Supporting Growth

Trig Road Corridor Upgrade

Assessment of Landscape and Visual Effects

Version 1.0

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TE TUPU NGĀTAHI Supporting Growth

WAKA KOTAHI NZ TRANSPORT AGENCY

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Table of Contents

1 Introduction 1

1.1 Background 1

1.2 Purpose of this Report 1

2 Project Description 3

2.1 Project Features 4

2.2 Indicative Construction Methodology 4

2.2.1 General Construction Overview 4

3 Assessment Criteria 6

3.1 Statutory Guidance 6

3.1.1 Notice of Requirement 6

3.1.2 Resource Management Act (RMA) 6

3.1.3 Auckland Unitary Plan Operative in Part (AUP:OP) 6

3.2 Non Statutory Guidance 7

3.2.1 Whenuapai Structure Plan – September 2016 7

3.2.2 Te Tupu Ngātahi Design Framework – Version 1.0 7

3.2.3 The Transport Design Manual (TDM) – Auckland Transport 7

3.2.4 Bridging the Gap: New Zealand Transport Agency Urban Design Guidelines (2013) 8

3.2.5 New Zealand Transport Agency Landscape Guidelines (Final Draft, 2014) 8

4 Assessment Methodology 10

4.1 Overview 10

4.1.1 Scale of Effects 11

4.2 Methodology Breakdown 11

4.3 Landscape Analysis 12

4.4 Landscape Values 12

4.5 Landscape Sensitivity 13

4.6 Landscape Effects 13

4.6.1 Natural Character Effects 14

4.7 Visual Effects 14

4.7.1 Viewpoint Locations 14

4.8 Change Management 15

4.9 Limitations 15

4.10 Project Assumptions 15

5 Receiving Environment 16
5.1 Approach to Receiving Environment 16
5.2 Baseline Landscape 17
5.2.1 Landform and Hydrology 17
5.2.2 Land Cover 19
5.2.3 Land Use 20
5.2.4 Historical and Cultural Associations 21
5.2.5 Future Receiving Landscape 21
5.2.6 Proposed Plan Change 5 22
5.2.7 Viewing Context 25
5.2.8 Landscape Values 26
5.2.9 Landscape Sensitivity 26

6 Assessment of Landscape and Visual Effects 27
6.1 Assessment of Construction Effects 27
6.1.1 Demolition and Earthworks 27
6.1.2 Effects on Visual Amenity 30
6.2 Operational Effects 31
6.2.1 Effects on Landscape Character 31
6.2.2 Effects on Natural Character 33
6.2.3 Effects on Visual Amenity 33
6.3 Summary of Landscape and Visual Effects 33

7 Mitigation 35
7.1 Landscape Mitigation Measures 35
7.2 Future Detailed Design Considerations 36

Tables

Table 1: Glossary of Technical Terms / Acronyms v
Table 2: Glossary of Defined Terms vi
Table 3: Trig Road Corridor Upgrade Construction Works Summary ..... **Error! Bookmark not defined.**
Table 4: Whenuapai – Trig Road Corridor Upgrade Receiving Environment 16
Table 5: Proposed Works and Resulting Landscape Change 37

Figures

Figure 1: Trig Road Arterial Project Overview 3
Figure 2: Location of wetlands 1 and 2 and proposed ecological offset planting..... 18
Figure 3: View north from 12 Trig Road into wetland 1. 19
Figure 4: View south-east from 38 Trig Road into wetland 2 and location of proposed dry pond. 19
Figure 5: View north-west from 20 Trig Road illustrating typical vegetation cover. 20
Figure 6: Proposed Whenuapai Plan Change Zones 23
Figure 7: Whenuapai 3 Precinct Plans 1 (left) and 2 (right)..... 23

Appendices

Appendix 1. Detailed Assessment of Project Works

Appendix 2. Public Viewpoint Assessment

Appendix 3. Landscape Plans and Images

Table 1: Glossary of Technical Terms / Acronyms

Acronym/Term	Description
AT	Auckland Transport
AUP:OP	Auckland Unitary Plan Operative in Part 2016
FUZ	Future Urban Zone
HNC	High Natural Character
NoR	Notice of Requirement
NW HIF	North West Housing Infrastructure Fund
ONC	Outstanding Natural Character
ONF	Outstanding Natural Feature
ONL	Outstanding Natural Landscape
PPC5	Proposed Plan Change 5
RMA	Resource Management Act 1991
SEA	Significant Ecological Area
SH18	State Highway 18
UDLMP	Urban Design and Landscape Management Plan
Waka Kotahi	Waka Kotahi NZ Transport Agency
W1	Wetland 1
W2	Wetland 2

Table 2: Glossary of Defined Terms

Term	Meaning
Trig Road Corridor Upgrade Project (Project) or (Project Area)	Proposed road upgrade development works along Hobsonville Road and Trig Road, within the proposed designation boundary.
Auckland Council	Means the unitary authority that replaced eight councils in the Auckland Region as of 1 November 2010.
Landscape	Is the cumulative expression of natural and cultural features, patterns and processes in a geographical area, including human perceptions and associations[1].
Landscape Character	Is derived from the distinct and recognisable pattern of elements that occur consistently in a particular landscape. It reflects particular combinations of geology, landform, soils, hydrology, vegetation, land use and features of human settlement. These elements create a unique sense of place defining different areas of the landscape.
Natural Character	The level of natural character (or naturalness) varies within each landscape/seascape and is the result of the combined levels of indigenous nature and perceived nature. These are typically defined by the extent to which natural elements, patterns and processes occur and are legible, and the nature and extent of human modification to the landscape and ecosystems.
Landscape Effects	Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape.
Visual Effects	Visual effects relate to the changes to amenity values of a landscape including the "natural and physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes"[2].
Natural Character Effects	Natural character effects assessment is triggered by development proposed within the coastal environment, wetlands, lakes and rivers and their margins[3].
Baseline Landscape (BL)	The landscape and visual character as it exists at the commencement of the assessment process – i.e. prior to the construction of the proposed development.
Future Receiving Landscape (FRL)	The landscape and visual character as a result of the future development proposed in the AUP:OP, including specific precinct plans relating to the Project Area. The FRL includes any existing baseline landscape elements (i.e. ONL's, protected vegetation, water ways, landform, sites and/or elements of cultural significance, and existing land-use scenarios) that are likely to endure following anticipated future development resulting from the likes of future zones, AUP:OP overlays and land development projects (planned and/or under construction).
Change Management	Identification of ways to enhance the landscape and actions to avoid, remedy or mitigate adverse landscape effects.

[1] NZILA Landscape Assessment and Sustainable Management Practice Note 10.1.

[2] Resource Management Act 1991.

[3] Resource Management Act 1991 and New Zealand Coastal Policy Statement 2010.

Designation Boundary	The extent of the proposed NoR.
Development Site	Refers to the land being developed within the designation boundary and includes the carriageway, batter slopes, intersections, bridging, landscape mitigation planting, street trees and construction laydown areas.
Project Area	Refers to the local contextual landscape in which the new arterial network is proposed.
Temporary Effects (Construction Effects)	Describes the anticipated impacts on the bio-physical elements and features of the landscape resource (landform, vegetation and hydrology) resulting from the construction of the Project. It also includes visual amenity effects for both public and private viewing audiences from construction works.
Permanent Effects (Operational Effects)	Describes the effects on the landscape of completed works (including integrated landscape mitigation measures), the significance of physical landscape change and ultimately the resulting effects of the Project on landscape character, natural character and visual amenity for both public and private viewing audiences.

1 Introduction

1.1 Background

Auckland's population is growing rapidly; driven by both natural growth (more births than deaths) and migration from overseas and other parts of New Zealand. The Auckland Plan 2050 anticipates that this growth will generate demand for an additional 313,000 dwellings and require land for approximately 263,000 additional employment opportunities.

In response to this demand, the Auckland Unitary Plan Operative in Part 2016 (**AUP:OP**) identifies 15,000 hectares of predominantly rural land for future urbanisation. To enable the urban development of greenfield land, appropriate bulk infrastructure needs to be planned and delivered.

The Supporting Growth Programme is a collaboration between Auckland Transport (**AT**) and Waka Kotahi NZ Transport Agency (**Waka Kotahi**), to investigate, plan and deliver the transport network needed to support Auckland's future urban growth areas over the next 30 years.

1.2 Purpose of this Report

Trig Road, Whenuapai has been identified in the Supporting Growth Programme as a future arterial corridor that is needed to support the urban development of Whenuapai.

This Landscape and Visual Assessment (**LVA**) has been prepared to support AT's notice of requirement (**NoR**) and application for resource consents for the Trig Road Corridor Upgrade (the **Project**). The NoR under the Resource Management Act 1991 (**RMA**) is to designate land for the construction, operation and maintenance of the Project.

Funding for the upgrade of Trig Road between Hobsonville Road and State Highway 18 (**SH18**) has been made available through the Housing Infrastructure Fund[4]. As there is funding available for construction, AT are also applying for the necessary resource consents under the RMA, concurrently with the NoR process.

This report provides an assessment of landscape and visual effects associated with the construction, operation and maintenance of the Project. This assessment has been prepared to inform the Assessment of Environmental Effects (**AEE**) for the NoR and resource consent application.

The key matters addressed in this report are as follows:

(a) Identification and description of existing landscape character and visual amenity;

(b) Assessment of actual and potential adverse landscape character, natural character and visual amenity effects of construction of the Project;

(c) Assessment of actual and potential adverse landscape character, natural character and visual amenity effects of operation of the Project;

[4] See North West Housing Infrastructure Fund Assessment of Environmental Effects for further detail regarding the Housing Infrastructure Fund.

(d) Recommendation of landscape measures to avoid, remedy or mitigate potential adverse landscape character, natural character and visual amenity effects (including any conditions/management plan required); and

(e) Presentation of overall conclusion of the level of potential adverse landscape character and visual amenity effects of the Project after recommended measures are implemented.

2 Project Description

The Project consists of the widening and upgrade of Trig Road between the SH18 off-ramps and Hobsonville Road. The widening has capacity to provide for a two-lane arterial standard corridor including new footpaths on both sides of the road and a cycleway which is indicatively shown as a dedicated bi-direction cycleway on the eastern side of the corridor. The Project will upgrade the current rural standard corridor to an urban standard, which is appropriate to support the soon to be urban environment on either side of Trig Road.

To tie into the existing road network, the Project also includes the signalisation of the intersections at Trig Road/Hobsonville Road and Luckens Road/Hobsonville Road and upgrade of Hobsonville Road between these intersections. This will require some localised widening of the road corridor along Hobsonville Road

Figure 1: Whenuapai – Trig Road Corridor Upgrade

2.1 Project Features

The principle elements of the Project that have the potential to impact on landscape character, natural character and visual amenity include:

- Corridor widening and the subsequent earthworks and vegetation clearance required to implement the upgraded corridor;
- Earthworks and the formation of cut and fill slopes into existing landform and the wetland environments;
- Stormwater treatment and attenuation devices and how these integrate into the local setting;
- Changes to the visual composition of the road corridor and how this is experienced by users and residents of the private properties.

2.2 Indicative Construction Methodology

An indicative construction methodology has been prepared to inform the assessment of the Project and while subject to change, assists in determining the envelope of effects. An overview of the indicative construction methodology is set out in the AEE. The final construction methodology for the Project will be confirmed during detailed design phase and finalised once a contractor has been engaged for the work.

A summary of the key components of the indicative construction methodology that are relevant to this report are outlined in the sub-sections below.

2.2.1 General Construction Overview

The total construction phase of the Project is expected to take approximately 18 to 24 months. It is anticipated that the works will be broken down into separate construction zones based on the type of works required and the nature of the work environment. These anticipated zones are:

- **Zone 1:** Trig Road North of the SH18 bridge
- **Zone 2:** Trig Road South including the SH18 bridge
- **Zone 3:** Hobsonville Road.

2.2.1.1 Construction Methodology

Each zone has different construction activities depending on the type of work to be done and the surrounding environment. In all cases the general sequence of construction is likely to be:

1. Divert or remove services
2. Construct permanent and temporary stormwater drainage and controls
3. Move traffic away from works longitudinally
4. Construct earthworks and any retaining structures
5. Construct new longitudinal drainage

6. Construct new pavement to half of the road
7. Move traffic onto newly constructed pavement
8. Complete longitudinal drainage
9. Complete pavement and median
10. Move traffic to new alignment
11. Complete footpath and cycleway

3 Assessment Criteria

3.1 Statutory Guidance

3.1.1 Notice of Requirement

This assessment has been prepared to support the NoR process for the Project. Section 171 of the RMA sets out the matters that must be considered by a territorial authority in making a recommendation on a NoR. This includes consideration of the actual or potential effects (including positive effects) on the environment of allowing the requirement.

3.1.2 Resource Consent Applications

AT are also seeking regional resource consents under the AUP:OP and resource consent under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.

Overall, the application is assessed as a Discretionary Activity.

3.1.3 Resource Management Act (RMA)

Section 6 of the RMA sets out matters of national importance which shall be recognised and provided for. Section 6(a) requires the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers[5] and their margins, and the protection of them from inappropriate subdivision, use, and development. Section 6(b) requires the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development. Section 6(f) requires the protection of historic heritage from inappropriate subdivision, use and development.

Section 7 of the RMA sets out matters that decision makers shall have particular regard to, including section 7(c) the maintenance and enhancement of amenity values and section 7(f) the maintenance and enhancement of the quality of the environment. Section 8 requires that the principles of Tiriti o Waitangi (Treaty of Waitangi) are taken into account in relation to managing the use, development, and protection of natural and physical resources.

3.1.4 Auckland Unitary Plan Operative in Part (AUP:OP)

3.1.4.1 Existing Transport Corridor

Trig Road, Hobsonville Road and Luckens Road are zoned Road under the AUP:OP, with the exception of the area of Trig Road crossing and immediately surrounding SH18 which is zoned Strategic Transport Corridor Zone.

[5] A 'river' is defined in the RMA as a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse.

3.1.4.2 Adjacent land

The adjacent land within the Project Area is zoned Future Urban Zone (**FUZ**) and Residential – Mixed Housing Urban Zone. The land within the Project Area is proposed to be rezoned to Residential – Mixed Housing Urban Zone, Residential – Terrace Housing and Apartment Building Zone and Business – Local Centre Zone when decisions are made on Proposed Plan Change 5 (**PPC5**) to the AUP:OP.

Auckland-wide zone objectives and policies will apply to the future urban development of land adjacent to the Project, including the general Objectives and Policies included in Chapter E3 (Natural Resources), particularly section E.3 Lakes, rivers, streams and wetlands (E3.2 and E3.3) and section E15. Vegetation management and biodiversity (sections E15.2 and E15.3) are relevant to an assessment of landscape, natural character and visual effects under the RMA.

3.1.4.3 Proposed Plan Change 5, Whenuapai (PPC5)

The Project is positioned within the proposed Whenuapai 3 Precinct. Development of this area of land is guided by the objectives and policies of PPC5 and further structured in accordance with the Whenuapai 3 Precinct Plans 1-3. PPC5 is still progressing through the plan making process and may be subject to changes. The alignment of the Project is different to the indicative Trig Road alignment shown in the proposed Precinct Plan. This change reflects the further design work undertaken for the Project and is described in the AEE.

