 14 and 15 above. (e) Proposed methods to comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances 2001 (NZECP 34: 2001). (f) Dispensations agreed with Transpower for any construction works that cannot meet New Zealand Electrical Code of Practice for Electrical Safe Distances 2001 (NZECP 34:2001). (g) Proposed methods to: (i) Delineate areas that are out of bounds during construction and areas within which additional management measures are required, such as fencing off, entry and exit hurdles, maximum height limits, or where a Transpower observer may be required. (ii) Manage the effects of dust (including any other material potentially resulting from construction activities able to cause material damage beyond normal wear and tear) on the transmission lines. (iii) Manage any changes to drainage patterns, runoff characteristics and stormwater to avoid adverse effects on foundations of any support structure. (iv) Manage construction activities that could result in ground vibrations and/or ground instability to avoid causing damage to transmission lines and support structures.

20.	NoR 1 NoR 2	The EIMP shall include confirmation that it has been reviewed and endorsed by Transpower and shall be submitted to Council for information.
21.	NoR 1 NoR 2	Construction works shall not commence within 50 metres of the HIN-KPO-A 110kV transmission assets until the EIMP required by Condition 19 above has been completed and either: (a) the Project has been designed to comply with Design Conditions 1-3 above; or (b) the HIN-KPO-A 110kV transmission assets transmission assets have been relocated or altered as agreed by Transpower.
22.	NoR 1 NoR 2	Construction works shall be undertaken in accordance with the EIMP prepared in accordance with Condition 20 above.
	NoR 1 NoR 2	**Advice Notes:** (a) Written notice should be provided to Transpower 10 working days before starting works within 50 metres of transmission assets. Written notice should be sent to transmission.corridor@transpower.co.nz (b) Temporary and permanent works in the vicinity of overhead transmission assets shall be designed and undertaken to comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001).
Landscaping		
23.	NoR 1 NoR 2	(a) The Requiring Authority shall prepare in collaboration with Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa a **Landscape Concept Plan (LCP)** prior to the Start of Construction. The LCP shall be prepared by a suitably qualified person. The purpose of the LCP is to establish a framework for the integration of the permanent Project into the surrounding environment. The LCP shall address the following landscape design factors: (i) Ensure that the Project's landscape treatments are context-sensitive in terms of acknowledging Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa values, landforms, land use, sense of place and the viewing audience; (ii) Ensure that the Project's landscape treatments function to address amenity, as well as support road safety, biodiversity and stormwater management; (iii) Provide safe connectivity for cyclists and pedestrians; (iv) Appropriate design treatment(s) to support safety and wayfinding; and (v) CPTED (Crime Prevention Through Environmental Design) principles, where practicable.

		(b) The LCP shall include a summary of the engagement undertaken with Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa and how any feedback has been incorporated into the LCP, and an explanation of where and why any feedback has not been incorporated into the LCP. (c) At least 20 working days prior to the Start of Construction, the Requiring Authority shall submit the LCP to the Council for certification that the LCP satisfies the requirements of this condition. (d) The Requiring Authority shall implement the certified LCP. (e) Any changes to the certified LCP shall be confirmed in writing by the Requiring Authority and certified in writing by the Council, prior to the implementation of any changes proposed.
24.	NoR 1 NoR 2	(a) The Requiring Authority shall prepare in collaboration with Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa a **Detailed Planting Plan (DPP)** for the Project prior to the Start of Construction. (b) The DPP shall be prepared to implement the LCP in accordance with the Waka Kotahi NZ Transport Agency Highway Landscape Guidelines and P39 – Standard Specification for Highway Landscape Treatments, and include the following: (i) All planting zones and layouts; (ii) Species list, including native eco-sources species and specimen trees. With the grades of plants at the time of planting and an indication of their height at maturity; and (iii) An indication of site preparation, subsoil and topsoil and mulch treatments. (c) The DPP shall include a summary of the engagement undertaken with Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa and how this has been incorporated into the DPP and an explanation of where and why any feedback has not been incorporated into the DPP. (d) At least 20 working days prior to the Start of Construction, the Requiring Authority shall submit the DPP to the Council for certification that the DPP satisfies the requirements of this condition. (e) The Requiring Authority shall implement the certified DPP. (f) Any changes to the certified DPP shall be confirmed in writing by the Requiring Authority and certified in writing by the Council, prior to the implementation of any changes proposed.

Archaeological Authority		
25.	NoR 1 NoR 2	Prior to the Start of Construction, the Requiring Authority shall provide to the Council, evidence that an Archaeological Authority (or Authorities) under the Heritage New Zealand Pouhere Taonga Act 2014 has been obtained from Heritage New Zealand as appropriate, to modify, damage or destroy any of the unknown archaeological sites likely to be affected during the Construction Works.
Lighting		
26.	NoR 1 NoR 2	Lighting of the intersection shall comply with AS/NZS 1158: *Lighting for roads and public spaces*.

SH1/SH29 Intersection Upgrade Project — Resource Consent conditions

DEFINITIONS AND EXPLANATION OF TERMS

The table below defines the acronyms and terms used in the conditions.

