

# Northern Corridor Improvements

Draft Urban Design Landscape Framework

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## EXECUTIVE SUMMARY

The Project area is rapidly being transformed from a suburban centre into a highly urbanised metropolitan centre.

The key urban design and landscape objectives of the Northern Corridor Improvements Project (the Project) are to improve community connectivity, achieve place making, greening of the corridor and integrate the new structures into the Project to reinforce the unique character of the area.

Improved connectivity will be achieved by providing new local roads that connect across the Project area and get local traffic off State Highway 1 (SH1) and State Highway 18 (SH18). The provision of three new overbridges (two vehicle and one shared path) will improve connections across the Project area. The extension of the Northern Busway from Constellation Drive to the Albany Transport Hub and provision of a shared path from the Albany Highway connecting to the Constellation Bus Station and the Albany Bus Station will make a significant contribution to the liveability of the area.

Native planting throughout the Project area will contribute towards reinforcing the North West Wildlink wild life corridor.

Wherever it is practical to plant trees and shrubs, planting will be used to screen views of SH1, SH18 and their structures in order to maintain the vegetated character of the neighbourhood.

The design of structures (bridges, retaining walls and noise walls) should be part of an overall project narrative that assists with place making. Mana Whenua have provided a cultural narrative and this will inform the design of patterns and textures on structures that can articulate the story about this place.

As this Project is to be designed and built by an Alliance, there will be opportunities through the design development phase for ongoing Mana Whenua input including refining a design response to their cultural narrative.

To date the Project team has worked closely with Mana Whenua to incorporate their designs, stories and histories into the Project and the Draft UDLF, and this partnership will continue into the build phase of the Project.



# Contents

<b>EXECUTIVE SUMMARY</b> .....	<b>III</b>		
<b>1 INTRODUCTION</b> .....	<b>1</b>		
<b>2 PROJECT DESCRIPTION</b> .....	<b>4</b>		
2.1. Project objectives.....	4		
2.2. Project benefits.....	4		
2.3. Purpose and scope of the urban design and landscape framework .....	5		
2.4. Urban design methodology .....	6		
2.5. Structure of this document .....	6		
2.6. References.....	6		
<b>3 DESIGN CONTEXT</b> .....	<b>8</b>		
3.1. Strategic and policy context .....	8		
3.2. History and heritage .....	9		
3.3. Environmental context.....	10		
3.4. Neighbourhoods and community .....	15		
3.5. Land use, built form and infrastructure relationships.....	16		
3.6. Connections and access .....	18		
3.7. Ecology .....	20		
3.8. Hydrology and stormwater .....	21		
3.9. Project constraints and opportunities .....	22		
<b>4 DESIGN STRATEGY</b> .....	<b>26</b>		
4.1. Urban and landscape design principles .....	26		
4.2. Vision statement.....	27		
4.3. Project specific urban design and landscape outcomes and Mataranga Maori .....	27		
4.4. Project specific Iwi narrative .....	29		
<b>5 CORRIDOR REQUIREMENTS</b> .....	<b>34</b>		
5.1. General requirements .....	34		
5.2. Landscape design requirements .....	35		
5.3. Bridges requirements.....	36		
5.4. Stormwater management requirements.....	37		
5.5. Noise barrier and retaining wall requirements .....	37		
5.6. Underpasses requirements .....	38		
5.7. Constellation Bus Station requirements.....	38		
5.8. Shared path accessory infrastructure requirements.....	39		
5.9. Other infrastructure requirements.....	40		
5.10. Requirements for the urban forest at the SH1 and SH18 interchange.....	40		
<b>6 DESIGN OUTCOMES SOUGHT</b> .....	<b>42</b>		
6.1. Key design opportunities .....	42		
6.2. Planting strategy.....	43		
6.3. Landscape and urban design mitigation/enhancement.....	44		
6.4. Key locations and urban design opportunities.....	62		



# 1 INTRODUCTION







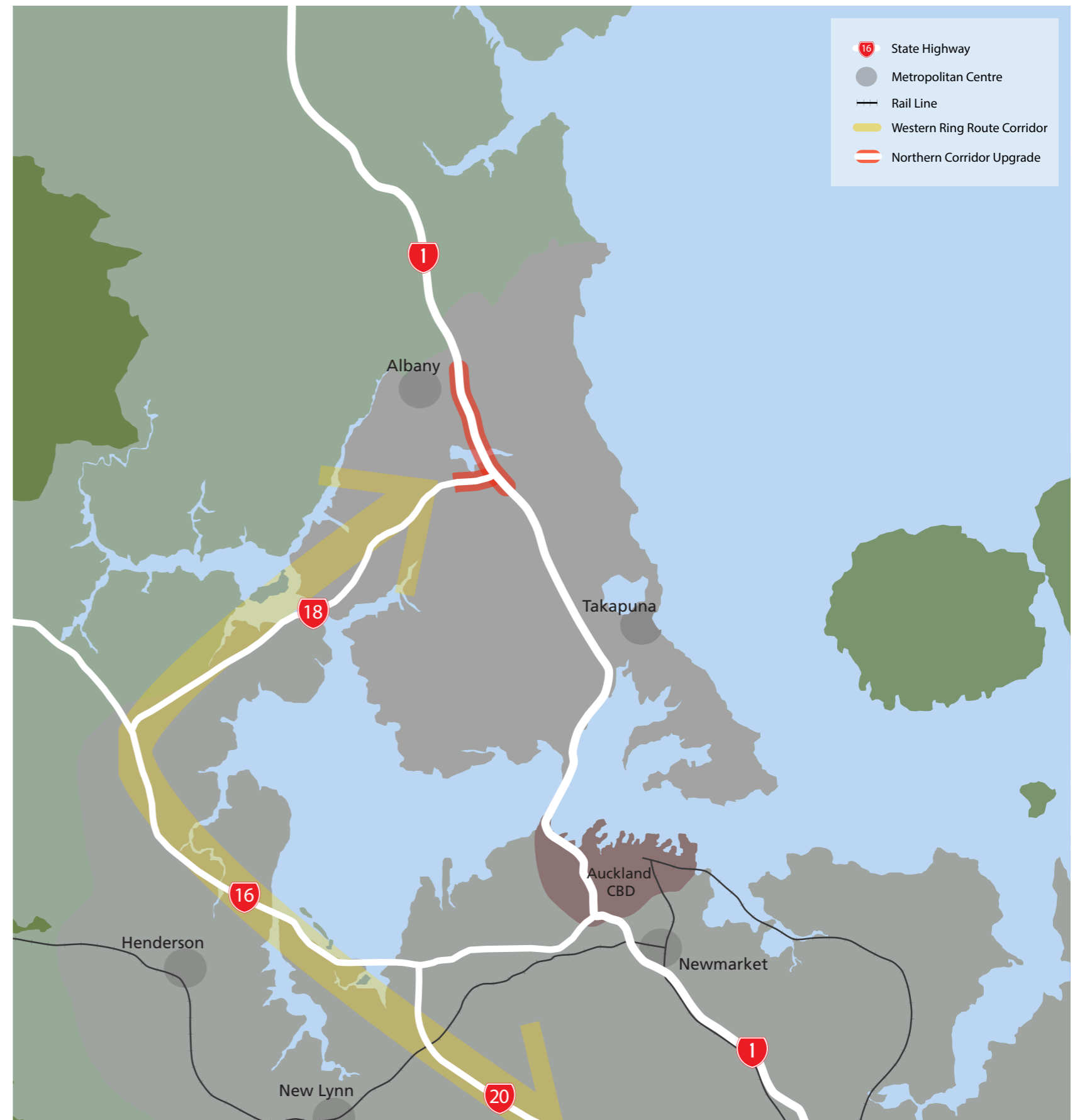
## INTRODUCTION

The Project will create a new direct motorway-to-motorway connection on the North Shore. It will connect SH1 directly with the Upper Harbour Highway (SH18) which is redesigned at the eastern end and is the last link to be made into a motorway connection, completing the Western Ring Route (WRR) upgraded Northwestern Motorway (SH16) and the Waterview Connection (SH20), providing better links to the airport. The programme outcomes for the Western Ring Route are to provide network security and resilience for Auckland's State highway network.

The Project will provide an efficient direct route for commuters and freight that allows travellers to avoid the central city, improves transport options for pedestrians and cyclists, and keeps local roads free for local traffic by separating out motorway traffic. It also includes an extension of the Northern Busway from Constellation Bus Station to Albany Bus Station.

The Project will be delivered by the NZ Transport Agency as part of its accelerated programme of upgrades for the Auckland Region. It was specifically identified as a priority project for the first decade of the 30 year Auckland Plan, because it completes the WRR - a route identified by the Government as a Road of National Significance. In doing so, it allows the full benefits of the WRR to be realised, helping to facilitate inter-regional travel between Auckland and Northland.

At the moment, SH1 is the predominant route between Northland and Auckland and faces significant congestion, particularly at peak times. Pressure on the motorway system around the Albany and North Harbour area has grown substantially in recent years and is set to become more intense with continued increases in population, housing and freight movements over the next 30 years.



Regional context



## 2. PROJECT DESCRIPTION





## 2 PROJECT DESCRIPTION

The Project covers the area of SH18 between Albany Highway and Constellation Drive, and SH1 between Upper Harbour Highway interchange and Greville Road interchange. The Northern Busway component of the Project extends further north adjacent SH1, from Constellation Bus Station to Albany Bus Station at Oteha Valley Road.

### 2.1. Project objectives

The objectives for the Project are:

- To help facilitate interregional travel between Auckland and Northland by completing the WRR to motorway standard;
- To improve connectivity of the SH1 and SH18 interchange;
- To improve safety, efficiency, reliability and the capacity of:
  - SH1 between SH18 and Albany; and
  - SH18 between SH1 and Albany Highway;
- To provide safe walking and cycling facilities adjacent to SH1 and SH18 and connections to local transport networks; and
- To extend the Northern Busway from Constellation Bus Station to the Albany Bus Station

### 2.2. Project benefits

The Project will have a broad range of benefits as discussed below:

#### 2.2.1. Network resilience & connectivity

Completion of the Project will provide a greater level of resilience to the inter-regional State highway network through providing an alternative north-south route (being the WRR) through Auckland at motorway standard.

#### 2.2.2. Improved journey efficiency

Improved journey times along and between the SH1 and SH18 corridors, improved reliability of journey times for public transport users as well as walkers and cyclists using the improved network.

#### 2.2.3. Improved connectivity and local access

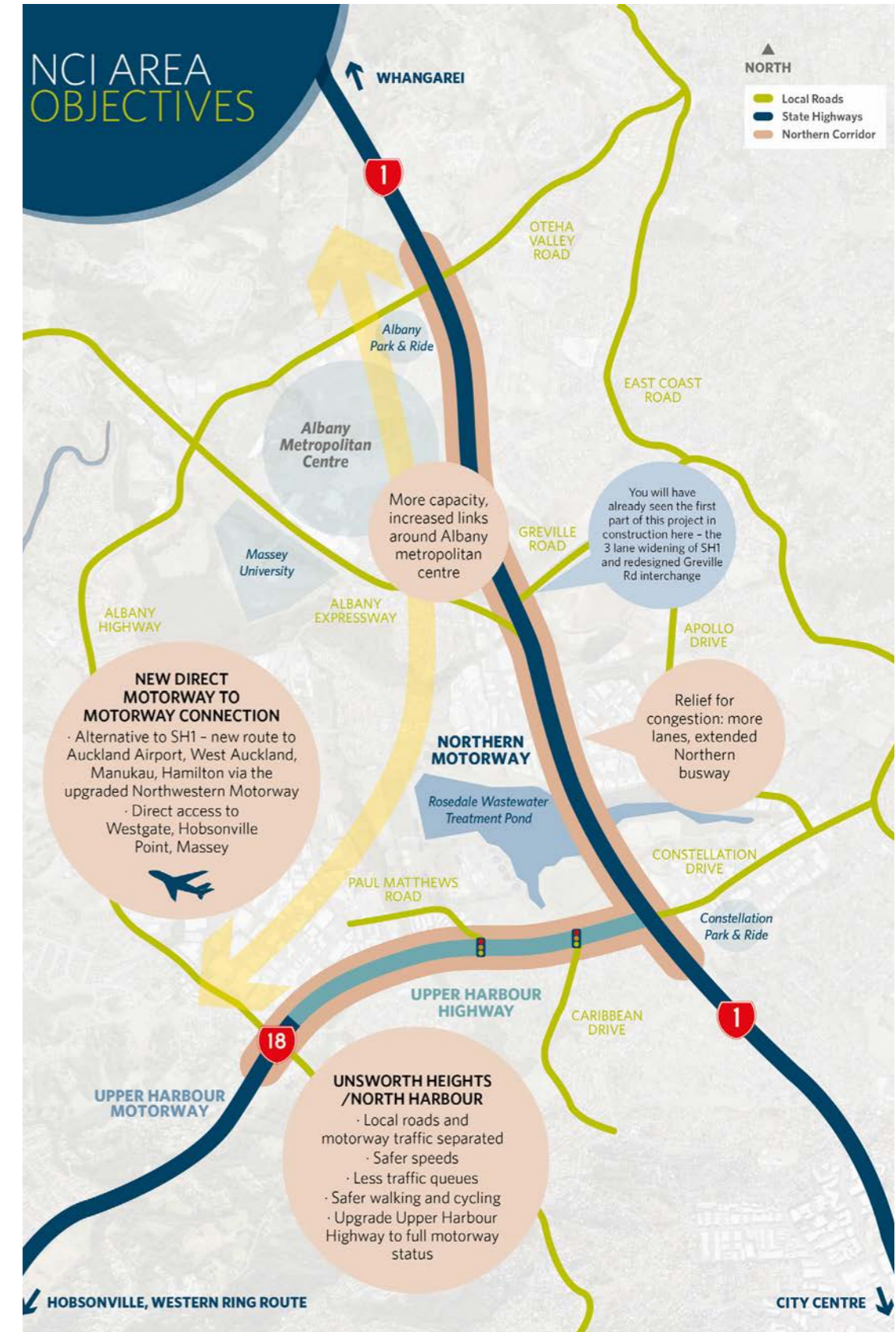
The provision of improved connectivity and efficient access for local traffic in addition to pedestrians and cyclists.

#### 2.2.4. Greater local travel choice

The provision of the extensive Shared Use Path will provide greater travel choice for local trips.

#### 2.2.5. Improved efficiency and reliability of public transport

The provision of a dedicated Northern Busway from Constellation Bus Station with direct access to Albany Bus Station will reduce average bus journey times and improve reliability of journey times, due to the separation from general traffic.



Northern Corridor Improvements project objectives



### 2.3. Purpose and scope of the urban design and landscape framework

The purpose of the Urban Design Landscape Framework (UDLF) is to set out the urban and landscape design principles for the Project. This document once fully developed will act as a guide for designers, engineers and the contractors building the Project.

This document will evolve over time through to the commencement of construction. It is proposed that the Key Design Principles set out in Section 5 (Corridor Requirements) of this UDLF will be given effect to through the Urban Design and Landscape Plan that will be required by the conditions to be submitted as part of the Outline Plan of Works.

The UDLF has been informed by inputs from other specialist disciplines, through joint participation in multi-criteria options evaluation (long list and short list), and through formal and informal internal design team discussions.

In particular, landscape and visual, social and cultural, and traffic and transport (including active modes) have been important considerations in refining the urban and landscape design principles, and in identifying opportunities for the Project to deliver quality design outcomes.

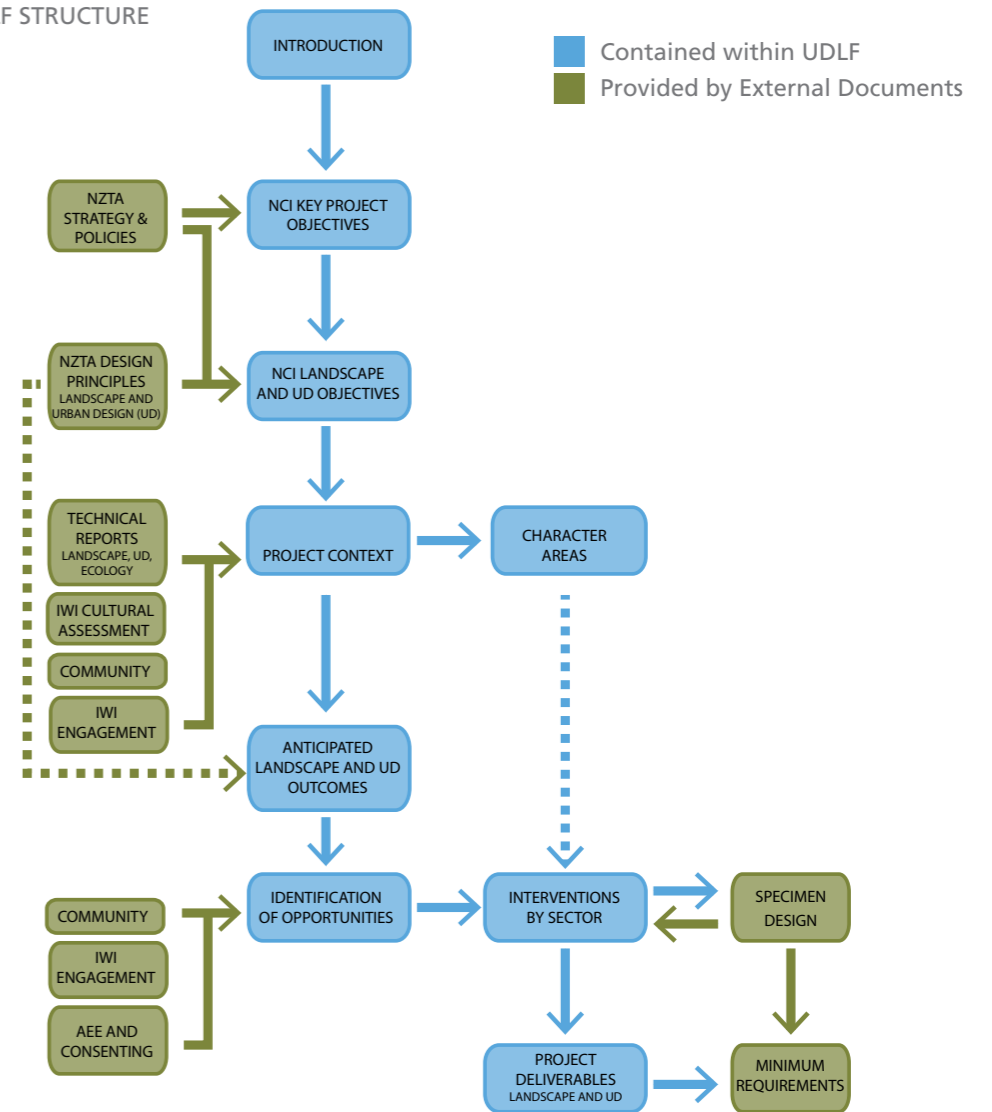
While the scope of the UDLF covers the Project area, its design principles also consider the area beyond its boundaries. This includes the public / private realm interface and appropriate urban structure and built form for edging development in the future.

The Project design, therefore, is not in isolation but responds to the environmental, social and cultural context of the Project, including the Albany Centre and adjacent urban areas, and the Rosedale Wastewater Treatment Plant.

The UDLF is intended to be used by multiple stakeholders as a guideline of intended outcomes for the Project. This process involves input from the following parties:

- ▶ The NZ Transport Agency to ensure that as the design develops through detailed design, consenting and construction phases, it maintains alignment with the NZ Transport Agency's design objectives, policies and requirements;
- ▶ Auckland Council and Auckland Transport to monitor how the future design for the Project area, and approaches to and areas around bus stations, support the objectives for integrated land use and transport planning;
- ▶ Designers of the implementation (detailed design and construction) phase of the Project, to provide a reference tool to ensure the design creates a local identity incorporating Mana Whenua values;
- ▶ The construction team implementing the Project;
- ▶ Mana Whenua, working with the Project design team, to help identify opportunities to inscribe cultural narratives into the Project outcomes, and
- ▶ Local communities, community organisations and business owners, to demonstrate that issues raised through engagement and consultation will be taken in account in the Project design.

#### UDLF STRUCTURE



Urban and Landscape Framework process





## 2.4. Urban design methodology

Urban and landscape design has been integral to the development of the design of the Project, ensuring that urban design principles have been considered. Urban design involvement to date (to the UDLF stage) has comprised:

- Attendance at formal design meetings, and informal liaison with the design team, throughout the development of the Project to promote amenity, landscape and design quality integrated with transport outcomes;
- Identification of main urban and landscape issues to define key opportunities for consideration under the headings:
  - Land use, transport and urban form integration;
  - Landscape;
  - Connectivity;
  - Amenity; and
  - Structures.
- Translation of those key issues into evaluation criteria for the multi-criteria assessment (for various components of the Project); and participation, with other technical specialists, in discussions and scoring of those options;
- Systematic review of background information / reference documents, supplemented by on-site analysis and consultation feedback, to build an understanding and appreciation of the landscape character areas, key features and high level opportunities (for place and process);
- Preparation of a cohesive and integrated urban and landscape design vision for the Project in line with NZ Transport Agency guidelines;
- Development of urban and landscape design principles that reflect the route investigations and are consistent with the NZ Transport Agency's urban and landscape design objectives, with Te Aranga design principles, and with Auckland Council's regional growth objectives;
- Inviting, reviewing and incorporating recommendations from other technical specialists into the guiding principles and developing urban and landscape design initiatives, such as creating an urban forest at the SH1/SH18 ramps;
- Identification of project-specific urban and landscape opportunities, by character area, associated with the preferred option;
- Refinement of design options including consideration of:
  - The arrangement of highway to highway, and highway to local road interchanges, so as not to preclude future connections (particularly west to south: SH18 to SH1);
  - The vertical and horizontal alignment in relation to the existing designation boundary;
  - The impact of highway improvements on the existing local roads crossing the corridor, so as to maintain connectivity;
  - Opportunities for local connections including for pedestrians and cyclists, to the Bus Stations, the regional open space network, the Albany Centre, and recreational and community facilities;
  - The impact on the fresh water environments of the tributaries of the Alexandra Stream and the Oteha Stream;
  - The impact on network utilities such as Transpower, Vector and Watercare's Rosedale Wastewater Treatment Plant; and

- The exploration of stormwater management requirements integrated with landscape opportunities.
- An ongoing engagement with Iwi consistent with Te Aranga design principles.

## 2.5. Structure of this document

The structure of the UDLF sets out:

- The design context;
- Strategic and policy context;
- Social and cultural context;
- Environmental context;
- The issues and high level opportunities arising from the existing context, that have informed option selection and development;
- Urban and landscape design principles and corridor requirements developed as a result of the analysis and inter-discipline collaboration; and
- Desired outcomes, framed as opportunities for the detailed stage and how these address the objectives and design principles.

## 2.6. References

Specific documents referred to or consulted in the preparation of the UDLF include:

- Technical specialist reports prepared for the Project (Transport, Ecology, Social and landscape assessment reports);
- Auckland Transport Code of Practice (2014) ATCOP;
- NZ Transport Agency Landscape Guidelines, final draft (2014);
- Bridging the Gap: NZ Transport Agency Urban Design Guidelines (2013);
- Auckland Design Manual (2013);
- The Auckland Plan (2012) and Auckland Unitary Plan Operative in part (15 November 2016).



# 3. DESIGN CONTEXT







### 3 DESIGN CONTEXT

This section outlines the policies and principles that underpin the urban and landscape design process that were key considerations for the Project design principles.

#### 3.1. Strategic and policy context

Several policies form the basis of the strategic and policy context for the Project: The Auckland Plan, Auckland Unitary Plan (Operative in part 15 November 2016), and Urban Design protocol 2005, ATCOP, and more specifically the NZ Transport Agency Environmental and Social Responsibility Policy. This last policy is the main framework for the definition of principles and objectives for the Project.

##### 3.1.1. NZ Transport Agency urban and landscape principles

The NZ Transport Agency has developed urban and landscape design principles that are captured in two key documents: 'Bridging the Gap' and 'Landscape Guidelines'. These principles underpin the urban design and landscape approach adopted for the Project as outlined in Section 4 "Design Strategy" below.

##### 3.1.2. Auckland Plan

The Auckland Plan (2012) is a 30-year strategy for growth and development, which contains a vision for Auckland to be the world's most liveable city. The vision will be achieved through meeting seven key outcomes for health, sustainability, productivity, accessibility, sense of community, culture and creativity, and Maori identity.

##### 3.1.3. Auckland Unitary Plan Operative in Part (AUP)

The Assessment of Environmental Effects sets out the analysis of the objectives and policies relative to the Project and these have been considered in the development of this UDLF.

##### 3.1.4. North-West Wildlink

The North-West Wildlink project was launched in 2006 and is a collaborative effort between the Auckland Council, Auckland University, Queen Elizabeth National Trust and the Gecko NZ Trust. It aims to connect and enhance natural areas, including open spaces, stream banks, esplanade reserves and backyards along a broad 'green corridor' from the Waitakere Ranges to Whangaparoa peninsula, providing safe routes and refuges for native plants and animals.

SH16 and SH18 are identified as already providing a strategic habitat along the Wildlink through extensive native roadside planting that connect or reconnect natural spaces and restored waterways.

##### 3.1.5. Auckland Transport

Section 2.6 of the ATCOP includes urban design, safety and accessibility principles. These principles are consistent with the NZ Transport Agency's urban design principles and, together with them, they support an integrated, safe and accessible movement network. As reflected in the urban and landscape principles for the Project they will inform, in particular, the design for amenity for local road and pedestrian and cycle path users.

The seven urban design principles are:

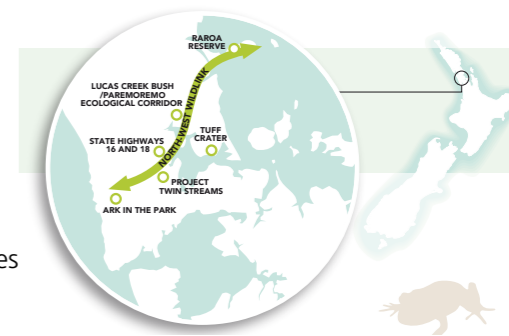
- Fitting into the built fabric;
- Connecting modes and communities;
- Designing sustainably;

- Incorporating heritage and cultural contexts;
- Designing an experience in movement along streets;
- Creating self-explaining road environments; and
- Achieving integrated and minimal maintenance design.

The safety and accessibility principles are:

- Surveillance:
  - Getting eyes on the street (see and be seen);
  - Improving street and pedestrian activities.
- Access control:
  - To create areas of safe movement with appropriate connectivity to the surroundings;
  - Limit access to vulnerable locations.
- Sense of ownership:
  - Show that a space is well cared for and that the users feel connected to it;
  - Good maintenance;
  - Well managed and maintained environments.
- Equitable use:
  - Users of the space are generally not disadvantaged by the design and all have equal opportunities to navigate without prejudice.
- Flexibility in use:
  - Streetscapes tend to be defined by the zones in use, such as the walking zone, street furniture zone etc. Flexibility in the ability of users to deviate from the use of these zones is required to create overlap and reduce potential conflicts.
- Simple and intuitive:
  - An intuitive design is one that all users can understand without the excessive use of signs, road markings and other complex visual aids.
- Perceptible information:
  - The design provides visual cues as to walking zones, furniture zones and unsafe zones without cluttering the streetscape with unnecessary information.
- Tolerance for error:
  - Humans, by nature, are fallible and prone to errors of judgement. It is important that any design has a tolerance for human error and that this error be accommodated within the designated area of the design.
- Barrier Free:
  - While the majority of road users are able-bodied pedestrians and road users in motor vehicles, it is important not to forget that some users are not as mobile or do not have access to all five major senses. It is therefore vital that designers consider how their designs impact on limited mobility or disabled users.
- Size and space for approach and use:
  - Human spaces are defined by the scale of the built environment; if too big - it will feel empty and unsafe, if too small - it will feel claustrophobic and aggressive i.e. a small high street footpath will feel crowded when occupied with lots of pedestrians.