3.1.4.3.1 PPC5 Whenuapai 3 Precinct Stormwater Management Plan, 2017

The Whenuapai 3 Precinct Stormwater Management Plan (2017) provides a detailed description of the existing landform and hydrological features of the Whenuapai landscape. It also evaluates the level of health of the streams and overland flow paths and recommends a number of restoration measures.

3.2 Non Statutory Guidance

The following documents offer guidance as to how land within the study area might develop over time. PPC5 is of particular relevance to the Project and it is noted that some aspects of the guidance are subject to change as PPC5 progresses.

3.2.1 Whenuapai Structure Plan – September 2016

The Whenuapai Structure Plan provides guidance for ongoing development of land within Whenuapai, an area comprising approximately 1500 hectares northwest of Auckland, of which the Project forms a small part of the key infrastructure network. The structure plan provides guidance to proposed plan changes around land use, transport, infrastructure, natural environment, heritage, open space and recreation.

3.2.2 Te Tupu Ngātahi Design Framework – Version 1.0

The Te Tupu Ngātahi Design Framework provides measurable guidance for outcomes-based decisions throughout each phase of the wider programme. The guidelines in the Te Tupu Ngātahi Design Framework set out the environmental, cultural and growth context for the Project and principles for implementation. Principles 1.1 through to 2.5 are of particular relevance to this landscape and visual assessment.

3.2.3 Transport Design Manual – Auckland Transport

The Transport Design Manual (**TDM**) has three sections that allow end user outcomes, engineering design and construction requirements to be clearly identified and designed. The Urban Street and Road Design Guide forms part of section 1 of the TDM and is of particular relevance to this landscape and visual assessment.

3.2.4 Bridging the Gap: Waka Kotahi NZ Transport Agency Urban Design Guidelines (2013)

While the Project is an AT project, Bridging the Gap provides relevant guidance for all transport projects. The guidelines set out 10 over-arching urban design principles, and guidance on specific elements of transport projects including bridges, retaining walls, earthworks, noise barriers, highway furniture, stormwater management devices, signalised junctions, roundabouts, tunnels, stopping places, landscape planting and public art[6].

The 10 urban design principles are outlined as follows:

- Designing for the context
- Integrating transport and land use
- Contributing to good urban form
- Integrating all modes of movement
- Supporting community cohesion
- Maintaining local connectivity
- Respecting cultural heritage values
- Designing with nature
- Creating a positive road user's experience
- Achieving a low maintenance design

3.2.5 New Zealand Transport Agency Landscape Guidelines (Final Draft, 2014)

Again, while the Project is an AT project, the guidelines provide relevant guidance for all road transport projects. The guidelines set out 10 over-arching landscape principles, and offer guidance related to policy, assessment methodology and landscape design requirements[7].

The 10 landscape principles are outlined as follows:

- A context sensitive and place based approach
- Facilitate green infrastructure and landscape integration
- Understand the physical conditions

[6] https://www.nzta.govt.nz/assets/resources/bridging-the-gap/docs/bridging-the-gap.pdf

[7] https://www.nzta.govt.nz/assets/resources/nzta-landscape-guidelines/docs/nzta-landscape-guidelines-20140911.pdf

- The right plant in the right place
- Promote biodiversity and build in resilience
- Champion low impact design
- Deliver a quality user experience
- Low maintenance and whole of life value
- Safety in design
- Facilitate community engagement and a collaborative approach

4 Assessment Methodology

Chapter Summary

This assessment was undertaken by a suitably qualified and experienced NZILA Registered Landscape Architect in accordance with the NZILA Landscape Assessment and Sustainable Management Practice Note 10.1, and also, with reference to nationally recognised guidance documents outlined in section 3 of this report.

The following section outlines the best-practice approach that has been undertaken to identify the landscape values and sensitivity of the Project Area and adjacent landscape. This methodology section provides explanatory notes and guidance so that each of the following sections remain concise.

4.1 Overview

The consideration of the sensitivity of a particular landscape or Project Area is based on the identification of landscape character and an evaluation of the landscape values therein, including regionally significant values such as: Significant Ecological Areas (**SEA**s), Outstanding Natural Landscapes (**ONL**s), Outstanding Natural Features (**ONF**s) and areas of High or Outstanding Natural Character (**HNC** or **ONC**). Landscape character is derived from the distinct and recognisable pattern of elements that occur consistently in a particular landscape. It reflects particular combinations of geology, landform, soils, vegetation, land use and features of human settlement. These elements create a unique sense of place defining different areas of the landscape.

A landscape that exhibits a 'high' degree of sensitivity will likely be highly susceptible or vulnerable to potential adverse effects associated with landscape change. Conversely a landscape or site that exhibits a 'low' degree of sensitivity will have more capacity to absorb change without significantly impacting upon existing landscape character and values within a site or broader contextual setting.

Change in a landscape does not, of itself, necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly changing over time in both subtle and more dramatic transformational ways. These changes are both natural and human induced. Within the context of continual landscape change, is the importance of managing human induced change so that significant adverse effects are avoided or sufficiently mitigated to reduce the effects of the change in land use. Furthermore, landscape and visual effects can be temporary or permanent and that also contributes to the significance of landscape and visual effects.

In many cases, landscape change can bring about improvements to the quality of the existing environment. Therefore, the nature and significance of landscape and visual effects generated by any particular project can be:

- Positive (beneficial), contributing to the visual character and quality of the environment;
- Negative (adverse), detracting from the existing character and quality of the environment; or
- Neutral (benign), with essentially no effects on existing character or quality of the environment.

4.1.1 Scale of Effects

In determining the magnitude of potential and actual landscape and visual effects of the Project, a consistent 7-point rating scale has been used. The rating scale is symmetrical around 'moderate' and is based on the recommended NZILA Best Practice Guide. The following descriptions are provided which consider both NZILA and Waka Kotahi guidance documents.

7-point rating scale

- Effects that are **very low** are barely discernible. Mitigation is generally not required and in planning terms they are negligible;
- Effects that are **low** are discernible but where they do exist, they are likely too small to generate adverse effects either on their own or cumulatively. Additional mitigation is not required and in planning terms the landscape effects are considered to be less than minor;
- Effects that are **moderate-low** are discernible and where they do exist, they have the potential to generate adverse effects either on their own or cumulatively. Additional mitigation may be required and in planning terms the landscape effects are considered to be minor;
- Effects that are **moderate** are discernible, without being significant on their own. There is the potential for cumulative effects to be more significant, but they can generally be mitigated to an appropriate level. In landscape and visual terms, moderate effects may be acceptable provided an appropriate design/ mitigation response has been adopted. In planning terms moderate landscape effects are more than minor;
- Effects that are **moderate-high** are discernible and have the potential to be significant on their own. There is the potential for cumulative effects to be more significant however there is potential for additional mitigation measures to reduce effects to a lower degree. In planning terms moderate-high landscape effects are more than minor;
- Effects that are **high** are significant on their own and are likely to increase in a cumulative sense. In general, a high degree of effect may represent an unacceptable outcome in landscape and/or visual terms however, there may be potential for additional mitigation measures to reduce effects to a lower degree although these measures will need to be substantial. In planning terms, high effects would be more than minor and considered 'significant' in landscape and visual terms; and
- Effects that are **very high** are significant and in relation to landscape effects, additional mitigation is unlikely to reduce the degree of effect to any discernible degree. In planning terms, very high effects are more than minor and likely to be unacceptable in landscape and visual terms.

4.2 Methodology Breakdown

The methodology that forms the basis for the assessment is set out below:

- Identification of relevant statutory provisions and non-statutory guidance relating to landscape.
- Analysis and description of existing landscape elements, features and character of the existing 'Baseline Landscape'.

- Analysis and description of the landscape elements, features and character of the 'Future Receiving Landscape'.
- Analysis and description of perceptual, sensory and associative qualities of the Project Area and the identification of the viewing audience and visual catchment.
- Summary of landscape values, including inputs from other specialists such as ecology, arboriculture and heritage.
- Evaluation of the sensitivity of the landscape to landscape change arising from transport infrastructure upgrades.
- Analysis and description of the Project including construction methodology and timeline.
- Identification of the principle elements of the Project (effects generators) likely to result in landscape, natural character and visual effects.
- Identification of temporary (construction) vs permanent (operational) effects of the Project.
- Identification of general and targeted mitigation measures to respond to and reduce the magnitude of likely effects.
- Assessment of effects (adverse, neutral and/or positive) on the bio-physical aspects of the landscape resource, landscape character, natural character and visual amenity, taking account of the proposed mitigation measures.
- Summary of the overall landscape and visual effects of the Project and a determination of the significance of landscape effects.

4.3 Landscape Analysis

The landscape analysis that forms the basis for the assessment is derived from the following data collection and field work:

- Online data collection of aerial maps and AUP:OP/GIS overlays (including, but not limited to: SEA's, ONL's, ONF's, ONC, HNC and Land Cover Data Base, zones and catchments and hydrology);
- Desktop analysis of roading corridors, urban areas / future urban areas utilising Google Street View;
- Escorted specialist team visits to the Project Area; and
- Independent site visits to the Project Area to undertake on-site landscape and visual assessment and to undertake indicative public viewpoint photography.

4.4 Landscape Values

In the absence of any scheduled high value landscape areas (ONL, ONF, HNC and ONC) at a national, regional or district level within or adjacent to the Project Area, a summary is provided of local

values. Local values generally consider three broad categories including: geographic, perceptual and associative values.[8]

4.5 Landscape Sensitivity

The interface between the land and water (riparian, wetland and coastal margins) is particularly sensitive to landscape change and under Part 2 of the RMA (section 6(a)), these areas of the landscape should be protected from inappropriate subdivision, use and development.

Other landscape character building attributes may also be sensitive to the effects of landscape change such as topographical and landform features, vegetation (notable trees or patterns of contiguous land cover) and views afforded to notable landmarks and/or landscape features located either within the local landscape of the Project, or further afield within the contextual landscape.

4.6 Landscape Effects

Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced over time. This may in turn affect the perceived value ascribed to the landscape.

Landscape effects in this assessment relate to the following landscape attributes:

- Biophysical - Abiotic: Geophysical processes (Landform) and drainage patterns and processes.
- Biophysical – Biotic: Vegetation type (native / endemic and exotic vegetation) and vegetation cover and patterns (quality of vegetation and evident relationship to landform, climate, mature historic land use and ecological factors).
- Human attributes: Land uses / activities / buildings and structures and recreational areas.

Landscape and visual effects are assessed in two parts as outlined below; firstly, through the construction period where the bio-physical and human attributes the Project Area are required to be modified to implement the Project. Landscape and visual effects during the construction phase are generally considered to be temporary and dynamic in nature and may temporarily be heightened by the intervention of heavy machinery and the use of construction service areas. In the second part (operational phase), the overall significance and value of landscape and visual change is explored and ultimately the Project's impact on landscape character, natural character and visual amenity is assessed.

Temporary Effects (Construction Effects): Describes the anticipated impacts on the bio-physical elements and features of the landscape resource (landform, vegetation and hydrology) resulting from the construction of the Project. It also includes how these aspects translate into visual amenity effects for both public and private viewing audiences.

Permanent Effects (Operational Effects): Describes the completed works (including integrated landscape mitigation measures), the significance of physical landscape change and ultimately the

[8] Landscape Guideline: Appendix 1: NZTA Landscape and Visual Assessment Guidelines

resulting effects on landscape character, natural character and visual amenity for both public and private viewing audiences.

4.6.1 Natural Character Effects

Section 6(a) of the RMA requires the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers[9] and their margins, and the protection of them from inappropriate subdivision, use, and development. The natural character assessment for this Project applies to the existing wetlands and waterbodies associated with Trig Stream, outside of the coastal environment.

Assessing existing natural character is primarily concerned with the degree to which natural processes, natural patterns and natural elements have undergone human modification. Ecological survey and assessment for the Project Area generally underpin the landscape evaluation of existing natural character values.

4.7 Visual Effects

Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity. Visual effects are considered for both temporary (construction effects) and permanent effects (operational effects).

Potential effects considered in this assessment relate to the following visual amenity attributes:

- Visual quality and composition (legibility, coherence, setting, scenic quality)
- Visibility (extent of visibility to and from the Project Area)
- Views (viewing audience and views afforded to and from the Project Area)

The nature and magnitude of the visual effect can be influenced by a number of factors such as:

- The extent to which the Project Area is visible;
- Legibility and whether there are intervening elements in the landscape that restrict views towards the road corridor;
- Whether or not aspects of the Project appear 'at odds' with existing landscape character and composition;
- Distance between the viewer and the Project Area;
- The nature of the viewing audience, numbers and extent of the visual catchment.

4.7.1 Viewpoint Locations

For the purposes of this assessment, the visual effects of the Project have been assessed from 20 representative public vantage points and private boundary locations along the western perimeter of Trig

[9] A 'river' is defined in the RMA as a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse.

Road and either side of Hobsonville Road. Refer to Appendix 3: Landscape Plans and Images: Map 08.

All viewpoint locations were visited, photographed and assessed in variable-fine weather conditions between November 2019 and January 2020. The viewpoints have been photographed at standing eye level, in portrait view with a digital SLR camera with a 50mm (and 30mm) lens.

4.8 Change Management

Change management is the process of identifying ways and opportunities to ensure and enable sustainable landscape management within the existing and future landscape[10]. The Project has been through the SGA MCA route selection process during which landscape and visual effects were tested and any significant effects avoided or 'designed-out' of the Project in line with specialist landscape input at the time. On that basis, the landscape mitigation measures proposed below in Section 7 deal with the localised effects likely to result from the construction and operation of the Project.

Design refinements through the detailed design phase can further minimise potential landscape and visual effects. These opportunities are also outlined below in Section 7 of this report.

4.9 Limitations

All site assessments have been undertaken from public land and supported through desktop GIS mapping and aerial photograph information.

There are several crossovers with related specialities and this assessment relies on assessment findings from archaeology, ecology, stormwater and urban design. This report references the latest data available at the time of issue.

4.10 Project Assumptions

The findings of this landscape and visual assessment are underpinned by the following project assumptions: For the FUZ areas, it is likely that construction of the Project will occur ahead of, or in parallel to, the urbanisation of these areas. Therefore, the starting assumption is that the upgraded corridor will be constructed in the existing (or baseline) landscape and operate in an emerging urban environment. The Whenuapai 3 Precinct Plan is used to inform the general future urban environment in which the corridor will operate.

[10] Sustainable Landscape Management recognises and protects the distinctive, representative or typical attributes that define landscape character and values, through the process of integrated assessment, planning and design to meet the needs of both present and future generations. NZILA Best Practice Note, 10.1.

5 Receiving Environment

Chapter Summary

The Project is located between West Harbour and Whenuapai, just south of the Upper Harbour Motorway. The Project Area comprises a 1.8km long and 20m wide section of the existing Trig Road / Hobsonville Road corridor as well as adjacent land generally extending 40m either side of the existing corridor as illustrated in Appendix 3: Landscape Plans and Images: Maps 01 and 02.

