

Pegasus West Development Fast-Track Approvals Act 2024 (FTAA) – Referral Application Stage - Technical Ecology Report

✦ Prepared for

Wolfbrook Developments (Pegasus) Limited

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Limitations:

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Executive Summary

This Technical Ecology report provides a high-level ecological assessment to support a Referral Application made under the Fast-track Approvals Act (FTAA) 2024 for the proposed Pegasus West Development within the Waimakariri District. It is preliminary and intended to address s 13(4)(h) of the FTAA in respect of describing anticipated and known adverse ecological effects and the significance of those effects.

The proposed development site comprises a highly anthropogenically modified former golf course, with ecological values primarily associated with streams (Taranaki Stream, Taerutu Stream, and Wai-Hora Stream), native riparian areas, constructed ponds, wetlands, treelines, and managed exotic grasslands. Indigenous biodiversity values exist, including habitat supporting threatened freshwater fish species, native wetland and terrestrial vegetation, lizards, and avifauna, notably waterfowl and water birds.

The proposed development will retain the streams and most higher-value wetlands; however, it will also likely result in the removal of most constructed ponds, some wetlands, and rank grassland. Consequently, unless effective management interventions are implemented, key adverse ecological effects will occur, principally relating to wetland loss, fish, lizard and avifauna habitat loss, and disturbance to indigenous fauna.

Subject to well-considered detailed designs and construction methodologies, and strict application of the effects management hierarchy, adverse effects are capable of being appropriately avoided, minimised, remedied, or offset. Indicative management measures include the retention and protection of key waterways, enhancement of retained wetlands, habitat creation, and management of protected species through appropriate authorisations under relevant legislations.

Table of Contents

SECTION	PAGE
Executive Summary	ii
1.0 Purpose of Report	1
2.0 Author of Report	1
3.0 Project Description	1
4.0 Ecological Information Requirements	2
5.0 Ecological Context	3
6.0 Conservation Areas	4
6.1 Western Ridge Conservation Area	4
6.2 Mudfish Conservation Area	4
7.0 Aquatic Habitat	6
7.1 Watercourses	6
7.2 Constructed Ponds	10
8.0 Fish	13
8.1 Fish Species	13
8.2 Fish Passage	16
9.0 Wetlands	21
9.1 Wetland Presence	21
9.2 Wetland Delineation	27
10.0 Terrestrial Vegetation	27
10.1 Native Plants	27
10.2 Exotic Plants	30
11.0 Lizards	31
11.1 Lizard Species	31
11.2 Lizard Habitat	32
12.0 Avifauna	35
12.1 Avifauna Species	35
12.2 Avifauna Habitat	41
13.0 Preliminary Assessment of Effects	42
14.0 Indicative Effects Management	44
14.1 Minimum Ecological Setback Distances	46
15.0 Wildlife and Fish Authorisations	48
15.1 Wildlife Act Authority	48
15.2 Conservation Act Authorisation	48

15.3	Freshwater Fisheries Regulations Authority	48
16.0	Key Matters for Further Assessment	49
17.0	Conclusion	49
18.0	Limitations	50
19.0	References	50

