Northern Corridor Improvements

Arboricultural Statement

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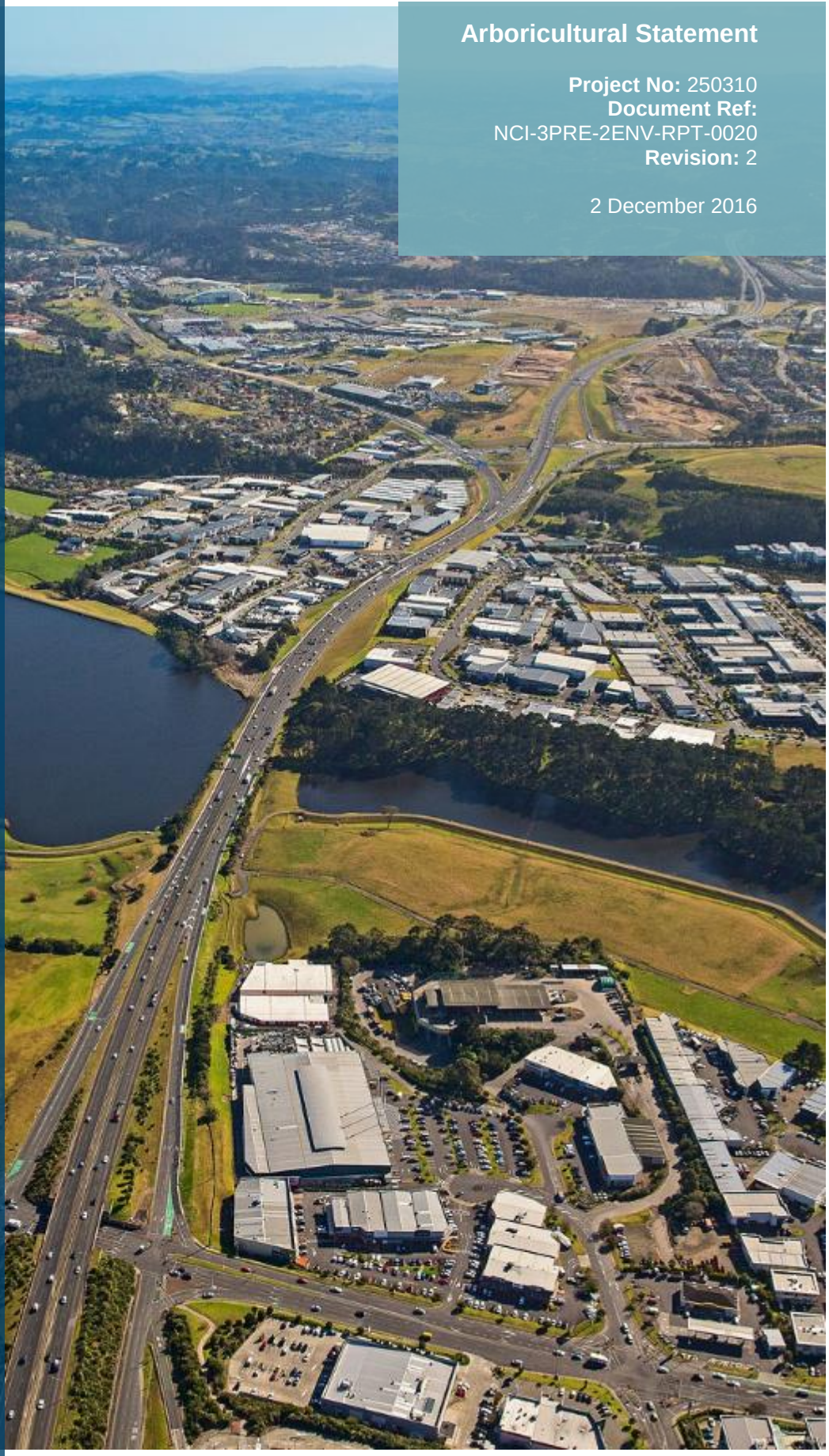

NZ TRANSPORT AGENCY
WAKA KOTAHI

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LAWYERS

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Glossary of Abbreviations

Item	Description
AEE	Assessment of Environmental Effects
AUP	Auckland Unitary Plan Operative in Part (15 November 2016)
NoR	Notices of Requirement
NZ Transport Agency	New Zealand Transport Agency
RWWTP	Rosedale Wastewater Treatment Plant
SEA	Significant Ecological Areas
SH x	State Highway (number)
SUP	Shared Use Path

Terms and Definitions

Item	Description
Project Area	The Project area is the Project corridor and immediate surrounds.
Project Corridor	The Project corridor is the extent of works contained on SH18 between Albany Highway and Constellation Drive, and SH1 between Upper Harbour Highway interchange and 90 m north of the Oteha Valley Road interchange. The Busway component of the works extends from Constellation Bus Station to the Albany Bus Station at Oteha Valley Road.
The Project or NCI Project	The Northern Corridor Improvements Project including alterations to designations, new designations and activities requiring regional resource consents.

