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ecoLogical Solutions

Environmental Consultants



September 2026

SL1 Residential South Wetland Management Plan

Prepared for:
Saxby Rd JV Limited



water



fauna



flora



land

Quality Assurance

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1.0 Introduction

1.1 Background

Ecological Solutions Limited has prepared the following Wetland Management Plan (WMP) in accordance with the SL1 Residential South Development Ecological Impact Assessment (EclA) prepared by Ecological Solutions (Ecological Solutions, 2026). The EclA and associated suite of ecological management plans have been prepared as part of a Fast-track Approval Act (FTAA) substantive application. The SL1 Residential South Development is located at 37a, 71 and 129 Saxbys Road, Hamilton (the 'Residential South Site') (Figure 1). The SL1 Residential South Development will involve the development of residential dwellings and associated infrastructure pertaining to stormwater management and roading.

SL1 is exclusively within Waipa District and contiguous with Hamilton City Council's southern boundary to the south-west.

The Ecological Impact Assessment (Ecological Solutions, 2026) identified two wetlands on the Residential South site, Wetland A designated as being of 'moderate' ecological value and Wetland B, designated as being of 'high' ecological value. Wetland A was 285 m² in area and was proposed to be reclaimed during the development of the SL1 Residential South site.

To mitigate the adverse effects of the reclamation of Wetland A, new wetland habitat will be created (c. 348 m²) to support native vegetation communities and further enhance value within the Mangakōtukutuku Stream reserve. If these effects management measures are implemented, there will be a 'low' or 'net gain' post management level of effect on wetlands within the site.

This WMP considers the National Policy Statement for Freshwater Management (NPS-FM; MfE 2025), the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F) and satisfies the requirements of the draft consent conditions.

