

Middle Road Fast Track Application

Ecology Report
Prepared for CDL

3 April 2026





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CONTENTS

1.0	Introduction	1
1.1	Statement of Qualifications and Experience	1
1.2	Description of Application Site	2
1.3	Description of the Proposal	4
1.4	Management Plans	7
2.0	Methods	7
2.1	Streams	7
2.2	Wetlands	8
2.3	Vegetation	8
2.4	Herpetofauna	8
2.5	Bats	8
2.6	Avifauna	8
3.0	Existing Environment	9
3.1	Terrestrial Vegetation and Habitats	9
3.2	Terrestrial Fauna	11
3.3	Wetlands	14
3.4	Streams	15
4.0	Proposed Activities and Mitigation	21
4.1	Vegetation Removal	21
4.2	Sediment Discharge	22
4.3	Stormwater Discharge	22
5.0	Assessment of Effects	22
5.1	Summary of Ecological Values	22
5.2	Assessment of Effects	23
5.3	Effects Management Hierarchy	26
5.4	Requirements of the NESF and NPS-FM	26
5.5	Plan Change 9	27
6.0	Recommendations	28
7.0	Conclusions	28
8.0	References	30

Appendices

Appendix 1: Bird Records

Appendix 2: Tree Species List

Appendix 3: Stormwater Management Concept (Urban Acumen)

1.0 Introduction

1.1 Statement of Qualifications and Experience

Eddie Sides, Project Ecologist

I am a Senior Principal at Boffa Miskell Limited. Boffa Miskell is a multi-disciplinary consultancy specialising in planning, ecology and landscape architecture. I have been employed at Boffa Miskell since September 2001.

I hold the qualifications of Master of Science (Hons) from [University of Auckland, which I completed in 1994. I am a member of the New Zealand Freshwater Sciences Society.

I have 29 years of professional experience as a consulting ecologist. My experience includes assessment, management and monitoring of ecological effects of development activities including roads, subdivisions industrial and municipal projects. I have appeared as an expert witness on numerous occasions including resource consent hearings, Environment Court and Boards of Inquiry (e.g. Waterview Connection, East-West Link). Recent subdivision projects I have consulted on include Conmara Estate (Clevedon), Kahawai Point (Waiuku), Drury South (Manukau) and Pacific Heights (Orewa).

I confirm that, in my capacity as author of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

Dr Ian Boothroyd, Ecology Reviewer

I am a Senior Principal Ecologist at Boffa Miskell Limited. Boffa Miskell is a multi-disciplinary environmental consultancy specialising in planning, urban design, landscape design, ecology, biosecurity and engagement. I have been employed at Boffa Miskell since June 2014.

I hold the qualifications of BSc (Hons) Manchester University 1977), MSc Applied Hydrobiology (University of Wales, 1980) and DPhil (Waikato University, 1988). I am an appointed Fellow of the Royal Society of Biology (FRSB) and the Environment Institute of Australia and New Zealand (FEIANZ), a life member of the Freshwater Sciences Society, and a member of the Resource Management Law Association. I am a Certified Environmental Practitioner (CEnvP, Ecology).

I have 35 years of professional experience in the field of resource management, including roles such as manager environmental monitoring and compliance (Hawke's Bay Regional Council), researcher (NIWA), senior lecturer (University of Auckland, and consultant. I am also an experienced independent environmental commissioner and appointed as a Freshwater Commissioner by the New Zealand government. My experience includes environmental assessment and management and decision-making in the New Zealand environment, and I am familiar with environmental protocols, criteria and performance standards. I have led multidisciplinary teams for large and often complex projects.

My experience extends to large land management and subdivision projects, renewable energy, roading, mining, quarrying, water treatment, biodiversity management and offsets, multi-criteria assessments through to investigations and assessments, consent conditions, fast track

applications and presentation of expert evidence at hearings, Environment Court and Boards of Inquiry.

I confirm that, in my capacity as reviewer of this report, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

1.2 Description of Application Site

CDL Land New Zealand Ltd (CDL) is preparing a referral application under the Fast-track Approvals Act 2024 (FTAA) for a proposed residential development at Middle Road, Havelock North. The Middle Road site comprises approximately 30.6 ha of land across five titles owned by CDL at 92, 108 and 148 Middle Road, and 139 Te Aute Road, Havelock North. The site sits immediately southwest of the established Havelock North residential area, with suburban housing to the north and east and rural-residential properties to the southwest. The Middle Road project will provide for the residential subdivision of the site to enable the development of approximately 300 to 350 lots.



Figure 1. Site Location, Middle Road Project.

The adjoining interfaces of the site can be described as follows:

- Middle Road runs along the southeast boundary of the site.
- The rear boundaries of the residential properties on Upham Street run along the northeast boundary of the site.
- Te Aute Road runs partially along the northwest boundary of the site.
- Rural residential properties and a church (Village Baptist Church) interface with the southwest and part of the northwest boundaries of the site.

The site is on the southwest side Havelock North, approximately 900 m south of the town centre, which contains a range of retail and commercial uses. The wider land uses to the north, east and west of the site generally contain suburban residential areas. The land to the north-west contains a retirement village, and the land to the south-west is generally rural.

A separate 3.3ha rural residential landholding at 80 and 84 Middle Road, known as the **McKenna Block**, is located immediately to the east of the site adjacent to the Herehere Stream (**Figure 1**). This landholding is in separate ownership and does not form part of the application site at the time of lodgement. However, given the McKenna Block's proximity and relationship to the Middle Road site, the landholding has been considered at a high level within this assessment.

The planning report prepared to support the referral application under the FTAA provides a full site description. With respect to matters relating to Ecology, the following comments are made about the site.

- The site is largely flat and has been intensively farmed, with few remaining ecological features. Farming of the site mostly comprises cropping with some horticulture.
- The main ecological feature is the Herehere Stream, that runs along the northern boundary of the site and joins the Karamū Stream. Other site drains within the site connect to the Herehere Stream and on to the Karamu Stream.
- Vegetation on the site consists of mature trees around the 92 Middle Road and McKenna Block dwellings in the northeast of the site, shelterbelts, streambank vegetation and specimen trees. The trees are mainly exotic, less than 25 years of age and do not form large contiguous areas.
- The vegetation here provides some habitat for birds, similar to that found in the surrounding landscape. Bats have not been recorded in the locality and are unlikely to roost here.
- Native lizards were assessed as unlikely to be present, and hand searching of potential habitat areas did not record any (tracking tunnels have been deployed).

In summary, terrestrial ecological values are low. There is an opportunity to improve riparian functions along the Herehere Stream. Flood conveyance is an important function of this watercourse and will be an important consideration in any stream rehabilitation.