An appropriate balance is required between these factors and is dependent on context.



North-West Wildlink green corridor



AT Code of Practice



## 3.2. History and heritage

### MAORI HERITAGE:

The *North Shore Heritage Thematic Review Report* notes that the Maori name for the Project area is believed to be Kaipatiki, meaning 'to eat flounder, or the feeding ground of the flounder'. A small pa is recorded on the north bank of Lucas Creek and it is likely that the creek was a source of eel, trout, crayfish and flounder. In early days the main method of travel for Māori was by Waka and this was mimicked when the Europeans started settling in the area in the late 1890's and the early 1900's. There are many recorded wharf sites up and along Lucas Creek. Waka would traverse Awa (the waterway) and then once it got too shallow they would walk along the watercourse and then head to higher land to look for landmarks and survey the surrounding areas.

Although there is not much history written about this particular area, for Maori there are many stories of traditional Ara (pathways) that linked Te Waitemata with the Manukau and Kaipara Harbours, and the Waitakere Ranges. There is evidence of a trail from Te Oneroa o Kahu (Long Bay beach), over the cliffs to Okura. The trails from Long Bay connected with the Oteha Valley and continuous ridgeways such as the one along Lonely Track Road, and with the Okura River and Lucas Creek.

These Ara were important routes between the Hauraki Gulf, the Waitakere Ranges, the shores of the Manukau Harbour, and the eastern side of the Kaipara, and were used for seasonal fishing excursions and communication links and by Mana Whenua exercising their ahi kaa (occupation rights) over the lands and waters.

These tracks and seasonal dwellings and the stories associated with them are a key part of the tribal identity of all tribes of Auckland.

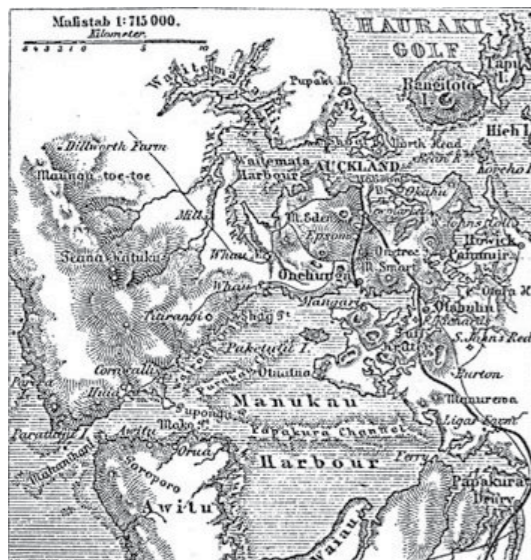
### EUROPEAN HERITAGE:

With the completion of the Auckland Harbour Bridge in 1959 and new roads came subdivision, and with subdivision came rapid transformation of the landscape for residential and commercial

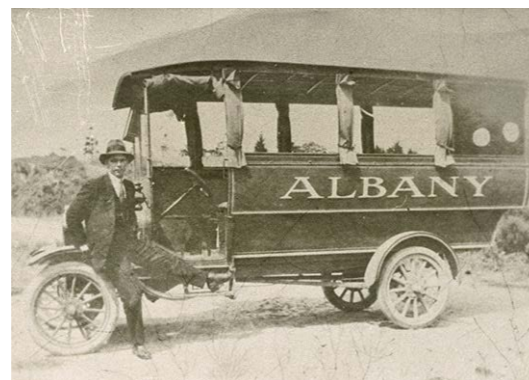
development. Farming and fruit growing were increasingly edged out. Today there are few remaining pockets of unbuilt-upon land, generally in valleys (following watercourses) or on ridges.

The construction of the Harbour Bridge was the key event that opened up the North Shore to urban expansion and development and set in train the changes from a rural to a mostly urbanised environment. Since then, there is a history of road improvements in response to growing population and increasing traffic:

- 1959 Auckland Harbour Bridge opens
- 1984 new expressway opened at the end of the Northern Motorway
- 1984 Auckland Harbour Bridge toll removed
- 1994 expressway to Greville Road upgraded to motorway with a new interchange at Constellation Drive linking to Waitakere City via the Upper Harbour Highway
- 1999 first 13km section of Albany to Puhui Realignment (ALPUR) between Greville Road in Albany and Silverdale in Rodney
- 2000 motorway now extends as far as Orewa, 31 kilometres from its origin at Wellington Street
- 2008 Northern Busway opens
- 2008 completion of Onewa Road interchange and Onepoto Bridge
- 2009 completion of ALPUR – 7.5km Northern Gateway Toll Road



Map of Auckland 1888 showing an empty area north of the bridge



Len Foley with the Albany bus in the 1920s, courtesy North Auckland Research Centre (Auckland Libraries), IDB0021



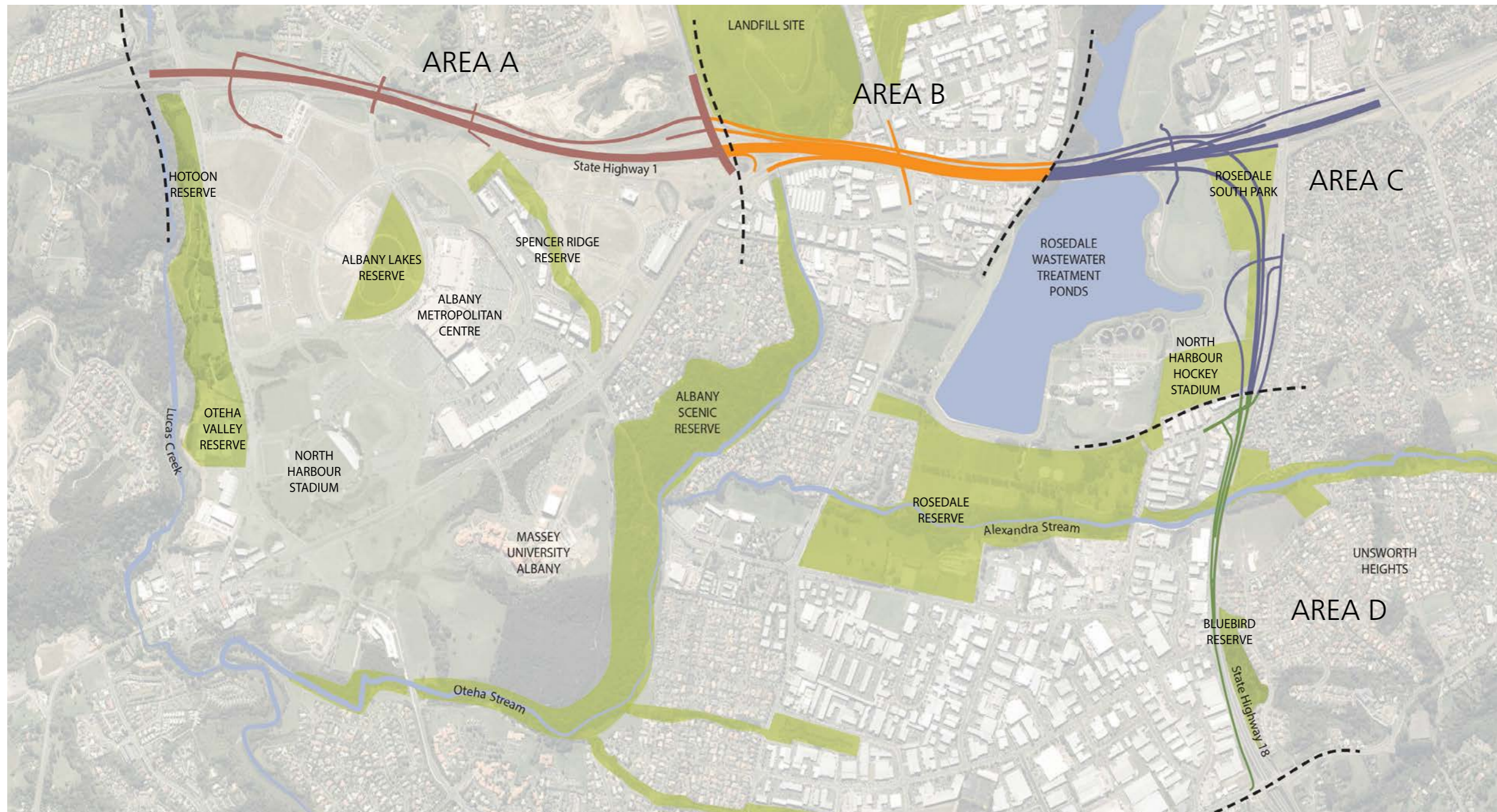
Auckland Harbour Bridge under construction Source: Auckland Motorways, NZ Transport Agency 2008



### 3.3. Environmental context

#### 3.3.1. Character areas

This area of the North Shore is experiencing enormous change. Not very long ago Albany was a sleepy little rural village, now it is rapidly being transformed into one of Auckland's largest retail centres and the whole area is becoming highly urbanised. The Project area traverses areas that vary greatly in character and scale, including open parkland, light industrial, large commercial and single storey residential neighbourhoods. Key landscape and urban features of the existing environment were assessed to identify character-giving elements to retain and enhance.



Northern Corridor character areas





### Character Area A: Albany Bus Station to Greville Road

This area is in transition, with new development occurring as part of the growth of greater Albany. The development is broadly, commercial to the west and residential to the east. The terrain rises gently to the north and (beyond the corridor) to the north-west. It includes the Albany Bus Station on the western side of SH1.

The Albany metropolitan centre is more visible on the western side when travelling south to north on SH1. Travelling south it is buffered from SH1 by embankments and then by the undulating topography. Over time the commercial uses are likely to be more dominant both on the skyline and closer to the corridor as they 'fill in' the empty blocks; however, there are currently large areas of pen space and grassland punctuated by residual pockets of bush.

To the east of SH1 is an existing residential catchment which is also being expanded between Spencer and Greville Roads and will create a stronger sense of enclosure to the corridor. The Spencer Road ridgeline (with the water reservoir at the high point, and surrounding patches of scrub) is a key feature.

There are long views down the corridor towards Sunset Road Bridge from elevated areas, and wide vistas from the Oteha Valley Road and McClymonts Road bridges over SH1. The large, structured Greville Road intersection marks the transition between this and the next character area.

Lucas Creek, Hotoon Reserve and Oteha Valley Reserve are natural features defining the northern end of the Project area.



Character Area A



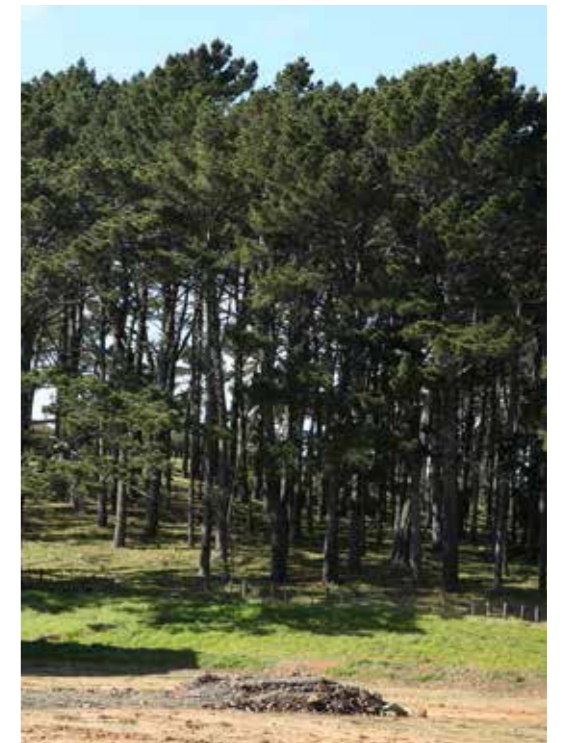


### Character Area B: Greville Road to Rosedale Waste Water Treatment Plant

The terrain through this area is relatively flat and low-lying, dropping noticeably to the large stormwater ponds that mark its southern extent (and the lowest point of the Project). A wide grass embankment along northern edge of ponds with very tall pines (pinus radiata) provides a soft edge buffering to the adjacent light industrial uses for people travelling on SH1.

This character area is distinctive for its hire yards, storage sheds and a range of light industry typically contained in 'big box' or shed-type buildings with hardstand car parking. On the west side a mix of buildings and car parking areas edges the corridor: on the east the buildings are along the edge of the corridor, in part separated from it by large grassed embankments (that will be lost to the Project) but still creating a sense of containment.

The corridor is flanked by a large landfill site east of and rising 35 metres above the Greville Road intersection. The site is grassed, interspersed with woodlots comprising single species – planting trials of different vegetation types.



Character Area B





### Character Area C: Rosedale Waste Water Treatment Plant to Paul Matthews Drive

This area is largely defined by the SH1 / SH18 (Upper Harbour Highway) interchange, which wraps around open parkland to the north-west, separating it from established small-scale residential (south-west) and large-footprint commercial (east). It includes the Constellation Bus Station. The area is highly modified from its original form.

Despite the practical function of the ponds within the Rosedale Wastewater Treatment Plant, the open space area around them is perceived as a more 'natural' environment and are a habitat for waterfowl. The open space moderates the change in character from this to the commercial uses along Paul Matthews Drive.

The residential area of Unsworth Heights is elevated above SH18 and consequently the subdivision pattern, and the housing types, contribute strongly to the area character.

The street layout is curvilinear – main local streets following the natural contours – with multiple short cul de sacs. Houses are typically detached and single storey.

Where SH1 crosses over SH18 the travel experience is visually expansive, with both longer and wider locating views to the landscape.



Character Area C





### Character Area D: Paul Matthews Drive to Albany Highway

In this character area the terrain is relatively even, rising gently to the west towards Albany Highway from Alexandra Stream. The road corridor is set down in the landscape, which gives a strong sense of containment.

The corridor is edged by commercial office uses to the north, which although 'big box' in form are relatively recent (compared to Character Area B) and offer some public domain amenity in the form of street trees and well defined footpaths.

There is an Accident and Emergency clinic off Unsworth Drive, and residential uses to the south. As for Character Area C, these are typically single detached dwellings on curving streets, although the street pattern (partly due to the topography) has more long than short cul de sacs.

A key feature of this area, crossing the alignment, is the Alexandra Stream and associated bush corridor, which includes a large pocket of bush at the western end, predominantly Manuka and tree ferns, interspersed with some exotic species.

Along the bush / open space corridor is a well used cycle path and walkway. The path traverses the Upper Harbour Highway by way of a (recently upgraded) corrugated iron-clad underpass.



Character Area D



### 3.4. Neighbourhoods and community

There are many neighbours to the Project. Immediately adjacent to the corridor are commercial, existing residential (Unsworth Heights) and new mixed use residential (north of Greville Road) areas, 7.3 Ha of recreation reserve, and the North Harbour Hockey complex between the Watercare ponds and SH18. There is a Medical Centre located on the corner of Unsworth Drive and SH18, four childcare sites within 200m of the Project area and 10 schools in the wider area.

Engagement with potentially affected parties and key stakeholders has been ongoing since 2014. This engagement was critical to the development of the Project and was a critical part of the alignment refining and preliminary design decisions ahead of lodgement.

Stakeholder and community engagement has continued and a proactive stakeholder and community consultation period was undertaken from early May to late July 2016. The timing of this consultation was planned in order to inform the social/environmental assessments and preliminary design work being finalised throughout August – October ahead of the lodgement.

The NZ Transport Agency sought feedback on the Project as a whole, and in particular:

- Urban design;
- Walking and cycling facilities; and
- Local road improvements.

This consultation has helped the Project team in understanding stakeholder and community issues and needs which has informed the development of the Project design with:

- The Project Reference Group, a stakeholder group including, Auckland Transport, Auckland Council, Local Boards, Watercare and Iwi;
- A group of 85 key stakeholders including North Harbour Hockey, Transpower, Vector, Cycle Action Auckland, Walk Auckland, Massey University and QBE Stadium;
- 130 interests on 52 properties; and
- Neighbours and the wider community (with a focus on Unsworth Heights).

The outcomes of the engagement process fed into the identification of options, the options assessment and the refinement of the preliminary design.

#### 3.4.1. Iwi engagement

Cultural Values Assessments have been commissioned. Initial engagement with Mana Whenua involves an Iwi Integration Group and there have been two site visits and numerous hui.

#### 3.4.2. Cultural matters

Within the Project footprint there are no identified or scheduled heritage or archeological sites, nor any identified sites of cultural significance to Iwi. However, there are waterways and ecological areas important to Iwi – particularly the culturally significant Oteha Valley, Rosedale Creek, and Lucas Creek – that are part of the wider context and that Iwi seek to protect and enhance.

Iwi identified earthworks, stormwater treatment, vegetation removal, impacts on biodiversity, ecological enhancement and the design of structures as opportunities for ongoing discussion and input. Iwi provided feedback on minimising impacts on the environment and identifying ways to enhance biodiversity, the built environment, pedestrian and cycle connectivity and public transport initiatives. The importance of cultural responsiveness to Iwi is recognised through

incorporation of Te Aranga design principles into the UDLF, which include a forward process to acknowledge cultural kaitiakitanga and Mana Whenua values.

#### 3.4.3. Key themes

The Stakeholder and Community Engagement Report summarises the key themes that emerged from the engagement alongside a description of how these have influenced the Project. The context for these themes is overall acknowledgement that improvements to the SH1/SH18 section of the motorway network are necessary to relieve current congestion issues and provide for future growth and demand.

Early in the Project there has been extensive consultation. In this consultation key urban design and landscape themes identified were:

- 1 Connectivity: Local connections and cycleways
- 2 Planting and greenery is what makes the area special
- 3 Where-ever possible incorporate planting to reduce the impact of walls and structures.





### 3.4.4. Land use issues

Concern was expressed by the two local boards within the Project area about impacts on recreational facilities that are community assets: the hockey complex and the proposed sports fields at Rosedale Park.

Landowners and business owners focused on potential threats to business, particularly from loss of passing trade (both from an access and a visibility standpoint), loss of land and severance both within and between business areas.

These identified issues fed into options for realigning Paul Matthews Drive, as did Watercare's requirements to allow for future expansion of their operations and to minimise intrusion into the odour buffer designation.

### 3.5. Land use, built form and infrastructure relationships

The built form through the Project area and surrounding area reflects the contrasting land uses. Commercial development straddles SH1 at Rosedale Road, wrapping around the eastern side of the Watercare ponds and edging Constellation Drive.

Residential uses are established on the south side of SH18 and west of SH1 (Unsworth Heights), and are beginning to characterise the corridor north of Greville Road, east of SH1 (Pinehill). The Albany Centre forms a rough triangle between the Albany Expressway, Oteha Valley Road and SH1.

These three main land uses have different street and block structures, and different building typologies. Albany Centre has a highly formalised street network with a ring road encircling Albany Lake Reserve, the large Westfield Mall (with its extensive hardstand parking) and a PaknSave. The North Harbour Stadium occupies the north east corner.

The commercial areas have very large blocks, 'big box' buildings set back from the street, with parking in front and around them, and many with low planting (no fences) to the street.

The residential areas feature curvilinear streets, cul de sacs, street trees and mature planting in the front gardens of generally single storey, detached homes. There remain unbuilt-on areas that break up the more intense development around them; these areas respond in part to the topography and watercourses.

The existing relationship of both SH18 and SH1 to the surrounding land uses is generally dislocated: the motorways both edge and sever the adjoining built environment, and buildings generally turn their backs to the corridor.

Major SH1 and SH18 highway user exit points are:

#### Heading west on SH18:

- Exit to Unsworth Heights at Unsworth Drive (residential area)
- Exit to Unsworth Heights at Caribbean Drive (residential area)
- Exit to Albany Highway
- Exit to Paul Mathews Road

#### Heading east on SH18:

- Exit to Paul Matthews Road (commercial area and North Harbour Hockey Stadium)
- Exit to SH1 (north and south)
- Exit to Unsworth Heights at Caribbean Drive

#### Heading north on SH1:

- Exit to SH18
- Exit to Constellation Drive
- Exit to Albany Expressway (Albany centre and Massey University; also to Tawa Drive and thence Rosedale Road commercial area)
- Exit to Greville Road (local neighbourhoods and towards Browns Bay)

#### Heading south on SH1:

- Exit to Albany Expressway (Albany centre and Massey University)
- Exit to Greville Road (local neighbourhoods and towards Browns Bay)
- Exit to Constellation Drive (commercial, and Constellation Bus Station) and from there to SH18

Major SH1 and SH18 highway entrance points are:

#### SH18:

- Paul Matthews Drive (east and west)
- Caribbean Drive (east and west)

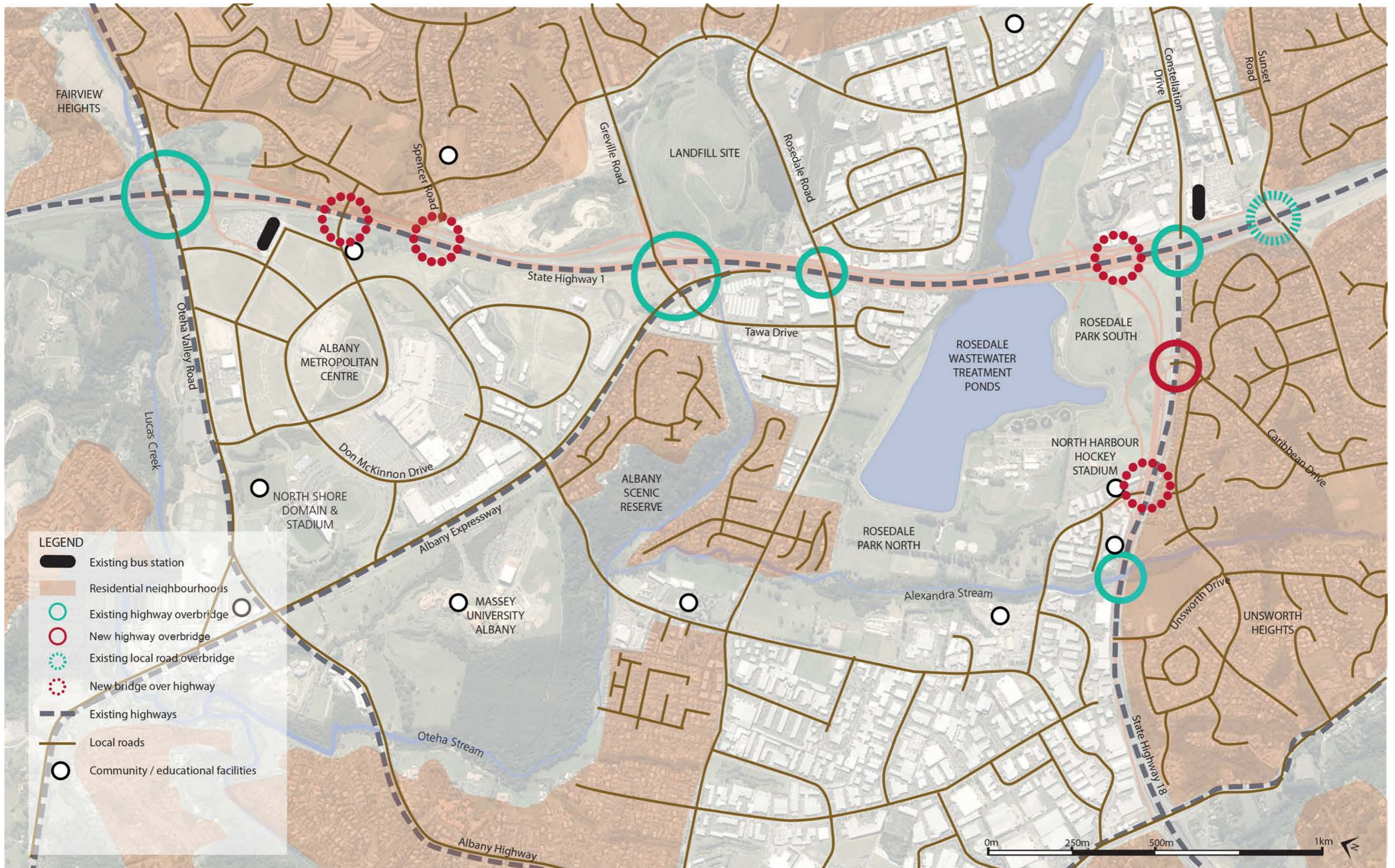
#### SH1:

- McClymonts Road (south) – also a key connection across SH1 to Elliot Rose Avenue and the Albany Bus Station
- Constellation Drive (north and south) – including from Horne Place and Parkway Drive
- Tawa Drive at Albany Expressway interchange (either to SH1, expressway to Albany Centre, or Greville Road)
- Greville Road (north and south)



Typical land use and built form: clockwise from top left, Areas 1,2,3,4





Land use pattern and existing relationship to highway and road network





### 3.6. Connections and access

For the SH18 corridor, between Albany Highway and Constellation Drive, there is an inherent conflict between 'through-traffic' and 'local access' traffic. There are three sets of traffic signals that restrict strategic traffic flow travelling between SH18 and SH1, two of which provide local access. SH18 also separates the North Harbour Industrial Area from the residential catchment to the south and further east. Subsequently the corridor is used for local trips as well as interregional and cross regional trips.

The SH1 and SH18 corridors both present significant barriers to walking and cycling accessibility, with a general lack of provision across these routes. Provision for walking and cycling along the corridor is also poor, with limited accessibility from the bus stations to business and residential areas and to recreation facilities.

The Upper Harbour Highway and Greville Road interchanges both form part of the existing or proposed Regional Cycle Network. There are currently no dedicated facilities through the Upper Harbour Highway interchange, resulting in a dangerous environment, discouraging active modes. While improvements at the Greville Road interchange have been incorporated as part of the Upper Harbour to Greville widening, facilities through the Upper Harbour Highway interchange are limited.

Along SH18, there is a footpath on the southern side between Constellation Interchange and Caribbean Drive, but no facilities further west. There is therefore no walking/cycling connection between the Constellation Bus Station and the North Harbour Hockey stadium and employment area of the North Harbour Business Park (via Paul Matthews Road).

