Boffa Miskell

Otaihanga Retirement Village

DRAFT Lizard Management Plan for Wildlife Approval Application

Prepared for Summerset Villages (Paraparaumu) Ltd

30 October 2026



Boffa Miskell is proudly a
Toitū net carbonzero certified consultancy

Document Quality Assurance

This document may be cited as:

Boffa Miskell Limited 2026. *Otaihanga Retirement Village: DRAFT Lizard Management Plan for Wildlife Approval Application*. Report prepared by Boffa Miskell Limited for Summerset Villages (Paraparaumu) Ltd.

For any information regarding this report please contact:

Ellen Richardson | Ecologist | Graduate | ellen.richardson@boffamiskell.co.nz

Revision /version:	Issue date:	Prepared by:	Description:	Reviewed by:
Draft V1	12/10/2025	Ellen Richardson Ecologist / Graduate	Preliminary draft report for client comment	Amanda Healy Ecologist / Associate Principal
Draft V2	30/10/2026	Ellen Richardson Ecologist / Graduate	Draft report incorporating feedback from client	

Approved for issue:

Release and Reliance

This report has been prepared by Boffa Miskell Limited on the instructions of our Client, in accordance with the agreed scope of work. It is intended to support the Client's application under the Fast-track Approvals Act 2024 and 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 report, it does not accept liability for any use of the report 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.

File name & Project number: BM261315_Paraparaumu_Summerset_LMP_DRAFT_V2_20261018.docx, BM261315

Template revision: 20230505 0000

Executive Summary

Please note this Lizard Management Plan (LMP) is a draft version, details on the proposed release site remain to be finalised.

Summerset Villages (Paraparaumu) Limited (SVL) are proposing to develop and operate a comprehensive care retirement village in Otaihanga, Paraparaumu through the Fast-track Approvals Act 2024 ("FTAA").

This LMP describes the management of native lizards within the Project Site, an area of approximately 12.7 ha at 65 and 73 Ratanui Road. This plan is informed by a lizard survey carried out by a Boffa Miskell ecologist in 2026. This report provides the information required for a Wildlife Approval application under the FTAA.

A Wildlife Approval is required for the capture and relocation of native lizards for the purpose of protecting lizards within the Project Site. This report describes:

- The native lizard species confirmed to be and potentially present in the Project Site
- An assessment of potential effects on native lizards
- Measures to avoid and minimise / mitigate these impacts (including through capture and relocation) in areas of potential lizard habitat
- Methods to prepare the release site and capture, temporarily hold and relocate lizards.

The Wildlife Approval checklist (Checklist E) is provided in Appendix 1 to guide the reader to relevant sections of this Management Plan.

A lizard survey throughout the site was conducted in September and October 2026. Northern grass skinks were detected. The Project Site is highly modified with a history of disturbance, and agricultural practices since the 1990s. With this site history, the potential for lizards other than the northern grass skink to persist across the Project Site is very low, even where habitat is present.

The proposed lizard management to capture and salvage lizards is focused on all areas of potential lizard habitat throughout the site, including rank grass, pampas, shrubland edges, log piles, slash piles and manmade debris.

The level of effect of removing potential habitat features within the Project Site on the size or viability of local lizard populations is assessed as low, as these are already fragmented habitats subject to routine disturbance from livestock grazing. Potential effects on non-threatened lizard fauna can be mitigated and minimised through salvage of individuals within the identified potential habitats.

CONTENTS

Executive Summary i

1.0 Introduction 1

2.0 Purpose of the proposed activity (s7, cl 2(1)(a) and (i) of the FTAA) 1

3.0 Actions to be carried out and locations in which the activity will be carried out (s7, cl 2(1)(b) of the FTAA) 2

- 3.1 Actions to be carried out 2
- 3.2 Site Location, History and Context 2

4.0 Assessment of the activity against the purpose of the Wildlife Act 1953 (s7, cl 2(1)(c) of the FTAA) 3

5.0 Lizard Values 5

- 5.1 Survey records(s7, cl 2(1)(d) of the FTAA) 5
- 5.2 BioWeb records 8
- 5.3 Lizard habitats within the site 9

6.0 Effects on lizards 9

- 6.1 Numbers impacted and effects (s7, cl 2(1)(c) and (e) of the FTAA) 9
- 6.2 Potential effects of the proposed activity (s 7, clause 2(1)(e) and (j) of the FTAA) 10

7.0 Methods for management (s7, cl 2(1)(g) and (k) of the FTAA) 13

- 7.1 Overview s7, cl 2(1)(f) of the FTAA) 13
- 7.2 Approach 13
- 7.3 Avoid 13
- 7.4 Minimise 14
- 7.5 Lizard release site 16
- 7.6 Incidental discovery protocol 17
- 7.7 Reporting 18
- 7.8 Post-release monitoring 18

8.0 Wildlife Act offences (s7, cl 2(1)(l) of the FTAA) 19

9.0 Consultation (s7, cl 2(1)(n) of the FTAA) 19

10.0 References 19

Appendices

Appendix 1: Wildlife Approval checklist E

Appendix 2: Survey Locations

Appendix 3. Ecological effects assessment framework

1.0 Introduction

Summerset Villages Limited is seeking approvals through the Fast-track Approvals Act 2024 ("FTAA") to develop and operate a comprehensive care retirement village on approximately 12.7 ha of land at 65 and 73 Ratanui Road in Otaihanga, Kāpiti Coast.

The development is expected to comprise a mix of independent living villas, cottages, and a central village hub with associated amenities and care facilities and will include the construction of residential buildings, internal roads, parking areas, communal facilities, three waters infrastructure, landscaped open spaces and stormwater management areas. The site will also incorporate significant stormwater and wetland features as part of the overall village design.

This draft Lizard Management Plan (LMP) is provided to inform the Project substantive application under the Fast Track Approval legislation, and specifically the application for a Wildlife Approval under Schedule 7, clause 2 of the FTAA. This application seeks approval to capture, temporarily hold and relocate, and kill native lizard species. Lizards present on the site (northern grass skink) are classified as Not Threatened.

This document follows the format of the Wildlife Approval checklist (Checklist E) to ensure that all required information is provided. The Wildlife Approval Checklist is also provided in Appendix 1 to assist the reader.