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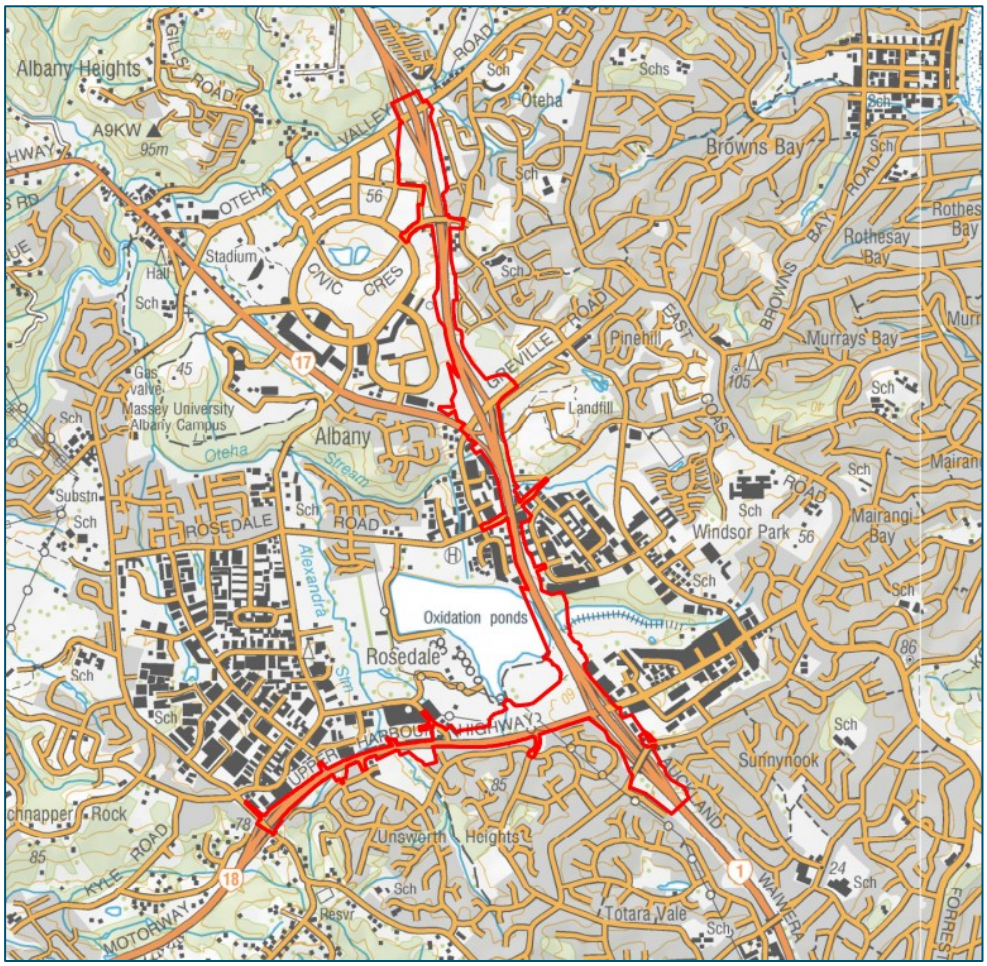
1 Description of Project

1.1 Project Background

The Northern Corridor Improvements Project (the Project) is an accelerated project. The Project area covers the area of State Highway 18 (SH18) between Albany Highway and Constellation Drive, and State Highway 1 (SH1) between Upper Harbour Highway interchange to just beyond the Oteha Valley Road Interchange as indicated on **Figure 1** below and confirmed in the suite of plans provided in **Volume 5**.

Figure 1 Extent of Project Area



Source: Base Map from LINZ

The Project proposes to upgrade the existing State highways within the Project area. In summary, the key elements of the Project are as follows:

- North and West Motorway Interchange connections – SH1/SH18;
- State highway capacity and safety improvements;
- Northern busway extension from Constellation Station and connection to Albany Station;

- Reconfiguration of Constellation Station converting it from a terminus station to a dual direction station;
- Shared Use Path (SUP) provision along existing SH1 and SH18 routes for the full extent of the Project corridor:
  - Constellation Station to Oteha Valley Road;
  - Constellation Drive to Albany Highway; and
  - Intermediate linkages to local network.

A full description of the Project, including its components and construction, is contained in section 5 of the Assessment of Environmental Effects (AEE).

1.2 Purpose of this Report

Peers Brown Miller Ltd has been engaged by Aurecon NZ Ltd to provide an arboricultural review of the vegetation affected by the Project. The affected vegetation is located in the existing NZ Transport Agency designations, the alterations to the existing designations and the new designations.

This report addresses the following matters:

- A description of the vegetation within the existing NZ Transport Agency designations within the Project area;
- A description of the vegetation within the proposed alterations to the designations and new designations; and
- The proposed works that will affect the vegetation.

1.3 Ongoing design

This report has been prepared using the General Arrangements plans for the Project being Drawings 250301-3PRE-3DES-DRG-0201 - 0210 (**Volume 5**) hereafter referred to as the General Arrangement Plans. The exact extent of vegetation disturbance in some areas cannot be determined until detailed design of the Project has been completed. Therefore, a "worst case" approach has been adopted in terms of the amount of vegetation clearance required.

2 Survey methods

This report is based on the plans for the Project attached to the NoR as the General Arrangements plans provided at **Volume 5**, as well as a desktop analysis of the Auckland Unitary Plan Operative in Part (15 November 2016) (AUP) planning maps and GIS aerial photographs. The Project site was driven and walked, where it was safe to do so. Several areas of motorway road reserve were inaccessible for detailed walk-over assessment as this would have required temporary lane closure and traffic management on state highways. In these cases the vegetation was surveyed from the nearest possible adjoining property.

All accessible sites were visited and the trees were documented in general terms.

The scale of this Project precludes a tree-by-tree assessment due to the vast number of trees involved. Much of the vegetation surveyed occurs in large, homogenous groups of similar-sized individuals. In most cases the vegetation has been described in generalised groups as this has been determined as the clearest and most practical method of presenting the outlined information.