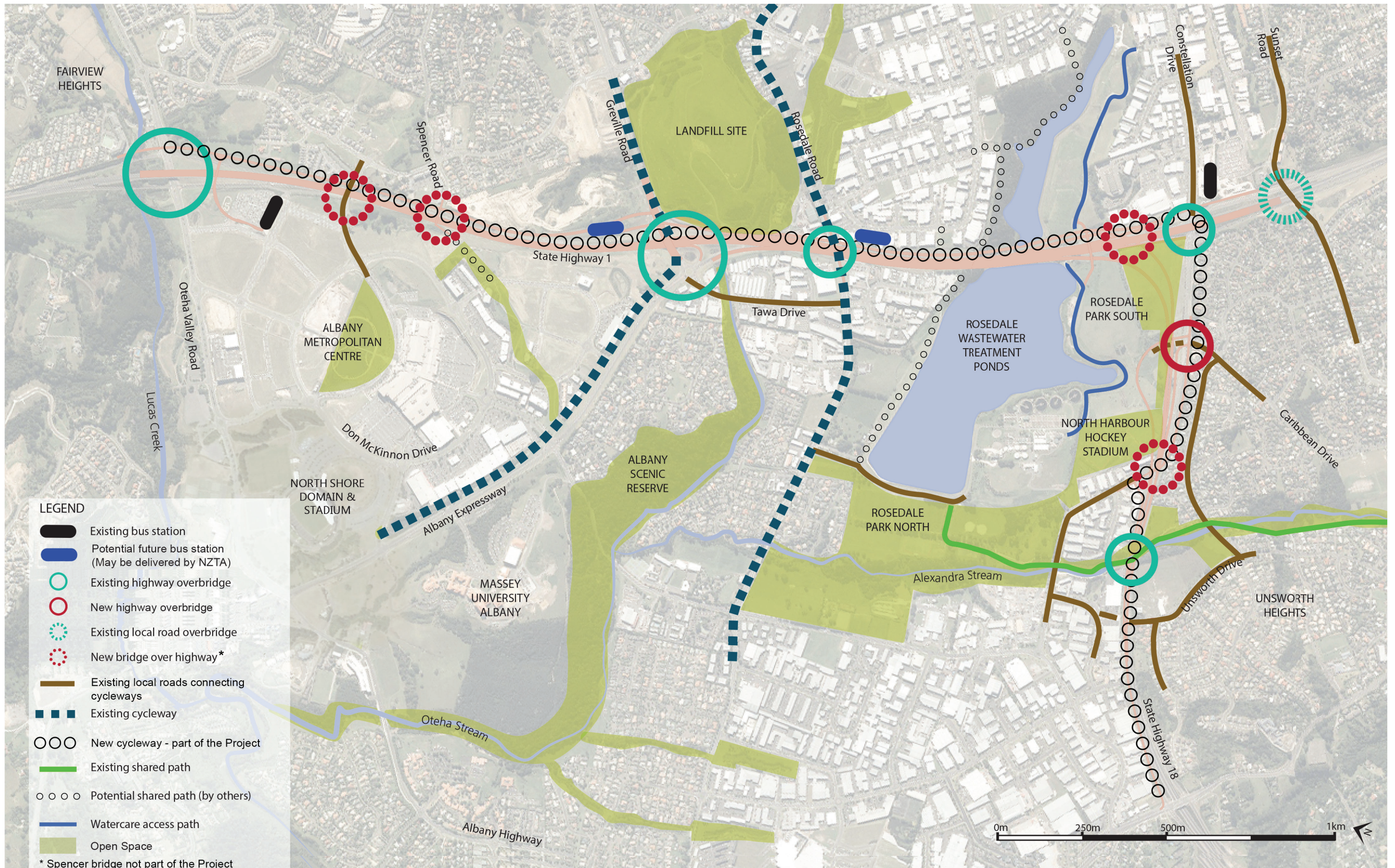
The Walking and Cycling Study notes that, in terms of cycle facilities:

- There are no separated cycle lanes along any of the network;
- Rosedale Road has continuous on-road cycle lanes of varying quality along its length, as does East Coast Road (between Rosedale Road and Constellation Drive);
- A new shared path facility has been implemented along Albany Expressway and Greville Road, as part of the Upper Harbour Highway to Greville Road Northbound 3-laning project by the NZ Transport Agency. The shared path begins at the Albany Expressway / Mercari Way intersection and continues to the East Coast Road / Greville Road intersection. However, as this is a main connection to the East Coast Bays, improved facilities are desirable;
- Construction is currently on-going to upgrade Albany Highway, north of SH18. This upgrade includes walking and cycling facilities;
- There is an existing shared path facility from Rosedale Road to Goldfinch Rise in Unsworth Heights;
- There is a well-defined set of routes within Albany Centre, however the connectivity to these routes is lacking; and
- Along Constellation Drive, between East Coast Road and Home Place there is a peak hour bus lane in either direction. These are also present on Elliot Rose Avenue (within Albany Bus Station), between Cornerstone Drive and Munroe Lane. Cyclists are permitted to use these bus lanes, but there is collision potential with either buses or parked vehicles, particularly along Constellation Drive which is classed as a connector route in the Auckland Cycle Network.



Typical pedestrian / cycle experience: left to right, McClymonts Road bridge, Rosedale Road under SH1, Unsworth Reserve shared path (existing)





Local road and active mode connectivity, existing and potential





### 3.7. Ecology

The Project area is relatively low in ecological value given its urban setting.

The presence of some general low-level value vegetation throughout the Project corridor provides potential for skinks to be present, but likely at low levels because of the modified habitat.

The New Zealand dotterel, a threatened endemic shore bird with a conservation status of 'nationally vulnerable' has been spotted near the Project area.

The Rosedale ponds provide habitat for a wide range of bird species. A relatively large population of birds is typically present, especially when numbers of Canada goose are high.

Vegetation within the Project area contains a mixture of exotic and native species typical of residential areas and transport environments. As the existing environment is characterised by an urban setting, ecological values are generally considered to be low.

Two areas within the vicinity of the Project are identified as Significant Ecological Areas (SEA) in the AUP.

A SEA occupies the steep south-facing scarp above Lucas Creek and part of this SEA extends along the western side of the northbound on-ramp at Oteha Valley Road (SEA\_T\_8297).

There is a considerable amount of native vegetation surrounding SH1 in this area, including regenerating podocarp broadleaved forest.

In general the riparian vegetation along Lucas Creek is of good quality and the SEA vegetation further up the slope is weedier with a significant component of exotic trees.

There is little vegetation of note on the southern side of Oteha Valley Road at either side of SH1, and that present is predominantly located on the western side of the motorway comprising isolated strip planting shrubs and trees

Between McClymonts Road and Rosedale Road, there is little vegetation of note with some vegetation located on the corner of McClymonts Road and the southbound SH1 on-ramp. There is also standard motorway revegetation on both sides of the on-ramp.

The Greville Road Interchange area contains a mixed exotic and native vegetation with restoration planting surrounding the existing stormwater pond. The eastern end of Tawa Reserve adjacent the Greville Road Interchange consists of young revegetation planting with a number of weed species.

Vegetation within the extent of the Rosedale Landfill within the Project area consists of some vegetation including small eucalypts, with Pohutukawa also present. The Gas Plant has privet and bamboo at the western end near SH1 and a stand of mature, mainly exotic trees to the east opposite the refuse transfer station.

With respect to the Project area between Rosedale Road and Constellation Drive, there is minimal vegetation (grass and isolated exotics) on the eastern side of SH1.

While the ponds at Rosedale Wastewater Treatment Plant are subject to two SEA's (being SEA\_T\_8364 and SEA\_T\_8365), the botanical value of vegetation adjacent the Project within the Rosedale Waste Water Treatment Plant is low and consists of pines, open grassland, and some sparsely planted native trees.

A number of reserves straddle SH18 (Omega Reserve, Rook Reserve and Bluebird Reserve) and are typical of urban reserves that have received native restoration planting.



### 3.8. Hydrology and stormwater

The Project lies within two stormwater catchments:

- Lucas Creek Stormwater Catchment – from Oteha Valley ridge and Spencer Road ridge; and
- Oteha Valley Stormwater Catchment – from Spencer Road ridge to Sunset Road ridge.

The diagram in this page shows both catchments and distinguishes between natural (shown green) and modified (shown blue) waterways.

#### 3.8.1. Oteha Valley Catchment

The Oteha Valley catchment is classified as Stormwater Management Area Flow - Oteha Valley flow 2 in the PAUP. The majority of the works are within the 1300 hectare Oteha Valley Catchment, to the north of the Sunset Road ridgeline. The Oteha Stream discharges into the Lucas Creek just downstream of the Albany centre.

The main Oteha Stream, now piped in the upper tributaries, has its headwaters in the Constellation Drive industrial development. The stream is piped via a tunnel under the Watercare Ponds and from the ponds to the outlet through open drains and culverts into the natural stream.

The Alexandra Stream drains the Unsworth Heights area and flows through an open stream from Upper Harbour Highway to its confluence with the Oteha Stream. There are reported reaches of the Alexandra Stream where erosion is severe.

At the centre of the catchment are the Rosedale Wastewater Treatment Ponds which discharge via a tunnel under East Coast Road to an outfall off the coastline from Mairangi Bay.

A cut-off drain was formed on the southern side of the ponds, and 5 stormwater detention ponds constructed to provide for detention of stormwater generated from increasing development.

The current stormwater model for the Oteha Valley Catchment (Model Build and System Performance Report, Final July 2013) indicates an area of flooding within the Greville Road interchange area, to the east of SH1 between Rosedale Road and the Rosedale Landfill and within the Rosedale Wastewater Treatment Ponds where stormwater is expected to overtop the diversion channels and discharge into the stormwater ponds in extreme storm events.

#### 3.8.2. Lucas Creek Catchment

The Lucas Creek (stream) is 16.3 kilometres long with a contributing catchment of approximately 600 hectares. Its catchment is subject to SMAF 1 and SMAF 2 classifications under the AUP.

The stream flows approximately northeast-southwest and discharges into the low energy Lucas Creek (estuary), along with streams from eight other stormwater catchments.

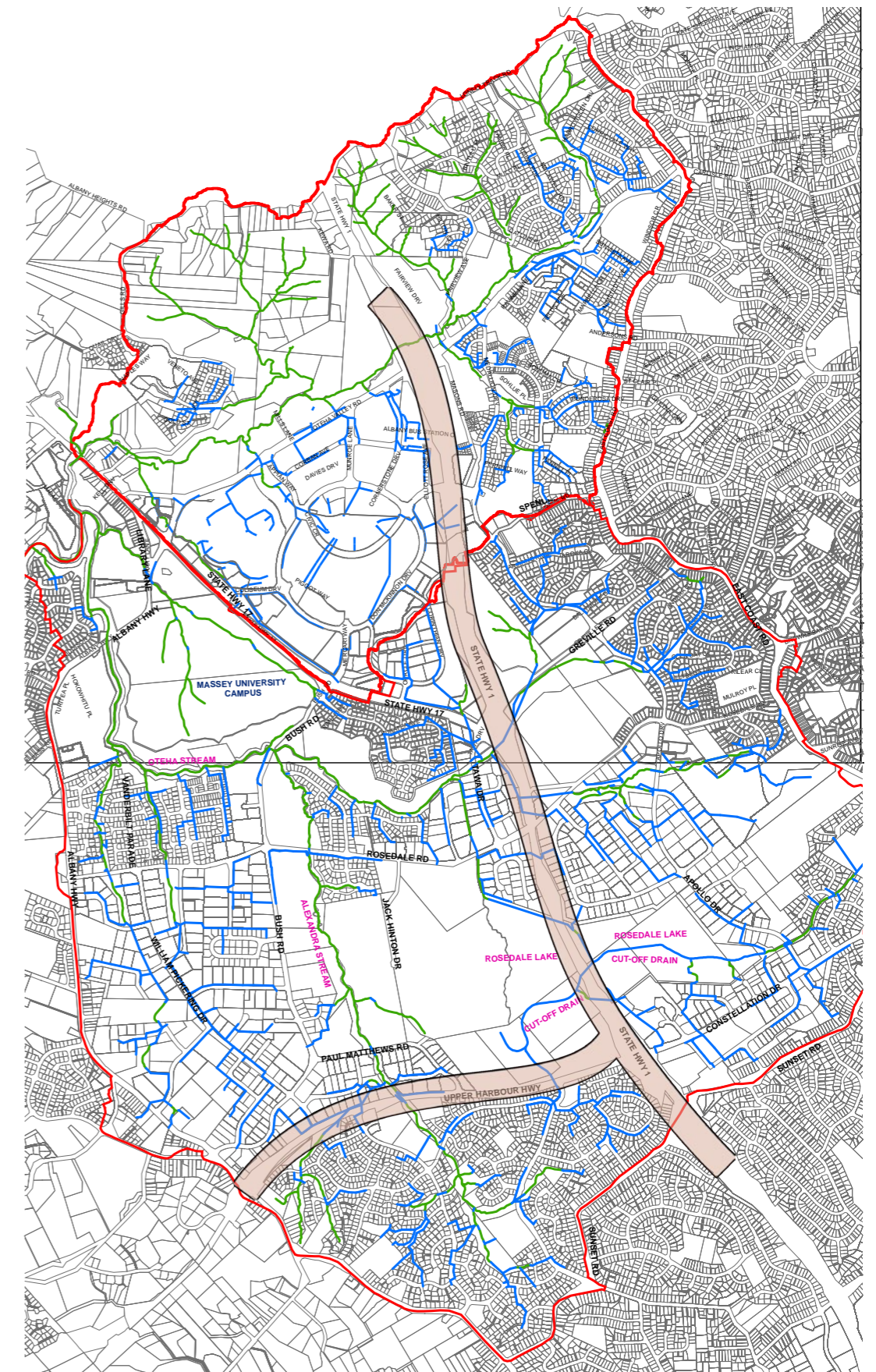
Lucas Creek is generally used to refer to both the freshwater and marine (estuarine) sections of the creek.

Significant development has occurred since 1997 within this catchment including the large business area in the south-west quadrant, the northern motorway and high density residential development.

Increased rainfall runoff as a result of this development has caused the channel to erode and widen. While these effects are evident in parts of Lucas Creek, the stream system still retains stretches of excellent native riparian cover.

The key issues for the Lucas Creek catchment are: stream bank erosion, flooding from overland flow and riparian habitat degradation.

Iwi have indicated that they consider that careful storm water management is particularly important given Lucas Creek discharges into the Waitemata Harbour.



Stormwater catchments: green lines show the natural stream system; blue lines show modified (channeled or piped) waterways





### 3.9. Project constraints and opportunities

A range of constraints and opportunities identified by the Project team are summarised and mapped in the following two diagrams, as they represent opportunities created by the Project.

The purpose of these diagrams is to illustrate, at a high level, what the key drivers were for selecting and then refining the Project's preferred option.

Mapping them also helped the urban and landscape designers develop the Project's urban and landscape principles, and contribute to the preliminary design response for particular areas.

#### 3.9.1. Key constraints identified are:

- Reserves and SEA at Alexandra Stream and Lucas Creek;
- Rosedale Landfill site;
- Rosedale Wastewater Treatment Plant and its future expansion;
- Land currently perceived as 'vacant' open space within the Project area;
- Watercare odour designation boundary;
- Rosedale Wastewater Treatment Plant ponds including surrounding grassland: Two SEA's because of habitat provided for waterfowl;
- Flood prone area through the Greville Road interchange;
- Land on corner of SH1/SH18 interchange earmarked for future recreation;
- The North Harbour Hockey Centre and its planned expansion;
- Existing services: trunk sewer, 220kV Transpower lines and Vector lines;
- Existing overbridges;
- Rosedale Road overbridge – vertical clearance is minimal;
- Upper Harbour Highway Overbridge – width below is restricted, limiting ability to improve pedestrian/cycle facilities;
- The Spencer ridgeline that (along with the Rosedale ponds) positively contributes to the local environment;
- Existing waterways within the Project area: Alexandra Stream and Oteha Stream; and
- Lucas Creek.

#### 3.9.2. Key opportunities identified are:

##### Land use, transport and urban form integration

- Enable future development of open space as part of a connected recreational (active and passive) network; and
- Enable cultural interpretation by engaging an Iwi artist to develop concepts that illustrate the Mana Whenua narrative for the Project.

##### Landscape and ecology

- Reinforce the character of the natural landscape link between the Rosedale Landfill and the Oteha Stream and the Bushlands Reserve at the Greville interchange area;
- Match the horizontal scale of infrastructure with vertical scale of planting;
- Underplant tall forests on 'leftover' land at interchanges, minimising areas of mowing and maximising planting that requires little maintenance;
- Support the Northwest Wildlink through enhancing and / or introducing intensive areas of native planting to extend the "green route" near SH18 and / or SH1;

- Use embankment planting not only to mitigate low-moderate landscape effects associated with landform modification, but also as part of a corridor-wide landscape concept; and
- Enhance the natural character of the area by using riparian planting at the edges of ponds and streams.

##### Connectivity

- Enable a connected open space and pedestrian network including regional linkages (North West Wild Link / AC regional cycle network);
- Create a continuous cycle and walking path the length of the Project with:
  - A new north-south connection adjacent to the new Busway from Constellation Drive to Oteha Road; and
  - A Shared Use Path through Constellation Drive on the south side (under SH1), then over SH18 on realigned Paul Matthews Drive, then linking to a Shared Use Path along SH18 to Albany Highway.
- Facilitate safe, high amenity pedestrian and cycle links across the corridor and to the surrounding communities with:
  - A connection down to Alexandra Stream / bush corridor cycle path from the new shared path along SH18; and
  - A connection to the existing underpass at Alexandra below SH18.
- Other opportunities outside the Project:
  - Potential future connection to the Rosedale Landfill (not part of the Project);
  - A new pedestrian / cycle bridge combined with Watercare pipe at Spencer Road (not part of the Project);
  - A connection to the north side of the Watercare ponds to link to a future waterfront path and the regional cycle network (not part of the Project).
- Connections to Rosedale Road, McClymonts Road, Greville Road, Medallion Drive, Arrenway Drive, Constellation Bus Station and William Pickering.

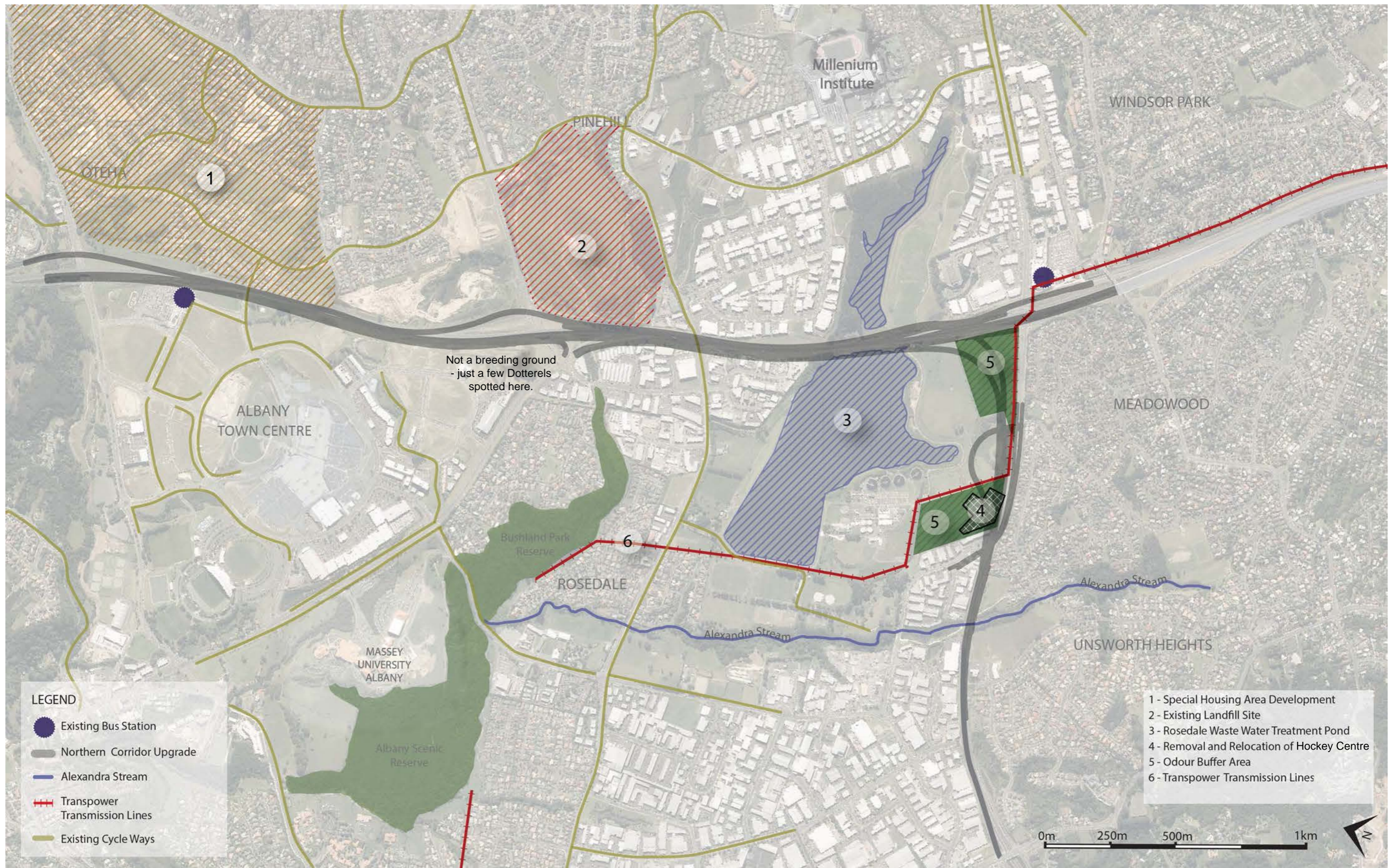
##### Amenity

- Create legible, clear visual / physical connections across the motorway / to and between local neighbourhoods;
- Keep State highway and Northern Busway bridges separate where they cross over local roads, to daylight the public domain below and offset loss of amenity from additional structures;
- Integrate bus station approaches with safe, overlooked, high amenity movement networks;
- Capture and frame key locating views to important landscape elements from elevated structures at interchanges to reinforce a sense of place;
- Continue to 'read' the rolling topography and relatively large green spaces and established tree canopy; and
- Retain consolidated open space areas, enabling green edges to corridor and green links beyond for visual as well as ecological benefits.

##### Structures

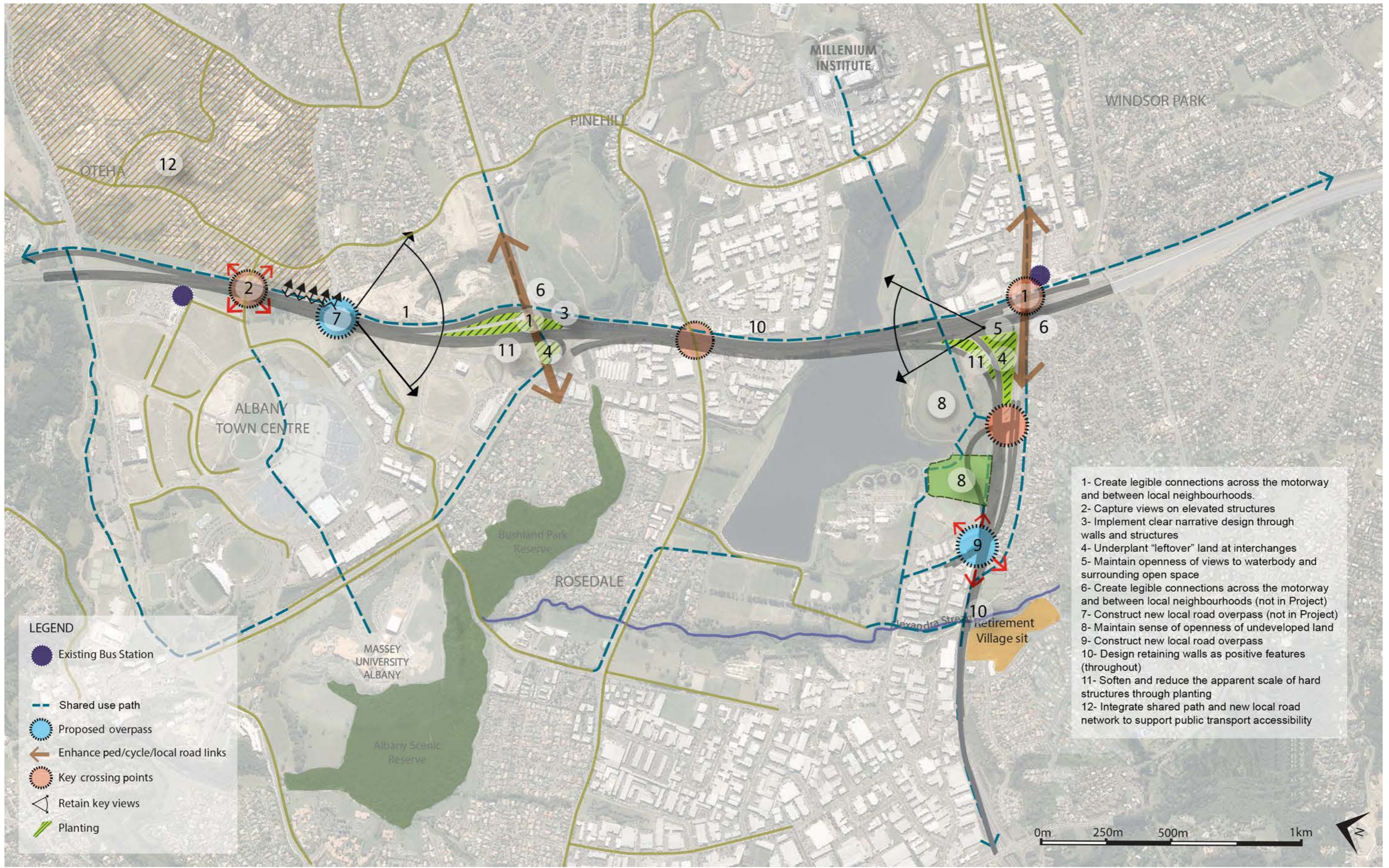
- Design structures (bridges, abutments, retaining walls) as strong features in the landscape that reinforce corridor character;
- Scale and design, new structures to be viewed from a distance as well as close up including size of cut and height of retaining walls;
- Capture views and vistas;
- If noise barriers are required, design them as part of 'family' of highway furniture to reinforce a coherent look and feel for the corridor (and wider motorway network);
- Use planting to soften and moderate the apparent scale of large structures;
- Minimise the visual impact of large structures from surrounding land uses by defining a minimal overall footprint for all the elements of the Project; and
- Enable cultural interpretation through early engagement with local stakeholders including Mana Whenua to develop a collaborative design that addresses local views, aspirations and contains stories of the place.





Existing features, constraints and wider opportunities





- 1- Create legible connections across the motorway and between local neighbourhoods.
- 2- Capture views on elevated structures
- 3- Implement clear narrative design through walls and structures
- 4- Underplant "leftover" land at interchanges
- 5- Maintain openness of views to waterbody and surrounding open space
- 6- Create legible connections across the motorway and between local neighbourhoods (not in Project)
- 7- Construct new local road overpass (not in Project)
- 8- Maintain sense of openness of undeveloped land
- 9- Construct new local road overpass
- 10- Design retaining walls as positive features (throughout)
- 11- Soften and reduce the apparent scale of hard structures through planting
- 12- Integrate shared path and new local road network to support public transport accessibility

Corridor-wide opportunities



# 4. DESIGN STRATEGY







## 4 DESIGN STRATEGY

### 4.1. Urban and landscape design principles

This UDLF seeks to strengthen both the linear corridor identity of SH1 and SH18 and their connection to the places through which it passes. For that, the overall design vision is framed by a set of general principles and specific outcomes sought/mitigations that will drive the Project from inception to completion. The general principles are aligned with 10 urban design principles as defined in NZ Transport Agency's "Bridging the Gap" urban design guidelines, and 10 landscape design principles as defined in NZ Transport Agency's "Landscape Guidelines" as follows:

#### 4.1.1. Urban Design Principles:

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

#### 4.1.2. Landscape Principles:

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





## 4.2. Vision statement

Considering the overall principles, the following project specific urban design and landscape vision for the Project has been developed:

- Connect and re-connect communities severed by the corridor;
- Active modes (walking and cycling) as transport choice;
- Reinforce the pattern of openness and enclosure that characterises the travel experience through the built environment and landform between higher ground and Rosedale Wastewater Treatment Ponds, Alexandra Stream, Oteha Stream and Lucas Creek;
- Plant to green the corridor, mitigate visual impacts and integrate the Project with the wider landscape;
- Integrate all landscape and structures design as a 'whole' composition to reinforce the cultural narrative and character of the Project area;
- Capture and create significant views and vistas to give a new perspective and a new appreciation of the urban landscape and setting; and
- Celebrate cultural identity and sense of place.

