



State Highway 1 Wellington Improvements

Lizard Management Plan

Prepared for

New Zealand Transport Agency Waka Kotahi

Prepared by

Tonkin & Taylor Ltd

Date

July 2026

Job Number

1099348.0000 v1.2



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Document control

Title: State Highway 1 Wellington Improvements – Lizard Management Plan					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
05/06/2026	1	Draft Lizard Management Plan	S. Mulcock	J. Mackay	J. Markham
01/07/2026	1.1	Draft Lizard Management Plan	S. Mulcock	J. Mackay	J. Markham
16/07/2026	1.2	Final LMP for Lodgement	S. Mulcock	J. Mackay	J. Markham

Distribution:

New Zealand Transport Agency Waka Kotahi

1 PDF copy

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1 electronic copy

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1 Introduction

The State Highway 1 (SH1) Wellington Improvements project (the Project) is a Road of National Significance (RoNS) which improves SH1 in Wellington City. The proposal includes the construction of improvements to SH1 within Wellington City, extending over 5 km through the city. The Project will provide for more efficient and reliable access on SH1 and includes duplicate tunnels at The Terrace and Mount Victoria, a new layout at the Basin Reserve as well as improvements along the remainder of the SH1 corridor from north of the Terrace Tunnel to the intersection of Cobham Drive and Evans Bay Parade. The Project aims to attract traffic onto SH1, reduce traffic on other key routes, unblock critical bottlenecks on the state highway, maintain access for local movements and enable public transport growth.

The 'Project area' as discussed in this plan is defined as all land within the Project Designation, including existing and proposed extensions to the designation, where works are proposed. An overview of these areas is provided in Figure 1.1 below. Refer to the General Arrangement drawings (SH1WI-DES-00-GEN-DRG-00010_00030) for detailed extent of works.

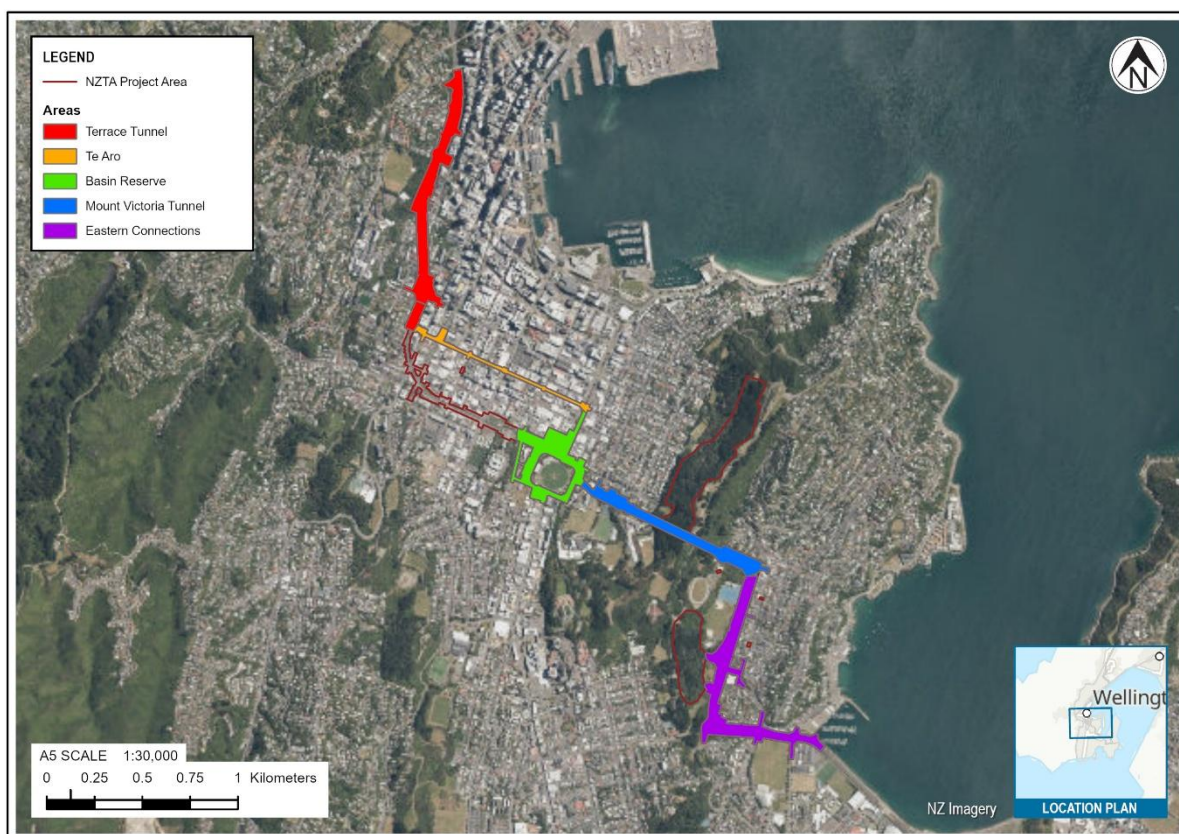


Figure 1.1: Overview of Project Areas.

A comprehensive background and Project description is provided in Parts A and B (Overview Document and Approvals sought under RMA) of the application for all necessary approvals under the Fast-Track Approvals Act 2024 (**FTAA**).

Detailed ecological assessments of the Project have been undertaken to support this application, provided as Technical Assessment Report #7 (Ecology – Terrestrial Ecology). Surveys have confirmed the following lizard presence:

- **Copper skink** (*Oligosoma aeneum*, At Risk – Declining) have been confirmed as present within the Mount Victoria Tunnel Project area (one copper skink was sighted during surveys).
- **Skink footprints** recorded during tracking tunnel surveys within the Mount Victoria Tunnel and Eastern Connections (Evans Bay outfall) Project areas, considered to be that of Northern grass skink (*Oligosoma polychroma*, Not Threatened) at the Evans Bay outfall and copper skink or Northern Grass Skink at Mount Victoria Tunnel based on nearby records and microhabitat at point of detection.

All indigenous lizards are protected under the Wildlife Act 1953, and appropriate management is therefore required.

1.1 Purpose and scope

A Wildlife Approval application report (Part C.1 – Application for Wildlife Authority (Lizards), which this LMP supports) has been prepared to inform this Fast Track Application and addresses specific requirements set out in Clause 2(1) of Schedule 7 of the FTAA. This LMP has been prepared to address lizard management requirements for the entirety of the Project, encompassing all project stages, with the purpose, goals, and objectives being to reduce the injury and mortality of lizards during Project Works and to provide the framework for the establishment of a suitable release site.

This LMP outlines the lizard ecological values across the Project areas, potential adverse effects on native lizards and recommended effects management actions in accordance with the effects management hierarchy as per the National Policy Statement for Indigenous Biodiversity 2023 (NPS-IB). This LMP also addresses the lizard ecological values, effects, and management across the proposed terrestrial offset areas (within the Wellington Town Belt), to be undertaken in association with the Project. The LMP includes the following key sections:

- Wildlife approvals sought under the FTAA (Section 1.3).
- Lizard ecological values (based on desktop assessment and site surveys) and potential adverse impacts (Section 3).
- Recommended effects management measures:
 - Pre-clearance salvage measures (Section 4).
 - During-clearance salvage measures (Section 5).
 - Post-clearance salvage measures (Section 5.2).
 - Terrestrial offset site management (Section 5.3).
 - Relocation protocols (Section 6).
 - Relocation site details (Section 7).

1.2 Statutory context

Native lizards are protected by the Wildlife Act 1953. A project listed or referred for Fast Track Consenting may apply to the Environmental Protection Authority (EPA) for a wildlife approval under section 42(4)(h) of the FTAA as part of a Substantive Application.

Wildlife approvals authorise activities that would otherwise be an offence under the Wildlife Act 1953. Specifically, the wildlife approvals requiring authorisation for this project relating to protected native lizards are:

- Catch alive and handle wildlife.
- Liberate/release wildlife (either at project location/s, or at alternative location/s).
- Kill wildlife (incidental).

1.3 Schedule 7 of the Fast Track Approvals Act requirements

Schedule 7 of the FTAA outlines the necessary information required to assess a Wildlife Approval. These are outlined in Table 1.1 below, along with the associated Section of this LMP (or other document) where the information is provided.