2.1 Information collected

The general tree survey is presented as annotated maps, a spreadsheet database and explanatory notes and photographs.

This report deals in further detail with affected vegetation which is more significant, or that is located outside the existing NZ Transport Agency's designations.

The applicable general vegetation survey data is attached as appendices as follows:

- **Appendix A** – annotated General Arrangement Plans showing areas of vegetation and individual trees denoted as yellow polygons or circles, which are numbered by map sheet;
- **Appendix B**– a spreadsheet outlining the summarised survey data for the trees evaluated as part of a field survey;
- **Appendix C** – further explanatory notes on areas of vegetation listed in **Appendix B**; and
- **Appendix D** – a database of site photographs illustrating the areas of vegetation surveyed as part of the Project.

In **Appendices B and C**, and in other sections of this report, native trees are identified by their New Zealand common name only, as these are widely recognisable to arborists and landscapers whom are likely to review this document. For the purposes of this report, exotic trees are also identified by their common name. Scientific names are used occasionally for purposes of disambiguation, for example where common names are shared between species.

Tree dimensions, where supplied, are in the format of height x spread x girth in metres. All measurements are approximate. For example, a tree of dimensions 6 x 5 x 1m is approximately six metres in height, approximately five metres in spread and has a girth of approximately 1m.

3 Vegetation Survey

The vegetation within the NZ Transport Agency's existing designations for SH1 and SH18 within the Project area is described in detail **Appendices A - D**, and in summarised form in the section below.

3.1 Vegetation Description

The NZ Transport Agency's existing designations for SH1 and SH18 contain extensive mass plantings of vegetation, as well as rows of trees and individual trees growing within the State Highway corridor. The plantings within the existing designations within the project area make up the majority of the vegetation affected by the proposed works.

The majority of vegetation within the existing designations consists of mixed native plantings ranging in size from small shrubs and groundcovers up to trees of approximately 7m in height and crown spread. The only large native trees within the existing designation are those located on the banks of Lucas Creek under the motorway overbridge – some of these trees (Tanekaha, Kanuka, Totara, Rimu and Kahikatea) are up to 15m in height.

Commonly-planted native species within the NZ Transport Agency designations are Kanuka, Manuka, Ngaio, Mahoe, Karamu, Harakeke, Mapou, Ti Kouka and Houhere, all of which are environmentally-resilient trees with pioneer characteristics (i.e. fast-growing and easy to establish in exposed areas).

Exotic trees are less common within the motorway corridor. The largest exotic trees within the NZ Transport Agency designations are *Washingtonia* palms of up to 10m in height, similar to those shown in the photograph below. Other exotic palms such as Queen Palm (*Syagrus*) have been used extensively in the plantings north of the SH18 / SH1 intersection.

Figure 2 An example of planting within the NZ Transport Agency designation, featuring mass planting of Harakeke, *Washingtonia* Palms and Ngaio in the foreground.

Source: Peers Brown Miller

Figure 3 Successful native mass planting on SH18 providing an extension to adjoining native bush.

Source: Peers Brown Miller

3.1.1 Proposed works

The vegetation within the existing designations within the Project area will be extensively affected by construction of the new corridor.

The affected vegetation is mostly in the strip adjacent to the motorway where road widening works, new busway and SUP construction is proposed. At the intersection between SH18 and SH1 the works are more expansive, spreading into adjacent reserve land (Rosedale South Park) and the adjacent Rosedale Wastewater Treatment Plant (RWWTP).

3.1.2 Arboricultural value

The trees in the mass plantings are mostly not of great individual arboricultural significance due to their small stature. There are few specimen quality trees within the existing NZ Transport Agency designations within the Project area, examples being the native trees at the Lucas Creek overbridge on SH1. The mass plantings within the NZ Transport Agency designations are extensive and visible in the landscape. The arboricultural value of the plantings is thus in their mass effect, rather than in the age or inherent value of the individual trees. The overall arboricultural effect is that the most successful plantings create a green blanket over the landscape.

The motorway plantings, and other affected plantings on the reserve and at the RWWTP are mostly relatively recent amenity plantings. The plantings are absent in 1996 aerial photographs of the site, suggesting that all motorway planting is less than 20 years in age (refer to **Figure 4** and **Figure 5** below which show the difference between 1996 and 2010).

There are a few mature trees on, or adjacent to the existing motorway designation. These are:

- Native trees in the bush along Lucas Creek, both inside and outside the NZ Transport Agency designations;
- Scattered larger trees such as pines and poplars in Council reserves (e.g. Rook Reserve and Rosedale South Park); and
- Mature pines within the Significant Ecological Area (SEA) east of the motorway at RWWTP.

Figure 4 **Excerpt from 1996 aerial photograph showing RWWTP and Rosedale South Park. Planting is limited to old-growth pine shelterbelts. Most of these trees have since been removed. The mass plantings within the RWWTP are yet to be established.**

Source: Auckland Council GIS historical aerial photography

Figure 5 **Excerpt from 2010 aerial photograph showing RWWTP and Rosedale South Park with established native planting becoming established, and a few post-mature Pines, which appear to be remnants of old windrows. Road Reserve planting is visible along the southern side of SH18**

Source: Auckland GIS most recent aerial photography

4 Vegetation outside the NZ Transport Agency's existing designations

The following section details areas of vegetation outside the NZ Transport Agency's existing designations that will be affected by the proposed works.

These areas are discussed following the general arrangement of the Project, i.e. clockwise from north to south along SH1 and from east to west along SH18. The NZ Transport Agency designation is proposed to be extended to incorporate these sites. These sites are numbered in the figure below, and listed.