## 4.3. Project specific urban design and landscape outcomes and Mātauranga Māori

Five key design drivers have been identified that summarise the main outcomes expected for the Project. They represent the specific design principles defined in earlier stages of the design process that underpin this UDLF and are intended to support future design stages. Accordingly, these principles are organised into five groups as follows:

### 4.3.1. Greening the corridor

- Design the interchange between SH1 and SH18 to provide visual mitigation of proposed structures, earthworks, or areas experiencing loss of existing vegetation to offer opportunities for enhancement of ecological values and biodiversity, with a mix of tall urban forest planting and low planting to support ecological processes and complement nearby existing natural habitats;
- Select eco-sourced plant species for open spaces to contribute to biodiversity, help restore the natural environment, enhance environmental health, enhance the North-West wildlife corridor and other ecological connections, filter stormwater runoff and improve air quality;
- Design street tree and landscape planting to soften the edges of the corridor and to contribute to a pleasant environment including for walking and cycling with 'Green' new local street connections;
- Provide an attractive corridor acknowledging future urban development in the area;
- Enhance stormwater management (runoff, groundwater, surface water, erosion) and landscape outcomes with planting around stormwater wetlands to provide ecological habitat, contribute to water purity, soften the water edge line in a natural manner and provide visual amenity to the road user and local community. Extend planting beyond edges to integrate with any adjacent landscape / interchange planting;
- Avoid or minimise encroachment into water courses / bodies and areas of indigenous vegetation;
- Respond to and reinforce the adjacent natural landscape and landform, taking into consideration soil and rock types and existing services;
- Design slope gradients to enable revegetation, to create whole-of-life value for landscape assets and the local ecology; and
- Provide opportunities for cultural harvest.

### 4.3.2. Views and vistas

- Create, maintain and enhance significant vistas and elevated views;
- Consider the experience of travelling across bridges: design bridges to capture opportunities to create new views to the landscape; and

- Minimise visual clutter by keeping the size and number of elements to the minimum, and combining them within one structure where possible.

### 4.3.3. Connectivity

- Enable good access to Albany town centre;
- Minimise physical, severance, and amenity impacts on existing neighbouring land uses;
- Enable a positive relationship between future built form and Paul Matthews Drive that will provide for clear visual and physical connection, and serve the needs of multiple users;
- Maintain walking, cycling and local road access to destinations including schools, shops, civic and community facilities, recreational activities, parks and reserves;
- Design for wayfinding by drawing on visual cues in the natural and built environment, particularly at decision points;
- Enable legible, accessible and safe connections to busway stations from residential neighbourhoods, town centres and commercial areas for pedestrians and cyclists;
- Prioritise pedestrian and cycle movements at intersections of local and arterial roads;
- Provide for facilities that support / promote walking and cycling;
- Make pedestrian and cycle routes as simple and direct as possible to reflect desire lines;
- Minimise the potential for conflicts between pedestrians and cyclists on shared paths and crossings of footpaths and separated cycle paths, and between cyclists and vehicles at intersections;
- On local roads, provide sufficient width under highway bridges for safe cycling (as per the Auckland Council regional cycle network) within the road corridor; and
- Apply CPTED principles to cycle and pedestrian paths. Enhance forward visibility to maximise views and minimise hazard risk for cyclists and pedestrians on shared paths and through underpasses. Design Shared Path to be direct, convenient to use, safe, and as smooth and continuous as possible.

### 4.3.4. Structures

- Design structures on SH18 in response to the concepts, colours and material palettes on the WRR;
- Design new structures near pedestrian / cycle network to support connectivity and enable wayfinding rather than block or obscure routes. Design the edges and undersides of structures visible at close range to be visually interesting;
- Drive the architectural expression of structures to respond to their context in terms of scale, form and materiality; and
- Minimise ongoing maintenance requirements for structures by selecting robust materials.

### Road bridges

- Design the form of bridges (and ramps) in relation to the surrounding and wider context;
- Locate and detail services so they are integrated into the design of the bridge and are consistent with surrounding services details; and
- Achieve a slender bridge form and balance of structural elements.

### Pedestrian bridges

- Locate bridges and approaches to link clearly and directly into the existing (and future) pedestrian / Shared Use Path network; and
- Keep barriers and balustrading as open as possible to provide views out into the landscape and also to optimise passive surveillance between pedestrians and road users.





#### Underpasses

- Maximise light penetration and visibility of underpasses, by designing them to be as straight, high and wide as possible, and at or near grade with the surrounding land;
- Design underpasses to be 'legible' in the landscape, well connected into pedestrian and cycle networks and logically located, with clear and direct approaches that can be seen from a distance;
- Improve the amenity and perceived safety of existing underpasses through the use of light colour to internal walls and ceiling, on-axis approach and entry (for clear views through) and clear links into the Shared Use Path network; and
- Where possible use underpasses as opportunities for cultural interpretation and culturally sensitive features.

#### Retaining walls and noise barriers

- Design retaining walls and noise barriers to be complementary with both the landscape adjacent to the corridor and with the overall family of State highway structures;
- Design noise walls to be 'two-sided', with the design of each side reflective of the different speed and scale environment it fronts (e.g. high speed to the State highway, low speed to the local area);
- Minimise the visual impact of noise walls with limited height, integrating them with bunds and/or softening with planting. Where this is not possible a design pattern defined using the cultural narrative should be integrated on the visible face of noise walls;
- Integrate the planting design with noise barriers and retaining walls both for aesthetic reasons and to deter graffiti; and
- Where possible use retaining walls and noise barriers as opportunities for cultural interpretation and culturally sensitive features.

#### Highway furniture

- Create a 'whole of journey' experience through consistency in the design of lighting, gantries and signage that also reflects other parts of the Auckland regional network;
- Coordinate the design of highway furniture with the design of bridges, ramps, and walls;
- Design for safety and usability of public spaces adjacent to and / or underneath the corridor and its structures;
- Optimise the width of pedestrian and cycle paths for safe passing – at grade and on overbridges;
- Locate and design shared paths to allow informal surveillance between the path and adjacent road or activity, and with good forward visibility;
- Make shared paths wide enough to reduce the potential for conflicts between users and/or a perception that passing space is inadequate; and
- Cultural designs and wayfinding / naming.

#### 4.3.5. Maturanga Maori

Along with the NZ Transport Agency guidance on Maturanga Maori, the Auckland Design Manual (October 2013) contains Maori design principles which reflect the Council's commitment to enhance the social, cultural, economic and environmental wellbeing of both Maori and non-Maori.

Mana Whenua engagement is envisaged to develop a collaborative design that touches the waterways, views and contains stories of the place. Key elements of this collaboration are the development of a place based narrative to inform the design process and ongoing involvement to ensure Te Aranga principles and Iwi aspirations are considered. The Te Aranga principles are:

#### Mana

- Recognises Te Tiriti o Waitangi / the Treaty of Waitangi and the Wai Ko Aotearoa Tēnei framework for Treaty Partnerships in 21st Century Aotearoa New Zealand as the basis for all relationships pertaining to development;
- Provides a platform for working relationships where Mana Whenua values, world views, tikanga, cultural narratives and visual identity can be appropriately expressed in the design environment; and
- High quality Treaty based relationships are fundamental to the application of the other Te Aranga principles.

#### Whakapapa - Names & naming

- Recognise and celebrate the significance of Mana Whenua ancestral names; and
- Recognise ancestral names as entry points for exploring and honouring tūpuna, historical narratives and customary practices associated with development sites and their ability to enhance sense of place connections.

#### Taiao - The natural environment

- Sustain and enhance the natural environment;
- Local flora and fauna which are familiar and significant to Mana Whenua are key natural landscape elements within urban and / or modified areas; and
- Natural environments are protected, restored or enhanced to levels where sustainable Mana Whenua harvesting is possible.

#### Mauri Tu - Environmental health

- The wider development area and all elements and developments within the site are considered on the basis of protecting, maintaining or enhancing mauri;
- The quality of wai, whenua, ngāhere and air are actively monitored;
- Water, energy and material resources are conserved; and
- Community wellbeing is enhanced.

#### Mahi Toi - Creative expression

- Ancestral names, local tohu and Iwi narratives are creatively reinscribed into the design environment including: landscape; architecture; interior design and public art; and
- Iwi / hapū mandated design professionals and artists are appropriately engaged in such processes.

#### Tohu - The wider cultural landscape

- Acknowledge a Māori world view of the wider significance of tohu / landmarks and their ability to inform the design of specific development sites;
- Support a process whereby significant sites can be identified, managed, protected and enhanced; and
- Celebrate local and wider unique cultural heritage and community characteristics that reinforce sense of place and identity.

#### Ahi Kā - The living presence

- Mana Whenua live, work and play within their own rohe;
- Acknowledge the post Treaty of Waitangi settlement environment where Iwi living presences can include customary, cultural and commercial dimensions; and
- Living Iwi/hapū presences and associated kaitiaki roles are resumed within urban areas.



#### 4.4. Project specific Iwi narrative

- This document provides a high level narrative for the Project and is based on the Maori Value Assessment and Cultural Impact Assessment provided for this project and consultation via a number of Workshops with an Iwi Integration Group as well as a desktop research. The following statement is the cultural narrative provided by Iwi. This narrative will be used together with an Iwi appointed artist to inform the design;
- It will improve transport options on the North Shore for freight, cars, pedestrians and cyclists. It opens up access to the Western Ring Route and airport. The proposed additional works include extending the Northern Busway to connect with the Albany Transport Hub, separating local roads from the motorway to provide safer and more direct connections, integrating a shared path for walking and cycling and the relocation of North Harbour Hockey;
- It is acknowledged by Mana Whenua that Tāmaki Makaurau (Auckland) has layers of history and that Tāmaki Makaurau was well populated since the arrival of Māori in the late 900's. Tāmaki Makaurau was a rich source for kai as was recognised and described in the Whakatauki "Te Pai me te Whai Rawa o Tāmaki". The area has strong metaphysical and spiritual connections to Mana Whenua and their inherent responsibility as Kaitiaki for the rohe (Project area);
- One Māori name for Lucas creek area is believed to be kaipatiki meaning "to eat flounder" or the feeding ground of the flounder. A small pa is recorded on the bank to the north of Lucas Creek and it is highly likely that Iwi relied on the creek as a source of Tuna (eels), Kōkopu (Native Trout), Koura (Freshwater crayfish) and Pātiki (flounder);
- In early days the main method of travel for Māori was by Waka and this was mimicked when the Europeans started settling in the area in the late 1890's and the early 1900's. There are many recorded wharf sites up and along Lucas creek. Waka would traverse awa and then once it got too shallow they would walk along the watercourse and then head to higher land to look for landmarks and survey the surrounding areas;
- In the early 1800's the North Shore landscape was mostly covered with a mixed podocarp-broadleaf forest dominated by kauri (*agathis australis*), and somewhat altered by volcanic activity. Pohutukawa forest lined the coastal margins;
- Although there is not much history written about this particular area, for Maori there are many stories of traditional Ara (trails) that Mana Whenua transverse from Rawhiti (East) ki te Uru (West) and Uru (West) ki te Rawhiti (East). It has significant view shafts to many important Motu (Islands), Maunga (Mountains) and Tohu (Landmarks). There is evidence of a trail from Te Oneroa o Kahu (Long Bay beach), over the cliffs to Okura. The trails from Long Bay connected with the Oteha Valley and continuous ridgeways such as the one along Lonely Track Road, and with the Okura River and Lucas Creek;
- These Ara were important routes between the Hauraki Gulf, the Waitakere Ranges, the shores of the Manukau Harbour, and the eastern side of the Kaipara, and were used for seasonal fishing excursions and communication links and by Iwi groups exercising their ahi kaa (occupation rights) over the lands and waters. These seasonal fisheries include harvesting of Mako (Shark), Mangōpare (Hammerhead Shark) and Tāmure to name a few;
- These tracks and seasonal dwellings and the stories associated with them are a key part of the tribal identity of all tribes of Auckland;
- Since land passed out of the control of Iwi hands in the mid 1800's the area has seen much modification, including the draining of the wetlands and clearing of native vegetation and fauna. Mana Whenua however still maintain their practices through Karakia and Kaitiakitanga and the like and recently some Iwi have renamed the old centre point Kawæ Purapura;

- Water is a taonga that provides for and sustains all life. It is integral to cultural and personal identity and wairua for whānau, hapū and Iwi. What is left of the current waterways are polluted and suffering from ongoing poor water quality. Its mauri (life sustaining capacity) therefore is compromised in turn impacting on the ability of tangata whenua to maintain a relationship with it;
- Any plan/design must include Mana Whenua goals around its Kaitiakitanga and active protection, use of and responsibility for natural and physical resources by tangata whenua – it requires both an active role in decision-making and achievement of environmental and design outcomes;
- Iwi through whakapapa, Matauranga and kaitiakitanga are vital to ensuring a successful project, through active leadership and decision making within the Project area especially the UDLF. Many gains can be made cultivating a sustainable healthy environment and healthy lifestyle for all people;
- A sustainable approach promoting use of environmentally friendly and sustainable practices including materials will help the restoration of degraded sites. Iwi see the long-term cultural wellbeing of the area must provide for a healthy environment for future generations;
- This includes a holistic approach to integrated catchment management systems;
- The Project provides tangata whenua with the potential to positively influence again the future fortunes of their waterways, former lands and flora and fauna. This can be achieved, in part, through engagement in the landscape design process, including species selection; and
- The project also provides opportunities for specific cultural interpretation to celebrate the heritage of tangata whenua within the Project area.

The following table illustrates how the Te Aranga principle and project specific narrative (Korero) have been applied to the Draft UDLF.



## Matauranga Māori (Te Aranga Design Principles)

Principles	Definition	Outcome	Project Specific Place Based Application
Mana	Rangatiratanga (sovereignty)	<p>The status of Iwi and Hapu as Mana Whenua is recognized and respected.</p> <p>Attributes:</p> <ul style="list-style-type: none"> <li>-Recognises Te Tirit o Waitangi and the Wai 262 Ko Aotearoa Tenei framework for the Treaty Partnerships in the 21st Century Aotearoa New Zealand as the basis for all relationships pertaining development</li> <li>-Provides a platform for working relationships where Mana Whenua values, world views, tikanga, cultural narratives and visual identity can be appropriately expressed in the design environment</li> <li>-High quality Treaty based relationships are fundamental to the application of the other Te Aranga principles</li> </ul>	<p>The need for all relevant Mana Whenua groupings to have high quality relationships with all key stakeholders including the NZ Transport Agency</p> <p>Ensure that the design outcomes for the Project are in accordance with the values and principles set out by Iwi through the consultation process</p> <p>Engage with early in the design stages</p>
Whakapapa	Names and naming	<p>Māori names are celebrated.</p> <p>Attributes:</p> <ul style="list-style-type: none"> <li>-Recognises and celebrates the significance of Mana Whenua ancestral names</li> <li>-Recognises ancestral names as entry points for exploring and honouring tūpuna, historical narratives and customary practices associated with development sites and their ability to enhance sense of place connections</li> </ul>	<p>Reviving names revives mana through Iwi connections to specific ancestors and events associated with them. In conjunction with Iwi an inventory of names associated with a given site can be developed allowing Iwi to choose the most appropriate names from which to develop design, interpretation and artistic responses.</p> <p>-The process of identifying appropriate names has been commenced with the view to adopting traditional or cultural names during detailed design.</p> <p>-Specific opportunity exists with naming bridges / cycle ways etc.</p>
Tohu	The wider cultural landscape	<p>Mana Whenua significant sites and cultural landmarks are acknowledged</p> <p>Attributes:</p> <ul style="list-style-type: none"> <li>-Acknowledges a Māori world view of the wider significance of tohu / landmarks and their ability to inform the design of specific development sites</li> <li>-Supports a process whereby significant sites can be identified, managed, protected and enhanced</li> <li>-Celebrates local and wider unique cultural heritage and community characteristics that reinforce sense of place and identity</li> </ul>	<p>It is important to look beyond the immediate development site to acknowledge significant local and regional landmarks (e.g. maunga, moana, wāhi tapu).</p> <p>The Project should embrace opportunities for creating or enhancing visual and physical connections to these tohu. Vistas from the corridor and specifically from the future pedestrian bridge at Spencer Road (not part of the Project) should be considered and enabled.</p> <p>Sensitivity to the landmarks created by such vistas should be evident in the design of the roadway and its associated features, especially those provided for cyclists and pedestrians.</p> <p>Would support the revegetation of Lucas Creek and provision of a shared path with reference to the history and cultural values of Lucas Creek.</p>





<p>Taiao</p>	<p>The natural environment</p>	<p>The natural environment is protected, restored and/or enhanced</p> <p>Attributes:</p> <ul style="list-style-type: none"> <li>-Sustains and enhances the natural environment</li> <li>-Local flora and fauna which are familiar and significant to Mana Whenua are key natural landscape elements within urban and / or modified areas</li> <li>-Natural environments are protected, restored or enhanced to levels where sustainable Mana Whenua harvesting is possible</li> </ul>	<p>Opportunities to reintroduce natural landscape elements back into the urban streetscape. For example, specific native trees; water or puna wai (springs); promoting bird, insect and aquatic life to create meaningful urban ecosystems which connect with former habitats; mahinga kai (food gathering areas); and living sites. Environmental outcomes are paramount especially around the treatment of water.</p> <p>Promote North-West link-Eco-corridor.</p> <p>Planting along the length of the proposed corridor can enhance and restore the environmental values of the area. Input from Iwi around plant selection particularly in swales and to support strong biodiversity outcomes. Noise barriers also provide a visual/artistic opportunity.</p> <p>The natural world could also be referenced through the use of artistic motifs on retaining walls and other constructed elements in the vicinity of the roading corridor.</p> <p>The Bridge at Spencer Road (not part of the Project) reconnects Albany ridge landform and provides views of the wider natural landscape.</p>
<p>Mauri Tu</p>	<p>Environmental health</p>	<p>Environmental health is protected, maintained and/or enhanced</p> <p>Attributes:</p> <ul style="list-style-type: none"> <li>-The wider development area and all elements and developments within the site are considered on the basis of protecting, maintaining or enhancing mauri</li> <li>-The quality of wai, whenua, ngāhere and air are actively monitored</li> <li>-Water, energy and material resources are conserved</li> <li>-Community wellbeing is enhanced</li> </ul>	<p>Ensuring emphasis on maintaining and enhancing the environmental quality of water, soil and air and where possible remediating sites to enhance mauri.</p> <p>Essential to ensure the excavation into the Rosedale Landfill does not pollute waterways.</p> <p>It is desirable to use materials that have cultural familiarity and connection to the locale along the Project area.</p> <p>Careful stormwater management is particularly important given potential impacts upon Lucas Creek and its tributaries within the area. Input sought includes construction work adjacent to streams and waterways and development of principles for stormwater management.</p>





Mahi Toi	Creative expression	<p>Iwi/hapu narratives are captured and expressed creatively and appropriately</p> <p>Attributes:</p> <ul style="list-style-type: none"> <li>-Ancestral names, local tohu and Iwi narratives are creatively reinscribed into the design environment including: landscape; architecture; interior design and public art</li> <li>-Iwi / hapū mandated design professionals and artists are appropriately engaged in such processes</li> </ul>	<p>Developing strategies to creatively re-inscribe Iwi narratives into architecture, landscape, urban design and public art to enhance a sense of place, and ensuring Iwi appointed Māori design professionals are appropriately engaged in such processes.</p> <p>Design elements, particularly focused upon the intersections along the route, could communicate to motorists and local residents that they are making a journey through the land of the ancestors. The desire is to create a visual evocation of the past in order that the modern-day traveller has some sense of connection to an ancestral landscape in which travel by Iwi on foot via ara (trails) and waterways established different patterns of movement and community than the cars and buses of the modern era.</p> <p>Opportunity should be found for interpretation of the cultural landscape throughout the Project</p>
Ahi Kaa	The living presence	<p>Iwi/hapu have a living and enduring presence and are secure and valued within their rohe</p> <p>Attributes:</p> <ul style="list-style-type: none"> <li>-Mana Whenua live, work and play within their own rohe</li> <li>-Acknowledges the post Treaty of Waitangi settlement environment where Iwi living presences can include customary, cultural and commercial dimensions</li> <li>-Living Iwi/hapū presences and associated kaitiaki roles are resumed within urban areas</li> </ul>	<p>Exploring opportunities to facilitate meaningful living presences for Iwi / hapu to resume ahi kaa and kaitiaki roles within urban areas. This may include exploring environmental, cultural and commercial opportunities in partnership with Iwi entities.</p> <p>Since the European colonisation of New Zealand, Māori and Pakeha have lived and worked together. Modern-day Iwi of the area live and work in Auckland and will travel along this roadway as motorists, passengers and public transport users. The local histories of Iwi do not end with colonisation, despite the loss of land and livelihood that came about as a result of the alienation of land.</p> <p>Urban design elements and heritage interpretation opportunities within the Project area should acknowledge the past but also affirm post-colonial Auckland Iwi.</p>



# 5. CORRIDOR REQUIREMENTS







## 5 CORRIDOR REQUIREMENTS

The following requirements will inform the shape and design of the corridor, to achieve the design outcomes outlined in the final section of this UDLF. The Design Outcomes Sought section outlines the landscape and urban design outcomes that will be included as the Minimum Requirements for the Project within the tender and construction stages.

The requirements outlined below are high level general prescriptions that will be developed by the alliance in the next phase of the Project. Refer to NZ Transport Agency's "Bridging The Gap" urban design guidelines and "Landscape Guidelines" for further guidance.

### 5.1. General requirements

- Provide a cohesive and unifying design that limits visual clutter while responding to elements of the context, to create a sense of place and location along the corridor;
- Reinterpret existing design elements to create consistency/coherence with existing elements, and avoid introducing additional elements that may create a non-cohesive/cluttered landscape;
- Design Project's elements to recognize local identity and contribute to the overall amenity and not become outstanding features;
- Identify design opportunities along the corridor, for example, connect the landscape at either edge of the Project or create identity through planting/landscaping;
- Optimize whole of life value. For example, using extensive areas of low maintenance native planting instead of large grassed areas, or avoiding high maintenance treatments for areas with difficult access for maintenance staff/machinery;
- Improve and enhance the existing landscape within the corridor to address environmental and social aspects (including water quality, local ecology, biosecurity, noise effects, air pollution and capture of particulates);
- Use CPTED to address and avoid problems related to the corridor user's safety (including graffiti, theft, access off the highway to private property);
- Celebrate important views, particularly those to the city and from the Rosedale Wastewater Treatment Ponds portion of the Project;
- Provide visibility to existing commercial and industrial landholdings between the Rosedale Wastewater Treatment Ponds and Albany Park and ride, which are currently seen from the highway (noting commercial benefits);
- Enhance connectivity along and across the Project with appropriate and appealing environments to encourage walking and cycling. Particularly around Constellation Bus Station;
- Co-ordinate and integrate as much as possible the proposed structures with existing structures in the wider corridor to be understood as a family of related structures;
- Develop all landscape treatments boundary to boundary of the final corridor space to deliver whole of life value for maintenance, biosecurity and biodiversity outcomes;

In addition, the following requirements should also be considered for the design of bridges;

- Use abstract cultural heritage design and themes able to be appreciated by pedestrians, cyclists and drivers on the local road approach to bridges as much as from the State highway;
- Use similar design and materials for elements common to all bridges such as abutments, barriers and throw screens;
- Consider outward views to the surrounding landscape in the design of railings and barriers for minimal visual clutter, with a consistent palette of materials and simple but elegant forms to create an aesthetically pleasing outcome. Minimise embellishment and ensure the level of design detail is in accordance with the distance to users and their speed;



Mass native planting to reduce maintenance



Planting to help integrate noise walls



Climbers to screen off the corridor





- Ensure the underside of the bridge is consistent with the overall simple, elegant form and has minimal visual clutter (e.g. conceal services);
- Light under bridge spaces to enhance the quality and safety of the space;
- Ensure under bridge surfaces can be maintained, will not trap litter or encourage graffiti;
- Incorporate design of safety structures, lighting and signage to be part of the overall design, rather than being an addition;
- Eliminate opportunities for concealment to avoid CPTED issues;
- Ensure "one off" elements such as a central pillar at the proposed new McClymonts Road bridge are contemporary and reinforce the overall aesthetic of structure within the Project area; and
- Refer to NZ Transport Agency "Bridging The Gap" urban design guidelines for technical design requirements for bridges including considerations for the definition of bridge profile and design of structural elements.

## 5.2. Landscape design requirements

- Define planting to provide environmental biodiversity opportunities. Where possible, retain or relocate natural elements (such as rocks and felled logs) within planted areas of the corridor to become natural habitats for native flora and fauna (fungi, invertebrates and lizards) and eventually, after decomposition, contribute to the soil's nutrients;
- Define planting to provide ecological mitigation around the Rosedale Wastewater Treatment Plant and an interface between the motorway, reserves and or open spaces;
- Use planting to screen off the Project from adjacent private properties where adverse effects will require mitigation, while maintaining significant amenity and orientation views from the motorway towards the city and the Waitemata Harbour;
- Define planting to protect and enhance ecological values. This applies mainly to streams within the Project area, particularly those crossing, along or near SH1;
- Use indigenous eco-sourced planting material from the Auckland Region Ecological Area, except where fast growing exotics provide a practical solution to screen high retaining walls;
- Consider Vector requirements regarding height, proximity to pylons/overhead lines and their access requirements for infrastructure maintenance to define and design planting;
- Use slopes not steeper than 1:3 to allow planting and ensure all landscaped areas include maintenance access.
- Discard the use of grass to reduce whole of life cost for all landscape areas;
- Consider initiatives from local Iwi to incorporate culturally significant planting or landscaping elements;
- Utilise at least 1% rare or endangered native plants as outlined by the Auckland Motorway Alliance (AMA) objectives;
- Use NZ native climbing species to screen noise walls and retaining walls;
- Undertake all planting in accordance with the NZ Transport Agency P39 Standard specification for Highway Landscape Treatments, including topsoil to a minimum depth of 300mm and mulch to a minimum depth of 100mm;
- Ensure top soil structure is maintained i.e. the soil is not overly compacted, and its natural drainage capacity is retained;
- Ensure all engineered slopes are maximum 1:3 to facilitate planting and its maintenance;
- Provide a 1m wide maintenance access way between all planted areas and the motorway; and
- Ensure all plants that grow higher than the motorway safety barrier are planted 2m away from the barrier.

Refer to NZ Transport Agency "Landscape Guidelines" for landscape treatment technical requirements for soil systems on steep slopes and vertical planting.