Overall, the baseline landscape is characterised as follows:

- The land adjacent to the Project is largely rural in character, particularly along the eastern perimeter and northern extent of Trig Road where there are lifestyle blocks, agricultural activities and a grouping of plant nurseries. Along the south-western perimeter there is a greater presence of residential development and further towards Hobsonville Road, this is mixed with a range of commercial and retail development to form a residential neighbourhood character.
- Existing landscape elements and features within the Project Area and adjacent land exhibit a notable degree of modification from rural land use and residential activities. The overall vegetative framework consists largely of exotic shelterbelt and garden plantings and existing hydrological features are unfenced within the pastoral landscape of the FUZ.
- Further afield, the local setting, as a whole, can be described as a transitional landscape that exhibits an eclectic range of rural, residential and commercial activities located in close proximity of each other and this is clearly driven by the development and urban growth that is occurring within the greater contextual landscape.

The landscape analysis that follows describes the Project Area and the local landscape forming the contextual setting of the Project.

5.1 Approach to Receiving Environment

A key objective of the Supporting Growth Programme is to protect land now to ensure that the transport networks required to support growth areas in the future, around Auckland, can be provided in an efficient and co-ordinated manner. This Project supports the development of housing in the immediate vicinity of Trig Road and has funding to be constructed in the near future.

In the context of an RMA assessment process, considering the environment as it exists today will not be a true reflection of the real-world environment in which the transport corridor will operate. Accordingly, when considering the environment within which the effects of the construction and operation of the transport corridor are likely to occur, this assessment considers both the existing environment and the likely future environment for the Project Area.

The following outlines the key elements of the planning context for the Project:

- The existing corridor for Trig Road is approximately 20m wide and zoned ‘Road’ under the AUP:OP.
- The proposed designation will be wider than the existing corridor to provide for the construction and operation of a 24m wide transport corridor cross section, and additional space for construction activities and mitigation.
- Proposed Plan Change 5 (**PPC5**) to the AUP:OP was notified in September 2017 with the intent of re-zoning the Whenuapai Stage 1 area around Trig Road to Residential - Mixed Housing Urban Zone and Residential - Terrace Housing and Apartment Building Zone.

PPC5 zoning provides the future urban context in which the corridor is likely to operate. Table 4 sets out the direct likely future receiving environment of the Project based on PPC5 zoning provisions. This

rezoning signals a high probability of land use change over time from the currently mostly rural character of the area. This likely future receiving environment has been used to inform the assessment.

Table 3: Whenuapai – Trig Road Corridor Upgrade Receiving Environment

Whenuapai – Trig Road Corridor Upgrade receiving environment	
Residential – Mixed Housing Urban Zone	• 'Reasonably high-intensity zone enabling greater intensity of development than previously provided for'. • Development 'typically up to three storeys in a variety of sizes and forms including detached dwellings, terraced housing and low-rise apartments'.
Residential – Terraced Housing and Apartment Building Zone	• 'A high-intensity zone…providing for urban residential living in the form of terraced housing and apartments…with the greatest density, height and scale of development of all the residential zones'. • Buildings enabled up to five, six or seven storeys. • 'Predominantly located around metropolitan, town and local centre zones and the public transport network', also providing for a range of non-residential activities within an 'urban residential character'.

5.2 Baseline Landscape

5.2.1 Landform and Hydrology

The Project Area is elevated within the local setting with Hobsonville Road occupying a primary east-west trending ridge system and Trig Road traversing a secondary north-south trending ridge from the upper Trig / Hobsonville Road intersection down towards the lowlands surrounding Brigham Creek Road. Residential neighbourhoods to the south of Hobsonville Road occupy moderate-sloped terrain with a south-eastern aspect overlooking Henderson Creek and Waitemata Harbour further beyond. The spatial arrangement of these neighbourhoods is further defined by the upper tributaries of Waipareira and Manutewhau Streams.

The surrounding landform of Trig Road is undulating with higher terrain along the western perimeter of Trig Road. The land to the west (beyond the Project Area) is defined by the hydrological patterns associated with Totara Creek that drain north into Brigham Creek. Along the eastern perimeter of Trig Road, the landform is similarly defined by the hydrological patterns associated with Trig Stream in the north and Waiarohia Stream to the south, as identified through the AUP:OP GIS database. The land falls away steeply beyond the roadside at the upper two catchments of Trig Stream. Existing landform and hydrological patterns are illustrated in Appendix 3: Landscape Plans and Images: Map 02.

According to the specialist ecological report which has been prepared for the Project, an ephemeral stream located at the headwaters of the Waiarohia Stream intersects the Project Area at the northern end of the alignment. The stream catchment has been heavily modified and is assessed as exhibiting negligible ecological value. With regards to Trig Stream, the report describes the two tributaries as being consistent with wetland environments rather than streams and states that "*two degraded pasture wetlands were identified within the Project Area and were assessed to be of Moderate ecological value on the basis of their existing functionality and because wetlands are a threatened*

ecosystem type within the Auckland region".[11] The spatial extent, vegetation types and condition of the wetlands is described in section 6.2.1.2 of the ecological report. Figure 2 below depicts the location of wetland 1 (**W1**) and wetland 2 (**W2**).

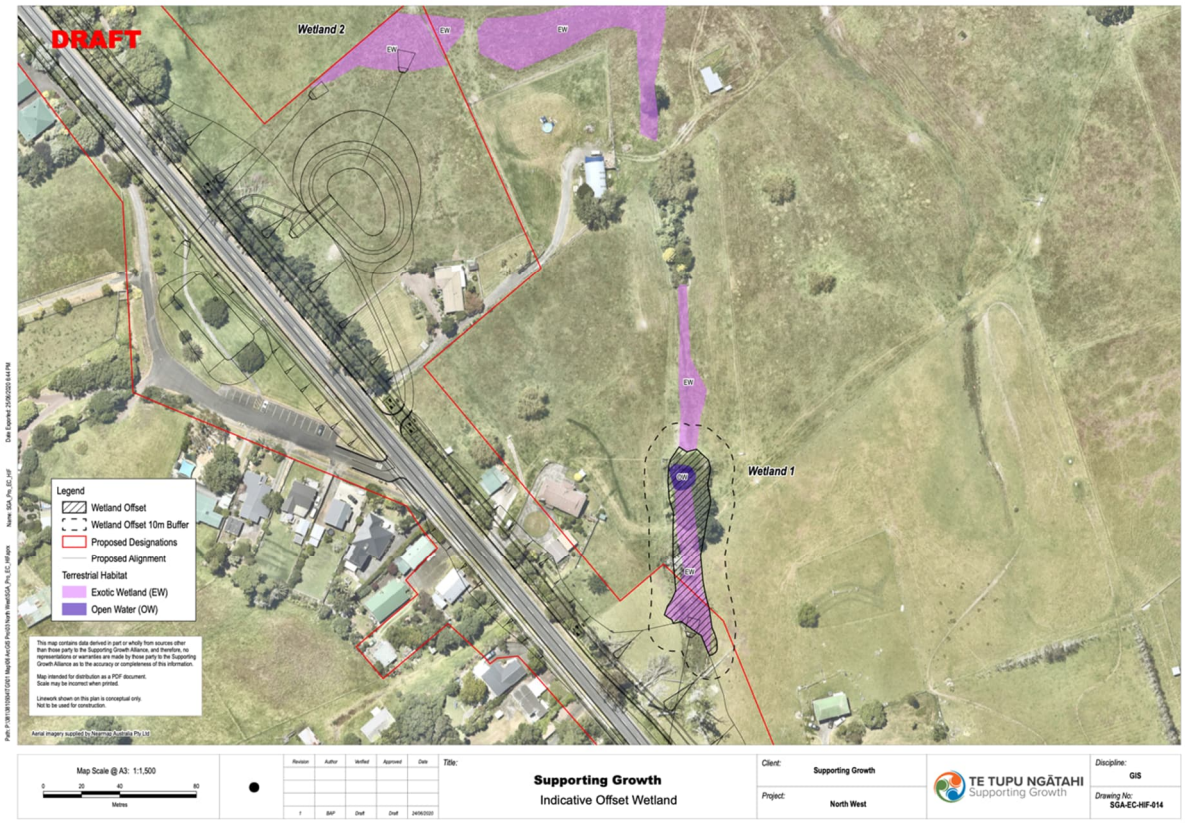


Figure 2: Location of W1 and W2 and proposed ecological offset planting

Overall, the natural hydrological features within the Project Area and adjacent land have been notably modified as a consequence of the rural land use, including un-fenced stock access to riparian margins and directly through lower-order systems, stream culverting, plus the creation of irrigation and ornamental on-line ponds[12].

[11] NW HIF Trig Road Final Draft Ecology Impact Assessment Rev 5, June 2020.

[12] Plan Change 5 Whenuapai 3 Precinct Stormwater Management Plan 2017.

Figure 3: View north from 12 Trig Road into W1

Figure 4: View south-east from 38 Trig Road into W2 and location of proposed dry pond

5.2.2 Land Cover

The vegetative framework of the Project Area is generally dominated by grazed exotic grassland, private domestic gardens (including some native and exotic specimen trees), native and exotic trees within the road reserve and shelterbelt planting (mainly *Pinus radiata)*.

Trees within the road reserve comprise a mix of mature and semi-mature native and exotic shrubs and trees. It is understood through initial arboricultural investigations of the Project Area, that many of the larger trees along Trig Road are coming to the end of their safe and useful life expectancy, with several trees in decline. No significant or high-value trees were identified during early arboricultural investigations. However, it is noted that a mature pūriri (*Vitex lucens*) is situated within the private property of 4 Trig Road.

Indigenous terrestrial habitat is very limited throughout the Project Area, which according to the specialist ecological report would historically have comprised forest species such as: pūriri (*Vitex lucens*), tōtara (*Podocarpus totara*), mataī (*Prumnopitys taxifolia*), kahikatea (*Dacrycarpus dacrydioides*) and tītoki (*Alectryon excelsus* subsp. *excelsus*), kōwhai (*Sophora* sp.) and taraire (*Beilschmiedia tarairi*).[13]

Extensive indigenous revegetation plantings are present to the north of the Project Area along the cut and fill slopes of SH16 and SH18. These relatively recent plantings intersect with sections of Totara Creek and Pikau Stream to the northwest and Trig and Waiarohia Stream to the east and contribute to the biodiversity of the local landscape.

Figure 5: View north-west from 20 Trig Road illustrating typical vegetation cover

5.2.3 Land Use

Land use within and proximate to the Project Area is dominated by agricultural activities and rural lifestyle living, with residential and some commercial activity concentrated along the southern and northwest perimeter of Hobsonville Road and the southwest perimeter of Trig Road.

Hobsonville Road demarcates the existing transition between residential land use to the south and rural activities to the north, with Trig Road attracting a continuation of residential (single detached housing development) along the south-western section.

A mix of commercial, retail and residential development exists along the Project extent of Hobsonville Road and at the Luckens Road intersection. This includes local services to support the residential catchment such as a vet clinic, early learning centre, church, dental clinic, construction companies, cattery, real-estate companies and Te Piringatahi Marae. Hobsonville Kindergarten is located adjacent to Trig Road Reserve (described below). SH16 separates the Project Area from intensive commercial development at Westgate.

Several open space areas exist within the local setting of the Project Area including Hilda Griffin Reserve, which is accessible from Hobsonville Road and connects to Midgley Park to the south through Louise Place. Another unnamed open space area is located to the north of the Project Area

[13] NW HIF Trig Road Final Draft Ecology Impact Assessment Rev 05 (section 6.1.1.1).

within the road reserve between Trig Road and Ryans Road. The land is elevated and located opposite an area of land at 34A Ryans Road zoned Open Space – Informal Recreation. For the purposes of this assessment, the unnamed reserve is referred to as Trig Road Reserve.

A Watercare pump station and WIFI antennae are co-located together at the corner of Trig and Hobsonville Road. It appears that native and exotic vegetation has been planted along the road boundary to provide visual screening for those features.

5.2.4 Historical and Cultural Associations

A specialist archaeological assessment has been undertaken for the Project Area and local landscape. The report outlines in section 7 that, "*The Project Area is located inland some distance from the coast, where most Maori archaeological sites have been recorded. The nearest archaeological sites relating to Maori settlement are over 1.5km to the west along the coast and c.1km to the south along the Manutewhau inlet and stream. Evidence of early European occupation at Whenuapai is relatively sparse and associated with a few key settler families, and no sites of this period are recorded in the near vicinity of the Project Area*"[14].

5.2.5 Future Receiving Landscape

The Trig Road Project runs adjacent to land that is currently zoned FUZ and 'Residential – Mixed Housing Urban' under the AUP:OP. The adjacent land is proposed to be rezoned to Residential – Mixed Housing Urban Zone and Residential – Terrace Housing and Apartment Building Zone under PPC5. On that basis, there is a general focus on assessing the potential landscape and visual amenity effects associated with the construction and operation of the transport corridor on the Future Receiving Landscape (**FRL**).

Notwithstanding the above, there are some complexities in the planning context and Project timeline that signal the need to also address the potential landscape and visual amenity effects of the arterial upgrade on the Baseline Landscape. The reasons are as follows:

- PPC5 is still progressing through the plan change process and there is currently no timing on a Council decision; at this stage it is understood the proposed zoning has no legal effect;
- Funding is available now for the Project and construction is anticipated to occur in the short-medium term. This means that construction and operation of the arterial upgrade is likely to occur inside the context of the existing Baseline Landscape. This is anticipated to bring about heightened visual amenity effects in the short term, particularly for existing properties located along the western perimeter of Trig Road who currently experience a largely rural outlook to the northeast over the FUZ land.

[14] NW HIF NoR Whenuapai Trig Road Archaeological Assessment, July 2020.

On the basis of the above, there are two subtly different scenarios to consider as part of this landscape and visual effects assessment:

- The Project is undertaken ahead of urban development occurring in the FUZ land, with construction commencing in the short term. On that basis, the changes to the AUP zones are seen as a mitigating factor over time, since urban development is anticipated by the policy framework, (i.e. an urban road within a transitional rural to urban environment).
- Urban development in the FUZ land and the Project occur concurrently. On that basis, urban development both existing and occurring on adjacent land are seen as a mitigating factor during the construction of the Project (i.e. an urban road upgrade within an existing or developing urban environment).

The following sections outline the analysis of PPC5 and non-statutory guidance documents pertaining to the future development of land within and adjacent to the Project Area. The analysis of the future receiving landscape is an important step in understanding whether the proposed features of the Project will integrate with the future development (specifically aspects relating to landscape character and amenity), as set out in the following guidance literature.

5.2.6 Proposed Plan Change 5

PPC5 was notified in September 2017 to rezone the Whenuapai Stage 1 area, which includes the Project Area. The Plan Change, along with the underlying FUZ, signals a high probability of land use change over time in and around the Project and provides the future urban context in which the upgraded Trig Road corridor will operate.

Existing open space areas are not expected to change from a land use perspective and the open space – informal recreation zone at 34A Trig Road will remain in place.