The areas that are currently outside the NZ Transport Agency designations are as follows:

1. Rosedale landfill (part);
2. RWWTP ponds;
3. Rosedale South Park;
4. RWWTP;
5. Caribbean Drive;
6. Rook Reserve;
7. Paul Matthews Road;
8. Alexandra Stream; and
9. Bluebird Reserve.

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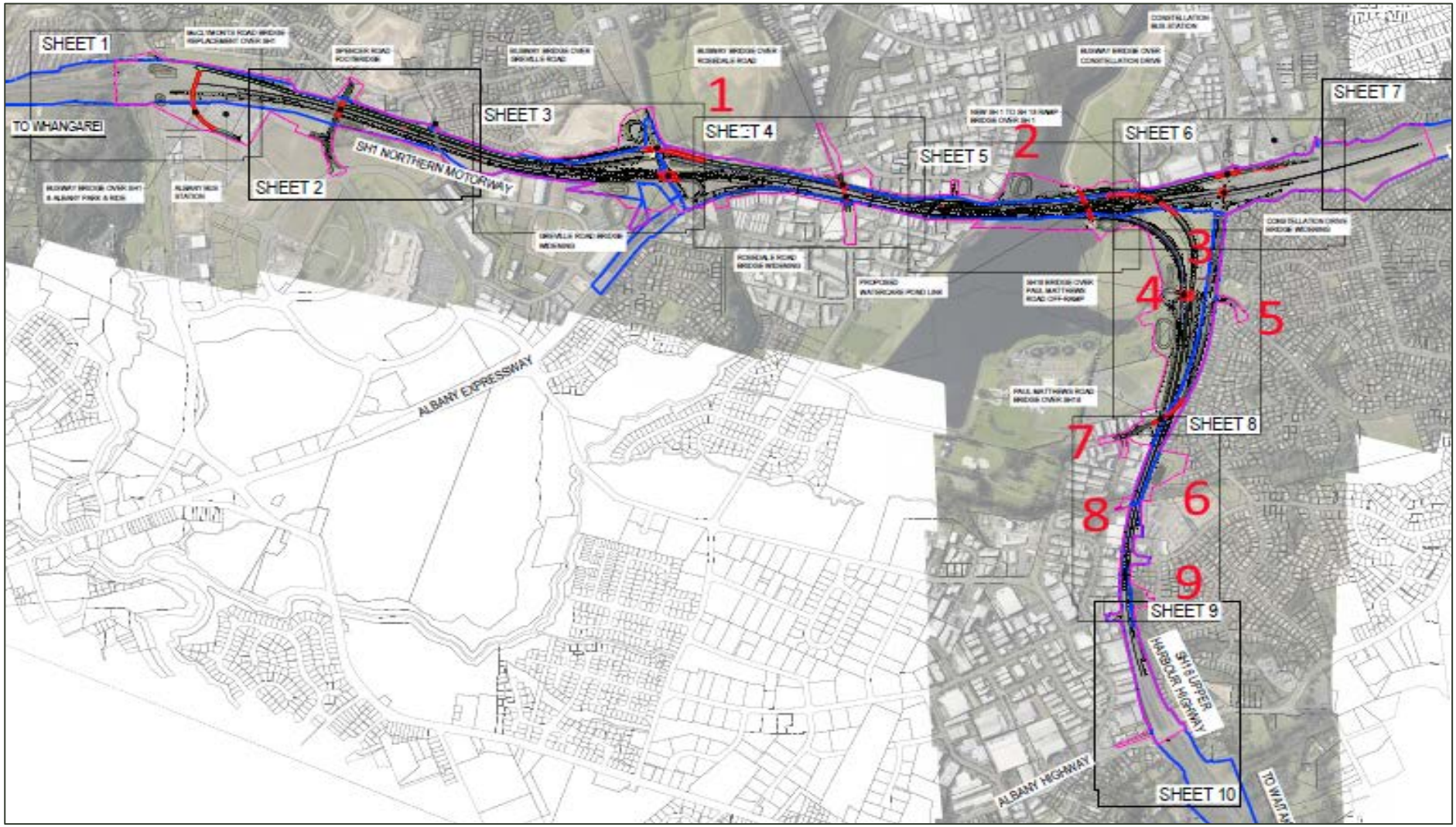
Figure 6 General layout key with areas for further discussion numbered. This is a marked-up version of the key to the General Arrangement Plans



Source: Aurecon marked up by Peers Brown Miller

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4.1 Rosedale Road landfill site

This decommissioned landfill site is zoned as public open space, but does not at present function as a park. The site is planted with a variety of native and exotic trees. Due to various hazards (including landfill gas) the site is not open to the public.

Figure 7 **Rosedale Landfill – a rough hedge has become established on the boundary consisting of Tasmanian Blackwood (*Racosperma melanoxylon*) and other pioneer species such as Kohuhu. There is a relatively level strip of ground along the top of the existing motorway cutting, which can be seen at left**

Source: Peers Brown Miller

4.1.1 Proposed works

The western edge of the landfill is in close proximity to SH1 between Greville and Rosedale Roads. The proposed road widening works for the Busway and SUP will encroach into the landfill boundary. The General Arrangement Plans show that the site works will be protected by bored pile walls above the motorway corridor. It appears that most of the road widening works will be within the relatively level strip along the top of the existing motorway embankment, i.e. only a narrow strip of the landfill will be affected.