Abbreviation/term	Meaning/definition
Application	The notices of requirement and applications for resource consents and supporting information for the State Highway 1 and State Highway 29 Intersection Upgrade Project dated 26 November 2021.
CEMP	Construction Environmental Management Plan
Completion of Construction	When construction of the Project (or the relevant part of the Project) is complete and it is available for use.
Construction Works	Activities undertaken to construct the Project, excluding Enabling Works.
Enabling Works	Includes the following and similar activities: • geotechnical investigations and land investigations • formation of access for geotechnical investigations • establishment of site yards, site offices, site access points and fencing • constructing and sealing site access roads • relocation of services • establishment of mitigation measures (such as erosion and sediment control measures, earth bunds and screen planting)
Project	The construction, operation and maintenance of the State Highway 1 and State Highway 29 Intersection Upgrade Project at Piarere, including the western and south-eastern SH1 approaches and the SH29 approaches to the intersection.
Project representative	The person or persons appointed by the Requiring Authority to be the main and readily accessible point of contact for persons wanting information about the Project or affected by the Construction Works.
Requiring Authority	Waka Kotahi NZ Transport Agency
Suitably Qualified Person	A person (or persons) who can provide sufficient evidence to demonstrate their suitability and competence in the relevant field of expertise.
RMA	Resource Management Act 1991
Start of Construction	The time when Construction Works, or works referred to in a specific condition, start.

Abbreviation/term	Meaning/definition
Waka Kotahi	Waka Kotahi NZ Transport Agency

SCHEDULE ONE – TO BE ATTACHED TO ALL CONSENTS

1. Except as modified by the conditions below and subject to final detailed design, the activities authorised by this consent shall be undertaken in general accordance with the information provided in the Resource Consent Application, and supporting documents being:

    a) The State Highway 1 and State Highway 29 Intersection Upgrade Project Resource Consent Application and Notices of Requirement and Assessment of Effects on the Environment dated 26 November 2021;

    b) The Project's Specialist Reports in Volume 3 of the Resource Consent Application and Notices of Requirement and Assessment of Effects on the Environment dated 26 November 2021; and

    c) The Project Drawings in Volume 4: Drawing Set of the Resource Consent Application and Notices of Requirement and Assessment of Effects on the Environment dated 26 November 2021.

Pre-construction site meeting

2. The Consent Holder shall arrange and conduct an on-site meeting including the Project representative, appropriate contractor representative(s), erosion and sediment control team nominated under Condition 3 and WRC prior to the Start of Construction. The following information shall be made available at the pre-construction meeting:

    a) Conditions of Schedule One and the resource consents;

    b) Timeframes for key stages of the works authorised under this consent;

    c) Details of the Project representative, including their contact details (phone and email address); and

    d) Contact details of the site contractor and other key contractors.

Erosion and sediment control team

3. Prior to exercising this consent the consent holder shall establish an erosion and sediment control team which is to be managed by an appropriately qualified person experienced in erosion and sediment control and associated environmental issues. The sediment control team shall consist of personnel who have clearly defined roles and responsibilities to monitor compliance with the consent conditions and will be available to meet with the WRC monitoring personnel on a weekly basis, or as otherwise agreed in writing, to review erosion and sediment control issues. The person managing the sediment control team shall:

    a) Be experienced in erosion and sediment control implementation and monitoring;

    b) Be recognised by his/her peers as having a high level of knowledge and skill as appropriate for the role;

    c) Have completed recognised training in erosion and sediment control; and

    d) Be approved in writing by the Waikato Regional Council.

Construction Environmental Management Plan

4. The Consent Holder shall prepare a **Construction Environmental Management Plan (CEMP)** prior to the Start of Construction. The objective of the CEMP is to set out the management procedures and construction methods to be undertaken to avoid, remedy or mitigate any adverse effects associated with Construction Works as far as practicable and to ensure compliance with the conditions of this Schedule. The CEMP shall be prepared having regard to the Waka Kotahi 'Guideline for Preparing Environmental and Social Management Plans' (April 2014), or any subsequent version. To achieve the objective, the CEMP shall include but not limited to:

    a) the roles and responsibilities of staff and contractors;

b) details of the Project Manager and the Project representative(s), including their contact details (phone and email address);

c) the Construction Works programmes and the staging approach, and the proposed hours of work;

d) the proposed site layouts (including construction yards), locations of refuelling activities and construction lighting;

e) details of construction activities for the stream diversions;

f) methods for controlling dust and the removal of debris and demolition of construction materials from public roads or places;

g) response plan containing additional management measures that will be undertaken in the event of off-site dust impacts;

h) methods for providing for the health and safety of the general public;

i) measures to mitigate flood hazard effects such as siting stockpiles out of floodplains, minimising obstruction to flood flows, actions to respond to warnings of heavy rain;

j) procedures for incident management;

k) procedures for the refuelling and maintenance of plant and equipment to avoid discharges of fuels or lubricants to watercourses;

l) measures to address the storage of fuels, lubricants, hazardous and/or dangerous materials, along with contingency procedures to address emergency spill response(s) and clean up;

m) procedures for responding to complaints about Construction Works;

n) how provision is to be made for a cultural induction programme of the contractor's staff by Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa. The frequency and content of these inductions to be agreed with by Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa; and

o) methods for amending and updating the certified CEMP as required.