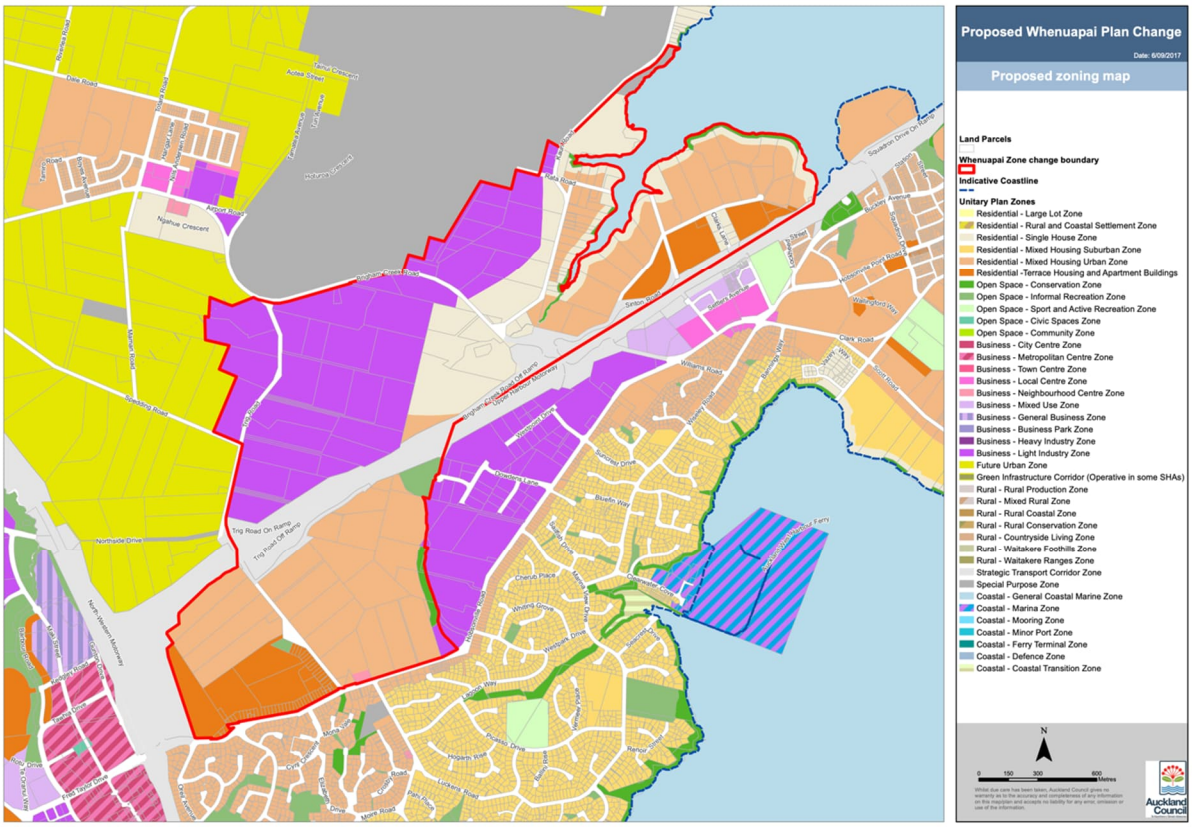


Figure 6: Proposed Whenuapai Plan Change Zones

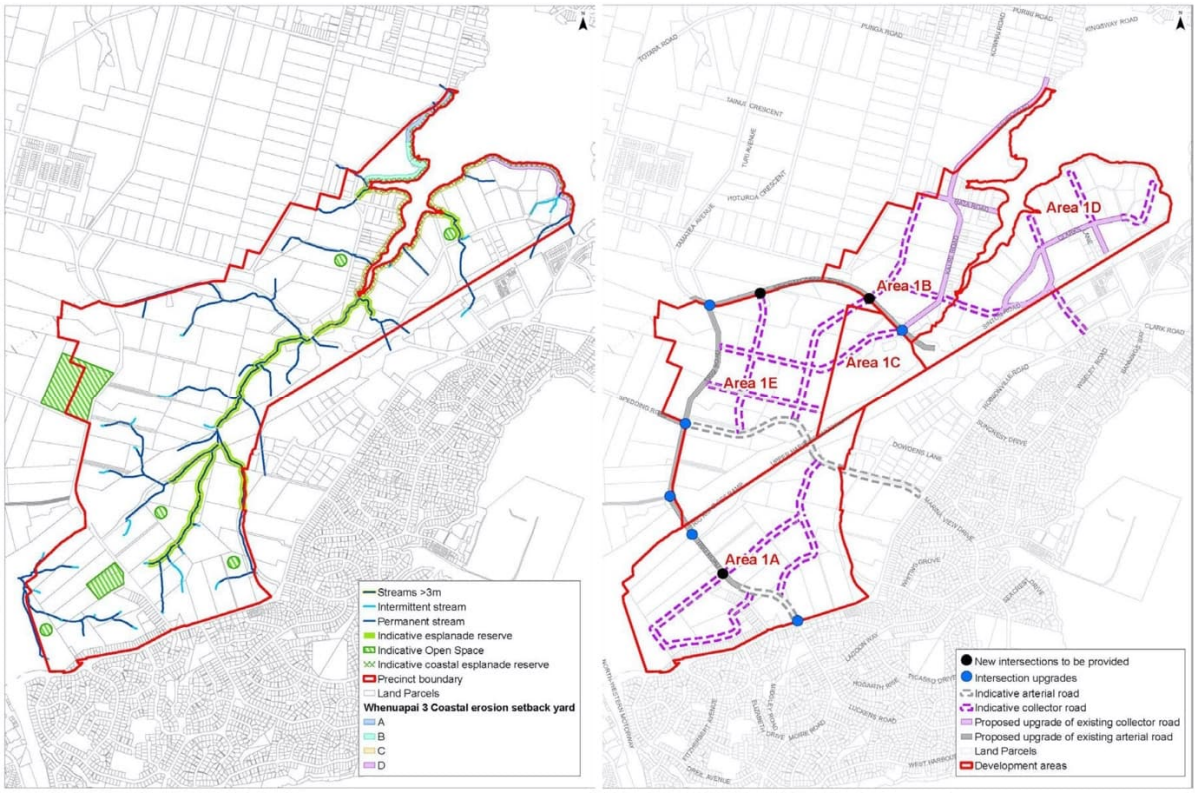


Figure 7: Whenuapai 3 Precinct Plans 1 (left) and 2 (right)

The Whenuapai 3 Precinct Plans illustrate an indicative development structure and landscape framework that includes:

- Open space nodes, esplanade reserves and coastal esplanade reserves;
- The permanent and intermittent stream network, including streams wider than three metres;
- Indicative new roads and intersections (including a modified version of the Trig Road corridor);
- Proposed upgrades to existing roads and intersections; and
- Development areas for transport infrastructure.

With regards to the future landscape framework of land adjacent to the Project Area, PPC5 indicates an interconnected pattern of public open space, esplanade reserves and walking and cycling connections. Esplanade corridors follow existing hydrological patterns of the landscape which are assumed to be enhanced through future subdivision and development, in accordance with policies E.3.3 (section E3 Lakes, rivers, streams and wetlands) of the AUP:OP. PPC5 will also give effect to the Whenuapai Stormwater Management Plan (**SMP**) recommendations and the North-West Wildlink[15] through riparian planting[16].

The Whenuapai SMP outlines stormwater management requirements as they relate to the W3P sub-catchment in which the Project is situated. It promotes best practice sustainable urban development and offers helpful guidance around how existing watercourses are likely to be managed through development.

The report states - "*While urbanisation of W3P has the potential to give rise to, or exacerbate, the adverse effects identified above, the change in land use also offers significant opportunities to enhance the currently degraded environments through appropriately designed and managed subdivision and development. The AUP (OP) recognises the opportunity that greenfield development planning presents to identify and implement enhancement opportunities, in addition to minimising new adverse effects. As discussed below, objectives and policies of the plan, particularly in E1, seek an integrated stormwater management approach and the progressive reduction in existing adverse effects on/enhancement of degraded freshwater and coastal systems*"[17].

On the basis of the above, general assumptions can be made about the likely future landscape character of the local landscape surrounding the Project Area. This is important as it enables a general evaluation of the likely sensitivity of that landscape to the effects of the Project. It also provides the opportunity to link the proposed mitigation measures of the Project in with the landscape values that have been identified in the PPC5 Precinct plans. This is likely to achieve greater coherence and visual cohesion between the Project Area and adjacent land.

[15] The North-West Wildlink is a Forest and Bird initiative that provides a wildlife corridor from the Waitakere Ranges to the Hauraki Gulf.

[16] Proposed Plan Change 5, Whenuapai, September 2017. 1616.1 Precinct Description. 1616.2. Objectives. 1616.3. Policies.

[17] Plan Change 5 Whenuapai 3 Precinct Stormwater Management Plan 2017.

The assumptions for the FRL include:

- Considerable shift from rural character to mixed residential.
- Trig Stream (now assessed as wetlands in the upper catchment) and its main tributaries are likely to be enhanced through revegetation strategies and become an esplanade reserve.
- The landform immediately surrounding Trig Stream and its tributaries is unlikely to change.
- For landform within the balance areas of the site, zoned Residential – Mixed Housing Urban Zone and Residential – Terrace Housing and Apartment Buildings, assume a high degree of physical change through earthworks and platforms for local roads and housing.
- Small increase in neighbourhood based commercial activities along Hobsonville Road between Trig Road and Luckens Road.
- Indicative collector roads (as indicated on Precinct Plan 2) are proposed to generally follow existing contours which will maintain overarching landform structure.
- Existing shelter belt planting likely to be removed.
- Trig Road Reserve likely to remain an important open space node and is located proximate to a large open space area indicated on Precinct Plan 1.
- New intersection indicated at Trig Road and indicative collector road intersections.
- Potential for cycle and pedestrian linkages to wider landscape.

5.2.7 Viewing Context

The key landscape characteristics of the viewing context are outlined below:

- The Project Area occupies an elevated ridgeline system that is reasonably prominent within the local viewing catchment.
- Existing views into the road corridor from private dwellings along the southern and northwest perimeter of Hobsonville Road are direct and in close range with private boundary fences and planting providing a ‘visual buffer’ between the road corridor and private space. Future development (if it does occur) within this Mixed Housing Urban Zone is expected to maintain existing proximity to the road corridor.
- Land adjacent to the east of Trig Road slopes away from the road corridor and enjoys a northerly aspect. There are few existing dwellings on this side of the Project Area and it’s likely that future development will take advantage of the north facing slopes and generally orientate buildings away from the elevated Trig Road corridor.
- Conversely, along the western perimeter of Trig Road, where views from existing dwellings are direct and in close range; future development within the FUZ land is expected to maintain proximity to the road corridor and therefore direct views towards it.
- In general, residents of existing dwellings are likely to experience the visual effects of landscape change during the construction and finishing phases of the Project as well as long term visual change within the operational phase of the Project. The latter taking place within the context of wider changes occurring in the landscape as indicated by PPC5.

5.2.8 Landscape Values

There are no regionally or nationally significant landscapes (ONLs, ONFs or ONCs) within or proximate to the proposed designation boundary.

Some of the elevated sections of Hobsonville and Trig Road afford unimpeded views to the northeast over the undulating landform with a northerly aspect. This landscape pattern and visual composition contributes to the general pleasantness of views afforded from the existing road corridor. Elevated views or viewshafts from Trig Road are likely to remain through the urban development of adjacent land because of the elevated position of Trig Road.

Existing hydrological patterns associated with Rawiri, Trig and Waiaroho Streams also contribute to the local landscape values of the Project Area and local setting. They represent natural character forming features that with adequate landscape management (as indicated by PPC5 to the AUP:OP), are likely to endure land development and deliver landscape amenity and natural character values within the future urban landscape. These values are identified (in part) in the PPC5 Precinct Plan 1.

There are a number of reserves within the Project Area that not only provide opportunities for active and passive recreation, but also provide alternative pedestrian and cycle connectivity away from the roading network. These include Midgley Park to the south – connected to Te Piringatahi Marae, Fitzherbert Reserve further to the south and Trig Road Reserve located opposite Hobsonville Kindergarten. Trig Road Reserve is proximate to future proposed large open space node as indicated on Precinct Plan 1.

5.2.9 Landscape Sensitivity

The existing Hobsonville and Trig Road corridors are generally considered to have low sensitivity to the type and extent of landscape and visual change proposed through the Project. This is primarily based on the combination of the following factors:

- The Project utilises existing infrastructure and there is no significant change in land use;
- Existing land cover is of low botanical value (refer ecological report);
- The existing wetlands within and adjacent to the Project Area have been notably modified by rural land use and exhibit low natural character;
- The AUP:OP indicates future urban development adjacent to the Project Area and on that basis, there is no guidance for maintaining the existing remaining rural character values of the Project Area.

The level of sensitivity for some existing private landowners along the western perimeter of Trig Road and on both sides of Hobsonville Road is considered to be heightened due to their proximity to and/or position within the Project Area.

6 Assessment of Landscape and Visual Effects

Chapter Summary

This section identifies the principle elements of the Project that have the potential to impact on landscape as a physical resource and ultimately change the landscape character, natural character and visual amenity of the Project Area and local landscape.

Landscape and visual effects are assessed in two parts as outlined below; firstly through the construction period where the bio-physical and human attributes of the Project Area are required to be modified in order to implement the Project. Landscape and visual effects during the construction phase are generally considered to be temporary and dynamic in nature and may temporarily be heightened by the intervention of heavy machinery and the use of construction service areas. In the second part (operational phase), the significance and value of landscape and visual change is explored and ultimately the Project's impact on landscape character, natural character and visual amenity is assessed.

Temporary Effects (Construction Effects): Describes the anticipated impacts on the bio-physical elements and features of the landscape resource (landform, vegetation and hydrology) resulting from the construction of the Project. It also includes how these aspects translate into visual amenity effects for both public and private viewing audiences.

Permanent Effects (Operational Effects): Describes the completed works (including integrated landscape mitigation measures), the significance of physical landscape change and ultimately the resulting effects on landscape character, natural character and visual amenity for both public and private viewing audiences.

6.1 Assessment of Construction Effects

6.1.1 Demolition and Earthworks

Temporary adverse landscape effects will result from the earthworks required to implement the principle elements of the Project, which will include:

- Re-profiling of the existing road surface and adjacent land within the Project Area to accommodate corridor widening and transport features, resulting in cut and fill slopes of varying scales;
- Clearance and/or disturbance of broad areas of existing road-side vegetation within the Project Area;
- Implementation of new stormwater features; and
- Modification of the W1 environment.

The proposed cut and fill slopes range in scale within the Project Area. Very small to moderate scale cut and fill slopes are proposed along Luckens Road and Hobsonville Road and are able to be integrated into the adjacent modified road corridor. The larger, more expansive fill slopes are proposed along the eastern perimeter of Trig Road into an open pastoral landscape, therefore the scale of these fill slopes is able to be integrated into the receiving landform with care taken to form a natural slope profile (refer to section 6.2).

One of the larger fill slopes along Trig Road (CH 160) is proposed to cover part of the existing W1. An upgraded culvert is proposed beneath the fill slope with an outlet into the remaining wetland environment. Approximately 0.10ha of ecological offset restoration planting is proposed within the remaining areas of W1 as shown on Figure 2, above. From a landscape perspective, it is recommended that localised mitigation planting is undertaken at the culvert outlet (within the

proposed designation boundary) to ameliorate physical landscape effects and to integrate the new culvert wingwalls into the proposed wetland restoration planting.

Stormwater features are proposed within the Project Area and include replacement of existing stormwater culverts into the edge of W2 and new features including a rain garden and attenuation pond (CH 1560), a bioretention rain garden and dry pond (CH 320 – 440) and several stepped bioretention raingardens located within the berm of the Trig Road corridor that feed into the dry pond. The bioretention ponds and dry pond will require earthworks to re-shape the land to achieve optimal depths and edge profiles, while the stepped bioretention rain gardens will be formed as part of the hard works within the road corridor.