This report should be read in conjunction with the Substantive Application and its appendices.

2.0 Purpose of the proposed activity (s7, cl 2(1)(a) and (i) of the FTAA)

Summerset Villages (Paraparaumu) Limited seeks a wildlife approval to:

- **capture, temporarily hold and relocate** lizards prior to site clearance works for the purpose of protecting animals within the works footprint; and
- **incidentally kill** lizards, recognising that trapping / handling activities carry some risk of injury or mortality, and that any remaining undetected lizards may also incidentally be killed during site works.

The approach to the management of native lizards within the Project Site prior to, and during works, is described within this report.

Summerset seeks that the duration of the wildlife approval be **10 years** to ensure that that the term of the approval adequately covers the initial stages of the development and to account for any unforeseen delays.

The requested term is **1 January 2027 – 1 January 2037**.

3.0 Actions to be carried out and locations in which the activity will be carried out (s7, cl 2(1)(b) of the FTAA)

3.1 Actions to be carried out

The specific actions proposed involving protected wildlife are:

- capturing lizards using pitfall / funnel traps and by hand;
- handling lizards to identify species, measure and photograph them;
- releasing lizards into a prepared release site; and
- incidental killing of lizards that could not be captured.

Catching and handling actions are to occur within the Project Site.

3.2 Site Location, History and Context

3.2.1 Location (s7, cl 2(1)(h) of the FTAA)

The Otaihanga Retirement Village Site is 12.7 ha in size and currently located across both 65 and 73 Ratanui Road in Otaihanga, Paraparaumu (Map 1). The Site is currently comprised of an implement shed, approximately 17 paddocks of exotic grassland, one large pond in the southern half of the site and 20 potential wetland features in dune hollows across both properties. The approximate centre of the Project Site is located at -40.886374 latitude, 175.011223 longitude.

The proposed lizard release site is to be confirmed.

3.2.2 Site history

Historically, the proposed village site has been used for agriculture, primarily livestock grazing. Small-scale, localised removal of exotic trees and shelterbelts have occurred over the last seven years. Specifically, the removal of a small area of trees around the residential properties in 2019, around the southern wetland and pond in 2022 and along the eastern fenceline in 2023. Approximately nine woody debris / slash piles were created following the works in 2023, all of which have remained undisturbed since.

The owner of the property created the southern pond prior to 2024 after digging out the pond from a shallow depression in what was a dairy paddock. Exposed pond edges were then planted with native species and fenced off from livestock.

The present-day site is highly modified and has changed little over the last 25 years. It is predominantly grazed exotic grassland, which is routinely grazed by a small number of cattle and sheep. Animals are rotated through the paddocks every 4-6 weeks.

3.2.3 Vegetation cover and features

Woody vegetation is sparse throughout the site and concentrated along the western fenceline, surrounding the southern pond and wetland and sparsely scattered throughout the paddocks. Trees are largely exotic pine, blackwood, cypress and willow. The few native species are in the driveway gardens of 65 Ratanui Road and surrounding the southern pond and include *Coprosma* sp., karo, cabbage tree, pittosporum, pōhuehue, akeake and large harakeke. Pampas are also present.

Blackberry, boxthorn, rank pasture grasses and common weeds dominate the sand dunes along the northern fenceline and the most south-eastern wetland.

Small areas of rank grassland are present throughout the site including either side of the fenced drain that dissects the site, along fencelines, within blackberry and surrounding woody debris piles, particularly in the southern half of the Site.

The Project Site also contains multiple wetlands and manmade debris (including corrugated iron sheets).

Vegetation cover and features that provide suitable lizard habitat are described in Section 5.3.

4.0 Assessment of the activity against the purpose of the Wildlife Act 1953 (s7, cl 2(1)(c) of the FTAA)

The primary purpose of the Wildlife Act 1953 (“Wildlife Act”) is the protection of wild animals.

The activities subject to wildlife approval are consistent with the protective purpose of the Wildlife Act, as protection of lizards is achieved through:

- capturing and relocating lizards in habitat clearance areas prior to vegetation removal activities and earth working; and
- preparation of a lizard release site with habitats designed to support lizards, and pest control to suppress predators.



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.

Boffa Miskell

www.boffamiskell.co.nz

0 50 m

1:3,000 @ A4

PARAPARAUMU SUMMERSET

Site Location

Date: 19 October 2026 | Revision: 0

Plan prepared by Boffa Miskell Limited

Project Manager: Antony.Kusabs@boffamiskell.co.nz | Drawn: HCo | Checked: ERi

Map 1

5.0 Lizard Values

5.1 Survey records[1] (s7, cl 2(1)(d) of the FTAA)

Lizard surveys using pitfall traps, tracking tunnels and CritterPic units were undertaken by a Boffa Miskell ecologist in September and October 2026 in weather conditions where lizard activity was expected. A total of 75 pitfall traps, 20 tracking tunnels and 10 Critter Pic units were installed on September 9.

Pitfall traps were baited with pear on September 28 and checked daily for two days. CritterPic units were baited with pear, mango puree and gummy confectionery on September 9 and remained active for four weeks.

16 tracking tunnels cards were deployed and baited with pear at the time of installation. Cards were replaced three weeks later on September 29 and collected again six days later. An additional four tracking tunnels were deployed on September 9; one beside a residential property and three around the south-eastern blackberry wetland.

Monitoring tools targeted all potential lizard habitat types including slash piles, rank grass, shrubland edges, log piles and manmade debris. The locations of the monitoring tools are shown in Map 2. The habitat types available within the Project Site were assessed as unsuitable for native arboreal gecko populations and no targeted gecko surveys were undertaken as part of this assessment.

Visual searches were undertaken daily alongside trap checks and included slowly moving around the edges of rank grassland scanning for emerged skinks in between checking traps.

Captured lizards were temporarily marked with a water-based, xylene-free POSCO pen and the species, sex, reproductive condition and morphometrics (snout-vent length (SVL), vent-tail length (VTL) and tail regeneration) were recorded.