Table of Figures

Figure 1: Western Ridge Conservation Area (WRCA), Mudfish Conservation Area (MCA), and Conservation Area Brockenhurst Wetlands.	5
Figure 2: Taranaki Stream (facing downstream) with Development Area C visible in the background.	6
Figure 3: Taerutu Stream (facing upstream) along the perimeter of Development Area F.	7
Figure 4: Wai-Hora Stream (facing downstream) along the perimeter of Development Area G.	8
Figure 5: Streams, constructed ponds, and wetlands on the site.	9
Figure 6: Constructed pond CP2 in Development Area D.	10
Figure 7: Tuna/eel (<i>Anguilla</i> sp.) recorded in Taranaki Stream on 13 June 2026 during the site walkover.	14
Figure 8: Box culvert between Development Areas C and E on the Taranaki Stream (facing upstream) (left)	16
Figure 9: Bridge over Taranaki Stream at the southwest corner of Development Area C (facing downstream) (right)	16
Figure 10: Taerutu Stream is culverted between Wetlands W2 and W3 between Development Areas E and F.	17
Figure 11: Rock weir between constructed ponds CP1 and CP2	18
Figure 12: Rock weir between constructed ponds CP2 and CP3	18
Figure 13: Rock weir between constructed ponds CP3 and CP4	19
Figure 14: Rock weir between constructed ponds CP4 and CP5	19
Figure 15: Stepped rock weir system between constructed ponds CP9 and CP10 in Development Area A.	20
Figure 16: Small diameter culvert under a residential road between Development Areas D and E, connecting constructed ponds CP4 and CP7	20
Figure 17: Wetland W14 in Development Area A.	21

Figure 18: Suitable lizard habitat in the rank tussock grassland along the southern edge of Development Area G.	32
Figure 19: Potential lizard habitat on the site.	34
Figure 20: Raipo/papango/New Zealand scaup (<i>Aythya novaeseelandiae</i>) and Australian coot (<i>Fulica atra australis</i>) on Pond 3 in Development Area D.	35

Table of Tables

Table 1: Constructed ponds, relative ecological value and the proposed change in area	11
Table 2: Fish species known to occur in the Western Ridge Conservation Area, Mudfish Conservation Area, Taranaki Stream, and the Constructed Ponds	15
Table 3: Confirmed or unconfirmed wetlands and the proposed change in area	22
Table 4: Representative native plant species within the Pegasus catchment	28
Table 5: Representative exotic plant species within the Pegasus catchment	30
Table 6: Lizard species recorded within 5 km of the proposed site	32
Table 7: Suitable lizard habitat on the site and the proposed change in area	33
Table 8: Bird species recorded using the proposed site	36
Table 9: Suitable avifauna habitat on the site and the proposed change in area	41
Table 10: Potential key adverse ecological construction- and operation-related effects	42
Table 11: Example management measures for the ecological components	45
Table 12: Minimum setback distances for waterways, wetlands, and constructed ponds on the site	47

Appendices

Appendix A: Pegasus West Development – Fast Track Application – Indicative Master Plan
Appendix B: Site Photographs

1.0 Purpose of Report

Wolfbrook Developments (Pegasus) Limited (Wolfbrook) has engaged Pattle Delamore Partners (PDP) to prepare this high-level ecology assessment to support a referral application made under section 13 of the Fast-track Approvals Act 2024 (FTAA) for the proposed Pegasus West Development.

The purpose of this report is to provide a preliminary, high-level assessment of the ecological considerations associated with the proposed development to assist the Minister in determining whether the project should be referred to an expert panel for substantive consideration under the FTAA (Novo Group, 2026).

The report identifies the key ecological matters likely to require further investigation during the substantive application stage, describes the anticipated and known adverse ecological effects of the project, and confirms that feasible measures are available to avoid, minimise, remedy, or offset those effects. It is not intended to provide a full technical assessment or consent-level analysis, and will be supplemented by more comprehensive ecological assessments and reporting should the project be referred for substantive consideration.

2.0 Author of Report

The author of this technical ecology report is Cazz Grima, Technical Director – Ecology, from PDP. Cazz has a BSc in Biology from the University of Leeds and an Ecological Restoration Professional Specialisation Certificate from the University of Victoria, Canada.

Cazz has nearly 20 years of ecological consulting experience from work in New Zealand, Canada, and the United Kingdom. She has a broad ecological background that includes terrestrial, freshwater, and coastal ecology, ecological restoration, habitat offsetting, protected species management, invasive plant management, and ecological monitoring.

Cazz has been an ecology technical lead on large-scale multidisciplinary design and construction projects. She has a strong track-record in project management, environmental impact assessments, national and international environmental regulations, resource consents, and approvals.