As mentioned above, existing culverts are proposed to be replaced with outlets into the southern extent of existing W2. This will result in a like for like situation, within a heavily modified environment that is also in the general vicinity of a proposed collector road (Precinct Plan 2). Given that this area of land is subject to future external design detail, landscape mitigation is not recommended on these culvert wingwalls at this point in time.

In all cases, the stormwater features are proposed within open pastoral or grassed areas, within land that is already modified by rural land use or the existing road corridor. On that basis, the physical landscape effects required to implement the stormwater features is considered to be low.

Private residential and commercial properties adjacent to the road corridor (either partially or fully designated) will be impacted by the Project in the following ways:

- Surface level changes between private property boundaries and the upgraded road corridor, requiring existing driveways and private accessways to be regraded;
- Encroachment into private yard areas and the removal of private garden plantings, mature trees, ancillary buildings and boundary fences;
- Construction of noise mitigation walls and retaining walls;
- Demolition of existing dwellings and ancillary buildings (required properties 72C Hobsonville Road and 19 Trig Road).

For partially affected properties, where existing dwellings are assumed to remain, it is recommended that boundary fences and garden plantings (removed through the Project works) be reinstated on completion of the works affecting the property. Noise mitigation walls and/or retaining walls (if proposed) are recommended to integrate with private boundary fencing reinstatement (i.e. to avoid double layering of noise walls and boundary fences). It is also recommended that retaining walls and/or noise walls incorporate any reinstatement planting required to replace vegetation lost through the Project works (if practicable).

For affected private properties, where existing dwellings are assumed to be removed, it is recommended that, after completion of the works affecting the property, the remnant land be grassed and maintained within the road corridor to mitigate adverse visual amenity effects potentially arising from residual land.

Overall, the physical landscape effects resulting from earthworks within the Project Area is assessed as **low,** with the proposed mitigation measures included in the Project works.

Physical landscape effects resulting from earthworks on private properties is assessed as **low-moderate,** with the proposed mitigation measures included in the Project works.

6.1.1.1 Construction Work Areas

The Project will require site facilities and services to support the construction of the upgraded corridor. Two indicative construction laydown areas are proposed within the designation boundary. These areas are illustrated in Appendix 3: Landscape Plans and Maps: 03-07 and are proposed to be reinstated at the completion of the Project works.

The first laydown area is proposed on private land at 80 Hobsonville Road. The site consists of a grazed paddock and no native vegetation. This will provide an area of approximately 1,500m2, providing space for site offices, parking and manoeuvring, stockpiling and equipment storage.

A second facility is proposed at the northern end of the Project at 19 Trig Road. The construction area is proposed to be divided into two areas (1000m2 each), separated by the ephemeral stream (stream 1 as per the ecological assessment), which bisects the site. The stream is highly modified and surrounded by pastoral grass. The construction area will provide space for site offices, parking and manoeuvring, stockpiling and equipment storage.

The proposed designation boundary includes the areas required to construct the Project, providing space for manoeuvring, setup and temporary storage of construction plant and to establish construction management measures. Larger construction buffer areas are proposed around wetlands and stream crossings to allow for construction works to be undertaken around sensitive natural features within the Project Area.

Overall, the physical landscape effects resulting from establishment and use of the construction work areas within the Project Area is assessed as **low,** with the proposed mitigation measures included in the Project works.

6.1.1.2 Vegetation Clearance

Broad areas of street-side vegetation and private garden plantings are required to be removed as a result of the proposed earthworks. As outlined in Appendix 1: Detailed Assessment of Project Works, exotic grassland, private garden plantings, hedgerows, shelterbelts (mainly *Pinus radiata)* and native and exotic trees make up the majority of vegetation to be removed.

Existing private garden plantings, although consisting mostly of exotic species, are considered to contribute to the residential street character and provide residential amenity and privacy for residents fronting the road corridor. On that basis, it is proposed to reinstate private garden plantings where there has been disturbance or removal through the Project works (refer to section 6.1.1 above).

It is also proposed to reinstate the existing screen planting for the Watercare pump station site along the southern and western boundary (CH 60), within the residual land following the realignment of Trig Road.

It is recommended (for consideration through detailed design) that the mature Puriri (*Vitex lucens*) tree, located at 4 Trig Road be retained and accommodated if practicable through the refined design of the footpath and cycleway through this section of the Project.

New street tree plantings along the entire length of the proposed alignment will mitigate for the loss of individual or small groupings of existing native trees and shrubs, as outlined in Appendix 1: Detailed Assessment of Project Works. This is also expected to reduce the impact of the scale of landscape change associated with the clearance of existing shelterbelt and hedgerow planting.

Overall, the physical landscape effects resulting from vegetation clearance within the Project Area are assessed as **low,** with the proposed mitigation measures included in the Project works.

6.1.2 Effects on Visual Amenity

The total construction phase of the Project is anticipated to last 16-18 months and the Project works are indicatively proposed in 3 stages. On that basis, visual effects will occur progressively through the road corridor through zones 1 to 3.

The consideration of visual effects through the construction phase acknowledges the full range of activities required to implement the upgraded road corridor. This includes site enabling works (site establishment, demolition and vegetation clearance), bulk earthworks and surface formation, bridge reconfiguration and also the 'finishing works' period where it is anticipated that street trees, lighting, footpath/cycleway details and line marking will be implemented, alongside any other urban design and landscape features of the Project.

It is anticipated that construction activities required to implement the Project will be generally consistent in nature and scale to road works and infrastructure activities commonly anticipated by transient viewing audiences within a main arterial corridor. Another important consideration is that landscape change by way of vegetation removal and land modification forms part of the expected backdrop of the rural environment, particularly one that is expected to transition, over time, into an urban neighbourhood.

Notwithstanding the above, some vantage points within the Project Area are likely to witness heightened adverse visual effects through the construction phase. These areas are outlined below:

- Private properties where physical landscape effects will occur along roadside boundaries.
- CH 1140 – 1260 (southern side of Hobsonville Road) where existing dwellings are to be removed.
- CH 1260 – 1320 (Trig / Hobsonville Road intersection) where existing dwellings are to be removed.
- CH 1660 (80 Hobsonville Road) where a laydown area is proposed.
- CH 100 – 180 at the location of W1 and the large fill batter.
- CH 320 – 460 at the location of the proposed bioretention rain garden and dry pond.
- CH 580 – 680 (19 Trig Road) where the construction area is proposed.

The nature and significance of the potential adverse visual effects during the construction phase is considered to be moderated through the Project Area because of the following aspects:

- Road works and construction activities can generally be expected to occur within arterial roads;

- The Trig Road carriageway is already a dominant element within the visual composition of Project Area;
- The existing road corridor landscape has already been modified by previous works required to shape the existing road corridor.
- The construction phase is expected to last no longer than 18 months and is proposed to be implemented in 3 stages. Therefore, adverse visual effects can be seen to be temporary in nature.

Representative viewpoint images are provided in Appendix 3. Landscape Plans and Images. The supporting commentary (Appendix 2. Public Viewpoint Assessment) outlines the existing visual composition for each location as well as the landscape change that is anticipated to occur that might translate into adverse visual effects during the construction period.

Overall, adverse visual effects for the transient public viewing audience are likely to be **moderate-low** through the construction phase**,** taking into account those areas listed above where adverse effects are likely to be heightened during the temporary construction period.

Adverse visual effects during the construction phase are likely to be heightened for the private viewing audience directly adjacent to the road corridor on the basis of more frequent and prolonged engagement with the construction activities of the Project. On that basis, visual effects are likely to be **moderate** during the construction phase for private viewing audiences. As above, this corresponds with the presence of heavy machinery and the visible disturbance of both the road corridor and individual private interface with the road.

6.2 Operational Effects

6.2.1 Effects on Landscape Character

The principle elements of the Project will permanently alter the character of the Project Area. While the existing roading corridor along Hobsonville Road is residential, the existing corridor of Trig Road is distinctively rural in character owing to the limited streetscape features, unstructured hedgerow and shelterbelt planting and the existing rural land use adjacent on both sides of the corridor (with the exception of the southwestern extent). At the completion of the Project, the upgraded corridor will resemble that of an urban arterial on account of the additional vehicle lanes, active modes of transport, reduced speed limit, structured street tree plantings, integrated stormwater management and an increased visual amenity within the road corridor itself.

The Project is anticipated to enter its operational phase within the context of increased urbanisation within adjacent FUZ land either side of Trig Road. As outlined earlier, PPC5 indicates an interconnected pattern of public open space, esplanade reserves and walking and cycling connections through an urban neighbourhood consisting mainly of Residential – Mixed Housing Urban Zone and some Residential – Terrace Housing and Apartment Building Zone to the southwest of Trig Road and the northwest of Hobsonville Road. A Neighbourhood Centre Zone is proposed to the east of the Trig / Hobsonville Road intersection. On that basis, the magnitude and nature of change to existing landscape character within the Project Area is considered to accord with that which will occur throughout the localised landscape.

In assessing the landscape character effects of a roading Project within a future urban environment, there is an overlap with urban design considerations. This is expressed through the consideration of

urban amenity, neighbourhood character and sense of place. Integration of stormwater features and associated fill slopes is an important factor in maintaining neighbourhood character and a sense of landscape cohesion within the permanent works.

All cut and fill slopes are recommended to be shaped to a natural slope to integrate with the surrounding landform, as outlined in Section 7.1.1. These areas are to be reinstated with grass, with the exception of specific areas within the Project where it is proposed (for mitigation purposes) to reinstate private garden plantings and native vegetation that has been cleared through the Project works. Refer to Appendix 3: Landscape Plans and Images: Maps 03-07 for further detail.

For the larger fill slopes (that are to be retained as part of the road corridor) above W1 and the proposed dry pond (CH 100-180 and CH 320-430 respectively), it is recommended that they be planted in low maintenance native shrubs. Native planting will assist with integrating these residual fill slopes into the ecological wetland planting and the proposed dry pond so that such features read as cohesive landscape elements and contribute positively to the visual amenity of the road reserve. It is noted that a future collector road is indicated to align to the northern extent of the proposed dry pond; therefore, native planting within the fill slope should not extend north of CH430, as stated above.

Two bioretention raingardens and one dry pond are proposed within the Project Area along with a series of raingardens (approximately 20m long) located within the berm of the new Trig Road corridor. Stormwater wetlands form part of the 'landscape aesthetic'. Constructed wetlands with shallow and vegetated edges will integrate as a perceived natural feature more so than deep ponds that are required to be fenced. On that basis, it is recommended that the stormwater features be planted with appropriate (low maintenance native species) and integrated into the surrounding urban landscape context, so that they provide a hydrological and ecological function and are safe places to visit. Given the future urban location and scale of the proposed features, it is important that they enhance the landscape and visual amenity of the local landscape. Planting proposed at the culvert headwalls within W1 will assist with integrating this feature into the landscape.

The land surrounding the bioretention rain garden and dry pond at CH 380 is likely to form an important part of the future open space network spanning across the Project Area from east to west between the FUZ land. PPC5 indicates an informal recreational zone adjacent to the proposed bioretention rain garden at 34A Trig Road. It also indicates a large open space area directly north and an esplanade reserve associated with W2 (Trig Stream) on Precinct Plan 1. Precinct Plan 2 indicates a collector road travelling east to west across the corridor at approx. CH 500.

On the basis of the above, it is suggested (as a future detailed design consideration) that the fill slopes (CH 320-430), culvert and stormwater features be designed as a cohesive landscape feature to be coordinated with the local road design (if practicable). An integrated design for this area of the Project is likely to enhance landscape amenity and natural character values within the Project Area over time.

The overall scale of vegetation clearance proposed to implement the Project is notable and is likely to contribute the greatest shift in the existing character of the landscape. As outlined in Appendix 1. Detailed Assessment of Project Works, exotic shelter belt plantings, hedgerows and private gardens make up the majority of vegetation to be removed alongside stand alone, or small groupings (2-3) of young and mature native trees. Existing shelterbelt and hedgerow plantings associated with rural land use have been established through ecological assessment to be of low botanical value. New street tree

plantings along the length of the Trig and Hobsonville corridors, along with indigenous planting within the stormwater features will assist with moderating the shift from rural to urban landscape character.

Overall, adverse landscape character effects are assessed as **low,** with the proposed mitigation measures included in the Project works.

6.2.2 Effects on Natural Character

The natural attributes of the wetlands are discussed in the ecological assessment at section 6.2.1.2 and are summarised as being moderately to largely modified with some residual function including erosion control and water purification. The wetlands are not currently fenced within their rural setting and stock are afforded access through the wetland environments. The landform is natural at the edges of the feature and expressive of a wetland environment however typical indigenous wetland plant species are absent and notable weed infestations are present.

Ecological impact management for the partial loss of habitat within W1 is proposed by the Project ecologists and this will involve enhancement planting of the remainder of W1. The proposed ecological mitigation is anticipated to improve natural character values within the Project Area over time.

Overall, the existing natural character value of W1 is assessed as low and the effects of the Project on that value are assessed as **very low** taking account of the positive impacts associated with the offset planting.

6.2.3 Effects on Visual Amenity

Once the Project is completed, transient and private viewing audiences will continue to engage with a similar visual environment to which currently exists, within the backdrop of an increasingly urban local context. Improved journey experience for users in vehicles and active modes of transport will be evident.

Visual effects of the Project are anticipated to move from very low to positive (beneficial) over time as the proposed mitigation measures mature and start to impact positively on the user experience of the road corridor.

Nevertheless, low residual adverse visual effects are anticipated for private properties that have experienced a material change to the visual composition of the private / streetscape interface and where the upgraded road corridor might appear as a more dominant feature in views overlooking Hobsonville and Trig Road. Residual adverse effects are anticipated to reduce over an extended period of time.

Overall, adverse visual effects within the Project Area are likely to be **very low** for transient viewers through the operational phase of the Project. For the private viewing audience, the visual effects are likely to be **low** reducing to **very low** over an extended period of time.

6.3 Summary of Landscape and Visual Effects

This landscape, natural character and visual assessment finds that the proposed features and scale of the Project are able to be integrated into the existing landscape, with landscape mitigation measures

forming part of the Project. Natural character and amenity values are likely to be enhanced (over time) as a result of the Project.

FUZ development areas on adjacent land will over time substantially change the scale and character of the adjacent landscape as experienced from within the road and absorb the landscape and visual changes proposed within the Project Area.

As outlined earlier under the baseline landscape analysis, there are no regionally or nationally significant landscapes (ONLs, ONFs or ONCs) within or proximate to the Project Area and localised effects on the sensitive features of the landscape are able to be managed through the proposed mitigation measures.

7 Mitigation

Chapter Summary

A number of landscape mitigation measures are proposed alongside the Project works to assist with integrating the Project into the landscape. The proposed landscape mitigation measures underpin the overall magnitude of landscape character, natural character and visual effects that have been assessed for the Project.

Further suggestions are provided for consideration during detailed design. These recommendations do not contribute to the assessment of effects, however if included within the Urban Design and Landscape Management Plan (**UDLMP**) and ultimately implemented through the Project they are likely to enhance the landscape, natural character and visual amenity outcomes of the Project.

