

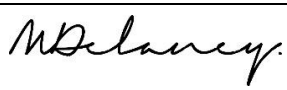
**751 & 787 Kaipara Coast Highway,  
Kaukapakapa Private Plan Change  
and Subdivision Resource Consent:  
Assessment of Ecological Effects  
April 2021**



# 751 & 787 Kaipara Coast Highway, Kaukapakapa Private Plan Change and Subdivision Resource Consent: Assessment of Ecological Effects

April 2021

<b>Document title:</b>	751 & 787 Kaipara Coast Highway, Kaukapakapa Private Plan Change and Subdivision Resource Consent: Assessment of Ecological Effects
<b>Prepared for:</b>	Riverview Properties Limited
<b>Version:</b>	1
<b>Date:</b>	27 April 2021
<b>Document name:</b>	64383 - Ecological Assessment - PPC & SRC - 751 & 787 Kaipara Coast Highway, Kaukapakapa.docx

<b>Authors:</b>	Mark Delaney M.Sc. (Hons) Senior Ecologist	
-----------------	---	---

**Reference:** Bioresearches (2021). 751 & 787 Kaipara Coast Highway, Kaukapakapa Private Plan Change and Subdivision Resource Consent: Assessment of Ecological Effects. Report for Riverview Properties Limited.

**Cover Illustration:** Western portion of 787 Kaipara Coast Highway, Kaukapakapa (2021).

## CONTENTS

---

<b>1.</b>	<b>Introduction .....</b>	<b>1</b>
<b>2.</b>	<b>Methodology .....</b>	<b>2</b>
2.1	Terrestrial Ecology .....	2
2.2	Freshwater Ecology .....	2
<b>3.</b>	<b>Existing Environment .....</b>	<b>4</b>
3.1	Background and Ecosystem Classification .....	4
3.2	Vegetation .....	4
3.3	Notable Trees .....	6
3.4	Connectivity and Ecological Function .....	6
3.5	Avifauna .....	7
3.6	Herpetofauna.....	8
3.7	Bats .....	9
3.8	Pest Animals .....	9
3.9	Freshwater Ecology .....	10
<b>4.</b>	<b>Assessment of Ecological Effects .....</b>	<b>12</b>
4.1	Private Plan Change .....	12
4.2	Subdivision Resource Consent.....	13
<b>5.</b>	<b>Summary .....</b>	<b>15</b>

## 1. INTRODUCTION

Riverview Properties Limited (RPL) engaged Bioresearches to prepare an ecological assessment to support a Private Plan Change (PPC) for 751 and 787 Kaipara Coast Highway (KC Hwy), Kaukapakapa, Auckland (the Site) and a Subdivision Resource Consent (SRC) at its site located at 787 KC Hwy.

RPL is seeking a PPC to allow the rezoning of approximately 5.74 ha of land within the Site from Countryside Living (CSL) to Residential – Rural and Coastal Settlement (RCS). Both zones allow for rural residential development, but RCS zones allow for a higher density (generally 1 lot per 2,500m<sup>2</sup> vs. 1 lot per 2.0ha) while still striving to retain rural character, landscape qualities and natural features. RPL is also seeking to SRC to subdivide 787 KC Hwy into a total of 16 new lots on the provision that the PPC is approved.

The Site currently consists of managed pasture, exotic vegetation, access ways, and several dwellings. The proposed area to be rezoned is currently bordered by RCS to the north, east, and south-east, with Rural Production and CSL land to the west, and south-west, respectively (Figure 1).

This report describes the existing ecological values (terrestrial and freshwater) of the Site, assesses the potential effects of the proposed private plan change and the subdivision resource consent on those values, and provides recommendations to avoid, minimise or mitigate any adverse effects where appropriate.



**Figure 1.** The Site showing the parcels proposed to be.

## 2. METHODOLOGY

---

Site assessments were undertaken by an experienced ecologist in July and August 2016 and April 2021 to assess the ecological values within the Site. Prior to the field surveys, a map of the site was created from Auckland Council Geomaps GIS viewer (GIS viewer), which defined the overland flow paths of the watercourses, contours of the property and any ecological overlays. Assessments of stream habitats, vegetation and potential fauna habitats were noted during the site visit and photographs of the site were taken. These notes and photographs were used to assess the ecological values of the terrestrial and freshwater ecosystems. A desktop analysis of relevant databases was also undertaken.