5.1.1 Results

Weather conditions during the trapping period were considered to be suitable for lizard activity, either sunny or partially sunny with a high of 14 °C. Tracking tunnels and CritterPic units were active for four weeks. During this period, lizard activity was expected on 10 of the 28 days (sunny or partially sunny with a high of 14 °C).

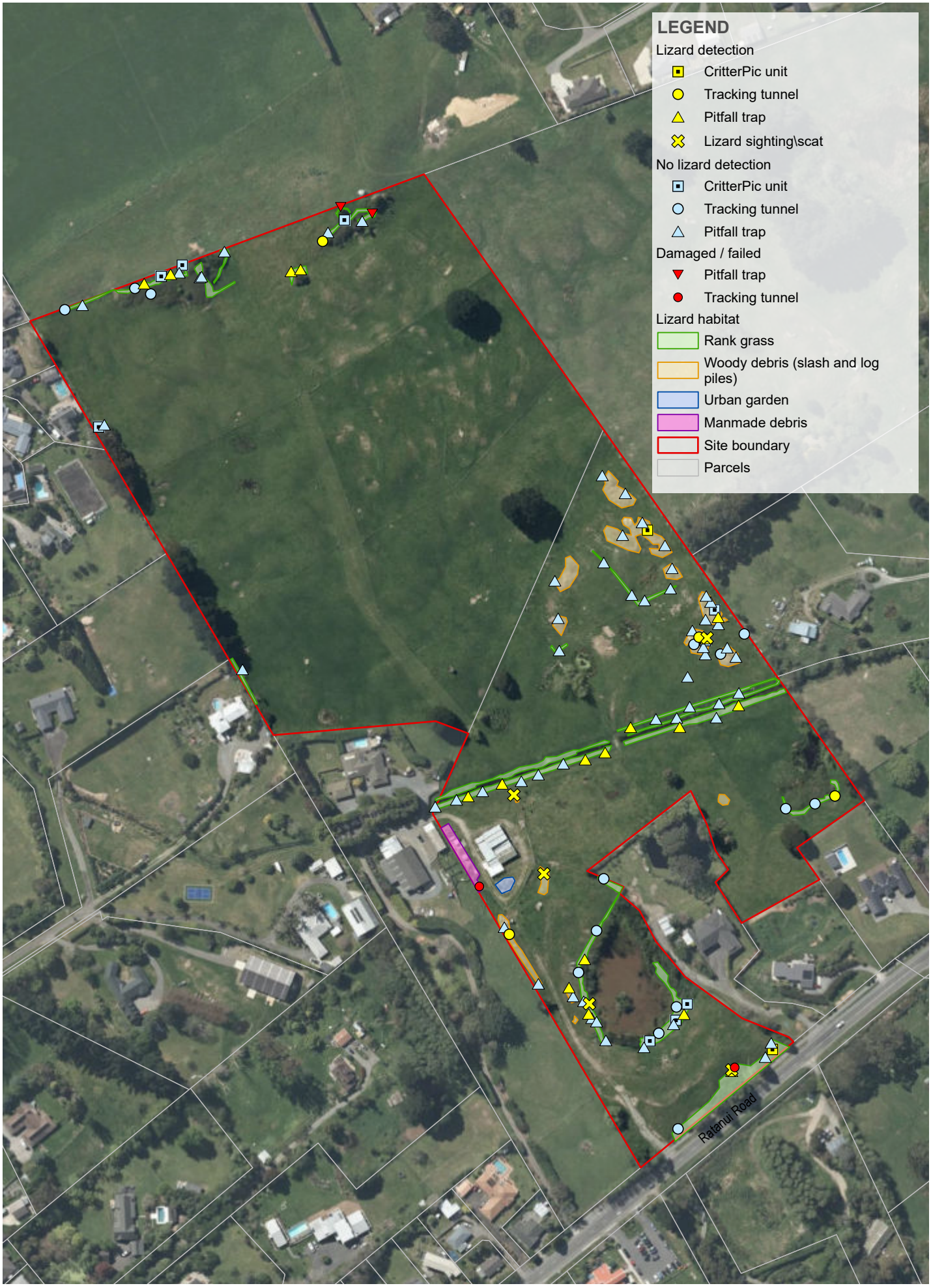
During the survey period, two pitfall traps and three tracking tunnels were damaged by cattle or tampered with. In total, 73 pitfall traps and 17 tracking tunnels were successfully deployed.

Northern grass skink (*Oligosoma polychroma*), listed as Not Threatened, was the only lizard species detected during the survey. In total, eight lizards were detected underneath an ACO, 17 lizards were captured during trapping, two lizards were detected on CritterPic units and lizard

[1] Principle 1 of the 9 Principles of Lizard Salvage.

prints were detected on six tracking cards from four tracking tunnels. Two lizards were detected during visual surveys. Lizard scat was detected at four locations.

Of the 39 detections, 30 lizards were identified as individually distinct and included five juveniles, 11 females (eight of which were gravid) and one male. The remaining 13 lizards were mis-captured or detected through passive methods that do not allow identification (e.g. scat and tracking tunnel prints). The location of skink captures are shown on Map 2.



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.

Boffa Miskell

www.boffamiskell.co.nz

0 50 m

1:3,000 @ A4

PARAPARAUMU SUMMERSET

Lizard Survey

Date: 19 October 2026 | Revision: 0

Plan prepared by Boffa Miskell Limited

Project Manager: Antony.Kusabs@boffamiskell.co.nz | Drawn: BMc | Checked: ERi

Map 2

5.2 BioWeb records[2]

Lizards are cryptic and difficult to detect, particularly at low densities and in the presence of predators. The DOC BioWeb database serves as a repository for amphibian and reptile distribution data in New Zealand, that includes verified historical and current records from SpecCard and ARDS (Amphibian and Reptile Distribution Scheme) datasets.

The database was accessed on September 6, 2026. Records of native lizard sightings within 20 km of the Project Site (excluding Kāpiti Island) were retrieved. Data older than 20 years was excluded from analysis because they are not considered representative of the likely lizard fauna within the Project Site.

The species identified are considered taxa potentially present within the Project Site, while recognising that BioWeb records reflect observer expertise and the level of search effort in an area. Northern grass skinks (*Oligosoma polychroma*) were observed during the lizard surveys. They are widely dispersed throughout the Wellington region, occupying modified habitats where un-managed / rank grass or cover objects are present.