Fully integrated stormwater management system





### 5.3. Bridges requirements

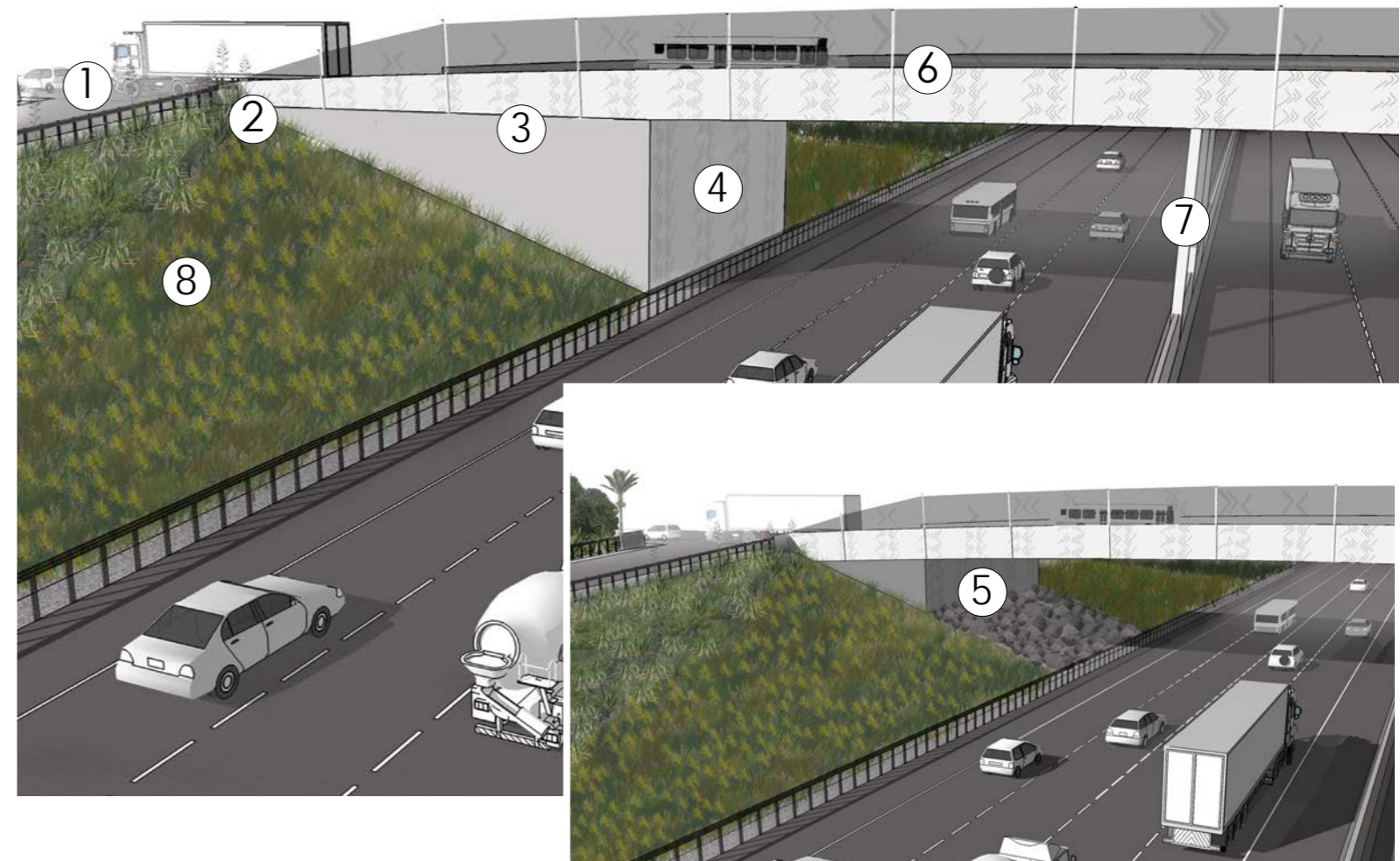
The Project includes new bridges as well as retaining or widening existing bridges. This means to achieve consistency among them any design proposal should consider integration of all their associated elements such as abutment walls, barriers, under bridge areas, signage and lighting.

Key factors to be considered in the integration of elements are:

- Highway user experience;
- Local road user experience;
- Shared Use Path interface; and
- CPTED, particularly where pedestrians will cross the corridor under a bridge.

The following is a summary of bridge requirements to be read along with the image "Summary of bridge requirements" in this page:

- 1 Include design for bridge approaches along local roads to lead users up to, across, and beyond the bridge space so it is experienced as a continuous element.
- 2 Extend the barrier to the top end of the batter slope to provide a strong horizontal bridge form.
- 3 Design a seamless join between the superstructure and the bridge deck. Consider the inclusion of relevant cultural heritage themes into the design of visually prominent elements (e.g. barrier and abutments).
- 4 The form and materiality of the abutment wall faces should be simple and as slim as possible. Abutment walls must be defined tight against the road alignment above. Wing walls must be avoided.
- 5 For open abutments use rocks or a similar treatment to discourage loitering and misuse.
- 6 Design throw screens to be an integral component of the design and to create a family of bridges with a common element and as media for the inclusion of cultural heritage elements linking to the local community.
- 7 Consider the proportion (height, spans, number of pillars, and consistency of materials to create simple and elegant bridge form). Integrate efficiency, economy, and elegance of structural and nonstructural elements.
- 8 Allow appropriate abutment slopes to support landscape treatments either side of the bridge to integrate the structures. Utilise colours and materials for the space beneath the bridge over local roads that provide brightness, detail and texture to assist the visual amenity of the space. Consider under bridge CPTED issues where the public may interface with under bridge voids.



Summary of bridge requirements



Pattern design inspired by the narrative of the cultural landscape



#### 5.4. Stormwater management requirements

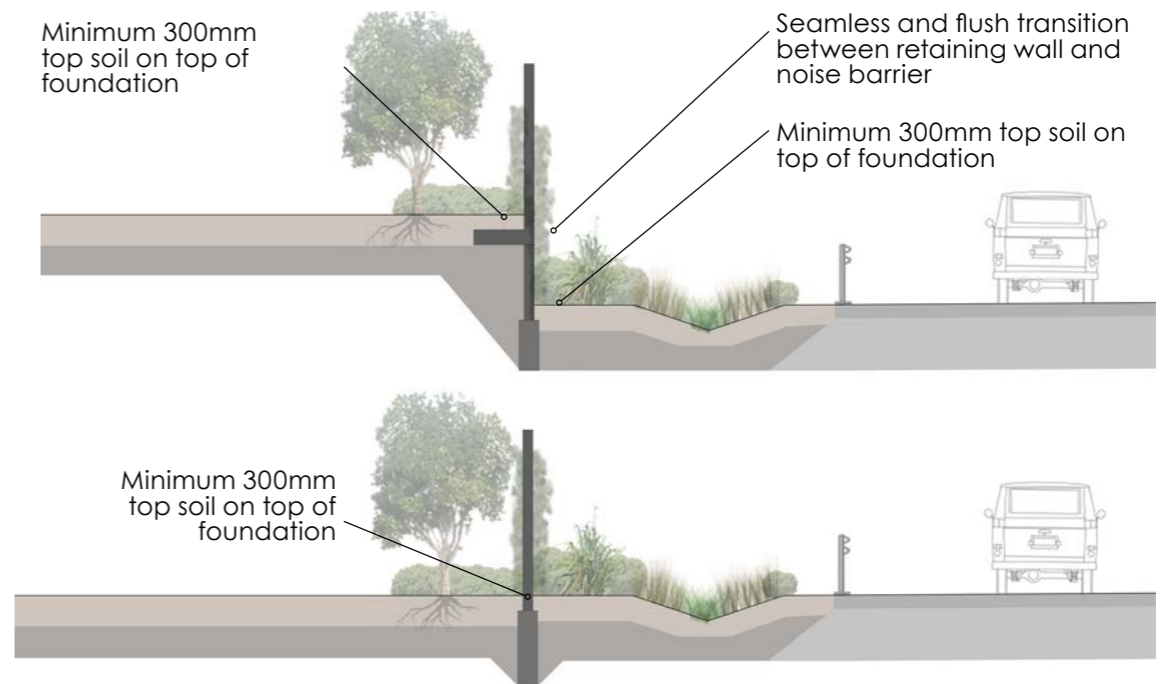
- Plant swales with vegetation in accordance with sector plans and trials undertaken by the AMA Stormwater Swale Planting Improvements (published 2011). This will eliminate mowing, allow steepening of side slopes, and narrow swales in constrained areas;
- Plant filter strips to reduce mowing requirements, maximise amenity and develop soils appropriate for water quality treatments. Enable infiltration of filter strips with porous media and graduate from a grass strip at the motorway edge to sedges and into taller vegetation to accomplish "laminar flows", filtering of sediments, and enhanced soil development; and
- Chamfer culverts to match the contour of the surrounding landform and define planting to resemble a natural environment.

#### 5.5. Noise barrier and retaining wall requirements

- All noise barriers should be designed in accordance with the surrounding landscape and contribute to their visual context;
- Their design should be in accordance to NZ Transport Agency's "Bridging The Gap" urban design guidelines and "State Highway Noise Barrier Design Guide";
- To achieve consistency noise barrier designs should consider the design of nearby existing noise barriers even if they are not within the Project area. The Project requires noise barriers only at the southern end around Unsworth Heights. Their design should consider existing noise barriers near Spoonbill Place (Aeriated concrete) and further west, near Wicklam Lane (engineered Plywood);
- All noise barriers should have full height antigraffiti protection;
- For visible retaining walls higher than 2 metres high and/or not screened by planting, incorporate culturally sensitive design patterns into their visible face;
- Walls under 2 metres high should be plain and not have any patterns or colours and planting should be used to screen them off;
- The proposed design should be abstract, simple and repeatable, while also have specific meaning to the area of its location;
- The patterns should be cast into the visible face, and its design should be in accordance with the specific cultural landscapes along the route to reflect the narrative of the cultural landscape (defined in agreement with local iwi);
- It should also be designed to not distract drivers, enable ease of maintenance;
- The overall landscape design in combination with the retaining wall design should contribute to enhance the amenity of the motorway;
- All retaining walls should have full height antigraffiti protection;
- Large walls should incorporate pattern designs with specific local interest. Alternatively, climbers can be used to soften its appearance and minimise its visibility;
- Joints between retaining walls and noise barriers should be seamless. Any noise barrier vertical elements should be extended to incorporate the retaining wall below in a unified design;
- To ensure design consistency, noise barriers should extend beyond the areas where they are required, if there is a need for a continued boundary fence or wall without noise attenuation requirements;
- Match existing design within the Project area and beyond in adjacent corridors;
- Use colours and materials that reflect the local area. When different colour palettes join, ensure a smooth transition of colours is in place;
- Where climbers are used, ensure their planting is aligned with the vertical elements of the retaining wall;
- Ensure a minimum 3 panel span before a top-of-noise-barrier vertical direction change (when changing from increasing height to decreasing height);



Culverts chamfered to be recessive and naturalised watercourse



Patterning on Retaining walls using Formliner System



- ▶ Ensure a maximum 350mm change in height between adjacent noise barrier panels;
- ▶ Ensure noise barriers and retaining walls discourage climbing;
- ▶ Ensure all foundations are covered with minimum 300mm deep topsoil so that planting can be located adjacent to the wall;
- ▶ Incorporate a pattern design only to walls connected to noise barriers and are at least 2m high; and
- ▶ When a noise barrier is on top of a retaining wall, ensure a seamless transition between them. Vertical elements of both should be aligned to appear as a unified structure.

## 5.6. Underpasses requirements

Subways 'culverts' under the carriageway may provide the most direct route for pedestrians and cyclists but if they are poorly designed they can provide the greatest problem to effective connectivity and safety. Subways provide the greatest challenge to deliver a safe, attractive and utilised linkage across the road corridor. Best practice for avoiding poor outcomes includes:

- ▶ At locations where underpasses are not visible to many people, integrate them with the surrounding landscape, rather than emphasising the structure architecturally;
- ▶ At locations where they are more visible and/or have greater use by people passing beneath the bridges should have an integrated design approach for the culvert and associated structures to emphasise the simplicity of the structure;
- ▶ Abutments and wing walls below or extending out from underpasses in the more urban environment should be light in colour, and have an appropriate treatment response to the context and recognise potential for graffiti and maintenance requirements;
- ▶ Underpasses should have a minimum dimension of 5m height and 5m width where they need to enable passage of vehicles (if required for property access or Watercare maintenance purposes) and to maximise natural light penetration from each end;
- ▶ Ensure the consideration of CPTED requirements in design of pedestrian and cycle facilities and including appropriate landscape treatment to ensure that there are no places of concealment (TTC/LSA C65) and that crossing points and waiting areas are designed for pedestrian safety and convenience. These are:
  - Provide clear lines of sight through the subway from as far back as possible to provide an option to retreat from perceived danger or take an alternative route;
  - Provide an alternative route wherever possible or safe retreat;
  - Design out places of concealment;
  - Ensure clear lines of sight between pedestrians and vehicles & adjacent land uses;
  - Provide an open environment either side of the subway for clear lines of sight in all directions – for as far as possible;
  - Provide good quality lighting that is repaired immediately if damaged or worn. Lighting should be located directly overhead to deliver high lux levels, good colour render and low contrast to design out dark spots;
  - Provide a well-proportioned environment that is roomy for personal comfort and allows maintenance of personal space if accommodating multiple users;
  - Provide an environment that is respectful of the people using it. It should be attractive and stimulating and give the impression that an effort is being made to provide the best possible facilities. Providing an environment that is clean and regularly maintained to remove rubbish and signs of vandalism;
  - Where required, design underpasses with lighting that is appropriate for pedestrian and cycle users comfort and safety; and
  - Ensure way-finding and information signage is adequate and appropriate for the route and is co-ordinated with the existing route signage.

## 5.7. Constellation Bus Station requirements

The station extension should be designed to comply with Auckland Transport ATCoP Cycle Guidelines, Austroad Part 6A and NZ Transport Agency's "Bridging The Gap" urban design guidelines, "Landscape Guidelines" and "Guidelines for Public Transport Infrastructure and Facilities".

Pedestrian access to the station should be prioritized and its design should follow the access hierarchy provided in page 25 of the "Landscape Guidelines and Guidelines for Public Transport Infrastructure and Facilities".

A key consideration for the design of the bus station should be to maximise personal safety and security for bus passengers, residents and road users. Safe design of bus stops should include CPTED design methods through the following basic requirements:

- ▶ Construction: The station should use transparent materials and provide an open plan layout;
- ▶ Surveillance: The layout of the station should encourage natural surveillance and design out isolated/ concealed spaces;
- ▶ Accessibility: The station should be universally accessible to all public areas;
- ▶ Lighting: provide enough lighting to ensure night visibility of all public areas; and
- ▶ Clear and direct connections to both the proposed shared cycle way along SH1 and the shared path along Constellation Drive. The design of these connections should be in accordance with ATCoP Cycle Guidelines, Austroad Part 6A and NZ Transport Agency's "Bridging The Gap" urban design guidelines.

The landscape treatment for the station should be consistent with the overall landscape treatment of the Project. It should also contribute to the safety of users by clearly defining areas of public access, discouraging pedestrians from using areas not defined for public access.

Rather than screen off and visually separate the station from SH1, this landscape treatment should integrate them and contribute to identify the station when viewed from SH1.

The design of the Station should include Iwi and Maori artists to develop a culturally sensitive proposal that includes elements of Te Aranga design principles and the cultural narrative proposed in this UDLF.



Example of good underpass design (Refer to NZ Transport Agency "Bridging The Gap" for further guidance)

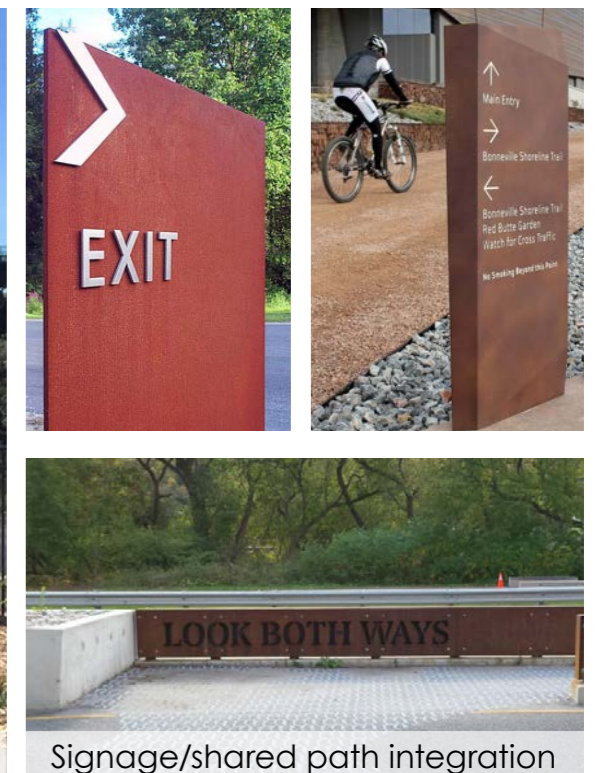


## 5.8. Shared Use Path accessory infrastructure requirements

- ▶ The Shared Use Path should be a minimum 3m wide clear path in brushed concrete finish, designed to comply with Auckland Transport ATCoP Cycle Guidelines, Austroad Part 6A and NZ Transport Agency's "Bridging The Gap" urban design guidelines;
- ▶ A key objective of the Shared Use Path design must be the provision of a safe environment for users and for adjacent properties;
- ▶ Fencing along the Shared Use Path should be 1.8m high and located at both edges unless one of them includes a retaining wall or noise barrier above 2m high;
- ▶ Fences should be visually permeable, robust and prevent climbing, and use recessive colours (black, dark grey or brown);
- ▶ Elements of the Shared Use Path such as safety barriers, fencing, signage, lighting, etc. should have consistency with the design of noise barriers and retaining walls;
- ▶ Fencing should be located away from the Shared Use Path as far as possible and incorporate planting to soften its appearance;
- ▶ A suite of wayfinding signage shall be designed in accordance with the cultural narrative defined in consultation with Iwi and located as per the UDLF Sector Plans;
- ▶ The signage design should:
  - Reflect the specific korero provided by Iwi;
  - Use both English and Te Reo Maōri language;
  - Be readable by cyclists whilst riding; and
  - Integrated into structural elements instead of being added as standalone elements.
- ▶ An assessment of lighting requirements should be undertaken to determine if additional lighting is needed to comply with ATCoP and Austroad standards;
- ▶ Lighting should be designed to match the adjacent motorway corridor. In areas with outward views, lighting should be at low level (1m maximum height) and integrated into fencing or other structures;
- ▶ Seating should be of a bespoke design and provided at key viewing points;
- ▶ In areas adjacent to the Shared Use Path where safety from falling fence is required, fences should be designed to match the design of the Shared Use Path fence, to a lesser height of 1m minimum;
- ▶ At "T" and cross intersections include safety chicanes;
- ▶ Ensure that fences and noise barriers are located at least 1m away from the Shared Use Path;
- ▶ Undertake an assessment of lighting requirements, and provide lighting where needed with poles at least 1m away from the Shared Use Path or incorporated in infrastructure elements;
- ▶ Where the shared path connects with local routes, provide wayfinding signage with a bespoke design according to the cultural narrative defined in consultation with Iwi;
- ▶ Match the design of safety fences with that of the Shared Use Path, and
- ▶ Use CPTED principles in the definition of the shared path to minimise safety risks.



Fence/lighting/planting integration



Signage/shared path integration





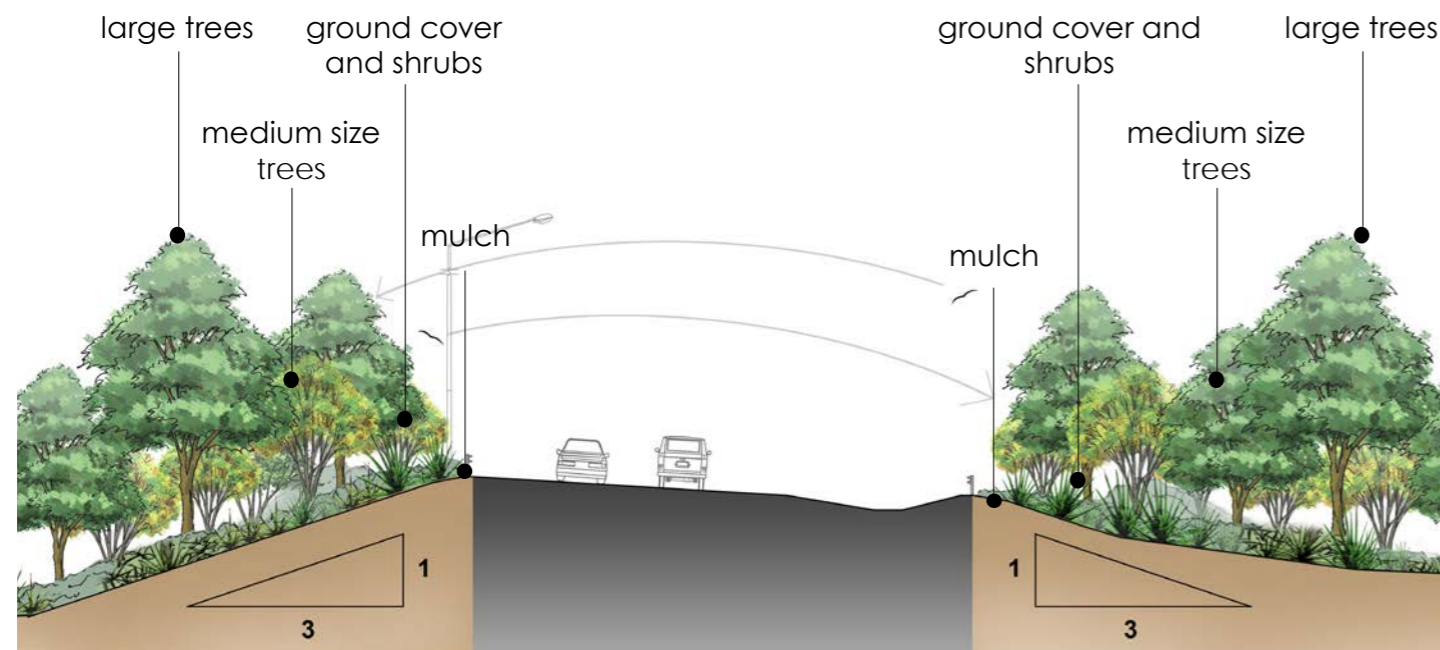
## 5.9. Other infrastructure requirements

To maximise the use of space and resources in general along the Project area, the following opportunities should be considered:

- Road lighting located centrally within the median. This also helps to minimise light spill and dominance of infrastructure on neighbouring properties;
- Options to minimise the whole of life costs (ongoing maintenance) for the central median should also be explored; and
- Refer to NZ Transport Agency “Bridging The Gap” urban design guidelines for technical design requirements for other highway components such as gantries, lighting (for the highway and shared path), safety barriers, railing and highway furniture.

## 5.10. Requirements for the urban forest at the SH1 and SH18 interchange

The following structure for the urban forest at the SH1 and SH18 interchange is defined to ensure leverage of its opportunities to provide visual mitigation as well as biodiversity and ecological values enhancement, with a mix of tall urban forest planting and low planting to support ecological processes and complement nearby existing natural habitats.



Urban forest structure



# 6. DESIGN OUTCOMES SOUGHT (INCLUDING CONCEPT AND OPPORTUNITIES)





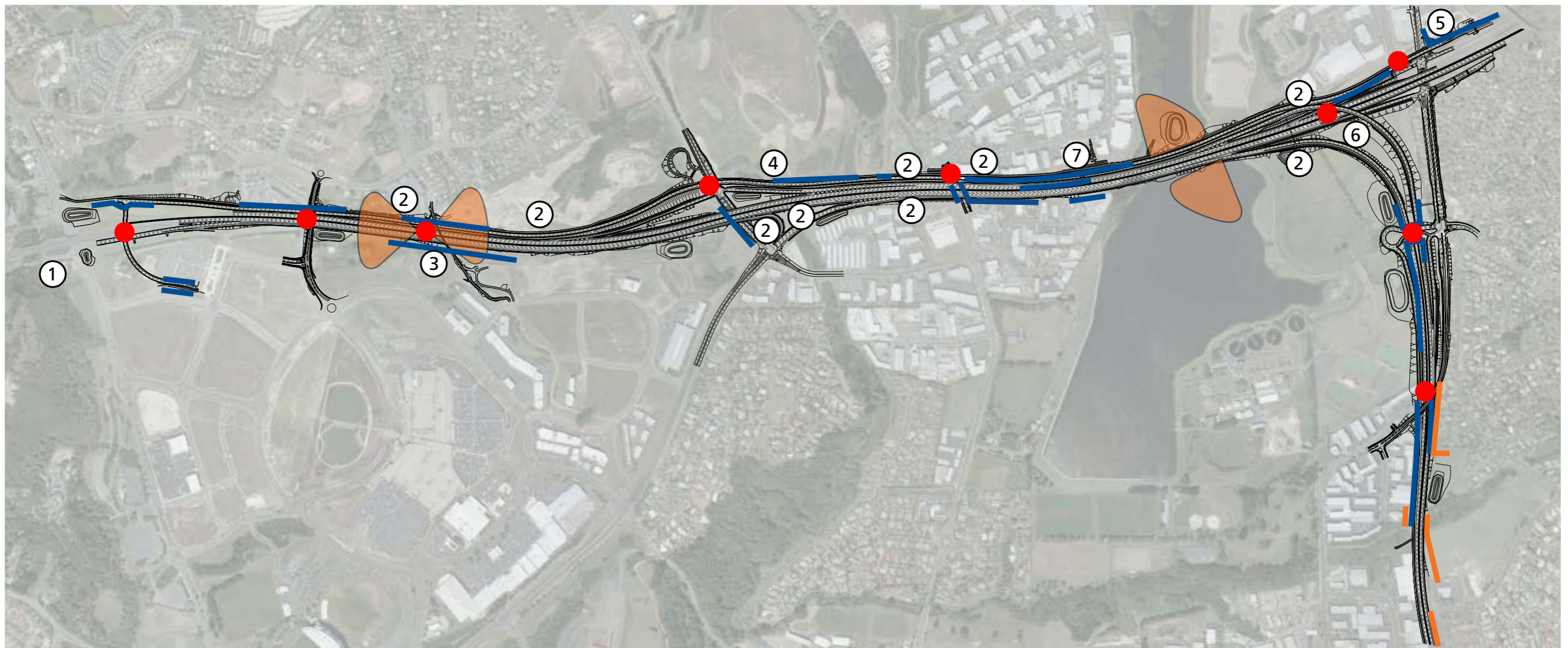
## 6 DESIGN OUTCOMES SOUGHT

- To acknowledge the value adding opportunity these areas represent, and to fulfil NZ Transport Agency's expectations of quality urban design outcomes, further development of these areas should start with a strong overall design narrative, a strong concept or theme that reflects Mana Whenua values, and its translation into quality design elements such as furniture, lighting, fences, etc. Key considerations for these areas are the maximization of their safety and visibility from the motorway and adjacent properties;
- The following urban design opportunities have been developed as an interactive process working closely with the wider design team;
- The opportunities and solutions in the UDLF are a high level response, intended to identify landscape and urban design mitigation and guide future design development and detailed design phases;
- As the Project is to be designed and built by an Alliance there will be opportunities through the design development phase for Mana Whenua input including refining a design response to their cultural narrative which can be integrated into the design of walls and structures.

### 6.1. Key design opportunities

- ① Lucas Creek: Enhance water quality through the addition of a new treatment pond
- ② Retaining wall with planting
- ③ Watercare/shared path bridge presents a special opportunity due to its elevation, prominence and form to respond to the cultural narrative (not part of this project).
- ④ Future proof to allow shared path connection to Rosedale Landfill open space.
- ⑤ Consider cultural narrative in design of bus station.
- ⑥ Mound between ramps to integrate with landform. Opportunity to establish an urban forest.
- ⑦ Shift wall closer to boundary to enable planting in front of the wall. If this is not possible then add a pattern.

- Retain and enhance views.
- Retaining walls (excludes walls that can be screened with planting) pattern required.
- Bridges/potential bridges.
- Noise walls.





