Lizard Management Plan for the Pound Road Industrial Development

Contract Report No. 7316b

Providing outstanding ecological services to sustain and improve our environments

Wildlands

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Contract Report No. 7316b

June 2025

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1.0 Introduction

NTP Development Holdings Limited (NTP) are seeking to develop land on Pound Road, Templeton, Christchurch for industrial activities. The land is located on the corner of Pound Road and Waterloo Road, south of Templeton Golf Course and is west of the Waterloo Business Park. It comprises of *c.*64.4 hectares over six properties on the corner of Pound Road and Waterloo Road: 173 Pound Road, 86 Barters Road, 64 Barters Road, 38 Barters Road, 570 Waterloo Road. The proposal is to subdivide the application site to create 74 industrial lots, 3 lots to vest as Reserve, and associated road network and infrastructure. It is intended that the sites will be used for general industrial activities.

Wildland Consultants Ltd (Wildlands) has undertaken previous works at this site, which assessed the ecological effects of rezoning of the site from Rural Urban Fringe zone to Industrial General zone under a private plan change (Wildlands, 2024). The Pound Rd Industrial Development application is now being made under the Fast Track Approvals Act. It is considered that the development will have significant regional benefits. Wildlands prepared an Assessment of Ecological Effects for the application (Wildlands, 2025), which recommended a Lizard Management Plan (LMP; this document) should be prepared, due to the presence of southern grass skink (*Oligosoma* aff. *polychroma* Clade 5, At Risk – Declining).

This LMP follows the principles outlined by the Department of Conservation (DOC) in their guidelines (Department of Conservation, 2019) (Table 1). These principles describe steps to take and enable the outcome of successful lizard management (including salvage, if determined to be the right mitigation option). These include undertaking a thorough assessment of the lizard values and site significance, both at the site of impact and potential release sites, and an assessment of the actual and potential effects of the earthworks impact on the lizards present.

1.1 Project site and context

The Pound Road industrial development site is approximately 59 hectares, comprising of residential properties and gardens, grazed and crop paddocks, exotic tree and gorse hedgerows, rank grass and derelict buildings. The works are expected to start in spring 2026, and will be completed in four stages over an estimated three-five year period. The first stage is proposed to be undertaken between October 2026 and April 2027, with other stages to follow in subsequent years.

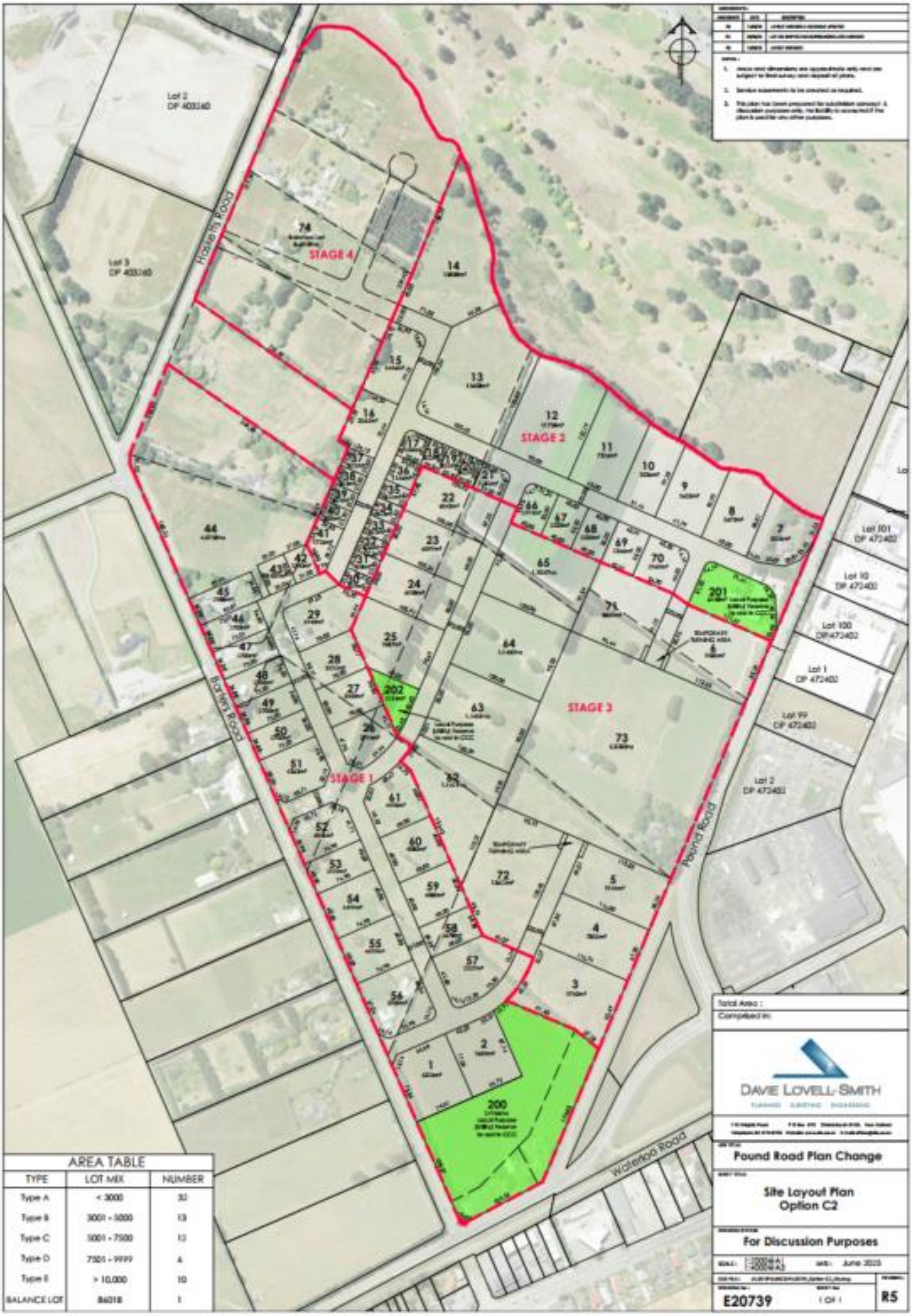

Figure 1 - Proposed industrial development plan for Pound Road, Templeton, Christchurch. Figure provided by Davie Lovell-Smith, 2025.

Table 1 – Key principles for lizard salvage and transfer in New Zealand and corresponding section in this LMP that details the application of each principle.

Key Principle	Summary	Section in this Document that Addresses the Principle
Lizard species' values and site significance must be assessed at both the impact (development) and receiving sites	One At Risk – Declining species present at the impact site. Likely only one At Risk – Declining species present at the receiving site.	Section 4.0 and 6.3
Actual and potential development-related effects and their significance must be assessed	Effects include but are not limited to: accidental injury/death/displacement, disturbance to lizards during earthworks, loss of indigenous habitat and breeding failure/behavioural effects.	Section 5.2
Alternatives to moving lizards must be considered	Avoidance of lizards and their habitats is not possible. The entirety of the site and identified lizard habitat within the site will be earth worked.	Section 6.1
Threatened species require more careful consideration than less-threatened species	No Threatened species have been detected on site. While unlikely they will be encountered, the Incidental Discovery Protocol will address any unexpected discoveries, including Threatened species.	Section 4.0 and Appendix 6.
Lizard salvage, transfer and release must use the best available methodology	Use standard accepted procedures (DOC Toolbox for Herpetofauna; Hare, 2012a & Hare, 2012b).	Section 6.3
Receiving sites and their carrying capacity must be suitable in the long term	The receiving site is likely to be suitable for the species to be released. It will be enhanced through pest plant management, enhancement planting, the creation of additional habitat units and pest mammal monitoring.	Section 6.3
Monitoring is required to evaluate the success of the salvage operation	Post release monitoring is required for this salvage due to the substantial number of lizards predicted to be salvaged. Monitoring will be conducted to determine the success of the salvage and enhancement of the receiving site.	Section 7.0
Reporting is required to communicate outcomes of salvage operations and facilitate process improvements	Standard reporting is required to Christchurch City Council, Environment Canterbury, DOC and relevant mana whenua on the completion of works.	Section 8.0
Contingency actions are required when lizard salvage and transfer activities fail	Contingencies are accounted for throughout the lizard salvage process including additional pest control and completion. The Incidental Discovery Protocol will also be followed throughout works.	Section 6.5 and Appendix 6

2.0 Relevant Legislation

Due to the presence and abundance of indigenous lizards, the proposed industrial development requires a Wildlife Act Approval (WAA) under Schedule 7 of the Fast-track Approvals Act (FTAA; 2024) which includes approvals relating to the Wildlife Act (1953).

All indigenous lizards are protected under the Wildlife Act (1953) and approval under the Schedule 7 of the Fast-track Approval Act must be obtained in order to permit the activity occurring. This includes before any indigenous lizard can be disturbed or relocated on site (Schedule 7(2, 2, i)).

In order to ensure that protective benefit is achieved for lizard populations within the site, appropriate mitigation measures have been provided in the LMP. Lizard mitigation work will be undertaken by a DOC-approved herpetologist who has been authorised to implement lizard management for the project through a DOC WAA issued for the project (see Section 3.2.2).

A LMP is a required to accompany the WAA application and must be submitted to the DOC (via the EPA) and approved prior to undertaking any activities that potentially impact on lizard populations, and any lizard management proposed to mitigate these effects.

3.0 Lizard Management Approach

3.1 General

Any lizard management must be carried out in consultation with DOC, appropriate iwi representatives, Christchurch City Council (CCC), and Environment Canterbury (ECan) respectively. We consider salvage and release a viable option for this site given the surrounding landscape, likelihood of lizards persisting/thriving and long-term management (see Section 6.2 for more detail).

3.2 Roles and responsibilities

Table 2 identifies the roles and responsibilities for the implementation of actions identified in this LMP. Responsibilities for specific actions are also identified in the sections below.

3.2.1 Wildlife approval holder

NTP is the applicant of the industrial development under the FTAA and will therefore act as approval holder, and will be responsible for compliance with the WAA and implementation of the LMP. The applicant has never been convicted of any offence under the Wildlife Act, nor has any current criminal changes under the Wildlife Act pending before a court.

3.2.2 Authorised personnel

The authorised personnel for the project will be those suitably qualified as being trained and approved by the DOC lizard Technical Advisory Group and will be implementing lizard management at the site:

- Samantha King – Wildland Consultants Ltd, Senior Ecologist and Herpetologist (Project Herpetologist).
- Jade Christiansen – Wildland Consultants Ltd, Herpetologist.
- Anna Meban – Wildland Consultants Ltd, Ecologist.

Delivery of, and compliance with this LMP will be the responsibility of approval holder (NTP) who will liaise with the Site Manager, Site Engineer(s), Project Herpetologist and vegetation clearance and earthworks contractors as required.

Pre-start meeting

Prior to any construction or earthworks on site, a pre-start meeting must be undertaken with the following personnel present on site:

- Site supervisor/Contractor representative.
- Project Herpetologist.
- Client representative.

At this meeting the logistics and timings of mitigation techniques will be discussed, so that all parties understand their roles and responsibilities. In addition, a walk over of the site will be conducted with the above parties, to delineate the areas of works and ensure that all parties understand where works are permitted to occur.

Table 2 – Identified project roles and responsibilities for LMP implementation.

Title	Responsibility	Timeline
Project Owner • NTP Development Holdings Ltd	• Delivery of the Project, including overall compliance with resource consents, LMP and subsequent WAA conditions to be issued for the project.	February 2025 – project completion
Project Engineer(s) • Davie Lovell-Smith	• Project engineering, project management, and delivery. • Liaison between contractors and ecologists. • Implementing actions where responsibility has been identified. • Confirm implementation of LMP and WAA requirements. • Confirm compliance with LMP and WAA.	February 2025 – project completion
Contractor/ Construction Site Manager (TBD)	• Compliance with LMP and subsequent WAA issued for the project. • Implementation of actions required by the LMP and WAA including the following: - Reading and understanding the LMP and WAA requirements. - Facilitating a project start-up meeting with the Project Engineers, Project Herpetologist and Contractors before vegetation clearance for construction commences. - Maintaining clear lines of communication with both the Project Engineer, Project Herpetologist and Contractors regarding changes to the works schedule. - Implementing actions where responsibility has been identified. - Briefing new personnel about the contractor's responsibilities under this LMP.	February 2025 – project completion
Project Herpetologist • Authorised Personnel on the WAA • Wildland Consultants Ltd	The Project Herpetologist has been engaged by the Project Owner to provide technical advice to the Project Engineer(s), and to assist Project Engineer with compliance checks against this LMP and WAA. The Project Herpetologist will: • Prepare and update the LMP as required. • Ensure any required WAA permits are attained and on hand during site works. • Implement lizard management • Where necessary, assist with contractor training. • Complete the required compliance reporting.	February 2025 – project completion

4.0 Lizard Values

4.1 Lizard habitat

Lizards were found in five of the six terrestrial vegetation types (described in Wildlands 2025), including:

- Exotic shelterbelt forest.
- Indigenous hedgerow forest.
- Ornamental plantings, gardens and dwellings.
- Cocksfoot pasture grassland.
- Farm buildings and debris.

Where access to properties within the project site was not permitted, a desktop assessment using aerial imagery was used to evaluate the potential presence of lizard habitat at the remaining properties. Survey results from property boundaries and adjacent properties were also considered in this assessment.

In addition, due to limitations with site access, lizard habitats are categorised (as both confirmed and potential) and are detailed in Table 3 and shown in Figure 2 below.

- Confirmed lizard habitat: areas of habitat where skinks were detected.
- Potential lizard habitat: either the property was not surveyed or no lizards were detected but the habitat is considered optimal for skinks.

Table 3 – Summary of lizard habitat present in each of the properties present within the Pound Road industrial development.

Property surveyed	Confirmed lizard habitat present	Possible lizard habitat present	No lizard habitat present
570 Waterloo Road	✓		
38 Barters Road	✓		
94 Barters Road	✓		
86 Barters Road	✓		
173 Pound Road	✓		
4 Hasketts Road	✓		
48 Hasketts Road	✓		
30 Hasketts Road	✓		
22 Hasketts Road		✓	
64 Barters Road			✓
Not Surveyed			
40 Hasketts Road		✓	
2 Barters Road		✓	
578 Barters Road		✓	
111 Pound Road		✓	

Figure 2. Lizard habitat identified within the Pound Road industrial development, Templeton, Christchurch

4.2 Lizard surveys

Southern grass skinks were confirmed on-site during lizard surveys in April and May 2025[1]. Given the site's history of habitat clearance and modification, it is highly unlikely that any other indigenous lizard species commonly found in Canterbury are present. A detailed assessment of lizard values, including the results of the lizard survey, is provided in Wildlands 2025. Lizards were detected within discrete areas of each of vegetation types listed in Section 4.1, such as along fence lines and in shelterbelts that had ground cover or refuge. In some habitats, it could not be determined whether the lack of detections was due to an absence of lizards or simply a result of low population densities combined with reduced detectability at the time of survey. Several properties could not be surveyed due to access restrictions. A summary of the results of the lizard survey across the site is outlined below and in Figure 3 and Appendix 1.