The BioWeb Database holds records for seven native lizard species within 20 km of the Project Site (Table 1). Of the species recorded, only one species (northern grass skink) is likely to be present within the Project Site given the existing vegetation cover and disturbance history of the area, as this species is widespread and more typically found in modified habitats.

Copper skink, glossy brown skink and raukawa gecko could also be present with woody debris throughout the Project Site providing suitable cover. However, their presence is considered less likely due to the limited contiguous surrounding habitat capable of harbouring source populations. Only the northern grass skink was detected during the lizard survey.

Table 1. Native lizard records within 20 km of the Project Site and species' habitat preferences. Excluding records from Kapiti Island. Conservation status and nomenclature follows (Hitchmough et al., 2026).

Species	Threat classification	Habitat (Van Winkel et al., 2018)	Distance of closest record	Number of records
Northern grass skink (*Oligosoma polychroma*)	Not Threatened	Dry open areas with low vegetation or debris e.g. logs or stones for cover	On site	9
Ornate skink (*Oligosoma ornatum*)	At Risk - Declining	Scrub and other densely vegetated areas in forests, leaf litter, thick rank grass, rocks or logs	4.2 km (2013)	2
Copper skink (*Oligosoma aeneum*)	At Risk – Declining	Open and shaded areas where sufficient cover is available (e.g. forests, rock piles, logs, dense vegetation)	7.1 km (2013)	2
Glossy brown skink (*Oligosoma zelandicum*)	At Risk – Declining	Slightly shaded or densely vegetated and damp areas of mature forest, scrub, grassland, gardens, and coastlines	18.9 km (2012)	1
Raukawa gecko (*Woodworthia maculata*)	Not Threatened	Forest (beech and broadleaf), scrub, grassland, and rocky coastal areas	13.5 km (2018)	5

[2] Principle 1 of the 9 Principles of Lizard Salvage: Lizard species' values and site significance must be assessed at both the development and receiving sites.

Ngahere gecko (*Mokopirirakau* sp. 'Southern North Island')	At Risk – Declining	Mature forest and scrub, especially kanuka/manuka, beech, podocarp and broadleaf forest and creviced clay banks	4.3 km (2022)	3
Barking gecko (*Naultinus punctatus*)	At Risk - Declining[3]	Forest and scrub, especially kanuka/manuka	4.3 km (2020)	4

5.3 Lizard habitats within the site

Lizard habitats within the Site include:

- areas of rank grassland amongst blackberry patches, shrubland edges, wetlands, woody debris piles and fencelines throughout the site;
- pampas and Harakeke surrounding a large pond in the southern half of the Site;
- Woody debris piles including slash and log piles
- Manmade debris including corrugated iron sheets and large cover objects
- Native woody vegetation surrounding the southern pond

Photos of survey locations are provided in Appendix 2, and vegetation cover is illustrated in Map 2.

Lizard surveys confirmed northern grass skink occupy all terrestrial lizard habitat types. It is less likely that other terrestrial lizards, less tolerant to disturbance are present within the Project Site and they were not detected in the recent survey.

Whilst the native woody species within the Project Site (*Coprosma* sp., karo, cabbage tree, pittosporum (*Pittosporum ralphii*) and pōhuehue) can support the Barking gecko, the extent of potential lizard habitat is small and given the historical disturbance throughout the Site, the likelihood of arboreal lizards being present is very low.

6.0 Effects on lizards

6.1 Numbers impacted and effects[4] (s7, cl 2(1)(c) and (e) of the FTAA)

6.1.1 Description of proposed works

The development is expected to comprise a mix of independent living units, cottages, and a central village hub with associated amenities and care facilities. This will involve the construction

[3] The barking gecko is also classified as Regionally Threatened in Wellington (Crisp, 2020).

[4] Principle 2 of the 9 Principles of Lizard Salvage: Actual and potential development-related effects and their significance must be assessed.

of residential buildings, internal roads, parking areas, communal facilities, three waters infrastructure, landscaped open spaces and stormwater management areas. The site will also incorporate stormwater and wetland features as part of the overall village design.

The activities within the Project Site that may impact lizards, are described in the substantive application report (refer Section 7: Description of Proposed Activity), and include:

- Vegetation clearance
- Cut and fill earthworks to shape and stabilise the ground prior to construction
- Installation of underground services
- Development of the site will occur in stages over multiple years

6.1.2 Numbers impacted

Following the 2026 lizard survey, northern grass skinks are known to occupy a range of lizard habitats (rank grass, woody debris and manmade debris) including small pockets of available cover throughout the Project Site.

Approximately 5 ha of suitable lizard habitat will be cleared as part of the proposed works. Evidence suggests that grass skinks can reach densities of 4000 per hectare in the wild. However, suitable lizard habitat is only available throughout the Site in small fragments (ranging from 7 m^2 to 660 m^2 in size) and rank grass habitats (which account for up to 68 % of the available lizard habitat) are frequently grazed by livestock.

We **estimate that between 100 and 300 skinks will be impacted by the proposed development.** Arboreal lizards are very unlikely to be present within the site.

This assessment presumes current land management, and vegetation cover remains much the same until vegetation is cleared. If lizard habitats develop in areas adjacent to the lizard habitat areas shown in Map 2, prior to activities commencing, the extent of lizard habitat may need to be reassessed.

6.2 Potential effects of the proposed activity (s 7, clause 2(1) (e) and (j) of the FTAA)

6.2.1 Assessment of Ecological Values and Effects

To determine the level of ecological effects associated with the Project, we have followed the EIANZ EcIA guidelines (Roper-Lindsay et al., 2018) to determine the ecological value of species potentially present within the Project Site (Appendix 3; Table 4), the magnitude of impact of the proposed works (Appendix 3, Table 5) and the level of ecological effect based on a decision matrix of ecological value and magnitude of impact (Appendix 3, Table 6). Further details are provided in Appendix 3.

The following effects (both direct and indirect) were considered for this assessment:

- Injury or death during construction
- Habitat loss and fragmentation
- Habitat degradation / disturbance
- Residual effects

Effects on lizards have been assessed at a **local population scale**, i.e., lizards within the impact sites and surrounding areas.