5. At least 20 working days prior to the Start of Construction, the Consent Holder shall submit the CEMP to WRC for certification that the CEMP satisfies the requirements of Condition 4 of this Schedule. If the Consent Holder has not received any response from WRC within 20 working days of submitting the CEMP, the CEMP shall be deemed certified.

6. The Consent Holder shall carry out Construction Works in general accordance with the certified CEMP and any subsequent changes. Any changes to the certified CEMP shall be confirmed in writing by the Consent Holder and certified in writing by WRC, prior to the implementation of any changes proposed.

7. The Consent Holder shall ensure that a copy of the certified CEMP, including any certified amendments, is kept onsite and this copy is updated within 10 working days of any amendments being certified.

Advice Note 1:
The designations for the State Highway 1 and State Highway 29 Intersection Upgrade Project also include conditions that require the preparation and implementation of a CEMP. It is considered appropriate that one CEMP be prepared by the Consent Holder/Requiring Authority which meets the conditions of this Schedule and the conditions of the designation.

Erosion and Sediment Control Plan

8. The Consent Holder shall prepare an **Erosion and Sediment Control Plan (ESCP)** that is based on the draft ESCP and information provided as part of the Resource Consent Application referred to in Condition 1 of this Schedule. The objective of the ESCP is to minimise sediment discharge from the areas of Construction Works to the extent practicable over the earthworks period.

The ESCP shall, as a minimum, be based upon and incorporate those specific principles and practices which are appropriate for the activity authorised by this consent and contained within the

WRC document titled 'Erosion and Sediment Control – Guidelines for Soil Disturbing Activities' (Technical Report No. 2009/02 – dated January 2009), and shall include at least the following:

a) Details of all principles, procedures and practices that will be implemented to undertake erosion and sediment control to minimise the potential for sediment discharge from the site;

b) The design criteria and dimensions of all key erosion and sediment control structures;

c) A site plan of a suitable scale to identify;

   (i) The locations of waterways;

   (ii) The extent of soil disturbance and vegetation removal;

   (iii) Any "no go" and/or buffer areas to be maintained undisturbed adjacent to watercourses;

   (iv) Areas of cut and fill;

   (v) Locations of topsoil stockpiles;

   (vi) All key erosion and sediment control structures;

   (vii) The boundaries and area of catchments contributing to all stormwater impoundment structures;

   (viii) The locations of all specific points of discharge to the environment; and

   (ix) Any other relevant site information.

d) Construction timetable for the erosion and sediment control works and the earthworks proposed;

e) Timetable and nature of progressive site rehabilitation and re-vegetation proposed;

f) Maintenance, monitoring and reporting procedures;

g) Rainfall response and contingency measures including procedures to minimise adverse effects in the event of extreme rainfall events and/or the failure of any key erosion and sediment control structures;

h) Procedures and timing for review of and/or amendment to the certified ESCP; and

i) Identification and contact details of personnel responsible for the operation and maintenance of all key erosion and sediment control structures.

9. At least 20 working days prior to the Start of Construction, the Consent Holder shall submit the ESCP to WRC for certification that the ESCP satisfies the requirements of Condition 8 of this Schedule. If the Consent Holder has not received any response from WRC within 20 working days of submitting the ESCP, the ESCP shall be deemed certified.

10. The Consent Holder shall implement the certified ESCP for the duration of the Construction Works and any subsequent changes. Any changes to the certified ESCP shall be confirmed in writing by the Consent Holder and certified in writing by WRC, prior to the implementation of any changes proposed.

11. The Consent Holder shall ensure that a copy of the certified ESCP, including any certified amendments, is kept onsite and this copy is updated within 10 working days of any amendments being approved.

Certification of the construction of the erosion and sediment controls

12. Prior to Construction Works commencing in any area, the Consent Holder shall submit to WRC a certificate signed by Suitably Qualified Person to certify that the erosion and sediment controls have been constructed in accordance with the certified ESCP. The certification for this measure shall be supplied within five working days of Completion of Construction of those measures. Information to be supplied, if applicable, shall include:

    a) Contributing catchment area;

b) Retention volume of structure (dead storage and live storage measured to the top of the primary spillway);

c) Shape and dimensions of structure;

d) Position of outlets;

e) Stabilisation of the structure;

f) Compliance with the Waikato Regional Council document titled 'Erosion and Sediment Control – Guidelines for Soil Disturbing Activities' (Technical Report No. 2009/02 – dated January 2009); and

g) Compliance with any relevant conditions of the resource consents.

Management of erosion and sediment controls

13. All erosion and sediment control measures shall be established and maintained in accordance with the WRC document titled "Erosion and Sediment Control – Guidelines for Soil Disturbing Activities" (Technical Report No. 2009/02 – dated January 2009), and the certified ESCP.

14. The Consent Holder shall ensure that all sediment laden run-off from the site is treated by sediment retention structures. These structures are to be fully operational before earthworks commence and shall be maintained to perform at least at 80% of their full operational capacity.

15. Unless site specific analysis provides evidence to the contrary, as detailed in the certified ESCP, the Consent Holder shall ensure that the concentration for suspended solids of any device discharge shall not be greater than 100g/m^3.