Lizards were detected in the following properties:

- 570 Waterloo Road
- 38 Barters Road
- 94 Barters Road
- 86 Barters Road
- 173 Pound Road
- 4 Hasketts Road
- 48 Hasketts Road
- 30 Hasketts Road

[1] The lizard survey was completed at the end of the lizard active season, which may have reduced lizard detectability at the site, despite mostly favourable conditions.

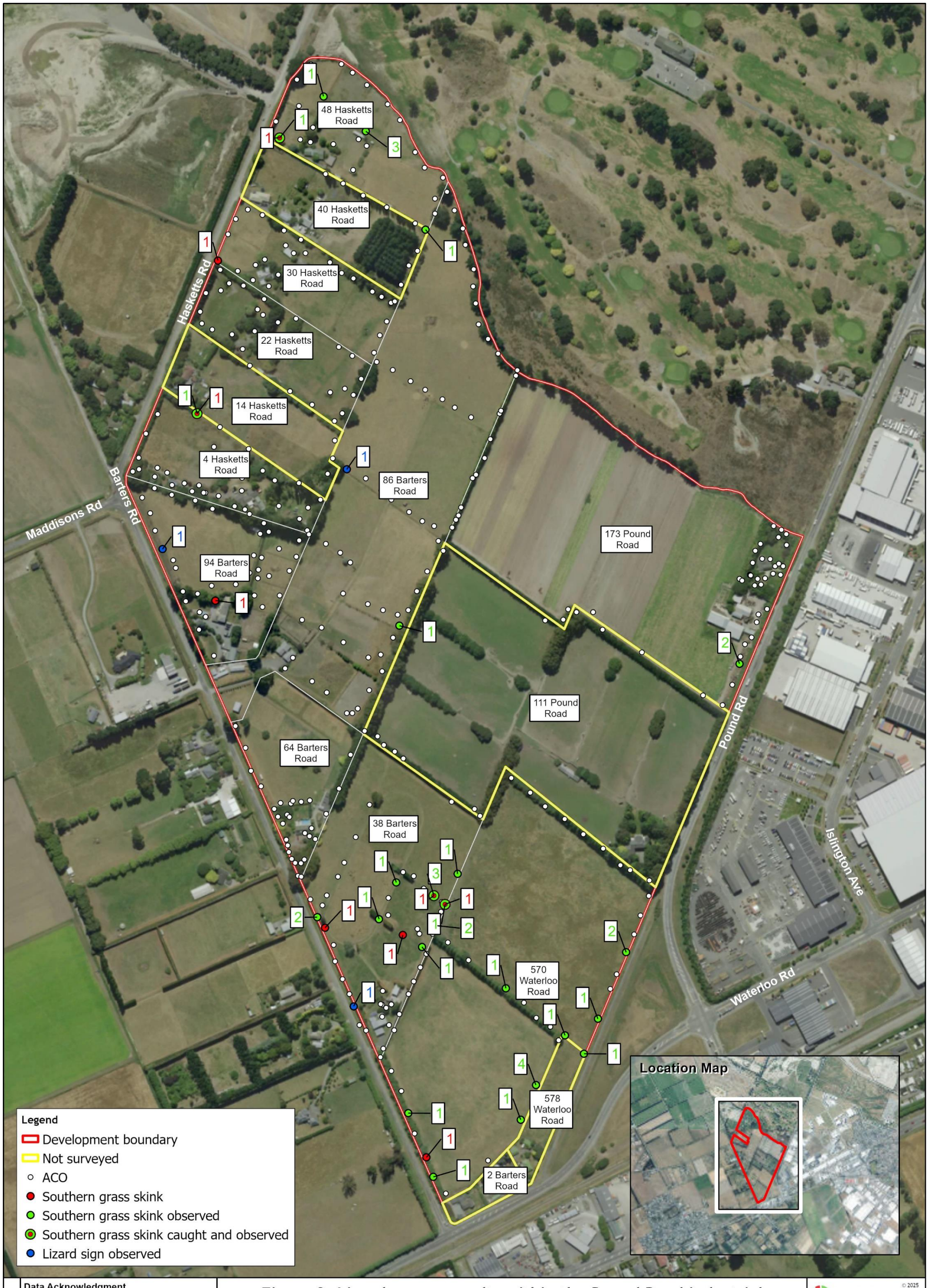

Figure 3. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

5.0 Ecological Significance and Effects on Lizards

5.1 Ecological signficance

The habitats identified in Figure 2 meet the ecological significance criteria for rarity/distinctiveness in the Canterbury Regional Policy Statement (Environment Canterbury, 2021) and the National Policy Statement for Indigenous Biodiversity (NPS-IB; Ministry for the Environment, 2023) because of the presence of southern grass skink, which are At Risk – Declining and found in less than three other regions. The presence of indigenous fauna at this site requires consideration under the NPS-IB, and particularly the NPS-IB's objective to achieve no overall loss in indigenous biodiversity.

5.2 Effects on lizards

Potential effects on lizards resulting from the proposed development are outlined in Wildlands (2025).

5.3 Significance of effects

The level of ecological effects on indigenous lizards without mitigation, as per Wildlands, 2025, are presented in Table 4.

Table 4 – Significance of effects to lizards and their habitats without mitigation.

Effect	Level of effect without mitigation
Accidental displacement and harm (injury/death) to lizards.	More than minor
Disturbance to lizards during earthworks.	More than minor
Loss and fragmentation of habitat for indigenous lizards.	Minor
Breeding failure/behavioural effects to lizards.	Less than minor

6.0 Management of Effects

6.1 Avoidance

Avoidance of lizards and their habitats at the site is not possible. The entire site will be earth worked to prepare for industrial development. In addition, small amounts of lizard habitat can be found widely throughout the site. Therefore, avoidance is not possible.

6.2 Minimise: ongoing site maintenance

6.2.1 Ongoing site maintenance

Currently, a majority of the occupied properties are heavily grazed (cattle, horses, deer), or planted in crops (i.e. onion farm), which is not suitable habitat for lizards. Therefore, lizard habitats are restricted to small areas of ungrazed or unmaintained areas, such as fence lines, hedgerows, soil bunds, house sites and/or machinery lay down areas. Properties where this is applicable are listed below:

- 570 Waterloo Road.
- 38 Barters Road.
- 86 Barters Road.
- 94 Barters Road.
- 111 Pound Road.
- 173 Pound Road.

The staging of the development means that there is likely to be a period of time between obtaining consent under the FTAA and the full extent of the development being completed

Should grazing and current land-uses cease and rank grassland spreads across the properties prior to development, much of these sites could become suitable for southern grass skink and populations could increase across the site.

It is important to continue current land use practice throughout these properties prior to and throughout the development process, until earthworks and vegetation removal commences. This will reduce the risk of lizards dispersing into areas not currently designated as areas of lizard habitat.

If these areas are not managed, and consequently become lizard habitat, they will need to be managed through the same methods highlighted in the LMP (Section 6.3).

6.3 Minimise: salvage and relocation

6.3.1 Overview

A salvage and relocation programme will be implemented within the lizard habitats where vegetation removal is intended to occur. All lizards will be trapped using live capture traps and will be relocated to the neighbouring Templeton Golf Club (Section 6.3.7). Salvage will be undertaken within all the identified habitats in Figure 2 (both confirmed and potential) for the reasons described in Section 4.0.

6.3.2 Salvage effort

The amount of salvage effort and range of methods proposed for use at the site is aimed to enable the removal of as many individuals as possible, representing a moderate to high proportion of the total number of lizards present. Salvage effort will be higher in habitats where lizards have been confirmed.

The industrial development works will be completed in stages to ensure that management can be implemented in a realistic timeframe; therefore, lizard salvage will also be undertaken in stages. The development stages have not yet been confirmed. However, the first stage is expected to be undertaken between October 2026 and April 2027, with additional stages to follow in subsequent years.

Earthworks will proceed into lizard habitats within a **maximum of two weeks** after the salvage of each stage has been completed. The Project Herpetologist will be notified once the works commence. If works do not proceed in this time, it is possible that lizards from the surrounding areas may move into the works area. If this occurs, the salvage will need to recommence following the methods outlined below.

Table 5 – Estimated number of lizard live capture traps and the manual searching effort required for each property within the wider rezoning area, including the estimated number of skinks caught for each salvage.

Habitat type	Approximate number of traps required	Minimum salvage effort (trap days)	Manual searches required (hours)	Estimated number of lizards salvaged
Properties Where Lizards Have Been Confirmed				
570 Waterloo Road	190	14 days	No	150
38 Barters Road	110	14 days	No	150
86 Barters Road	110	14 days	No	50
94 Barters Road	70	14 days	10 p/h	20
4 Hasketts Road	80	14 days	No	20
30 Hasketts Road	100	14 days	12 p/h	20
48 Hasketts Road	100	14 days	4 p/h	80
173 Pound Road	20	14 days	2 p/h	10
Properties where lizards may be present				
22 Hasketts Road	100	5 days	No	20
Properties not yet assessed for lizards				
40 Hasketts Road	20	5 days	12p/h	20
14 Hasketts Road	70	5 days	5 p/h	20
2 Barters Road	20	5 days	5 p/h	20
578 Waterloo Road	100	5 days	5 p/h	50
111 Pound Road	70	5 days	5 p/h	20
Total	**1,160**		**64 p/h**	**650**

6.3.3 Salvage methods

- Live-capture lizard traps will be placed at 5-10 metre spacings, as outlined above in each property prior to earthworks.
- Traps used may be a mix of Gee's minnow (funnel) or pitfall traps, but funnel traps will **not be used** within any areas with significant patches of rank grass, to avoid incidental mouse predation.
- Hand-searching techniques will be used to capture additional basking/active skinks. This will involve manually searching through and destructing the debris piles (where possible) at the end of the salvage to locate and capture any additional lizards.

Confirmed lizard habitat

- Once active, live capture traps will be checked daily for a minimum of 14 consecutive days. If trapping reveals trends of decreasing numbers of skinks over the course of 14 days, with no skinks captured after day ten, trapping will cease.
- If live capture traps continue to get the same or high numbers of skinks over these 14 days (>3 individuals per day), trapping will continue for three-day increments until the threshold is met, or until no more skinks are caught.

Potential lizard habitat

Salvage efforts in potential lizard habitat will be conducted over a shorter timeframe.

- Once active, live capture traps will be checked daily for a minimum of five consecutive days. If trapping reveals no captures after five survey days within a discrete area of habitat, traps will be removed.
- If lizards are detected within the first five days, the same salvage methods for the confirmed lizard habitat above will be followed (detailed above).

Pitfall traps consist of a plastic container (>2 litre depth) dug into the ground (typically baited with pear as an attractant), which lizards may fall into and be unable to exit. The pitfalls will be covered with Onduline to provide additional thermoregulatory advantages and attract more lizards to the traps. Pitfall traps will be filled with grass and a damp sponge, in addition to the Onduline artificial cover to provide shelter and prevent desiccation of skinks within the trap. Pitfall traps will be installed one week prior to habitat clearance and will be closed during this time to allow for lizards to become habituated to the traps and for the traps to weather in (as per the DOC Herpetofauna Toolbox for Pitfall Trapping; Hare, 2012a).

Funnel traps will be baited with canned pear or berry bliss lollies, Natural Confectionary Co.™ (known lizard attractants). Funnel traps will be padded with grass to provide shelter and prevent desiccation, in addition to preventing mice from predating upon caught skinks. The funnel trap with be covered with or nestled into the surrounding vegetation (as per the DOC Herpetofauna Monitoring Toolbox for Funnel Trapping; Hare, 2012b).

- The length of trapping past the minimum requirements will be up to the discretion of the Project Herpetologist.
- Any lizards captured will be handled and held following best practice and released as soon as practical to the pre-selected lizard release area.

Responsibility: Project Herpetologist.

6.3.4 Data collection

Lizard capture data will include species identify, sex, length and tail regeneration. Each day of salvage will be recorded, including start/stop time, GPS coordinates and a habitat description for the capture location, date and time. Weather conditions will be recorded during and at the beginning and end of each salvage event.

Responsibility: Project Herpetologist.

6.3.5 Temporary holding of lizards

All captured lizards will be temporarily placed in clean individual lizard cloth bags, and stored in ventilated, hard-sided containers(to prevent accidental crushing), in coll, full shade until release. A small amount of damp leaf litter or vegetation from the capture site will be placed inside the cloth bags with the lizard to provide cover and prevent dehydration. Lizards will be released within two hours of capture into the pre-selected release area.

Responsibility: Project Herpetologist.

6.3.6 Habitat clearance

All vegetation found within the lizard habitat, will be removed post-salvage without supervision. **All unsupervised vegetation will occur within two weeks** of the salvage to ensure any remaining lizards do not move back into the habitats. The incidental discovery protocol must be followed (Appendix 6).

Responsibility: NTP, Contractor.

6.3.7 Lizard release

Overview

The release site (*c.*2.2 hectares) is located within the Templeton Golf Club (TGC) at 273 Pound Road, Templeton, which is immediately adjacent to the project site. The TGC currently leases this land from CCC. The release site is located in the south eastern corner of the golf club in an area that is not maintained and comprises a complex of rank grass, gorse, broom and wilding pine. This area is currently used by the golf club for gravel storage. The release area is part of a wider area of unmaintained habitat; which likely comprises suitable habitat for lizards and is expected to support the natural dispersal and establishment of lizards from the release site over time.

Release site assessment

A survey of the proposed TGC release site has not been undertaken, but will be completed prior to the release of lizards. A targeted survey using ACOs is proposed for the upcoming lizard active season (October 2025-April 2026), ahead of any proposed management, to confirm the site's suitability for lizard translocation. ACO surveys will follow standard practice (Lettink, 2012).

The proposed release site comprises a complex of rank grasses and exotic weeds and is currently unmanaged. Given these conditions, it is likely that southern grass skink are present. It is considered highly unlikely that any other lizard species inhabit the area.

If the lizard survey at TGC reveals a very high population density of lizards, an alternative release site will need to be identified (Section 6.5.3). Following the survey, and prior to lizard salvage, a memo detailing the results will be submitted to DOC describing whether the site is suitable for release, or whether another release site is required.

Based off of the habitat present, it is likely that a medium density population of lizards is present within the release site. Therefore, enhancement of the site through weed control, enhancement planting, the creation of additional habitat units and mammalian pest control should improve the carrying capcity of the site. Table 6 below addresses the criteria for consideration of a release site for lizard release (based on Principles 6, 7 and 9 of the lizard mitigation guidelines (Department of Conservation, 2019)).

Table 6 – Assessment of lizard release site based on Principle 6 of the lizard salvage guidelines (Department of Conservation, 2019).