6.2.2 Habitat loss and fragmentation

Lizard habitat within the Project Site consists of small fragments (ranging from 7 m^2 to 660 m^2 in size). Collectively, approximately 5 ha of suitable lizard habitat will be cleared as part of the proposed works. Adjacent habitats that will be retained include rank grassland on the outer edge of fencelines, roadsides and neighbouring areas of forest, shrubland and urban gardens.

Following development, areas surrounding the edge of the retirement village will be planted. This may provide lizard habitat.

Given how fragmented the existing areas of potential lizard habitat are, the magnitude of the effect of removal of identified potential lizard habitats throughout the Project Site is assessed as Low. Any lizards present are subject to intermittent habitat disturbance from grazing and uncontrolled predators. Northern grass skinks are classified as 'Not Threatened' and have Low ecological value. The level of effect of habitat removal on Northern grass skinks is **Very Low** (Appendix 2, Table 8).

The potential magnitude of effect of habitat fragmentation is assessed as Negligible, based on all lizard habitats being removed rather than isolating pockets of habitat. The level of effect of habitat fragmentation on northern grass skinks is **Very Low.**

6.2.3 Injury, death or disturbance during vegetation clearance

In the absence of management, habitat clearance may result in the death of, or displacement of, lizards into the surrounding sparse vegetation directly adjacent to the Project Site, which is predominantly grazed exotic pasture with small areas of rank grassland with a presumed low carrying capacity for lizards.

Lizards are particularly vulnerable to injury and mortality during vegetation clearance because they are visually and behaviourally cryptic (hiding under cover when disturbed), have low mobility (especially in cooler temperatures), and are inactive for parts of the year.

If lizards are present, injury and death of any resident lizards in habitat patches during vegetation removal is likely in the absence of management, though the magnitude of effect on the overall abundance or viability of remaining meta-populations is Moderate, given the confirmed presence of northern grass skinks throughout the Site. The level of effect of injury or death during vegetation clearance at a meta-population scale is **Low**.

6.2.4 Noise, dust and vibrations

Disturbance and sub-lethal stress to lizards during earthworks and construction, such as noise, dust and vibrations, may impact individual skinks. These may impact typical behaviours of lizards such as foraging or basking. Given works will be staged over several years (at least six years), the effects of noise, dust and vibrations will be long term, but intermittent (variable in duration and frequency). The magnitude of effect on lizards from increased noise, dust and vibrations is assessed as Low, and the overall level of effect **Very Low.**

6.2.5 Summary of potential effects

The proposed management methods to address these impacts are summarised in Table 2 and described in detail in Section 7.0.

Table 2: Summary of effects management for lizards.

Effect	Management method
Habitat loss and fragmentation	Habitat loss is a certainty if lizards are present. With a very low level of effect, management is not required.
Injury, death and disturbance during construction	Lizard salvage will be undertaken in all potential habitat areas prior to clearance. Lizards will be captured and relocated to a prepared release site using standard salvage and relocation methods by a suitably qualified and experienced ecologist(s).
Noise, dust and vibrations	With a very low level of effect, this effect does not require management.
Lizard release site: pest control	Pest control is proposed at the release site, as described in Section 7.5 of this report. **Details to be confirmed.**

7.0 Methods for management (s7, cl 2(1)(g) and (k) of the FTAA)

7.1 Overview s7, cl 2(1)(f) of the FTAA)

As described below, lizard management will follow best practice standards provided in Department of Conservation guidance documents. These include methods to survey and capture lizards (DOC 2012) and follow the 'Principles for Lizard Salvage Translocations' (DOC 2019) and 'Guidance for lizard habitat clearance' (DOC 2023).

It is not possible for the proposed works to avoid all potential lizard habitat. The rationale for lizard salvage as a management tool is provided in Section 7.4. This addresses Principle 3 of the 9 Principles of Lizard Salvage, "alternatives to moving lizards must be considered".

7.2 Approach

The lizard management for this project is based on the 2026 lizard survey findings (Section 5.1) and the lizard habitat assessment (described in Section 5.3), which determined northern grass skinks occupy rank grass and woody debris habitats throughout the Project Site. The management approach prior to any clearance will involve:

1. Preparation of a suitable release site including:
    - Pest control
    - Habitat enhancement
2. Pre-clearance salvage within habitats known to be occupied and likely to be occupied by lizards including:
    - Pitfall and funnel trapping
    - Artificial cover objects
    - Manual searches
3. Supervised clearance of vegetation and woody debris piles
4. Relocation of salvaged lizards to the prepared release site

7.3 Avoid

It is not possible to avoid impacts on lizards within the Project Site as the proposed development will remove all of the vegetation within the Project Site.

7.4 Minimise

7.4.1 Lizard salvage

Any lizard salvage will occur between October to April and will be undertaken in fine weather conditions between 14- 25 °C.

7.4.2 Methods of lizard salvage[5]

Lizard salvage tools are consistent with the DOC Biodiversity Inventory and Monitoring Toolbox (DOC 2012). Methods include:

Live trapping using pitfall or mesh funnel traps:

Transects and/or grids of traps will be installed throughout each habitat that will be subject to vegetation clearance. Pitfall traps will be installed in combination with Onduline artificial retreats (ARs), at roughly 10m intervals in close proximity to habitat features to ensure that a trap is located within the home range of as many terrestrial lizards in the area as possible.

Pitfall traps consist of a four-litre bucket that is dug into the ground so that the lip of the bucket sits flush with the soil surface (or slightly below). Buckets have small puncture holes at the base to allow water to drain through (ensuring lizards won't drown in case of heavy rain). A single Onduline tile or wooden panel will be used to cover each pitfall trap and will be anchored down using pegs or weighed down using a rock or log. Traps will contain a damp sponge or moss, and pear or banana bait as well as leaves / grass for cover.

Mesh funnel traps will be filled with grass (to provide cover for trapped lizards), a piece of damp sponge or moss and pear or banana bait. Traps will be placed in shaded areas or covered in vegetation to prevent lizards overheating.

Pitfall traps and AR or wooden panel covers will be installed at least 6 weeks in advance of trapping, although traps will be non-operational. Funnel traps will be installed on the first day of the salvage period.