Table 1.1: FTAA Schedule 7 requirements

Schedule 7 requirement	Where this requirement has been addressed
(1) For the purposes of section 43(3)(h), an application for a wildlife approval must- (a) specify the purpose of the proposed activity:	Section 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):	The actions requested include: • Catch alive and handle wildlife. • Liberate/release wildlife (either at project location/s, or at alternative location/s). • Kill wildlife (incidental).
(c) include an assessment of the activity and its impacts against the purpose of the Wildlife Act 1953:	The purpose of the Wildlife Act 1953 is to protect wildlife and manage game bird hunting in New Zealand. The Wildlife Act 1953 provides absolute protection to all native lizard species. The project activity of vegetation and habitat clearance may result in injury or mortality to native lizards. Effects management measures include avoid, minimisation, and remediation measures (Section 3.4).
(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:	Section 3.1.
(e) outline impacts on threatened, data deficient, and at-risk wildlife species (as defined in the New Zealand Threat Classification System):	Refer to Section 3.3.
(f) state how the methods proposed to be used to conduct the actions specified under paragraph (b) will ensure that best practice standards are met:	Salvage will be undertaken in accordance with DOC Herpetofauna Inventory and Monitoring Toolbox for lizard salvage and survey, as outlined in Section 4 and Section 5.
(g) describe the methods to be used to safely, efficiently, and humanely catch, hold, or kill the animals and identify relevant animal ethics processes:	Salvage will be undertaken in accordance with DOC Herpetofauna Inventory and Monitoring Toolbox for lizard salvage and survey, as outlined in Section 4, Section 5 and Section 6.
(h) state the location or locations in which the activity will be carried out, including a map (and GPS coordinates if available):	Refer to Appendix A which outlines lizard management areas. As the project extends across 5 km, coordinates are not provided.
(i) state whether authorisation is sought to temporarily hold or relocate wildlife:	Temporarily holding and relocating wildlife is proposed, as outlined in Section 4, 5 and 6.
(j) list 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:	Refer to Section 3.

Schedule 7 requirement	Where this requirement has been addressed
	Refer to the Technical Assessment Report #7 – Terrestrial Ecology, for a full assessment of actual and potential effects of the proposed activity.
(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):	Refer to Section 4, Section 6, and Section 7. No specific offsetting or compensation is necessary in respect of lizards.
(l) state 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 1953:	The applicant and company director, trustee, partner or anyone else involved have not been convicted of any offence under the Wildlife Act 1953.
(m) state 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 1953 pending before a court:	The applicant and company director, trustee, partner or anyone else involved do not have any current criminal charges under the Wildlife Act 1953 pending before a court.
(n) provide proof and details of all consultation, including with hapū or iwi, on the application specific to wildlife impacts:	Refer to the full Wildlife Approval application.
(o) provide any additional written expert views, advice, or opinions the applicant has obtained concerning their proposal.	N/A.

1.4 Roles and Responsibilities

Responsibilities of all parties involved in implementing the LMP are outlined in Table 1.2.

Table 1.2: Responsibilities of those implementing the LMP

Title	Responsibility
Project owner (NZTA)	Overall manager of the wider project, including overseeing the implementation of the LMP at a high level.
Project Manager	Co-ordinates communication between the Contractor and Project Ecologist.
Contractor/construction site manager	- Delivery of and compliance with this LMP. - Implementation of the LMP including the following: - Reading and understanding the LMP. - Facilitating a project start-up meeting with the Project Ecologist before construction commences. - Contacting the Project Ecologist and iwi representatives a minimum of one month before any potential lizard habitat areas are scheduled for clearance. - Maintaining clear lines of communication with the Project Ecologist regarding changes to the works schedule. - Briefing new personnel about the contractor's responsibilities under this LMP.

Title	Responsibility
Project Herpetologist	• The Project Herpetologist is the lead herpetologist named on the Project's Wildlife Approval. They are to be engaged by the Project Owner to provide technical advice to the Construction Site Manager/Contractor and assist the Project Manager in complying with this LMP. • The Project Herpetologist will: – Read and understand the LMP. – Ensure any required permits are attained and on hand during salvage and relocation works. – Ensure the relocation site preparation work is undertaken and suitable conditions achieved prior to lizard salvage works commencing. – Lead required lizard salvage and relocation works – Provide regular updates on lizard management to the Project Manager – Complete any required reporting, including completion of Amphibian/Reptile Distribution Scheme cards.
Project Ecologist	• Project Ecologists includes the Project Herpetologist and all ecologists working under the supervision of the Project Herpetologist to support compliance with this LMP. Project Ecologists will be named on the Wildlife Approval as a suitably qualified and experienced person.
Kaitiaki / Project Iwi	• The Kaitiaki includes any person nominated by Taranaki Whānui ki Te Upoko o te Ika and Ngāti Toa Rangatira to exercise Kaitiakitanga over the works outlined in this management plan. • The Kaitiaki will be notified of all works outlined in this management plan at least 3 months prior to the onset of lizard salvage, to allow for sufficient time to arrange attendance for planned works. • The Kaitiaki will work under the supervision of the Project Herpetologist to support compliance with this LMP.
Landowner/WCC Parks Team	• The relocation site landowner will be notified one month before lizard habitat scheduled for clearance and invited to participate in any lizard management including relocation. • The landowner will provide approval of habitat enhancement and pest animal control contractors and be given an opportunity to participate in habitat enhancement and pest animal control activities. • The landowner will be consulted with and collaborate in the design of native enrichment planting. • The landowner will be provided compliance reporting undertaken as outlined in this LMP.

1.5 LMP implementation programme

The Construction Site Manager will inform the Project Herpetologist of an approximate vegetation clearance staging plan. This will allow the project team to make a plan to implement the LMP.

The Construction Site Manager will inform the Project Herpetologist at least six weeks prior to vegetation clearance and prior to any excavation works in areas that provide habitat for native lizards. Table 1. Table 1.23 outlines the proposed programme for LMP implementation.

Table 1.3: Lizard management implementation schedule

Deliverables	Timeframe	Personnel	Completed
Project Start			
LMP input/ approval	Prior to works commencing	WCC, DOC, Fast Track Panel, Mana Whenua (Taranaki Whānui ki Te Upoko o te Ika and Ngāti Toa Rangatira)	
Wildlife Approval	Prior to works commencing	Fast Track Panel	
Relocation site enhancement			
Pest animal control	3 months prior to lizard management commencing	Contractors	
Enrichment planting	In conjunction with restoration planting at Project offset locations	Contractors	
Habitat enhancement	Prior to and during works, utilising on-site organic materials.	Project ecologist Kaitiaki Contractors.	
Deploy ACOs			
Deploy Artificial Cover Objects (ACOs)	At least six weeks prior to habitat clearance	Project ecologist, Kaitiaki	
Pre-clearance management (Inclusive 1 October – 30 April)			
ACO checks of established ACOs and manual habitat searches	Within three weeks prior to any habitat clearance	Project ecologist, Kaitiaki	
Daytime systematic manual searches	During ACO checks and prior to habitat clearance	Project ecologist, Kaitiaki	
Habitat clearance management (Inclusive 1 October – 30 April)			
Machine assisted salvage	During habitat clearance	Project ecologist Contractor Kaitiaki	
Habitat enhancement measures (placing logs at relocation site if native lizards are salvaged)	During vegetation clearance (if required)	Project ecologist/contractors Kaitiaki	
Post-relocation monitoring (Inclusive 1 October – 30 April)			
Preparation of Post-Relocation Plan (PRP)	To be completed within 6 weeks if thresholds outlined in Section 7.4 are met.	Project ecologist Kaitiaki	
Implementation of PRP	Following approval of PRP	Project ecologist Kaitiaki	

Reporting			
Incident reporting (if required)	Completed within five working days following salvaging incident	Project ecologist	
Compliance reporting	Completed within 30 working days following salvaging completion	Project ecologist	
Wildlife Approval Reporting	Dependant on Wildlife Approval requirements	Permit holder	
Amphibian and Reptile Distribution Scheme (ARDS) Card	Completed within 30 working days following salvaging completion	Project ecologist	
Annual monitoring reporting (if triggered)	Completed annually for five consecutive years following salvaging	Project ecologist	

2 Description of proposed works

The proposed construction of upgrades to the SH1 will require the clearance of terrestrial vegetation within and around the existing road corridor, including areas of highly disturbed vegetation, and vegetation of higher value present across the Wellington Town Belt. As detailed in the Technical Assessment Report #10 – Terrestrial Ecology (T+T, 2026), terrestrial vegetation across the project areas provides low-to-medium quality habitat to indigenous lizards. Up to 2.84 ha of moderate value and 2.72 ha low value habitat to indigenous lizards could be cleared as a result of this Project (Appendix A).