7.1 Landscape Mitigation Measures

The matters outlined below address the temporary construction and permanent operational landscape and visual effects of the Project. An UDLMP is recommended as a condition on the designation including the matters outlined below.

a. All cut and fill slopes to be shaped to a natural profile to integrate into the surrounding natural landform. Avoid benching and geometric angles. Reinstate with grass, except areas identified on the landscape mitigation plan where it is proposed (for mitigation purposes) to reinstate private garden plantings and native vegetation that has been cleared through the Project works. Refer to Bridging the Gap: NZTA Urban Design Guidelines (2013), Section 4.14 Earthworks.

b. The larger fill slopes (that are to be retained as part of the road corridor) above W1 and the proposed dry pond (CH 100-180 and CH 320-430 respectively) to be planted in low maintenance native shrubs. Native planting will assist with integrating these residual fill slopes into the ecological wetland planting (W1) and the proposed dry pond so that such features read as cohesive landscape elements and contribute positively to the visual amenity of road reserve.

c. Implement localised native planting at the culvert outlet into W1 to ameliorate physical landscape effects and to integrate the new culvert wingwalls into the ecological wetland offset planting (W1).

d. Reinstate private fences and garden plantings (with the exception of required properties 72C Hobsonville Road and 19 Trig Road) for existing, remaining dwellings affected by Project works along Hobsonville Road and Trig Road.

e. Design retaining walls and noise mitigation walls to integrate with private boundary fencing (i.e. avoid double layering of noise walls and boundary fences). Incorporate existing and reinstatement planting into retaining walls and noise walls. Do this in a way that minimises visual amenity effects on residents while integrating with the layout and design of outdoor living spaces. Consider contribution of design to the streetscape character. Refer to Bridging the Gap: NZTA Urban Design Guidelines (2013), Section 4.13 Retaining Walls and Section 4.15 Noise Barriers.

f. For private properties required by the NoR, where private dwellings and ancillary buildings are assumed to be removed, it is proposed that land retained be grassed and maintained within the road corridor.

g. Remove residual fill and gravel from construction laydown areas and reinstate with grass following the completion of Project works.

h. Reinstate the existing screen planting for the Watercare pump station site along the southern and western boundary (CH 60), within the residual land following the realignment of Trig Road.

i. Implement street tree plantings within the proposed berms of Hobsonville Road and Trig Road.

j. Configure the bioretention rain gardens and dry pond to a natural appearance, conforming to landform and future urban context. Optimise the natural appearance with shallow planted edges (native riparian species) for long term sustainability, maintenance, hydrological and ecological function. Refer to Bridging the Gap: Waka Kotahi Urban Design Guidelines (2013), Section 4.17 Stormwater Management Devices.

Refer to the Appendix 3. Landscape Plans and Images: Mitigation Plans 03-07, which illustrate the general location of the mitigation measures.

7.2 Future Detailed Design Considerations

There is significant opportunity to enhance the landscape character, natural character and visual amenity of the Project Area. The following design opportunities are suggested to be considered at the detailed design phase and implemented through the UDLMP (if practicable) alongside the mitigation measures outlined above in section 7.1.

a. It is suggested that the extent and gradient of the proposed fill slope (CH 160) be refined during detailed design to reduce the level of encroachment into the existing W1 environment.

b. It is suggested that the mature Puriri tree (Vitex lucens) located at 4 Trig Road be retained and accommodated if practicable, through the refined design of the footpath and cycleway through this section of the Project. This mature native specimen tree is likely to contribute positively to the landscape character and visual amenity of the road reserve.

c. It is suggested that the fill slopes (CH 320-430), culvert and stormwater features be designed as a cohesive landscape feature to be coordinated with the local road design (if practicable).

d. It is suggested that proposed street trees species match with original forest types (known to be successful within urban applications), identified through the ecological assessment.

Appendix 1. Detailed Assessment of Project Works

Table 4: Proposed Works and Resulting Landscape Change

Proposed Works	Existing Landcover	Private Property / Open Space	Landscape Response
Luckens Road **Chainage 120 – 20** Corridor improvements to include central traffic island and connection with upgraded Hobsonville Road intersection. Very small scale fill slopes along Luckens Road / Trig Road intersection.	Grass berm / garden plantings on private property boundaries. Mature exotic and some native trees in front of 10 and 23 Luckens Road where noise walls are proposed. Not proposed to be removed. Mature native tree in road reserve in front of 1 Luckens Road. Project works within dripline.	Small scale encroachment of northern boundary of 115 Hobsonville Road. Noise walls proposed along private boundaries of 1, 1B, 2, 16, 10, 115 Luckens Road.	Integrate very small scale earthworks into natural landform. Reinstate with grass. Reinstate amenity planting along the northwest perimeter of the carpark at 115 Hobsonville Road / retain Pohutukawa tree if practicable. Design 1.8m high noise walls to integrate with private property boundary fencing (avoid double layering of noise wall and property fence). Incorporate existing and replacement planting into noise wall. Retain existing large trees if practicable. Retain mature native tree in road reserve in front of 1 Luckens Road if practicable.
Hobsonville Road (southern side) **Chainage 1500 – 1550** Small scale fill slopes	Grass berm / garden plantings on private property boundaries.		Design 1.8m high noise wall to integrate with private property boundary fencing (avoid double layering of noise wall and property fence). Incorporate existing and replacement planting into noise wall.
Hobsonville Road (northern side) **Chainage 1700 – 1320** Corridor widening to include additional vehicle lanes / Hobsonville - Luckens Road signalised intersection / vehicle stacking / walking/cycling lanes (both sides). Small - moderate scale fill slopes	Grass berm / hedgerows / shelterbelt planting. Native and exotic trees and garden plantings associated with 78 Hobsonville Road to be removed. Puriri tree (*Vitex lucens)* located at 4 Trig Road. Mature specimen – to be retained if practicable.	80 Hobsonville Road - encroachment of southern boundary. Removal of boundary fence and regrading of driveway. 78 Hobsonville Road - encroachment of southern boundary. Removal of boundary fence and regrading of driveway. Demolition of ancillary building and	Integrate small to moderate scale earthworks into natural landform. Reinstate with grass. Reinstate boundary fence (if required) and native planting along boundary of 78 Hobsonville Road (chainage 1500-1530) Plant proposed rain garden and attenuation pond with native species.

Proposed rain garden and attenuation pond (chainage 1560-1580)		removal of native and exotic boundary plantings. 1 Trig Road – encroachment of southern boundary / demolition of barn and removal of shelterbelt planting. Watercare pump station (74-76 Hobsonville Road) – encroachment of southern boundary. Removal of boundary fence and regrading of driveway. Removal of some existing boundary (screen) planting.	Reinstate boundary fence and provide replacement screen planting for Watercare along southern and western boundary (chainage 60) and within residual land left over from realignment of Trig Road (chainage 1320).
Hobsonville Road (southern side) **Chainage 1470 - 1320** Small scale fill slopes	Grass berm / hedgerows / exotic / native shrubs. Mature Pohutukawa tree on Road reserve in front of 97 Hobsonville Road to be removed.	1/93 / 97 / 99 Hobsonville Road - encroachment of northern property boundaries / removal of garden plantings and regrading of driveways. 101 / 107 / 109 / 1/111 / 105 / 103 / 95 regrading of driveways along Hobsonville Road. Noise walls in front of 93 and 99 Hobsonville Road.	Design 1.8m high noise walls to integrate with private property boundary fencing (avoid double layering of noise wall and property fence). Incorporate existing (if practicable) and replacement planting into noise wall. Reinstate boundary fences (if required) and garden plantings for 1/93 / 97 and 99 Hobsonville Road.
Hobsonville Road (southern side) **Chainage 1320 – 1270** Corridor widening to accommodate additional vehicle lanes / Hobsonville / Trig Road signalised intersection / vehicle stacking /walking/cycling lanes (both sides).	Grass berm / mature exotic trees on road reserve potential removal.	Hilda Griffin Reserve – encroachment into northern boundary of reserve.	Integrate small scale earthworks into natural landform. Reinstate with grass.
Hobsonville Road (southern side) **Chainage 1270 – 1140** Corridor widening to accommodate additional vehicle lanes / Hobsonville / Trig Road signalised intersection / vehicle stacking /walking/cycling lanes (both sides). Moderate scale fill slopes.	Grass berm / garden plantings / native and exotic trees on private property. 3 x Pohutukawa Trees on road reserve to be removed.	77 /79 / 81 / 83 / 85 / 87 / 89 Hobsonville Road. Encroachment into northern boundaries requiring removal of fencing, garden plantings and driveway regrading.	Integrate moderate scale earthworks into adjacent landform. Reinstate with grass.

Hobsonville Road (northern side) **Chainage 1140 – 1260** Corridor widening to accommodate additional vehicle lanes and stacking / walking and cycling lanes (both sides). Small scale cut slopes.	Grass berm / garden plantings / exotic and native trees on boundary line and road reserve to be removed.	60 / 62 / 64 / 66 / 68 / 70 / 72 Hobsonville Road - encroachment of southern property boundaries / removal of fences, garden plantings and regrading of driveways. Noise wall proposed 62, 64, 66 and 72 Hobsonville Road.	Integrate small scale cut slopes into adjacent landform. Reinstate with grass (if practicable). Reinstatement of private boundary fences and garden plantings for 60 / 62 / 64 / 66 / 68 / 70 / 72 Hobsonville Road. Design 1.8m high noise walls to integrate with private property boundary fencing (avoid double layering of noise wall and property fence). Incorporate existing (if practicable) and replacement planting into noise wall.
Hobsonville Road (northern side) **Chainage 1260 – 1300** Corridor widening to accommodate additional vehicle lanes / Hobsonville - Trig Road signalised intersection / vehicle stacking / walking and cycling lanes (both sides). Very small scale fill slopes.	Mature Tairere tree / native hedgerow / cabbage trees / mature pohutukawa tree within private garden at 2 Trig Road to be removed.	72C Hobsonville Road and 2 Trig Road. Existing dwelling and commercial property to be removed. Properties required.	Integrate very small scale fill slopes into adjacent landform. Reinstate with grass and maintain within the road corridor.
Trig Road (western side) **Chainage 60 – 280** Corridor widening to accommodate additional vehicle lanes / stacking and signalised intersection at Trig/Hobsonville Road. Walking and cycling lanes (both sides). Small to moderate scale fill slopes.	Shrubs and exotic trees in private gardens to be removed.	6, 8, 12, 14, 16, 18, 20, 22, 24, 26 and 28 Trig Road - encroachment of northwest property boundaries / removal of fences, garden plantings and regrading of driveways. Noise walls proposed at 20 / 26 Trig Road.	Integrate small to moderate fill slopes into adjacent landform. Reinstate with grass or replacement of private garden plantings (if practicable). Reinstatement of private boundary fences (if practicable). Design 1.8m high noise walls to integrate with private property boundary fencing (avoid double layering of noise wall and property fence). Incorporate existing (if practicable) and replacement planting into noise wall.

Trig Road (eastern side) **Chainage 60 – 280** Corridor widening to accommodate additional vehicle lanes / stacking and signalised intersection at Trig/Hobsonville Road. Walking and cycling lanes (both sides). Small to large scale fill slopes to support corridor widening. Fill slope into W1 environment and construction of culvert (chainage 120-180).	Exotic trees and shelter belt planting / exotic and native hedgerows to be removed along private boundary. Reduction of extent of W1 habitat (currently dominated by exotic species, weeds and *pinus radiata*).	3 Trig Road - encroachment of western property boundary / ancillary building / removal of fence, garden plantings and regrading of driveways. Retaining wall in front of 7 Trig Road (chainage 270). Sheds to be removed from south western corner of property.	Reduce extent of fill slope into W1 through detailed design (if practicable). Extent of W1 loss (bio-physical landscape / Natural character effects and ecological effects) mitigated through ecological offset planting of W2. Propose native planting at the culvert outlet (within the designation) to ameliorate localised landscape effects and to integrate the proposed culvert outlet into the future riparian planting of the Trig Stream watercourse, as indicated by PPC5 Precinct Plan 1 and the Chapter E3 of the AUP:OP. Recommend localised planting of the fill slope (approx CH 120 – 160) over top of the proposed culvert to reduce maintenance issues and to improve landscape amenity outcomes for the Project.
Trig Road (both sides) **Chainage 280-570** Small to large cut and fill slopes associated with the bioretention rain garden in road reserve of Trig Road / proposed culvert inlet and outlet / earthworks along corridor and proposed dry pond and culvert.	Grass / exotic trees to be removed within road reserve of Trig Road W2 environment	Trig Road Reserve zoned Road in AUP:OP / PPC5 Retaining wall and noise wall proposed in front of 40 and 15 Trig Road. Dry pond proposed at 9 Trig Road.	PPC5 indicates an informal recreational zone adjacent to the proposed bioretention rain garden at 34A Trig Road. It also indicates a large open space area directly north and an esplanade reserve associated with W2 (Trig Stream) on Precinct Plan 1. Precinct Plan 2 indicates a collector road traveling in an east/west direction across the Corridor at approx. CH 500. On that basis, assume a high degree of landscape amenity value through this section of the Project. Design proposed earthworks, culvert and stormwater elements cohesively alongside the ecological restoration component to be a feature

			within the future urban environment and enhance landscape amenity and natural character values within the Project Area. Design proposed retaining and noise mitigation walls to integrate with private property boundary fencing (avoid double layering of noise wall and property fence). Incorporate existing (if practicable) and replacement planting into retaining / noise wall. Consider contribution of design to the streetscape character.
Trig Road (both sides) **Chainage 570 – 800** Small scale cut and fill slopes to support road widening. Culvert proposed at chainage 640.	Grass / exotic shelterbelt planting and hedgerows. Increased vegetation within the road reserve through this section.	19 Trig Road – dwelling to be removed. Property required. 42 / 46 / 52 Trig Road - encroachment of eastern private property boundaries / removal of fence, garden plantings and regrading of driveways.	Integrate small scale cut and fill slopes into adjacent landform. Reinstate with grass.

Appendix 2. Public Viewpoint Assessment

Viewpoints 01 – 04 – Luckens Road / Hobsonville Intersection

Refer to Appendix 3: Landscape Plans and Images: Maps 06 and 07

These viewpoints represent the visual experience for motorists, cyclists, pedestrians and people accessing several local business and residential properties. This audience is largely mobile (i.e. vehicles travelling at 50km/h) with the location representing a short portion of their journey. Given the nature of the audience the proposed changes will be 'close up' and highly legible, especially for those that use the route regularly.

Viewpoints 01 – 04 illustrate the existing visual amenity of the northern section of Luckens Road and the Luckens / Hobsonville Road intersection. Luckens Road is currently single lane in both directions and lined on both sides by residential dwellings, grass berms and the occasional street tree. Luckens Road is proposed to be widened as it approaches the intersection with Hobsonville Road to provide two northbound turning lanes providing separated east and west movements onto Hobsonville Road.

From VP01 the most notable visual change will be the increased width of the corridor to provide for the additional northbound lane and the subsequent loss of the existing grass verge. The row of pine trees in the background will also be removed.

From VP02, the most notable visual change will be the removal of the foreground row of pine trees located along the northern edge of the Luckens/Hobsonville intersection. The removal of these trees will open up and expand views of the FUZ land to the north and potentially accentuate the perceived elevation of the intersection in relation to the FUZ land bordering Trig Road.