### 2.1 Terrestrial Ecology

A site walkover was undertaken to assess the vegetation and terrestrial fauna values within the property. Botanic values recorded included native and exotic vascular vegetation and notes were made on the quality and extent of vegetation present on site. Broad vegetation cover was determined based on the site visit and aerial imagery.

No formal fauna surveys were undertaken. A hand-searching method was used to identify any potentially present lizard fauna under woody debris and deadfall where available (Wildlife Authority 37605-FAU) and an opportunistic bird survey took note of birds seen or heard within the duration of the visit. Fauna habitats were assessed on site, considering the quality and extent of habitat potentially suitable for indigenous lizards, birds and bats. A desktop analysis considered local records of bats<sup>1</sup> and herpetofauna<sup>2</sup> from specific databases.

### 2.2 Freshwater Ecology

Watercourses were classified under the Auckland Unitary Plan Operative in Part (AUP OP) to determine, in accordance with the definitions in these plans, the ephemeral, intermittent or permanent status of these watercourses. During the site assessment, the presence and extent of water was noted, reference photos were taken and freshwater habitats were marked using a handheld GPS unit. The quality of the aquatic habitat was assessed, noting ecological aspects such as channel modification, hydrological heterogeneity, riparian vegetation extent, substrate type and any fish or macroinvertebrate habitat observed. Riparian and catchment information was also reviewed in addition to local native fish records<sup>3</sup>.

Any potential wetlands within the site were identified following the Ministry for the Environment's (MfE) wetland delineation protocols, as per the National Policy Statement for Freshwater Management 2020 (NPS-FM). Wetland values (e.g. vegetation type, aquatic habitat quality), where applicable, were also assessed during the site visit.

One significant rainfall event (>25mm) occurred approximately 10 days prior to the April 2021 assessment. Total rainfall for the week preceding the site assessment was approximately 21 mm, indicating that the catchment was reasonably saturated. Approximately 1.5 mm of rain occurred within

---

<sup>1</sup> Auckland Council and Bioresearches records

<sup>2</sup> DOC BIOWEB Herpetofauna database

<sup>3</sup> New Zealand Freshwater Fish Database and Bioresearches records

24 hours of this site assessment (Auckland Council Environmental Monitoring Site: Makarau @ Folded Hills Farm). Rainfall within the area of the Site, in the preceding four weeks before the 2016 survey, was at a high level, with three heavy rainfall events occurring within that time and approximately 15mm of rain falling 48hrs prior to the Site visit, indicating that the catchment was heavily saturated.

### 3. EXISTING ENVIRONMENT

#### 3.1 Background and Ecosystem Classification

Historically (pre-human), the site would have likely comprised of the ecosystem type; pūriri kahikatea forest (WF7-3; GIS Viewer, Singers *et al.*, 2017) which and would have supported a diverse range of native invertebrates, amphibians, reptiles, birds and bats. However, by 1940 the majority of the Site and much of the surrounding landscape had been cleared of native vegetation to develop the land for agricultural purposes (Figure 2).

Currently, the Site consists of several dwellings, is predominantly vegetated in pasture grass, and it is surrounded by residential housing and agricultural land. The Site does not support an ecosystem extent under the AUP OP, nor is it subject to a Significant Ecological Area overlay, as indicated on Auckland Council's GIS Viewer. As noted above, the Site is currently zoned as CSL.



**Figure 2.** Aerial image of the Site (yellow and green polygons) in 1940 (historical image from Retrolens).

#### 3.2 Vegetation

Within the two sections (western and eastern) of property 787 KC Hwy the vegetation predominately consisted of managed pasture (Photos 1& 2). A raised earth bund, approximately 10m wide, was constructed sometime in 2018 along the road frontage and along the boundary of 751 KC Hwy. The earth bund has been planted with predominately young common natives and a few exotic specimen trees (Photo 3). Native plants along the earth bund included; harakeke (*Phormium tenax*), mānuka

(*Leptospermum scoparium*), kānuka (*Kunzea ericoides*), tarata (*Pittosporum eugenioides*), karamū (*Coprosma robusta*), karaka (*Corynocarpus laevigatus*) and tōtara (*Podocarpus totara*).