Once opened, all traps will be inspected daily within 12 hours of sunrise in suitable weather for five trap days (six days total). If the daily number of lizards captured is still high (>10 individuals) by day 5, the salvage period will be extended for another five consecutive days.

Lizard trapping will cease in any area where lizards are not captured for 3 consecutive days.

Artificial retreats (ARs):

ARs will be installed in combination with Pitfall traps. ARs will be deployed as double-layered stacks and targeted to vegetation and micro-sites that represent potential terrestrial lizard habitat such as pampas tussocks, wood debris and slash piles.

This tool requires at least a six-week lead in time for lizards to habituate to the novel items and begin utilising them as refuge. Following six weeks *in-situ*, ARs will be inspected daily for a

[5] Principle 5 of the 9 Principles of Lizard Salvage: Lizard salvage, transfer and release must use the best available methodology

minimum of five consecutive days. Appropriate weather / climate conditions will be targeted (mild weather) which may require early morning or late afternoon checks to maximise the likelihood of lizards being present.

Destructive manual searching:

Destructive manual searching for lizards will occur during the salvage period throughout identified lizard habitat at all sites. This will involve searching potential lizard refugia such as woody debris, leaf litter and any man-made debris.

Potential lizard refugia will be removed (and placed outside of the site) during the salvage to prevent skinks from recolonising.

Raking will be carried out in any areas of thick leaf litter and twiggy debris.

Supervised vegetation clearance:

Supervised clearance of all potential lizard habitat within the Project Site will be carried out within 48 hours of the completion of the lizard salvage under the supervision of the Project Herpetologist, in a way which reduces the likelihood of injury/death to any remaining lizards and allows for the capture of any lizard uncovered during clearance.

Vegetation clearance should be carried out where feasible by either:

- Manually trimming back the ground cover vegetation (e.g. using a weed eater or hand tools) to ≤10 cm tall to encourage lizards to disperse out of the area, and then moving the trimmings out of the clearance area, or;
- Slowly scraping back of the vegetation (either manually or with an excavator with a rake attachment), to allow any lizards to escape from the vegetation and be captured.
- Any pampas or flax should either be scooped out from the base and placed outside the footprint whole or should be dismantled and fully searched by the herpetologists.
- Woody debris (logs and slash) piles should be carefully dismantled by hand where possible.
- Machinery (with a bucket and thumb attachment) will be used to remove the top layers of slash that do not provide lizard habitat and any material that is unsafe or too heavy to move by hand. Lower levels of slash piles will be deconstructed by hand by two suitably qualified ecologists; one to carefully lift the material (with two hands, taking care not to crush anything beneath), and the other to watch for and capture lizards.
- All vegetation will be moved outside of the works footprint.
- Vegetation identified to provide potential arboreal lizard habitat (e.g. *Coprosma* sp., karo, cabbage tree, pittosporum and pōhuehue) should be hand felled and searched for lizards immediately after felling. Once searched, felled material should be placed outside the works site.

Top-down mulching **will not be used in identified lizard habitats**, as it does not allow opportunity for lizards to disperse from the area and may result in mortalities.

7.4.2.1 Lizard transport and release

Lizards will be held individually in cloth bags in a secure, vented container out of the sun. Lizards will be transported to the release site or captive holding facility and will not be held for more than 6 hours.

Lizards will be released into prepared habitats in the release site.

7.4.2.2 Risks and animal ethics considerations

Potential risks associated with the proposed management plan:

- *Overheating*: lizards will be placed in individual containers and kept in a cool place until released. Handling will be minimised to ensure they do not become stressed. All traps will be checked daily in the morning. Pitfall site selection, trap placement and equipment will follow the guidance of Turner et. al. (2024) to prevent elevated temperatures within the pitfall traps.
- *Overcrowding/competition*: overcrowding or competition at the release site is considered a risk. Additional habitat features will be added.
- *Injury/death*: lizards will be captured by a suitably trained herpetologist or individual. The LMP requires best practice and hygiene protocols to minimise the risk of injury, mortality or disease transmission.

Potential risks mentioned here will be minimised using an experienced herpetologist and suitably experienced field staff under the supervision of the herpetologist.

7.4.3 Adaptive Management

Minor flexibility or adaptations to the current methods proposed in this LMP may be made at the discretion of the Project Herpetologist. This will enable the appropriate management of lizard populations that are encountered during the lizard salvage within the site, habitat quality and type of species encountered.

7.5 Lizard release site [6]

This LMP is a draft vers ion. Two provisional options are proposed:

1. Queen Elizabeth Park, Paraparaumu. This site is approximately 8.5 km south of the Project Site; or
2. Mackay's to Peka Peka Expressway planting, located along the northern border of the Waikanae Summerset Retirement Village. This site is approximately 3.5 km east of the Project Site.

[6] Principle 6 of the 9 Principles of lizard salvage: Receiving sites and their carrying capacity must be suitable in the long term.

The following details are to be confirmed:

- Location and rationale.
- Assessment of the lizard release site based on Principle 6 of the Lizard Salvage Guidelines (Department of Conservation, 2019).
- Proposed habitat enhancements and / or pest control at the release site

7.5.1 Contingency actions [7]

Lizards can inhabit unlikely locations and sometimes be found in surprising abundance. Therefore, Table 3 identifies potential issues that could arise and contingency actions to address them.

Table 3: Proposed contingency actions.

Situation	Description	Contingency Action(s)
Higher number of lizards captured than expected	During the salvage, a higher number of lizards are being captured than expected or numbers of lizards in traps are not decreasing.	If the number of lizards captured by the 5th trapping day isn't declining, the salvage will be extended up to five additional days, subject to the Project Herpetologist.
Threatened or unexpected lizard species encountered	Threatened lizard species not previously considered or anticipated to occur onsite are found.	If encountered, the release site must be assessed to see if the unexpected species is suitable for release. The Project Herpetologist will contact DOC to inform them of the find and discuss an alternative release site if required.

7.6 Incidental discovery protocol

The following incidental discovery protocol (IDP) has been described for the scenario in which a lizard is discovered during works, outside of lizard salvage programme described above (e.g. after the salvage has been completed, or in areas that were not previously identified as habitat).