Principle relating to salvage and release	Description	Detail/activity
1. The site must be ecologically appropriate and have long-term security	**Resident lizard communities must be understood** *Will released lizards increase viability of population, or be released in high enough numbers to start new population?*	Southern grass skinks are likely to be present (preference three of release site quality; (Department of Conservation, 2019).
	The release site must be an appropriate distance from the impact site to prevent lizard homing, but close enough that it provides similar habitat	The release site (pending spring surveys) will be established at the TGC (273 Pound Road) adjacent to the site. The release site is within the known range of the southern grass skink, and is likely ecologically appropriate for the relocated population. Enhancement methods of the release site will be undertaken in a way to deter lizards from returning back to the project site (Section 6.3).
	The location must be within the species natural geographic range. *Ensure no mixing of potentially genetically structured populations.*	The location of the release site is within the species natural geographic range. The released animals should be genetically similar to the resident population at the release site.
2. The habitat at the site must be suitable for the salvaged species	**Vegetation composition and size:** predominantly indigenous vegetation and sufficiently large and continuous for residents, release lizards and allowing for population growth.	The entire release site will be supplemented with pest plant management, enhancement planting, creation of additional habitat units and pest mammal management. The total enhancement area is approximately 2.2 hectares in area.
	Must contain sufficient resources for potential population. For example, food, cover, retreats.	The habitat at the release site will contain sufficient habitat resources for the relocated population after enhancement has been undertaken which will improve the quality of the habitat.
	Habitat enhancement – must be ongoing in an ecologically relevant timeframe.	Habitat will be improved using lizard appropriate plants, pest plant management and the addition of habitat units. Predator control will be implemented to reduce pressures to the population after release.
	Edge effects – The release site must be buffered from intermittent climatic extremes, such as drought.	A buffer of dense amenity planting is proposed for around the boundary of the release site. This should protect the site from climatic extremes.
3. The site must provide protection from predators	**Habitat must protect from predators**, or effective pest control must be in place. Must include full suite of predators including trapping for mice	Pest mammal management in the form of trapping and baiting for rabbits, hedgehogs, mustelids and rodents. This will begin two months prior to lizard release and will be ongoing for five years.
4. The site must be protected from future human disturbance	Land tenure must ensure long term protection from disturbance	The release site is on CCC land and is therefore, protected from disturbance in long term.

Release methods

Southern grass skink will be transported by car to the release site at the TGC. The hard sided containers that skinks are temporarily held in will be placed in larger bins (fish bins) securely in the car (seat belted) so movement is limited. The most direct route will be taken to the release site to limit the amount of time the lizards spend in the car. Lizards will be checked on release for any signs of stress or illness.

Southern grass skinks will be released into pre-constructed habitat units (wood and rock piles) first to prevent initial dispersal of lizards outside of the release site. Five to ten southern grass skink (depending on the numbers caught) will be released into each habitat unit, so as to not create unnecessary competition. Where any lizards are found together or in an aggregation (i.e. multiple captures in one trap), they will be released in groups together.

Responsibility: Project Herpetologist.

Memorandum of understanding

The TGC release site needs to be agreed on by CCC Biodiversity Team Leader, Antony Shadbolt and the TGC board. Methods of enhancement (specifically pest weed and mammal control) will be approved by both CCC and the TGC before implementation. It is recommended that a memorandum of understanding between NTP, the TGC board and CCC is prepared for this salvage, in order to implement the following enhancement at the site.

Release site enhancement

The enhancement described below will provide protective benefits for the lizards proposed to be salvaged from the Pound Road industrial development site. Proposed release site enhancement includes, pest plant control, enhancement planting and plant maintenance, the construction of additional habitat units and pest mammal management.

Release site enhancement will increase the overall quality of lizard habitat within the reserve and provide additional resources for both the resident and released populations of lizards. Although enhancement planting will not increase carrying capacity in the short term, it will provide additional habitat, which will increase the carrying capacity of the site over time.

A Landscape Plan has been created by Novo Group Ltd showing the proposed enhancement of the TGC release site (Appendix 2). Enhancement has been described below in the order it is intended to be implemented Table 7 summarises the proposed enhancement and the timeline in which it will be implemented.

Table 7 – Implementation schedule for the proposed enhancement of the Templeton Golf Club release site. NTP will commission and arrange for the aprropriate contractors to undertake the enhancement outlined.

Timeline	Site preparation	Additional habitat units	Pest plant management	Enhancement planting	Pest mammal management
Prior to lizard salvage and release	• Ground cover and rank grass control in preparation for planting and additional habitat unit construction.	• Construct rock and wood piles.	• Undertake initial pest plant control during the first appropriate season.	• Undertake enhancement planting between May and August.	• Construct rabbit proof fence. • Begin pest mammal control (at least two months before lizard release).
Year zero (following release site enhancement)			• Two to three monitoring visits per year.	• Two to three monitoring visits per year.	• Tracking tunnel survey twice per year, in spring and autumn. • Mammalian pest control. • Rabbit proof fence inspection.
Year one-three			• Two to three monitoring visits per year.	• Two to three monitoring visits per year.	• Tracking tunnel survey twice per year, in spring and autumn. • Mammalian pest control • Rabbit proof fence inspection.
Year four- five			• One monitoring visit per year.	• One monitoring visit per year.	• Tracking tunnel survey twice per year, in spring and autumn. • Mammalian pest control. • Rabbit proof fence inspection.

Pest plants

The site has not been surveyed for pest plants, but historic imagery shows that it was pine (*Pinus* species), woodlot until the trees were harvested in *c.*2020. Since then, woody weeds have established on the site and recent imagery suggests that broom (*Cytisus scoparius*), is now abundant, with scattered wilding pines also establishing. These woody weeds provide limited benefits to lizards (due to a lack of food resource and refuge) and overtime will outcompete and shade the exotic grass and any indigenous restoration plantings. Both plants are also classified as pests in the Canterbury Regional Pest Management Plan (CRC 2018).

Pest plant management

It is recommended that initial weed/pest plant control focuses on woody weeds to reduce their abundance within the site and preserve the current lizard habitat values (associated with exotic) grass). This includes all 'woody weed' species on the site such as tree lucerne (*Chamaecytisus palmensis*), blackberry (*Rubus fruticosus*) and gorse (*Ulex europaeus*), which all been recorded on adjoining properties (Wildlands 2025). However, as this is a lizard release site, control needs to be implemented with minimal disturbance to lizards.

Control methods will include:

- Herbicide control (e.g. drill and fill, foliar spray, cut and paint, basal bark spray).
- Manual removal (hand pull small seedlings).
- Combination methods (e.g. manual and herbicide to avoid damage to indigenous biodiversity).

Weeds will be controlled using the most effective and appropriate control methods, ensuring that any control causes minimal damage to indigenous plants (if present) and fauna (e.g. lizards). If lizards are seen in the vicinity of a pest plant during weed control, then foliar or basal bark spray herbicide methods will not be used. It is essential that any operator undertaking weed control is suitably trained and experienced, to ensure that weeds are accurately identified and indigenous fauna (or plantings) are not accidentally harmed or damaged during control work.

Each pest plant or infestation will be assessed for the best control option, which depends on the size and maturity of the plant and the situation it is growing in (see Appendix 4 for different types of control methods). Weed control will be carried out during the appropriate seasons when weeds can be more easily identified and targeted for control, and control is likely to be most effective (i.e. during the growing season for deciduous species). All control will follow manufacturers' guidelines, current best practice procedures, and NZ Standards of agrichemical management (NZS8409:2021). Signs may need to be erected to notify the public during weed control works.

Given the abundance of weeds and pest plants on the site and in the surrounding areas it is recommended that pest plant control as soon possible and maintained for a minimum of five years. Follow up control can be undertaken in conjunction with planting maintenance once indigenous planting is completed (see enhancement planting below).

Site preparation

Control of rank grass and groundcover vegetation is necessary before planting and habitat unit creation, as grasses and woody weeds can smother young indigenous plants during their first season. Additionally, pest plants can overtake wood or rock piles, restricting basking opportunities for lizards.

NTP will commission a CCC approved contractor to undertake preparation of the site for planting. Groundcover vegetation will be cleared in a lizard friendly manner (through use of hand weeding or use of a weed eater, on warm, fine weather days), or through spot spraying, if determined necessary.

Responsibility: NTP, CCC approved contractor.

Enhancement planting

NTP will commission a CCC approved contractor to undertake planting within the release site prior to lizard salvage and release. The overall design of the release site planting was developed by Novo Group Ltd and is detailed in the Landscape Plan (Appendix 2). An amenity planting buffer will be established along the boundary of the release site to enhance visual appeal and improve the overall amenity value as viewed from the golf club and from Pound Road. In addition, it will be planted in a way which should deter lizards from exiting the release site back into the neighbouring Pound Road industrial development site.

Small dense shrubs and groundcover will be planted along the boundary of the release site, to not only enhance visual appeal, but when planted densely will provide suitable shelter and refuge for lizards. The amenity planting will be planted at 0.5 – 1 metre spacings to allow for the plants to merge, creating the required barrier between the enhancement and development areas; and create a dense habitat for lizards to occupy. This amenity planting will be set back at least one metre from the fence to allow for ongoing fence maintenance to occur.

Throughout the rest of the release site, to minimise failures of plantings as well as to increase plant diversity at the site, a wide variety of lizard friendly plants suitable for the release site are listed in Table 8. The number of plants will take into account current vegetation within the site and the need for open areas for additional habitat units. The estimated number of plants required for the enhancement of the TGC release site has been detailed into the Landscape Plan for the site (Appendix 2).

Plants will be kept well-watered from the time of departure from the nursery until the day of planting. Plant stock will be handled with care to minimise plant damage. If planting of a site is to take an extended period of time (e.g. weeks not days), a temporary nursery for holding the stock will be established at the planting site.

Plants will be planted in clumps to provide a uniform density of ground cover (i.e. groups of 100 plants). Plants will be spaced at 0.5-1m spacings where possible to facilitate effective ground cover over a shorter timeframe. In addition, dense plant clumping will help to prevent woody weeds from outcompeting the new plantings. Particular plants such as creeping pōhuehue will be planted in association with habitat units (wood and rock piles) to create added protective refugia for skinks.

The use of weed mats, mulch, bark and woodchip in the enhancement areas will be avoided. These types of ground covers inhibit the establishment of suitable habitat and vegetation often relied upon by lizards for cover, reduce and presence of invertebrate communities that provide important food resources for lizards. Small amounts of woodchip may only be used around the bases of new plantings if required for weed suppression.

Plants will be installed between May and October, when soil moisture is sufficient and must be implemented prior to salvage, to minimise disturbance to the released lizards.

Table 8 – Benefits the proposed enhancement plant species provide for lizards at the Templeton Golf Club release site.

Species name	Common name	Benefits to lizards
Poa cita	Wi/Silver tussock	C, I
Festuca novae-zelandiae	Hard tussock	C, I
Muehlenbeckia axillaris	Creeping Pōhuehue	R, N, F
Muehlenbeckia astonii	Shrubby Tororaro	C, R, N, F
Melicytus alpinus	Porcupine shrub	C, R, F
Coprosma propinqua	Mingimingi	C, N, F, I
Coprosma crassifolia	Thick-leaved mikimiki	C, N, F, I
Cortaderia richardii	South Island Toetoe	C, R, I
Sophora prostrata	Prostrate Kowhai	C, N, I
Cordyline australis	Ti Kouka	R, F
Total		

Key to known benefits to lizards: C = cover, R = retreats, N = nectar, F = fruit, I = invertebrates

Repsonsibility: NTP, CCC approved contractor.

Enhancement planting and weed monitoring and maintenance

As mentioned above, due to the high number of weeds and pest plants on the site and in the surrounding areas, NTP will commission ongoing maintenance and monitoring. A CCC approved contractor will implement monitoring and maintenance for five years after planting to ensure the successful establishment of plantings (refer to Appendix 5 for planting guidelines). Planting will be followed by monitoring visits two to three times a year for the first three years to ensure the uptake and survival of plantings and to undertake weed inventory monitoring to assess the presence and spread of pest species. This will be reduced to one monitoring visit a year for years four and five. Monitoring visits will determine what plant maintenance is required and to determine the need for, and type of, any further weed control measures. Post-planting maintenance will include:

- Plants kept free of weeds by means of hand weeding only or weed eaters when absolutely necessary. Weeding will be undertaken three to four times a year to ensure that weeds do not compromise plant growth.
- Hand weeding around the plants will allow for better establishment of the plants and limits disturbance to skinks.
- No mulching will be undertaken.
- The areas between plantings will be left to establish on their own, without maintenance, forming a mosaic of ground cover.
- Where plant loss exceeds 10%, these will be replaced.

Maintenance will take place on warm, sunny days when the daily temperature exceeds 16 degrees as this is when skinks are most active. Contractors will refrain from using sprays in and around lizard habitats (specifically the additional habitat units), as the effects herbicides and insecticides have on lizards are largely unknown.

Responsibility: NTP, CCC approved contractor.

Additional habitat units

To increase the amount of suitable lizard habitat, provide additional shelter and protection from predators, and increase carrying capacity within the site, the release site will also be enhanced through the deposition of wood and rock piles.

The site was formerly logged and a significant amount of slash remains within the release site. This already provides habitat for lizards and will be retained as natural refugia for lizard release. As a result, the total estimated number (67) of additional habitat units described below may not be required.

Rock aggregate piles will be either up to two metres in diameter, or be created in longer meandering corridors. All piles will be ≤1 metre deep in the centre and comprise of washed river rocks of 50–200-millimetre grade to provide optimal interstitial spaces amongst the piles for lizard occupation. Rocks will be sourced from a landscape supplier or local quarry prior to lizard release. Washed rock prevents the establishment of any unwanted pest plants to the area.

Wood for habitat enhancement will be sourced from the project site during vegetation clearance of the existing tree hedgerows within non-lizard habitat. Each wood pile will consist of a combination of different sized logs and cover up to a $3m^2$ area.

All rock and wood piles will be spaced at least 10 metres apart. Therefore, up to 67 rock or wood piles may be included within the reserve design (Appendix 2).

Because the site is vegetated, the rock and wood piles will be placed in open, clear areas without shade from existing vegetation, providing lizards with basking opportunities. The placement of the wood and rock piles will be supervised by the Project Herpetologist to ensure they are placed correctly and ensure that disturbance to the site is minimised. Additional habitat units will be installed prior to the release of lizards.

Repsonsibility: NTP, CCC approved contractor, Project Herpetologist.

Pest mammal management

Management of mammalian pests (rats *Rattus* spp., mice *Mus musculus*, mustelids *Mustela* spp., hedgehogs *Erinaceus europaeus*, and rabbits *Oryctolagus cunniculus*) is outlined below. Pest mammal management will be set up before lizards are released, to ensure that pest mammals will be in low numbers within the release area when lizards are most vulnerable shortly after release. Pest mammal management will be implemented by a suitably qualified and CCC approved contractor, funded by NTP, at least two months before lizard release and will continue for five years after it has been set up.

Rabbits and hares

Monitoring

Rabbit and hare monitoring will be conducted both before and after implementing control methods in order to gather accurate information about population density. This data is essential for selecting the most appropriate control strategy and for assessing the overall effectiveness of the control method used.

Spotlighting to assess rabbit population density will be conducted over two consecutive nights under favourable weather conditions—clear skies, minimal wind, and ideally no full moon—between dusk and dawn. This activity will be carried out by a suitably qualified contractor in accordance with established best practice guidelines (National Pest Control Agencies, 2015).

In addition, a rabbit sign assessment will be undertaken during the day, to search and count droppings, burrow entrances, pellet heaps and any signs of digging and grazing. This can help to determine both presence and density of rabbit populations but will also help to inform the best control strategy. The Modified Maclean Scale can be used to assess and compare rabbit activity using rabbit sign.