The dwellings within 751 KC Hwy are surrounded relatively densely by predominately exotic vegetation, typically in the form of amenity planting (Photos 4 & 5). The main exotic species include; magnolias (*Magnolia* sp.), eucalypts (*Eucalyptus* sp.), pines (*Radiata pinus*) and poplars (*Populus* sp.) and these species form a canopy. Additionally, under the exotic vegetation canopy a few young common native species have established, including harakeke, cabbage tree (*Cordyline australis*), karo (*Pittosporum crassifolium*), kawakawa (*Macropiper excelsum*) and māhoe (*Meliclytus ramiflorus*) (Photo 6).

Within 751 KC Hwy weeds were abundant including listed pest plants<sup>4</sup> such as; Japanese honeysuckle (*Lonicera japonica*), agapanthus (*Agapanthus praecox*), tree privet (*Ligustrum lucidum*), Chinese privet (*Ligustrum sinense*), arum lily (*Zantedeschia aethiopica*), phoenix palm (*Phoenix canariensis*), monkey apple (*Syzygium smithii*) and pampas (*Cortaderia selloana*) (Photo 6).

Overall, due to; the low native species diversity and abundance, the young age of the vegetation, the lack of rare species, the high abundance of introduced species and the abundance of listed pest plant species, the botanical value of the Site was considered low. The Site represents a degraded natural environment as a result of historic native vegetation clearance for agricultural purposes, recent and ongoing farming practices and residential development.



Photo 1: Eastern portion of 787 KC Hwy.



Photo 2: Western portion of 787 KC Hwy.

<sup>4</sup> Auckland Regional Pest Management Plan 2020 – 2030, Auckland Council (2020).





Photo 3: Planted earth bund within 787 KC Hwy.



Photo 4: Exotic vegetation, 751 KC Hwy northern boundary.



Photo 5: Exotic vegetation, 751 KC Hwy southern boundary



Photo 6: Understorey of 751 KC Hwy with natives & pest plants.

### 3.3 Notable Trees

The Site does not currently contain any scheduled notable trees as per the AUP OP.

In regards to potential notable trees, one of the criteria for the inclusion of a notable tree is whether the tree species is nationally or regionally threatened<sup>5</sup>. Mānuka and kānuka were located throughout the Site and these species have shifted from Not Threatened to Threatened under the New Zealand Threat Classification System. However, this change of elevated threat is not based on the abundance or rarity of the species, but rather as a precautionary measure on the as-yet-unknown full impact of myrtle rust. As such, although these species technically meet the threatened criteria of a notable tree, due to their national abundance and lack of significant age/health, character/form and size it was considered that these trees were not appropriate to be designated notable trees.

No other potential notable trees were identified within the Site.

### 3.4 Connectivity and Ecological Function

Connectivity between areas of vegetation is important to facilitate ecological function. Edge communities are heavily influenced by increased exposure to light, drying winds and competitive

<sup>5</sup> Guidelines for Nominating a Notable Tree for Evaluation, Auckland Council.

weeds. This 'edge effect' restricts some native flora and fauna to forest interiors. Patch fragmentation increases the edge effect and decreases the availability of habitat for interior species. Loss of connectivity can also impair reproductive function for both flora and fauna.

Currently, the vegetation present within the whole Site consists of mixed exotic and native vegetation, heavily impacted by edge effects with a high weed species abundance.

The vegetation within the Site is surrounded by residential development and agricultural land and there is no contiguous vegetation or bush fragments and as such has poor direct ecological connectivity.

The closest patch of significant vegetation is a large Significant Ecological Area (SEA\_T\_6671) associated with Kaukapakapa Estuary Scenic Reserve located approximately 900m away. As such, the vegetation within the Site might act as a poor-quality ecological stepping stone to the surrounding habitat for avifauna, however as detailed below avifauna habitat was considered of low value.

Overall, the connectivity and ecological functioning of the Site was assessed as negligible.