3 Summary of lizard ecological values, effects on lizards and effects management

Detailed information on the ecological values within the project area, potential effects on lizards and proposed effects management measures is provided in the EclA report (Technical Assessment Report #10 Terrestrial Ecology) and is summarised in relation to lizards in the following sections.

3.1 Lizard species values

The lizard values within and adjacent to the project footprint were assessed through the following methodology:

- **On-site lizard habitat mapping:** identification of macro and micro-habitat availability within mapped vegetation types across the project area.
- **Tracking tunnel survey:** deployment of 142 tracking tunnels across 3.6 ha of vegetation, targeting suitable habitat features such as dense rank grass, leaf litter, harakeke (*flax/Phormium tenax*), scree/rock piles, and rubbish piles/non-organic debris. Tracking tunnels were baited using fresh banana and left for a minimum of seven consecutive nights.
- **Nocturnal spotlighting survey:** nocturnal spotlighting was undertaken along a 2.5 kilometre transect to detect the presence of crepuscular/nocturnal arboreal geckos within suitable vegetation types. A total of 13.5 person-hours of night-time gecko spotlighting was undertaken across three nights.
- **Manual habitat searches:** systematic manual habitat searching was undertaken within vegetation types containing suitable habitat, targeting areas such as dense rank grass, mats of tradescantia (*Tradescantia fluminensis*), deep leaf litter, coarse woody debris, and inorganic materials. Twelve person hours of manual habitat searching was undertaken across the project area.

A desktop review to assess potential lizard species presence in the landscape within and surrounding the project area was completed utilising the DOC herpetofauna database (DOC, November 2023) and publicly collected lizard observations on iNaturalist. In total, seven indigenous lizard species were identified as potentially present within a 5 km radius of the project area. This includes five 'At Risk' and two 'Not Threatened' species, as outlined in Table 3.1 below.

- From the targeted lizard surveys outlined above, one **copper skink** was recorded within regenerating broadleaf forest of the Mount Victoria Tunnel project area, with two skink detections identified through the tracking tunnel survey within the Mount Victoria Tunnel and Eastern Connections (Evans Bay outfall) part of the project area (Appendix A). Based on the microhabitat type and presence of nearby records to these two tracking tunnel detections, it is highly likely that these prints are of the **Northern grass skink** at the Evans Bay outfall and **copper skink** or **Northern Grass Skink** at Mount Victoria Tunnel. Location of skink detections are shown in Appendix A. No other lizard species were detected during daytime or nocturnal surveys.

Table 3.1: Native lizard species recorded within 5km of the Project Site (DOC Herpetofauna Atlas, updated August 2024)

Common name	Species name	Threat Status – Regional (Crisp et al., 2023)	Threat Status – National (Hitchmough et al., 2025)	Ecological value (Roper-Lindsay et al. 2018)	Presence Likelihood within Project area and proposed terrestrial offset area
Barking gecko /moko kākārīki	<i>Naultinus punctatus</i>	Regionally Vulnerable	At Risk – Declining	Very high	Unlikely
Ngahere gecko	<i>Mokopirirakau</i> “southern North Island”	At Risk – Declining	At Risk – Declining	High	Likely
Moko pāpā/Raukawa gecko	<i>Woodworthia maculata</i>	Not Threatened	Not Threatened	Moderate	Unlikely
Copper skink	<i>Oligosoma aeneum</i>	At Risk - Declining	At Risk – Declining	High	Confirmed
Ornate skink	<i>Oligosoma ornatum</i>	At Risk – Declining	At Risk – Declining	High	Possible
Glossy brown skink	<i>Oligosoma zelandicum</i>	At Risk – Declining	At Risk – Declining	High	Possible
Northern grass skink	<i>Oligosoma polychroma</i>	Not Threatened	Not Threatened	Moderate	Highly Likely

Note: Following the EIANZ Ecological Impact Assessment guidelines (Roper-Lindsay et al., 2018), the ecological value of each species was determined by assessing its regional and national threat classification. However, all native lizards are absolutely protected by the Wildlife Act 1953 regardless of ecological value.

A single record of a forest gecko (*Mokopirirakau granulatus*; nationally ‘At Risk – Declining’) was identified during the database search. This species is not likely to be present as the Wellington Region sits outside of its natural geographic range. This database record is likely a misidentification and as such it has not been considered further in this assessment.

Based on the survey results and site observations, it is difficult to estimate the population size of both copper skink and northern grass skink across the Project areas. Lizards are present in varying densities across Wellington City, but there are hotspots where lizards can be locally abundant, e.g. small pockets of vegetation as observed on site. Based on the low detections during on-site surveys, and expert opinion, we conservatively estimate that the combined population of indigenous lizards within the works footprint could be between 20-100 individuals. Based on feedback from WCC Ecologists, Ngahere gecko have been observed within the Mount Victoria Wellington Town Belt area and are considered likely to be present within the Project area. Ornate skink and glossy brown skink may utilise habitats within the project area, with Raukawa gecko and barking gecko considered unlikely to be present but have been included in this LMP as a precautionary measure. Similarly, it is expected that the native lizards identified in Table 3.1 may be present within the proposed terrestrial ecology offset area in the Wellington Town Belt.

3.2 Lizard habitat values

Terrestrial vegetation across the project area provides up to 5.56 ha of potential habitat for indigenous lizards, with quality and ecological value varying depending on vegetation type and location. The vegetation types mapped across the Project areas include:

- Regenerating broadleaf forest (~1.08 ha).

- Mixed indigenous-exotic forest and scrub (~2.43 ha).
- Mixed low-stature vegetation (~1.31 ha).
- Private gardens (0.73 ha).

The proposed terrestrial offset area, within the Wellington Town Belt, presents a total area of 12 ha exotic forest, with varying degrees of regenerating understory. Details of the proposed terrestrial offset area are provided in Technical Assessment Report #10 Terrestrial Ecology, and include:

- Area 1: Exotic forest with little-to-no native understory (5 ha)
- Area 2: Exotic forest with moderate density regenerating understory (7 ha)

An assessment of lizard habitat values within each vegetation type, informed through on-site assessment, is provided in Table 3.2 below. Photographs of these vegetation types are provided in Appendix C.

Table 3.2: Vegetation type, project area and lizard habitat features

Vegetation type	Project area	Lizard habitat features within Project area	Lizard habitat value (in accordance with Section 5 of EclA report (T+T 2025a) and EclAG.
Regenerating broadleaf forest (1.08ha)	Mount Victoria Tunnel	• Patches of dense rank grass, rubbish/inorganic debris, dense mats of tradescantia, discrete areas of dense leaf litter, and cracks/crevices across the root structures of large trees. • Few canopy gaps, forest margins, and clearings associated with walking tracks provide some basking opportunity. • Trees with coarse, flaky bark and/or crevices, including kānuka, māhoe, pōhutukawa, suitable for geckos. • Contiguous with wider Wellington Town Belt. • Receives active pest animal control.	Moderate
Mixed indigenous-exotic forest and scrub (2.43ha)	Mount Victoria Tunnel	• Extensive mats of English ivy, tradescantia, rank grass, and occasional flax/harakeke. • This vegetation runs along Ruahine Street, with a high edge-to-area ratio, providing extensive basking habitat across the vegetation type. • Arboreal lizard habitat generally restricted to large pōhutukawa and small indigenous and exotic shrubs. • Contiguous with Wellington Town Belt in most places. • Receives active pest animal control.	Moderate
	Terrace Tunnel	• Indigenous groundcover in these areas is sparse, with exotic weeds, tradescantia, and human debris forming the bulk of the habitat. • Arboreal lizard habitat is absent, with mature trees (primarily karaka and sycamore) containing smooth bark and minimal microhabitat for arboreal geckos. • Isolated vegetation within an urban landscape. • No pest animal control observed during site surveys.	Low