Rabbit proof fence

A rabbit proof fence will be constructed around the reserve, which encompasses the release areas (Appendix 2), in order to exclude rabbits. In addition, the fence will also exclude hedgehogs, which are a significant predator of lizards.

The rabbit-proof fence will use existing fence lines (Appendix 2). The fence will be constructed out of posts and wire rabbit netting (≤41 millimetre hex). It will be 900 millimetres high and buried 150 millimetres below ground. This will require approximately 0.8km of rabbit netting to construct. The fence will be gated to allow for maintenance activities to be carried out. The rabbit proof fence will be erected before pest mammal management begins, two or more months before lizards are released. Pest mammal control will be undertaken within the fence, once constructed, following the methodology below.

The fence will require monitoring and ongoing maintenance to ensure its integrity. The monitoring of the fence will be undertaken by a suitably qualified pest control contractor, in conjunction with pest control implementation for five years post-release. Any required maintenance identified during this monitoring will be addressed at the cost of NTP. After this time, how the fence is managed will be up to the discretion of CCC.

All rabbits and hares within the enclosed area will be removed to prevent a rapid increase in their population once the fence is in place.

Fumigation

Fumigants will be introduced into a rabbit burrow system, where they form deadly toxic gases which are inhaled by the rabbits. Typically, magnesium phosphide (Magtoxin) pills are used, which react with water to release toxic phosphine gas. All burrow entrances except one must be blocked before the pills are introduced through the remaining open entrance, whereupon it must be blocked immediately.

Fumigation does not require the rabbit to eat a bait and so is effective in areas where bait shyness is a problem. However, active rabbit burrows must be present within the release site for fumigation to be effective. Fumigation will follow best practice guidelines (National Pest Control Agencies, 2015).

No licence or permit is required to use Magtoxin. It is a relatively safe and non-intrusive method, although the person carrying out the fumigation must be careful not to inhale any gas as it is extremely toxic and forms immediately when the pellets contact moisture.

Mustelids and hedgehogs

To control mustelids and hedgehogs, DOC 150 traps will be placed along the fence lines and through the middle of the site, at 100-metre spacings. These traps will also kill rats, but will not control their numbers. They will be baited with hen eggs. The traps will be checked once per week until no more hedgehogs are caught, then once every two weeks in the summer (September to March) and three weeks in the winter (April to August) for mustelids.

Rats and mice

Run-through lockable bait stations will be placed at 25 metre intervals in a grid. The bait stations should not be visible from the road or public spaces, so will be hidden within and beneath foliage where they may otherwise be visible.

As soon as the rabbit proof fence has been completed, bait stations will be filled with a brodifacoum block bait designed for both rats and mice, such as Vertox. Baits will be checked and restocked every three days for the first week, then checked and restocked weekly for a total of four weeks from when the bait is first deployed. After four weeks, all bait will be removed and discarded. This constitutes the first pulse of poison baiting.

One pulse will take place every second month. After the initial brodifacoum pulse, diphacinone will be used in the bait stations (e.g. D-Block).

Monitoring and adaptive management

Due to the small size of the site, there is unlikely to be any beneficial statistical analysis that can be done with such limited monitoring data. However, tracking tunnels will provide data on rodent activity levels within the release area, as well as more surveillance for hedgehogs and other threats such as weasels. A tracking tunnel survey will be carried out twice per year, in spring and autumn, with six tracking tunnels placed in a line through the middle of the site. The tunnels will be baited with peanut butter for three fine nights.

After hedgehogs have been eradicated from the release site, reinvasions may occasionally occur and these should be detected in traps. Upon discovering a hedgehog reinvasion, DOC-series trap checks will increase in frequency to once per week until they are no longer detected.

Within rodent bait stations, bait take will fluctuate throughout the year, and pulsing (as described above) reduces the risk of bait aversion developing within the rodent populations. However, if bait take becomes reduced despite abundant rodent sign, a pulse of brodifacoum will be implemented before returning to diphacinone for following pulses.

Table 9 – Summary of the pest control layout. All sizes in metres.

Mammalian predator	Control device	Bait	Spacing (metres)	Estimated number of devices	Check and rebait frequency
Hedgehog and mustelid	DOC-series traps	Hen eggs	100 x 100	8	Check once per week until hedgehogs have been eradicated, then once every three weeks for ongoing mustelid control.
Rodent	Run-Through bait station	Brodifacoum e.g. Vertox bait Diphacinone e.g. D-block	25 x 25	42	Checked and restocked every three days for the first week. Checked and restocked weekly for three more weeks. Followed by diphacinone pulses every second month.

Safety precautions

The hazard profile at the release site comprises a dwelling, a nearby urban area, and a golf course, all of which affect the placement and notification protocols for toxins. Use of toxins in the release site will be carefully managed, following all local bylaws and the manufacturer's guidelines, and including communication with the local Public Health Officer. Signage will need to be placed at every entrance

advising of the poison operation. All carcasses found on-site will be buried or disposed of safely off-site.

Feral cat control is not recommended due to the proximity of the neighbouring residential areas and domestic pet cats. Local people may wish to keep their cats indoors to avoid the low risk of secondary poisoning from cats eating poisoned mice.

Responsibility: Suitably qualified and CCC approved contractor, NTP.

6.3.8 Constraints

There are inherent risks associated with lizard capture, salvage and relocation as a management tool for mitigation purposes. In particular, there is high risk of poor capture rates for lizards during pre-survey capture and salvage activities. This will be managed by maximising lead-in time for pre-clearance capture and using a range of tools suitable to the species in question.

Lizard salvage climatic constraints:

Many lizard species are inactive below 16°C. Hot summer temperatures (>25°C) also reduce lizard emergence and detectability. Because of these constraints, salvage will be undertaken between October – April (inclusive), when:

- The temperature is between 16°C and 25°C, and
- Rain is no heavier than 0.1 – 2.0 mm per hour.
- The wind is not strong.

Relocation of lizards is a complex process, and many factors must be considered before animals are moved. Consideration will need to be given to assess whether the release site has sufficient habitat and resources to support lizards (or additional lizards if some lizards are already present).

When lizards are first translocated, they will be unfamiliar with the landscape and may be unable to find suitable refugia to hide from predators and competitors, and they may therefore potentially disperse away from the release site. By releasing lizards into the aggregate piles first this may help to orientate and maintain translocated individuals at the site.

6.4 Remediation

A five metre wide buffer of amenity planting is planned to be implemented along Barters Road (818 metres) to replace the exisitng shelter belts. A five metre buffer is required to ensure successfull planting and to mitigate rural amenity. Too remedy some of the effects of the development, this amenity buffer planting will consist primarily of lizard friendly plant species. A Landscape Plan has been created by Novo Group Ltd for the buffer drain remediation (Appendix 3).

A variety of lizard friendly plants will be installed to provide a wide range of resources for lizards. The proposed remediation will not only replace some of the lizard habitat lost, but increase the available lizard habitat and connectivity throughout the site over time.

All planting will be carried out by a suitably qualified contractor funded by NTP. A comprehensive planting schedule has been developed in collaboration with the Landscape Architect and Project Herpetologist. A list of lizard friendly plant species that has been included in the buffer planting plans is provided in Table 10.

Table 10 – Plant species for enhancement planting within the Barters Road buffer areas within the Pound Road industrial development site.

Species	Common Name	Benefits to Lizards
Apodasmia similis	Oioi	C, F, I
Carex secta	Pukio	C, I
Cortaderia richardii	South Island toetoe	C, R, I
Phormium tenax	Harakeke	C, R, N
Coprosma propinqua	Mingimingi	C, N, F, I
Cordyline australis	Cabbage tree	R, F
Sophora prostrata	Prostrate kowhai	C,N, I

Key to known benefits to lizards: C = cover, R = retreats, N = nectar, F = fruit, I = invertebrates

Responsibility: NTP, Landscape Architect, Project Herpetologist.

6.5 Contingencies and risks associated with proposed management

6.5.1 Risks associated with salvage

Potential risks to lizards as a result of the proposed salvage, and management actions to reduce these risks, include:

- Overheating
  - Issue: Overheating may occur when captured lizards are temporarily held in containers during ongoing salvage activities.
  - Action: Lizards will be placed in individual containers and kept in a cool place until transported and released. Handling will be minimized to ensure they do not become stressed. All traps will be checked at least once daily.
- Overcrowding, competition and displacement
  - Issue: Lizards are already present in low densities within the TGC release site. The addition of supplementary lizards to the release site population may result in competition for resources and increased predation pressure and may result in displacement when released.
  - Action: Enhancement planting, predator control and creation of additional habitat units within the release site will allow for a greater carrying capacity of lizards. This will reduce the amount of competition and potential displacement of released skinks.
- Injury/death
  - Issue: Incorrect trapping or handling during salvage by untrained staff.
  - Action: All lizards will be captured or supervised by an appropriately qualified herpetologist, following best practice and full hygiene protocols, minimising the risk of injury, death and disease transmission through inappropriate handling and capture.

6.5.2 Contingencies

There is inherent uncertainly in the outcomes of lizard salvage and release as a result of the complexities of the process and long-term management of the release site for species conservation. In some cases, threatened species may be discovered during salvage, the release site is not viable in the long term, or predator control regime has been found ineffective. The main risks and resulting contingencies relating to the proposed management are detailed in Table 11.

Table 11 – Risks associated with salvage and proposed management.

Risk Associated With Salvage	Detail	Contingency
Release site is not suitable	The release site has not yet been surveyed for lizard suitability.	If the release site is deemed unsuitable (very-high density population of lizards is detected), a new release site will be sought (see Section 6.5.3)
Additional lizard species encountered	Although unlikely, if any other species is encountered during salvage.	Follow Incidental Discovery Protocol. Stop works, notify DOC, and develop further instructions (see Appendix 6).
Release site is not established	Release site enhancement is not fully implemented before the salvage (proposed October 2026).	If all of the required release site enhancement identified in Section 6.3 and Table 7 has not been implemented prior to the first stage of salvage, an alternative release site will be required (see Section 6.5.4).
More lizards than expected are salvaged	Each property has an estimated number of skinks to be salvaged, but this may be underestimated in some areas (as some properties were not included in the original survey).	Salvage will continue for a minimum of 14 days until **three or less** skinks are captured, or until **no** skinks are captured during the latter stages of salvage (c. day 10) (see Section 6.3.36.2).
		If more than 670 lizards are salvaged, the release site will be extended into the contingency release area of the Templeton Golf Club. (see Section 6.5.5).
Residual skink populations remaining after salvage completion	It is unlikely that all lizards will be removed from the impact site and may be displaced by earthworks.	Incidental Discovery Protocol (see Appendix 6).
Release site failure	Lizard population decline.	Post-release monitoring to determine population persistence. Any recommendations to address population declines will be recommended in annual reporting (see Section 7.0 and 8.0).
	Enhancement planting fails.	Any more than 10% plant failure will be replaced at the cost of NTP. This will be determined through post planting monitoring (see Section 7.0).
	Pest mammal reinvasion.	**Hedgehogs** – DOC series traps will increase in frequency to once per week until they are no longer detected see Section 6.3.7 and 7.2.3). **Rodent bait stations** – If bait take becomes reduced despite abundant rodent sign, a pulse of brodifacoum will be implemented before returning to diphacinone for following pulses (see Section 6.3 and 7.2.3).
Delays to development	Given the staged nature of the development, any delays may result in a significant amount of time between the staged lizard salvage and release. In which time NTP's release site management requirements may cease.	Release site management will be continued for at least two years following the completion of the final stage of lizard release (see Section 6.4).

Notable changes to the salvage and relocation protocol will be undertaken in consultation with CCC, DOC, other territorial authorities, iwi, and/or stakeholders (as required). Resulting changes and updates to the LMP, following consultations, will be effective upon confirmation with all respective groups (unless a WAA variation is required by DOC).

6.5.3 Templeton Golf Club is not suitable for lizard release: new release site

While the TGC is likely to be suitable for lizard release based on Principle 6 of the Lizard Salvage Guidelines (Department of Conservation, 2019) as outlined in Table 6, a lizard survey is required. This

survey is scheduled for the upcoming lizard season (October 2025-April 2026) and will be completed prior to the implementation of the lizard management plan. If the survey identifies a very high-density lizard population at the proposed release site, the site may be deemed unsuitable for release, even with the proposed enhancement measures intended to increase carrying capacity. In such a case, an alternative release site will be identified.

Alternative release sites could include Kowhai Grove (ECan; not enhanced), Kowhai Solar Farm (Christchurch Airport Ltd) and/or Weedons Ross Road (ECan). These sites have differing carrying capacities and enhancement requirements. Therefore, if required, more than one of these sites may be needed to accommodate the 650 salvaged southern grass skink. If an alternative release site is required, permission will be sought from the relevant release site managers and provided to DOC before being used for lizard release, and enhancement may need to be undertaken at those sites to make them suitable for lizard release.

6.5.4 The release site is not established by the first stage of salvage: additional release site

The first stage of works for the Pound Road industrial development are expected to start in October 2026. Release site enhancement will be implemented as soon as possible to meet this timeframe. However, if the requirements are not able to be implemented prior to the proposed salvage (October 2026), another release site will be required. Established release sites with limited capacity, suitable to take a small number of lizards associated with the first stage of salvage could include Kowhai Solar Farm and/or Weedons Ross Road. If an additional release site is required for the first stage of salvage, permission will be sought from the relevant release site managers and DOC before being used for lizard release.

6.5.5 More than 670 lizards salvaged: Templeton Golf Club contingency release area

If the TGC is deemed suitable as the release site, and more than 670 lizards are salvaged, the TGC release site will be extended (Appendix 2). If 620 skinks have been captured and it is likely that an additional 50 are still likely to be captured (due to multiple stages of salvage remaining or consistently high numbers of skinks being caught), to accommodate the additional lizards, the release site will be extended in 50-metre sections as needed. This includes the addition of 5-10 habitat units and expanding pest mammal control measures per extension. Pest mammal control will target hedgehog and mustelids and rodents as per the methods outlined in Section 6.2 and follow the spacing of traps set out in Table 9. The enhancement of the contingency release area must be completed prior to the release of any lizards. The estimated number of lizards for each stage will be reassessed at the conclusion of each stage to allow sufficient time for any necessary enhancements to be carried out.

For every 50 metre extension, 25 skinks will be released. A full extension of up to 450 metres is possible, which would support an additional 225 skinks, bringing the site's total carrying capacity to up to 895 skinks (bringing the total release site area to *c.*4.8 hectares). The decision to proceed with further extensions, based on the likelihood of capturing additional lizards, will be made at the discretion of the Project Herpetologist.

6.5.6 Delays to development staging and lizard salvage: additional release site management

Development is proposed to be implemented in stages over three to five year time period. Pest mammal management of the release site has been proposed for five years. If the development is delayed so that salvage is still required in years four -five, the management of the release site will be extended to ensure that at least two years of pest mammal management is implemented after the last release of lizards. This will allow for the released lizards to establish within the site with reduced pressures.