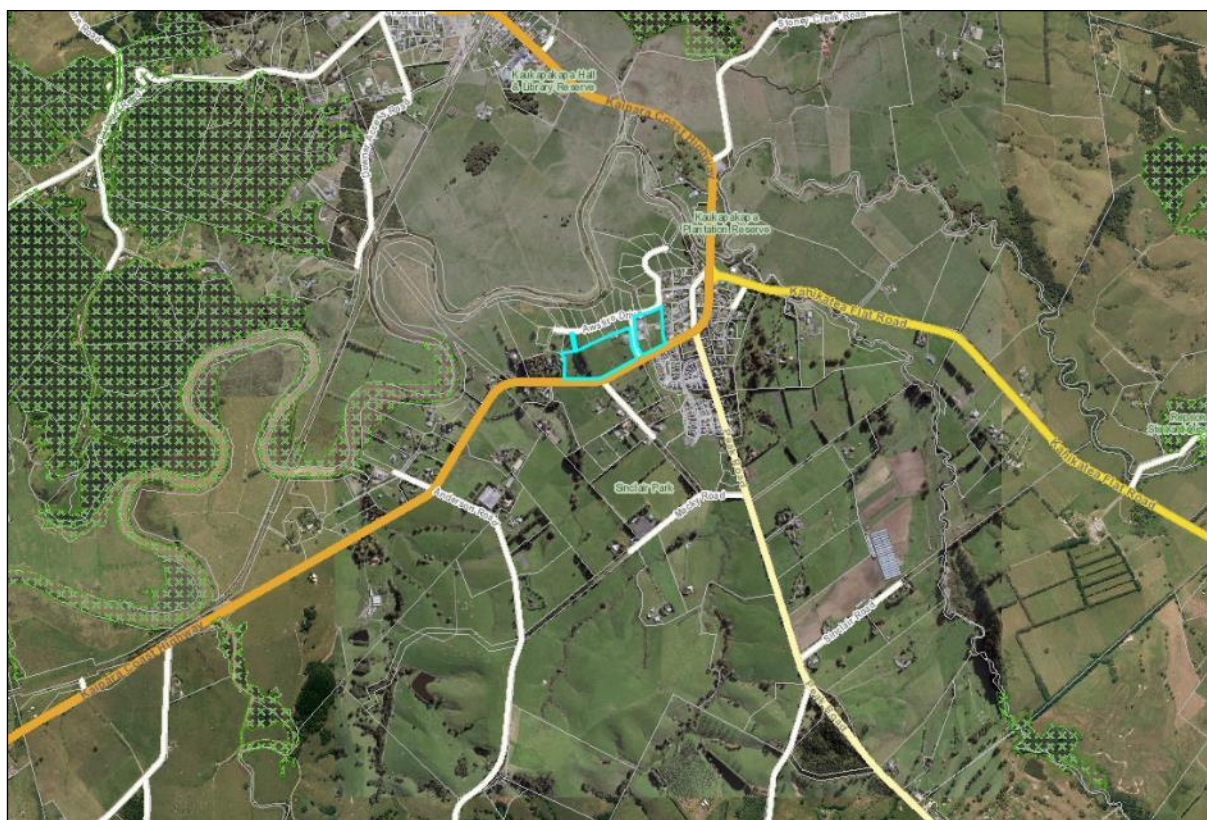


Figure 3. Part of the Site (787 Kaipara Coast Highway; aqua polygon) within the wider landscape.

### 3.5 Avifauna

For native birdlife, it is important to have a healthy, dense and diverse range of native vegetation present to provide year-round sources of food and habitat. The native avifauna that occurred on the Site was not directly surveyed. Opportunistic sightings of native birds identified fantail (*Rhipidura fuliginosa placabilis*) and silvereye (*Zosterops lateralis*). It is expected that additional common non-threatened native species would potentially utilise the Site, such as; tūī (*Prosthemadera novaeseelandiae*), kingfisher (*Todiramphus sanctus*), ruru (*Ninox novaeseelandiae*) and grey warbler

(*Gerygone igata*). All species listed are common garden bird species and no 'At Risk' or 'Threatened' species are considered to be likely present, even on an intermittent basis.

Due to the very low diversity of birdlife observed on site and the low botanical quality, the native avifauna habitat value within the site was considered low.

### 3.6 Herpetofauna

Herpetofauna (reptiles and amphibians) comprise a significant component of New Zealand's terrestrial fauna. There is currently 104 endemic herpetofauna taxa recognised in New Zealand (Hitchmough *et al.*, 2016) and more than 80% are considered 'Threatened' or 'At Risk'. All indigenous reptiles and amphibians are legally protected under the Wildlife Act 1953, and vegetation and landscape features that provide significant habitat for native herpetofauna are protected by the Resource Management Act 1991. Statutory obligations require management of resident reptile and amphibian populations where they or their habitats are threatened by disturbance such as land development.