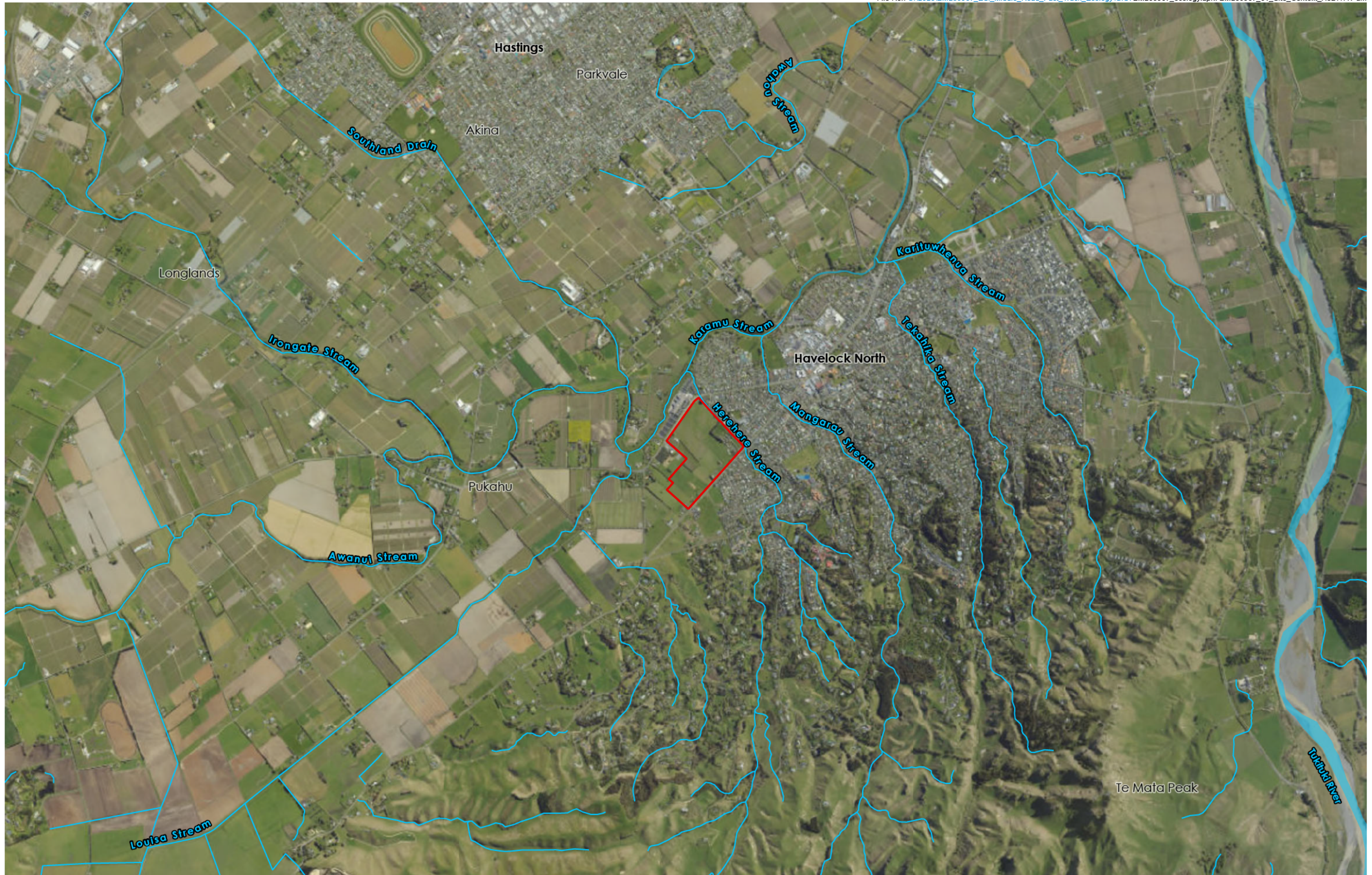
1.3 Description of the Proposal

This memo is submitted in support of CDL's Referral Application (**Application**) under the Fast-track Approvals Act 2024 (**FTAA**). The project is for residential development at 108, 148 Middle Road and 139 Te Aute Road in Havelock North and is referred to as the '**Middle Road**' project.

The Middle Road project will provide for the residential subdivision of the site to enable the development of approximately 300 to 350 lots. The intended subdivision layout will provide for a range of lot sizes to enable conventional residential development along with medium density development opportunities. The development will be supported by integrated three-waters and transport infrastructure and an open space network. The indicative concept plan is shown in Figure 2.



Figure 2. Middle Road Project Development Concept (Urban Acumen, 19 March 2026).





The planning report prepared to support the referral application under the FTAA provides a full description of the proposal. For assessment completeness, this report has also had regard to a potential extension of the Middle Road development across the adjoining McKenna Block. With respect to matters relating to Ecology the following comments are made about the proposal:

- The proposal will involve large scale earthworks and vegetation removal during construction, and a large increase in impermeable surface area and associated stormwater generation.
- Priorities for ecological outcomes are managing stormwater quality and quantity, improving riparian ecological functions along the Herehere Stream, and improving general biodiversity values by increasing the vegetation cover of the site which will be provided for as part of the future substantive application.

The following **Ecological Report** will:

- Describe the current ecological values of the site;
- Evaluate the effects of the proposed development on those values;
- Outline the proposed management approach to avoid, remedy or mitigate adverse effects;
- Recommend any management plans and consent conditions required for the Project.

1.4 Management Plans

As described later in this report, we recommend two plans are prepared to address ecological effects:

- A Fauna Management Plan detailing vegetation removal procedures for managing effects on birds and bats, including avoidance of active native bird nests in the months November to March inclusive, and identification of potential bat roosting trees and acoustic checks of these prior to felling.
- A Landscape Planting Plan detailing the proposed riparian planting, including planting typologies and layout, planting programme and maintenance.

2.0 Methods

The methodology outlined below describes the approach used to characterise ecological values within the site and surrounding environment, including streams, terrestrial vegetation and fauna. The assessment draws on site surveys, habitat observations and relevant background information to inform the evaluation of potential ecological effects of the proposed development.

2.1 Streams

Data from Hawke's Bay Regional Council (HBRC) and the Freshwater fish database was reviewed. The state and ecological values of the receiving environments and their sensitivity to the effects of the project were assessed.

2.2 Wetlands

The site contours, flowpath models and aerial photographs were reviewed to identify potential wetlands. No potential wetlands were identified so further investigations were not undertaken.

2.3 Vegetation

Aerial photographs and ground photographs were reviewed, and a ground survey undertaken on 5 February 2026 to identify tree and shrub species present on the site. The biodiversity value of the vegetation and its potential values as fauna habitat were assessed.

2.4 Herpetofauna

Relevant data was retrieved (September 2024) from the Department of Conservation (DOC) administered BioWeb Database within a 50 km radius of the site and other resources (iNaturalist, community reports), which provides known records of herpetofauna species nationwide. We note that bat database records are useful for assessments but are not comprehensive, and do not establish absence of fauna.

To better assess the potential for native lizards to be present and determine the need for a Lizard Management Plan and Wildlife Permit, a ground survey was undertaken and tracking tunnels deployed on 5 February 2026.

Site investigations were undertaken by Alice Dee. Potential habitat areas were identified. These included intact rank grass along road edges and hedgerows, log/woody debris piles, farm debris (metal scrap, stone piles, wood). These features were briefly hand searched for a total of 12 minutes.

A total of 35 tunnels were deployed in potential habitat areas, consisting of seven lines of five tunnels. Tunnels were deployed for two, one-week periods, producing a total of 70 tracking cards. The total effort was 490 tunnel-nights (i.e. 35 tunnels x 14 nights). Tracking cards were recovered on 12 February and 19 February. Cards were analysed to assess presence and abundance of lizards and also pest species (hedgehogs, rats and mice).

2.5 Bats

The DOC-administered BioWeb database was reviewed for records of both long-tailed and short-tailed bats within a 25 km radius of the site. We note that bat database records are useful for assessments but are not comprehensive and do not prove absence of fauna. The presence of roost trees was evaluated and the potential for bat roosting or foraging within the site was assessed on 5 February, 2025.

2.6 Avifauna

Avifauna records were sourced from the Ornithological Society of New Zealand's (OSNZ) Atlas of Bird Distribution in New Zealand, grid square (6160.2840) that encompassed the site and surrounds (C. J. R. Robertson *et al.*, 2007), and the eBird New Zealand Bird Atlas effort map grid

squares (BH85) that shows bird records to date (Atlas Effort Map - New Zealand Bird Atlas (ebird.org). Accessed 06 September 2024). The grid square is 10 km x 10 km. We note that ebird records are useful for confirming the presence of species, but records are biased toward accessible sites and the data does not prove absence of fauna. Bird observations were recorded during the site visit on 5 February, 2025.

3.0 Existing Environment

3.1 Terrestrial Vegetation and Habitats

The site land use is mainly farmland, used for cropping and grazing. The site also includes a horticultural block with shelterbelts, some residential dwellings with associated ornamental trees and vegetation along the Herehere Stream. The most significant vegetation comprises the large trees around the dwellings on the McKenna block. The full species list is included in Appendix 2.

Farmland

The majority of the site is farmland, with exotic pasture grasses used for grazing covering much of the area. There are scattered trees in the farmland, with mature exotic species of willow, poplar, and eucalyptus present. Some African boxthorn (*Lycium ferocissimum*) grows amongst blackberry shrubbery in the centre of the northeastern boundary. Along the Middle Road boundary, there is a short row of trees consisting of poplar, silver birch (*Betula pendula*) and cypress and along the Te Aute Road boundary are sporadically spaced young cypress trees approximately 2 – 3 m in height.

The farmland provides minimal habitat for indigenous fauna; some mature trees may provide nesting habitat for avifauna and temporary roosting habitat for bats, if present.

Horticultural block with shelterbelts

The 3.1 ha horticultural block on the western side of the site (139 Te Aute Road) contains a kiwifruit orchard and has a ground cover of exotic pasture grasses. Exotic casuarina sp. hedge rows surround much of the horticultural block.

The hedge rows may provide some limited nesting habitat for indigenous birds and cover habitat for skink species. It should be noted that the hedge rows are maintained and are likely to be machine-pruned once or twice a year, thereby limiting their ecological value as habitat for fauna (due to disturbance).

Residential dwellings

There are several residential dwellings scattered around the periphery of the site, notably in the eastern corner and principally around the McKenna block. These dwellings are separated by macrocarpa (*Cupressus macrocarpa*) and casuarina sp. hedges to the west, and a mixture of native kohuhu / black matipo (*Pittosporum tenuifolium*) and exotic trees to the east. The vegetation surrounding the McKenna Block dwellings is predominantly mowed exotic grasses with areas of amenity shrub beds and trees, consisting mainly of exotic species such as cypress, sycamore, maple, elm, silver birch, monkey apple (*Syzygium smithii*), eucalyptus and other species. Notable native trees include totara (*Podocarpus totara*), manuka (*Leptospermum scoparium*), kowhai (*Sophora microphylla*) and black matipo.



Photo 1. 108 Middle Road - View across south of site toward horticulture block (Google Streetview, 2024)



Photo 2. View across northern part of site from 92 Middle Road (Google Streetview, 2024).