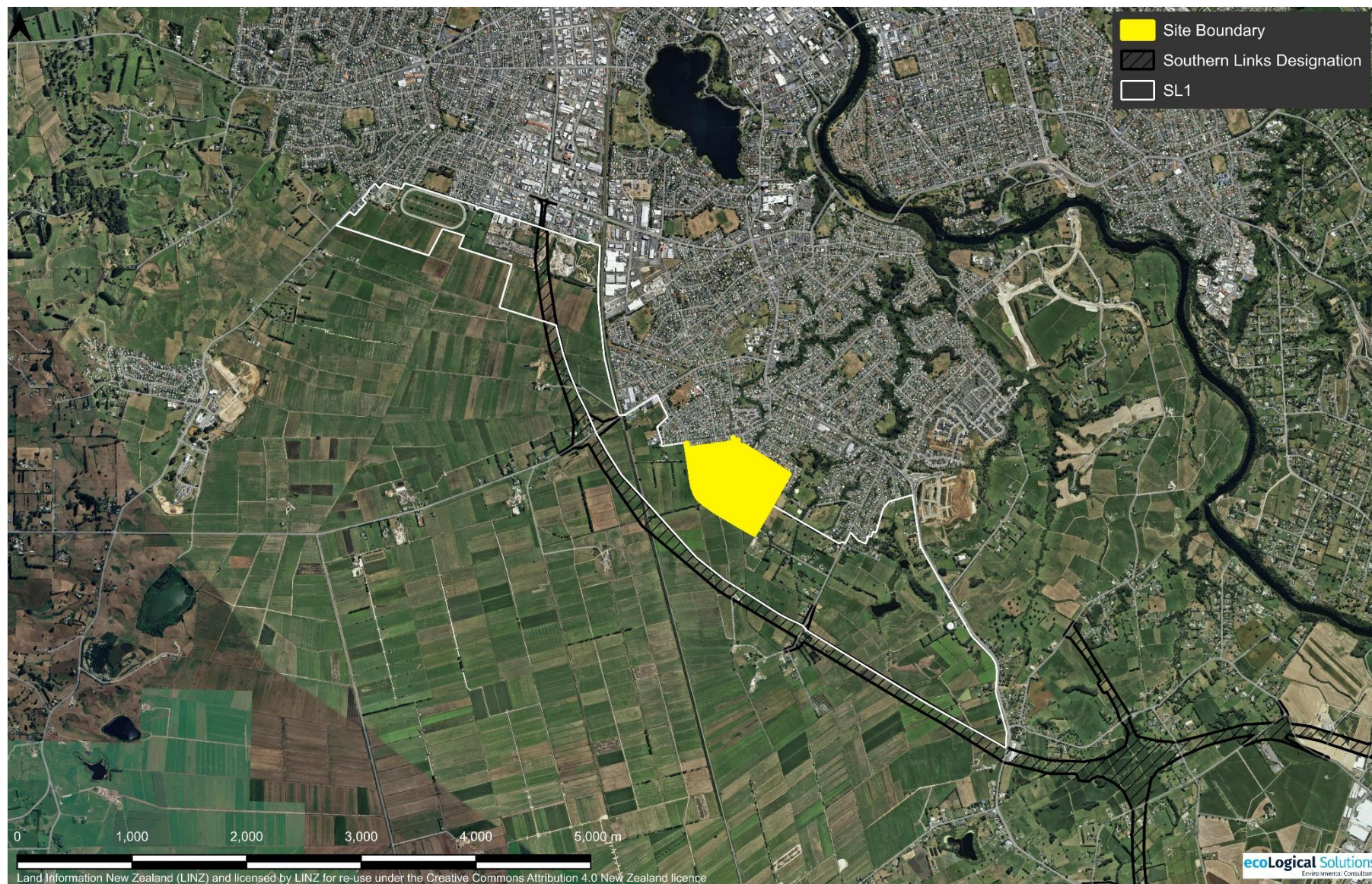


Figure 1: Location of the Site.

1.2 Purpose and Objectives

The purpose of the WMP is to outline the management actions required to ensure the establishment and maintenance of palustrine wetland habitat within the Mangakōtukutuku Stream reserve by creating suitable hydrological conditions capable of sustaining indigenous wetland flora and fauna communities, and associated wetland functional values.

The purpose of the WMP will be achieved via the following objectives:

- Create c. 348 m² of wetland habitat extent within the Mangakōtukutuku Stream reserve.
- Restore diverse native wetland vegetation communities within the newly created wetland habitat extent.
- Maintain the diversity and resiliency of native wetland plant communities through the implementation of pest plant and animal control for a period of 5 years.
- Protect the wetland habitat and restored native vegetation communities in perpetuity through a protective covenant or similar protective designation.

2.0 Wetlands on Site

Two wetlands were recorded within the Residential South Site. These were Wetland A near the northeastern boundary and Wetland B associated with the upper reaches of the Mangakōtukutuku Stream. Both wetlands qualify as Natural Inland Wetlands under the NPS-FM 2020 (MfE 2025a). The locations of the wetlands are shown on Figure 2.

Wetland A (c. 285 m²) located near the northeastern boundary of the Residential South Site was associated with a natural draw that appears to have been modified through stock access and grazing damage resulting in widening (Figure 3). Vegetation within Wetland A comprised exotic hydric species including creeping bent (*Agrostis stolonifera*), soft rush (*Juncus effusus*) and creeping buttercup (*Ranunculus repens*).

Despite its poor quality, Wetland A was considered to have 'moderate' ecological value, as wetland habitats are both regionally and nationally rare. Wetland A is proposed to be reclaimed during development of the Residential South site. Consequently, it is proposed to create c. 348 m² of wetland habitat extent as outlined in Section 3.0 to achieve an overall net positive outcome.

Wetland B (c. 50 m²) was located on the floodplain of the Mangakōtukutuku Stream. The wetland had formed on the inside of a meander where sediment had been deposited and vegetation comprised of sedges (*Carex geminata*) and cabbage trees (*Cordyline australis*).

Wetland B will not be impacted by the development and as such is not discussed further in this WMP.



Figure 2: Location of wetlands within the Site.



Figure 3: Wetland A near northeastern boundary.

3.0 Approach

3.1 Wetland Creation

Approximately 348 m² of wetland habitat extent will be created within the Mangakōtukutuku Stream reserve, planted with indigenous wetland vegetation communities, and protected in perpetuity to achieve a net positive outcome in wetland values and extent (Figure 4).

Wetland creation and the associated values will be achieved via:

- Excavation to groundwater level and the construction of battered slopes to retain hydrological function capable of sustaining wetland vegetation communities.
- Creation of a variety of depths to account for fluctuating water levels throughout the year and the maintenance of a diversity of wetland conditions.
- Planting of indigenous, eco-sourced wetland vegetation species within the various wetland zones.
- Implementation of pest plant and animal control, replacement planting, and monitoring for a period of 5 years.