6.5.7 Incidental discovery protocol

If lizards are incidentally discovered during works following the implementation of mitigation measures, contractors will be required to follow the Incidental Discovery Protocol (IDP). This protocol outlines the appropriate steps to take in order to ensure the protection and proper handling of any lizards found on site. Appendix 6, which contains the full IDP will be provided to all contractors and must be adhered to in the event of an incidental lizard discovery.

Responsibility: NTP, NTP contractors.

7.0 Post Release Monitoring

7.1 Overview

DOC's lizard mitigation guidelines (DOC, 2019) recommend monitoring to evaluate the success of the salvage operation. This is due to the generally low success rates of mitigation-based reptile translocations worldwide. As such, it is essential to undertake ongoing monitoring of the relocated population to assess its success over time. If any signs of population decline are observed, it is crucial to identify and understand the underlying causes. Therefore, it is important to also monitor other environmental factors at the release site to ensure that, if issues arise, appropriate adaptive management actions can be implemented effectively. All monitoring will be commissioned by NTP.

7.2 Objectives

The purpose of long-term monitoring is to ensure the success of the salvage from the Pound Road industrial development site to the TGC release site. The objectives for long-term monitoring at the TGC release site are as follows:

Objective 1: Ensure population persistence of the released lizard population.

- Monitor southern grass skink persistence within the release site, post-release.

Objective 2: Ensure survival of enhancement plantings in the TGC release site.

- Monitor plant growth and establishment.
- Monitor effectiveness of woody weed control.
- Determine success of plantings.

Objective 3: Reduce mammalian pest presence with the TGC release site.

- Monitor and control (where necessary) mammalian predators within the TGC release site.

7.2.1 Objective 1 – lizard population persistence

Monitoring

Post release monitoring may not detect any changes in the population of any lizards in the short term and may need to be carried out for up to five years. Therefore, lizard post-release monitoring will be established at the release site during the first lizard active season post salvage and will be undertaken by a suitably qualified ecologist annually for five years.

Monitoring of relocated individuals for survivorship and establishment is not practical without toe clipping for this species, as they cannot be reliably identified to an individual level from their natural markings. However, this method will not be used as it is widely considered to be unethical. Therefore, the design of the post-relocation monitoring work will be focussed on achieving population persistence at the site over five years following lizard release.

Post-release monitoring will consist of a mark-recapture live capture survey over one week during fine weather between November and February annually. One to two pitfall traps will be placed at each wood and rock pile throughout the reserve. The pitfalls will be covered with an ACO to provide additional thermoregulatory advantages and attract more lizards to the traps. The pitfall traps will be left in place for the entire monitoring period (five years). However, the ACOs will be removed between each year of monitoring as not to influence population dynamics. All skinks captured and measured (snout-vent length, tail vent length, regen tail length), sexed, photographed and marked with an ID number.

Numbers tracked during each monitoring session can be compared over time to provide some indication as to how skinks are faring at the site. These methods will not provide accurate estimates of population size or trends over time. However, these methods will determine skink persistence at each pile, and can inform the ongoing management prescribed for the site.

Adaptive management

If capture rates decline during the initial lizard monitoring period at the TGC release site, post-release monitoring will continue for another five years to determine if (any) management interventions are required. Management interventions may include increased predator control, or increased habitat enhancement. These interventions will be determined in consultation with NTP, TGC, CCC, and DOC, on an as required basis, based on follow up monitoring in the shoulder season (i.e. October or March), and a review of predator control success, and habitat enhancement (Sections 7.2.2 and 7.2.3 below).

7.2.2 Objective 2 – Plant survival and weed control

Monitoring

Enhancement planting and weed control will occur in the TGC release site. As described above in Section 6.3.7, monitoring and maintenance will be commissioned by NTP and implemented by a CCC approved contractor for five years after planting, due to the abundance of weeds and pest plants within the site. Planting will be followed by monitoring visits two to three times a year for the first three years followed by annual monitoring visits for years four and five.

Adaptive management

If plant monitoring indicates that plant losses exceed 10% within the first two years, the affected plants will be replaced at the expense of NTP, as described in Section 6.3.7, which is a standard condition of planting contracts. In such cases, an assessment will be undertaken to determine the underlying causes of the plant loss.

If any pest plant incursions are detected during the monitoring period, a suitably qualified and CCC approved contractor will be commissioned by NTP to address the incursion, following the methods previously outlined in Section 6.3.7 and Appendix 4.

7.2.3 Objective 3 – Reduction of mammalian pests

Monitoring

Mammalian pest control will be undertaken throughout the entirety of the TGC. As described in Section 6.3.7, this management will be undertaken by a suitably qualified CCC approved contractor and commence two months prior to lizard release and continued for five years to reduce predation pressure whilst lizards establish within the new release site.

Due to the small size of the site, there is unlikely to be any beneficial statistical analysis that can be done with such limited monitoring data. However, tracking tunnels will provide data on rodent activity levels within the release area, as well as more surveillance for hedgehogs and other threats such as weasels. A tracking tunnel survey will be carried out twice per year, in spring and autumn, with six tracking tunnels placed in a line through the middle of the site. The tunnels will be baited with peanut butter for three fine nights.

Adaptive management

As described in Section 6.3.7, after hedgehogs have been eradicated from the release site, reinvasions may occasionally occur and these should be detected in traps. Upon discovering a hedgehog reinvasion, DOC-series trap checks will increase in frequency to once per week until they are no longer detected.

Within rodent bait stations, bait take will fluctuate throughout the year, and pulsing (as described above) reduces the risk of bait aversion developing within the rodent populations. However, if bait take becomes reduced despite abundant rodent sign, a pulse of brodifacoum will be implemented before returning to diphacinone for following pulses.

If tracking tunnel monitoring indicates that current pest control methods are not having an effect on predator abundance (despite trapping and baiting, pest mammal tracking is consistently high), pest control methods, such as bait or poison type, will be reassessed. Pest control methods for additional mammalian pest species may also be considered, including for the common brushtail possum (*Trichosurus vulpecula*) and/or feral cats. If pest control methods need to vary this will be determined in consultation with NTP, CCC and the TGC board.

Responsibility: NTP, suitably qualified ecologist, CCC approved and suitably qualified contractor.

8.0 Reporting

8.1 Salvage report

A salvage report will be prepared, including details of the lizard species, capture locations, and number of individuals salvaged and release at the TGC release site. This report will also include details around the enhancement of the release site and compliance with the WAA permit issued. The report will contain information regarding the success of the lizard salvage and any adaptive management that was required.

Lizard species and location details will be provided to DOC within six months of salvage completion as a part of the Wildlife Approval permit obligations. ARDS cards will be completed and submitted to DOC.

This report will be provided to CCC, ECan, DOC, and mana whenua, as required.

8.2 Annual monitoring report

A monitoring report detailing the outcomes of the release site will be prepared annually for five years post-salvage. The report will contain information regarding the success of the habitat enhancement (pest plant management, enhancement planting and pest mammal control) and lizard salvage (post-release lizard monitoring) and suggest any adaptive management that is required.

This report will be provided to CCC, ECan, DOC, and mana whenua, as required.

9.0 Significance of Effect After Management

Accurately predicting the level of effect with mitigation in place is difficult, but Table 12 gives a broad picture of how effects can be significantly reduced with mitigation measures in place. We consider that if the effects management outlined in this plan are properly implemented, the overall level of effect will be **less than minor.**

Table 12 – Potential significance of ecological effects if effective mitigation is implemented as recommended above.

Effect	Level of adverse effect without mitigation	Mitigation	Level of effect with mitigation
Accidental displacement and harm (injury/death) to lizards	More than minor adverse effects	Lizard salvage and relocation (Section 6.3). Contingencies and risks with proposed management is considered (Section 6.56.4). Incidental Discovery Protocol (Appendix 6).	Minor adverse effects
Disturbance to lizards during earthworks	More than minor adverse effects	Lizard salvage and relocation (Section 6.2) Contingencies and risks with proposed management is considered (Section 6.56.4). Incidental Discovery Protocol (Appendix 6)	Minor adverse effects
Loss of habitat for indigenous lizards	Minor adverse effects	Release site will be enhanced to create additional lizard habitat (Section 6.3).	Less than minor adverse effects
Breeding failure/behavioural effects to lizards	Less than minor adverse effects	Lizard salvage and relocation (Section 6.3).	Less than minor adverse effects

Acknowledgments

Dean Christie from NTP; and Georgia Brown and Anne Wilkins from Novo Group are thanked for providing access and information in regards to works happening at the site. Templeton Golf Club are thanked for their help in providing the release site.

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Appendix 1

Lizard survey results for north-western section of the Pound Road industrial development site

Figure 3a. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

Lizard survey results for north eastern section of the Pound Road industrial development site

Figure 3b. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

Lizard survey results for south western section of the Pound Road industrial development site

Figure 3c. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

Lizard survey results for south eastern section of the Pound Road industrial development site.

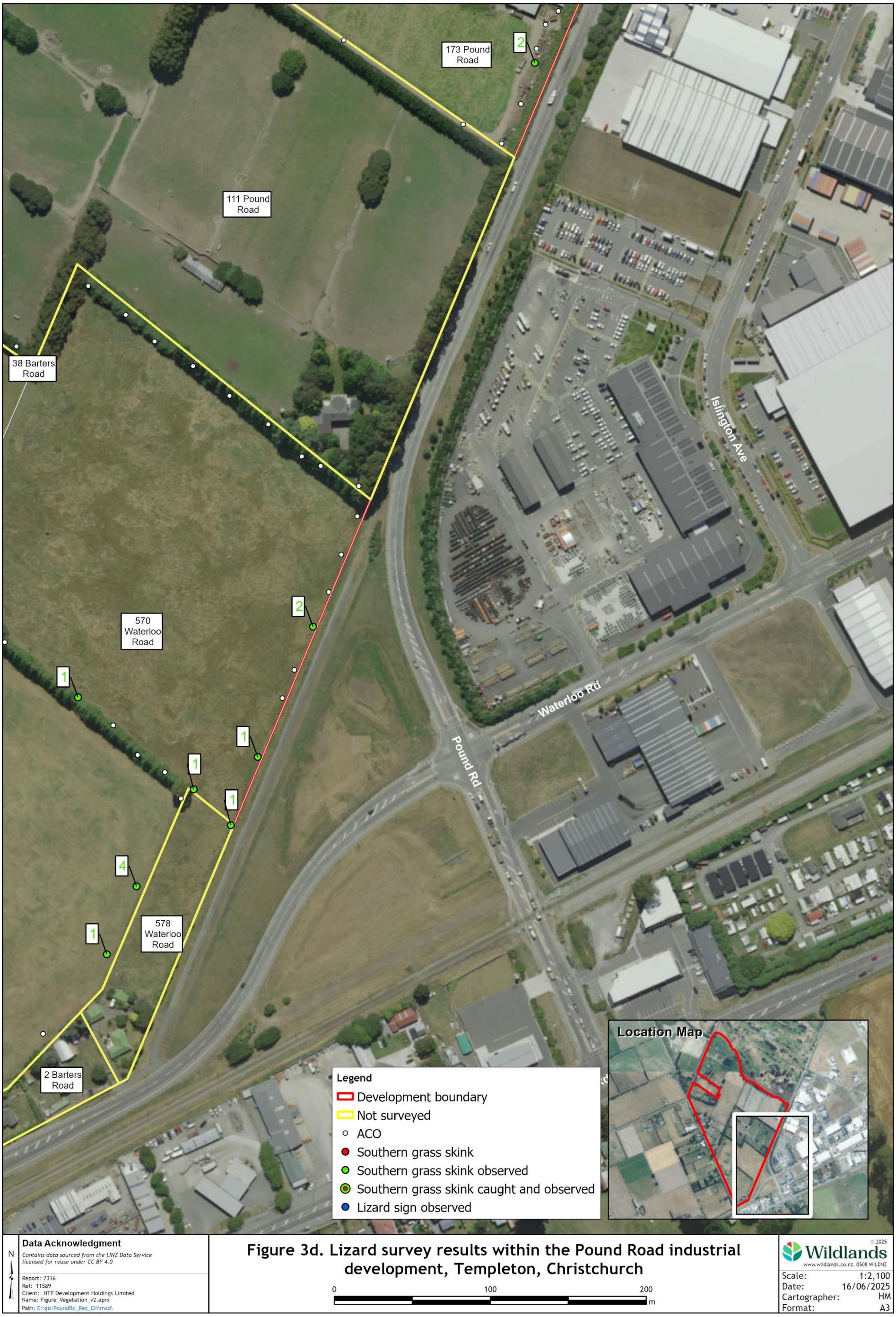

Figure 3d. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

Appendix 2

Pound Road Industrial Development Lizard Relocation Habitat Landscape Design

Pound Road Industrial Development

Lizard Relocation Habitat

LANDSCAPE DESIGN

ADDRESS:	173 Pound Road, Islington, Christchurch, 7676
PROJECT NO.:	383004
CLIENT:	NTP Development Holdings Limited
STATUS:	FOR RESOURCE CONSENT
REVISION NO.:	A
DRAWN/REVIEWED:	ECF/AW

Sheet List		
LH.01		Lizard Relocation Habitat - Overall
LH.02		Lizard Relocation Habitat - Details
LH.03		Lizard Relocation Habitat - Planting Schedule

LEGEND

- Proposed Application Site
- Proposed lizard relocation habitat (approx 2.3ha), with rabbit-proof fence around the boundary
- 1m offset from fence
- Proposed contingency habitat (2.19ha)

EXISTING

- Large pine tree/s
- Rank grassland (see notes on LH.02 for woody weed removal)

PROPOSED

- Indicative planting ~8265m² (0.82ha)
- Rock & wood piles ~70 piles

GENERAL NOTES:

A. THE CONCEPT PLAN IS BASED ON INFORMATION PROVIDED ON BEHALF OF/ BY THE CLIENT.

B. THE PLANS HAVE BEEN PREPARED TO ACCOMPANY THE RESOURCE CONSENT. THE PLANS ARE TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DOCUMENTS.

C. INTENDED SOLELY FOR THE USE OF THE CLIENT IN ACCORDANCE WITH THE AGREED SCOPE OF WORKS.

D. INFORMATION CONTAINED WITHIN THIS DRAWING IS THE SOLE COPYRIGHT OF NOVO GROUP AND IS NOT TO BE REPRODUCED WITHOUT THEIR PERMISSION.

E. CONSTRUCTION DRAWINGS AND SPECIFICATION ARE NOT INCLUDED AS PART OF THIS STAGE OF WORK.

REV	DATE	STATUS
A	13/06/2025	For resource consent

DRAWING
Lizard Relocation Habitat - Overall

PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

PROJECT NO.	DRAWN
383004	ECF
SCALE	DATE
1:1000	13/06/2025
SHEET NO.	REVISION NO.
LH.01	A
STATUS	
For discussion	

Looking west from Pound Rd towards the proposed lizard habitat site. The proposed rezone site is behind existing vegetation to the left and the Templeton Golf Club is to the right/back.

1 Existing Site Images
Scale: NTS

Example area of rank grassland and existing woody weed species in the proposed lizards release habitat (from Google Street View, April 2025).

SITE PREP / MAINTENANCE NOTES

1. Woody weed species identified within the proposed relocation area include: Broom, wilding pines, gorse & blackberry. To be selectively removed to minimise disturbance of ground.