Vegetation type	Project area	Lizard habitat features within Project area	Lizard habitat value (in accordance with Section 5 of EclA report (T+T 2025a) and EclAG.
Mixed low-stature vegetation (1.31ha)	Mount Victoria Tunnel	- Located mainly beneath specimen trees along Ruahine Street - Consists of rank vegetation (grasses, weeds, and indigenous vegetation) which has not been regularly managed within parks/reserve/private spaces, providing suitable habitat for indigenous skinks. - Generally isolated vegetation within an urban landscape, with limited connectivity to private gardens. - No pest animal control observed.	Low
	Basin Reserve	Comprised of mostly isolated patches of native plantings associated with existing roading infrastructure.	Low
	Terrace Tunnel	- While suitable habitat for indigenous skinks present, these locations are relatively small and very isolated, sitting between existing roads or public infrastructure. - Historic aerials suggest full, complete disturbance within the last 10 years. - No pest animal control observed.	
	Evans bay outfall	- Rocky revetment structure and low growing, creeping indigenous vegetation. - Suspected Northern grass skink detection within this area.	
Private gardens (0.73ha)	Mount Victoria Tunnel	- Potential habitat for indigenous skinks presents in the form of garden vegetation and artificial retreats/refugia. - Likely to experience frequent disturbance and predation associated with garden maintenance and domestic animals. - Isolated in nature; however, may remnant populations of indigenous skinks.	Low
Area 1: Exotic forest with minimal native understory (5 ha)	Proposed terrestrial offset area	- An exotic dominant canopy comprised of pine and eucalyptus, with no native trees in the canopy. Area 1: Contains little-to-no native vegetation, with occasional small native plants. Low levels of leaf litter and low density of coarse woody debris. Area 2: Contains moderate density regenerating native vegetation, with native plants between 2 and 4m in height. Shallow leave litter with occasional coarse woody debris resulting from fallen pine branches.	Low
Area 2: Exotic forest with moderate density native regeneration (7 ha)	Proposed terrestrial offset area	- Potential habitat for native skinks is present in low-density. - Potential habitat for geckos is present across taller areas of native shrubs in Area 2 (up to 4m), however lacking habitat complexity found across mature native vegetation. Pine trees expected to provide low quality habitat for native geckos.	Low

3.3 Potential effects on lizards

Potential adverse effects of the Project on lizards include:

- **Habitat loss due to vegetation clearance:** Removal of terrestrial vegetation, including regenerating broadleaf forest, mixed indigenous-exotic forest and scrub, will directly reduce available refuge and foraging sites. A maximum of 2.84 ha of moderate value and 2.72 ha low value lizard habitat is present within the project area, with the final extent of vegetation clearance expected to be confirmed through detailed design. Some habitat loss may occur across the proposed terrestrial offset site; however largescale vegetation clearance of native vegetation is not proposed.
- **Construction-related stress, injury or mortality:** Lizards may be at risk of injury or mortality during vegetation clearance and earthworks if not detected and successfully relocated. Prolonged exposure to construction-related noise, vibration, and dust may temporarily deter lizards from nearby habitats or reduce their activity levels.
- **Stress, injury or mortality during transportation to relocation site:** The act of salvaging and relocating lizards will likely result in stress effects on individuals, and increased risk of injury and mortality.
- **Displacement into sub-optimal habitat:** Lizards may move into surrounding areas where food and shelter are limited or where populations are already at carrying capacity, increasing competition and predation risk.
- **Reduced survival and breeding success:** Displaced individuals may experience lower survival and reproductive output due to reduced food availability, loss of protective cover, increased predation, and competition with resident lizards.

3.4 Lizard effects management

Efforts to reduce adverse ecological effects have been undertaken through the detailed design phases of the Project to avoid or minimise loss of terrestrial vegetation (and subsequently lizard habitat) where practicable. However, vegetation and habitat removal will still be required, and potential adverse ecological effects will be avoided, remedied, or mitigated through the following measures:

- Further minimisation and refinement of vegetation/habitat loss through appropriate site preparation and staging of vegetation removal (Section 4.1).
- Lizard salvage prior to and during vegetation/habitat clearance (Section 4.1 and Section 5.1).
- Lizard salvage following vegetation clearance (Section 5.2)
- Vegetation clearance management measures across the terrestrial offset site (Section 5.3)
- Lizard relocation to a suitable nearby site (Section 6).
- Habitat enhancement measures at lizard relocation site/s comprising native planting, habitat/refugia enhancement, and pest mammal control (Section 7).

The lizard salvage and relocation programme will be implemented over two stages:

- Stage 1 – pre-vegetation clearance works.
- Stage 2 – vegetation clearance works.

4 Stage 1: Pre-vegetation clearance works

4.1 Site preparation and staging

Unnecessary lizard habitat loss within the Project Designation prior to and during construction will be avoided through ongoing site management and an appropriate construction methodology.

Prior to commencement of any vegetation clearance, the extent of vegetation to be removed and to be retained will be demarcated and agreed with the Project Herpetologist. Efforts will be made to minimise the loss of potential lizard habitat to the extent practicable. Site marking will be used to identify locations of vegetation clearance to avoid unnecessary clearance.

Three weeks prior to clearance works, suitably experienced ecologist(s) under the guidance of the Project Herpetologist will implement search and salvage methods (Section 4.2) to search for lizards in all identified lizard habitat to be removed (Appendix A).

Vegetation clearance will likely be completed over multiple seasons. Therefore, timeframes and staging of salvage will be dependent on final construction programme requirements and seasonal constraints.

Systematic manual salvage methods will be implemented, as described in Section 4.7. Live trapping techniques using baited traps is not recommended in this management plan, due to the surveyed presence of pest predators including mice and rats, which may predate on captured individuals during salvage. Due to the low numbers of lizards expected to be salvaged from within the project footprint, systematic manual salvage methods are expected to provide the greatest levels of success in this spatial context.

Prior to commencement of any vegetation clearance activities or construction, pre-start meetings will be held with the Construction Site Manager, Project Herpetologist and other relevant personnel to discuss requirements for lizard habitat removal detailed in this LMP. All personnel must review and understand this LMP.

4.2 Lizard salvaging protocols

Pre-clearance lizard salvage is proposed to prevent mortality or injury to lizards during vegetation clearance and earthworks. Protocols for lizard salvaging and relocation specified below are consistent with industry standard methodologies and are commonly used on construction projects. The methodologies have been adapted for local site conditions and habitat types. A flexible approach using a toolbox of best-practice methods is proposed to be used at the Project Herpetologist's discretion depending on lizard micro-habitats and quality of lizard habitat within the Project area.

Proposed protocols are consistent with best-practice methodologies from DOC's Inventory and Monitoring Toolbox: Herpetofauna (Hare 2012a,b,c; Lettink 2012), sampling techniques for New Zealand lizards (Lettink and Hare, 2016) and DOC's nine key principles for lizard salvage and transfer in New Zealand (DOC 2019).

Table Appendix B.1 outlines how each principle is addressed by this LMP.

To improve salvage and relocation success rates, the following measures are proposed:

- Poor capture rates for lizards during salvage works will be managed by maximising lead in time for pre-clearance salvage, using a flexible range of best practice salvage methods (Section 4.6).
- Lizard salvage and relocation activities will occur in suitable weather conditions (Section 4.5) and transportation and release of lizards will be undertaken in accordance with best-practice methods (Section 6).

4.3 Personnel

The lizard salvage and relocation programme will be led by a suitably qualified and experienced Project Herpetologist with support from Project Ecologists with lizard salvage and relocation experience. All personnel must be experienced in lizard handling, including salvage and relocation operations, and be named on the Wildlife Act Consent permit to capture, handle and relocate protected native lizards. A Taranaki Whānui ki Te Upoko o te Ika representative shall be invited to attend and assist a qualified ecologist with any lizard salvage and relocation operations.

4.4 Salvaging footprint

The area of habitat clearance shall be clearly marked prior to clearance during the site preparation stage (Section 4.1). This will ensure lizard salvage will be undertaken within appropriate areas. Lizard habitats include those listed in Section 3.2 and shown in Appendix A.

Where lizard habitats identified in Section 3.2 have been subject to disturbance not associated with this project, a determination will be made by the Project Herpetologist prior to the implementation of lizard salvage on the methodology, guided by this LMP.

4.5 Timing and weather conditions

Salvage will only be undertaken during October to April inclusive. Salvage will only be undertaken in accordance with suitable weather requirements as defined below:

- Minimum average temperatures of 10°C for night-time salvaging, and 12°C for daytime salvaging.
- Maximum temperature of 25°C.
- Light winds and no rain heavier than 0.1 - 2 mm per hour (light drizzle).

Current and forecasted weather data including temperature, precipitation, and wind speed will be obtained from the Weather Underground station 'Wellington Central Weather Station – IWELL185'.

Stage 2 (vegetation clearance works) must commence **within two weeks** of the completion of Stage 1 pre-clearance works, provided there is sufficient time to complete both Stage 1 and Stage 2 works within the seasonal constraints window (October-April). If vegetation removal does not commence within the two-week window following pre-clearance salvage, the pre-clearance salvage efforts will need to recommence at the discretion of the Project Herpetologist.

4.6 Artificial Cover Objects (ACOs)

ACOs shall be deployed in accordance with standard ACO deployment protocols (Department of Conservation, 2012a).