16. The Consent Holder shall ensure that all clean water run-off from stabilised surfaces including catchment areas above and around the site shall be diverted away from earthworked areas via a stabilised diversion system.

17. The Consent Holder shall ensure that all erosion and sediment controls are inspected and in good working order prior to, and immediately after rain events.

18. The erosion and sediment controls specified in the certified ESCP, shall not be disestablished without the prior written approval of WRC.

Stabilisation

19. The areas of Construction Works shall be stabilised against erosion as soon as practicable and in a progressive manner as earthworks are finished. The Consent Holder shall monitor and maintain the areas of Construction Works until vegetation is established to such an extent that it prevents erosion and prevents sediment from entering any watercourse.

20. Re-vegetation and/or stabilisation of all disturbed areas is to be completed in accordance with the measures detailed in the Waikato Regional Council document titled 'Erosion and Sediment Control – Guidelines for Soil Disturbing Activities' (Technical Report No. 2009/02 – dated January 2009), and the certified ESCP.

21. If so required by WRC, the Consent Holder shall carry out immediate stabilisation of any required area of exposed earthworks surfaces on site using straw mulching, pinned geotextile or similar instant stabilisation techniques to the satisfaction of WRC.

Construction stormwater discharges

22. During the construction period, discharges from the work site shall not cause a conspicuous change in water colour or clarity in any flowing water body, after reasonable mixing and at a point 50 metres downstream of any point of discharge to the water body.

23. Flocculation bench testing shall be undertaken prior to bulk earthworks commencing to determine if flocculation will provide a benefit (i.e. improvement) to the quality of sediment retention pond discharges. Where testing shows flocculation will benefit the quality of sediment retention pond discharges, the Consent Holder shall include flocculation treatment in all sediment retention ponds for the purpose of reducing sediment discharges from the site, unless WRC approves otherwise in writing.

24. Unless WRC approves otherwise in writing, the Consent Holder shall take samples of the discharges from all sediment retention ponds on the site a minimum of once per month and after all rainfall events greater than 20 millimetres in the preceding 24 hours, excepting times when there are no discharges. The Consent Holder shall take the samples within four hours of becoming aware of a rainfall event greater than 20 millimetres in the preceding 24 hours.

Advice Note:

The purpose of this condition is to provide an opportunity for pond discharge sampling to be required if either flocculants are being used; due to potential overdosing pH/Al issues, or where the discharge from a pond is not acceptable and actions are required (potentially including the use of flocculants) to resolve that situation.

25. Any sampling required by this resource consent, the frequency of sampling, analyses and reporting may be altered or reduced with the written approval of WRC.

26. If required, prior to the commissioning of any flocculation treatment system, the Consent Holder shall provide WRC with a Flocculation Management Plan (FMP). The FMP shall be submitted to WRC for certification prior to bulk earthworks commencing. The FMP shall include as a minimum:

    a) An analysis identifying which ponds require flocculation, this analysis taking into account;

        i. The soil's reactivity to flocculants based on soil tests
        ii. The size of the contributing catchment that the pond is treating
        iii. The likely duration of the ponds use.

    b) Specific design details of the flocculation system;

    c) Monitoring (including pH and any other testing procedures), maintenance (including post-storm) and including a record system;

    d) Details of optimum dosage (including assumptions);

    e) Results of any initial flocculation trial;

    f) A spill contingency plan; as set out within the requirements of Condition 31

    g) Contact details of the person responsible for the operation and maintenance of the flocculation treatment system and the organisational structure to which this person shall report.

27. Any changes proposed to the FMP shall be confirmed in writing by the Consent Holder and certified in writing by WRC, prior to the implementation of any changes proposed.

28. Unless site specific analysis provides evidence to the contrary, as detailed in the FMP, the Consent Holder shall ensure that:

    a) The soluble aluminium concentration of any sediment retention pond discharge shall not exceed 0.2 grams per cubic metre; and

    b) The pH of any sediment retention pond discharge shall not be less than 5.5 or greater than 8.5 pH units.

29. Within one working day of taking any samples required, the Consent Holder shall have those samples analysed for suspended solids and turbidity and, if flocculants are being used to treat any sediment retention pond, pH, and soluble aluminium. The results of the analysis shall be forwarded to the WRC within 7 working days of the Consent Holder receiving results of the analysis.

30. The Consent Holder shall undertake all activities authorised by this consent in accordance with the certified FMP and any certified changes.

Hazardous Substances and Spill Response

31. With respect to hazardous substances and contaminated sites, the CMP shall include, but not be limited to, the following matters:

    a) a list of the hazardous materials and their quantities kept on site and their storage details;

    b) the prevention measures that will be undertaken on site in order to avoid a spill of hazardous materials;

    c) the equipment available to contain and/or remove spills of hazardous materials;

    d) specific procedures and measures that will be undertaken when machinery is operating within close proximity to water bodies that are designed to minimise the risk of any spillages or significant leakages of hazardous materials entering the waterbody;

    e) the training staff will receive in the use of hazardous materials spill prevention, containment and clean up measures and associated equipment;

    f) how the disposal of any contaminated materials arising from spills, leakages of hazardous materials will be undertaken;

    g) the procedures involved in reporting of any such incidents to WRC; and,

    h) review procedures.