2. No mulch, bark or woodchip to be used during implementation or maintenance.

3. All proposed plants are to be eco-sourced from the 'low plains' ecological district where possible (see Appendix 9.1.6.4 Ecological districts map from the CDP).

4. To be planted in groups & spaced at 0.5-1m centres to facilitate effective ground cover in less time. (see species list on LH.03).

5. Plants should be kept free of weeds by hand weeding only (or weed eaters when absolutely necessary) to allow for better establishment and limit ground disturbance. No chemical sprays to be used, as the effects herbicides and insecticides have on lizards are largely unknown.

6. Maintenance should take place on warm, sunny days when the daily temperature exceeds 16 degrees as this is when skinks are most active.

7. Areas between plantings should be left to establish on their own, without maintenance to form a mosaic of ground cover.

8. Where plant loss exceeds 10%, these should be replaced with species from the plant list provided.

9. See Wildlands LMP for further detail.

GENERAL NOTES:

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REV	DATE	STATUS
A	13/06/2025	For resource consent

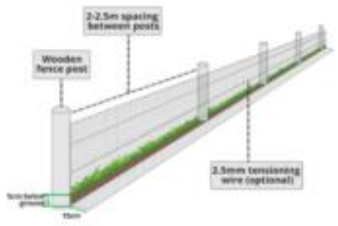
DRAWING
Lizard Relocation Habitat - Details

PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

PROJECT NO. 383004	DRAWN ECF
SCALE 1:1000	DATE 13/06/2025
SHEET NO. LH.02	REVISION NO. A
STATUS For discussion	

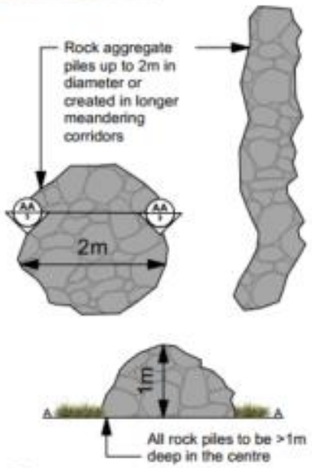
Image from Waitaki District Council (2025)



Detail example from Rabbit Watch

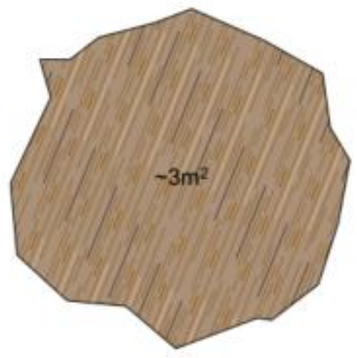
2 Fencing Details
Scale: NTS

Piles to comprise of washed river rocks 50–200mm grade to provide optimal interstitial spaces amongst the piles for lizard occupation. Rocks will be sourced from a landscape supplier or local quarry prior to lizard release.

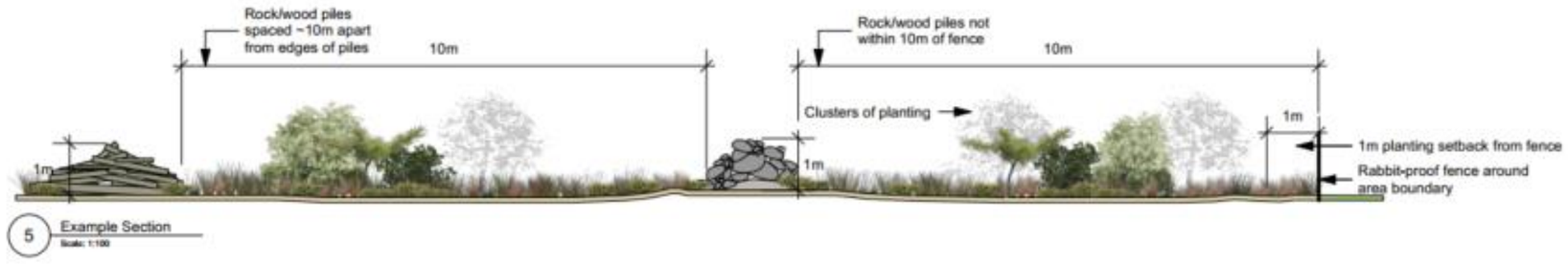


3 Rock Pile Details
Scale: 1:75

Each wood pile will consist of a combination of different sized logs and cover up to a 3m² area. Wood will be sourced from the site during vegetation clearance of the existing tree hedgerows within the Pound Rd industrial development site in non-lizard habitat.



4 Wood pile Details
Scale: 1:50



5 Example Section
Scale: 1:100

1 Indicative planting plan

South Island Toetoe
Austroderia richardii
2m W x 2m H
Rapid growth rate

Ti Kouka
Cordyline australis
2m W x 10m H
Med - Rapid growth rate

Thick-leaved mikimiki
Coprosma crassifolia
2.5m W x 5m H
Medium growth rate

Mingimingi
Coprosma propinqua
2.5m W x 5m H
Med-Rapid growth rate

Hard tussock
Festuca novae-zelandiae
0.7m W x 0.7m H
Medium growth rate

Porcupine shrub
Melicytus alpinus
1.2m W x 0.8m H
Medium growth rate

Shrubby Tororaro
Muehlenbeckia astonii
1.5m W x 2m H
Medium growth rate

Creeping Pōhuehue
Muehlenbeckia axillaris
1m W x 0.2m H
Medium growth rate

W/Silver tussock
Poa cita
0.5m W x 0.5m H
Rapid growth rate

Prostrate Kowhai
Sophora prostrata
1.5m W x 1m H
Medium growth rate

= Flowering/nectar = Fruiting (S)(A)(W)(S) = Summer, Autumn, Winter, Spring

2 Plant Palette

1. Woody weed species identified within the proposed relocation area include: Broom, wilding pines, gorse & blackberry. To be selectively removed to minimise disturbance of ground.

2. No mulch, bark or woodchip to be used during implementation or maintenance.

3. All proposed plants are to be eco-sourced from the 'low plains' ecological district where possible (see Appendix 9.1.6.4 Ecological districts map from the CDP).

4. To be planted in groups & spaced at 0.5-1m centres to facilitate effective ground cover in less time. (see species list on LH.03).

5. Plants should be kept free of weeds by hand weeding only (or weed eaters when absolutely necessary) to allow for better establishment and limit ground disturbance. No chemical sprays to be used, as the effects herbicides and insecticides have on lizards are largely unknown.

6. Maintenance should take place on warm, sunny days when the daily temperature exceeds 16 degrees as this is when skinks are most active.

7. Areas between plantings should be left to establish on their own, without maintenance to form a mosaic of ground cover.

8. Where plant loss exceeds 10%, these should be replaced with species from the plant list provided.

9. See Wildlands LMP for further detail.

GENERAL NOTES:

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A 13/06/2025 For resource consent
REV DATE STATUS

Lizard Relocation Habitat - Planting Schedule

Pound Road Industrial Development

NTP Development Holdings Limited

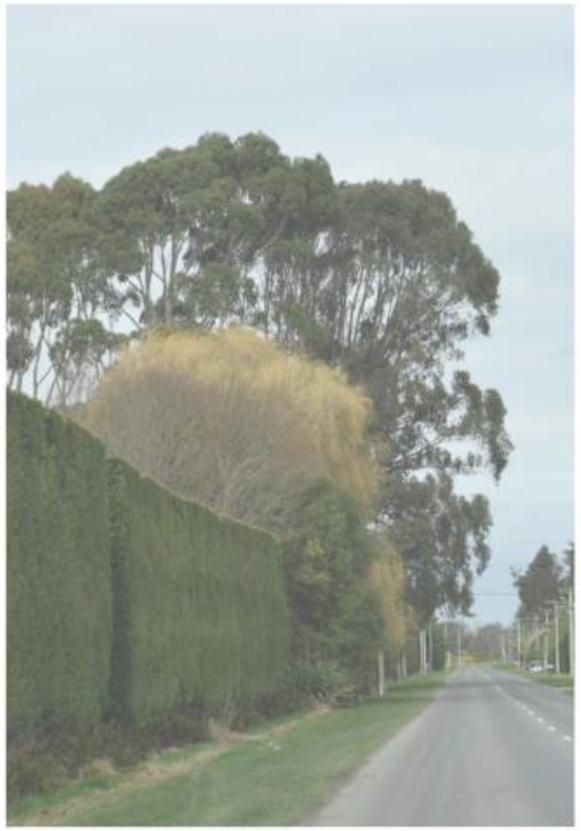
PROJECT NO. 383004	DRAWN ECF
SCALE 1:1200	DATE 13/06/2025
SHEET NO. LH.03	REVISION NO. A
STATUS For discussion	

Indicative Plant List

ID	Common Name	Botanical Name	Schd.	Mature Height	Mature Spread	Quantity	Rate/Spacing	Percent of planted area
Trees								
Co au	Cabbage tree; ti kouka	*Cordyline australis*	0.2L	10m	2m	411	1 Meters on center	5
Shrubs								
Co cr	Thick-leaved mikimiki	*Coprosma crassifolia*	0.2L	4m	2m	827	1 Meters on center	10
Co pr	Mingimingi	*Coprosma propinqua*	0.2L	5m	2.5m	827	1 Meters on center	10
Me al	Porcupine Bush	*Melicytus alpinus*	0.2L	0.8m	1.2m	827	1 Meters on center	10
Mu as	Shrubby tororaro	*Muehlenbeckia astonii*	0.2L	2m	1.5m	827	1 Meters on center	10
So pr	Prostrate kowhai	*Sophora prostrata*	0.2L	2m	2m	411	1 Meters on center	5
Ground Covers								
Mu ax	Creeping pohuehue	*Muehlenbeckia axillaris*	0.2L	0.3m	1.2 - 2.0m	1239	1 Meters on center	15
Grasses								
Au ri	South Island Toe Toe	*Austroderia richardii*	0.2L	2m	2m	411	1 Meters on center	5
Fe no	Hard Tussock	*Festuca novae-zelandiae*	0.2L	0.7m	0.7m	4962	0.5 Meters on center	15
Po ci	Silver Tussock	*Poa cita*	0.2L	0.7m	0.8m	4962	0.5 Meters on center	15
					Total	**15704**		

Appendix 3

Pound Road Industrial Development Landscape Offset Enhancement Landscape Design



Pound Road Industrial Development

Landscape Offset Enhancement

LANDSCAPE DESIGN

ADDRESS: 173 Pound Road, Islington, Christchurch, 7676
PROJECT NO.: 383004
CLIENT: NTP Development Holdings Limited

STATUS: For resource consent
REVISION NO.: A
DRAWN/REVIEWED: ECF/AW

Offset Sheet List		
LO.01	A	Landscape Offset Enhancement - Overall
LO.02	A	Landscape Offset Enhancement - Planting details
LO.03	A	Landscape Offset Enhancement - Sections
B.01	B	Lot 73 Proposed Bunding/Buffer Planting

1 Proposed Waterway Buffer
Scale: 1:3000

2 Images of existing Waterway/Drain
Scale: N/A

LEGEND

- Proposed Application Site
- Drain - above ground
- Drain - culvert
- Drain - proposed cluvert
- Proposed 5m vegetation buffer

NOTES:

1. Total area of proposed buffer planting ~4085m² (0.48ha).

2. The buffer planting has the potential to provide secondary lizard habitat. See plant species and notes on LO.01.

GENERAL NOTES:

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REV	DATE	STATUS
A	13/06/2025	For resource consent

DRAWING
Landscape Offset Enhancement - Overall

PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

PROJECT NO. 383004	DRAWN ECF
SCALE 1:3000	DATE 13/06/2025
SHEET NO. LO.01	REVISION NO. A
STATUS For resource consent	

Oioi
Apodasmia similis
1m W x 1m H
Medium - Slow growth rate

South Island Toetoe
Austroderia richardii
(L)
2m W x 2m H
Rapid growth rate

Mingimingi
Coprosma crassifolia
(L)
2m W x 4m H
Medium growth rate

Ti Kouka
Cordyline australis
(L)
2m W x 10m H
Medium - Rapid growth rate

Manatu/ Ribbonwood
Plagianthus regius
4m W x 12m H
Medium - Rapid growth rate

Pukio
Carex secta
(L)
1.5m W x 1.5m H
Rapid growth rate

Harakeke/NZ flax
Phormium tenax
(L)
2m W x 3m H
Rapid growth rate

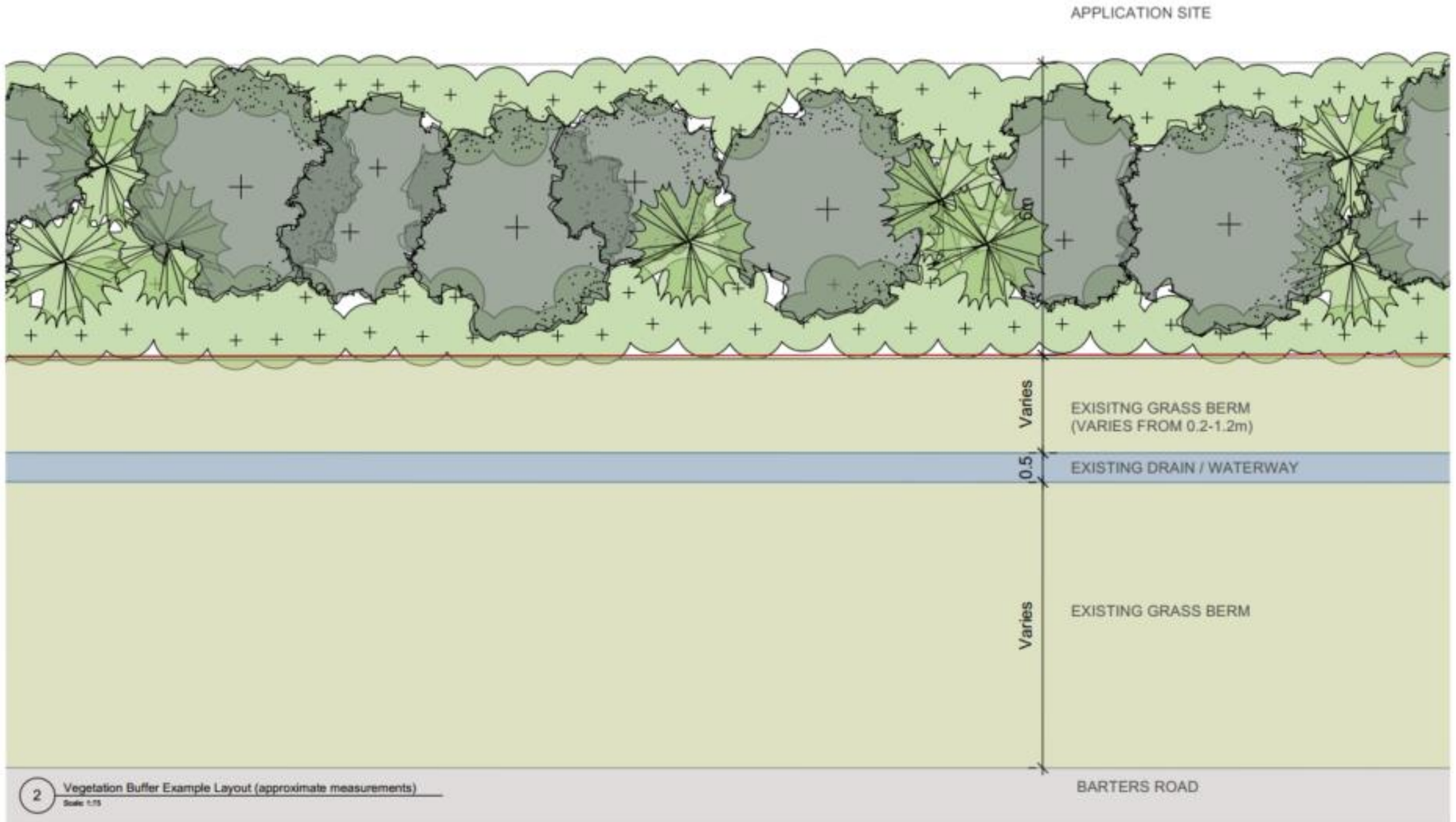
Akiraho / Golden Ake Ake
Olearia paniculata
2.5m W x 4m H
Rapid growth rate

Prostrate Kōwhai
Sophora prostrata
(L)
2m W x 2m H
Slow growth rate

Hungere/Narrow-leaved Lacebark
Hoheria angustifolia
3m W x 6m H
Medium growth rate

1 Plant Palette
Scale: N/A

= Grasses / Sedges = Mid height / Shrubs = Canopy / Trees (L) = Lizard friendly



2 Vegetation Buffer Example Layout (approximate measurements)
Scale: 1:75

LEGEND

- Proposed Application Site
- Drain / Waterway
- Grass berm
- Road
- Grasses / Sedges
- Mid height / Shrubs
- Canopy / Trees

NOTES:

1. No mulch, bark or woodchip to be used during implementation or maintenance.

2. All proposed plants are to be eco-sourced from the 'low plains' ecological district where possible (see Appendix 9.1.6.4 Ecological districts map from the CDP).