No formal herpetofauna surveys were undertaken. However, a review of historic lizard records from within 5 km of the project area indicated that four indigenous lizard species occur within the wider landscape (DOC BIOWEB *Herpetofauna* database; accessed May 2019; Table 1).

Opportunistic searches involved lifting terrestrial debris such as logs, which are frequently used by lizards as retreat sites. Minimal amounts of terrestrial debris were observed. The foliage and branches of native trees and shrubs were also scanned to search for active (sun-basking) geckos. No lizards were recorded; however, geckos are rarely observed during the day and night searches are typically required to confirm their presence.

The overall herpetofauna habitat value for the Site was considered low due to the quality and age of the vegetation and the lack of connection to any remnant bush. It is unlikely that native lizards are present within the Site.

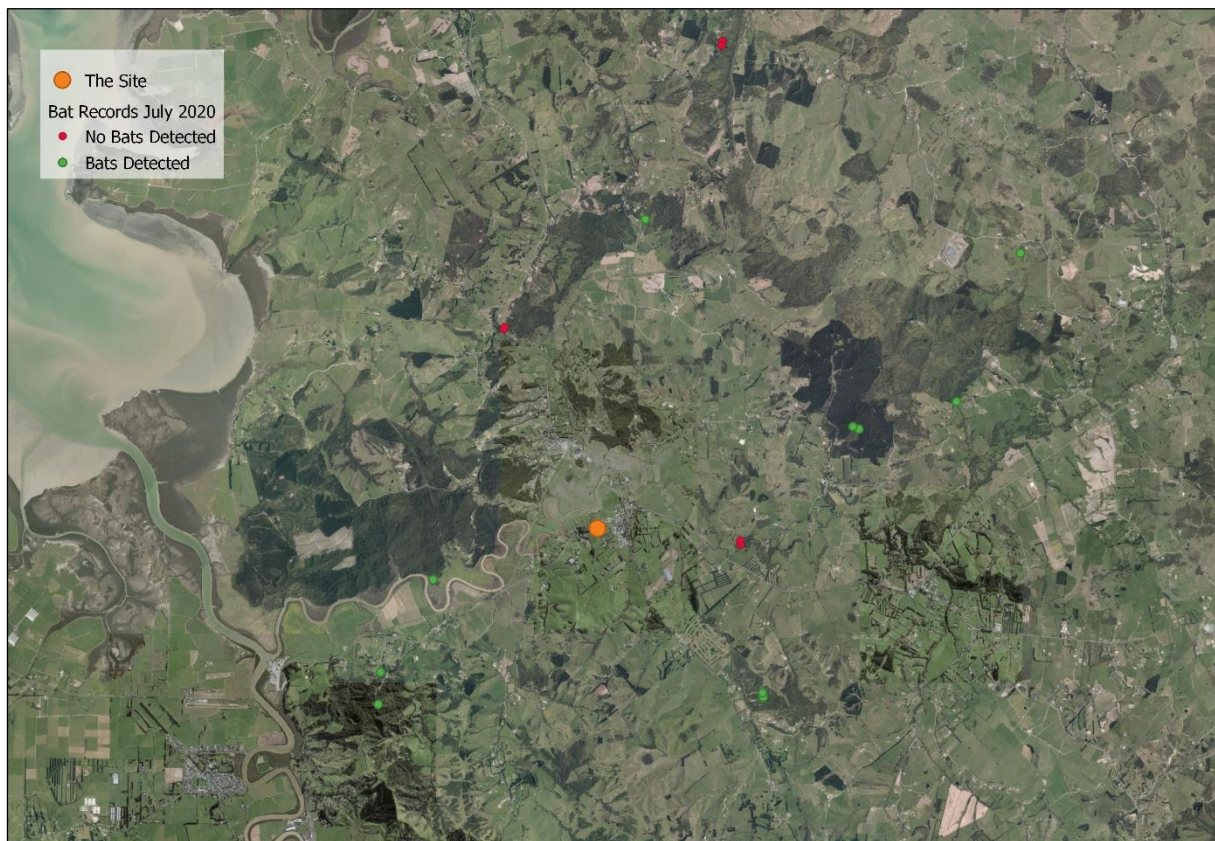
**Table 1. Lizards of the Auckland Region (mainland taxa only), including conservation threat status (Hitchmough *et al.* 2016) and potential occurrence in the project area**