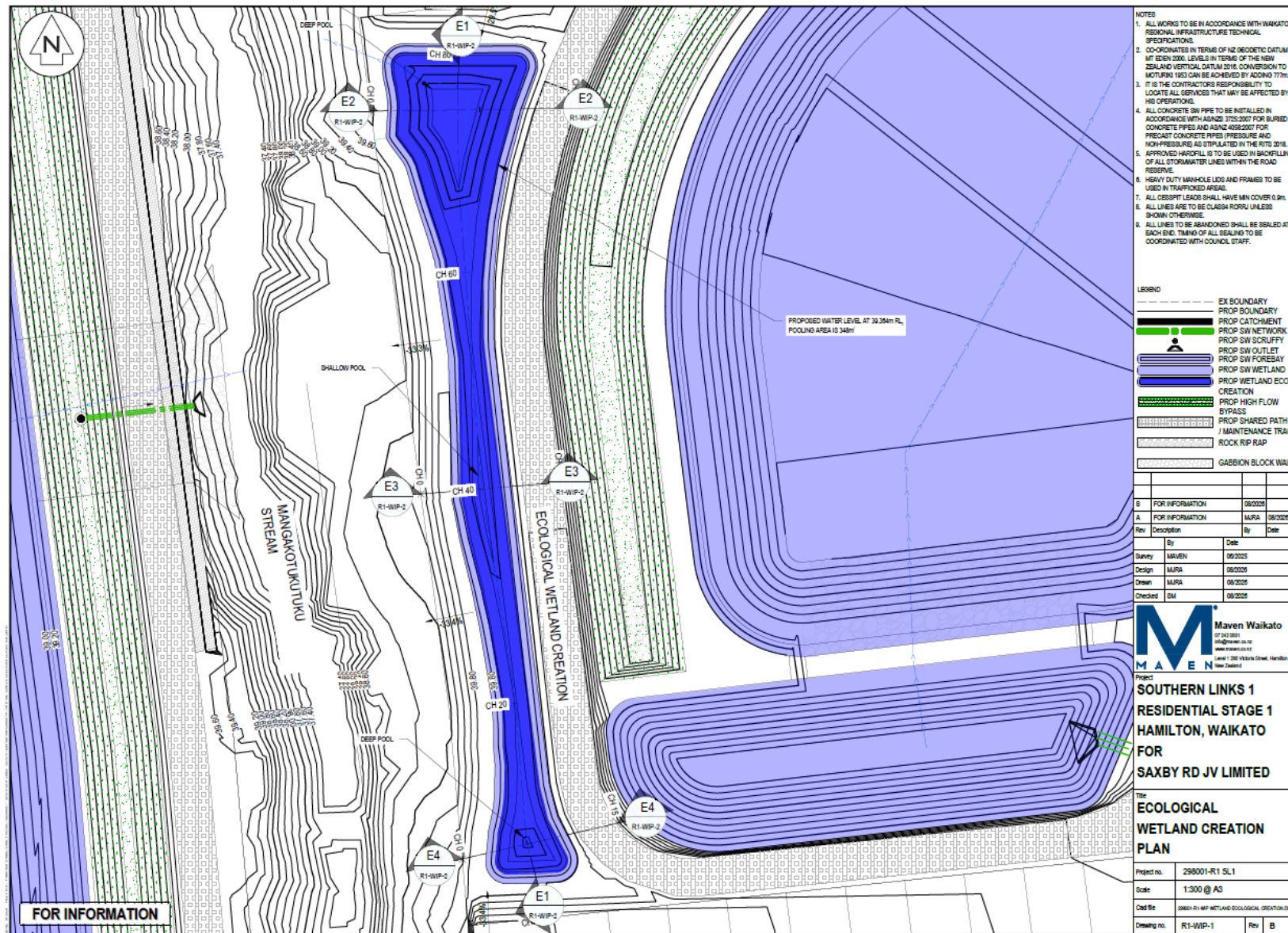


Figure 4: Proposed wetland creation.

3.2 Wetland Enhancement Planting

The newly created wetland area will be enhanced via planting of indigenous wetland vegetation communities. The new wetland habitat will comprise of vegetation types typical of wetland environments in the Waikato, specifically pūrei (*Carex secta*), sedges (*Coprosma* spp.), and tī kōuka/cabbage tree (*Cordyline australis*).

Wetland margins will also contain appropriate tree and shrub species typically found in the ED, specifically tī kōuka/cabbage tree and broadleaf species, such as kaikōmako (*Pennantia corymbosa*). Table 1 provides a full species list.