ACOs shall be deployed in suitable microhabitats targeting ground-dwelling lizards. Each ACO will consist of two corrugated Onduline sheets measuring approximately 400 mm x 330 mm, with a 2-

5cm gap between each ACO (double-stacked). ACOs are to be deployed a minimum of six weeks prior to vegetation removal in each area of suitable lizard habitat.

Level of effort

A total of 70 ACOs shall be installed across 2.84 ha of moderate value lizard habitat (comprising regenerating broadleaf forest and mixed indigenous-exotic forest and scrub) targeting micro-habitats, directed by the Project Herpetologist.

Checking of ACOs will commence three weeks prior to vegetation clearance and checked a minimum of five times with at least one day in between checks.

Where lizards are found during the last check in any one area (an area comprises a minimum of 2,000 m² around the identified lizard ACO), an additional ACO check will be required (ensuring at least one day between checks) to a maximum additional three ACO checks in any one area.

Habitat suitability

This method of salvage is suitable for the following habitat types within the Project footprint:

- Regenerating broadleaf forest – in locations along access paths, canopy gaps, or forest margins where basking opportunities and sunlight will provide ideal conditions for the use of the ACOs.
- Mixed indigenous-exotic forest and scrub – along forest margins and paths, focussing on micro-habitats with dense cover and sun exposure.

4.7 Daytime systematic manual salvage

Systematic daytime manual salvage techniques will be applied in conjunction with ACO checks, prior to vegetation clearance. Systematic searches are commonly used for lizard surveys (Hare, 2012c) and will include:

- Turning over or pulling apart cover objects (e.g. coarse woody debris, rocks, artificial refuges, wooden boards, fenceposts).
- Raking of litter or ground cover (e.g. tradescantia).
- Searching of rock piles and crevices.

Systematic manual salvage will be undertaken whilst checking the ACOs deployed in each salvage area. Discrete areas of lizard habitat such as debris piles will be intensively manually searched prior to removal. If practicable, any coarse woody debris present within the lizard salvage areas will be moved to the relocation site for habitat enhancement purposes.

Search effort will be guided by the Project Herpetologist on a case-by-case basis guided by factors such as habitat complexity, number of lizards captures and observations from ACO checks, and proximity to other areas of confirmed lizard observations. A maximum of 10 person hours per hectare of moderate value habitat, and 5 person hours per hectare of low value habitat is proposed. Additional search effort may be implemented at the discretion of the Project Herpetologist.

4.8 Capture, handling and transport

The following steps will be overseen by one of the personnel listed on the Wildlife Act Consent. Capture, handling and transport of lizards will be undertaken in accordance with the following methodologies:

- All field equipment that indigenous lizards may come into contact with (e.g. plastic enclosures, collection bags, scales, etc.) will be sterilised.
- Hand sterilisation will be undertaken.

- Salvaged lizards will either be placed in cloth bags (only during salvage, not during transportation), or in suitable ventilated plastic containers:
 - Vegetation/leaf litter will be added to plastic containers to shelter and protect lizards during transportation.
 - Cloth bags will be kept in the shade to ensure a constant ambient temperature is maintained for the lizards.
- Where practical, indigenous lizards will be placed into ventilated two litre or larger plastic containers for no longer than four hours for transportation and relocation.
 - Lizards will not be placed in the same container to prevent aggressive interactions or predation.
 - Any injured lizards will be kept separate to other lizards.
 - Different species will be kept separately.
- Salvaged lizards will be released into appropriately prepared and protected habitat suitable for the species being relocated (refer to Section 7).

4.9 Data collection

Each individual lizard captured will be assigned a number and the following information recorded:

- Date and time of capture.
- Weather conditions.
- Capture methodology.
- Capture location and relocation location (GPS co-ordinates).
- Micro- and macro-habitat types at capture location and at relocation site.
- Species, sex, reproductive status for females, tail status (regenerating/lost/original), overall health and condition, Snout to Vent Length.
- A minimum of one photograph of each captured lizard, including at least one photograph to clearly show the dorsal surface.
- Note: Snout-to-Vent Length (SVL), weight and/or photographs will not be measured if an individual appears stressed. Stressed individuals will be immediately released to the relocation site.

4.10 Salvage effort summary

Table 4.1: Salvage methods and effort

Salvage method	Lizard habitat quality	Salvage effort	Trap density / minimum no. of traps	Additional effort
Stage 1: Pre-clearance works (within three weeks prior to vegetation clearance)				
ACOs	Moderate (up to ~2.84 ha)	ACO checks will commence three weeks prior to vegetation clearance and checked a minimum of five times (at least 1 day between checks).	20 x 20 m spacings (where appropriate). Minimum number of ACOs for the full Project area: 70.	Where lizards are found during the last check in any one area, an additional ACO check will be required to a maximum of three additional checks in any one area.

Salvage method	Lizard habitat quality	Salvage effort	Trap density / minimum no. of traps	Additional effort
Daytime manual salvage	Low (up to ~2.72 ha) Moderate (up to ~2.84 ha)	Within each habitat area, at the discretion of Project Herpetologist. A maximum of 10 person hours per hectare of moderate value habitat, and 5 person hours per hectare of low value habitat is proposed. Additional search effort may be implemented at the discretion of the Project Herpetologist. Search effort at each project location will be determined by factors such as habitat complexity, number of lizard captures, and proximity to other areas of confirmed lizard habitat. Total expected search effort: Low: 12 person hours Moderate: 28 person hours	N/A	N/A

5 Stage 2: Clearance works

Once the Project Herpetologist is satisfied that no further lizard habitat can be searched by hand using the systematic search methods implemented in Stage 1, vegetation clearance and machine-assisted salvage can commence (Stage 2).

Machine assisted salvage will be undertaken in areas where lizards were found during pre-clearance searches in Stage 1, or where systematic manual searching was not able to be completed due to practical constraints. A Project Ecologist will be on site during removal of this vegetation.

5.1 Machine assisted salvage

Machine assisted salvage during vegetation clearance will include:

- Removal of large cover objects that cannot be searched manually (e.g. boulders or large decomposing logs).
- Supervision of groundcover scraping by excavator of ground-cover habitat (e.g. dense pampas, blackberry, gorse) and logs/rocks/debris that cannot be searched manually.
- Manual removal of vegetation with hand tools (e.g. chainsaws).
- Line trimming of rank grass or other low stature vegetation using a mulching head or scrub cutter as appropriate.

Machine-assisted salvage (e.g. using excavators) can increase the risk of injury or mortality to lizards. The machine-operator will co-ordinate with the herpetologist to ensure machine assisted salvage is undertaken following best-practice methods to reduce lizard injury and mortality to the extent possible. This method will be used at the discretion of the Project Herpetologist following review of trapping and manual searching results.

In areas that cannot be safely accessed by an excavator, salvage will involve the use of hand tools such as chainsaws with manual removal of vegetation. A herpetologist will be on site to check the cleared vegetation and ground cover for any remaining lizards. Hand-tool salvage will be undertaken until all dense ground cover lizard habitat has been removed.

Prior to removal of rank grass habitat, these areas can be managed and reduced using a line-trimmer to encourage lizards to disperse from these areas. A herpetologist will be present to check the rank grass immediately following reduction. No specific level of effort is specified for this salvage method. Line trimming will be undertaken until all rank grass has been reduced.

5.2 Post-clearance vegetation management

Post-clearance vegetation management is proposed across the Mount Victoria Tunnel and Eastern Connections project areas for the following (moderate lizard habitat value) vegetation types:

- Regenerating broadleaf forest.
- Mixed indigenous-exotic forest and scrub.

Following vegetation/habitat clearance, where practicable, felled vegetation will be left in-situ or stockpiled for a minimum of 1 week on site for post-felling nighttime manual salvage (discussed in Section 5.2.1 below). Where vegetation is required to be removed immediately or is unable to be searched due to health & safety or practical constraints, vegetation should be moved to a temporary area deemed suitable by the Project Herpetologist, where it can be systematically searched before removal from the project area. Vegetation should be mulched or removed from the stockpile site following the completion of nighttime manual salvage to prevent lizards from colonising.

In situations where the post-clearance vegetation management outlined above is not practicable or is constrained by health & safety, the Project Herpetologist and Project Manager will determine an appropriate course of action to enable the implementation of lizard management deemed appropriate for the situation.

5.2.1 Nighttime manual salvage

Spotlight surveys will be undertaken in accordance with systematic spotlight search protocols (Department of Conservation, 2012e). Spotlighting will be undertaken post-habitat clearance across felled or stockpiled vegetation. A minimum of 2 nights of post-felling nighttime manual salvage will be carried out.