4.1.2 Vegetation description

The trees affected by the works are belts of native and exotic trees. Species of note include belts of Ngaio, Tasmanian Blackwood (*Racosperma melanoxylon*), and Gum (*Eucalyptus spp*). A number of weed species are present within the landfill site. These include Black Wattle, Privet (*Ligustrum lucidum* and *L sinense*) as well as Tobacco Weed (*Solanum mauritianum)* and Gorse. The trees within the reserve are up to 10m in height, but those closer to the road are smaller – up to 7m in height, with a rough hedge formed along the boundary fence with the motorway.

4.1.3 Arboricultural value

The vegetation within this reserve is partly hidden from general view by the high bank along the motorway. The trees are not of individual arboricultural significance and many are identified as weed species.

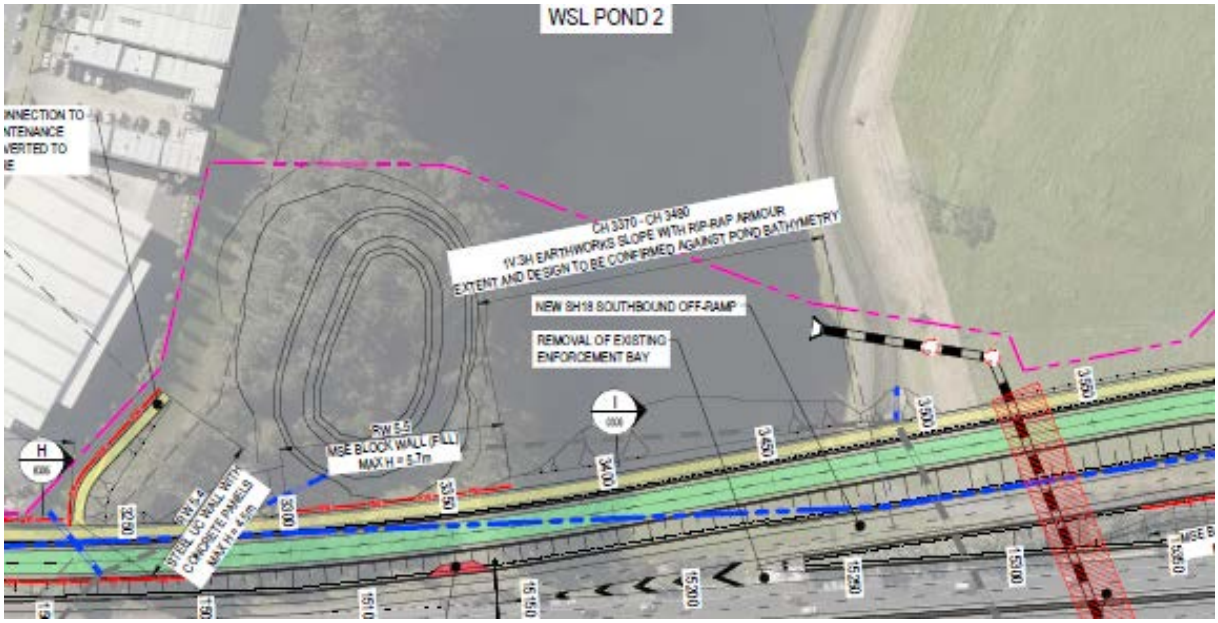
4.2 RWWTP SEA (RA 2 Jack Hinton Drive Rosedale – Lot 1-2 DP 46899)

The RWWTP is partially subject to an SEA overlay (SEA_T_8364). The SEA overlay extends over the RWWTP ponds on both sides of the motorway (i.e. both east and west of the motorway). The SEA overlay includes an area of large Radiata Pine trees to the east of SH1. None of the vegetation on the western side of SH1 is within the SEA.

Figure 8 Aerial photograph showing the RWWTP SEA (green overlay). It is proposed to extend the NZ Transport Agency designation east of SH1 to allow for the construction of a large stormwater detention pond, but this will encroach on a stand of mature Pine trees within the SEA.

Source: Auckland Council AUP map excerpt

Figure 9 **Excerpt from the GA plans showing the proposed extension to the NZ Transport Agency designation (magenta line) as well as the location of the proposed stormwater pond.**



Source: Aurecon

Figure 10 **Internal view of the RWWTP SEA showing the arboricultural value of the trees (large size, mature age, good stemform, continuous stand). If the site is cleared to the proposed NZ Transport Agency designation, the removal of approximately 60 mature Radiata Pine trees will be required, including most of the trees in this view.**

Source: Peers Brown Miller

Figure 11 **Kanuka / Pohutukawa just east of the motorway. Although some of this vegetation is located within the SEA the trees are not arboriculturally significant due to their small size and mediocre appearance. This vegetation will be displaced by proposed road widening and stormwater pond works.**

Source: Peers Brown Miller

4.2.1 Proposed works in or adjacent to Rosedale WWTP SEA

The existing SH1 designation will be extended eastward of the motorway in order to create space to allow construction of new stormwater pond. The proposed designation extends into the existing SEA. The removal of about 60 mature Radiata Pine trees will be required to accommodate the stormwater pond.

Most of the vegetation adjacent to the RWWTP ponds on the western side of SH1 is located within the NZ Transport Agency's existing designation. The construction work along the western edge of the motorway will result in the removal of all vegetation between the road and the pond. None of the vegetation west of the motorway is within the SEA designation.

4.2.2 Vegetation description

The vegetation east of the motorway is largely composed of mature Radiata Pine of up to 25 x 15 x 2m. This is a fine stand of healthy, structurally sound trees which have considerable arboricultural merit due to their large size, clear stems, good appearance, and large number. Between the pine stand and the motorway is an area of mixed Kanuka, Pohutukawa, Pine and Gum of small stature. The largest of these smaller trees is up to 6 x 5 x 0.5m in size. Part of this belt of smaller trees is within the RWWTP SEA.