If a lizard is discovered:

- All activities in a 10 m radius must cease immediately around where the lizard was observed.
- The project herpetologist will be notified as soon as possible.
- If the lizard(s) is not at immediate risk but does not relocate out of the works area on its own, works in the area will halt until the herpetologist can arrive and salvage the lizard.

[7] Principle 9 of the 9 Principles of Lizard Salvage: Contingency actions are required when lizard salvage and transfer activities fail.

- If the lizard is at immediate risk of injury or death due to on-site activities, it will be salvaged by the construction team and placed into a container (with air holes, vegetation, and a damp sponge or cloth) until the herpetologist can arrive. The construction team will be briefed in advance on how to safely capture and hold a native lizard.
- If an injured lizard is found, the Project herpetologist must be contacted immediately for advice on how to proceed. DOC will also be notified of the finding.
- If the lizard is sighted, provide details such as:
    - Colouration and patterning.
    - Shape and size (e.g. robust or slender, approximate length).
    - Location it was found in.
- If an injured or deceased lizard is found, it should be photographed, and the Project Herpetologist must be contacted. The Project Herpetologist will then consult with DOC on how to proceed.

7.7 Reporting[8]

Lizard salvage outcomes will be reported by the Project Herpetologist to DOC (per requirements of the Wildlife Approval). Reports will be provided by 30 June for any lizard management that occurred in the preceding year. Reports will include how the Lizard Management Plan was implemented including any difficulties encountered with capture and handling, and what contingency actions were required. This report will also include:

- Species and number of animals released;
- Detailed maps of the capture and release location; and
- A description of the habitat quality and extent, survey effort and lizard survey results.

ARDS cards will be submitted to DOC by the Project Herpetologist within 1 month following the end of the salvage.

7.8 Post-release monitoring[9]

Post-release monitoring is not proposed as the release site will consist of contiguous habitat, within which lizards released are expected to disperse into making it very difficult to delineate the boundaries of post-release monitoring.

[8] Principle 7 of the 9 Principles of Lizard Salvage: Reporting is required to communicate outcomes of salvage operations and encourage process improvements.

[9] Principle 7 of the 9 Principles of Lizard Salvage: Monitoring is required to evaluate the salvage operation.

8.0 Wildlife Act offences (s7, cl 2(1)(l) of the FTAA)

The Substantive Application Report confirms that there is no criminal history or involvement in any pending criminal proceedings of the applicant, company director, trustee, partner and anyone else involved with the application, in respect of offences under the Wildlife Act.

9.0 Consultation (s7, cl 2(1)(n) of the FTAA)

Summerset Villages (Paraparaumu) Limited has undertaken consultation with mana whenua and the Department of Conservation for this Application, and specifically regarding management of lizards at the Project Site. Details are provided in the substantive application (refer Appendix 2).

10.0 References

Crisp, P. (2020). *Conservation status of indigenous lizard species in the Wellington region*. Greater Wellington Regional Council.

Department of Conservation. (2019). *Key principles for lizard salvage and transfer in New Zealand*. Prepared by the Department of Conservation Lizard Technical Advisory Group.

Hitchmough, R. A., Barr, B., Knox, C., Lettink, M., Monks, J. M., Patterson, G. B., Reardon, J. T., Van Winkel, D., Rolfe, J., & Michel, P. (2026). *Conservation status of New Zealand reptiles, 2025* (New Zealand Threat Classification Series No. 50). Department of Conservation.

Roper-Lindsay, J., Fuller, S. A., Hooson, S., Sanders, M. D., & Ussher, G. T. (2018). *Ecological impact assessment (EcIA). EIANZ guidelines for use in New Zealand: Terrestrial and freshwater ecosystems* (2nd ed.). Environment Institute of Australia and New Zealand.

Turner, M. K., Kelly, D., & Lettink, M. (2023). Effect of pitfall trap design on internal trap temperature and the implications for live-trapped lizards. *New Zealand Journal of Ecology*, *47*(1).

Appendix 1: Wildlife Approval checklist E

CHECKLIST E – Wildlife approval

This checklist must be completed if you are applying for an approval under section 42(4)(h) (wildlife approval). The substantive application must comply with these requirements. The checklist is designed to assist you in providing all the relevant information. If an application does not comply with all requirements, then the EPA must return it to the person who lodged it.

This checklist sets out the requirements in clause 2 of Schedule 7, unless they have already been addressed in the substantive form.

Clause, Schedule 7	Information required for an approval described in section 42(4)(h) (Wildlife Act approval), clause 2 of Schedule 7	Application Reference (Name of document, section and page)
2(1)(a)	Specify the purpose of the proposed activity	LMP, Section 2.0, pg 1
2(1)(b)	Identify the actions the applicant wishes to carry out involving protected wildlife and where they will be carried out (whether on or off public conservation land) *Guidance note: Under clause 2(2) if the substantive application is to be lodged by more than 1 authorised person, the reference to the applicant in subclause (1)(b) is to the authorised person who is identified in the application as the proposed holder of the wildlife approval.*	LMP, Section 3.0, pg 2
2(1)(c)	An assessment of the activity and its impacts against the purpose of the Wildlife Act	LMP, Section 4.0, pg 3 and Section 6.1, pg 9
2(1)(d)	List protected wildlife species known or predicted to be in the area and, where possible, the numbers of wildlife present and numbers likely to be impacted	LMP, Section 5.0, pgs 5 - 9
2(1)(e)	An outline of impacts on threatened, data deficient, and at-risk wildlife species (as defined in the New Zealand Threat Classification System)	LMP, Section 6.2, pg 10
2(1)(f)	A statement of how the methods proposed to be used to conduct the actions involving protected wildlife will ensure that best practice standards are met	LMP, Section 7.0, pg 13
2(1)(g)	A description of the methods to be used to safely, efficiently, and humanely catch, hold, or kill the animals and identify relevant animal ethics processes:	LMP, Section 7.0, pgs 13 - 18
2(1)(h)	A statement of the location or locations in which the activity will be carried out, including a map (and GPS co-ordinates if available)	LMP, Section 3.2.1, pg 2 and 4