Photo 3. 92 and 84 Middle Road – citrus and ornamental trees, eastern corner of site and McKenna Block. View northwards (Google Streetview, 2024).



Photo 4. 80 Middle Road – Herehere Stream and landscape with trees, eastern corner of McKenna Block. View southwest (Google Streetview, 2024).

The vegetation surrounding the residential dwellings provide habitat of limited extent and quality for indigenous fauna. Some of the mature trees, especially around the cluster of dwellings, potentially provide nesting habitat for avifauna and temporary roost habitat for bats, while garden beds may provide cover habitat for indigenous skink species.

Riparian Vegetation

The Herehere Stream runs along the entire northern boundary of the site. The stream banks are predominantly covered in exotic rank grass and weeds. Towards Te Aute Road there is a small cluster of large pines (*Pinus radiata*). The northern bank has only a narrow riparian margin adjoining the existing residential properties, containing rank grass, and some shrubs and trees. The vegetation provides some stream functions such as filtration and banks stabilisation but only provides limited shade. The stream channel may be flooded at times and therefore unlikely to provide lizard habitat.

3.2 Terrestrial Fauna

3.2.1 Herpetofauna

Bioweb¹ records were retrieved for a 50 km radius surrounding the proposed site. Within this radius, there are records for ten species of indigenous lizards, comprising six skink species and four gecko species.

No lizard species have previously been recorded within or adjacent to the site. Five species are known to be present within 15 km of the site (Table 2), including northern grass skink (*Oligosoma polychroma*), northern spotted skink (*O. kokowai*), Hawke's Bay skink (*O. auroraense*), ngahere gecko (*Mokopirirakau* 'southern north island') and barking gecko (*Naultinus punctatus*). In the wider area, lizard records were typically in areas of indigenous vegetation or around areas of recent infrastructure and in coastal areas. Outside these areas, herpetofauna records were scarce, likely reflecting both land use (much of the area is modified pastoral grassland) and a lack of survey effort or lizard-specific investigations.

The invasive plague skink (*Lampropholis delicata*) which are classed as an "unwanted organism" (Biosecurity Act 1993), are commonly found throughout the upper North Island. Introduced frog species, including southern bell frog and the southern brown tree frog are present in the wider area and may be present within the Site. These species are non-native species and as such are not a constraint to the proposed development and are not further considered for this assessment.

The proposed development area is predominantly pastoral land, subjected to grazing and tilling. Grazed (low stature) pasture is not considered to provide suitable cover and food resources for indigenous lizard populations. Hedge rows, rank grass and garden beds can provide potential habitat for Northern grass skink which are relatively tolerant of disturbance. Hawkes Bay skink has also been recorded in dense grass habitats throughout their known distribution in the North Island.

It is very unlikely that arboreal geckos are present, due to the isolation of the site from any known or suitable gecko habitat in the surrounding area.

¹ Bioweb database accessed September 2026.

Based on this desktop assessment, there is low probability of herpetofauna species being present in the grazed areas; moderate probability of Northern grass skink being present in the rank grass, hedge row and garden bed areas; and a low probability of threatened species such as Northern spotted skink or Hawke’s Bay skink being present, because of their limited distributions.

Table 1. Lizard species potentially present within 15 km of the site.

Species	Common name	Threat class (National)	Nearest record	Preferred habitats
<i>Oligosoma polychroma</i>	Northern grass skink	Not Threatened	Cape Kidnappers	Dry open areas with low vegetation (e.g., grasslands) or debris such as logs or stones for cover
<i>Oligosoma kokowai</i>	Northern spotted skink	At Risk - Relict	Haumoana Beach	Boulder beaches, sand dunes, open coastal forest and scrub, as well as grassland, shrubland and scree slopes at inland sites
<i>Oligosoma auroraense</i>	Hawke’s Bay skink	Threatened – Nationally Endangered	Cape Kidnappers/Te Mata Peak	Coastal dunes, grassland, shrubland, scrub, pasture, and the edges of coastal forest.
<i>Mokopirirakau</i> “southern North Island”	Ngāhere gecko	At Risk - Declining	Cape Kidnappers	Forest and scrub, especially kānuka / mānuka
<i>Naultinus punctatus</i>	Barking gecko	At Risk - Declining	Cape Kidnappers	Forest and scrub, especially kānuka / mānuka.

Site investigations

Areas of Low and Medium habitat value were identified (Figure 5) as summarized in Table 2.

Table 2. Potential lizard habitat and values. Refer to Figure 5 for locations.

Habitat Type	Habitat Value
Rank grass on farmland, exposed to repetitive disturbance from grazing, mowing, earthworks and flooding of farm ditches.	Low Value
Rank grass on roadside and riverside	Medium Value
Farm Debris – car wrecks, concrete piles	Medium Value
Wood piles	Medium Value

No lizards were observed during hand searching.

No lizards were recorded on tracking cards. Results also indicated low animal pest numbers on the site. Three pest species were detected. Hedgehogs were found in 6% of cards, Rats were found in 1%, and Mice were found in 34% of tracking cards (Table 3).

Table 3: Total number of records for fauna types, from 70 ink cards deployed at Middle Road.

Hedgehog	Rat	Mouse	Insect	Lizard
4	1	24	13	0

Based on the quality, extent and fragmentation of lizard habitat, paired with the results of the tracking tunnel survey, this site is unlikely to contain lizards. The proposed works are therefore expected to have negligible impact on lizard populations.

This plan has been prepared by Boffa Miskell Limited on the instructions of our Client, in accordance with the agreed scope of work. If it is intended to support an application under the Fast-track Approvals Act 2024, it may be relied upon by the Expert Panel and relevant administering agencies for the purposes of assessing the application. While Boffa Miskell Limited has exercised due care in preparing this plan, it does not accept liability for any use of the plan beyond its intended purpose. Where information has been supplied by the Client or obtained from external sources, it has been assumed to be accurate unless otherwise stated.



3.2.2 Bats

The closest long-tailed bat (*Chalinolobus tuberculatus*) record is 9 km west of the site, recorded in 2025. There are three further records c. 19 km to the south of the site at Mohi bush, recorded in 2016. The site is within the potential foraging range of populations recorded at this site. There are no short-tailed bat (*Mystacina tuberculata*) records within 25 km of the site. There is generally a lack of survey data for bats around the coastal Napier, Hastings and Havelock North areas, and suitable bat habitats may not have been surveyed.

Vegetation within the site, principally the McKenna block, includes several large trees that may contain roost features. Individual trees were identified and geolocated on 5 February 2026. A total of 15 separate potential roost trees and one shelter belt (eastern property) of potential roost trees containing refuge features such as holes or crevices were identified, these being old farm trees.

Considering the distance to known bat populations and the limited suitable habitats present within the site and the surrounding area, long-tailed bats are unlikely to be utilizing the site for roosting or foraging. The habitat is unsuitable for short-tail bats, which prefer indigenous forest habitats.

3.2.3 Avifauna

Habitats for avifauna within the site and the surrounding landscape include pasture and predominantly exotic trees and shrubs.

A total of 37 species of indigenous birds were identified within the local eBird grid-square. Of the 37 indigenous bird species on record, 23 are classified as Not Threatened, 13 are classified as Threatened, At-Risk and one (Kōtuku or White heron *Ardea alba*) classified as Threatened, Nationally Critical under the New Zealand Threat Classification System (Robertson *et al.*, 2021). The site is unlikely to provide habitat for these threatened species, although several of these species may traverse the site at times.

Species observed during a site visit on the 5 February are listed in Table 4.

While habitats on the site are unfavourable for most native species, species such as cormorant and heron (due to proximity to the coast/Tukituki River) may potentially utilise the large trees and the Herehere Stream, and during construction, banded dotterel (which are known to be present in the area) may potentially nest in the earthworks area.

3.3 Wetlands

The Resource Management Act 1991 defines wetland as "... permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions". The site is flat and has been tilled and contains no areas of wetland vegetation. Soils appear to be permeable and a system of drains is installed. There are no areas within the site that meet the definition of wetland or Natural Inland Wetlands as defined in the National Policy Statement for Freshwater Management (NPS-FM, amended 2025).