32. The Consent Holder shall notify WRC as soon as is practicable, and as a minimum requirement within 12 hours, of the Consent Holder becoming aware of a discovery or spill of hazardous materials, fuel, oil, hydraulic fluid or other similar contaminants. The Consent Holder shall, within 7 days of the incident occurring, provide a written report to WRC, identifying the possible causes, steps undertaken to remedy the effects of the incident and any additional measures that will be undertaken to avoid future spills.

Cleanfill

33. The Consent Holder shall ensure that any importation of cleanfill from off-site meets the definition of cleanfill as defined in the Waikato Regional Plan, as follows:

    Material that when discharged to the environment will have no adverse effect on people or the environment. This includes natural materials such as clay, soil and rock and other inert materials such as concrete and brick, or mixtures of any of the above.

    Cleanfill excludes for example:

    a) material that has combustible, putrescible or degradable components;

    b) materials likely to create leachate by means of biological or chemical breakdown;

    c) any products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices;

    d) materials such as medical and veterinary waste, asbestos, or radioactive substances that may present a risk to human health;

    e) soils or other materials contaminated with hazardous substances or pathogens; and

    f) Hazardous substances.

Machinery

34. All earthmoving machinery, pumps and generators shall be operated in a manner that ensures that spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and

machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any surface water, such that any spillage can be contained and does not enter any surface water.

35. The Consent Holder shall ensure that all machinery used in the exercise of this consent is cleaned prior to being transported to/from the site to ensure that all seed and/or plant matter has been removed and documented in accordance with the National Pest Control Agencies A series, best practice guidelines 'A16 Keep it Clean – Machinery and Vehicle Hygiene Guidelines and Logbook to Prevent the Spread of Pests and Weeds' (2015 (minor revisions April 2020)).

Winter Works

36. The Construction Works authorised by this resource consent shall not be carried out during the winter period 1 May to 30 September inclusive, unless approved in writing by WRC in accordance with Condition 38 below.

37. The Consent Holder shall ensure that the site is appropriately stabilised by 30 April of each year, unless otherwise approved in writing by WRC. Stabilisation shall be undertaken by providing adequate measures (vegetative and/or structural and including, pavement, metalling, hydroseeding, revegetating and mulching) that will minimise erosion of exposed soil to the extent practicable.

38. Requests to undertake works during the period 1 May to 30 September inclusive shall be submitted in writing to WRC by 1 April and shall be in the form of amendments to the certified ESCP. In considering a request for winter works, WRC will consider a number of factors, including:

    a) the nature of the site and the winter soil disturbance works proposed;
    b) the quality of the existing/proposed erosion and sediment controls;
    c) the compliance history of the site/operator;
    d) seasonal/local soil and weather conditions; and
    e) sensitivity of the receiving environment.

Complaints

39. At all times during Construction Works, a record of any complaints received about the Construction Works shall be maintained. The record shall include:

    a) The date, time and nature of the complaint;
    b) The name, phone number and address of the complainant (unless the complainant wishes to remain anonymous);
    c) Measures taken to respond to the complaint or confirmation of no action if deemed appropriate (including a record of the response provided to the complainant);
    d) The outcome of the investigation into the complaint; and
    e) Any other activities in the area, unrelated to the Project that may have contributed to the complaint, such as non-project construction, fires, traffic accidents or unusually dusty conditions generally.

40. A copy of the complaints register required by this condition shall be made available to the WRC upon request as soon as practicable after the request is made.

41. Complaints related to the Construction Works shall be responded to as soon as reasonably practicable and as appropriate to the circumstances.

Archaeological Authority

42. Prior to the commencement of Construction Works, the Consent Holder shall provide to WRC, evidence that an Archaeological Authority (or Authorities) under the Heritage New Zealand Pouhere

Taonga Act 2014 has been obtained from Heritage New Zealand as appropriate, to modify, damage or destroy any of the unknown archaeological sites likely to be affected during the Construction Works.

Vegetation Management Plan

43. The Consent Holder shall prepare a **Vegetation Management Plan (VMP)** in consultation with Ngāti Koroki Kahukura, Ngāti Hauā and Raukawa. The purpose of the VMP is to identify measures to avoid, remedy, or mitigate adverse ecological effects associated with the Project on long-tailed bats and the removal of vegetation and shall include, but not be limited to, the following matters:

    a) Details of any tree protection and /or tree planting required for the implementation of the Bat Management Plan;

    b) Details of riparian planting enhancement for the length of the property at 1896 State Highway 1 (Record of Title SA32A/615) where it abuts the unnamed river;

    c) The removal or disturbance of vegetation from the construction of the access track and stormwater discharge structure within the property at 1896 State Highway 1 (Record of Title SA32A/615) requires restorative planting and weed control at a ratio of 1:1;

    d) Measures to protect the trees and or shrubs that are to remain, including delineation and protection of root zones, avoidance of works in root zones;

    e) Details of timing, species, source of planting material, size of plants, extent, location, stabilisation methods, and ongoing maintenance requirements;

    f) The nature of any weed and/or pest plant control considered appropriate (timing, extent and location); and

    g) Maintenance shall occur for a period of no less than five years after initial planting or 80% canopy coverage of the ground.