Species	Threat Category	Threat Status	Occurrence within 5km
Copper skink ( <i>Oligosoma aeneum</i> )	Not Threatened		✓
Shore skink ( <i>Oligosoma smithi</i> )	At Risk	Naturally Uncommon	x
Moko skink ( <i>Oligosoma moco</i> )	At Risk	Relict	x
Ornate skink ( <i>Oligosoma ornatum</i> )	At Risk	Declining	✓
Tatahi skink ( <i>Oligosoma</i> aff. <i>smithi</i> "Three Kings, Te Paki, Western Northland")	At Risk	Declining	x
Striped skink ( <i>Oligosoma striatum</i> )	At Risk	Declining	x
Forest gecko ( <i>Mokopirirakau granulatus</i> )	At Risk	Declining	✓
Pacific gecko ( <i>Dactylocnemis pacificus</i> )	At Risk	Relict	x
Elegant gecko ( <i>Naultinus elegans</i> )	At Risk	Declining	✓
Muriwai gecko ( <i>Woodworthia</i> aff. <i>maculata</i> "Muriwai")	Nationally Critical		x
Plague skink ( <i>Lampropholis delicata</i> )	Introduced and Naturalised; Unwanted Organism (MPI)		✓

### 3.7 Bats

Long-tailed bats (LTBs; *Chalinolobus tuberculatus*) are classified as ‘Nationally Vulnerable’ in the North Island (O’Donnell et al., 2013). This classification is given the qualifier “Data Poor” which indicates that there is low confidence in the rating due to poor data available on the species populations and distribution (Townsend et al., 2008). LTBs have large home ranges of up to 5,629 ha (O’Donnell 2001).

No formal surveys were undertaken for LTBs. However, LTBs are known to occur at several sites across the Auckland Region with scattered records through the Rodney District, including a record approximately 2.5 km to the west (Figure 4). As such, the Site is well within the flight range of known LTB habitat. However, the vegetation on Site is largely isolated and subject top edge effects (i.e. exposed). Additionally, during the site assessment limited trees were observed that could potentially support roosting or nesting habitat (cavities, large sections of flaking bark or epiphytes) for bats. As such, the vegetation is unlikely to provide suitable habitat for bats and was considered of low bat habitat value.



**Figure 4.** The site in relation to bat records.

### 3.8 Pest Animals

No formal pest animal surveys were undertaken. No pest control was observed within the Site. It is reasonable to assume due to the surrounding land use and lack of pest control that the typical density of rats (*Rattus spp.*), mice (*Mus musculus*), possum (*Trichosurus vulpecula*), feral cats (*Felis catus*), mustelids (*Mustela spp.*), rabbits (*Oryctolagus cuniculus*) and hedgehogs (*Erinaceus europaeus*) are present within the Site. No signs of deer or pigs were observed and are unlikely be present within the Site.

### 3.9 Freshwater Ecology

During the desktop assessment undertaken prior to the site visit, four overland flow paths were noted on Auckland Council’s GIS Viewer (A-D, Figure 5). The extent and location of these flow paths was noted and the areas were investigated during the site visit. During the site visits, it was observed that these flow paths lacked; surface water, natural pools, a well-defined channel, evidence of substrate sorting processes and organic debris in the floodplain. Additionally, these overland flow paths contained terrestrial vegetation across their ill-defined channels. As such, these overland flow paths were classified as ephemeral reaches as per the AUP OP criteria and definitions.

No wetlands, as defined by the NPS-FM, were identified within the Site.