## 6.2. Planting strategy



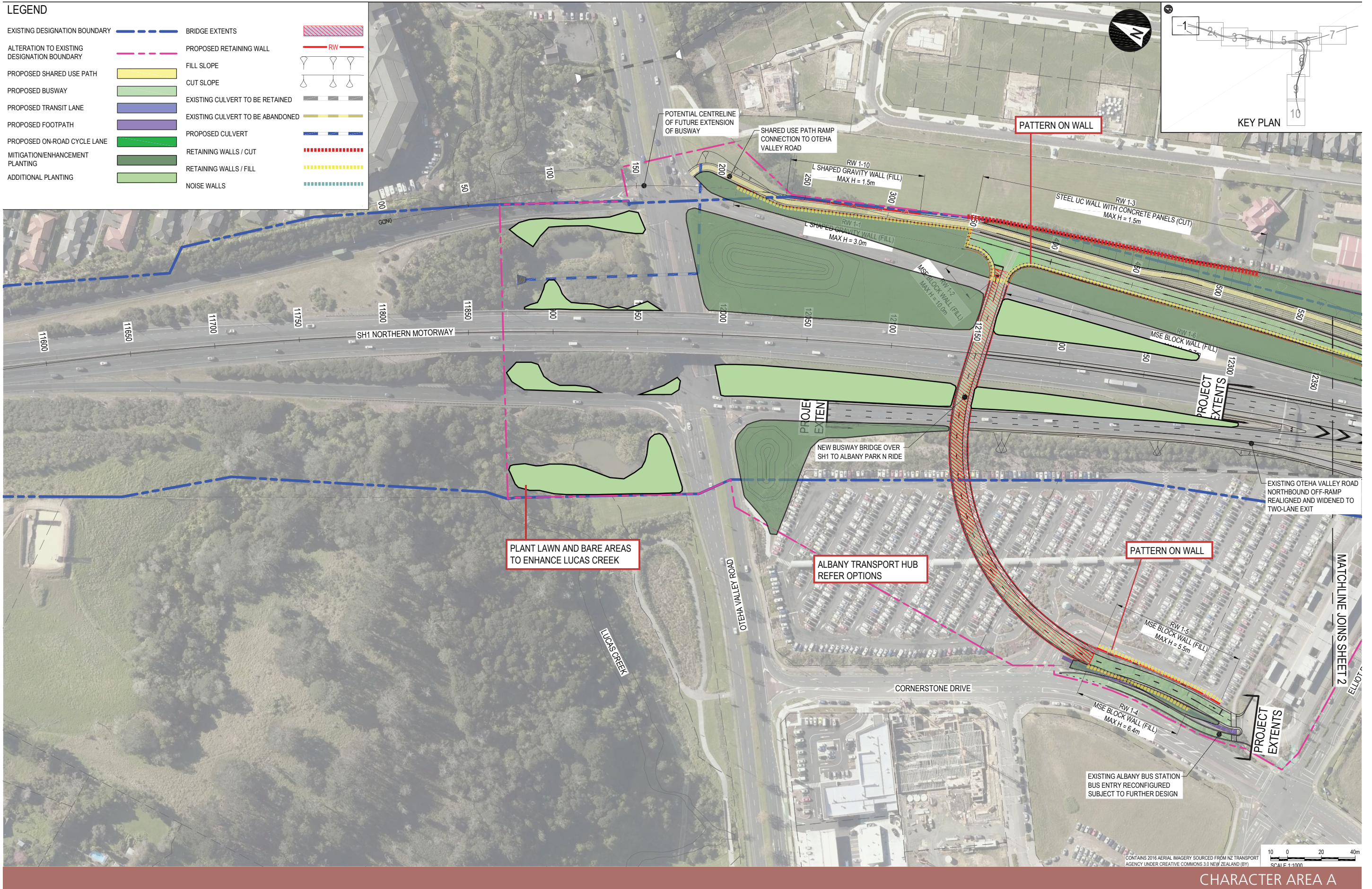




### 6.3. Landscape and urban design mitigation/enhancement

#### LEGEND

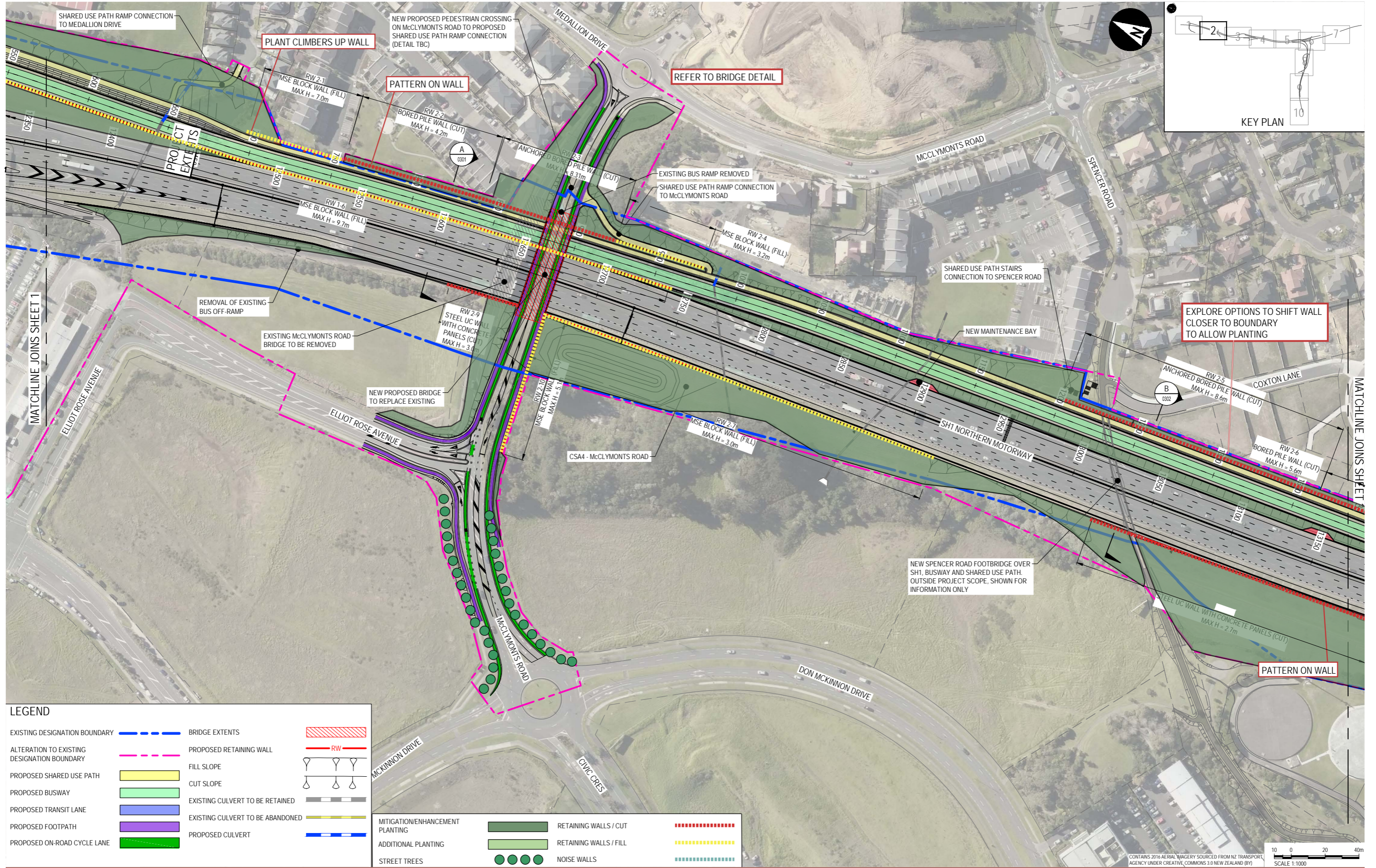
EXISTING DESIGNATION BOUNDARY	BRIDGE EXTENTS	
ALTERATION TO EXISTING DESIGNATION BOUNDARY	PROPOSED RETAINING WALL	RW
PROPOSED SHARED USE PATH	FILL SLOPE	
PROPOSED BUSWAY	CUT SLOPE	
PROPOSED TRANSIT LANE	EXISTING CULVERT TO BE RETAINED	
PROPOSED FOOTPATH	EXISTING CULVERT TO BE ABANDONED	
PROPOSED ON-ROAD CYCLE LANE	PROPOSED CULVERT	
MITIGATION/ENHANCEMENT PLANTING	RETAINING WALLS / CUT	
ADDITIONAL PLANTING	RETAINING WALLS / FILL	
	NOISE WALLS	



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CHARACTER AREA A





**LEGEND**

EXISTING DESIGNATION BOUNDARY	— — — — —	BRIDGE EXTENTS	
ALTERATION TO EXISTING DESIGNATION BOUNDARY	- - - - -	PROPOSED RETAINING WALL	
PROPOSED SHARED USE PATH		FILL SLOPE	
PROPOSED BUSWAY		CUT SLOPE	
PROPOSED TRANSIT LANE		EXISTING CULVERT TO BE RETAINED	
PROPOSED FOOTPATH		EXISTING CULVERT TO BE ABANDONED	
PROPOSED ON-ROAD CYCLE LANE		PROPOSED CULVERT	
		MITIGATION/ENHANCEMENT PLANTING	
		ADDITIONAL PLANTING	
		STREET TREES	
		RETAINING WALLS / CUT	
		RETAINING WALLS / FILL	
		NOISE WALLS	

**CHARACTER AREA A**

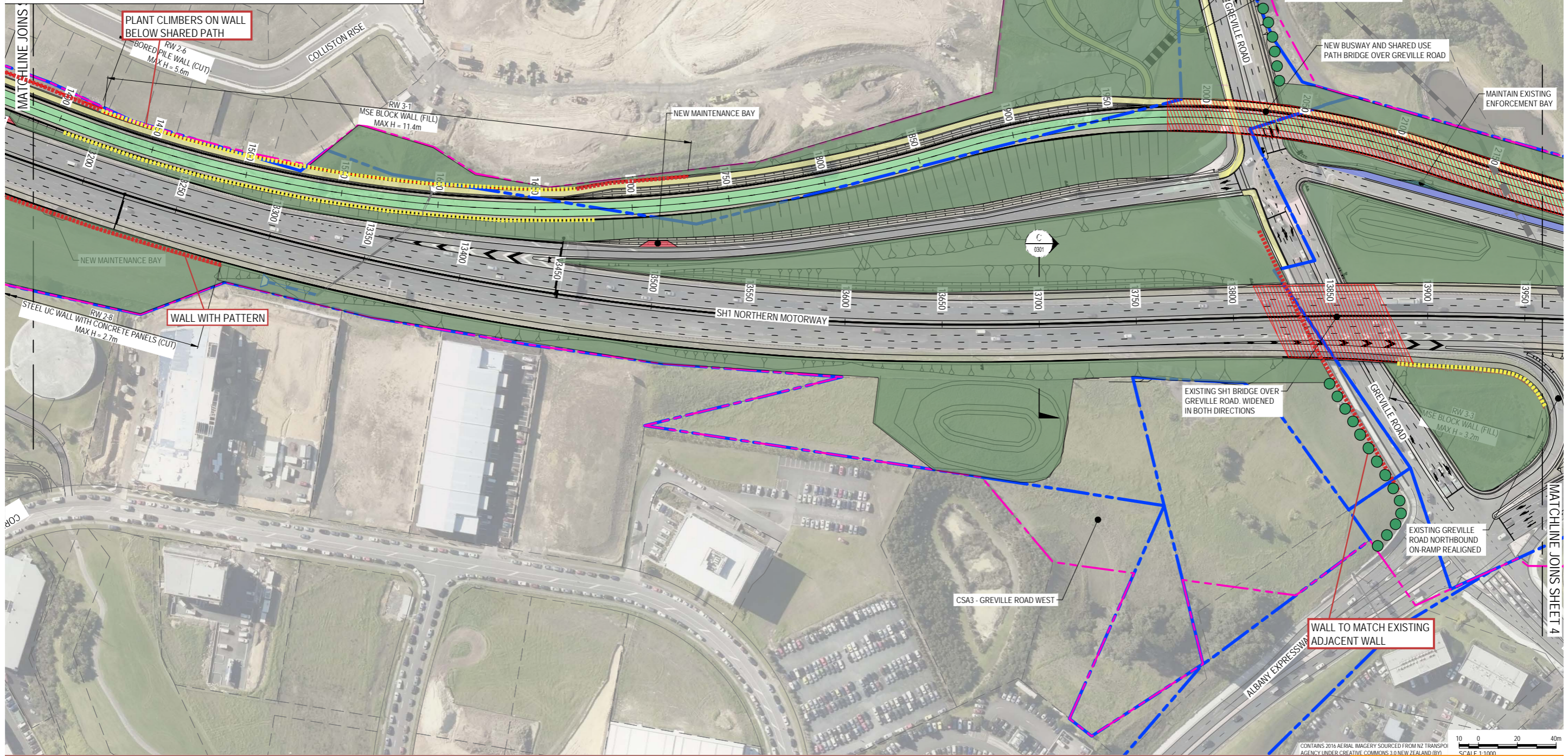
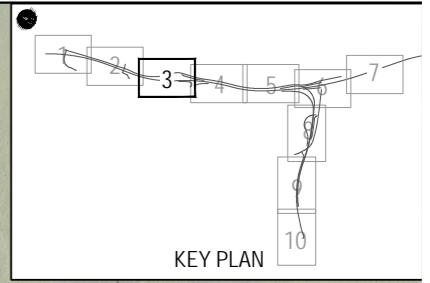
CONTAINS 2016 AERIAL IMAGERY SOURCED FROM NZ TRANSPORT AGENCY UNDER CREATIVE COMMONS 3.0 NEW ZEALAND (BY) SCALE 1:1000





**LEGEND**

EXISTING DESIGNATION BOUNDARY	BRIDGE EXTENTS	PROPOSED RETAINING WALL
ALTERATION TO EXISTING DESIGNATION BOUNDARY	FILL SLOPE	CUT SLOPE
PROPOSED SHARED USE PATH	EXISTING CULVERT TO BE RETAINED	EXISTING CULVERT TO BE ABANDONED
PROPOSED BUSWAY	PROPOSED CULVERT	RETAINING WALLS / CUT
PROPOSED TRANSIT LANE	RETAINING WALLS / FILL	NOISE WALLS
PROPOSED FOOTPATH		
PROPOSED ON-ROAD CYCLE LANE		
MITIGATION/ENHANCEMENT PLANTING		
ADDITIONAL PLANTING		
STREET TREES		



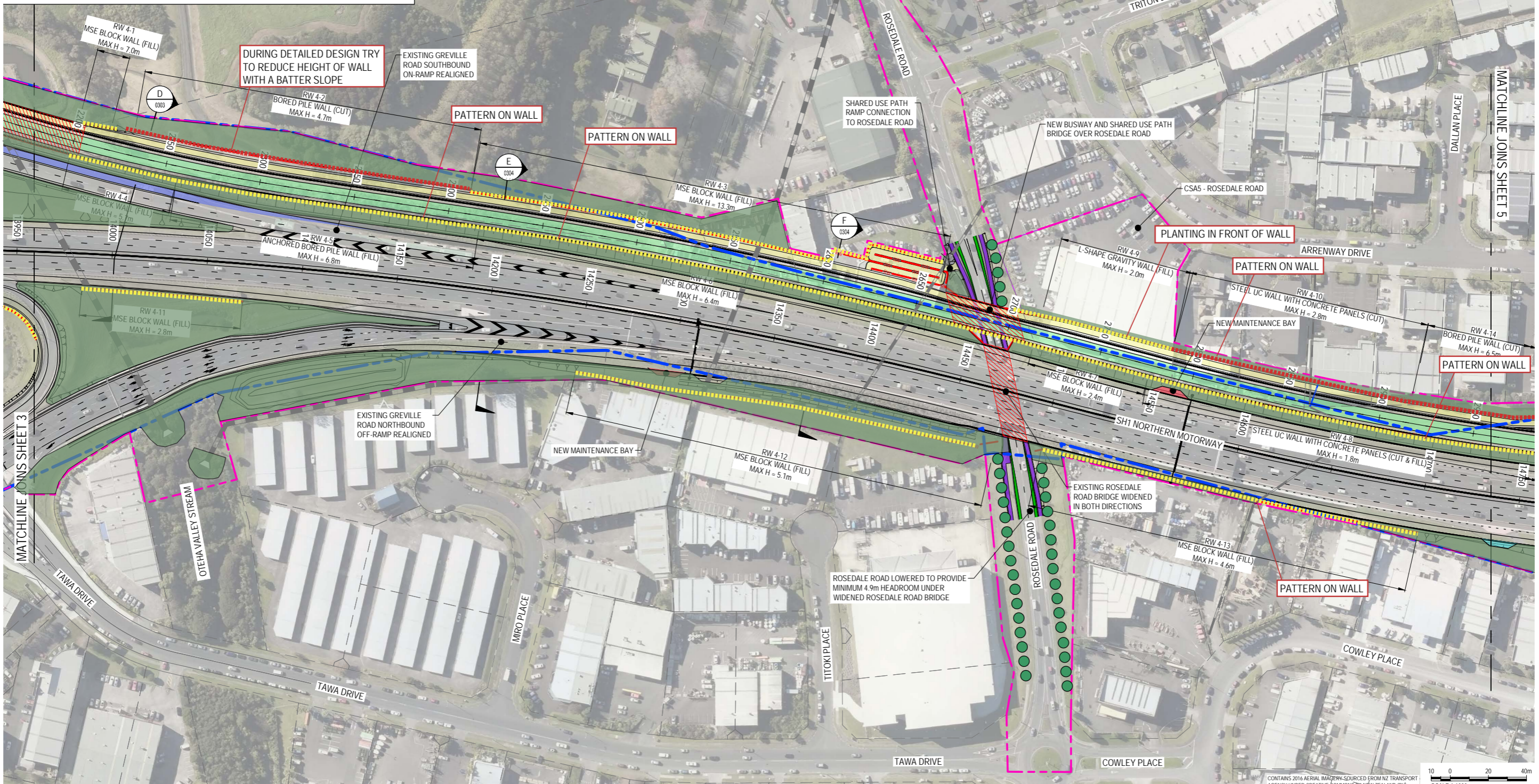
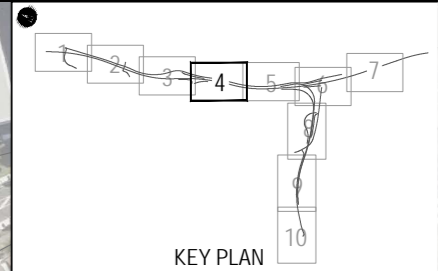
CHARACTER AREA A CHARACTER AREA B





**LEGEND**

EXISTING DESIGNATION BOUNDARY		BRIDGE EXTENTS		MITIGATION/ENHANCEMENT PLANTING		RETAINING WALLS / CUT	
ALTERATION TO EXISTING DESIGNATION BOUNDARY		PROPOSED RETAINING WALL		ADDITIONAL PLANTING		RETAINING WALLS / FILL	
PROPOSED SHARED USE PATH		FILL SLOPE		STREET TREES		NOISE WALLS	
PROPOSED BUSWAY		CUT SLOPE					
PROPOSED TRANSIT LANE		EXISTING CULVERT TO BE RETAINED					
PROPOSED FOOTPATH		EXISTING CULVERT TO BE ABANDONED					
PROPOSED ON-ROAD CYCLE LANE		PROPOSED CULVERT					



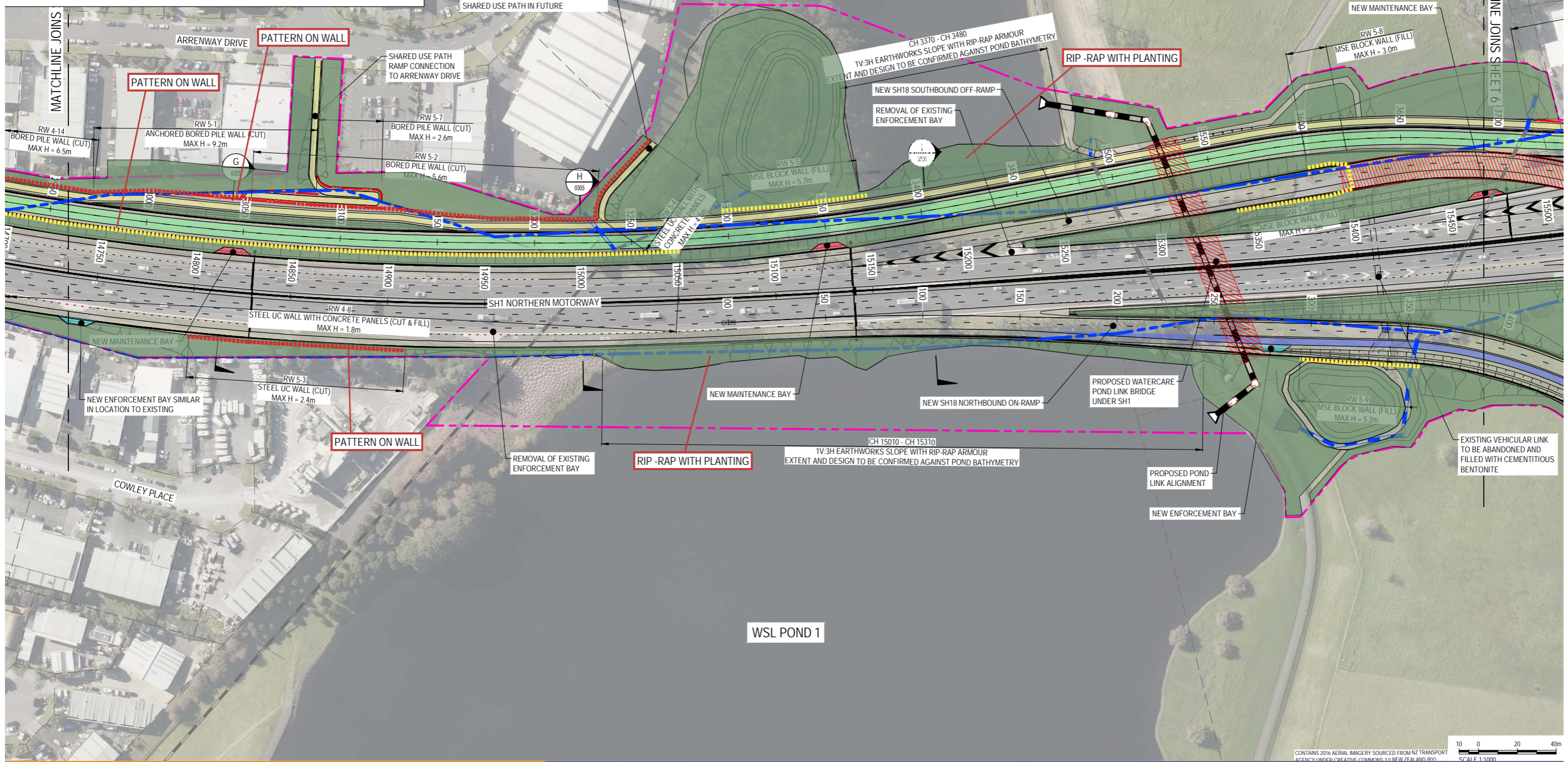
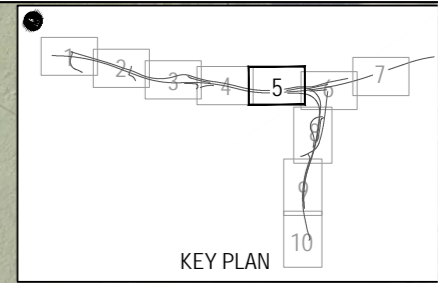
**CHARACTER AREA B**





**LEGEND**

EXISTING DESIGNATION BOUNDARY	BRIDGE EXTENTS	
ALTERATION TO EXISTING DESIGNATION BOUNDARY	PROPOSED RETAINING WALL	
PROPOSED SHARED USE PATH	FILL SLOPE	
PROPOSED BUSWAY	CUT SLOPE	
PROPOSED TRANSIT LANE	EXISTING CULVERT TO BE RETAINED	
PROPOSED FOOTPATH	EXISTING CULVERT TO BE ABANDONED	
PROPOSED ON-ROAD CYCLE LANE	PROPOSED CULVERT	
MITIGATION/ENHANCEMENT PLANTING	RETAINING WALLS / CUT	
ADDITIONAL PLANTING	RETAINING WALLS / FILL	
	NOISE WALLS	



CHARACTER AREA B

CHARACTER AREA C

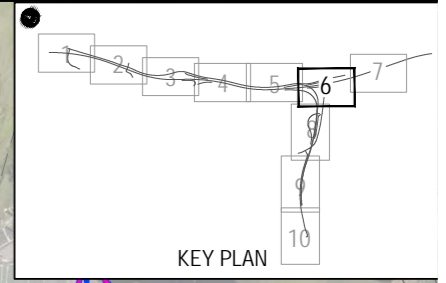
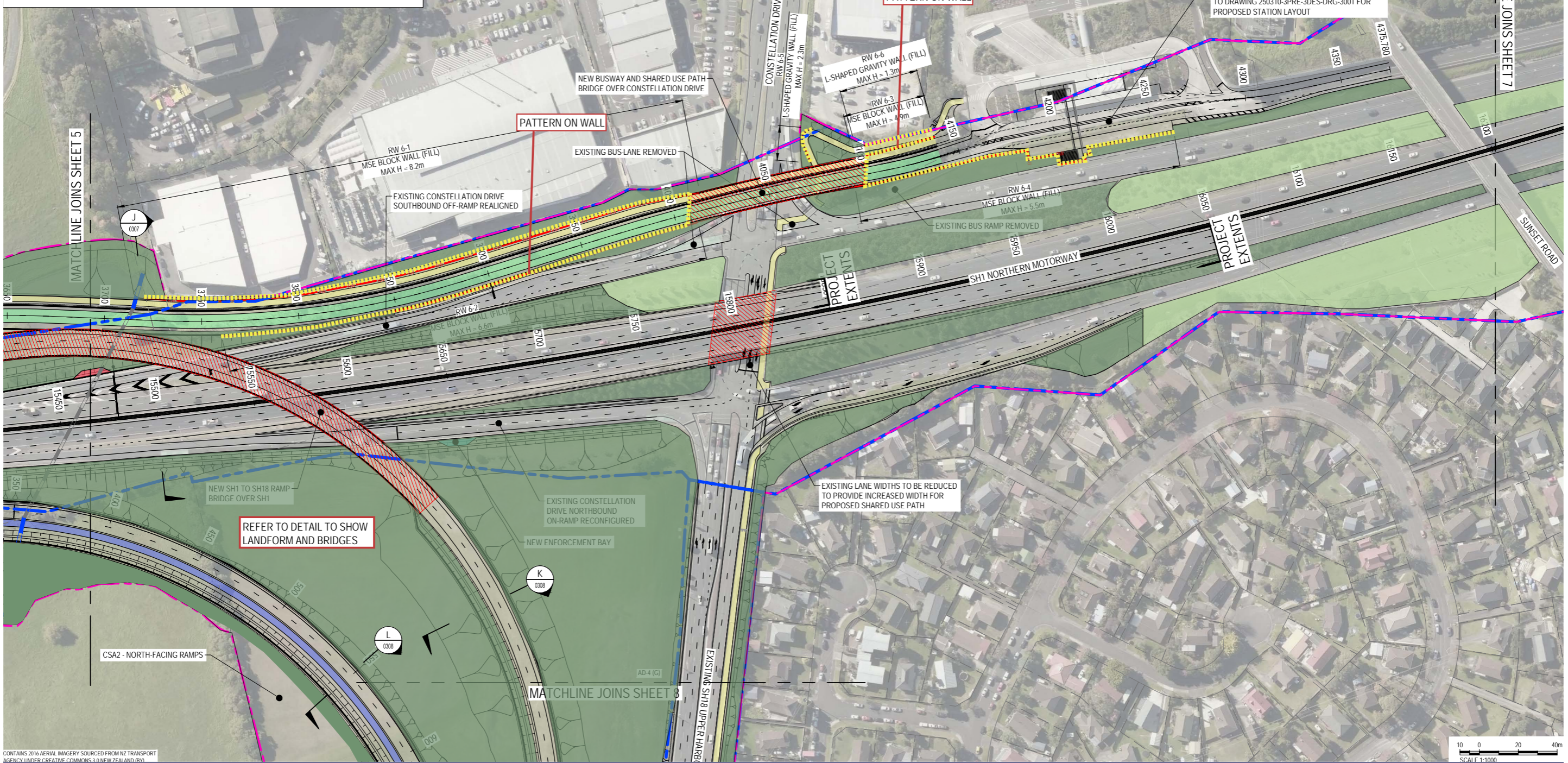
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**LEGEND**