The vegetation west of the motorway consists of isolated trees and groups of trees between the motorway and the RWWTP ponds. It appears that none of this vegetation is located within the SEA overlay. The vegetation west of the motorway includes Brush Wattle (a surveillance pest plant) as well as a group of small natives of up to 6 x 6 x 1 featuring species such as Puka (Griselinia littoralis), Mahoe, Pohutukawa, Kanuka, and Kohuhu. There are also areas of weed species such as Privet.

4.2.3 Arboricultural value

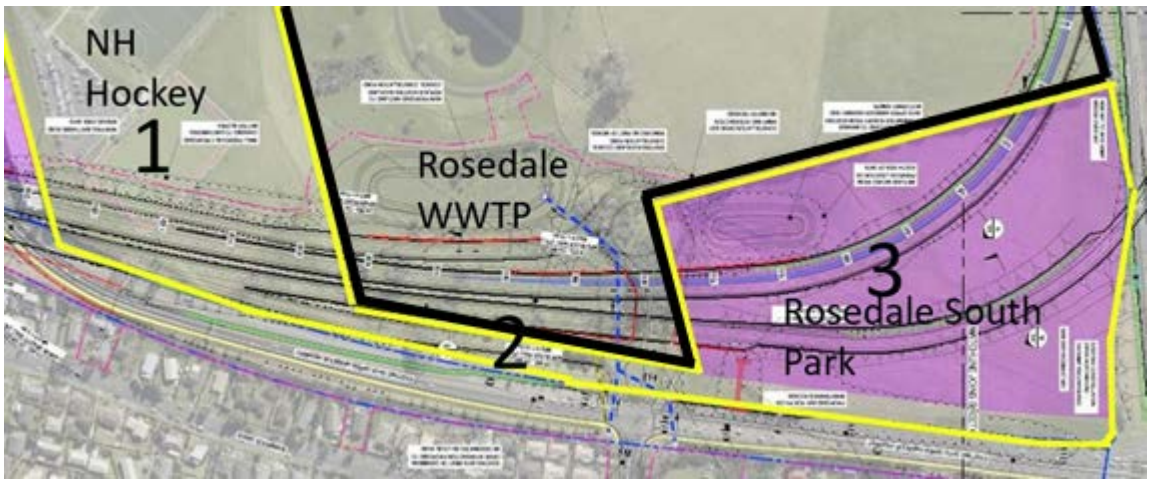
The vegetation east of the motorway is composed largely of Pine trees with a ground cover of Kikuyu grass. These trees have considerable arboricultural value as a large stand of healthy, mature trees of individual merit (due to their large stature, good health, good appearance and large number). This is one of the largest continuous stands of exotic trees on the North Shore, and the trees are also of significant size as trees of over 20m in height are rare in the city. By comparison, the smaller native and exotic trees close to the motorway are not of great arboricultural significance as they are of smaller stature and mediocre overall appearance (i.e. not of specimen quality). A few of the smaller trees are located within a SEA.

The vegetation west of the motorway consists of scattered individual trees, some of which are weeds, and small clumps of native vegetation. These trees are not of significant arboricultural value due to their small size and are not within the SEA overlay.

4.3 Rosedale South Park

This is the collective name given in this report to a large Council-owned reserve located northwest of the intersection between SH18 and SH1. The land under discussion is shown in **Figure 12** below. Section 1 in **Figure 12** is commonly referred to as the North Harbour Hockey fields, while Section 3 is sometimes referred to as Rosedale South Park. Section 2 in **Figure 12** is the narrow strip of Council land joining Sections 1 and 2.

Figure 12 Approximate location of Rosedale South Park



Note: The Park is outlined in yellow and numbered for discussion. RWWTP is located immediately to the north and outlined in black. There are few trees within the interior of the park. Most trees in this view are either within RWWTP or in windrows on the boundary between Rosedale South Park and the RWWTP.

Source: *Excerpt from Aurecon Ltd General Arrangement Plans Rev G – marked for discussion by Peers Brown Miller*

Figure 13 **Poplar, Ginkgo and Liquidambar trees south of the hockey fields. The group of trees in the background in the lower picture are within Rosedale WWTP**

Source: Peers Brown Miller

Figure 14 **Native windrow planting on the boundary between Rosedale South Park and the RWWTP**

Source: Peers Brown Miller Ltd

4.3.1 Scope of works

The southern part of the hockey fields, Rosedale South Park and the whole of the narrow strip joining the two will be affected by the construction works proposed as part of the Project. A large extension to the existing NZ Transport Agency designation is proposed to create space for the proposed works which include construction yards, road widening, new intersections and ramps connecting SH18 and SH1.

4.3.2 Vegetation description

The interior of Rosedale South Park is largely empty of vegetation. The vegetation internal to this reserve consists of scattered rows of poplars and other scattered exotic trees. The trees are so dispersed as to have very little arboricultural impact, and are for the most part spindly and individually insignificant. The only large trees within this park are scattered mature- to overmature pine trees that appear to be remnants of earlier windrows, judging from historical aerial photographs. These trees are too scattered to have any arboricultural impact, and are in moderate to poor health.

The best trees in Rosedale South Park are in a mixed windrow of about 100 native trees of up to 9 x 9 m standing on the boundary between Rosedale South Park and the RWWTP. The windrow consists of a variety of native species including Karo, Karaka, Pohutukawa, Ti Kouka, Puriri, Ngaio and Kanuka. The windrow adjoins an area proposed to be used for a construction support area for the Project, and some trees will require removal in order to accommodate the connection between SH18 and SH1.