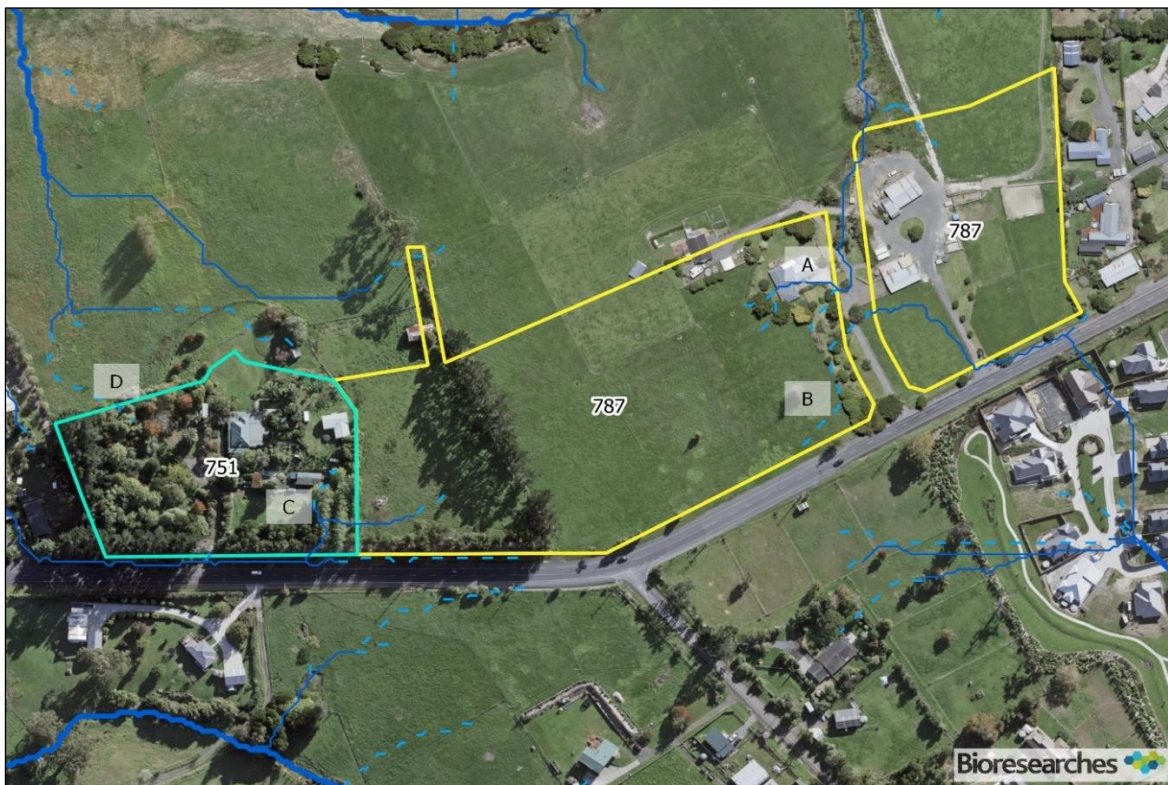


Figure 5. Overland flow paths (blue lines) as identified by the Auckland Council GIS Viewer.



Photo 7: Overland flow path A.



Photo 8: Overland flow path B.



*Photo 9: Overland flow path C.*



*Photo 10: Overland flow path D.*

## 4. ASSESSMENT OF ECOLOGICAL EFFECTS

---

### 4.1 Private Plan Change

The PPC proposes to allow the rezoning of approximately 5.74 ha of land within the Site from CSL to RCS. Both zones allow for rural residential development, but RCS zones allow for a higher density (generally 1 lot per 2,500m<sup>2</sup> vs. 1 lot per 2.0ha) while still striving to retain rural character, landscape qualities and natural features. No additional provisions are proposed as part of this Private Plan Change. All Auckland-wide and RCS zone provisions of the AUP will apply to the re-zoned land and will enable Council to exert control over subdivision development.

The main threats to the long-term viability of ecosystems in Auckland include; habitat destruction/degradation, fragmentation, edge effects and invasion by pest plants and animals. These threats are often augmented through an increase in human population density.

This section assesses the potential effects of the proposed private plan change on the ecological values within the Site and the associated wider landscape.

#### 4.1.1 **Vegetation, Terrestrial Habitat, Ecological Connectivity and Function**

Overall, due to; the low native species diversity and abundance, the young age of the vegetation, the lack of rare species, the lack of vegetation complexity, the high abundance of introduced species and the abundance of listed pest plant species, the botanical value of the Site was considered low.

Due to the low botanical value, the lack of ecological connectivity and the high edge effects, the Site was considered of low terrestrial habitat value.

The proposed rezoning will not directly affect the vegetation and habitat values within the Site as the Site will be subject to the same Auckland wide AUP OP vegetation management and biodiversity objectives, policies and rules under RCS as those for CSL.

The removal of the vegetation within 751 KC Hwy and on the boundary between 751 and 787 KC Hwy may be required to accommodate the anticipated future subdivision of the properties. This vegetation removal would be considered a permitted activity under both RCS and CSL zones. Due to the low value of the vegetation, this removal is assessed as having a low effect on botanical values as well as terrestrial habitat, ecological connectivity and functioning values.