EXISTING DESIGNATION BOUNDARY		BRIDGE EXTENTS	
ALTERATION TO EXISTING DESIGNATION BOUNDARY		PROPOSED RETAINING WALL	
PROPOSED SHARED USE PATH		FILL SLOPE	
PROPOSED BUSWAY		CUT SLOPE	
PROPOSED TRANSIT LANE		EXISTING CULVERT TO BE RETAINED	
PROPOSED FOOTPATH		EXISTING CULVERT TO BE ABANDONED	
PROPOSED ON-ROAD CYCLE LANE		PROPOSED CULVERT	
MITIGATION/ENHANCEMENT PLANTING		RETAINING WALLS / CUT	
ADDITIONAL PLANTING		RETAINING WALLS / FILL	
		NOISE WALLS	



CHARACTER AREA C

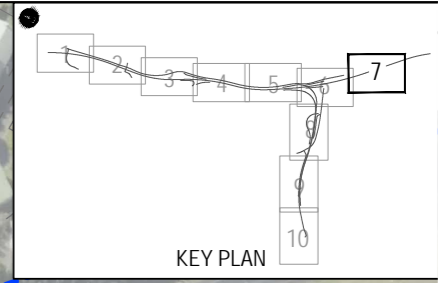
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**LEGEND**

EXISTING DESIGNATION BOUNDARY		BRIDGE EXTENTS	
ALTERATION TO EXISTING DESIGNATION BOUNDARY		PROPOSED RETAINING WALL	
PROPOSED SHARED USE PATH		FILL SLOPE	
PROPOSED BUSWAY		CUT SLOPE	
PROPOSED TRANSIT LANE		EXISTING CULVERT TO BE RETAINED	
PROPOSED FOOTPATH		EXISTING CULVERT TO BE ABANDONED	
PROPOSED ON-ROAD CYCLE LANE		PROPOSED CULVERT	
MITIGATION/ENHANCEMENT PLANTING		RETAINING WALLS / CUT	
ADDITIONAL PLANTING		RETAINING WALLS / FILL	
		NOISE WALLS	



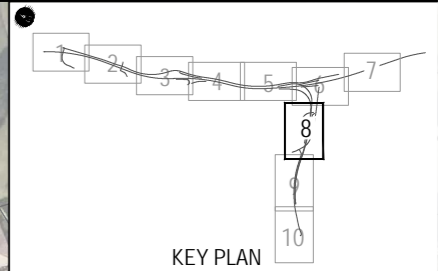
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**CHARACTER AREA C**





EXISTING DESIGNATION BOUNDARY	BRIDGE EXTENTS	PROPOSED RETAINING WALL
ALTERATION TO EXISTING DESIGNATION BOUNDARY	FILL SLOPE	CUT SLOPE
PROPOSED SHARED USE PATH	EXISTING CULVERT TO BE RETAINED	EXISTING CULVERT TO BE ABANDONED
PROPOSED BUSWAY	PROPOSED CULVERT	RETAINING WALLS / CUT
PROPOSED TRANSIT LANE	RETAINING WALLS / FILL	NOISE WALLS
PROPOSED FOOTPATH	STREET TREES	
PROPOSED ON-ROAD CYCLE LANE		
MITIGATION/ENHANCEMENT PLANTING		
ADDITIONAL PLANTING		



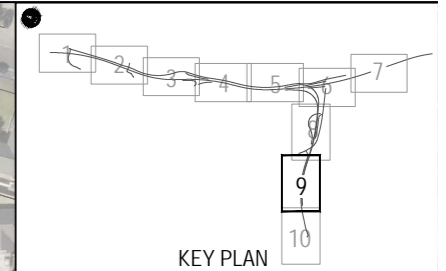
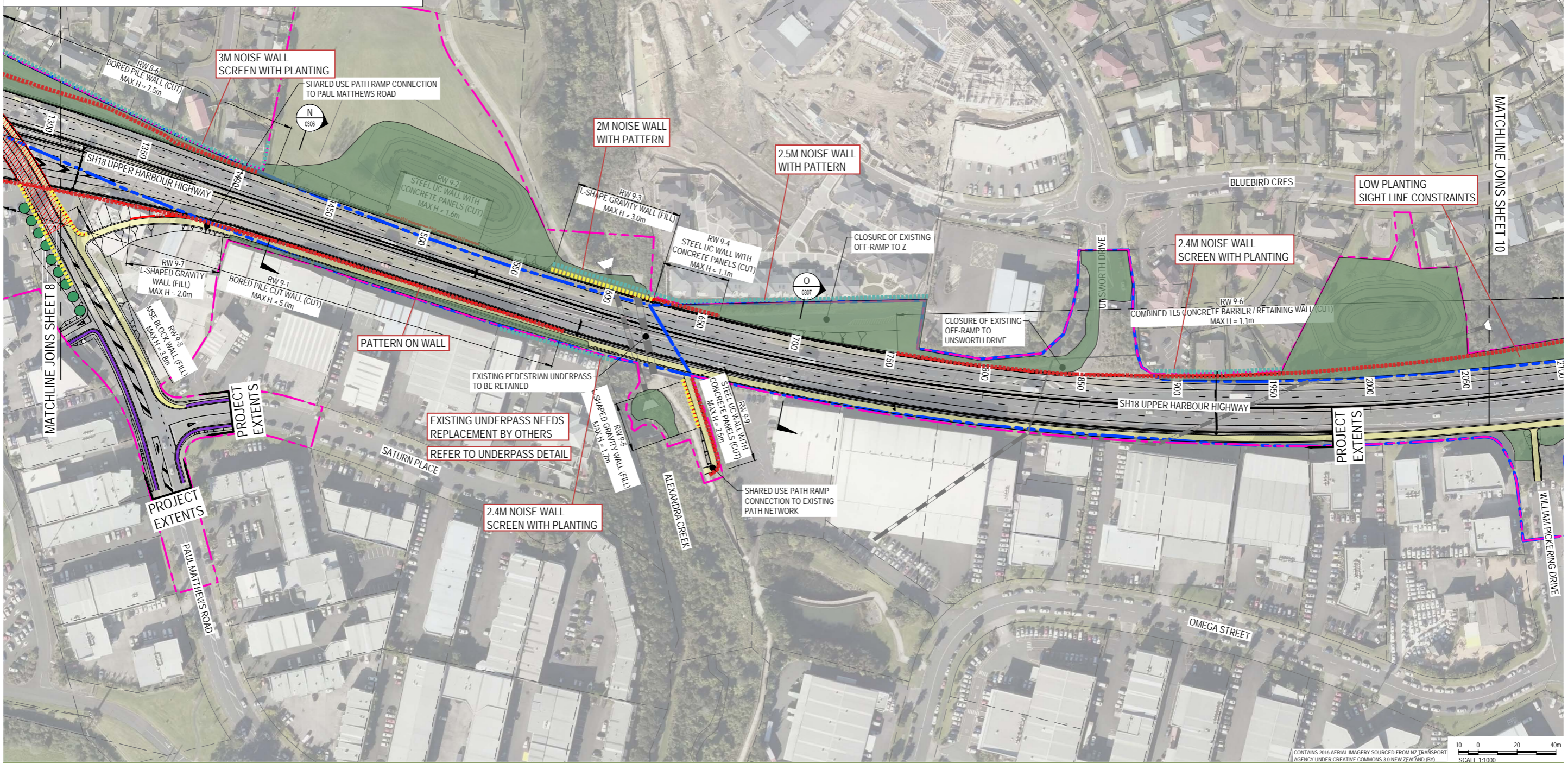
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**LEGEND**

EXISTING DESIGNATION BOUNDARY		BRIDGE EXTENTS	
ALTERATION TO EXISTING DESIGNATION BOUNDARY		PROPOSED RETAINING WALL	
PROPOSED SHARED USE PATH		FILL SLOPE	
PROPOSED BUSWAY		CUT SLOPE	
PROPOSED TRANSIT LANE		EXISTING CULVERT TO BE RETAINED	
PROPOSED FOOTPATH		EXISTING CULVERT TO BE ABANDONED	
PROPOSED ON-ROAD CYCLE LANE		PROPOSED CULVERT	
MITIGATION/ENHANCEMENT PLANTING		RETAINING WALLS / CUT	
ADDITIONAL PLANTING		RETAINING WALLS / FILL	
		NOISE WALLS	



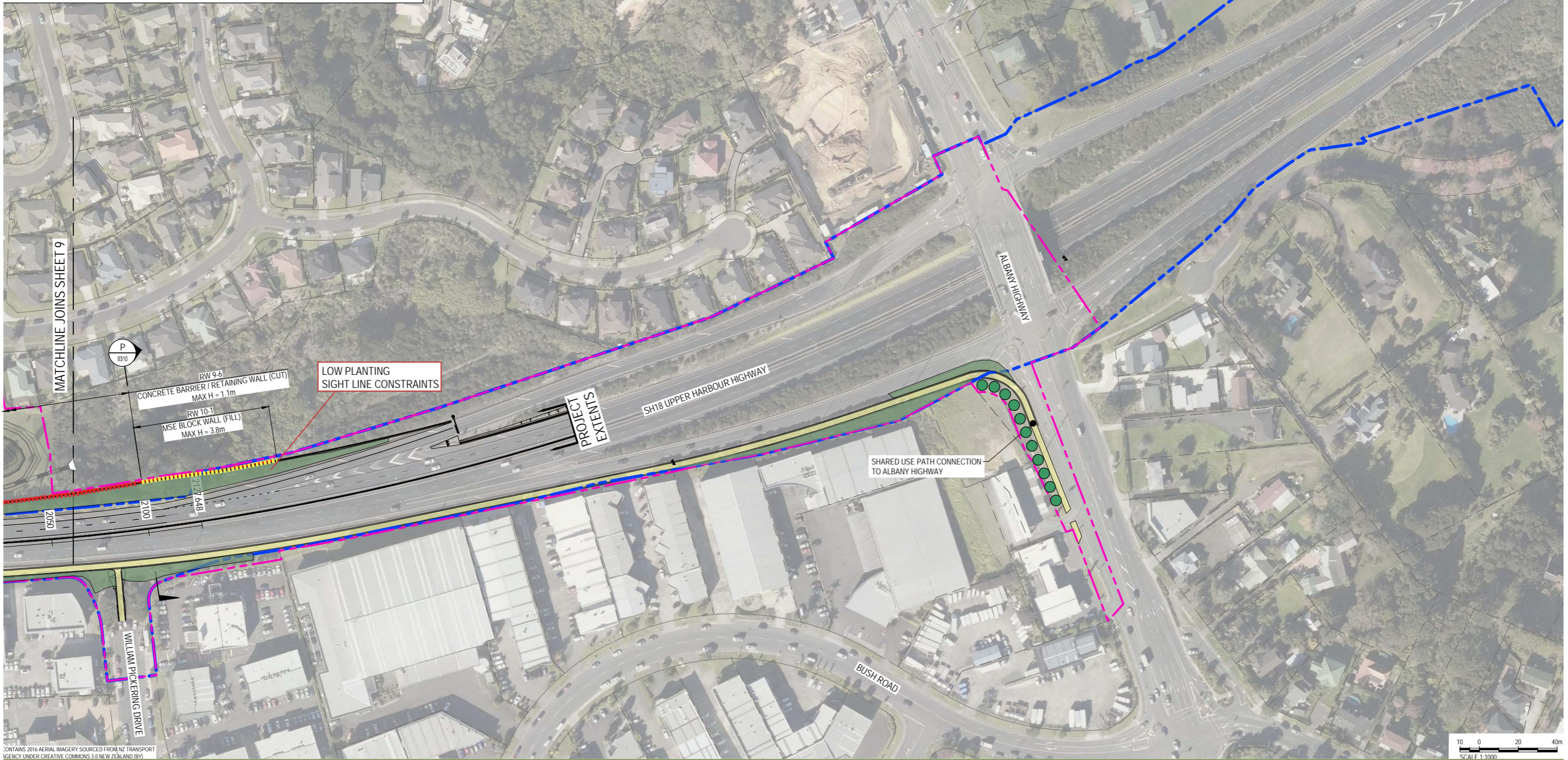
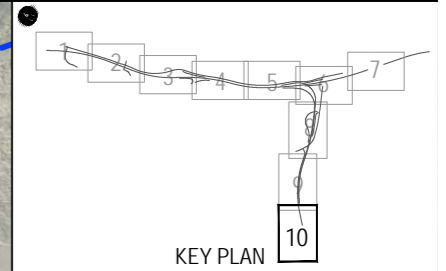
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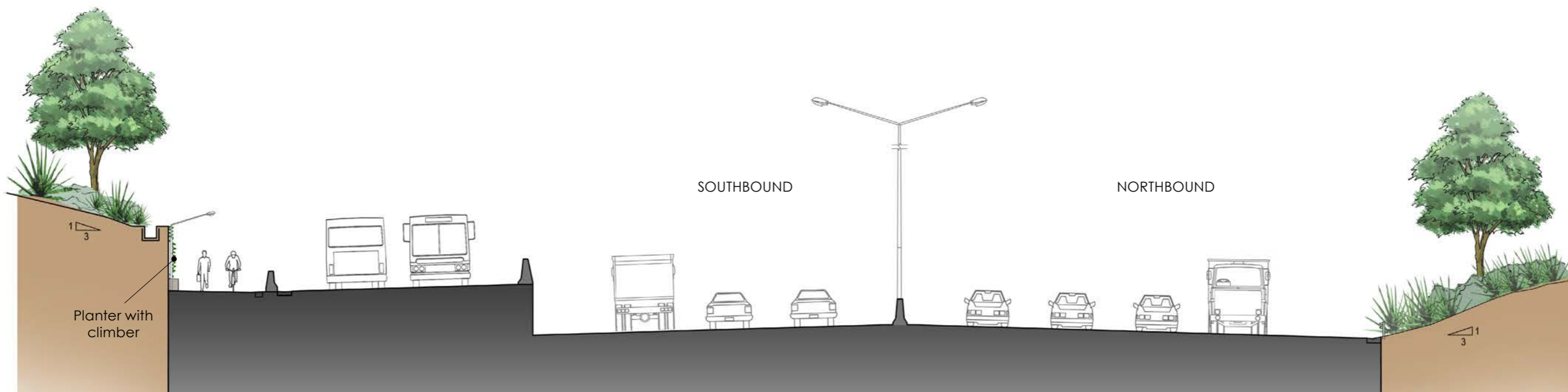


EXISTING DESIGNATION BOUNDARY		BRIDGE EXTENTS	
ALTERATION TO EXISTING DESIGNATION BOUNDARY		PROPOSED RETAINING WALL	
PROPOSED SHARED USE PATH		FILL SLOPE	
PROPOSED BUSWAY		CUT SLOPE	
PROPOSED TRANSIT LANE		EXISTING CULVERT TO BE RETAINED	
PROPOSED FOOTPATH		EXISTING CULVERT TO BE ABANDONED	
PROPOSED ON-ROAD CYCLE LANE		PROPOSED CULVERT	
MITIGATION/ENHANCEMENT PLANTING		RETAINING WALLS / CUT	
ADDITIONAL PLANTING		RETAINING WALLS / FILL	
STREET TREES		NOISE WALLS	

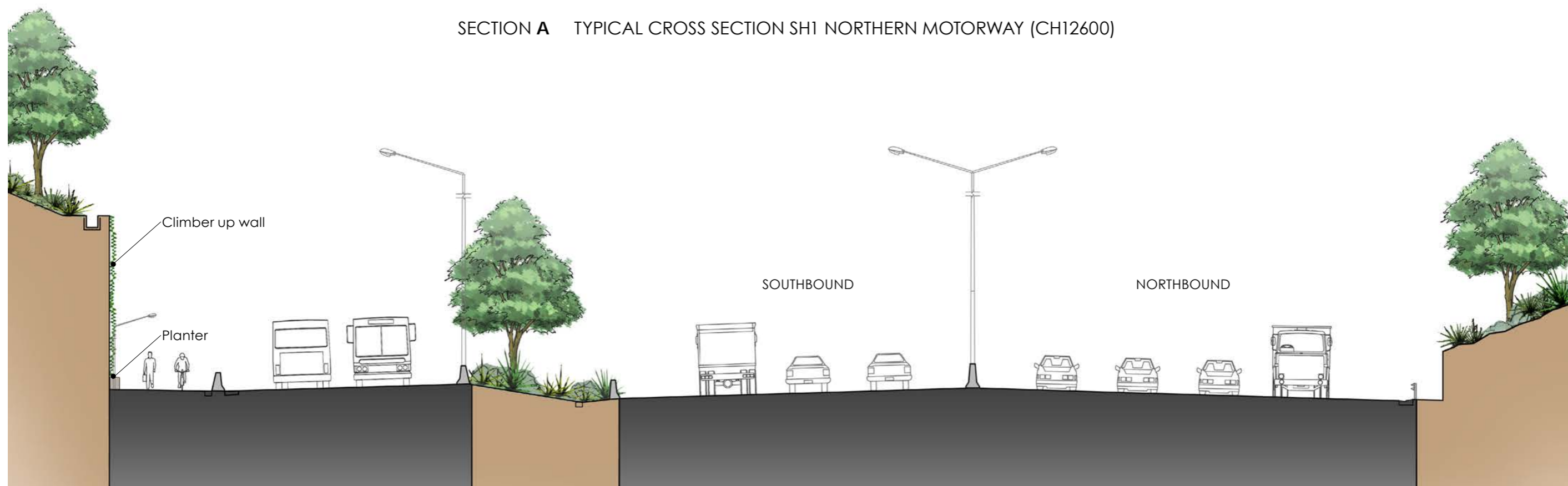


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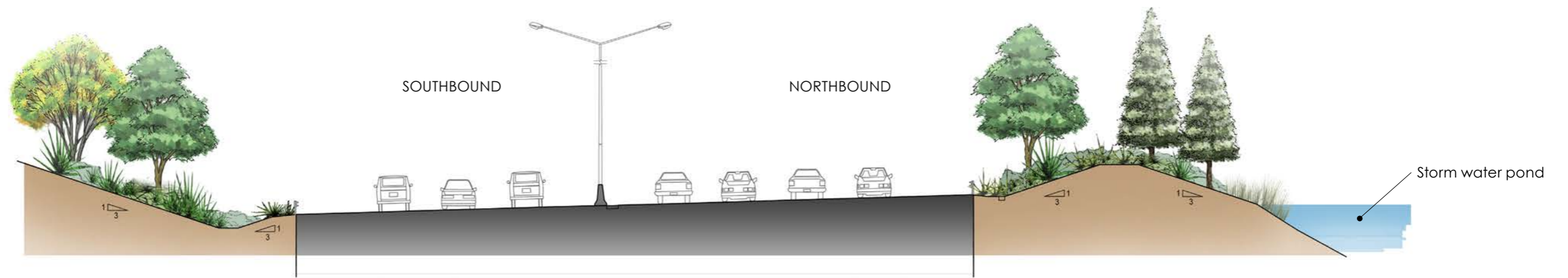


SECTION A TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY (CH12600)

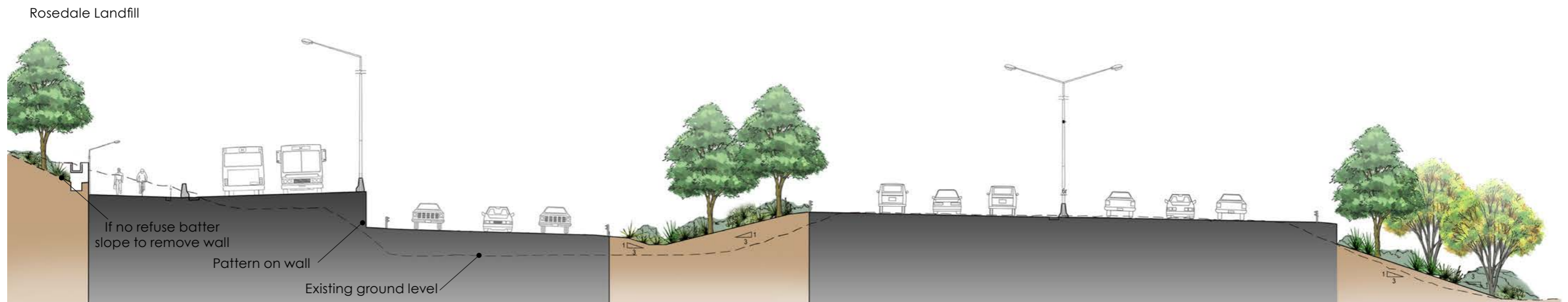


SECTION B BUSWAY / MAINTENANCE BAY CONFIGURATION - OPTION 2  
BUSWAY ON EMBANKMENT



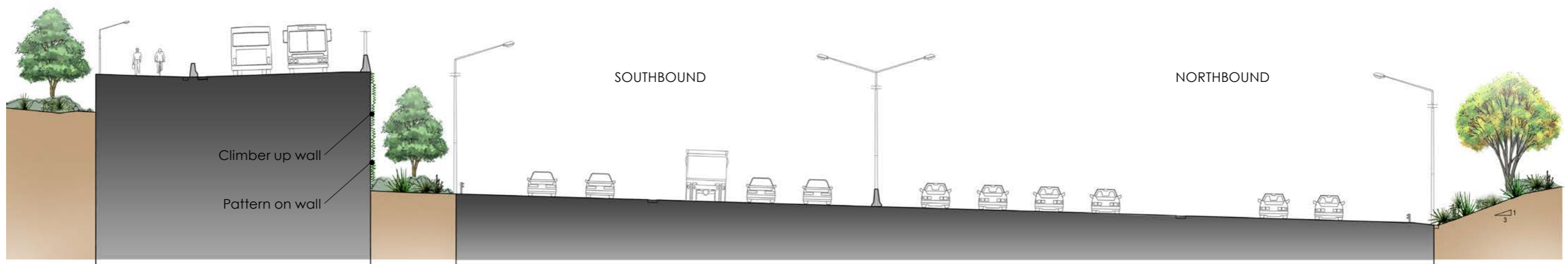


SECTION C TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY (CH13700)

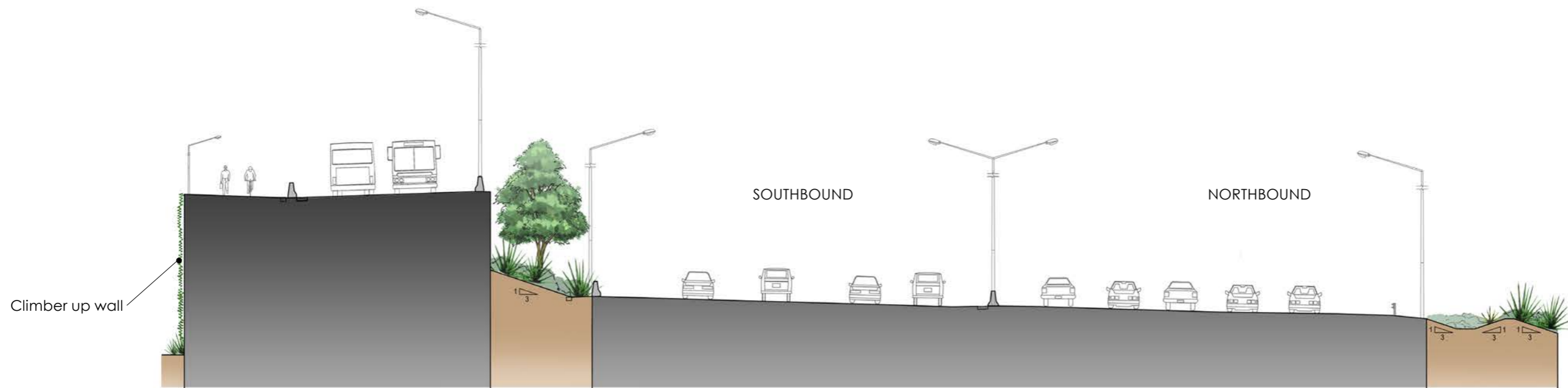


SECTION D TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY (CH14000)



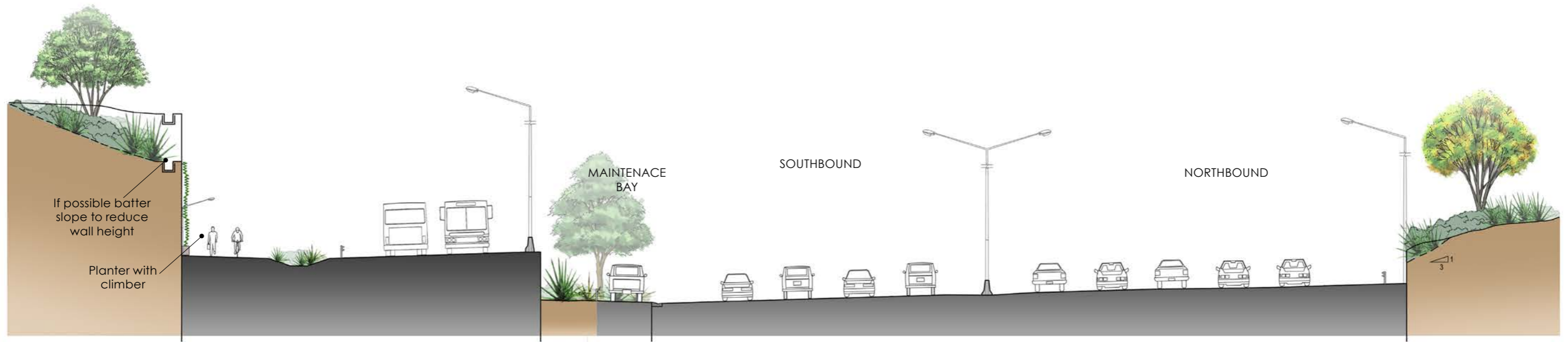


SECTION E TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY (CH14200)

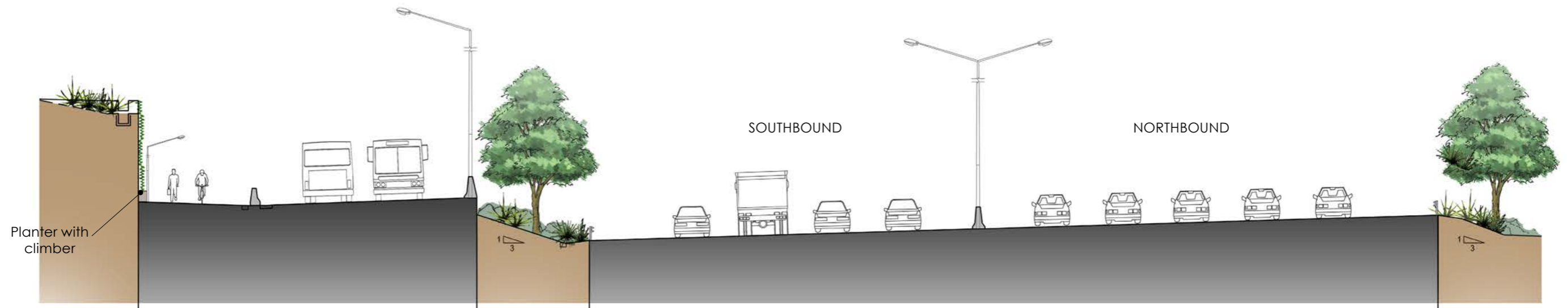


SECTION F TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY (CH14360)