3.0 Project Description

The proposed project is a master-planned residential development with a neighbourhood-scale commercial/community node and associated infrastructure, provided as a contiguous extension to the Pegasus, Ravenswood, and Woodend urban area. The approximate 77-hectare site is known as 8 Mapleham Drive, Pegasus.

DCM Urban Design Limited has prepared the *Pegasus West Development – Fast Track Application - Proposal - Indicative Master Plan* (Appendix A) which provides an indicative layout of the following components:

- ✧ Residential Development Areas (A to G) to enable up to 1,000 residential allotments/dwellings across a range of residential densities
- ✧ Commercial/community nodes
- ✧ Stormwater management areas (including wet basin areas) and an open space network featuring neighbourhood parks and green links
- ✧ Ponds, wetlands, and gully planting areas
- ✧ Taerutu Gully Environmental Enhancement area
- ✧ Minor alterations to Pegasus Boulevard to provide for the access requirements of the development including intersection improvements and a new road access
- ✧ Areas of land set aside to recognise and provide for cultural and archaeological values

Furthermore, there will be associated earthworks, servicing, landscaping and related works to be implemented in stages.

The ecological assessment and findings presented in this report are based on the Indicative Master Plan provided by DCM Urban Design Limited.

4.0 Ecological Information Requirements

Novo Group Limited prepared an Expert Briefing Memorandum that identifies the ecological information required to support the Referral Application for the Pegasus West Development Project under the FTAA (Novo Group, 2026).

Section 4.8 of the memorandum outlines the ecological assessment requirements, including the identification and description of the anticipated and known adverse ecological effects of the proposed project, an assessment of the significance of those effects, and high-level conclusions regarding how they may be addressed during the substantive approvals stage.

To address these requirements, this report provides an assessment of:

- ✧ Aquatic ecology, including watercourse (Section 7.1), constructed ponds (Section 7.2), fish (Section 8.1), and fish passage (Section 8.2);
- ✧ Wetlands, including their presence and delineation (Section 9.0);
- ✧ Terrestrial ecology, including terrestrial vegetation (Section 10.0, lizards (Section 11.0), and avifauna (Section 12.0);
- ✧ Key ecological constraints associated with the proposed development (Section 13.0);

- ✧ A high-level ecological management approach (Section 14.0); and,
- ✧ The potential requirement for wildlife and fish authorisations (Section 15.0).

5.0 Ecological Context

The proposed site is located within the Canterbury Plains Ecological Region and Low Plains Ecological District (ED). Before widespread human modification, the Low Plains ED was dominated by tussockland and floodplain forest, with extensive swamp wetlands associated with alluvial valleys.

Within the vicinity of the proposed site, the indigenous vegetation is likely to have comprised a mosaic of sedgeland, flaxland, and cabbage tree swamp wetland communities, grading into back-dune forest and grass/sedgeland communities closer to the coast. The Low Plains ED has been extensively modified through agricultural development and urban expansion, with less than 1% of the original indigenous vegetation remaining. The remaining native vegetation is largely confined to small, isolated remnants.

A review of Canterbury Maps (2026) confirmed that the site does not contain any of the following ecological designations:

- ✧ Critical Habitat (Rivers) or (Lakes) identified under the Canterbury Land and Water Regional Plan (CLWRP);
- ✧ Areas of Significant Natural Value listed in Schedule 1 of the Canterbury Regional Coastal Environment Plan (RCEP); or
- ✧ Department of Conservation (DOC) Sites of Special Wildlife Interest (SSWI).