Spotlighting will be undertaken by walking felled vegetation and shining high-powered spotlights (>1000 lumens) into the foliage, branches, and trunks of trees. Binoculars will be used to assist spotlighting effort.

- Following vegetation clearance, vegetation is to be left in-situ or organised into stockpiles/stacks within the same project area to enable spotlight monitoring to be undertaken systematically. Stacks will require demarcation and labelling to ensure stacks remain for at least 1 week post felling. The Project Herpetologist is to co-ordinate with the site manager regarding the location and labelling of habitat stockpiles, where practicable.

5.3 Terrestrial offset site management

Management of pine vegetation will be required across the terrestrial offset site to allow native revegetation planting and existing native understory to recover without restriction. Detail on the proposed terrestrial offset site and proposed residual effects management measures are detailed in the Technical Assessment Report #10 – Terrestrial Ecology, and generally include:

- **Exotic tree removal:** Large exotic trees in Area 1 will be felled to create canopy gaps and promote regeneration.
- **Veteranisation:** Mature trees across all offset areas will undergo crown reduction to improve conditions for understory regeneration.
- **Enrichment planting:** In Area 2, planting will supplement regenerating native vegetation, reintroducing podocarp and broadleaf species alongside a diverse shrub layer to increase diversity.
- **Restoration planting:** Area 1 will be fully planted with a diverse range of native species to improve habitat quality for birds and lizards.
- **Habitat enhancement:** Felled woody material will be retained and embedded to provide habitat for native fauna.
- **Weed management:** Ongoing control to support native vegetation establishment and persistence.

No lizard management is proposed within the terrestrial offset areas. While exotic tree removal and veteranisation in Area 2 may disturb existing native understory, works will be closely supervised to minimise damage to native vegetation. As the restoration aims to enhance ecological values and habitat for native fauna (including skinks and geckos), vegetation clearance will be carefully managed to minimise harming or displacing lizards.

6 Relocation protocols

6.1 Capture, handling and transport

Capture, handling and transport of lizards will be undertaken in accordance with the methodology outlined in Section 4.8.

7 Lizard relocation site

7.1 Selection process

Several potential relocation sites were identified and considered using a combination of reviewing aerial imagery and existing site knowledge in accordance with DOC (2023) and Principle 6¹ of DOC's key principles for lizard salvage and transfer (DOC, 2019). Following identification of suitable sites through review of aerial imagery, site visits were undertaken to scope potential relocation sites within the Wellington Town Belt, with consideration to size, opportunities for enhancement, topography and existing lizard habitat characteristics.

Key criteria of Principle 6 of the lizard salvage guidelines (DOC, 2019) are:

- The site must be ecologically appropriate and have long-term security.
- The habitat at the site must be suitable for both copper skink and northern grass skink.
- The site must provide protection from predators.
- The site must be protected from future human disturbance.

Other aspects considered included:

- Minimising the distance between the relocation site and the original population.
- Potential to enhance the relocation site/s through the establishment of suitable native vegetation, refugia and pest mammal control to increase lizard carrying capacity.

7.2 Relocation site characteristics

Lizards salvaged from the works area will be relocated to a location ~100m from the project site, between Ruahine Street and Alexandra Road Figure 7.1.

Approximately 6 ha of land is available across this location, containing suitable habitat for lizards contiguous with the wider Wellington Town Belt.

Of this 6 ha, it is expected a minimum area of 1 ha will be sufficient to accommodate the expected low-salvage number of indigenous lizards from the Project. A conservative estimate of 20-100 individuals could be salvaged from within the Project footprint. Collectively, the 6 ha of available land provides abundant lizard habitat and opportunities for enhancement, should additional relocation area be considered necessary, as outlined in Section 7.3.

Key features of the relocation site include:

- The relocation site provides suitable habitat for both copper and northern grass skink (species likely to be salvaged from the project area) in the form of forest and forest margin microhabitats, such as:
 - Areas of rank grass and scrub across the forest margin.
 - Coarse woody debris.
 - Areas of dense ground cover vegetation.
- The relocation site provides suitable habitat for the indigenous gecko species outlined in Section 3.1. Although considered unlikely to be present within the project area, if found, the indigenous gecko species will have suitable habitat within the proposed relocation site. Suitable habitat for Barking gecko and Ngahere gecko is present in the form of shrubby indigenous vegetation and larger trees with dense foliage, holes, and crevices. Raukawa gecko

¹ Principle 6: "Receiving sites and their carrying capacity must be suitable in the long term" (DOC, 2019).

habitat is present in the form of retreats/refugia and areas of coarse woody debris present and rock/ground crevices.

- The relocation site is within the Wellington Town Belt, with suitable habitat availability for lizards in adjacent areas, allowing for dispersal into the wider environment.
- Pest control is currently undertaken by various community groups in collaboration with Wellington City Council (WCC) across the Wellington Town Belt. It is likely that this control is not sufficient to provide adequate protection for relocated lizards and therefore additional pest control will be required at the relocation site.

7.3 Relocation site enhancement

To improve the carrying capacity and habitat quality across the relocation site, the following habitat enhancement measures are proposed:

- **Soft-release cell:** To improve settlement success and relocation site fidelity, a partially enclosed soft-release structure will be constructed within the release area in a location deemed optimal by the Project Herpetologist (Flynn-Plummer & Monks 2021).
- **Pest animal control:** Targeting rats, mice, mustelids, and hedgehogs. The design and implementation of pest control will be undertaken for 3 years in collaboration with WCC to ensure efficient and effective implementation.
- **Native enrichment planting:** Planting 'lizard-friendly' plant species across the relocation site. The details of the enrichment planting will be provided in the Residual Effects Management Plan (REMP) to be prepared as a condition of consent for this project.
- **Habitat enhancement:** To increase the amount of suitable lizard habitat, provide additional shelter and protection from predators, and increase lizard carrying capacity within the relocation sites, habitat enhancement will be undertaken through the deposition of rocky boulders and logs.

A minimum release area of 1 ha will be enhanced, with further enhancement proposed across additional areas within the release site in proportion to the number of lizards salvaged and relocated from the project footprint. The total area to be enhanced within the 6 ha relocation site will be determined based on the thresholds outlined in Table 7.1.

Details of the proposed enhancement measures - including the type and quantity of habitat features, native plantings, and pest control effort - will be confirmed in advance of salvage activities, with adjustments made as appropriate in response to the outcome of salvage activities. A survey of the relocation site will be undertaken to inform the appropriate scale and distribution of enhancement measures across the release area. This survey will be completed following the commencement of lizard salvage, where lizard salvage numbers will be assessed.

Table 7.1: Habitat enhancement effort

Threshold value	Size of release area enhanced
1 ha	
3 ha	
300-500 lizards	5 ha
500+ lizards	6 ha

Placement of wood piles will be supervised by the Project Ecologist to ensure appropriate materials are selected and installed correctly, while minimising disturbance to the release site. Habitat and

refugia enhancement will be implemented prior to lizard salvage and release at the relocation site. These enrichment measures are expected to improve habitat suitability for Raukawa gecko.

Pest animal control will be implemented a minimum of 3 months prior to the onset of lizard salvage within the 1 ha release area in order to allow the benefits of pest animal control to begin prior to the first relocation.



Figure 7.1: Proposed lizard relocation area within Wellington Town Belt. Habitat enhancement will be undertaken in a 1 ha subsection of this area.



Photograph 7.1: Forest margin habitat with coarse woody debris and rank vegetation cover. Photograph taken 17 February 2026.



Photograph 7.2: Forest habitat with leaf litter cover, and opportunities to enhance refugia habitat. Photograph taken 17 February 2026.

7.4 Post-relocation monitoring

Monitoring of lizards at the release site will be undertaken by the Project Ecologist and Kaitiaki if the following thresholds are met (thresholds are in general accordance with Knox & Wairepo (2019)):

- 50 or more regionally 'Not Threatened' or 'At Risk' native lizards are relocated.
- 20 or more regionally 'Threatened – Regionally Vulnerable' native lizards are relocated. The identification of 'Threatened – Regionally Vulnerable' species will trigger further discussions with DOC on the best method for lizard management.

If the above thresholds are met, a Post-Relocation Plan (PRP) will be prepared and implemented by the Project Ecologist and Kaitiaki. The PRP will include native lizard monitoring methods and be sent to WCC (as the consenting authority) and DOC. A summary of recommended PRP methods are provided below.