44. At least 20 working days prior to the Start of Construction, the Consent Holder shall submit the VMP to WRC for certification that the VMP satisfies the requirements of Condition 43 of this Schedule. If the Consent Holder has not received any response from WRC within 20 working days of submitting the VMP, the VMP shall be deemed certified.

45. The Consent Holder shall carry out Construction Works in general accordance with the certified VMP and any subsequent changes. Any changes to the certified VMP shall be confirmed in writing by the Consent Holder and certified in writing by WRC, prior to the implementation of any changes proposed.

46. The Consent Holder shall ensure that a copy of the certified VMP, including any certified amendments, is kept onsite and this copy is updated within 10 working days of any amendments being certified.

Bat Management Plan

47. The Consent Holder shall implement the **Bat Management Plan (BMP)** provided with the Resource Consent Applications referred to in Condition 1 of this Schedule while undertaking all activities authorised by this resource consent.

48. At least 5 working days prior to vegetation clearance as part of the Construction Works authorised by this resource consent, the Consent Holder shall provide to WRC, the name and contact details of the nominated Project Ecologist, who shall have a Department of Conservation bat competency Class D or Class E certificate, to oversee vegetation clearance and ensure compliance with the Vegetation Removal Protocols in Appendix A of the BMP.

49. The Consent Holder shall carry out Construction Works in general accordance with the BMP and any subsequent changes. Any changes to the BMP shall be confirmed in writing by the Consent Holder and certified in writing by WRC, prior to the implementation of any changes proposed.

50. The Consent Holder shall ensure that a copy of the BMP, including any certified amendments, is kept onsite and this copy is updated within 10 working days of any amendments being certified.

Lizard Management Plan

51. A **Lizard Management Plan (LMP)** shall be prepared. The purpose of the LMP is to minimise injury or mortality of indigenous lizards potentially present within the construction footprint of the Project and minimise the loss of potential lizard habitat through passive management by an suitably qualified person.

52. At least 20 working days prior to the Start of Construction, the Consent Holder shall submit the LMP to WRC for certification that the LMP satisfies the requirements of Condition 51 of this Schedule. If the Consent Holder has not received any response from WRC within 20 working days of submitting the LMP, the LMP shall be deemed certified.

53. The Consent Holder shall carry out Construction Works in general accordance with the certified LMP and any subsequent changes. Any changes to the certified LMP shall be confirmed in writing by the Consent Holder and certified in writing by WRC, prior to the implementation of any changes proposed.

54. The Consent Holder shall ensure that a copy of the certified LMP, including any certified amendments, is kept onsite and this copy is updated within 10 working days of any amendments being certified.

Bird nesting survey

55. The Consent Holder shall ensure that a suitably qualified person is engaged to undertake a nesting survey for native birds a minimum of 5 working days prior to any vegetation clearance occurring within either Project area, where such clearance is programmed between the months of October to January (inclusive). When a nest is found occupied by native birds, works shall be delayed until the hatchlings or nestlings have fledged.

Administration

56. The Consent Holder shall pay to WRC any administrative charge fixed in accordance with section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act 1991.

General Advice Notes

1. This consent does not give any right of access over private or public property. Arrangements for access shall be made between the Consent Holder and the property owner.

2. The Consent Holder may apply to change the conditions of this consent under section 127 of the Resource Management Act 1991.

3. Costs associated with any review of the conditions of this consent will be recovered from the Consent Holder in accordance with the provisions of section 36 of the Resource Management Act 1991.

4. The reasonable costs incurred by WRC arising from supervision and monitoring of this consent will be charged to the Consent Holder. This may include but not be limited to routine inspection of the site by WRC officers or agents, liaison with the Consent Holder, responding to complaints or enquiries relating to the site, and review and assessment of compliance with the conditions of this consent.

5. Note that pursuant to section 333 of the Resource Management Act 1991, enforcement officers may at all reasonable times go onto the property that is the subject of this consent, for the purpose of carrying out inspections, surveys, investigations, tests, measurements or taking samples.

RESOURCE CONSENT
CERTIFICATE

Resource Consent: AUTHXXXX

File Number: XX XX XXX

Pursuant to the Resource Management Act 1991, the Regional Council hereby grants consent to:

Waka Kotahi New Zealand Transport Agency (Regional Office)
PO Box 973
Waikato Mail Centre
Hamilton 3240
(hereinafter referred to as the Consent Holder)

Consent Type: Discharge permit

Consent Subtype: Water- Stormwater

Activity authorised: To divert and discharge of stormwater in association with the SH1/SH29 Intersection Upgrade Project.

Location: Intersection of SH1/SH29, Piarere

Map reference: NZTM 2744699 E 6358798 N

Consent duration: This consent will expire 35 years after the commencement date.

Subject to the conditions overleaf:

CONDITIONS

General

1. The stormwater diversion and discharge activities authorised by this resource consent shall be undertaken in accordance with the conditions as set out in Schedule One.

2. The Consent Holder shall retain a suitably qualified person to prepare the detailed design of the stormwater management system for the Project. The Consent Holder shall submit a report/s confirming that the stormwater management system detailed design and plans for the Project is in general accordance with the Resource Consent Application and the Stormwater Drainage Layout Plans in Volume 4 of the Application: Drawing Set and WRC's 'Stormwater Management Guideline' (WRC Technical Report 2020/07).