Key ecological components of the proposed site include:

- ✧ The adjoining Western Ridge Conservation Area (WRCA; Section 5.1), and Mudfish Conservation Area (MCA; Section 5.2); both areas have ecological, cultural, and archaeological values.
- ✧ Taranaki Stream (Section 6.1.1), Taerutu Stream (Section 6.1.2), and Wai-Hora Stream (Section 6.1.3); including their riparian zones.
- ✧ Thirteen constructed ponds (Section 7.2.3) and twenty-four (unconfirmed) wetlands (Section 8.0) of varying biodiversity value.
- ✧ Fish and fish habitat (Sections 6.0, 7.1 and 8.0).
- ✧ Lizards and lizard habitat (Section 10.0).
- ✧ Avifauna and avifauna habitat, notably waterbirds and waterfowl (Section 11.0).

6.0 Conservation Areas

6.1 Western Ridge Conservation Area

The WRCA is a dune ridge located immediately adjacent to the eastern boundary of the site (WDC, 2025; Figure 1). The WRCA was established as part of the original Pegasus Golf and Sports Club development, is owned by Te Kōhaka o Tūhaitara Trust, and forms part of the wider Tūhaitara Coastal Park, which is managed by the Trust (WDC, 2013).

Under the Pegasus Township Development Area provisions of the Partially Operative Waimakariri District Plan (PODP) (DEV-PEG-R2; WDC, 2025), the WRCA is restricted to activities undertaken for the *protection of archaeological and historic cultural values*. Native enhancement planting and mammalian pest control programmes are undertaken within the WRCA by the Trust and wider community.

6.2 Mudfish Conservation Area

The MCA is located immediately east of the WRCA and is bounded by Arahura Road, Kawari Drive, and Infinity Drive (Figure 1). Like the WRCA, the MCA was established as part of the original Pegasus Golf and Sports Club development (WDC, 2013).

The 1.7 ha MCA contains a wetland that provides habitat for Canterbury mudfish (*Neochanna burrowsius*), a native fish species classified as ‘Threatened – Nationally Critical’ (Dunn et al. 2025; WDC, 2025; Figure 1).

Under the Pegasus Township Development Area provisions of the PODP (DEV-PEG-R2; WDC, 2025), the MCA is restricted to activities undertaken for the *protection of archaeological and historic cultural values*, and *the enjoyment, maintenance and enhancement of nature conservation values, including the habitat of all indigenous species, and associated recreation and education*.



7.0 Aquatic Habitat

7.1 Watercourses

7.1.1 Taranaki Stream

Taranaki Stream flows between Development Areas C and E and is a permanent first-order stream that flows into Te Aka Aka/Ashley River-Saltwater Creek Estuary (Photographs 1-4 in Appendix B; Figures 1 and 2). The stream is classified as a 'Spring-fed Plains' waterbody (Canterbury Maps, 2026). The streambed is characterised by a layer of unconsolidated fine silts and clays (URS, 2011).

In the PODP, Taranaki Stream is identified as a Scheduled Natural Character Freshwater Body (NATC-SCHED2) (WDC, 2025; Figure 1). As a tributary of the Te Aka Aka/Ashley River-Saltwater Creek Estuary, it is also recognised as a Site/Area of Significance to Māori (Ngā Wai: SASM025) due to its mahinga kai values, habitats, and taonga species (WDC, 2025; Figure 1).

The section of Taranaki Stream that follows the northern site boundary and traverses the site forms part of the Brockenhurst Wetlands Conservation Area. This 1.84 ha Stewardship Area (Park ID 2797159) is managed by the Department of Conservation (DOC) under Section 25 of the *Conservation Act* 1987 (DOC, 2016; New Zealand Government, 1987; Figure 1). Any works involving this Public Conservation Land (PCL) will require a concession (DOC, 2026a).



Figure 2: Taranaki Stream (facing downstream) with Development Area C visible in the background.

7.1.2 Taerutu Stream

Taerutu Stream is understood to be an ephemeral (Environment Canterbury, 2017) first-order tributary within Taerutu Gully that flows north through Development Area E (Photographs 5 and 6 in Appendix B; Figures 3 and 5). The stream is classified as a 'Spring-fed Plains' waterbody (Canterbury Maps, 2026) and is hydrologically connected to Taerutu Wetland (Section 8.1), which forms part of the existing on-site stormwater network.