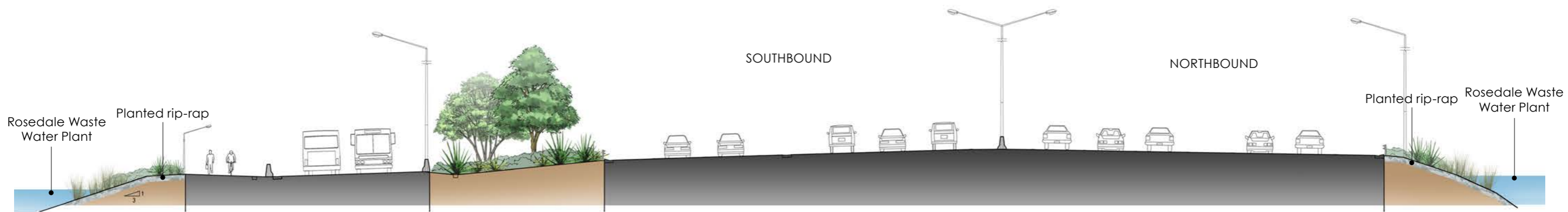


SECTION G TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY (CH14820)

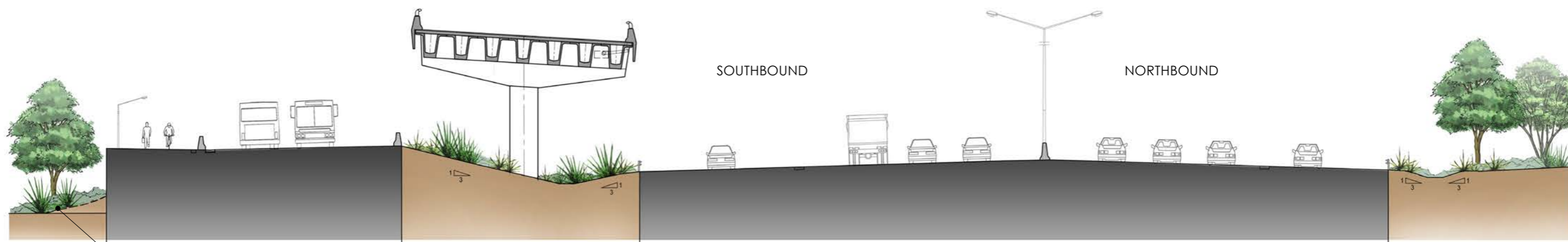


SECTION H TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY (CH15000)





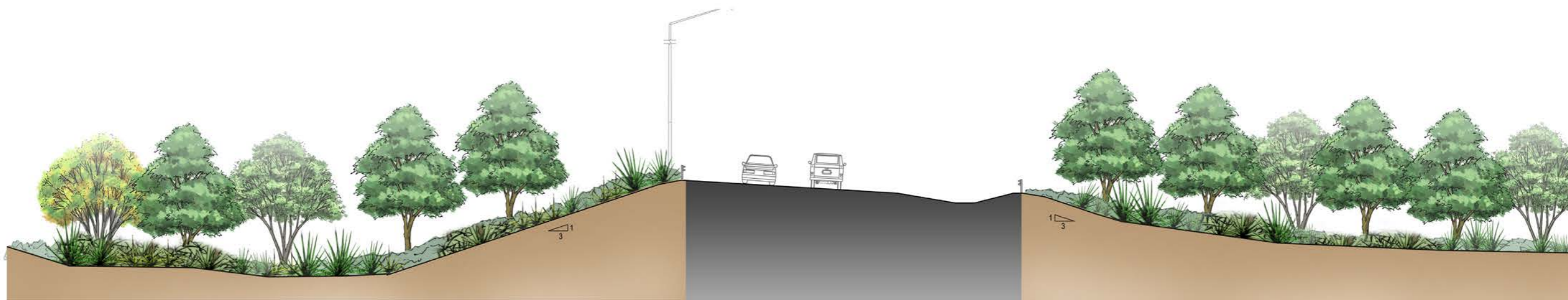
SECTION I TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY (CH15180)



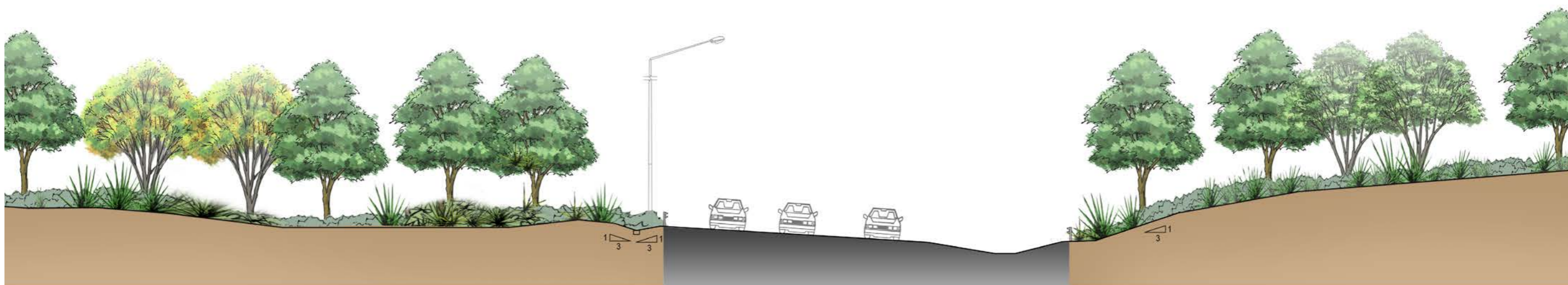
Proposed batter slope to reduce height of wall

SECTION J TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY (CH15500)



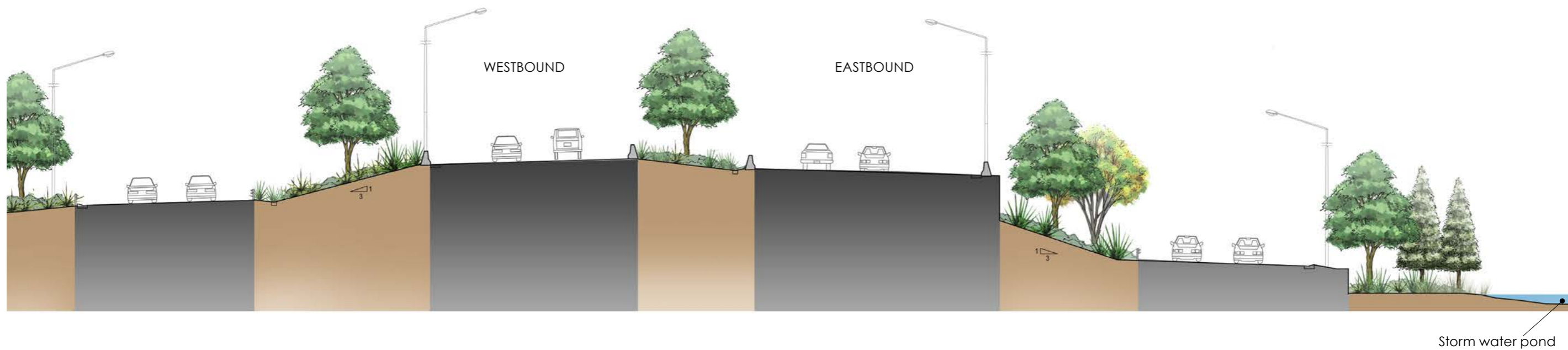


SECTION K TYPICAL CROSS SECTION SH1 NORTHERN MOTORWAY TO SH18 UPPER HARBOUR  
HIGHWAY SOUTHBOUND LINK (CH500)

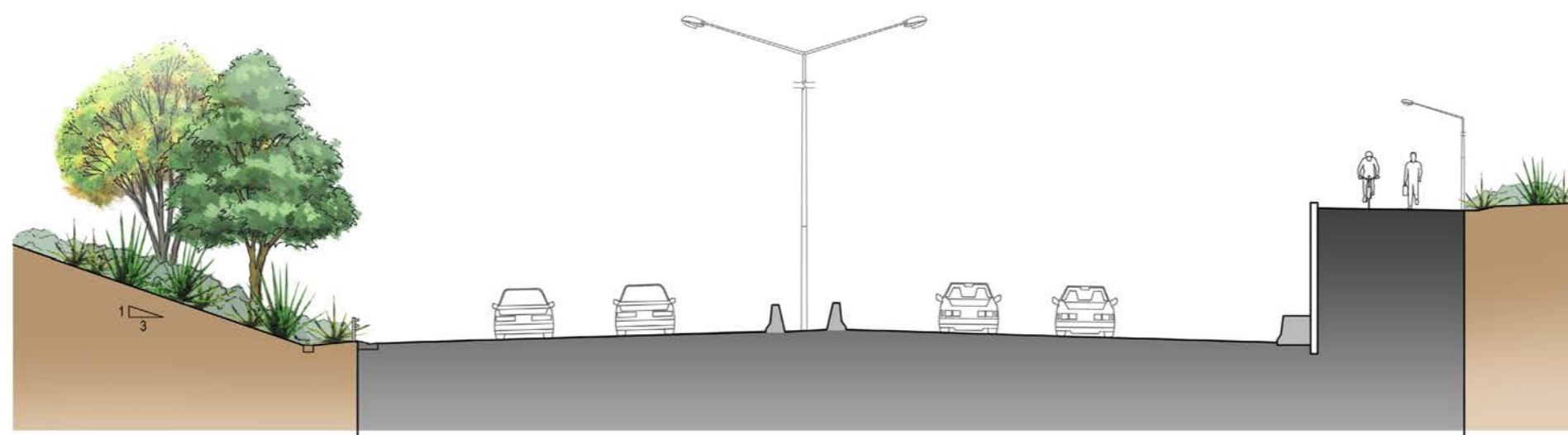


SECTION L TYPICAL CROSS SECTION SH18 UPPER HARBOUR TO SH1  
NORTHERN MOTORWAY NORTHBOUND LINK (CH550)



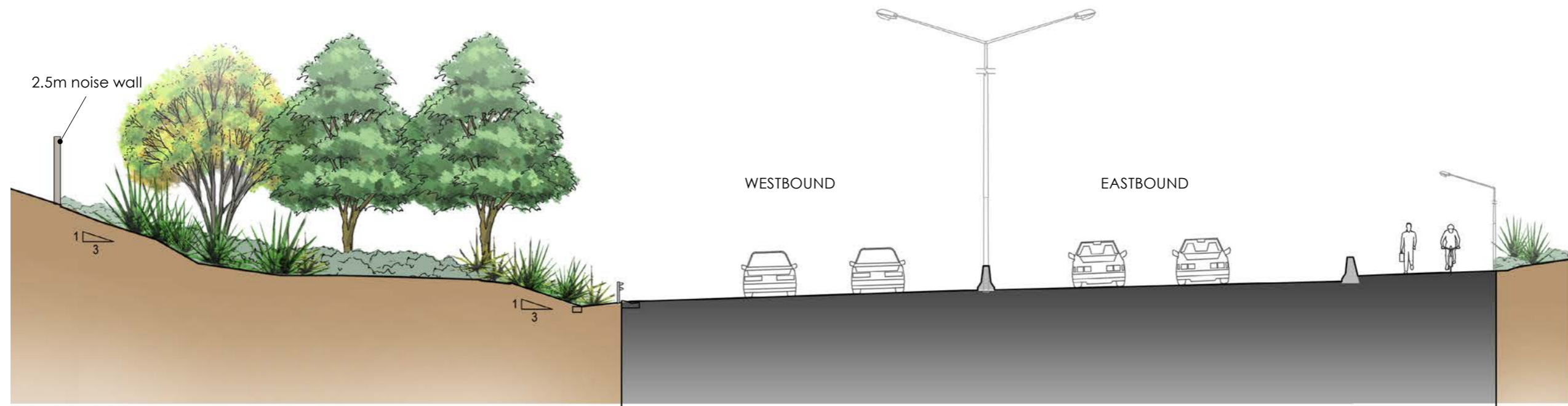


SECTION M TYPICAL CROSS SECTION SH18 UPPER HARBOUR HIGHWAY (CH900)

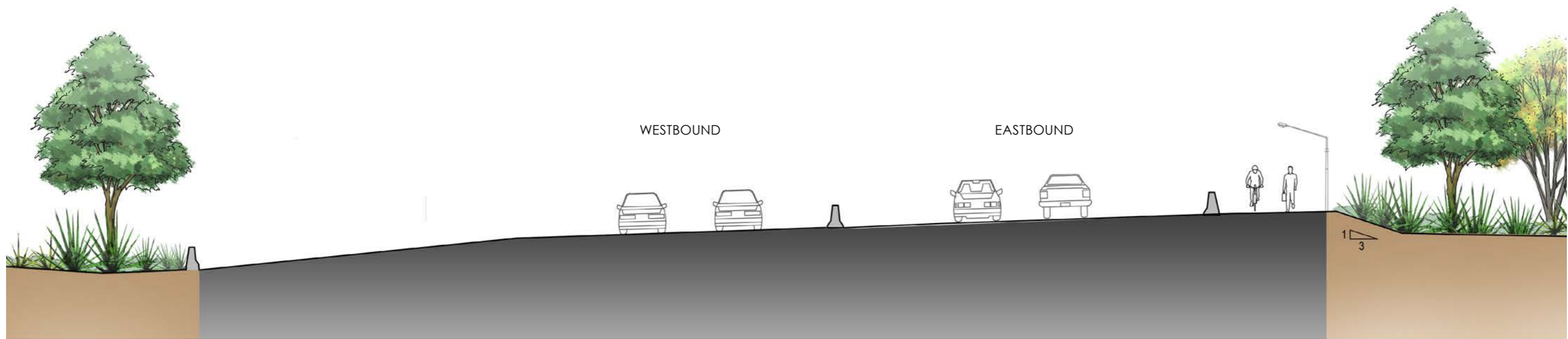


SECTION N TYPICAL CROSS SECTION SH18 UPPER HARBOUR HIGHWAY (CH 1430)





SECTION O TYPICAL CROSS SECTION SH18 UPPER HARBOUR HIGHWAY (CH 1700)



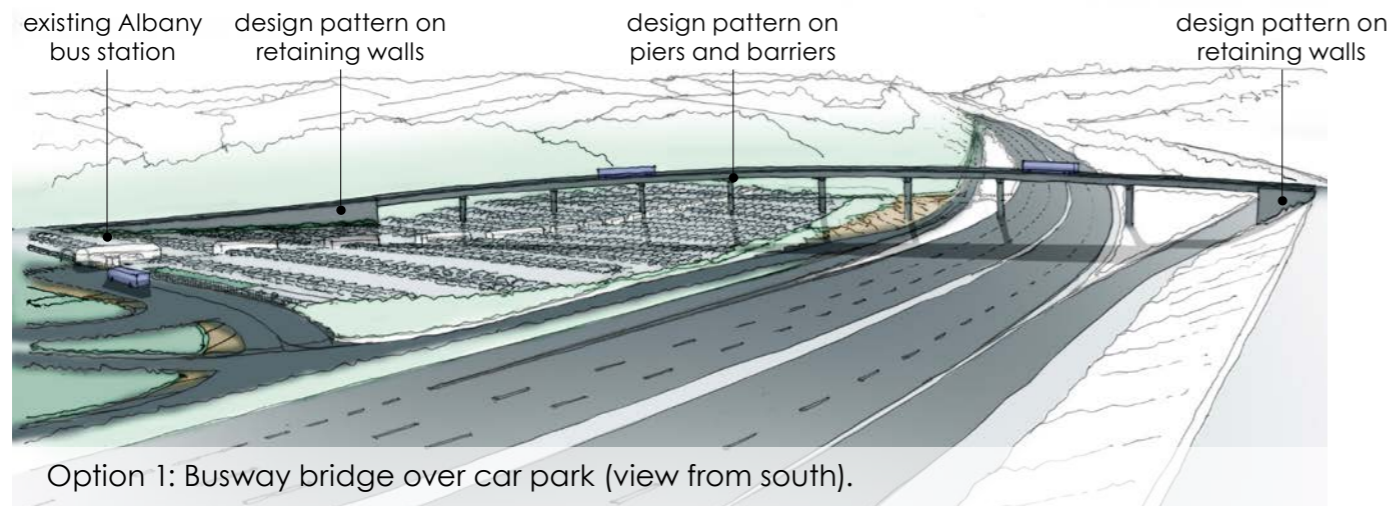
SECTION P TYPICAL CROSS SECTION SH18 UPPER HARBOUR HIGHWAY (CH 2100)



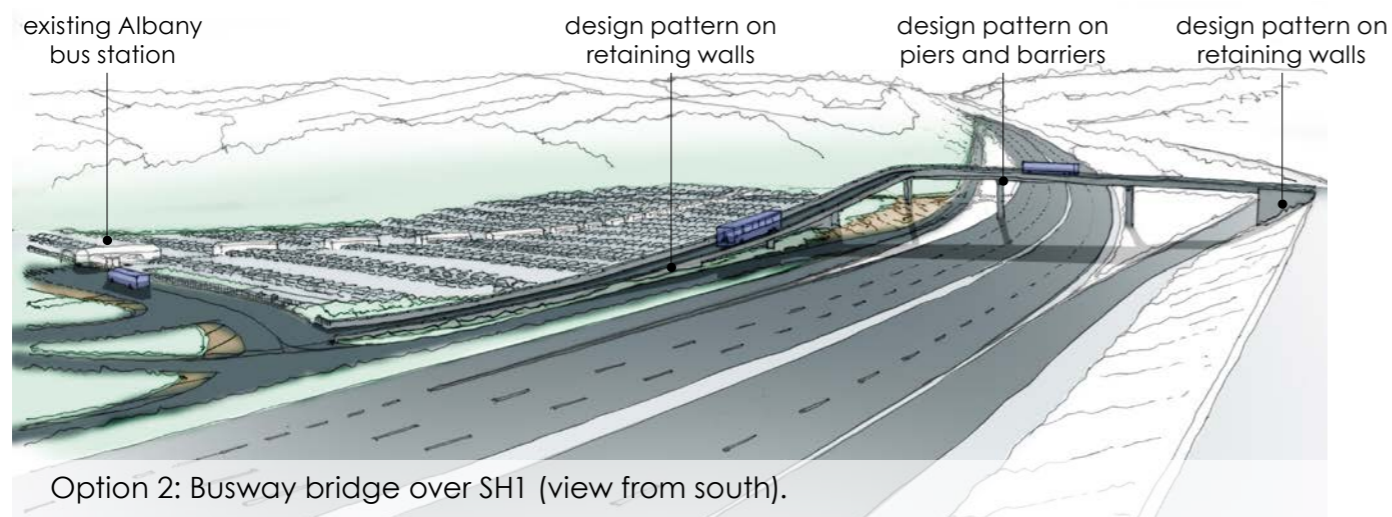
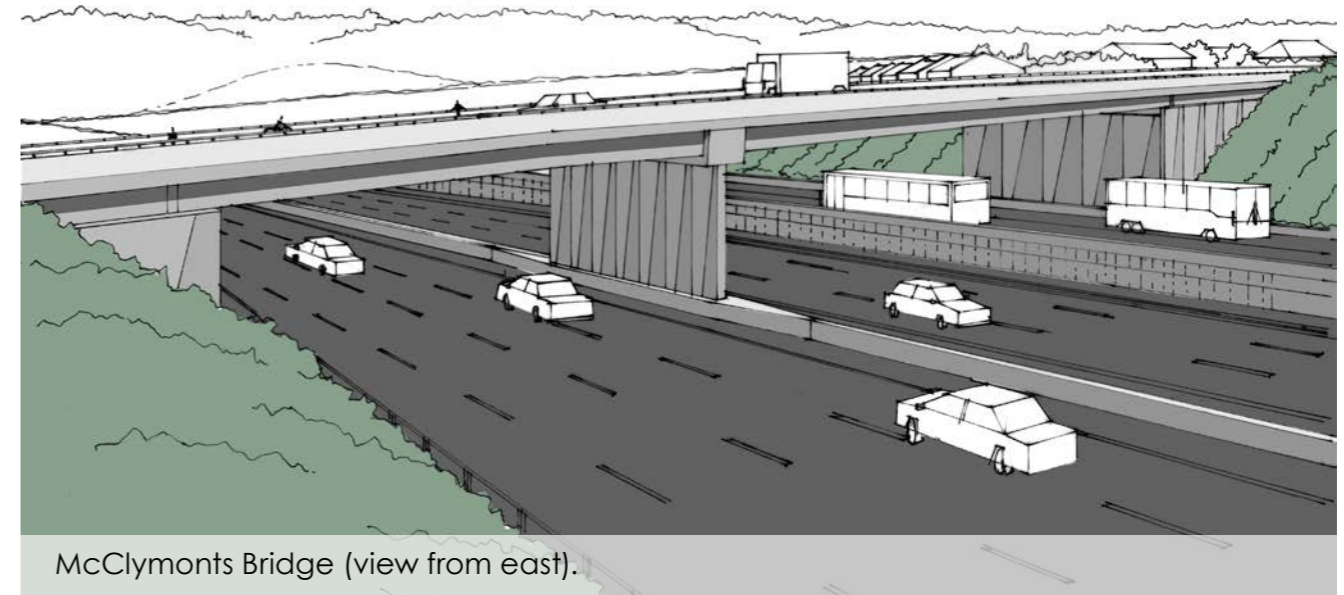
## 6.4. Key locations and urban design opportunities

These are artist's impressions to illustrate design opportunities and are not intended to be accurate.

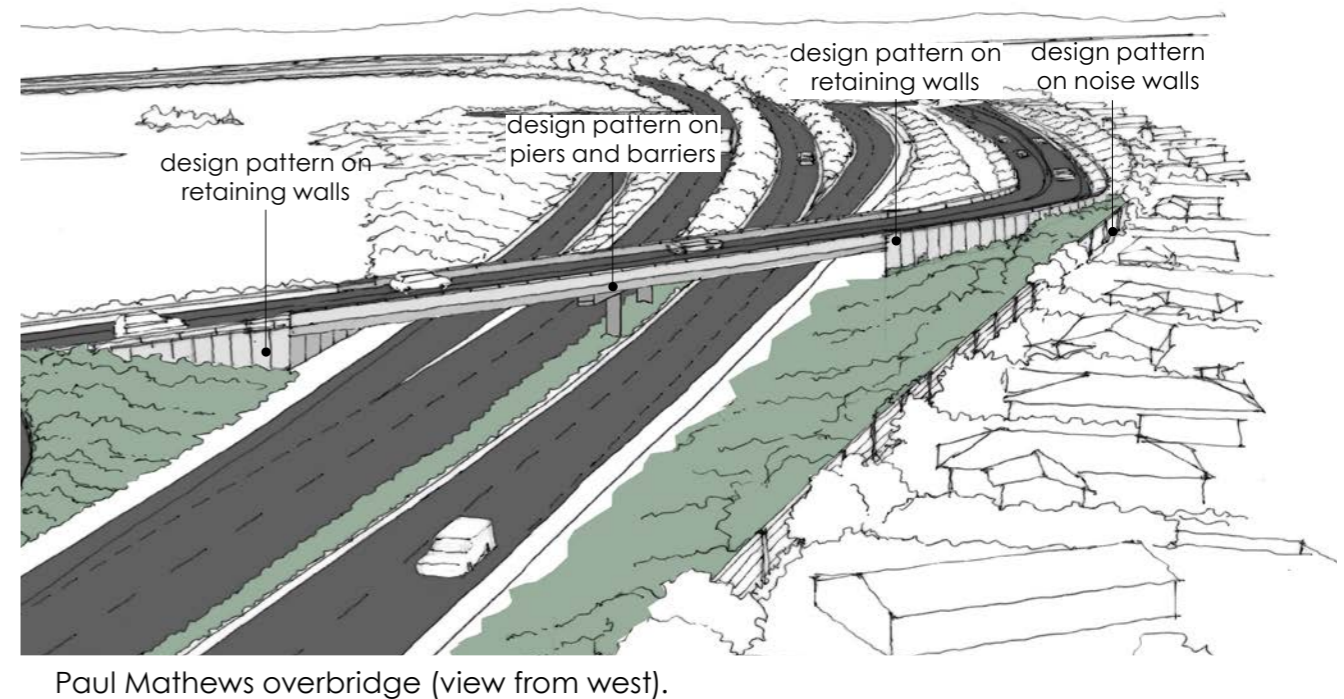
### ALBANY TRANSPORT HUB



### McCLYMONTS BRIDGE



### PAUL MATHEWS ROAD OVERBRIDGE







## ROSEDALE ROAD AREA

Shared path to Rosedale open space  
 Batter slope to reduce/replace wall  
 4m to 10m high retaining wall above  
 SH1 alignment

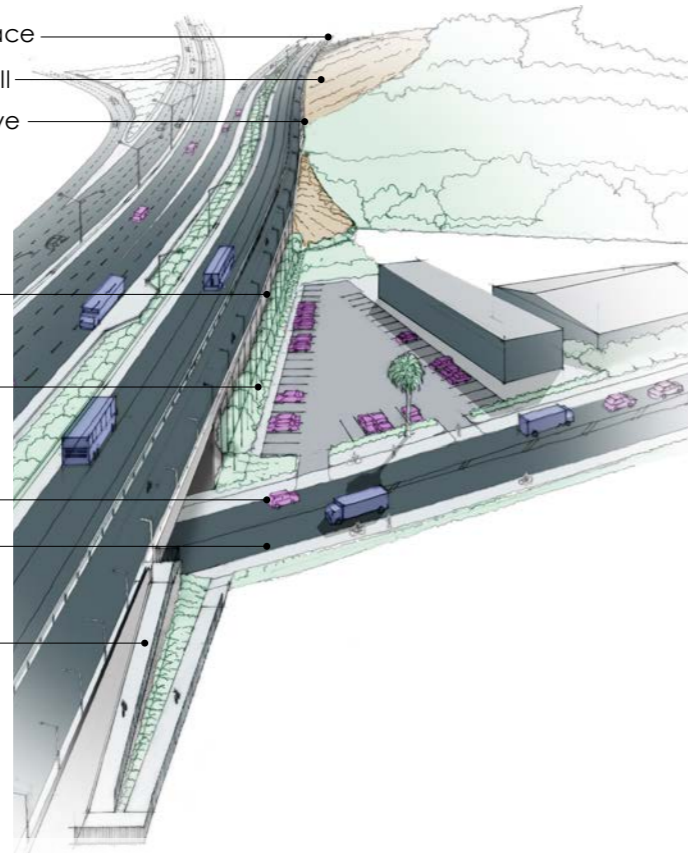
11m high retaining wall below  
 SH1 alignment

Increase designation width by  
 3m to enable tree planting at  
 base of retaining wall

Dedicated cycleway

Dedicated cycleway

Relocated cycle ramp to  
 connect with bus station



Rosedale Road area (view from south)

## CONSTELLATION BUS STATION



Constellation Bus Station (view from west).

## SH1-SH18 INTERSECTION



Trees/planting to form an  
 urban forest

Naturalised shape of cuts/fills  
 to blend with existing landform

Urban forest at SH1-SH18 intersection (view from south-west).



In partnership with:



**flow**  
TRANSPORTATION SPECIALISTS



**RILEY**  
CONSULTANTS

**pdp**

**MARSHALL DAY**  
Acoustics

**Clough**  
& ASSOCIATES LTD

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**RidleyDunphy**  
environmental & planning consultants

**PEERS BROWN MILLER**  
arboricultural & environmental consultants

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