3. The detailed design and drawings and report shall be submitted to WRC for written approval prior to construction of the permanent stormwater management system for the Project.

Stormwater Treatment Planting Management Plan

4. The Consent Holder shall retain a suitably qualified person to prepare a **Stormwater Treatment Planting and Management Plan (STPMP)** for the stormwater wetland and planted swales. The purpose of the STPMP is to ensure that the planting in the stormwater wetland and planted swales will improve their water quality and ecological function. The STPMP shall be developed in general accordance with WRC's 'Waikato stormwater management guideline' (WRC Technical Report 2020/07). The STPMP shall include but not be limited to:

    a) Site plantings including species to be planted, size of plants, and where they are to be planted;
    b) Site preparation for planting including weed and pest control;
    c) Timeline for planting;
    d) Ongoing weed and pest control;
    e) Supplementary/replacement planting plan specifications;
    f) Timing of monitoring, maintenance and inspections.

5. At least 20 working days prior to the Start of Construction, the Consent Holder shall submit the STPMP to WRC for certification that the STPMP satisfies the requirements of Condition 4 of this resource consent. If the Consent Holder has not received any response from WRC within 20 working days of submitting the STPMP, the STPMP shall be deemed certified.

6. The Consent Holder shall carry out planting in general accordance with the certified STPMP and any subsequent changes. Any changes to the certified STPMP shall be confirmed in writing by the Consent Holder and certified in writing by WRC, prior to the implementation of any changes proposed.

7. The Consent Holder shall ensure that a copy of the certified STPMP, including any certified amendments, is kept onsite and this copy is updated within 10 working days of any amendments being certified.

Operation and Maintenance

8. Within 12 months of Completion of Construction of all components of the stormwater management system, the Consent Holder shall provide a **Stormwater Operation and Maintenance Plan (SOMP)** to WRC for certification. The purpose of the SOMP is to ensure that the ongoing management of stormwater will be consistent with the effects and benefits anticipated by the certified detailed design and conditions of this resource consent. The SOMP shall include, but not be limited to:

a) A programme, including frequency, for regular monitoring and inspection of the stormwater management system;

b) A schedule of maintenance requirements for each treatment device and outfall;

c) A programme for the regular collection and disposal of debris and sediment collected by the stormwater management devices to ensure that attenuation volumes are not compromised and that appropriate contaminant removal procedures are established;

d) Inspection checklists for all aspects of the stormwater management system, including monitoring and maintenance of all wetlands, swales and all inlet and outlet structures;

e) Details of who will be responsible for the operation and maintenance works; and

f) Details of recording and reporting of operation and maintenance activities.

9. If the Consent Holder has not received any response from WRC within 20 working days of submitting the certified SOMP, the SOMP shall be deemed certified. Once certified, the Consent Holder shall implement the SOMP for the term of the consent. Any changes to the SOMP will require certification by WRC against the matters outlined in Condition 8 of this resource consent.

As Built Certification Statements

10. The Consent Holder shall retain a suitably qualified person to prepare and sign As Built Certification Statements, which certify that the stormwater management system has been constructed in accordance with the certified detailed design and drawings required by Condition 2 of this resource consent. The As Built Certification Statements shall be submitted to WRC within 12 months of Completion of Construction associated with the stormwater management devices.

Stormwater Quantity and Receiving Environment

11. The Consent Holder shall manage the stormwater management system to avoid, as far as practicable, or otherwise minimise, the following stormwater quantity effects:

a) Adverse scour, erosion and sediment deposition on land, property and the beds of stormwater receiving water bodies;

b) Adverse flooding of land, property and stormwater receiving water bodies; and

c) Adverse effects on aquatic ecosystems.

Stormwater Quality and Receiving Environment

12. Stormwater runoff from the state highway carriageway shall be treated in accordance with WRC's 'Stormwater Management Guideline' (WRC Technical Report 2020/07).

13. The Consent Holder shall manage the stormwater management system to avoid, as far as practicable, the discharge of any substance that is likely to cause the production of conspicuous oil, or grease films, scums or foams, or floatable suspended materials in stormwater receiving water bodies after reasonable mixing.

14. The Consent Holder shall manage the stormwater management system to avoid as far as practicable and otherwise minimise, the discharge of suspended solids and any other substances that are likely to cause the following effects in stormwater receiving water bodies after reasonable mixing:

a) Conspicuous changes in colour or visual clarity;

b) Increases in suspended solids concentrations by more than 10 percent; and

c) 100 grams per cubic metre suspended solids concentrations or greater.

For the purposes of this condition, the suspended solids discharge parameters referenced above shall only apply to the operational stormwater discharges authorised by this resource consent and

do not apply to the earthworks activities which are authorised under a separate land disturbance resource consent.

15. The Consent Holder shall manage the stormwater management system to avoid, as far as practicable, and otherwise minimise, the discharge of hazardous substances in concentrations that are likely to adversely affect aquatic life, or the suitability of water for human consumption after treatment. Where a question arises as to whether the concentration of any particular hazardous substance is causing these effects, it shall be determined through the application of the United States Environmental Protection Agency 'National Recommended Water Quality Criteria (USEPA, 2009) – Criteria Maximum Concentration'.