2(1)(i)	A statement of whether authorisation is sought to temporarily hold or relocate wildlife	LMP, Section 2.0, pg 1
2(1)(j)	A list of all actual and potential wildlife effects (adverse or positive) of the proposed activity, including effects on the target species, other indigenous species, and the ecosystems at the site	LMP, Section 6.2, pg 10
2(1)(k)	Where adverse effects are identified, state what methods will be used to avoid and minimise those effects, and any offsetting or compensation proposed to address unmitigated adverse effects (including steps taken before the project begins, such as surveying, salvaging, and relocating protected wildlife)	LMP, Section 7.0, pgs 13 - 18
2(1)(l)	A statement of whether the applicant or any company director, trustee, partner, or anyone else involved with the application has been convicted of any offence under the Wildlife Act	LMP, Section 8.0, pg 19
2(1)(m)	A statement of whether the applicant or any company director, trustee, partner, or anyone else involved with the application has any current criminal charges under the Wildlife Act pending before a court	LMP, Section 8.0, pg 19
2(1)(n)	Provision of proof and details of all consultation, including with hapū or iwi, on the application specific to wildlife impacts	LMP, Section 8.0, pg 19
2(1)(o)	Provision of any additional written expert views, advice, or opinions the applicant has obtained concerning their proposal	Appendix 2 of the Substantive Application

Appendix 2: Survey Locations



Appendix 2. 1. Rank grassland and woody debris habitat types targeted by pitfall traps deployed either side of the drain dividing the Project Site (top left), around the large pond (top right), adjacent to slash piles (bottom left) and along the northern boundary (bottom right). Lizards were detected in all four of these locations.



Appendix 2. 2. Rank grassland and woody debris habitat types targeted by CritterPic units deployed around the large pond (top left), along the southern fenceline (top right – one lizard detected here), along the northern fenceline (bottom left) and adjacent to slash piles (bottom right) within the Project Site.



Appendix 2. 3. Rank grassland and woody debris habitat types targeted by tracking tunnels deployed around the large pond (top left), along the eastern fenceline (top right), adjacent to slash piles (bottom left) and along the southern fenceline (bottom right – lizards detected here) within the Project Site.

Appendix 3. Ecological effects assessment framework

As described in Section 6.2.1, this LMP has followed the EIANZ EcIA guidelines to determine ecological value, magnitude of impact, and level of impact, based on the following tables.

Table 4. Criteria for assigning ecological value to species (Roper-Lindsay et al., 2018).

Ecological Value	Species Classification
Negligible	Exotic species, including pests, species having recreational value.
Low	Nationally and locally common indigenous species.
Moderate	Species listed as any other category of *At Risk* (Recovering, Relict, Naturally Uncommon) found in the 'zone of influence' (ZOI) either permanently or seasonally; or Locally (ED) uncommon or distinctive species.
High	Species listed as *At Risk – Declining* found in the ZOI either permanently or seasonally.
Very High	*Nationally Threatened* (Nationally Critical, Nationally Endangered, Nationally Vulnerable) species found in the ZOI either permanently or seasonally.

Table 5. Criteria for describing magnitude of effect (Roper-Lindsay et al., 2018).

Magnitude	Description
Very High	Total loss of, or very major alteration, to key elements/ features of the baseline conditions such that the post development character/ composition/ attributes will be fundamentally changed and may be lost from the Site altogether; AND/OR Loss of a very high proportion of the known population or range of the element / feature.
High	Major loss or major alteration to key elements/ features of the existing baseline conditions such that the post-development character, composition and/or attributes will be fundamentally changed; AND/OR Loss of a high proportion of the known population or range of the element / feature.
Moderate	Loss or alteration to one or more key elements/features of the existing baseline conditions, such that post-development character, composition and/or attributes will be partially changed; AND/OR Loss of a moderate proportion of the known population or range of the element / feature.
Low	Minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible, but underlying character, composition and/or attributes of the existing baseline condition will be similar to pre-development circumstances/patterns; AND/OR Having a minor effect on the known population or range of the element / feature.
Negligible	Very slight change from existing baseline condition. Change barely distinguishable, approximating to the "no change" situation; AND/OR Having a negligible effect on the known population or range of the element / feature.

Table 6. Criteria for describing the level of effect (Roper-Lindsay et al., 2018).

		Ecological Value				
		Very High	**High**	**Moderate**	**Low**	**Negligible**
Magnitude	**Very High**	Very High	Very High	High	Moderate	Low
	High	Very High	Very High	Moderate	Low	Very Low
	Moderate	High	High	Moderate	Low	Very Low
	Low	Moderate	Low	Low	Very Low	Very Low
	Negligible	Low	Very Low	Very Low	Very Low	Very Low
	Positive	Net Gain	Net Gain	Net Gain	Net Gain	Net Gain

* For clarity, the wording associated with positive magnitudes of effect has been modified from "Net Gain" (as used in the EIANZ Guidelines) to "Positive" in this assessment. This avoids confusion between modelled or quantified ecological offsets (which may demonstrate a true net gain) and the qualitatively assessed positive effects identified through the EIANZ framework.

The EIANZ EcIA guidelines note that the level of effect can then be used as a guide to the extent and nature of the ecological management response required (including the need for biodiversity offsetting). For example:

- '**Very High**' represents a level of effect that is unlikely to be acceptable on ecological grounds alone (even with compensation proposals). Activities having very high adverse effects should be avoided.
- '**High' and 'Moderate**' represent a level of effect that requires careful assessment and analysis of the individual case. Such an effect could be managed through avoidance, design, or extensive offset or compensation actions.
- '**Low'** and '**Very Low**' should not normally be of concern, although normal design, construction and operational care should be exercised to minimise adverse effects. If effects are assessed taking impact management measures developed during project shaping into consideration, then it is essential that prescribed impact management is carried out to ensure low or very low-level effects.
- '**Very Low**' level effects can generally be classed as 'not more than minor' effects.

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.



www.boffamiskell.co.nz

Whangarei	Auckland	Hamilton	Tauranga	Wellington	Nelson	Christchurch	Queenstown	Dunedin
09 358 2526	09 358 2526	07 960 0006	07 571 5511	04 385 9315	03 548 8551	03 366 8891	03 441 1670	03 470 0460