Table 4. Bird species list from a site visit on the 5 February 2026. *Primary habitat used by each species is shaded dark green and secondary habitat is shaded light green. List sorted by National Conservation status (Robertson et al., 2021).*

SPECIES - Robertson et al. 2012	Scientific Name	CONSERVATION STATUS - Robertson et al. 2021	Native forest	Exotic Forest	Scrub / shrubland	Farmland / open country	Freshwater / wetlands	Coastal / Estuary	Oceanic	Urban/Residential
Spur-winged plover	<i>Vanellus miles novaehollandiae</i>	Not Threatened					Dark Green	Light Green		
Purple swamphen Pūkeko	<i>Porphyrio m. melanotus</i>	Not Threatened					Light Green	Dark Green		
Pied stilt Poaka	<i>Himantopus h. leucocephalus</i>	Not Threatened					Light Green	Dark Green	Light Green	
Welcome swallow Warou	<i>Hirundo n. neoxena</i>	Not Threatened					Light Green	Dark Green	Light Green	
North Island fantail Pīwakawaka	<i>Rhipidura fuliginosa placabilis</i>	Not Threatened	Dark Green	Light Green	Light Green					Light Green
Parsons bird Tui	<i>Prostemadera novaeseelandiae</i>	Not Threatened	Dark Green		Light Green					
Paradise shelduck Pūtangitangi	<i>Tadorna variegata</i>	Not Threatened				Light Green				
Swamp harrier Kāhu	<i>Circus approximans</i>	Not Threatened				Dark Green				
Skylark	<i>Alauda arvensis</i>	Introduced And Naturalised				Dark Green		Light Green		
Black bird	<i>Turdus merula</i>	Introduced And Naturalised	Dark Green	Dark Green	Dark Green	Light Green				Dark Green
Sparrow	<i>Passer domesticus</i>	Introduced And Naturalised	Light Green	Light Green	Dark Green	Dark Green	Light Green	Light Green		Dark Green
Myna	<i>Acridotheres tristis</i>	Introduced And Naturalised	Light Green	Light Green	Dark Green	Dark Green				Light Green

3.4 Streams

3.4.1 Herehere Stream

Herehere Stream (photos 5 to 8) was included in HBRC studies undertaken in 2024-2016 (HBRC, 2016a and 2016b). The report found that the Herehere Stream had a rocky substrate, unlike most streams in the area, that provided instream habitat opportunities for fauna and helps maintain dissolved oxygen concentrations. Instream habitat function scores were relatively high (Table 3). Macroinvertebrate indicator metrics were low (MCI-sb of 66). The MCI metrics ranked the stream fourth of 16 sites surveyed by HBRC in 2016. Fish recorded were common bully, inanga, and shortfin eel. Nutrient levels were high and the level of *E.coli* contamination was also notably high. This suggests that water quality factors are having adverse effects on stream ecosystems. Data is summarised in Table 3.

WSP undertook a recent stream study in 2025 (WSP, 2025a). In the Herehere Stream they recorded 10 freshwater fish and crayfish species (six being native and three exotic), 9 barriers to fish passage and 34 stormwater discharges. Barriers to fish movement downstream of the site were not identified as high priority, indicating partial but not significant barriers to fish movement between the Karamu Stream and the project area. Stream Ecological Valuation (SEV) scores were 0.30 at H1 (downstream of Te Aute Road), 0.37 at H2 (upstream of Middle Road at Grant Street Reserve) and 0.49 at H3 (upstream of Iona Road). Scores below 0.4 indicate “poor” integrity of functions, and 0.4 to 0.6, “fair”. They noted the lower reached were straighter, deeper

and slower, with aquatic plants such as hornwort, water celery and curly pondweed prolific in places. They described the stream as a highly modified stream system in a highly modified environment, with low ecological health and fish passage, yet containing at risk fauna and having moderate instream habitat value and assessed the overall ecological value as Moderate. WSP also found ongoing stream channel movement and bed level changes (WSP, 2025b).

A feature of the stream is the Herehere flood control dam, located to the east of the town.

The Herehere Stream catchment was not identified a priority catchment for sediment or nutrient reduction in the TANK Plan Change 9 maps (HBRC, 2021).

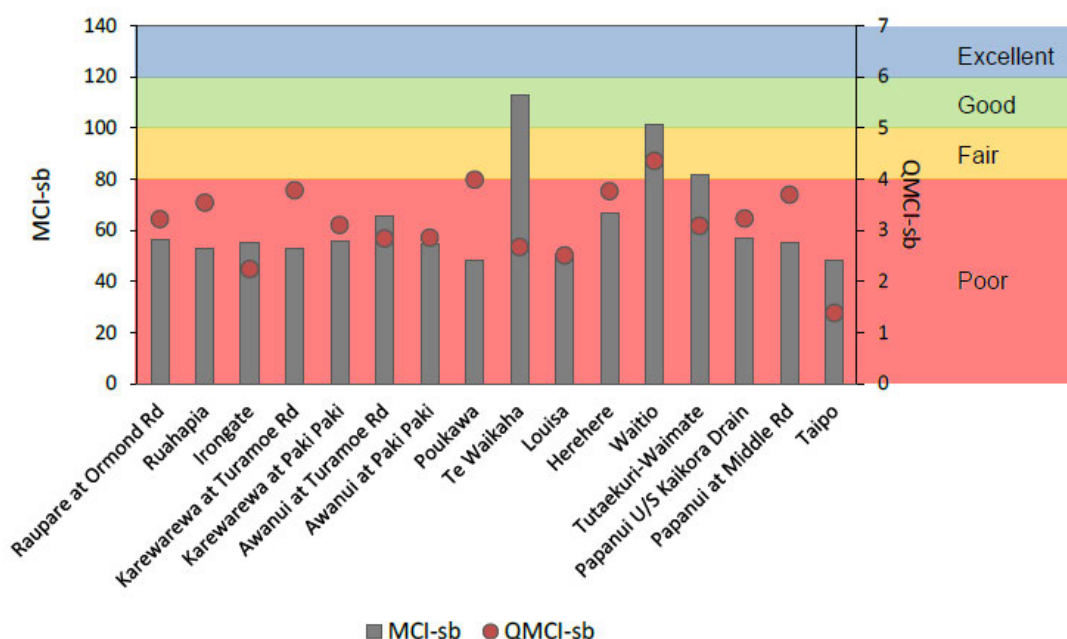


Figure 3. Macroinvertebrate community index results from Hawkes Bay Regional Council (2016).

3.4.2 Other Watercourses within the Site

Other watercourses comprise drains (Bake and Pomeroy Drains) in the north of the site connecting to the Herehere Stream (Photos 9 to 12), and the Iona development stormwater management area and connecting drains (Gilpin Drain) located in the south of the site (Photo 13 to 15). The latter pass under Te Aute Road and join the Karamu Stream to the north.

Hawkes Bay Regional Council manages these watercourses within the site as artificial stormwater drainage assets, and there is no documentation in site’s recent consent documentation, survey titles, strategic documents (including the regional and district plans) or Council correspondence indicating that these watercourses are natural features (Woods, pers comm).

These watercourses are therefore classified as artificial and not as streams or rivers under the RMA (1991). In terms of ecological values they perform conveyance functions and provide habitat for aquatic plants and animals. These are likely to be tolerant fauna often found in lowland watercourses in agricultural catchments, such as shortfin eel. There are unlikely to be any threatened species present.

Table 5. Summary of environmental data for Herehere Stream from HBRC (2016a and 2016b).

Channel width (m)	2.4
Channel depth (m)	0.12
Flow velocity (m/s)	0.106
Pesticides	Below detection limits
Nutrients	Nutrient concentrations were above ANZECC lowland stream trigger levels and near the median for streams in the Karamu catchment. Median E.coli was high.
Dissolved oxygen	Median DO 7 mg/l. The minimum % DO was 51, the highest of six streams in the TANK study.
Clarity black disk (m) low-flow mean	2.6
Temperature (deg C) median	22
Ecosystem Respiration and Gross Primary Production	In the healthy range with the lowest values of streams in this survey.
Aquatic Plant abundance (percent cross section cover)	c.10
Aquatic Plant species recorded	<i>Apium</i> spp, green filamentous algae
Habitat	Rocky substrate provided invertebrate habitat and fish cover and increased hydraulic heterogeneity. Riparian shade was relatively high although the buffer was narrow. Channel modification was moderate. The overall score was 113, the third highest of 16 sites surveyed.
Macroinvertebrate communities	Ampipods (<i>Paracalliope</i>) and snails (<i>Potamopyrgus</i>) were the most abundant taxa. Taxa Richness was 13. MCI-sb was 66. QMCI-sb was c.3.5, in the poor range but slightly above most other sites (ranking fourth of 16 sites; see Figure 3). Only two EPT taxa recorded and were rare (0.2% of sample abundance. The EPT taxa were <i>Hudsonema</i> and <i>Zephlebia</i>), moderately sensitive taxa that were not recorded at other sites in the survey.
Fish	Common bully, inanga, shortfin eel recorded in an electrofishing survey at Te Aute Road in 2007. Longfin eel and common smelt have also been recorded in other streams in the locality, together with the exotic species goldfish and mosquitofish (HBRC website).



Photo 5. Herehere Stream at Middle Road. December 4, 2025.



Photo 6. Herehere Stream downstream of Middle Road. December 4, 2025.



Photo 7. Herehere Stream upstream of Te Aute Road. December 4, 2025.



Photo 8. Herehere Stream downstream of Te Aute Road. December 4, 2025.



Photo 9. Landscape and drains within the site, view eastwards. December 4, 2025.



Photo 10. Landscape and drains within the site, view southwards. December 4, 2025.



Photo 11. Farm drain within the site, view eastwards. February 5, 2026.



Photo 12. Farm drain on western boundary of McKenna Block. February 5, 2026.