These plants will be appropriately eco sourced from the Hamilton Ecological District, as outlined by McEwan (1987).

Specific planting plans will be developed as part of the wider landscape design, in consultation with a suitably qualified and experienced ecologist. An indicative wetland enhancement concept using the proposed wetland creation area plans is shown in Figure 5.

Table 1: Proposed wetland enhancement plant species list.

Scientific name	Common name	Location	Grade	Spacing	%
<i>Blechnum novae-zelandiae</i>	Kiokioi	Outer wetland	PB3/4	1 m	15
<i>Carex geminata</i>	Cutty grass	Throughout wetland	PB3/4	1 m	10
<i>Carex secta</i>	Pūrei	Throughout wetland	PB3/4	1 m	15
<i>Cyperus ustulatus</i>	Giant umbrella sedge	Outer wetland	PB3/4	1 m	10
<i>Coprosma propinqua</i>	Mingimingi	Throughout wetland	PB3/4	2 m	5
<i>Coprosma tenuicaulis</i>	Swamp coprosma	Throughout wetland	PB3/4	2 m	10
<i>Cordyline australis</i>	Tī kōuka/cabbage tree	Throughout wetland	PB3/4	2 m	2.5
<i>Eleocharis acuta</i>	Sharp spike sedge	Throughout wetland	PB3/4	0.5 m	5
<i>Eleocharis sphacelata</i>	Bamboo spide-sedge	Throughout wetland	PB3/4	0.5 m	5
<i>Machaerina articulata</i>	Jointed twig rush	Throughout wetland	PB3/4	0.5 m	10
<i>Phormium tenax</i>	Harakeke/flax	Outer wetland	PB3/4	2 m	10
<i>Pennantia corymbosa</i>	Kaikōmako	Wetland margins	PB12	5 m	2.5