The surrounding soils comprise Temuka deep silt loam over clay loam, a poorly drained gley soil that retains moisture (URS, 2011). According to URS (2011), groundwater levels are comparable with the invert of the Taerutu Gully orifice weir, indicating that water levels within Taerutu Wetland are closely associated with the groundwater table.

Taerutu Gully receives stormwater discharge from the Maplesham Lakes development via a broad-crested weir, together with groundwater inflows. Flows are conveyed through an orifice weir into Old Taranaki Stream before discharging to Taranaki Stream (URS, 2011; Eliot Sinclair, 2020; Photograph 42, Appendix B). Taerutu Gully maintains a continuous baseflow of approximately 3–5 L/s to Old Taranaki Stream throughout the year, with flows increasing following rainfall due to natural drainage and stormwater inputs from the Maplesham Lakes development (URS, 2011).



Figure 3: Taerutu Stream (facing upstream) along the perimeter of Development Area F.

7.1.3 Wai-Hora Stream

Wai-Hora Stream is understood to be an intermittent first-order tributary that follows the southwest corner of Development Area G and discharges into Taranaki Stream (Photographs 7 and 8 in Appendix B; Figure 5). The stream is classified as a 'Spring-fed Plains' waterbody (Canterbury Maps, 2026) and was observed to be flowing during the site walkover on 23 June 2026 (Figure 4).

While a section of the tributary is identified as a Site/Area of Significance to Māori (Ngā Wai: SASM025), the reach adjacent to the site boundary is not included within this designation (Figure 1).



Figure 4: Wai-Hora Stream (facing downstream) along the perimeter of Development Area G.



Figure 5: Streams, constructed ponds, and wetlands on the site.

7.2 Constructed Ponds

Thirteen lined constructed ponds (CP1-CP13; Figures 5 and 6) were created as part of the development of the former Pegasus Golf and Sports Club in 2008.

Based on a site walkover and desktop assessment, each pond was assigned an indicative ecological value:

- ∴ **'High'** includes ponds CPs 7 and 9;
- ∴ **'Moderate'** includes ponds CPs 1, 6, 12 and 13;
- ∴ **'Low'** includes ponds CPs 2, 4, 5 and 10; and
- ∴ **'Very Low'** includes ponds CPs 3, 8 and 11 (Table 1).

All constructed ponds have a wetland margin as depicted on Figure 5.

Water levels in all constructed ponds are artificially managed. During rainfall events, stormwater runoff from the surrounding residential development is directed into the ponds for temporary storage. The stored water is subsequently drawn down and reused for irrigation purposes, with water levels regulated by weirs and the pump station. As a result, the ponds only discharge during rainfall events when inflows exceed their storage capacity.

Under the proposed development, most constructed ponds (CP1-CP6, CP8-CP11, CP13) and their wetland margins will be removed (approximately 5.7 ha of the 7.5 ha total pond areas across the site (76%)). High value pond CP7 and Moderate value pond CP12 will be retained and ecologically enhanced (Table 1).



Figure 6: Constructed pond CP2 in Development Area D.