7.4.1 Monitoring methodology

Native lizard monitoring is challenging due to their cryptic nature and difficulty in re-identifying release individuals. However, if the thresholds outlined in Section 7.4 are met, the following monitoring is proposed and will be outlined in further detail in the PRP.

The below aims are proposed for the purposes of monitoring, which if the thresholds are met will continue for 5 years post release:

- Are native lizards present at the relocation site from one to five years post-relocation?
- Are native lizards utilizing habitat enhancement features, such as log piles and rocks following relocation?

Morphometrics such as size, sex, weight, reproductive and tail status will be recorded to provide inference on population trends and lizard health (but are not the main focus of the monitoring).

Monitoring for ground-based or saxicolous (rock-dwelling) lizards (i.e., skinks and Raukawa gecko) will include annual monitoring using ACOs in a 10 x 10 m grid format across the relocation site:

- ACOs will be deployed for at least six weeks before the first check for native lizards.
- Three checks of ACOs will be undertaken during November, with at least one day between checks.
- A total of 25% of the provisioned enhancement objects (i.e. rock piles or logs) will be searched for use by native lizards.
- Two person-hours of manual searching will be undertaken during each monitoring period.

Monitoring for arboreal and semi-arboreal geckos (i.e., Barking gecko /moko kākārīki, Ngahere gecko and Moko pāpā/Raukawa gecko) will include the deployment of Closed Cell-Foam Covers (CCFCs) in a density of 20 x 20 m grid format (to the nearest suitable tree) across the relocation site:

- CCFCs will be deployed for at least three months before the first check for native lizards
- Three checks of CCFCs will be undertaken during November, with at least one day between checks (undertaken in conjunction with ACO checks).

Nocturnal spotlighting is not proposed across the relocation site.

Lizard monitoring will be undertaken consecutively for five years. Annual reporting of monitoring outcomes will be required, and include the following detail:

- Summary of survey methods.
- Weather data during the monitoring period.
- Summary of results.
- Any recommendations following the survey.

8 Reporting

8.1 Salvage and relocation reporting

A compliance report will be prepared and submitted to DOC and WCC annually until the end of the three year pest control period (or the end of the five year monitoring period if the monitoring thresholds are met), within 30 working days from the completion of lizard salvage works for each construction season. Lizard capture and relocation data will be compiled, summarised and submitted to DOC's national lizard database annually.

The report shall include the following:

- Confirmation that lizard salvaging and relocation operations were undertaken in accordance with the LMP and any associated conditions.
- A summary of species, numbers and age classes, and sex of lizards captured.
- Locations of lizards captured and relocated.
- Summary of salvage methodologies, effort and success.
- Representative photographs of the salvage methodologies, lizards captured, salvage site and relocation site.
- Any other additional reporting requirements stipulated in Wildlife Approval and/or Resource Consent conditions.

Completed Amphibian/Reptile Distribution Scheme Cards will also be submitted to DOC.

9 Adaptive management measures

In order to achieve the best outcomes for native lizards, changes may need to be made to this LMP. The rationale behind any changes must be based on robust management techniques consistent with DOC guidelines and only following confirmation from the Project Herpetologist. Any changes to the LMP will be collaboratively discussed with Kaitiaki/Taranaki Whānui ki Te Upoko o te Ika and Ngāti Toa Rangatira, and subsequently confirmed with DOC.

10 Incidental discovery protocols

If any **live native lizards** are found during works (outside of the salvage and relocation programme) the following steps will be implemented:

- If a lizard is seen but unable to be caught, the sighting must be reported to the Project Herpetologist and description of location, size, colour patterns and habitat it was observed provided.
- Contractors must carry and/or keep a hard sided container with air holes (such as an ice cream container) on site at all times, in case of lizard discovery.
- If possible, any lizards will be captured and placed in a container with grass or leaf litter. The container should be out of the sun, in a cool, shady spot. The Project Herpetologist will be notified, and the species will be identified before being released at the designated lizard release site.
- If a gecko species named in Section 3.1 is captured, it will be released in the designated lizard relocation site by the Project Herpetologist. The lizard relocation site provides suitable habitat for barking gecko and Ngahere gecko in the form of shrubby indigenous vegetation and larger trees with dense foliage, holes, and crevices. Raukawa gecko habitat exists as retreats/refugia in the form of limited coarse woody debris present and rock/ground crevices. Additional habitat enrichment is expected to increase habitat suitability for Raukawa gecko.

Contractors will be briefed on the lizard incidental discovery protocols, relevant lizard information (including photos and what to look out for) at Project pre-start meetings.

10.1 Accidental injury and/or mortality of native lizards

If any **injured or dead native lizards are found**, the following steps will be implemented:

- The Project Herpetologist will notify the local DOC office² at the earliest opportunity within 24 hours after an injured or dead lizard is found. If the local DOC office is not available, the DOC emergency hotline will be contacted instead (0800 DOC HOT / 0800 362 468).
- The Project Herpetologist will notify at the earliest opportunity a representative from Taranaki Whānui ki Te Upoko o te Ika and Ngāti Toa Rangatira (mana whenua of Te Whanganui-a-Tara (Wellington)) within 24 hours after an injured or dead lizard found.
- Any lizard mortality of 'Threatened,' 'At Risk', or 'Data Deficient' species shall be sent to Massey University Wildlife Post-mortem Service for necropsy if required by DOC. The body is to be chilled if it can be delivered within 24 hours, frozen if longer than 24 hours to deliver.
- Injured lizards found during salvage will be taken by an Ecologist to a suitably qualified vet as soon as possible for assessment and treatment. Injured lizards will be kept in an appropriate portable enclosure (i.e., a clean, well-ventilated plastic container) under the direction of the Project Herpetologist to ensure the animal is handled appropriately until the lizard(s) can be assessed and treated.
- Lizards assessed by the vet or alternative specialist as uninjured, or otherwise in suitable condition for release, will be transported to the lizard relocation site and released into habitat suitable for the species being relocated.
- Euthanasia of an injured lizard shall only be undertaken under direction from DOC.
- The reasons behind the injury or mortality will be assessed by the Project Herpetologist who may adapt management measures where possible to reduce further injury or mortality.

10.2 ‘At Risk’ or ‘Threatened’ species discovery

All personnel working on site are responsible for alerting the Site Manager and the Project Herpetologist following the discovery of any lizard on-site. The Project Herpetologist is responsible for identifying to the species level whether the discovery is of a ‘At-Risk’ or ‘Threatened’ **native lizard not otherwise identified** in this management plan.

The discovery of ‘At-Risk’ or ‘Threatened’ lizards not otherwise identified in this plan will be notified to the DOC local office² immediately. All site works associated with lizard salvage will stop and the lizard will be held temporarily in a suitable container (see Section 6 for details on suitable holding conditions) until advice on release has been provided by the local DOC office.

The Construction Site Manager must determine a course of action that is based on the advice of the Project Herpetologist. The course of action must consider the outcomes of consultation with DOC and be submitted to DOC for certification.

10.3 Incident management and reporting

Where lizard habitat is removed without adhering to the protocols outlined in this LMP, the following actions will be undertaken under direction of the Project Herpetologist:

- The area affected is to be quantified and described through a field investigation. The habitat description shall include an assessment of the suitability of the removed habitat for lizards and likely species present.
- A report will be prepared outlining:
 - A description of the incident and reasons for the incident occurring.
- An incident report will be delivered to DOC within 30 days of the incident.

² Department Of Conservation National Office – Conservation House, Wahre Kaupapa Atawhai, 18-32 Manners Street, Wellington 6011. Phone: 0800 275 362, Email: info@doc.govt.nz

11 Applicability

This management plan has been prepared for the exclusive use of our client New Zealand Transport Agency Waka Kotahi, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application for Wildlife Approval and that Environmental Protection Authority as the consenting authority will use this report for the purpose of assessing that application and that the Department of Conservation will also use this report for the purpose of the implementation of the Wildlife Approval.

We understand and agree that this report will be used by Environmental Protection Authority and the Department of Conservation in undertaking their regulatory functions in connection with the Project.