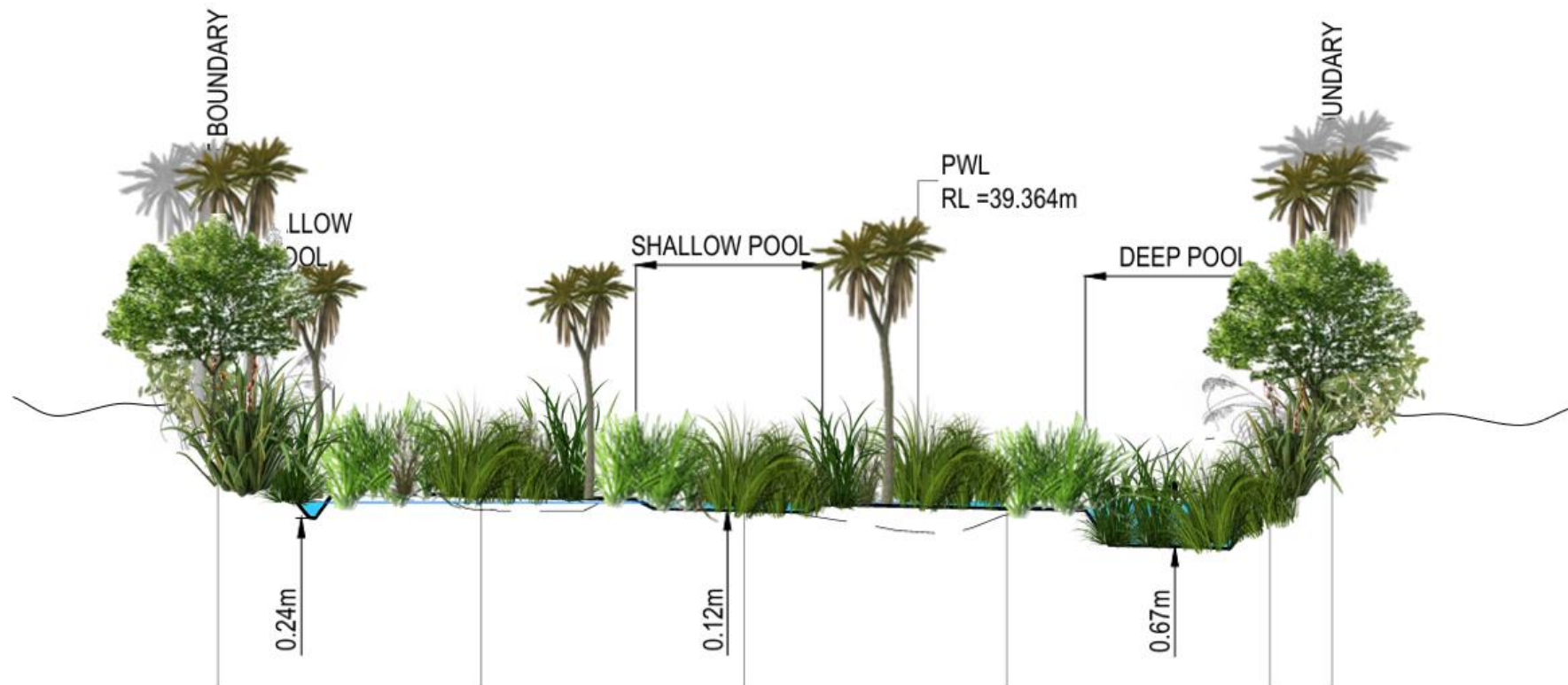


Figure 5: Indicative wetland creation and enhancement concept long section (E1).

3.3 Pest Plant Control

Species of pest plants listed in the National Pest Plant Accord (NPPA), Waikato Regional Pest Management Plan 2022–2032 and DOC List of Environmental weeds in New Zealand (McAlpine and Howell 2024) have been identified within the Site. Exotic weed species identified within the riparian margins of Mangakōtukutuku Stream were willow (*Salix* sp.), small leaved privet (*Ligustrum sinense*), and Japanese honeysuckle (*Lonicera japonica*) (Ecological Solutions, 2026).

Effective pest plant control requires identification of target plant species and communities, treatment of the weeds using appropriate methods, and monitoring to ensure the weeds do not return. Pest plant control will use best practice approaches to effectively control weeds to low densities (e.g., no fruiting or flowering individuals) and minimise harm to surrounding native vegetation.

Areas to be planted with native species will be free of pest plants, and managed to minimise reinvasion. Techniques to control weed species include Cut and Stump Treatment, Foliar Spray, and Hand Pulling (not to be used for species that will regrow from broken fragments). Stump painting should never be used as this is unsuitable to control re-sprouting species such as willow. All weed control will be performed by suitably qualified and experienced contractors, who can use their judgement to decide the best methods for the weeds at hand.

Any control efforts requiring herbicide application will be completed by a suitably experienced and Growsafe certified contractor, and appropriate precautions must be taken to protect non-target plants and bees. All herbicide use including (but not limited to) transport, storage, disposal, training, notification of use, use near waterways and application shall comply with the industry standard NZS 8409:2004 and relevant standards.

In addition to these standards, the following general precautions are to be taken:

- Herbicides will be applied during periods of active growth. Weather conditions at the time of application will be suitable for herbicide application (i.e., little to no wind in order to minimise spray drift, sufficient dry weather to ensure efficacy). If weather conditions are not suitable, spraying will be completed at an alternative time.
- Spray marker dye will be added to all spray solutions to ensure full coverage of all weed infestations.
- Where practicable, manual control methods are to be used as first preference over chemical methods.
- The preparation of herbicide mixes near waterways will be avoided so as to prevent any accidental spillage from reaching the watercourse.

In general, the only foliar herbicide that is suitable for use near waterways is glyphosate (Roundup™, Trounce™, Zero™, etc.) since it is non-residual and has low toxicity to aquatic life.

3.4 Pest Animal Control

Control stations will be used to reduce pest animal populations to low densities. This will minimise the adverse effects upon native flora and fauna, such as vegetation browsing and bird predation, overall encouraging a positive ecological outcome.

A pest animal control programme utilising Philproof bait stations and Goodnature pest animal stations will be effective across the site.

Pest control stations will be installed as per manufacturer's instructions and the location of installation marked with flagging tape and GPS coordinates to facilitate quick and effective

servicing. The traps and bait stations specified have been developed for relatively safe use around houses and designed where possible to exclude non-target species. However, care will be taken during installation to ensure stations are positioned in locations to ensure pets, and children are unable to access them.

Due to the extent of the new wetland area (348 m²) two pest control stations will be installed. The combined stations are to be made up of two components:

Goodnature A24 (or equivalent) for mustelids, rats, and mice

A trap is to be placed along the margin of the new wetland habitat. The trap should be mounted on a stake or post approximately 0.3 m from the ground.