Table 1: Constructed ponds, relative ecological value and the proposed change in area						
Pond No.	DA	Relative Value	Brief Description	Photo No in App 1	Existing Area (ha)	Proposed Change (%)
1	B	Moderate	Mud bottom. Rank grass edge, with raupo and sedges at east end. Short grass edge and a raupo patch along south bank. Short grass edge and sedge patches along north bank.	9-12	0.64 ha	100% loss
2	D	Low	Mud bottom. Short grass edge with patches of sedge and raupo.	13-14	0.53 ha	100% loss
3	D	Very Low	Combination of concrete wall, rock wall, and short grass banks. Mud bottom. Few sedge and raupo patches.	15-17	0.5 ha	100% loss
4	D	Low	Mud bottom. Short grass banks with few sedge patches. Good ecological connection to Pond 7.	18-20	0.3 ha	100% loss
5	D	Low	Mud bottom. Short grass banks. Sedge swathe, few cabbage trees (<i>Cordyline australis</i>) and native shrubs on west bank. Some raupo in centre of channel.	21-22	0.46 ha	100% loss
6	D	Moderate	Gravel edge and short grass on east bank. Rank grasses, sedges and rushes on west bank.	23	0.6 ha	100% loss
7	E	High	Hydrologically connected to wetland. Timber edge (entire circumference). Mud bottom. Extensive sedge edge with cabbage trees on east bank. Short grass edge on west bank.	24-26	0.73 ha	0%
8	C	Very Low	Gravel edge. Mud bottom. Short grass edge, which is sparsely vegetated. Few cabbage trees, pittosporum sp., and sedges (single and patches).	28-29	0.85 ha	100% loss

Table 1: Constructed ponds, relative ecological value and the proposed change in area						
Pond No.	DA	Relative Value	Brief Description	Photo No in App 1	Existing Area (ha)	Proposed Change (%)
9	A	High	Mud bottom. Sedge on south bank. Raupo on north bank. Connected to constructed pond CP10 and wetland W13.	30-31	0.51 ha	100% loss
10	A	Low	Mud bottom. Short grass south bank. Rank grass north bank with sedges patches. Raupo in northwest corner. Connected to constructed pond CP9.	32-33	0.38 ha	100% loss
11	A	Very Low	Gravel edge. Mud bottom. Mostly short grass banks, some rushes and sedges.	34	0.37 ha	100% loss
12	G	Moderate	Gravel edge. Mud bottom. Mostly short grass banks with rush, sedge and raupo patches, notably on the east end.	35-36	1.04 ha	0% loss
13	F	Moderate	Gravel edge. Mud bottom. Rank grass banks and extensive raupo.	37-38	0.61 ha	100% loss

8.0 Fish

8.1 Fish Species

A search of the New Zealand Freshwater Fish Database (NZFFD) was undertaken for native and exotic fish presence in Western Ridge Conservation Area (WRCA) Mudfish Conservation Area (MCA), the streams, constructed ponds, and wetlands on the proposed site, and nearby waterways (NZFFD, 2026).

Kōwaro/Canterbury mudfish (*Neochanna burrowsius*; Threatened – Nationally Critical) are known to occur in the WRCA and MCA. Furthermore, DOC (2026a) has identified mapped records of Canterbury mudfish and Canterbury galaxias (*Galaxias vulgaris*) on the site.

Taranaki Stream supports one 'Threatened' and three 'At Risk' fish species: īnanga/whitebait (*Galaxias maculatus*), tuna/longfin eel (*Anguilla dieffenbachia*), Canterbury galaxias, and hawai/giant bully (*Gobiomorphus gobioides*). The stream also supports two 'Not Threatened' fish species: tuna/short-fin eel (*Anguilla australis*; Figure 7), and pako/common bully (*Gobiomorphus cotidianus*), and the 'Introduced and Naturalised' taraute/brown trout (*Salmo trutta*; Table 2). Upland bully (*Gobiomorphus breviceps*) may also be present in Taranaki Stream, despite the absence of records.

There are anecdotal accounts from residents that tuna/longfin eel (*Anguilla dieffenbachia*) are present in constructed ponds on the site (CP1-CP7, CP9-CP10). Owing to the interconnected nature of the waterbodies and waterways on the site to Taranaki Stream, it is highly likely that tuna/longfin eel are also present in adjoining wetlands W1, W2 and W13, and Taerutu Stream. It is unknown whether tuna/eel are present in isolated construction ponds and wetlands with open water such as CP8, CP11-CP13 and W14.