VP03 illustrates the view for motorists, cyclists and pedestrians traveling west along Hobsonville Road. The most notable visual change will result from the proposed corridor widening and its encroachment into the existing footpath in front of the Barfoot and Thompson carpark at No. 115 Hobsonville Road. Likewise, with VP02, the removal of the pine trees will result in a more open and expansive view towards FUZ land, which will urbanise over time.

The overall visual impact of the changes described above includes a shift in the balance between hardstand and 'green space' with the loss of existing grass verge and established trees meaning that the widened carriageway will dominate the view. Visual effects will be moderated due to the carriageway already being a dominant element, the presence of directly adjacent buildings, the dynamic/ moving nature and short duration of the visual experience.

Viewpoints 05 – 09 – Hobsonville / Trig Road Intersection

Refer to Appendix 3: Landscape Plans and Images: Maps 08 and 10

Viewpoint 05 illustrates the existing visual amenity of the Hobsonville and Trig Road intersection. The reserve at 91 Hobsonville Road is visible in the background next to the row of 4 exotic trees that will be removed to make way for the proposed retaining wall in front of 89 – 77 Hobsonville Road. The intersection widening will be visible from this location as it encroaches into the properties at 72 and 72C Hobsonville Road and 2 Trig Road, requiring those existing dwellings to be removed and replaced by road corridor, footpath and cycleway.

Changes to the existing vegetation patterns will be visible and as a result of the removal of some vegetation along the existing road corridor and within private properties and as a result of new street tree plantings within the proposed berms of the arterial upgrade.

The visual change resulting from the proposed driveway regrades, associated retaining walls and the features included in the upgraded intersection, will be evident at viewpoint 07, 08 and 09, resulting in a distinct visual character shift of the streetscape. Likewise, with VP05, the vegetation patterns will shift and the proposed street tree plantings within the arterial upgrade berms will result in a more urban residential street character.

The overall visual impact of the changes described above includes a shift in the balance between hardstand and 'green space' with the loss of existing grass verge and established trees meaning that the widened carriageway will dominate the view. While the loss of vegetation and grass cover will be noticeable, visual effects will be moderated due to the carriageway already being a dominant element, the presence of directly adjacent buildings, the dynamic/ moving nature and short duration of the visual experience.

Viewpoints 10 – 12 – Trig Road

Refer to Appendix 3: Landscape Plans and Images: Maps 10 and 11

The proposed fill slopes in front of 6-16 Trig Road will be visible from Viewpoints 06 and10. The existing boundary vegetation on these properties will be removed and the upgraded Trig Road will appear visibly wider and more open at this location and a more urban residential street character will result.

The new Ryans Road entry will be visible from the location of viewpoint 11, and the removal of the shelter belt planting to the right of the view will result in a shift in visual character for the viewing audience at this location. In the first instance, the change in visual composition will be obvious and open views out towards the dry pond planting area and the Trig Road Esplanade Reserve.

When considering the FRL, the arterial upgrade will be viewed in the context of increased residential development. On that basis, the proposed mitigation and enhancement planting proposed in this report is likely to assist with improving the visual amenity of views afforded from this location.

Viewpoint 12 is representative of the views afforded from the Trig Road reserve and future open space network anticipated by PPC5. Similarly, with Viewpoint 11, the visual amenity of the existing road will change from being distinctly rural to more open and residential in character, with views out over the FUZ land. The proposed mitigation planting and additional enhancement opportunities proposed in this assessment are important factors in maintaining the visual amenity from this important viewpoint and public space node.

Viewpoints 13 – 14 – Trig Road

Refer to Appendix 3: Landscape Plans and Images: Map 12

Viewpoints 13 and 14 illustrate the current view at approximate chainage 620. The arterial upgrade will visibly encroach into the existing grass verge and planting along the eastern perimeter of the road. A low (300mm) batter is proposed at this point. Large street trees will assist in reinstating the visual amenity afforded to this view by the existing large trees.

Similarly, with Viewpoint 12, the visual amenity of the existing road will change from being distinctly rural to more open and residential in character, with views opening out towards the FUZ land.

Viewpoints 15 – 20 - Trig Road

Refer to Appendix 3: Landscape Plans and Images: Maps 13 to 15

Viewpoints 15 and 16 illustrate the current view at approximate chainage 810. The existing visual amenity afforded at this location is expansive and generally influenced by the character of the Upper Harbour Highway. The proposed arterial upgrade is unlikely to result in notable changes to the existing visual amenity of this view.

Viewpoints 17 and 18 illustrate the current view at the Upper Harbour onramp. The existing visual amenity afforded at this location is expansive and generally influenced by the character of the Upper Harbour Highway. The proposed footpaths and cycleway will be visible features of the arterial upgrade upon the existing motorway crossing looking south. Overall, the proposed arterial upgrade is unlikely to result in notable changes to the existing visual amenity of this view.

Viewpoints 19 and 20 are located at 84 Trig Road, at the termination of the proposed arterial upgrade. At this point the road narrows to the existing width and there are very minimal changes to the visual amenity of this vantage point.

Appendix 3. Landscape Plans and Images

Supporting Growth

Trig Road Arterial Project

Assessment of Landscape and Visual Effects

Appendix 3

Landscape Plans and Images

Version 1.0

August 2020

TE TUPU NGĀTAHI Supporting Growth

NZ TRANSPORT AGENCY WAKA KOTAHI

LEGEND

	TRIG ROAD ARTERIAL PROJECT AREA
01	WESTGATE SHOPPING CENTRE
02	WEST HARBOUR
03	HOBSONVILLE POINT / SCOTT POINT
04	WHENUAPAI

DATE	AUGUST 2020
SCALE	1:25,000 @ A3
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

PROJECT LOCATION AND LOCAL CONTEXT

01

LEGEND

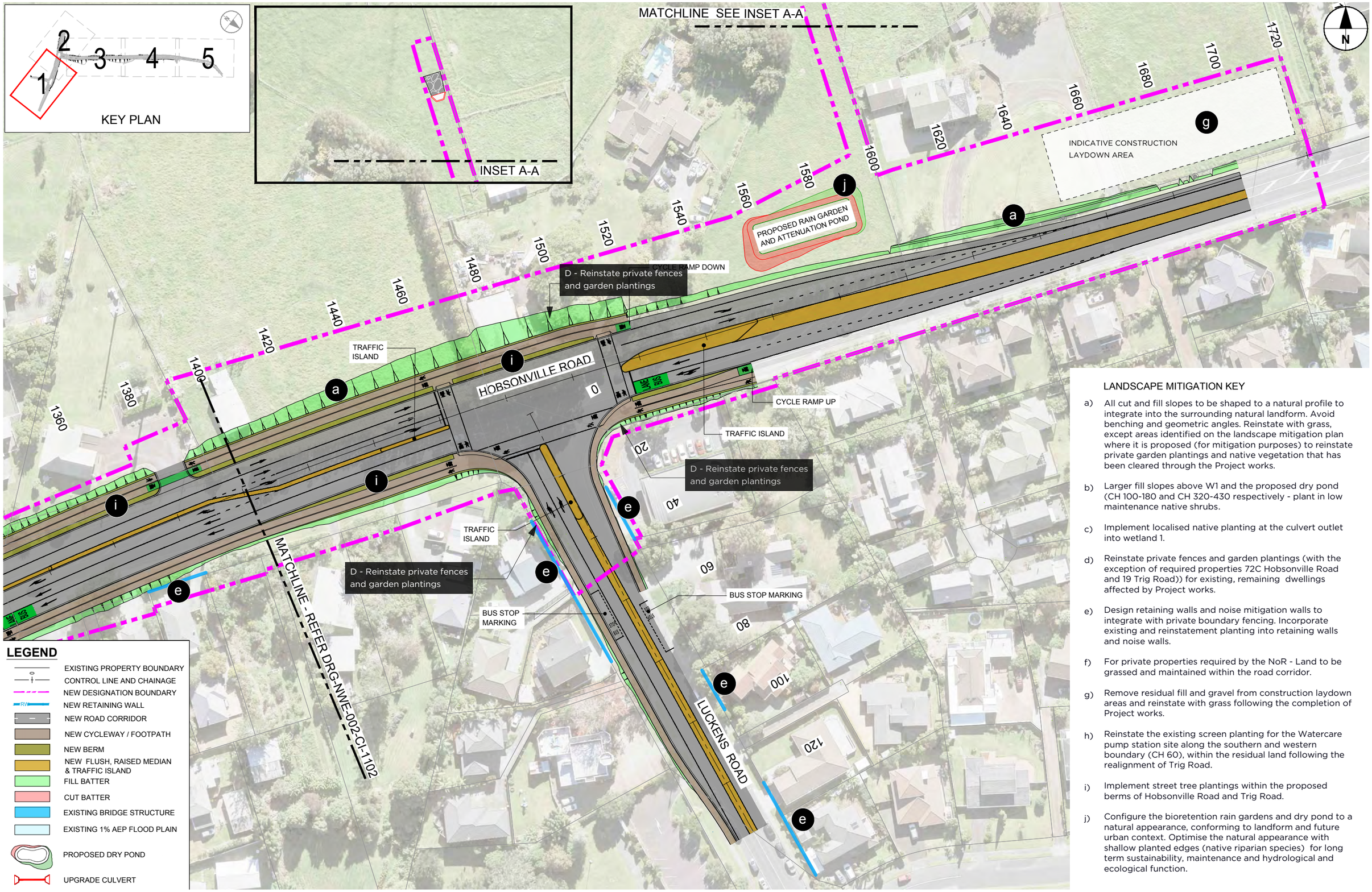
▭	TRIG ROAD ARTERIAL PROJECT AREA		
01	RAWIRI STREAM	04	TOTARA CREEK
02	TRIG STREAM	05	TRIG ROAD RESERVE
03	WAIAROHIA STREAM	———	2m CONTOURS (AUP OIP GIS)

DATE	AUGUST 2020
SCALE	1:5,000 @ A3
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

BASELINE LANDSCAPE FEATURES

02



LANDSCAPE MITIGATION KEY

a) All cut and fill slopes to be shaped to a natural profile to integrate into the surrounding natural landform. Avoid benching and geometric angles. Reinstate with grass, except areas identified on the landscape mitigation plan where it is proposed (for mitigation purposes) to reinstate private garden plantings and native vegetation that has been cleared through the Project works.

b) Larger fill slopes above W1 and the proposed dry pond (CH 100-180 and CH 320-430 respectively - plant in low maintenance native shrubs.

c) Implement localised native planting at the culvert outlet into wetland 1.

d) Reinstate private fences and garden plantings (with the exception of required properties 72C Hobsonville Road and 19 Trig Road)) for existing, remaining dwellings affected by Project works.

e) Design retaining walls and noise mitigation walls to integrate with private boundary fencing. Incorporate existing and reinstatement planting into retaining walls and noise walls.

f) For private properties required by the NoR - Land to be grassed and maintained within the road corridor.

g) Remove residual fill and gravel from construction laydown areas and reinstate with grass following the completion of Project works.

h) Reinstate the existing screen planting for the Watercare pump station site along the southern and western boundary (CH 60), within the residual land following the realignment of Trig Road.

i) Implement street tree plantings within the proposed berms of Hobsonville Road and Trig Road.

j) Configure the bioretention rain gardens and dry pond to a natural appearance, conforming to landform and future urban context. Optimise the natural appearance with shallow planted edges (native riparian species) for long term sustainability, maintenance and hydrological and ecological function.

LEGEND

- EXISTING PROPERTY BOUNDARY
- CONTROL LINE AND CHAINAGE
- NEW DESIGNATION BOUNDARY
- NEW RETAINING WALL
- NEW ROAD CORRIDOR
- NEW CYCLEWAY / FOOTPATH
- NEW BERM
- NEW FLUSH, RAISED MEDIAN & TRAFFIC ISLAND
- FILL BATTER
- CUT BATTER
- EXISTING BRIDGE STRUCTURE
- EXISTING 1% AEP FLOOD PLAIN
- PROPOSED DRY POND
- UPGRADE CULVERT

LEGEND - EXISTING FEATURES

- TRIG ROAD ARTERIAL PROJECT AREA
- 01 RAWIRI STREAM
- 02 WETLAND 1
- 03 WETLAND 2

APPROXIMATE LOCATION OF MIITGATION MEASURES

DATE	AUGUST 2020
SCALE	1:1000 @ A3
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

LANDSCAPE MIITGATION MEASURES

03

LANDSCAPE MITIGATION KEY

a) All cut and fill slopes to be shaped to a natural profile to integrate into the surrounding natural landform. Avoid benching and geometric angles. Reinstate with grass, except areas identified on the landscape mitigation plan where it is proposed (for mitigation purposes) to reinstate private garden plantings and native vegetation that has been cleared through the Project works.

b) Larger fill slopes above W1 and the proposed dry pond (CH 100-180 and CH 320-430 respectively - plant in low maintenance native shrubs.

c) Implement localised native planting at the culvert outlet into wetland 1.

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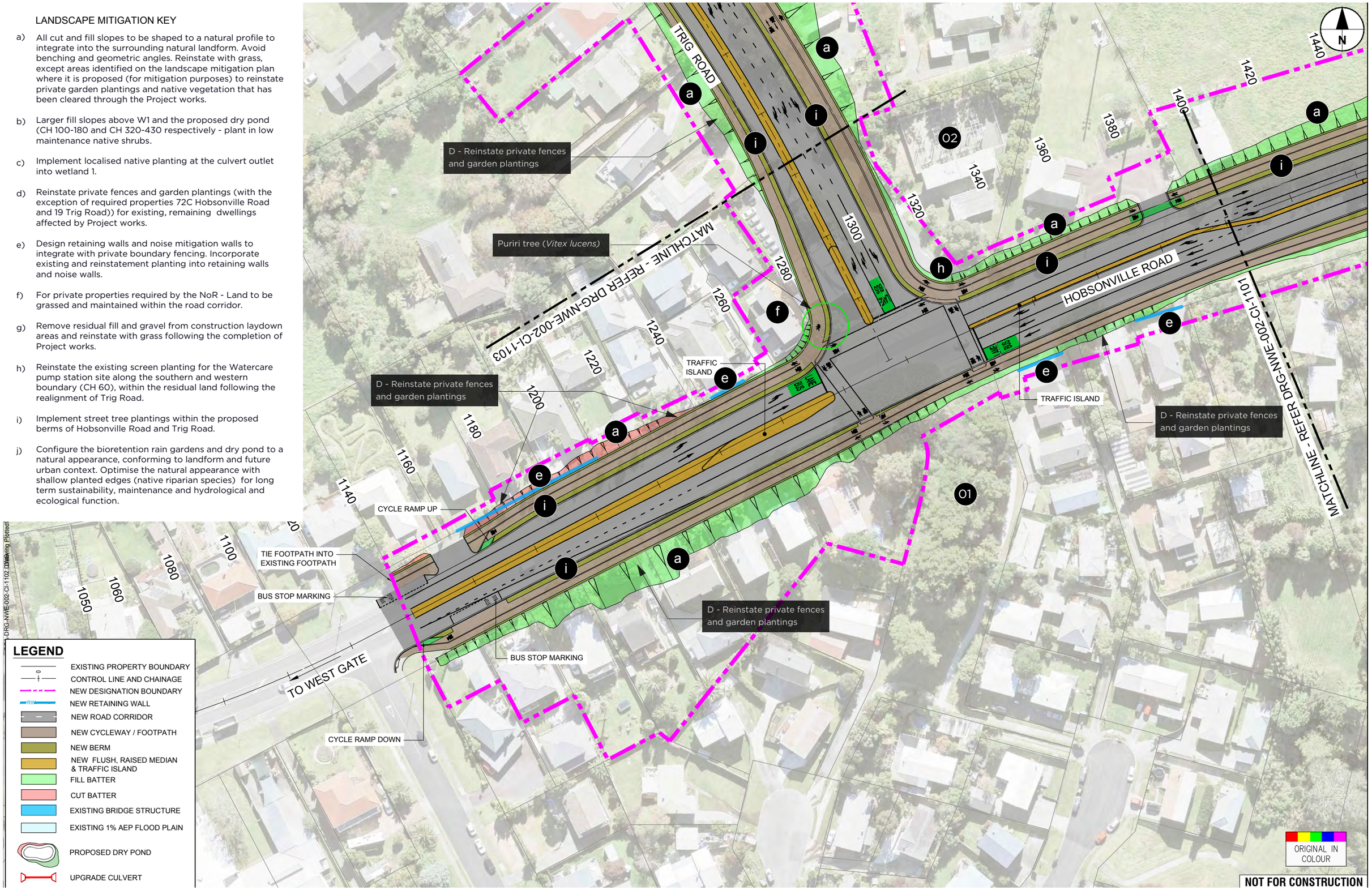

LEGEND - EXISTING FEATURES

- TRIG ROAD ARTERIAL PROJECT AREA
- 01 HILDA GRIFFIN RESERVE
- 02 WATERCARE PUMP STATION
- APPROXIMATE LOCATION OF MIITGATION MEASURES

DATE	AUGUST 2020
SCALE	1:1000 @ A3
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

LANDSCAPE MIITGATION MEASURES

04

LANDSCAPE MITIGATION KEY

a) All cut and fill slopes to be shaped to a natural profile to integrate into the surrounding natural landform. Avoid benching and geometric angles. Reinstate with grass, except areas identified on the landscape mitigation plan where it is proposed (for mitigation purposes) to reinstate private garden plantings and native vegetation that has been cleared through the Project works.