#### 4.1.2 **Pest Animals and Terrestrial Fauna**

An increase in residential density is thought to bring an increase in mice and rat densities and a decrease in rabbit, possum, and mustelid densities. However, there will also likely be an increase in pest control where currently there is none. Overall, it is considered that there would be no significant change in pest animal densities.

There would likely be an increase in domestic pets such as cats and dogs. However, due to the low botanical, terrestrial habitat, ecological connectivity and functioning values and the low magnitude of effects (16 lots) the adverse effects of the potential increase in domestic pets are considered negligible.

Due to the low effects on vegetation, the low changes in pest animals and the current lack of native fauna, it is considered that the re-zoning and subsequent potential vegetation removal will result in negligible adverse effects on native terrestrial fauna.

#### **4.1.3 Freshwater Ecology**

No intermittent streams, permanent streams or wetlands were identified within the Site, i.e. no aquatic habitat present or riparian margins. As such the proposed zone change and any potential vegetation removal will have no direct effects on freshwater ecological values.

The main indirect threats to the freshwater ecology/ downstream receiving environments, as a result of a zone change are the potential increases in impervious surfaces and pollutant runoff.

While there may be an increase in impervious surfaces, the arising stormwater devices will be subject to the relevant AUP OP provision (i.e. E8) which ensures appropriate mitigation for potential adverse stormwater effects, including pollutant runoff. As such, it is considered that the re-zoning and subsequent anticipated development will not result in significant adverse effects on the receiving environment as a result of a potential change in stormwater volumes.

## **4.2 Subdivision Resource Consent**

The proposed subdivision is seeking to create a total of 16 new lots within 787 KC Hwy on the provision that the PPC is approved.

This section assesses the potential effects of the subdivision on the ecological values within 787 KC Hwy and the associated wider landscape.

### **4.2.1 Vegetation, Terrestrial Habitat, Ecological Connectivity and Function**

No removal of vegetation is required as part of the subdivision. As such the proposed subdivision will have no direct effects on botanical value, terrestrial habitat value, ecological connectivity and ecological functioning within 787 KC Hwy and the wider environment.

### **4.2.2 Pest Animals and Terrestrial Fauna**

The proposed subdivision and the anticipated future increased density may result in an increase in mice and rat densities and a decrease in rabbit, possum, and mustelid densities. However, there will also likely be an increase in pest control where currently there is none. Overall, it is considered that there would be no significant change in pest animal densities.

There would likely be an increase in domestic pets such as cats and dogs. However, due to the low botanical, terrestrial habitat, ecological connectivity and functioning values the adverse effects are considered negligible.

Due to the lack of effects on vegetation, the low changes in pest animals and the current lack of native fauna, it is considered that the proposed subdivision will result in negligible adverse effects on native terrestrial fauna.



#### 4.2.3 Freshwater Ecology

No intermittent streams, permanent streams or wetlands were identified within 787 KC Hwy, i.e. no aquatic habitat present or riparian margins. As such the subdivision will have no direct effects on freshwater ecological values.

The main indirect threats to the freshwater ecology/ downstream receiving environments, as a result of the proposed subdivision is the potential increases in impervious surfaces as a result of the anticipated future residential housing.

While there may be an increase in impervious surfaces, the arising stormwater concerns will be subject to the relevant AUP OP provision (i.e. E8) which ensures appropriate mitigation for potential adverse stormwater effects. As such, it is considered that the proposed subdivision will not result in significant adverse effects on the receiving environment as a result of a potential change in stormwater volumes.

## 5. SUMMARY

---

RPL is seeking a PPC to allow the rezoning of approximately 5.74 ha of land within the Site from CSL to RCS. Both zones allow for rural residential development, but RCS zones allow for a higher density (generally 1 lot per 2,500m<sup>2</sup> vs. 1 lot per 2.0ha) while still striving to retain rural character, landscape qualities and natural features. RPL is also seeking to SRC to subdivide 787 KC Hwy into a total of 16 new lots on the provision that the PPC is approved.

The botanical, terrestrial habitat, ecological connectivity and ecological functioning values within the Site were assessed as negligible or of low value. No intermittent streams, permanent streams or wetlands were identified within the Site.

The main potential adverse ecological effects as a result of the PPC and SRC include an increase in local population density and an increase in impervious surfaces.

Overall, due to the low current ecological values within the site the potential adverse ecological effects arising from the PPC and SRC were considered at most low.