Photo 13. Farm drain outlet into Herehere stream. February 5, 2026.



Photo 14. Stormwater management area for Iona subdivision, south of site. December 4, 2025.



Photo 15. Stormwater management area for Iona subdivision, south of site. December 4, 2025.



Photo 16. Outlet from stormwater management area for Iona subdivision, south of site. December 4, 2025.



Photo 17. Herehere Stream At Reynolds Road (c. 500 m upstream of site). The vertical fall over 0.5m height is likely to impair fish passage. Google Streetview, 2024.



Photo 18. Herehere Stream, upper catchment at Aintree Road. Google Streetview, 2024.



Photo 19. Karamu Stream at Havelock Road, view upstream. Approximately 1.3 km from site. (Google streetview).

3.4.3 Karamu Stream

The Karamu Stream is located downstream of the site, north of Te Aute Road. It is the receiving environment for the Herehere Stream and other watercourses within the site. The Karamu Stream is an important lowland waterway and is the receiving environment for the Herehere Stream and other watercourses within the site. The stream is relatively large and receives multiple inflows from rural and urban tributaries. The stream channel has been modified but riparian planting has been undertaken to improve its ecological functions. The Karamu Stream also contains a range of fish species (shortfin and longfin eels, common bully, common smelt, inanga and brown trout have been recorded; Hawkes Bay Regional Council website).

4.0 Proposed Activities and Mitigation

4.1 Vegetation Removal

It is proposed to remove most trees within the project area to facilitate bulk earthworks and to remove future hazards from limb and treefalls in a residential area. The majority of these trees are exotic species being farm shelterbelts or ornamental trees. A small number of trees may be retained in areas where earthworks are not required, for example along parts of the Herehere Stream. Further, it is anticipated that trees associated with the group of dwellings at 84 Middle Road will be retained, along with the immediate vegetation and larger tree species associated with the main dwelling on 80 Middle Road.

It is proposed to mitigate the effects of vegetation removal by undertaking targeted fauna checks prior to felling, specifically checks of potential bat roosting trees with acoustic devices, and avoidance of trees with active nests during the main nesting season.

New planting throughout the development, including alongside the Herehere Stream and the extensive Reserve areas, will also mitigate the effects of vegetation removal.

4.2 Sediment Discharge

Land disturbing activities such as earthworks can result in increased sediment generation during rainfall events. The removal of vegetation cover allows easier mobilisation of sediment, which may then be carried into streams where elevated suspended sediment concentrations and sediment deposition on the streambed can have adverse effects on fauna and habitats.

The low gradient of the Project site provides relatively low sediment generation potential compared to a site with steeper slopes. Erosion and sediment control practices will further reduce sediment generation (i.e. sediment mobilised by erosion processes) and yield (i.e. the amount discharged after treatment). These controls will be designed in accordance with Hawkes Bay Regional Council Erosion and Sediment Control Guidelines (2009), and are likely to include super silt fences, decanting earth bunds with flocculation and sediment retention ponds with flocculation (as proposed at CDL's Arataki site; Woods, 2025). Bulk earthworks will have a limited duration. Following earthworks, exposed soils will be immediately stabilised by grassing. These measures will minimise sediment generation and yield during construction.

In the long term urbanisation may result lower sediment yield than some agricultural landuses (MfE, 2019).

4.3 Stormwater Discharge

Stormwater generated during rainfall events can have both quantity and quality effects within stream receiving environments. Stormwater runoff can increase as a result of impervious surface cover from roofs, roads and driveways, picking up contaminants from vehicles and other sources. Catchment urbanisation can result in reduced stream baseflows, increased peak flows, channel erosion and elevated contaminant concentrations (e.g. trace metals, hydrocarbon, sediment and bacteria (<https://www.waikatoregion.govt.nz/environment/water/stormwater/>)).

Stormwater quantity and quality will be managed by limiting the maximum impervious surface cover, adopting a treatment train approach, and by using control devices such as proprietary devices and dry basin systems. These systems will be designed to meet the objectives and requirements of the HDC and HBRC guidance documents. The systems area designed to manage water temperature and factor in the effects of climate change on future rainfall patterns.

The existing drains will be replaced by stormwater management basins and swales in a similar location. The intention is to maintain site drainage patterns that reflect the natural landform and hydrological processes (and discharge locations) while providing treatment and flood storage. The location of these basins is indicated in the concept plan (Figure 2). These devices will attenuate peak flows to pre-development levels and provide treatment to remove contaminants. Further details are provided in the Stormwater Report appended to the Referral Application.

5.0 Assessment of Effects

5.1 Summary of Ecological Values

Habitat on the site is generally unfavourable for native fauna and is limited to trees around existing buildings and the periphery of the site. There is a low probability of longtailed bats being

present; a moderate probability of native birds in low numbers during the nesting season; and low probability of native skinks such as the northern grass skinks, with habitats limited to the unmanaged grass areas. Overall, the indigenous biodiversity values for terrestrial and avifauna are very low. The Herehere Stream appears to be straightened and has low ecological health indicators, but instream habitat shows potential for improvement. The existing freshwater and terrestrial ecological communities have a low sensitivity to the potential effects of the project.

5.2 Assessment of Effects

The following assessment of effects is based on the proposed activities as understood from the concept plan and information from Woods as of March 2026. More detailed information will become available as the design is progressed and aspects of this assessment may be revised as part of the future substantive application.

5.2.1 Effects on Indigenous Vegetation

The managed grazing, cropping and horticulture areas have negligible ecological values. There are no potential adverse ecological effects in these areas.

The trees on the site are primarily exotic species planted for gardens and shelterbelts and have negligible indigenous biodiversity value.

5.2.2 Effects on Lizards

The site investigation found no substantial areas of habitat such as undisturbed grasses, or wood or construction debris. Some wood debris were present under the shelterbelt on the south and west side of the McKenna Block. Tunnel traps placed along the adjacent fenceline found no evidence of skinks. Rank grasses were present along the stream channel, but this area is probably unsuitable due to flooding. In summary we have not identified any high-quality habitats or observed any lizards during hand searches or deployment of tracking tunnels. The area has been highly disturbed by agriculture and is poorly connected to any potential sources for recolonization. Based on this evidence it appears unlikely that native lizards are present, or the population is at such a low density (i.e. not detectable in our investigation) that effects on species populations in the area would be negligible.

No further lizard management is required. No permits for lizard salvage are required and a Lizard Management Plan is not required.

5.2.3 Effects on Bats

There is a low probability of long tailed bats roosting on the site, with large trees being identified as potential roost habitat. These bats travel significant distances and move roost trees frequently and have the highest national threat classification (Threatened – Nationally Critical), and a precautional approach is appropriate. We recommend pre-felling bat roost checks in accordance with the DOC Bat Roost Protocols (DOC, 2024). Potential roost trees have been identified. The pre-felling protocols require acoustic monitoring to be undertaken immediately prior to felling to ensure that no roosting bats are present. In our assessment this will reduce the potential effects on long-tailed bats to Very Low.

5.2.4 Effects on Birds

There is a moderate probability of native birds nesting in the trees, but a very low probability of nesting by threatened native species. To manage potential effects, we recommend a precautionary approach. We recommend that if earthworks and vegetation clearance is undertaken during the bird nesting season (August – March), nest checks of all trees should be undertaken to determine if native birds are nesting. If active native bird nests are detected, works must cease in a 20m buffer around the nest until chicks have fledged or the nest has failed. In our assessment the avoidance of nesting birds will reduce the potential effects on indigenous species to Very Low.

5.2.5 Effects on Streams

Physical modification

We understand that no structures within the bed of the Herehere Stream are proposed. Erosion control may be required near the detention basin outlet, and if so the extent of should be minimised.

Some erosion prone streambanks may be regraded for stability and planting. This streambank remediation would be within the stream channel, but can be undertaken during low flows, above the water level and outside of permanently wet areas, in order to avoid or minimise aquatic ecological effects. Streambank erosion and management is discussed further in the draft Stormwater Report (Woods, 2026a).

The artificial watercourses within the site will be removed, with these largely replaced by swales and basins (Woods 2026a). These will provide hydrological functions in a similar location to the existing main Bake and Pomeroy drains that extend from the centre of the site, to the Herehere Stream. These watercourses are not classified as streams and activities are permitted. The drains are likely to contain shortfin eels. In order to minimise the adverse effects of native fish mortality, a native fish relocation should be undertaken. This will involve trapping and relocating fish probably into the Karamu Stream, which has a large habitat volume and no obstacles to fish dispersing from the release point.

Hydrological Effects

Peak stormwater flows will be managed to pre-development levels using dry detention basins (Woods 2026a). Streambank stability will be improved by grading and planting, which will reduce the risk of erosion in the receiving environment.