3. Plants should be kept free of weeds by hand weeding when possible (or weed eaters when absolutely necessary). Chemical spray use to be limited, as the effects herbicides and insecticides have on lizards are largely unknown.

4. Maintenance should take place on warm, sunny days when the daily temperature exceeds 16 degrees as this is when skinks are most active.

5. Where plant loss exceeds 10%, these should be replaced with species from the plant list provided.

6. Potential for rock/wood refugia piles to be added to the buffer planting ~20m. Will be adressed at the detailed design phase.

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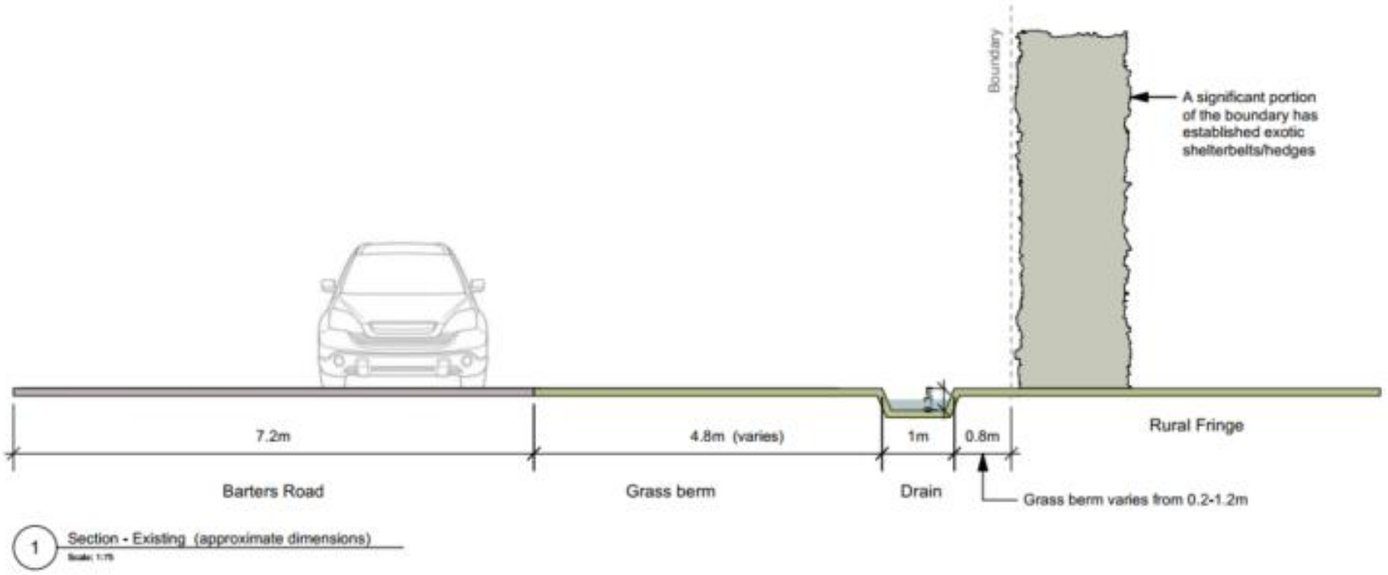
REV	DATE	STATUS
A	13/06/2025	For resource consent

DRAWING
Landscape Offset Enhancement - Planting details

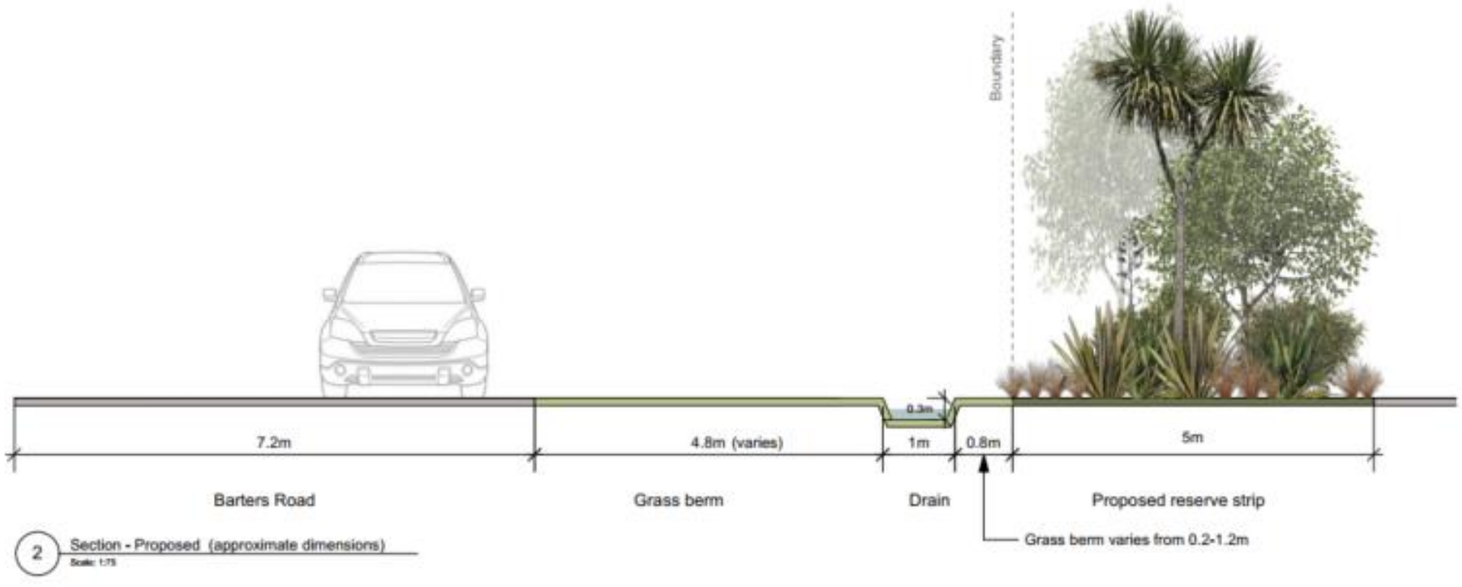
PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

PROJECT NO. 383004	DRAWN ECF
SCALE 1:75	DATE 13/06/2025
SHEET NO. LO.02	REVISION NO. A
STATUS For resource consent	



1 Section - Existing (approximate dimensions)
Scale: 1:75



2 Section - Proposed (approximate dimensions)
Scale: 1:75

LEGEND

- Drain / Waterway
- Grass berm / Rural fringe
- Road
- Proposed 5m buffer

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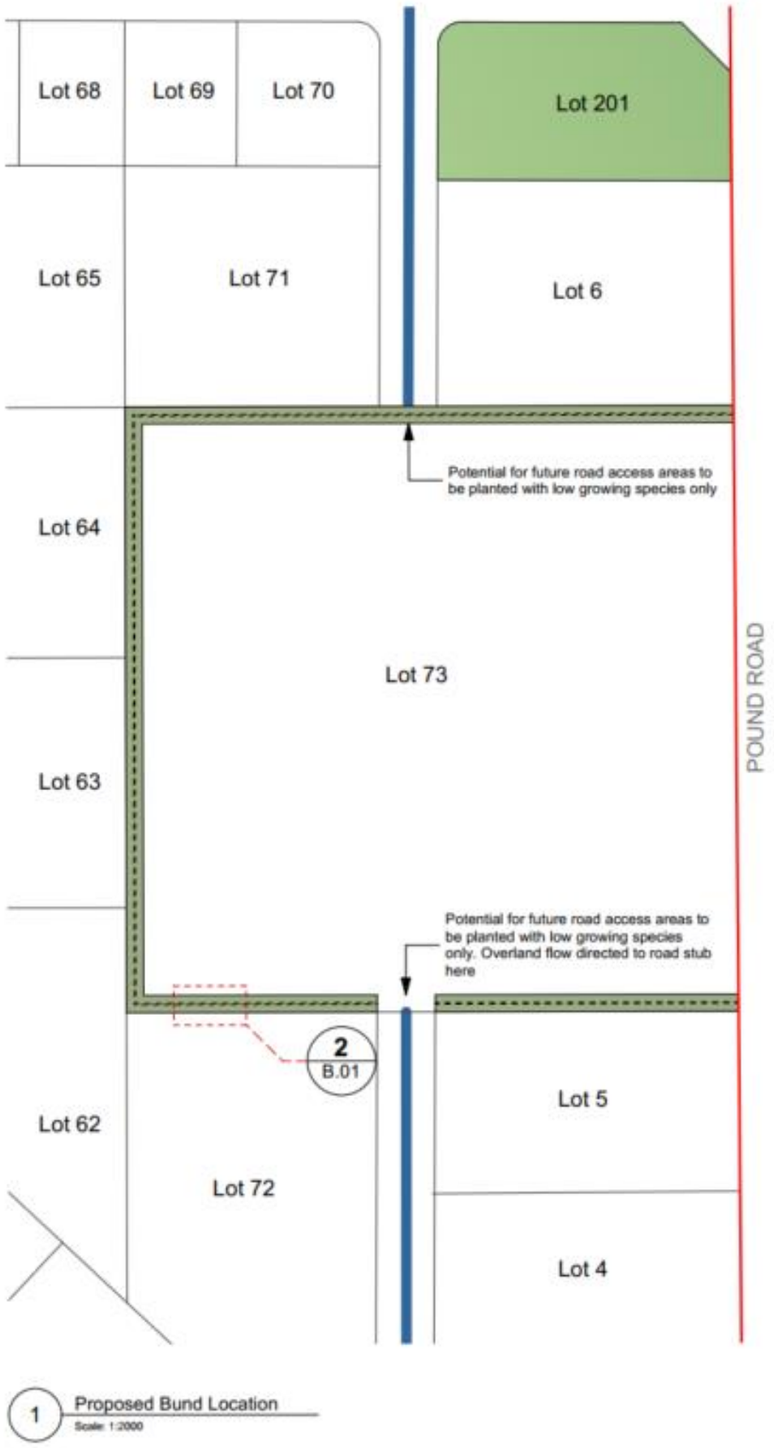
REV	DATE	STATUS
A	13/06/2025	For resource consent

DRAWING
Landscape Offset Enhancement - Sections

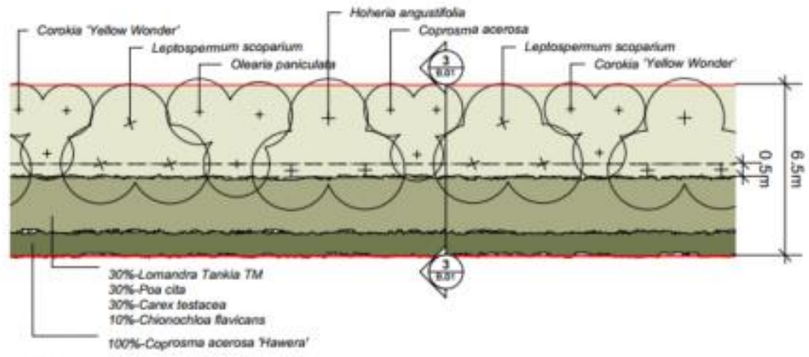
PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

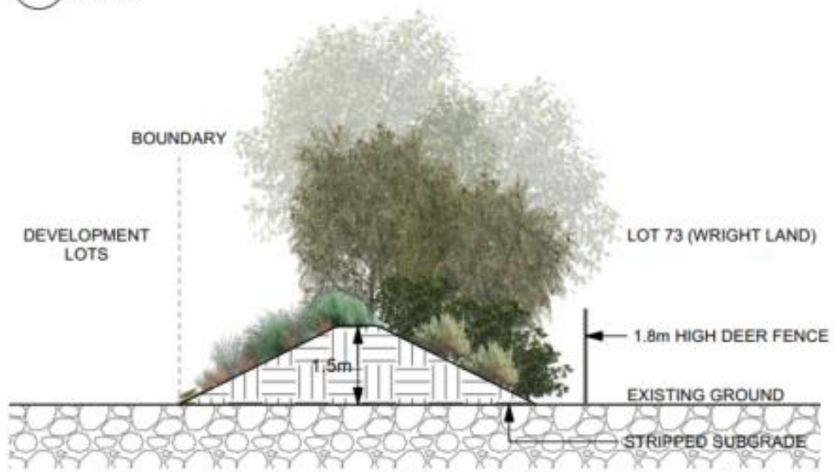
PROJECT NO.	DRAWN
383004	ECF
SCALE	DATE
1:75	13/06/2025
SHEET NO.	REVISION NO.
LO.03	A
STATUS	
For resource consent	



1 Proposed Bund Location
Scale: 1:2000



2 Typical Planting Layout
Scale: 1:200



3 Typical Cross Section of Bund
Scale: 1:100

Indicative Plant List

ID	Common Name	Botanical Name	Schd. Size	Mature Height	Mature Spread
Trees					
Ho an	Narrow-leaved lacebark	*Hoheria angustifolia*	2.5L	6m	3m
Le sc	Mānuka	*Leptospermum scoparium*	0.2L	4m	3m
Shrubs					
Co ac	Sand coprosma	*Coprosma acerosa*	2.5L	2m	2m
Co 'YW'	Yellow-berried Corokia	*Corokia 'Yellow Wonder'*	2.5L	3m	2m
Ol pa	Akiraho - Golden Ake Ake	*Olearia paniculata*	2.5L	4m	2.5m
Ground Covers					
Co 'Ha'	NZ Sand Coprosma	*Coprosma acerosa 'Hawera'*	0.2L	0.2m	1m
Grasses					
Ca te	Orange sedge	*Carex testacea*	0.2L	0.6m	0.6m
Ch fl	Mini Toe toe	*Chionochloa flavicans*	0.2L	1.2m	1.5m
Lo Ta	Lomandra Tanika (LM300 PVR)	*Lomandra Tankia TM*	0.2L	0.7m	0.7m
Po ci	Silver Tussock	*Poa cita*	0.2L	0.7m	0.8m

LEGEND
- Site boundary
- Proposed bund planting
- Top of bund (0.5m wide)

NOTES:

1. None of the proposed plant species are hazardous to deer.

GENERAL NOTES:

A. THE CONCEPT PLAN IS BASED ON INFORMATION PROVIDED ON BEHALF OF/ BY THE CLIENT.

B. THE PLANS HAVE BEEN PREPARED TO ACCOMPANY THE RESOURCE CONSENT. THE PLANS ARE TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DOCUMENTS.