Tonkin & Taylor Ltd
Environmental and Engineering Consultants

Report prepared by:

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Appendix A Figures





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REV	DESCRIPTION	GIS	CHK	DATE

PROJECT No. 1099348.0000		
DESIGNED	SAMU	JUL.26
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CHECKED	CHSA	JUL.26

APPROVED	DATE

CLIENT NEW ZEALAND TRANSPORT AGENCY WAKA KOTAHI
PROJECT SH1 WELLINGTON IMPROVEMENTS
TITLE ECOLOGY INVESTIGATIONS

SCALE (A3) 1:20,000	FIG No. FIGURE 1.	REV 0
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REV	DESCRIPTION	GIS	CHK	DATE	APPROVED	DATE		SCALE (A3) 1:2,500	FIG No. FIGURE 1.	REV 0



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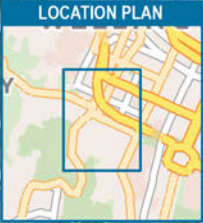
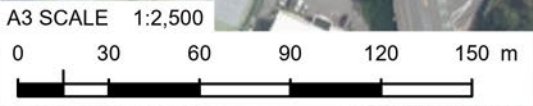
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TITLE ECOLOGY INVESTIGATIONS

SCALE (A3) 1:2,500	FIG No. FIGURE 1.	REV 0
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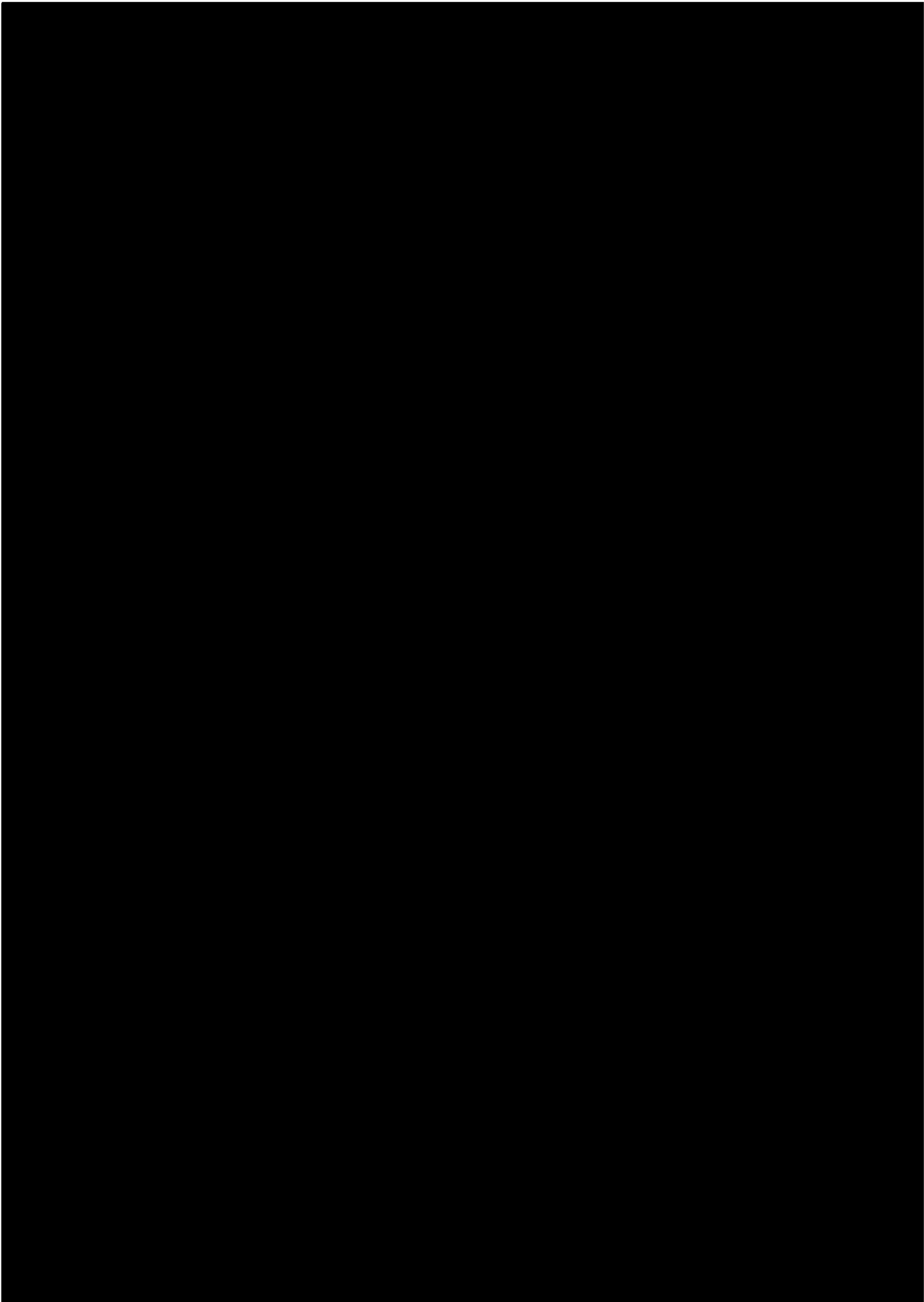
- NZTA Project Area
- Sheet Extents
- Terrestrial vegetation
 - Mixed low-stature vegetation



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SCALE (A3) 1:2,500		FIG No. FIGURE 1.					











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SCALE (A3) 1:2,500	FIG No. FIGURE 1.	REV 0
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Appendix B Principles of lizard management

Table Appendix B.1: Nine principles of lizard management (DOC Lizard Technical Advisory Group, 2019) and how each principle is addressed by this LMP.

Nine Principles of Lizard Management (Department of Conservation Lizard Technical Advisory Group, 2019)	How/where each principle is addressed in this LMP
1. Lizard species' values and site significance must be assessed at both the impact (development) and receiving sites.	Lizard surveys and habitat assessments were undertaken across the project areas. Surveys comprised the deployment of 142 tracking tunnels, 13.5 hours of nocturnal spotlighting, and 12 hours of systematic manual searching. Surveys have not been undertaken within the proposed release area, however, both the impact and relocation site are similar ecosystem/habitat types and are contiguous in nature. Thus, lizard values are expected to be similar across both the receiving and impact areas. Refer to Section 3.1 (impact areas) and Section 7.1 (release site) of this LMP for further information.
2. Actual and potential development-related effects and their significance must be assessed.	Actual and potential effects described in Section 3.3 of this LMP and in Section 6 of the Technical Assessment Report #7 – Terrestrial Ecology Effects (T+T, 2026).
3. Alternatives to moving lizards must be considered.	Avoidance of all terrestrial vegetation clearance is not feasible for the Project. Minimisation of the extent of clearance of up to 10% has occurred through updates to detailed design, and further updates to detailed design may continue to reduce the extent of vegetation and habitat clearance. Refer to Section 6 of the Technical Assessment Report #7 – Terrestrial Ecology Effects (T+T, 2026).
4. Threatened lizard species require more careful consideration than less-threatened species.	6 nationally 'At Risk – Declining' and 1 'Not Threatened' (Hitchmough et al., 2025) are potentially present within the project area. Of these, copper skink (At Risk – Declining) have been confirmed within the project area, with northern grass skink (Not Threatened) likely to be present. Barking gecko has a regional threat classification of 'Threatened – Regionally vulnerable' however, is considered unlikely to be present within the project area. Refer to Section 3.1 of this LMP for full a species values assessment.
5. Lizard salvage, transfer and release must use the best available methodology.	The proposed methods are consistent with the best available methodologies (DOC, 2012).
6. Receiving sites and their carrying capacities must be suitable in the long term.	Habitat enhancement, native enrichment planting, and pest animal management for 3 years has been proposed at the receiving site to increase the carrying capacity for native lizards.
7. Monitoring is required to evaluate the salvage operation.	For this project, monitoring is unlikely to detect real population changes due to the low number of lizards expected from the project footprint. Therefore funds normally used for monitoring have been reallocated to pest mammal management.

Nine Principles of Lizard Management (Department of Conservation Lizard Technical Advisory Group, 2019)	How/where each principle is addressed in this LMP
8. Reporting is required to communicate outcomes of salvage operations and facilitate process improvements.	Reporting will be undertaken as outlined in Section 8 of this LMP.
9. Contingency actions are required when lizard salvage and transfer activities fail.	Contingency actions (including contingency release site enhancement) will be undertaken as outlined in Section 9 and Section 10.

Appendix C Photographs



Photograph Appendix C.1: Rank grass within Regenerating broadleaf forest vegetation type.
Photograph taken 11 November 2025.



Photograph Appendix C.2: Ivy groundcover within Mixed indigenous-exotic forest and scrub.



Photograph Appendix C.3: Flax microhabitat within mixed indigenous-exotic forest and scrub. Photograph taken 11 November 2025.



Photograph Appendix C.4: Isolated patch of tradescantia cover within Regenerating broadleaf forest vegetation type. Photograph taken 11 November 2025.