Water flows from the upstream catchment will continue to be the dominant influence on the hydrology of the Herehere and Karamu Streams. Flows are naturally variable with low flows in summer, and high peak flows associated with rainfall events. Flood flows in the lower stream are attenuated by the Herehere Flood Control dam. The new impervious surface area will result in quicker runoff from the site, but overall hydrological patterns will remain similar and minimum and maximum flows will not change (due to proposed management of peak flows and baseflows from the upstream catchment). Provided that any erosion-prone areas within the site are managed the potential for changes to water quantity to have adverse effects on stream habitats or ecology is Very Low.

The extent of impervious surface cover within the development will be managed through the detailed design process to support appropriate stormwater management and ecological outcomes.

Construction Sediment

Earthworks will involve large-scale exposure of soil and will result in an increase in sediment discharged from the site, mainly during and after rainfall. Earthworks will likely be completed in two seasons and will be subject to erosion and sediment control practices designed to remove 75% of sediment (Woods 2026a, 2026b). The site has relatively low sediment generation potential due to its low gradient. Due to the proposed erosion and sediment control, it is likely that the volume of sediment discharge will be similar or lower than agricultural practices that also expose the soil, such as tilling. The site constitutes less than 5% of the Herehere Stream catchment, therefore most of the sediment load during rainfall events is likely to be derived from the upstream catchment. Sediment loads are likely to stay within the wide natural range and unlikely to exceed natural peak levels seen during large rainfall events. Sediment discharges from the site are unlikely to form significant deposits that alter instream habitats or raise suspended sediment outside of the natural range. The instream communities are expected to be tolerant of potential increases in suspended sediment. While there may be some temporary and localised adverse effects within the Herehere Stream, the level of effects on ecological values is likely to be low, and no effects are likely within the Karamu Stream.

Urban Stormwater Contaminants

Stormwater contaminant loads will increase as a result of the development. Treatment of stormwater to reduce contaminant loads will be considered at detailed design and will include a treatment train approach, with a sequence of treatment elements in series (Woods 2026a). Because of this proposed treatment, contaminant concentrations are likely to be similar or lower than those from other urban areas within the Havelock North area. Discharges will occur periodically during and after rainfall events. There is also likely to be considerable dilution and dispersion within both the Herehere Stream and Karamu Stream at such times because of the large upstream catchment areas. The ecological communities in the receiving environments are relatively tolerant of variations in water quality due to existing environmental conditions, including high water temperature and low dissolved oxygen, identified as the most important stressors in streams in the Karamu catchment by HBRC (2016). While some localised effects on macroinvertebrate communities may be detectable, we do not expect any substantial decrease in metrics such as the MCI, or effects on native fish communities. Any localised effects that occur would not extend into the Karamu Stream.

5.2.6 Effects of Planting

The proposed riparian planting of around 275 m of stream length on the south bank of the stream (and possibly the north bank if accessible) within the CDL landholdings will benefit the Herehere Stream by reducing erosion and providing shade that will reduce water temperature and aquatic plant growth (thereby moderating dissolved oxygen concentrations). This will improve some ecological attributes. Should the McKenna Block be urbanized an additional 300m of riparian stream enhancement would occur along the Herehere Stream.

Planting in other areas of the site such as public open spaces, streets and gardens is likely to significantly increase the total number of trees and overall vegetation cover within the site. This will increase habitat complexity and structure and also the diversity of resources, for example feeding, roosting and nesting habitats for birds. Planting species that provide food resources could potentially benefit native birds such as tui and kereru. Planting will therefore have a positive effect on terrestrial biodiversity and ecological function.

Detailed landscape planting plans will be prepared as part of the substantive application and undertaken in line with HDC and HBRC planting guidelines, particularly in terms of the stream interface.

5.3 Effects Management Hierarchy

The potential effects of the project can be avoided or minimised following the Effects Management Hierarchy (EMH) approach. The measures proposed to manage effects under the EMH are summarised below.

Actions to Avoid effects to the extent practicable:

- Pre-clearance checks to avoid removal of trees with active bird nests;
- Pre-clearance checks to avoid removal of trees with active long-tailed bat roosts;
- Avoidance of works with the Herehere Stream bed (excepting erosion control, if required).
- Impervious surface area limited through the detailed design process.
- Peak flow attenuation to pre-development levels using stormwater detention basins.

Actions to Minimise effects to the extent practicable:

- Implementation of erosion and sediment control measures during earthworks to minimise effects on downstream environments.
- Stormwater quality treatment to mitigate increases in stormwater contaminant loads.
- Stormwater design with open dry basins and swales to utilise natural systems and processes rather than piping.
- Maintaining hydrological patterns by locating stormwater systems in similar locations to the existing watercourses.

Remediation, i.e. restoring the environment where damage has occurred, will be provided for in plans that manage onsite activities, such as construction management plans. These are essentially contingency plans in the case of effects outside of the expected range. Where trees have been removed, the proposed revegetation may be considered to be remediation as it will replace and improve vegetation functions and values.

No offsetting or compensation is proposed. The EMH requires these are provided, if possible, where residual adverse effects that cannot be avoided, minimised or remedied remain more than minor. In our assessment the residual effects of this project are below this threshold.

In addition to managing adverse effects under the EMH, positive effects are anticipated from vegetating previously unplanted areas and creating connected green spaces and corridors.

5.4 Requirements of the NESF and NPS-FM

There are no wetlands within the site or wetlands within 100 m of earthworks, so provisions of the National Environmental Standards for Freshwater 2020 or (NESF; amended 2025) and National Policy Statement for Freshwater Management 2020 (NPSFM; amended 2025) relating to drainage of wetlands; taking, use, damming or diversion, or discharge of water; earthworks or vegetation clearance; either within or outside but within a 10m setback, or within a 100 m setback, do not apply.

The internal watercourses within the site are classified as artificial drains, so there will be no loss of extent or values of rivers or streams.

No structures that could affect fish passage are proposed within the Herehere Stream.

The proposal applies the principles of the Effects Management Hierarchy (Section 5.3).

There will be no loss of extent of rivers or streams with the Herehere Stream retained in its current alignment within the development. Enhancement riparian planting is proposed in line with HDC guidelines².

There will be loss and modification of artificial watercourses within the site and a new stormwater management system including swales and basins will be constructed. The effects on fish within these watercourses can be mitigated by fish relocation procedures.

The NPSFM requires fish passage is maintained or improved (section 3.26); and that deposition of sediment is monitored at certain sites (section 3.25). Sediment deposition monitoring could potentially be undertaken in the Herehere Stream.

The National Policy Statement of Indigenous Biodiversity (NPS-IB) relates to Significant Natural Areas and management of biodiversity values. There are no SNAs within the site. We have assessed that the project is unlikely to have adverse effects that are more than minor on any at-risk species. The proposed planting along the Herehere Stream will increase vegetated habitat in the project site and have some benefits to stream functions and fauna, including at-risk fish species such as longfin eel.

In our assessment the proposal is consistent with the direction of the NPSs, having regard to the conceptual nature of the proposal and the ability to manage risks through future design and mitigation in the substantive phase of the project.

5.5 Plan Change 9

Hawkes Bay Regional Council issued Plan Change 9 related to water management in the Tūtaekurī, Ahuriri, Ngaruroro and Karamū (TANK) catchments on 9 September 2022 (it currently has legal effect pending appeals). The plan change contains provisions that target erosion control to reduce the adverse of sediment on aquatic ecosystems, and to improve management of stormwater to reduce adverse effects of urban runoff.

Plan Change 9 legislates a collaborative approach to improve freshwater management, setting objectives limits and targets that reflect kaitiaki principles and a continuous improvement approach to development of natural resources and protection of indigenous biodiversity. It sets water use and quality targets for waterbodies in Schedule 26 (Obj Tank 4). It seeks to promote improved management of riparian zones (Obj Tank 8). It seeks to improve ecosystem health in the Karamu and Clive Rivers catchment (Obj Tank 13).

Policy 2 in the Priority Management Approach, includes establishing riparian vegetation to reduce macrophytes and temperature in the Karamu/Clive rivers. Policy 11 states the Council will promote and support establishment of riparian vegetation.

Policy 28 supports improvement of stormwater management for urban infrastructure.

Catchment Rules in section 6.10 include TANK 21 Stormwater Activities addresses erosion, flood conveyance, and visual water quality issues. At detailed design, a Stormwater Management Plan for the development will be prepared for the substantive application.

² Karanema Havelock North Streams Planting Guide (Beca, 2025)

The proposal seeks to improve stormwater management and provide riparian vegetation and therefore appears to align with key provisions of the Plan Change 9 as identified above.

6.0 Recommendations

The following bullet points list matters that should be addressed in the future substantive application in order to minimise potential ecological effects:

General Works:

- Prepare a Fauna Management Plan.
- Prepare a Landscape Planting Plan.
- Undertake vegetation clearance in accordance with a Fauna Management Plan.
- Ensure sediment and erosion control measures are implemented in accordance with an Erosion and Sediment Control Plan.
- Take all practical measures to prevent contaminants from entering any watercourses during site works.
- Prepare a spill management plan detailing spill prevention measures and response procedures in the event of accidental discharges of contaminants to the watercourse.