16. The Consent Holder shall manage the stormwater management system to avoid, as far as practicable, and otherwise minimise, discharges that are likely to adversely affect aquatic ecosystems and cause any of the following effects in the downstream watercourses after reasonable mixing:

    a) Dissolved oxygen levels to fall below 80% of saturation;
    b) pH to fall below 6 or exceed 9;
    c) Suspended sediments to smother benthic organisms;
    d) Undesirable biological growths;
    e) Water temperature to change by more than 3 degree C or exceed 25 degree C;
    f) Turbidity levels to exceed 25 NTU between the months of August and December; and/or
    g) Ammoniacal nitrogen concentrations to exceed 0.88 grams of nitrogen per cubic metre.

Stormwater Treatment Devices

17. All stormwater treatment devices which form part of the stormwater management system and are designed to attenuate and/or treat contaminated stormwater, shall be operated and maintained by the Consent Holder to provide best practicable stormwater treatment efficiency at all times.

Review

18. At any time during every fifth year thereafter for the term of the consent, WRC may, following service of notice on the Consent Holder, commence a review of the conditions of this resource consent pursuant to section 128(1) of the Resource Management Act 1991 for the following purposes:

    a) If necessary and appropriate, to require the Consent Holder to adopt the best practicable option to remove or reduce adverse effects on the environment.
    b) If necessary and appropriate, to require the Consent Holder to adopt the best practicable option to remove or reduce adverse effects on the surrounding environment.
    c) To review the adequacy of and the necessity for monitoring undertaken by the Consent Holder.

RESOURCE CONSENT
CERTIFICATE

Resource Consent: AUTHXXXX

File Number: XX XX XXX

Pursuant to the Resource Management Act 1991, the Regional Council hereby grants consent to:

Waka Kotahi New Zealand Transport Agency (Regional Office)
PO Box 973
Waikato Mail Centre
Hamilton 3240
(hereinafter referred to as the Consent Holder)

Consent Type: Water permit

Consent Subtype: Diversion

Activity authorised: Diversion of ephemeral watercourses in association with the SH1/SH29 Intersection Upgrade Project.

Location: Intersection of SH1/SH29, Piarere

Map reference: NZTM 2744699 E 6358798 N

Consent duration: This consent will expire 5 years after the commencement date.

Subject to the conditions overleaf:

CONDITIONS

General

1. The diversion of a stream authorised by this resource consent shall be undertaken in general accordance with the conditions as set out in Schedule One.

2. The Consent Holder shall inform WRC in writing at least 10 working days prior to the commencement of activities relating to the stream diversion authorised by this resource consent.

3. The Consent Holder shall notify WRC within 10 days of the completion of the stream diversion.

4. In accordance with section 125 RMA, this consent shall lapse five years after the date on which it commenced unless it has been given effect to before the end of that period.

Stream Diversion Works

5. The Consent Holder shall design and construct all permanent diversions in a manner that maintains as far as practicable stream flows (both volume and velocity) in a similar state to its natural state at the time of commencement of the Project Works.

Information on and Monitoring of Instream Structures

6. Within 20 working days following Completion of Construction, the Consent Holder shall provide to WRC the information that is listed in the following Resource Management (National Environmental Standards for Freshwater) Regulations 2020:

    a) Regulation 62(3) Requirements for all activities: information about structures and passage of fish; and

    b) Regulation 63(3) Requirement for culvert activities: information about culverts.

Review

7. Each year during the term of the consent, WRC may, following service of notice on the Consent Holder, commence a review of the conditions of this resource consent pursuant to section 128(1) of the Resource Management Act 1991 for the following purpose:

    a) If necessary and appropriate, to require the Consent Holder to adopt the best practicable option to remove or reduce adverse effects on the environment.

RESOURCE CONSENT
CERTIFICATE

Resource Consent: AUTHXXXX

File Number: XX XX XXX

Pursuant to the Resource Management Act 1991, the Regional Council hereby grants consent to:

Waka Kotahi New Zealand Transport Agency (Regional Office)
PO Box 973
Waikato Mail Centre
Hamilton 3240
(hereinafter referred to as the Consent Holder)

Consent Type: Land use

Consent Subtype: Land disturbance

Activity authorised: Undertake earthworks both within and outside of high risk erosion areas; cleanfill and overburden disposal; and, any associated discharges of contaminants to water or air in association with the SH1/SH29 Intersection Upgrade

Location: Intersection of SH1/SH29, Piarere

Map reference: NZTM 2744699 E 6358798 N

Consent duration: This consent will expire 5 years after the commencement date.

CONDITIONS

1. The Consent Holder shall ensure that the works and activities authorised by this resource consent are carried out in accordance with the conditions as set out in Schedule One.
2. In accordance with section 125 RMA, this consent shall lapse five years after the date on which it commenced unless it has been given effect to before the end of that period.

Review

3. Each year during the term of the consent, WRC may, following service of notice on the Consent Holder, commence a review of the conditions of this resource consent pursuant to section 128(1) of the Resource Management Act 1991 for the following purpose:
    a) If necessary and appropriate, to require the Consent Holder to adopt the best practicable option to remove or reduce adverse effects on the environment.