These traps are safe for use around pets and native birds and are toxin free. Pests brush past an internal trigger when attempting to reach the lure, which fires a piston, killing them instantly. The trap resets itself automatically and can be activated year-round. This is to be baited with the appropriate Goodnature lure, with lure and CO² canister replaced every 3–6 months as per manufacturer's instructions, or as required. Canisters can kill 24 animals before replacement is required. These traps can also record the number of animals killed, which will form part of monitoring.

Philproof Bait stations or equivalent for rabbits

The following recommended baiting approach targets both possums and rabbits.

A pulsing programme using a primary poison (e.g., Pindone) will require two pulses a year (ideally May or June and September or October). Bait stations require servicing four times during each pulse (filling, refilling and poison removal).

A bait station is to be placed along the margins of the new wetland habitat and attached to a stake or post. The bait station should be mounted approximately 0.2 m from the ground.

3.5 Monitoring

Monitoring will be performed regularly to ensure the intended outcomes are achieved and will include, but not be limited to:

- Monitoring of physical wetland habitat characteristics (i.e., water depths, substrate, plant cover) as well as wetland condition using appropriate wetland monitoring protocols to show there has been no loss of ecological values (e.g., Handbook for monitoring wetland condition; Clarkson et al. 2003).
- Achieve a minimum of 90% indigenous wetland vegetation cover within 5 years.

To measure the effectiveness of the weed control programme it is important that good quality records be maintained to track weed control efforts and site outcomes. The following information should be kept as a record and be supplied as part of a regular monitoring report:

- Name(s) of the contractor(s) completing the work.
- Date of weed control.
- Control methods used.
- Herbicides used.
- Areas targeted.
- Recommendations for follow-up work.

Maintaining up to date records of agrichemical usage is also a legal requirement, as specified in Code of Practice (NZS 8409:2004) for the management of agrichemicals as set out in the Hazardous Substances and New Organisms (HSNO) Act. Users of pesticides and herbicides are required to identify and manage risks associated with transport, handling and applying agrichemicals as indicated by the label and other product information so that no adverse environmental effects occur.

Monitoring of animal pest control outcomes will rely on the following methods:

- Rodent tracking tunnels.
- Wax tags for monitoring possums.
- The number of animals killed (as informed by the A24 traps).
- The weight of toxin used to control rabbits/hares on an annual basis.

4.0 Reporting and Closure

Wetland management may be considered closed after 5 years of continuous pest plant and animal control and a minimum 90% cover of indigenous wetland vegetation. See Appendix A for an example of an enhancement planting monitoring form to be used in combination with any regular monitoring reports.

5.0 References

- Clarkson, B. R., Sorrell, B. K., Reeves, P. N., Champion, P. D., Partridge, T. R., & Clarkson, B. D. (2003). Handbook for monitoring wetland condition. *Coordinated monitoring of New Zealand wetlands. A Ministry for the Environment SMF funded project. Ministry for the Environment, Wellington.*
- Ecological Solutions. 2026. Ecological Impact Assessment: Southern Links Residential Development. Prepared for Saxby Road JV Limited Ltd. August 2026.
- McAlpine, K.G., Howell, C.J. 2024. List of environmental weeds in New Zealand 2024. Science for Conservation 340. Department of Conservation, Wellington. 37 p.
- McEwen, M., 1987. Ecological regions and districts of New Zealand. New Zealand Biological Resources Centre.

APPENDIX A

Wetland Enhancement Monitoring Form

Wetland Enhancement Monitoring Form

Date (d/m/y):	
Monitored by:	

Fencing

Condition:	
Previous works undertaken:	
Additional comments:	

Survival rate

Percentage survival:	
Growth estimate (cm/year):	
Percent ground cover:	
Requirement for blanking (yes/no):	
Distribution of plant losses:	
Signs of disease or insect damage:	
Additional comments:	

Fertilisation (if applicable)

Date applied:	
What used:	
Areas applied:	
Quantity used:	
Additional comments:	

Weed control

Date undertaken:	
Sprays used:	
Weeds targeted:	
Areas targeted:	
Additional comments:	

Replacement planting

Date undertaken:	
Species being replaced:	
Species planted:	
Number of plants replaced:	
Additional comments:	

Assessment of problems

Nature of problem: (e.g., certain weeds difficult to control and detrimental to planting? Animal pests causing significant problems?)	
Recommended solutions:	
Analysis of plant losses: (are losses greater than expected, are there any obvious reasons, are losses in certain areas, are certain species showing high losses, what are possible solutions?)	