Stream Works:

- Design the stormwater basin outlet into the Herehere Stream to minimise the risk of erosion within the watercourse
- Minimise the extent of any erosion protection materials placed within the stream channel, including stream bed and banks.
- Provide for riparian planting in a Landscape Planting Plan in accordance with planting guidance documentation provided by HDC.

7.0 Conclusions

The majority of the site is flat agricultural land with negligible ecological values. The vegetation featured on the site include shelterbelts, a kiwifruit orchard, farmland trees, and trees around residential dwellings. These trees are mostly exotic and have low indigenous biodiversity values. Investigations of native fauna habitat found that while some trees had suitable features for bat roosting, bats are unlikely to roost in this area. Exotic birds are likely to nest here, together with some native species that are known in Havelock North. Ground habitat searches and tracking tunnel assessments found no evidence of native lizard populations.

The vegetation will be cleared for bulk earthworks. As no lizards were found in our surveys, a Lizard Management Plan or Wildlife Act authority for lizard management is not required. The potential for effects on native bird or bat populations is low and will be managed through clearance procedures to avoid disturbance of nesting birds or roosting bats.

The main ecological feature of the site is the Herehere Stream, which extends for about 580 m along the northern boundary of the site and the McKenna Block. The stream is a significant watercourse in the Havelock North area that extends for several kilometers upstream and connects to the Karamu Stream about 300 m downstream of the site. It has been recently assessed by WSP (2025) as having moderate values that are affected by modification, water temperature and low dissolved oxygen levels, while nevertheless supporting threatened fish species. It is proposed to restore riparian planting along the stream, mainly on the south side adjoining the development, which will provide benefits such as thermal regulation and aquatic plant control. The planted vegetation will comprise native species, with a mix of shade trees and low-lying groundcover to provide for flood conveyance and public safety and will be detailed in a Landscape Planting Plan.

Other effects on streams include construction sediment discharge, urban stormwater contaminant discharges, and hydrological changes resulting from the increase in impervious surface area. Sediment generation potential is relatively low due to the low gradient of the site, and erosion and sediment control and treatment systems will minimise discharges. Sediment discharges will be periodically elevated in association with rainfall events over the period of bulk earthworks (to be completed in one or two seasons). The contribution above background sediment loads is likely to be relatively low, and effects on aquatic communities are likely to be minor. Peak flows will be managed to pre-development levels using stormwater detention basins. Urban stormwater contaminants will be managed using a treatment train approach and are likely to be similar or lower than discharges from other urban areas in Havelock North. The aquatic communities here are relatively tolerant and effects on values such as biodiversity and integrity are likely to be low. Because of the large dilution within the Karamu Stream, no effects are likely to be detectable below the confluence.

In conclusion, we have assessed the potential effects of the proposed development on terrestrial vegetation and fauna and on stream ecological values. The potential for terrestrial ecological effects is low and can be managed through vegetation clearance procedures. Stormwater discharges effects will be mitigated by treatment and dilution and the level of such effects on stream ecological attributes is likely to be low, while the proposed riparian planting will have positive effects on some stream attributes.

8.0 References

Beca, 2025. Karanema Havelock North Planting Guide. Prepared by Beca Design Practice in partnership with Heretaunga Hastings District Council. Version A. March 2025.

DoC, 2024. Protocols for minimising the risk of felling occupied bat roosts (Bat Roost Protocols). Approved by the New Zealand Department of Conservation's Bat Recovery Group. Version 4: October 2024.

Hawkes Bay Regional Council, 2009. Hawke's Bay Waterway Guidelines Erosion and Sediment Control. Prepared by Aqua Terra International Ltd. HBRC Plan Number 4109. April 2009.

Hawkes Bay Regional Council, 2016a. Life Supporting Capacity in Lowland Streams With a focus on the Karamu Catchment. Environmental Science - Water Quality and Ecology. HBRC Report No. RM16-05 – 4782 January 2016.

Hawkes Bay Regional Council, 2016b. Ngaruroro, Tutaekuri, Karamu River and Ahuriri Estuary Catchments State and Trends of River Water Quality and Ecology. HBRC Report No. RM 16-08. Plan Number 4787. Environmental Science - Water Quality and Ecology. July 2016.

Hawkes Bay Regional Council, 2013. Karamu Characterisation Report Supporting Information for Water Allocation HBRC Report No. EMT13/24 – 4557. November 2013.

MfE, 2019. Sediment Attributes and Urban Development. Prepared by Morphem for Ministry for the Environment. Project number P02173. September 2019.

Robertson, C.J.R. & Bull, P.C., 2007. The Atlas of Bird Distribution in New Zealand.

Stark, J. D.; Boothroyd, I. K. G; Harding, J. S.; Maxted, J. R.; Scarsbrook, M. R. 2001: Protocols for sampling macroinvertebrates in wadeable streams. New Zealand Macroinvertebrate Working Group Report No. 1. Prepared for the Ministry for the Environment. Sustainable Management Fund Project No. 5103. 57p

Woods, 2026a. Stormwater Report. Middle Road Fast-Track Referral Application. Draft Prepared for CDL. 9 March 2026.

Woods, 2026b. Infrastructure Report. Middle Road Fast-Track Referral Application. Draft Prepared for CDL. 10 March 2026.

Woods, 2025. Infrastructure Report, Arataki Project. Prepared for CDL. May 2025.

WSP, 2025a. Havelock North Streams Assessment. Ecological Baseline, Constraints and Opportunities. Prepared for Hastings District Council. August 2025.

WSP, 2025b. KARANEMA HAVELOCK NORTH STREAMS EROSION REVIEW 2025. Prepared for Hastings District Council. 22 August 2025.

Appendix 1: Bird Records

All 37 indigenous birds recorded within the Study Area, and which may be present within the proposed Site (eBird grid square). Primary habitat used by each species is shaded dark green and secondary habitat is shaded light green. List sorted by National Conservation status (Robertson et al., 2021).