4.3.3 Arboricultural value

The scattered vegetation within the park has no significant arboricultural value. The individual trees and small windrows are so scattered that they are lost in the landscape and the trees are not individually significant.

The windrow on the northern boundary of Rosedale South Park / southern boundary of RWWTP has good arboricultural value due to the age, species diversity and stature of the trees. The windrow is worthy of protection from an arboricultural perspective as it represents a well-established and diverse planting of healthy native trees. The trees are of good stature, are in good health, represent a wide range of species, and provide a wildlife corridor.

4.4 RWWTP north of SH18

This site is adjacent to, and partly surrounded by Rosedale South Park.

Figure 15 General view of scattered native plantings within RWWTP. The fence line at the bottom of this view demarcates the southern boundary of RWWTP.

Source: Peers Brown Miller

Figure 16 Mass native planting internal to RWWTP.

Source: Peers Brown Miller

4.4.1 Proposed works

A new stormwater pond and a new roundabout are proposed to be constructed within the southern part of the RWWTP site.

4.4.2 Vegetation description

The area is planted with several hundred trees. The stands of native trees are starting to achieve canopy closure in places. The trees are up to 5-6m in height and spread, and feature an eclectic mix of common native species such as Kanuka, Ti Kouka, Puriri, Titoki, Totara, Rimu, Kahikatea, Rewarewa and Kauri. There is no obvious theme or layout to the planting.

The planting is dispersed over a large area that falls in contour from State highway down towards the existing RWWTP ponds. As a result, a large proportion of the planting is hidden from public view by the fall of the land, and by intervening vegetation. The number of trees planted within the RWWTP is not readily evident when viewed from the road. The trees are, for the most part, healthy native trees in early maturity.

4.5 Caribbean Drive

The existing intersection at Caribbean Drive and SH18 is to be redesigned and enlarged.

4.5.1 Proposed works

The widening of the intersection may require the removal of a row of trees in the road reserve along Caribbean Drive. As elsewhere, the existing NZ Transport Agency designation is proposed to be enlarged to allow for the works to take place, and this will include trees on Caribbean Drive and within Meadowwood Reserve.

4.5.2 Vegetation description

The road reserve vegetation at the Caribbean Drive intersection is composed of small Pohutukawa trees up to 5 x 5m. Trees growing within the road reserve along Caribbean Drive are Washingtonia Palms of up to 10m in height. The trees in Meadowwood Reserve consist of a group of Poplar trees at the north-west corner of the reserve, which may be subject to removal to accommodate road widening. The largest of the Poplar trees are approximately 10 x 8 m. There is also a belt of native trees along the western boundary of the reserve which may be similarly-affected (Karamu, Ti Kouka, Totara and Kanuka up to 5 x 5m).

4.5.3 Arboricultural value

The trees described are healthy and are of moderate individual value. Most of the road berm trees are either slender (palms) or relatively small (Pohutukawa). The Poplar trees are the largest and most obvious group, standing within Meadowwood Reserve behind the smaller road berm trees.

4.6 Rook Reserve

Rook Reserve is a Council reserve south of SH18 which is zoned Open Space.

Figure 17 Rook Reserve. The trees are not of specimen-quality but provide some screening between the motorway and the suburbs to the south

Source: Peers Brown Miller

4.6.1 Proposed works

It is proposed that a new stormwater pond be constructed within Rook Reserve. Construction of the stormwater pond would require removal of some ornamental trees, both native and exotic, that are planted within the reserve.

4.6.2 Vegetation description

This vegetation that is affected by the proposed works consists of Poplars, Palm and Pohutukawa trees. The trees are healthy and of reasonably large stature but are not considered to be of specimen quality. The trees have some collective value as they help to screen SH18 from the suburbs to the south of the highway.

4.7 Paul Matthews Road

As part of the Project the intersection between SH18 and Paul Matthews Road will be revised.

4.7.1 Proposed works

It is proposed to extend the NZ Transport Agency designation to include part of Paul Matthews Road and the intersection with Saturn Place.

4.7.2 Vegetation description

The proposal may affect a number of road berm trees. The trees in the vicinity are Phoenix Palm up to 10 x 8 x 2 and Pohutukawa trees up to 6 x 6 x 2. A small number (perhaps four of each) may be affected.

4.8 Alexandra Stream Reserve

The Alexandra Stream reserve is located just north of SH18 between 2/15 Saturn Place, Albany and 29-31 Omega Street, Albany. Most of the reserve is has a SEA overlay under the AUP, with the exclusion of the southwest corner of the reserve adjacent to SH18.

Figure 17 View of proposed SUP ramp at Alexandra Reserve

Note: The site for the proposed SUP ramp at Alexandra Reserve is separated from the SEA bush by a concrete path. The works can be accomplished without entering the SEA.
Source: Peers Brown Miller

4.8.1 Proposed works

Works are proposed to connect an existing pathway running along the western edge of the reserve to the proposed SUP along the northern side of SH18. Vegetation removal will be required to construct the path ramp up to SH18, but no works are proposed within the SEA designation which covers the streamside vegetation.