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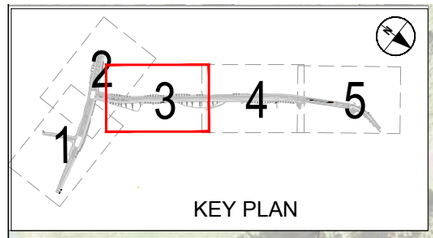
LEGEND

- EXISTING PROPERTY BOUNDARY
- CONTROL LINE AND CHAINAGE
- NEW DESIGNATION BOUNDARY
- NEW RETAINING WALL
- NEW ROAD CORRIDOR
- NEW CYCLEWAY / FOOTPATH
- NEW BERM
- NEW FLUSH, RAISED MEDIAN & TRAFFIC ISLAND
- FILL BATTER
- CUT BATTER
- EXISTING BRIDGE STRUCTURE
- EXISTING 1% AEP FLOOD PLAIN
- PROPOSED DRY POND
- UPGRADE CULVERT



KEY PLAN

MATCHLINE - REFER DRG-NWE-002-CI-1102

MATCHLINE - REFER DRG-NWE-002-CI-1104

60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440

D - Reinstate private fences and garden plantings

NEW ACCESS TO CUL-DE-SAC

BIORETENTION RAIN GARDEN

TRIG ROAD

D - Reinstate private fences and garden plantings

WETLAND 1 ECOLOGICAL OFFSET PLANTING AREA (INDICATIVE ONLY)

TRIG ROAD DRY POND

01 02 03

ORIGINAL IN COLOUR

NOT FOR CONSTRUCTION

SGA-DRG-NWE-002-CI-1103.DWG Drawing Plotted07 May 2020 7:58 AM

LEGEND - EXISTING FEATURES

- TRIG ROAD ARTERIAL PROJECT AREA
- 01 WETLAND 1
- 02 WETLAND 2
- 03 TRIG ROAD RESERVE
- APPROXIMATE LOCATION OF MIITGATION MEASURES

DATE	AUGUST 2020
SCALE	1:1000 @ A3
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

LANDSCAPE MIITGATION MEASURES

05

LANDSCAPE MITIGATION KEY

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LEGEND

- EXISTING PROPERTY BOUNDARY
- CONTROL LINE AND CHAINAGE
- NEW DESIGNATION BOUNDARY
- NEW RETAINING WALL (RW)
- NEW ROAD CORRIDOR
- NEW CYCLEWAY / FOOTPATH
- NEW BERM
- NEW FLUSH, RAISED MEDIAN & TRAFFIC ISLAND
- FILL BATTER
- CUT BATTER
- EXISTING BRIDGE STRUCTURE
- EXISTING 1% AEP FLOOD PLAIN
- PROPOSED DRY POND
- UPGRADE CULVERT

KEY PLAN

MATCHLINE - REFER DRG-NWE-002-CI-1103

MATCHLINE - REFER DRG-NWE-002-CI-1105

420 440 460 480 500 520 540 560 580 600 620 640 660 680 700 720 740 760 780 800

D - Reinstate private fences and garden plantings

TRIG ROAD

INDICATIVE CONSTRUCTION LAYDOWN AREA

INDICATIVE CONSTRUCTION LAYDOWN AREA

TRAFFIC ISLAND

OFF RAMP

01

ORIGINAL IN COLOUR

NOT FOR CONSTRUCTION

SGA-DRG-NWE-002-CI-1104 Drawing Plotted: 7 May 2020 7:54 AM

LEGEND - EXISTING FEATURES

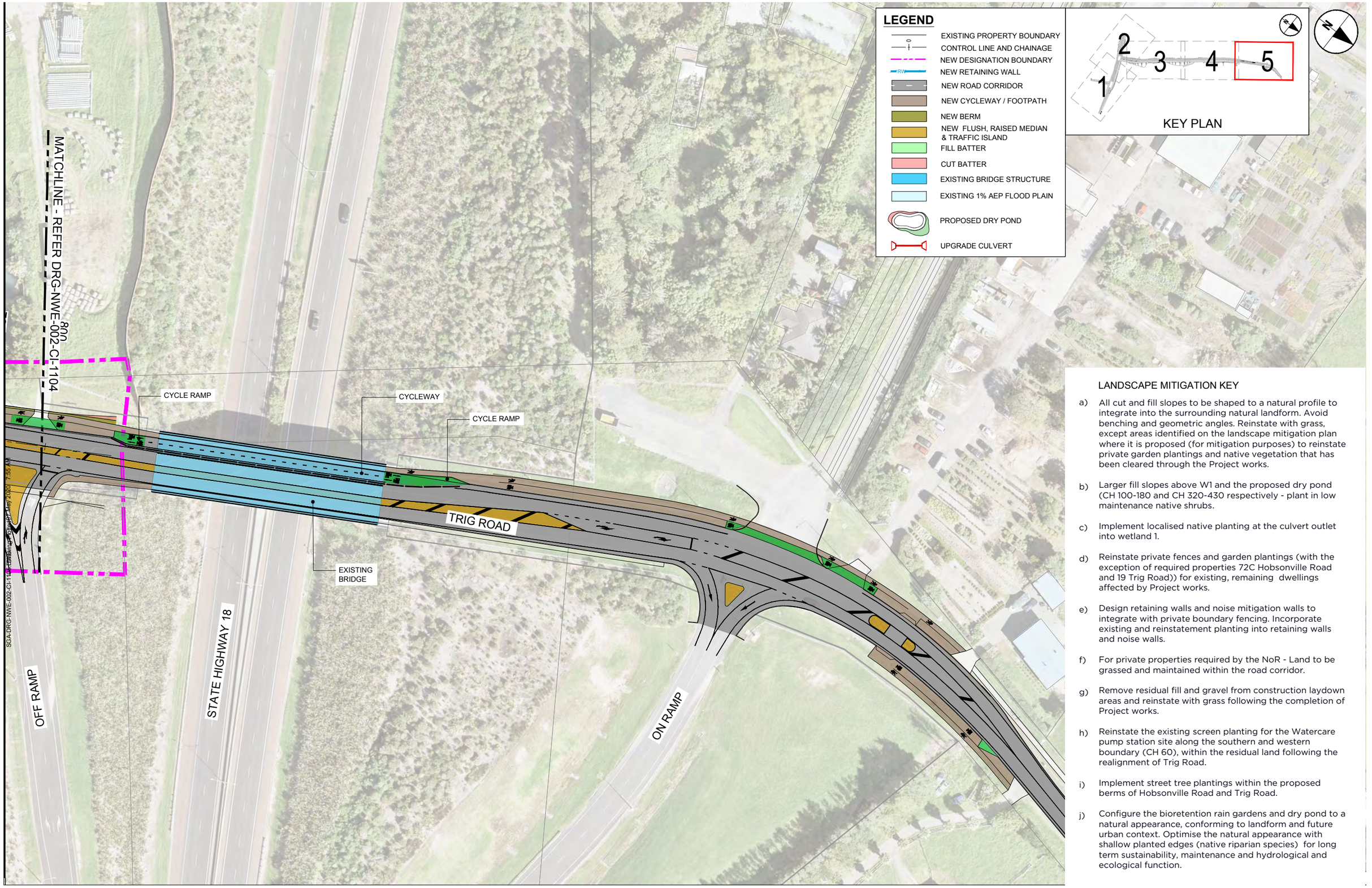
- TRIG ROAD ARTERIAL PROJECT AREA
- 01 WETLAND 2
- APPROXIMATE LOCATION OF MIITGATION MEASURES

DATE	AUGUST 2020
SCALE	1:1000 @ A3
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

LANDSCAPE MIITGATION MEASURES

06



LEGEND

- EXISTING PROPERTY BOUNDARY
- CONTROL LINE AND CHAINAGE
- NEW DESIGNATION BOUNDARY
- NEW RETAINING WALL
- NEW ROAD CORRIDOR
- NEW CYCLEWAY / FOOTPATH
- NEW BERM
- NEW FLUSH, RAISED MEDIAN & TRAFFIC ISLAND
- FILL BATTER
- CUT BATTER
- EXISTING BRIDGE STRUCTURE
- EXISTING 1% AEP FLOOD PLAIN
- PROPOSED DRY POND
- UPGRADE CULVERT

KEY PLAN

LANDSCAPE MITIGATION KEY

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LEGEND - EXISTING FEATURES

- TRIG ROAD ARTERIAL PROJECT AREA
- 01 RAWIRI STREAM
- 02 WETLAND 1
- 03 WETLAND 2
- APPROXIMATE LOCATION OF MIITGATION MEASURES

DATE	AUGUST 2020
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TRIG ROAD ARTERIAL PROJECT

LANDSCAPE MIITGATION MEASURES

07

Representative Viewpoint Locations

VP01 - 6-8 Luckens Road
VP02 - 1 Luckens Road
VP03 - 117 Hobsonville Road
VP04 - 78 Hobsonville Road
VP05 - 1 Trig Road
VP06 - 2 Trig Road
VP07 - 2-4 Trig Road
VP08 - 89 Hobsonville Road
VP09 - 87A Hobsonville Road
VP10 / VP11 - Corner Ryan / Trig Road
VP12 - 36 Ryans Road
VP13 / VP14 - 42 Trig Road
VP15 / VP16 - 58 Trig Road
VP17 / VP18 - 64 Trig Road
VP19 / 20 - 84 Trig Road

0 100 200 300 400 500 m

Scale 1:10,000@A3

Context

01 Hobsonville Road
02 Upper Harbour Highway SH18
03 North-Western Motorway SH16
04 Westgate Shopping Centre
05 West Harbour
06 Hobsonville
06 Whenuapai

TRIG ROAD ARTERIAL PROJECT AREA

Representative Viewpoint Locations

DATE	AUGUST 2020
SCALE	1:10,000 @ A3
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

VIEWPOINT LOCATION PLAN

08

Proposed Hobsonville / Luckens Road intersection. Includes traffic lights and lan widening. Background pine trees to be removed.

Viewpoint Photograph 01. 6-8 Luckens Road, looking north-west towards Hobsonville Road intersection. 50mm focal length. Standing eye level.

Viewpoint Photograph 02. 1 Luckens Road, looking north-east into Hobsonville Road intersection and east down Hobsonville Road. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
SCALE	N/A
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 01 AND 02

09

Proposed Hobsonville / Luckens Road intersection. Includes traffic lights and lane widening
Vegetation along roadside (right) to be removed.

Viewpoint Photograph 03. 117 Hobsonville Road. Looking south-west towards Hobsonville/Luckens Road intersection. 50mm focal length. Standing eye level.

Viewpoint Photograph 04. 78 Hobsonville Road. Looking south towards Hobsonville/Luckens Road intersection. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
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TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 03 AND 04

Viewpoint Photograph 05. 1 Trig. Looking southwest towards Hobsonville/Trig Road intersection. 50mm focal length. Standing eye level.

Viewpoint Photograph 06. 2 Trig Road. Looking northwest down Trig Road. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
SCALE	N/A
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
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REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 05 AND 06

Row of trees to be removed.

Lane widening / cycle and footpath

Viewpoint Photograph 07. 2-4 Trig Road. Looking west down Hobsonville Road. 50mm focal length. Standing eye level.

Cut slopes / driveway re-grading

Viewpoint Photograph 08. 89 Hobsonville Road. Looking southwest along Hobsonville Road. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
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PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 07 AND 08

Viewpoint Photograph 09. 87A Hobsonville Road. Looking northeast along Hobsonville Road. 50mm focal length. Standing eye level.

Viewpoint Photograph 10. Corner Ryans and Trig Road, looking southeast up Trig Road. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
SCALE	N/A
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 09 AND 10

Viewpoint Photograph 11. Corner Ryans and Trig Road, looking northwest down Trig Road. 50mm focal length. Standing eye level.

Viewpoint Photograph 12. 36 Ryans Road, looking northeast towards Trig Road. FUZ land in the background behind pine trees. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
SCALE	N/A
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 11 AND 12

Viewpoint Photograph 13. 42 Trig Road, looking northwest. 50mm focal length. Standing eye level.

Viewpoint Photograph 14. 42 Trig Road, looking southeast. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
SCALE	N/A
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DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 13 AND 14

Viewpoint Photograph 15. 58 Trig Road, looking northwest. 50mm focal length. Standing eye level.

Viewpoint Photograph 16. 58 Trig Road, looking southeast. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
SCALE	N/A
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 15 AND 16

16

Viewpoint Photograph 17. 64 Trig Road, looking north. 50mm focal length. Standing eye level.

Viewpoint Photograph 18. 64 Trig Road, looking south. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
SCALE	N/A
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
DRAWN BY	K. HOLYOAKE
REVISION	FINAL R6

TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 17 AND 18

17

Viewpoint Photograph 19. 84 Trig Road, looking north. 50mm focal length. Standing eye level.

Viewpoint Photograph 20. 84 Trig Road, looking south. 50mm focal length. Standing eye level.

DATE	AUGUST 2020
SCALE	N/A
PROJECT ID	NORTH-WEST HIF NOR AND CONSENTING
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TRIG ROAD ARTERIAL PROJECT

VIEWPOINT PHOTOGRAPHS 19 AND 20