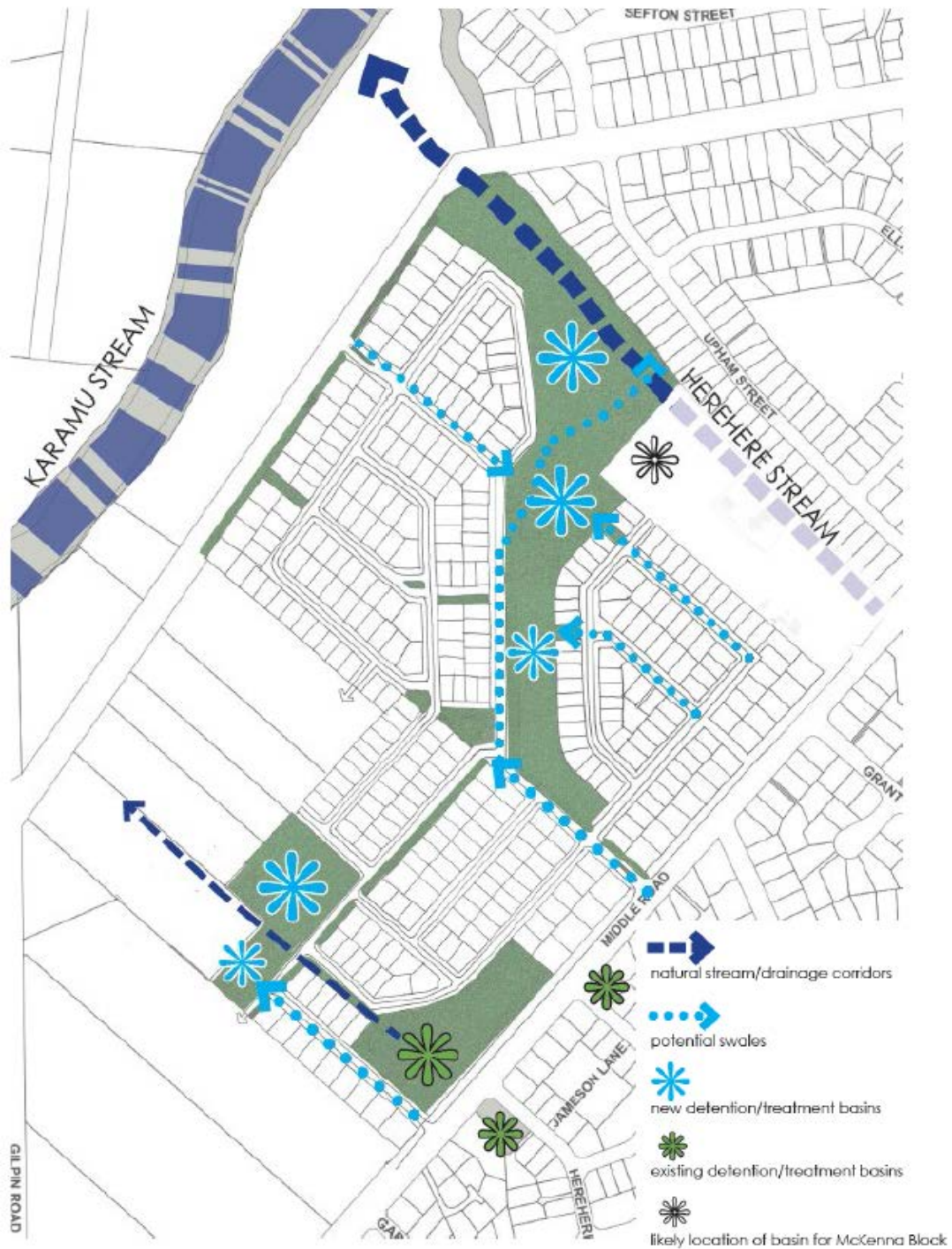
SPECIES - Robertson et al. 2012	Scientific Name	CONSERVATION STATUS - Robertson et al. 2021	Native forest	Exotic Forest	Scrub / shrubland	Farmland / open country	Freshwater / wetlands	Coastal / Estuary	Oceanic	Urban/Residential
Kōtuku White heron	<i>Ardea alba</i>	Nationally Critical						Dark Green		
New Zealand dabchick Weiweia	<i>Poliocephalus rufopectus</i>	At Risk - Nationally Increasing					Dark Green			
Long-tailed cuckoo Koekoeā	<i>Eudynamys taitensis</i>	At Risk - Nationally Vulnerable	Light Green	Light Green	Dark Green					
Grey duck Pāpera	<i>Anas superciliosa</i>	At Risk - Nationally Vulnerable				Light Green	Dark Green	Light Green		
White-fronted tern Tara	<i>Sterna s. striata</i>	At Risk - Declining						Dark Green		
Red-billed gull Tarāpunga	<i>Larus novaehollandiae scopulinus</i>	At Risk - Declining				Light Green	Dark Green	Dark Green		
New Zealand pipit Pīhoihoi	<i>Anthus n. novaeseelandiae</i>	At Risk - Declining				Dark Green	Light Green	Light Green		
Black-billed gull Tarāpuka	<i>Larus bulleri</i>	At Risk - Declining				Light Green	Dark Green	Light Green		
Banded dotterel Pohowera	<i>Charadrius bicinctus bicinctus</i>	At Risk - Declining					Light Green	Dark Green		
New Zealand falcon Kārearea	<i>Nestor meridionalis septentrionalis</i>	At Risk - Recovering	Dark Green		Dark Green	Dark Green		Light Green		
Little shag Kawaupaka	<i>Phalacrocorax melanoleucos brevirostris</i>	At Risk - Relict					Dark Green	Light Green		
Black shag Māpunga	<i>Phalacrocorax carbo novaehollandiae</i>	At Risk - Relict					Dark Green	Light Green		
Black-fronted dotterel	<i>Euseyornis melanops</i>	At Risk - Naturally Uncommon					Light Green	Dark Green		
Little black shag Kawau tūi	<i>Phalacrocorax sulcirostris</i>	At Risk - Naturally Uncommon					Dark Green	Light Green		
White-faced heron Matuku moana	<i>Egretta novaehollandiae</i>	Not Threatened				Light Green	Light Green	Dark Green		
Welcome swallow Warou	<i>Hirundo n. neoxena</i>	Not Threatened				Dark Green	Light Green			
Swamp harrier Kāhu	<i>Circus approximans</i>	Not Threatened				Dark Green				

SPECIES - Robertson et al. 2012	Scientific Name	CONSERVATION STATUS - Robertson et al. 2021	Native forest	Exotic Forest	Scrub / shrubland	Farmland / open country	Freshwater / wetlands	Coastal / Estuary	Oceanic	Urban/Residential
Spur-winged plover	<i>Vanellus miles novaehollandiae</i>	Not Threatened				■	■			
Silvereye Tauhou	<i>Zosterops lateralis lateralis</i>	Not Threatened	■	■	■					■
Shining cuckoo Pīpīwharauaroa	<i>Chrysococcyx l. lucidus</i>	Not Threatened	■		■					
Sacred kingfisher Kōtare	<i>Todiramphus sanctus vagans</i>	Not Threatened	■		■		■			
Purple swamphen Pūkeko	<i>Porphyrio m. melanotus</i>	Not Threatened				■	■			
Pied stilt Poaka	<i>Himantopus h. leucocephalus</i>	Not Threatened				■	■	■		
Paradise shelduck Pūtangitangi	<i>Tadorna variegata</i>	Not Threatened				■	■			
North Island tomtit Miromiro	<i>Petroica macrocephala toitoi</i>	Not Threatened	■	■	■					
North Island fantail Pīwakawaka	<i>Rhipidura fuliginosa placabilis</i>	Not Threatened	■	■	■					■
New Zealand wood pidgeon Kererū	<i>Hemiphaga novaeseelandiae</i>	Not Threatened	■	■	■					
Parsons bird Tui	<i>Prostemadera novaeseelandiae</i>	Not Threatened	■	■	■					
Morepork Ruru	<i>Ninox n. novaeseelandiae</i>	Not Threatened	■	■	■	■				
Grey warbler Riroriro	<i>Gerygone igata</i>	Not Threatened	■	■	■					■
Grey teal Tētē-moroiti	<i>Anas gracilis</i>	Not Threatened				■	■	■		
Australasian shoveler	<i>Spatula rhychotis</i>	Not Threatened					■	■		
Black-backed gull Karoro	<i>Larus d. dominicanus</i>	Not Threatened				■		■		
Australasian gannet	<i>Morus serrator</i>	Not Threatened						■	■	
Black swan Kākīānau	<i>Cygnus atratus</i>	Not Threatened				■	■	■		
Bellbird Korimako	<i>Anthornis m. melanura</i>	Not Threatened	■	■	■					■

Appendix 2: Tree Species List

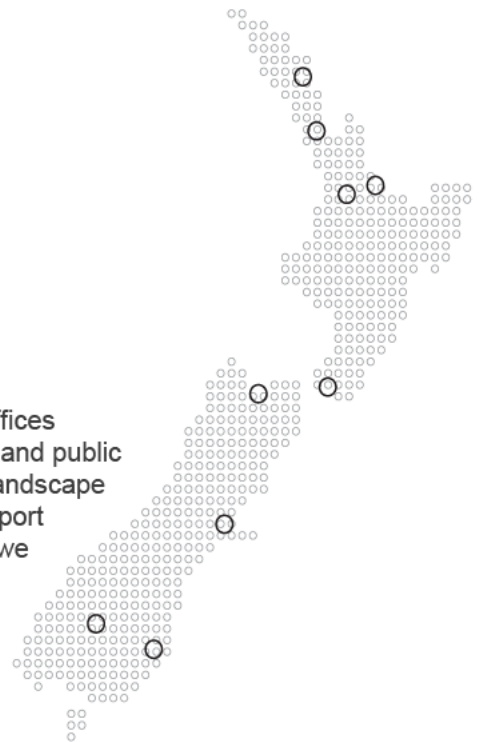
Common Name	Scientific Name	Conservation Status (DOC 2024, 2023, National Pest Plant Accord species 2020)
Crack willow	<i>Salix fragilis</i> × <i>S. euxina</i>	Environmental weed, NPPA pest plant
African boxthorn	<i>Lycium ferocissimum</i>	Environmental weed
Casuarina sp.	-	Exotic
Cypress sp.	-	Exotic
Elm sp.	-	Exotic
Eucalyptus sp.	-	Exotic
Kohuhu / black matipo	<i>Pittosporum tenuifolium</i>	Native – Not Threatened
Kowhai	<i>Sophora microphylla</i>	Native – Not Threatened
Macrocarpa	<i>Cupressus macrocarpa</i>	Environmental weed
Manuka	<i>Leptospermum scoparium</i>	Native – Not Threatened
Maple sp.	-	Exotic
Melia	<i>Melia azedarach</i>	Exotic
Mimosa	<i>Albizia julibrissin</i>	Exotic
Monkey Apple	<i>Syzygium smithii</i>	Environmental weed, NPPA pest plant
Olive sp.	-	Exotic
Oriental raisin tree	<i>Hovenia dulcis</i>	Exotic
Poplar sp.	-	Exotic
Radiata pine	<i>Pinus radiata</i>	Environmental weed
Silver birch	<i>Betula pendula</i>	Environmental weed
Southern magnolia	<i>Magnolia grandiflora</i>	Exotic
Sycamore sp.	-	Exotic
Totara	<i>Podocarpus totara</i>	Native – Not Threatened

Appendix 3: Stormwater Management Concept (Urban Acumen)



Together. Shaping Better Places.

Boffa Miskell is a leading New Zealand environmental consultancy with nine offices throughout Aotearoa. We work with a wide range of local, international private and public sector clients in the areas of planning, urban design, landscape architecture, landscape planning, ecology, biosecurity, Te Hīhiri (cultural advisory), engagement, transport advisory, climate change, graphics, and mapping. Over the past five decades we have built a reputation for creativity, professionalism, innovation, and excellence by understanding each project's interconnections with the wider environmental, social, cultural, and economic context.



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