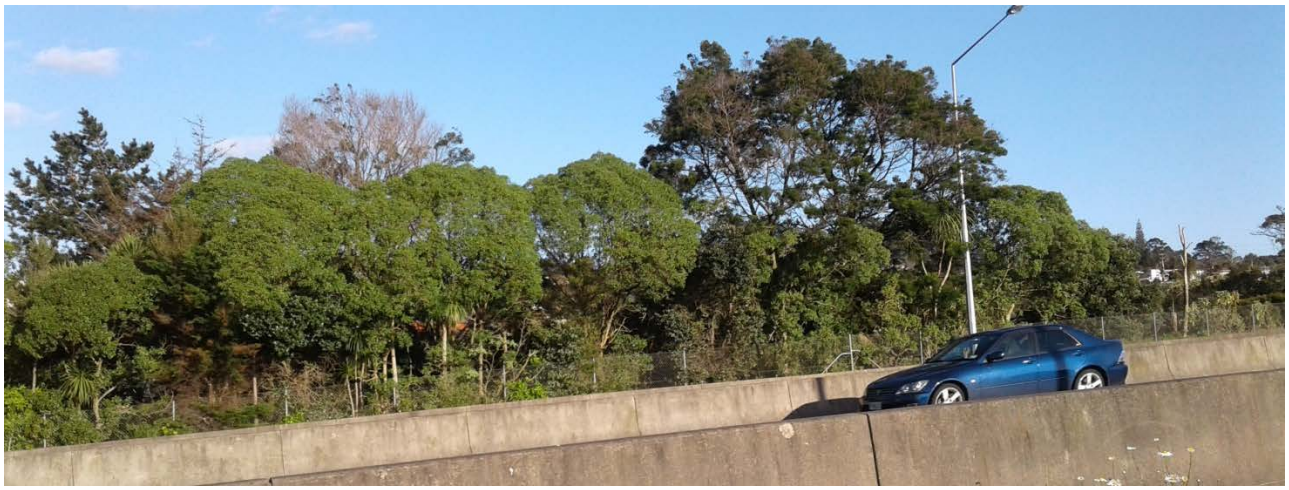
4.8.2 Vegetation description

Species within the alignment of the new SUP include Toetoe, juvenile Horoeka, Kanuka and small shrubs and grasses. None of the observed shrubs and bushes is larger than 3m in height. The vegetation in the main portion of the reserve adjacent to Alexandra Stream and within the SEA is denser and larger in stature, but it will be unaffected by the proposed works.

4.9 Bluebird Reserve

Bluebird Reserve is located south of SH18. Part of the reserve is a mown recreation area planted with exotic palms such as Phoenix Palm (*Phoenix canariensis*) and Queen Palm. The western portion of the park is densely covered in mixed native and exotic bush.

Figure 18 Bluebird Reserve viewed from across the motorway.



Note: The most prominent trees are Ngaio, with Black Wattle and Pine behind them. It appears that the majority of this vegetation will be retained, except where road widening works are proposed.
Source: Peers Brown Miller

Figure 19 Bluebird Reserve interior.

Note: The trees are Phoenix Palm. The playpark can be seen at extreme right. A stormwater detention pond may be constructed here, requiring the removal of the palm trees. The NZ Transport Agency designation is proposed to be enlarged to include this park.
Source Peers Brown Miller

4.9.1 Proposed works

A new stormwater pond may be included in this location as an alternative to the Rook Reserve location (depending on the outcome of discussions with Auckland Council). The construction of this pond at the Bluebird Reserve will require the removal of the exotic Palm trees within the reserve. The play area at the south-eastern corner of the park will remain.

Road widening works are also proposed along SH18. Some vegetation clearance appears unavoidable in order to undertake the widening works.

4.9.2 Vegetation description

The mowed part of the reserve is planted with Phoenix Palms and a few Pohutukawa. The rest of the reserve, including the portion immediately adjacent to SH18, is covered in a tangled mixture of Ngaio, Pohutukawa and Kanuka up to 5 x 5m in size, with undergrowth featuring Taupata and Hangehange. There are also weed species present including Radiata Pine and Black Wattle up to 7 x 6m in size.

4.9.3 Arboricultural value

The roadside planting provides screening of SH18 but the individual trees are not of specimen quality. The backdrop of native vegetation within the reserve will remain, although some of the Ngaio and other trees closest to SH18 are proposed to be removed to accommodate the road widening works.

The Phoenix Palms in the reserve are of good quality, but are hidden from general view unless one stands in the park itself. There is some potential for relocation of the Phoenix Palms as the species is commonly used in street planting in the Albany area, and the trees are tolerant of relocation. There is no possibility of retaining the Palms in their current location as they prevent excavation of the stormwater pond.

5 Tree works plan

Following the detailed design of the Project, it is recommended that a tree works plan should be developed as part of the outline plan process outlining the general tree management and protection measures to be implemented during construction as well as methods for replanting. The tree works plan should be prepared in accordance with industry best practice.

6 Summary and conclusions

The majority of the vegetation affected by the Project is mass roadside planting undertaken by the NZ Transport Agency as part of the construction of the existing SH1 and SH18 and located within the existing designations.

From an arboricultural perspective, the mass plantings are composed of individual trees of low to moderate value. It is the mass effect of the trees rather than their individual value which is of arboricultural importance.

The trees within the NZ Transport Agency designations on SH1 and SH18 were planted by NZ Transport Agency and are less than 20 years of age, based on the evidence of historical aerial photographs of the Project area.

The only significant tree removal from an arboricultural perspective is the clearance of about 60 mature Radiata Pines from the RWWTP east of SH1 at Rosedale.

Apart from the RWWTP trees, the effects on trees are small and limited to small numbers of parks and road reserve trees scattered throughout the entire Project area.

Given the scope of the Project, the arboricultural impact on trees is not significant.

The effects of tree removals will be effectively mitigated by extensive replacement planting and revegetation throughout the Project area, as proposed in the landscape concept plan for the Project.

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