C. INTENDED SOLELY FOR THE USE OF THE CLIENT IN ACCORDANCE WITH THE AGREED SCOPE OF WORKS.

D. INFORMATION CONTAINED WITHIN THIS DRAWING IS THE SOLE COPYRIGHT OF NOVO GROUP AND IS NOT TO BE REPRODUCED WITHOUT THEIR PERMISSION.

E. CONSTRUCTION DRAWINGS AND SPECIFICATION ARE NOT INCLUDED AS PART OF THIS STAGE OF WORK.

REV	DATE	STATUS
B	19/06/2025	Overland flow considerations
A	13/06/2025	For resource consent

DRAWING
Lot 73 Proposed Bunding/Buffer Planting

PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

PROJECT NO.	DRAWN
383004	ECF
SCALE	DATE
See drawings	13/06/2025
SHEET NO.	REVISION NO.
B.01	B
STATUS	
For resource consent	

Appendix 4

Weed control methods

Weed control will be carried out during appropriate seasons when weeds can be more easily identified and targeted for control. Different weed control methods are described below, but the exact method to be used on each plant will depend on the species, and its growth stage and location when the control is carried out (refer to Weedbusters[1] for more information). Where necessary, e.g. if seeds are present or as directed, weed plants or seed heads could be bagged and left in secure areas on-site to rot inside the bags, to ensure seeds are not spread. These could be removed from sites, as required, subject to permit requirements for weeds designated as Unwanted Organisms under the Biosecurity Act 1993.

Manufacturers' guidelines, current best practice procedures, and NZ Standards of agrichemical management (NZS 8409:2021) will need to be followed. All mixing of chemicals, and cleaning and refuelling of equipment must be carried out greater than 20 metres from surface water bodies, and care will be taken to minimise the risk of spillage. The amount of herbicide used should be minimised by favouring more direct and manual methods over foliar spraying.

Cut stump and treat

This method is used to control woody weeds and trees that have woody stems. Trunks/stems of the plant are cut close to the ground and herbicide immediately applied to the stump. Herbicide used is either gel-based, in an applicator bottle, or a liquid in a small hand held spray bottle. This is generally recommended for woody pest plants between 0.5 metres and 3.0 metres high. For old man's beard all cut sections need to be left off the ground (e.g. by hanging in adjacent vegetation), with large plants having a 1 metre section of trunk removed to prevent aerial roots from taking root in the soil.

Drill and fill

This method is used on trees and large woody weeds, e.g. wilding conifers. The method is particularly good for large specimens, and involves drilling holes around the trunks and lower stems of the plants, at regular intervals, and immediately injecting herbicide into the holes. The dead trees can remain standing for quite some time (can be years) and this can help to reduce new weeds establishing beneath them, and can be valuable where tree habitat is needed for indigenous fauna in areas where the indigenous trees have not yet established.

Basal treatment

This method is used on trees and woody weeds, e.g. wilding conifers. This method is quicker that cutting/drilling and treating, especially for large or multi-trunked plants. Basal spray is applied via a low-powered spray unit around the entire circumference of the stems/trunks, and to the manufacturer's recommended height for that plant size and bark thickness.

Frilling

This method is another basal treatment that can be used on trees and woody weeds and is recommended when runoff, from basal bark treatment, is considered a risk to surround indigenous biodiversity. A sharp chisel or axe is used to make a deep cut into the sapwood at regular intervals around the base of the tree, taking care not to ring-bark the plant. Immediately apply the recommended herbicide to each cut using a paintbrush or squeeze bottle.

[1] https://www.weedbusters.org.nz/weedbusters/

Hand pulling (non-herbicide manual control):

This method is effective to use on seedlings and small plants of any of the weed species, provided that the entire plant and root system can be removed to ensure that re-sprouting does not occur.

All operators will carry GPS units to track their movements during weed control works, and record points of interest including weed locations or infestations. This will ensure that all necessary areas are covered and weeds encountered. GPS data will be provided to CCC and DOC so it can be accessed using their GIS. In some areas control work should be carried out in a grid formation to enable thorough searching for cryptic or scattered weeds.

Selected data can be collected during weed control works, such as: operators present, general weather conditions, ground covered during the work (via GPS tracking), weed species controlled and control method, new weed infestations located, new hazards encountered and health and safety incidences. This information will help track work that is occurring and identify possible areas for improvements, and could be collated into a spreadsheet for analysis, or (if required), regular reporting. Follow-up control, monitoring of works carried out, and surveillance for new weed infestations needs to be undertaken on an ongoing basis.

Appendix 5

Restoration planting guidelines

This appendix describes the methods that would generally be used for undertaking restoration plantings and covers the following:

- Plant sourcing:
  - Eco-sourcing of indigenous species.
  - Plant size and quality.
  - Care of stock between the nursery and planting.
- Planting:
  - General site preparation.
  - Plant layout and spacing.
  - Timing of planting.
  - Planting technique.
  - Plant protection.
- Planting maintenance:
  - Weed control.
  - Infill planting.

Eco-sourcing of indigenous species

The use of locally-sourced seed is the preferred and well-established way to grow nursery-raised plants for ecological restoration plantings. Plants used in the Pound Road lizard release site planting should be sourced from the Canterbury Plains Ecological Region, which includes:

- Canterbury Plains Ecological Region: Ellesmere Ecological District, Low Plains Ecological District, and High Plains Ecological District.

Regardless of the ecological region the seed is sourced from it should be sourced from populations occupying appropriate abiotic conditions (e.g. harakeke seed should be sourced from populations occupying dryland free-draining habitats, rather than wetland populations).

Plant size and quality

Nursery-raised plants that are to be used for the standard planting schedule should be a minimum of 20 cm tall and with a root collar/basal stem diameter of at least 2 mm. Plants of this size have the best chance of survival and establishment. Plant stock that is too “young”, less than 20 cm tall and with the root collar less than 2 mm diameter, will have a poor root structure, sparse vegetative growth, and likely result in poor plant survival. Small plants are especially vulnerable to competition from introduced grasses and other weeds as they can be easily over-topped and shaded out. Their smaller root systems also take time to grow and become established and are vulnerable to drying out and competition from weed species. Conversely, plant stock that is too ‘old’ will quickly become root bound, have a high risk of the main root curling or binding, and will also likely result in poor plant survival or growth.

To ensure that plant stock will be in optimum condition for planting, plant stock should be checked periodically during the growing season. Plant stock should also be inspected before it leaves the nursery to ensure that it meets the following quality criteria:

- Plant materials should be first class specimens of nursery stock, true to name and type, and free from pests and diseases. They should be well hardened off prior to planting by exposing them to sun, wind and temperature that are similar to the climatic conditions of the site. Plants have high failure rates when they arrive at the planting site directly out of a shade house, and this is a significant cause of death or poor plant growth in many plantings.
- The roots should have a high percentage of fibrous roots that are just touching the edge of their containers. Plants with roots that are wound round their containers in circular fashion should be rejected.
- Plants should be free from disfiguring knots, bark abrasions, wind, or freezing injury or other disfigurements and bear evidence of proper pruning if this is necessary.
- Plants should be at least 20 cm tall. The ratio of plant height to container size, and the sturdiness of the plant, should allow for the plant to remain upright post planting without the need for staking and it should be large enough to minimise smothering by weeds.
- Root collar diameter should be a minimum of 2 mm, as this will provide plants with sturdy and upright growth.
- Only one seedling should be present in each container. Nurseries often quickly prick out a group of seedlings by pinching them between their thumb and index finger or they sow seed directly onto the potting media in the root-trainers. Having multiple seedlings in a container can result in crowded seedlings, inferior plants, and the need to thin seedlings may result in the remaining plants being damaged or not located in the centre of the container for optimum root growth.
- Plants should have a strong, single, central leader, and not be multi-stemmed or light-starved and drawn up by shaded or dark growing conditions. The leaves should be distributed evenly over the plant, and not be clustered toward the tips of the stems.

Care of stock between the nursery and planting

Nursery-raised plants in larger containers are more tolerant of transportation, variable client handling, and less susceptible to drying out. Plants should be kept well-watered from the time of departure from the nursery until the day of planting. Plant stock should be handled with care to reduce plant damage. If planting of a site is to take an extended period of time (e.g. weeks not days), a temporary nursery for holding the stock should be established at the planting site.

Plant stock that dries out prior to planting will have a much higher chance of mortality, and still requires shelter and watering between being supplied and planted.

General site preparation

If required site-preparation spot-spraying will be undertaken to kill exotic ground-cover vegetation and create places for planting. **Blanket spraying of the planting area should not be undertaken on this site,** as wholesale clearance risks harming lizards and the invasion of that area by pest plants. Planting areas are understood to dominated by exotic weed species, but if indigenous species are found, they should be avoided. Site preparation and planting should take place no less than 1.5 metres from any naturally occurring indigenous plants.

An assessment of the area to be planted should be undertaken at least six months prior to planting to identify any problem weed species which may take more than one round of herbicide application. Planting areas should be spot sprayed to 600 mm diameter at least six weeks in advance of planting.

Timing of planting

Planting should take place from late autumn, once summer-dry conditions have passed, through to mid-winter. The goal in these areas should be to plant while there is adequate soil moisture to allow the plants to establish before dry summer conditions return.

Planting technique

The importance of good planting technique should not be under-estimated, and the following guidelines should be followed:

- Ideally all planting should be undertaken by experienced workers in accordance with recognised industry best practice. If volunteers are used, they must be briefed and thoroughly supervised to ensure correct planting techniques are used.
- Care should be taken to ensure that the root ball is not excessively disturbed during container removal or planting.
- The planting hole should be two times the size of the root mass and the soil broken up with a spade as it is dug out of the hole.
- The root ball should be covered by a thin layer of soil. This will prevent it being exposed to the air and drying out.
- The planting hole, when filled in, should form a very shallow depression, to enable rain water to soak in. Once planted, the plant should resist being pulled out of the ground when given a gentle tug.
- If plants start to show signs of water stress (e.g. wilting leaves), watering should be carried out to reduce plant losses.

Plant protection

Newly-planted trees and shrubs can be decimated by browsing by rabbits, possums, or pūkeko (if present), so protection against browsing is critical, if planting occurs before the installation of a rabbit proof fence and implementation of pest mammal management.

- Individual plant guards should be used to protect each plant from browsing. They also provide shelter, increased humidity, reduction of moisture loss, and help to prevent unintended herbicide damage.
- Guards should be removed and once the plants are large enough to outcompete surrounding exotic vegetation.
- We recommended using cardboard plant guards. The cardboard plant guard is robust, biodegradable and resilient, but are more expensive. Due to the wind exposure on the site, cheap and light weight plastic guards should be avoided.

Planting maintenance

Weed control

The plantings should be maintained two-to-three times a year during the first two years following planting, and annually for the next three years. During these visits, plants should be released (weeding around plantings) from exotic vegetation by the spraying of herbicide in a 30 cm radius ring around each guard to ensure they are not outcompeted by surrounding exotic vegetation. As the plants become established (once they achieve >75% canopy cover), they will begin to out-compete other exotic species and the amount of maintenance required will decrease significantly.

Once the ecological restoration plantings have established, pest plant management should focus on the maintenance of the restoration plantings and stopping the spread of the pest plants.

Infill planting

If the plant survival rate is below 90% then replacement of any dead plants (infill planting) should be undertaken. This should be undertaken in years two and three after the original planting, as necessary. The number and species of infill plants should be identified in the February or March proceeding the planting season.

Supplementary plantings of other indigenous species for biodiversity enrichment, should be considered once the initial restoration plantings form a canopy (3-5 years after initial planting). These species should be planted at a density of 15-20 plants per hectare.

Appendix 6

Incidental discovery protocol

Overview

Incidental discovery protocols are set out below for development contractors, and are to be followed if any further lizards are discovered, post mitigation, during early works of the Pound Road development.

Where lizards might be found:

Lizards could be present in and on vegetation such as within rank grasslands including along fence lines, exotic shelterbelts, indigenous hedgerows, ornamental plantings, gardens and dwellings. They may also bask in sunny exposed spots, such as in/on debris piles. They may be uncovered when disturbed by habitat clearance or earthworks.

Following the incidental discovery of a lizard

- Immediately (as soon as discovery of a lizard is made) cease any activities within 10 metres of the place of discovery. If the species encountered is a species with a Threat Classification status of 'Threatened' then all works must cease immediately, until an assessment is made of the works programme risk for that species, and any specific management identified, including avoidance.
- If possible, capture the lizard and place in a container with grass/leaf litter/moss. Ensure to create breathing holes in the container for the lizard. Hold in captivity in a **cool, shady** location out of sun until a decision is made.
- Immediately inform the project herpetologist and operations manager on-site.
- Document:
  - Date and time.
  - Weather conditions.
  - Observer name(s).
  - Photographs of the animal and the location where it was found. Photograph the lizard from above trying to show the head and any markings on the upper body or back. A cell-phone picture is adequate for this and will help with identification of species.
  - Location (GPS coordinates).
  - Species.
  - If injured:
    - What part of the animal is injured? (Photograph the injury).
    - Time since injury (if known).
    - Probable cause of injury (if known).
    - Immediately (within one hour) contact a local veterinarian and the local DOC office (Mahaanui or Rangiora Office), and arrange for the injured lizard to be delivered to the veterinarian. This may require a monetary contribution for care.

- If a carcass is found:
  - Condition of carcass (see below).
  - Approximate time since death (if known).
  - Probable cause of death (if known).
  - Notify the project herpetologist at Wildland Consultants immediately. The project herpetologist will notify DOC and ask for advice on how to proceed.
  - Arrange for the carcass to be sent to Wildbase (06 350 5329), Massey University, in Palmerston North, unless advised otherwise by DOC.
  - If lizards are unable to be captured and/or photographed, note as much detail as possible: what colour was it; what colour patterns; how big was it; whether it was robust or slender; what habitat was it found in? You may need to describe these details to the project herpetologist and the Department of Conservation (DOC).

Should a nationally 'Threatened' lizard species be encountered during construction, the Project Herpetologist will immediately consult with DOC to ask for advice on how to proceed. Further works may not proceed until approval has been granted to continue by the Project Herpetologist and DOC.

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