No previous fish survey efforts are known to have occurred in Taerutu Stream, Wai-Hora Stream, or the constructed ponds and wetlands on the proposed site. Therefore, fish populations, including species and abundances, are currently unknown in each of these waterways and waterbodies.

All known native fish species in WRCA, MCA, Taranaki Stream and the constructed ponds are taonga species to Ngāi Tahu (Mahaanui Kurataiao Ltd, nd; Ngāi Tahu, 1998; Table 2).



Figure 7: Tuna/eel (*Anguilla* sp.) recorded in Taranaki Stream on 13 June 2026 during the site walkover.

Table 2: Fish species known to occur in the Western Ridge Conservation Area, Mudfish Conservation Area, Taranaki Stream, and the Constructed Ponds

Māori Name	Common Name	Scientific Name	National Conservation Status ²	Location Recorded ³
Kōwaro ¹	Canterbury mudfish	<i>Neochanna burrowsius</i>	Threatened - Nationally Critical	Western Ridge Conservation Area and Mudfish Conservation Area in 2026; mapped records on the site ⁴
Īnanga ¹	Whitebait	<i>Galaxias maculatus</i>	Threatened - Nationally Vulnerable	Taranaki Stream in 2025
Tuna ¹	Longfin eel	<i>Anguilla dieffenbachii</i>	At Risk – Declining	Taranaki Stream in 2025, and anecdotal sightings in some constructed ponds
Kōkopu ¹	Canterbury galaxias	<i>Galaxias vulgaris</i>	At Risk – Naturally Uncommon	Taranaki Stream in 2001; mapped records on the site ⁴
Kōkopu/hawai ¹	Giant bully	<i>Gobiomorphus gobioides</i>	At Risk – Naturally Uncommon	Taranaki Stream in 1981
Tuna ¹	Shortfin eel	<i>Anguilla australis</i>	Not Threatened	Taranaki Stream in 2025 ⁵
Pako ¹	Common bully	<i>Gobiomorphus cotidianus</i>	Not Threatened	Taranaki Stream in 2025
Taraute	Brown trout	<i>Salmo trutta</i>	Introduced and Naturalised	Taranaki Stream in 2025
Sources: 1. Taonga species (Mahaanui Kurataiao Ltd., nd; Ngāi Tahu, 1998) 2. Conservation status of New Zealand freshwater fishes, 2023 (Dunn, 2025) 3. NZFFD, 2026 4. DOC, 2026a 5. Given the lowland location of the proposed site, if longfin eel are present in some constructed pond, then it is likely shortfin eel are also present in these same ponds.				

8.2 Fish Passage

8.2.1 Taranaki Stream

No evidence of a fish barrier on the Taranaki Stream was observed during the site walkovers on 13 and 23 June 2026 - there is an unobstructed box culvert on the stream between Development Areas C and E (Figure 8), and an unobstructed bridge over the stream in the southwest of Development Area C (Figure 9).



Figure 8: Box culvert between Development Areas C and E on the Taranaki Stream (facing upstream) (left)



Figure 9: Bridge over Taranaki Stream at the southwest corner of Development Area C (facing downstream) (right)

8.2.2 Taerutu Stream

There is no publicly available information on the presence or distribution of freshwater fish species within Taerutu Stream.

An orifice weir is present at the downstream end of Taerutu Stream where it joins Taranaki Stream. This structure is understood to act at least as a partial barrier to upstream fish migration from Taranaki Stream into Taerutu Stream.

In addition, there is a weir located on Taerutu Stream between Wetlands W2 and W3. This culvert may become obstructed during certain flow conditions, potentially creating a temporary barrier to fish passage (Figure 10).



Figure 10: Taerutu Stream is culverted between Wetlands W2 and W3 between Development Areas E and F.

8.2.3 Constructed Ponds

A series of rock weirs are located between Constructed ponds CP1 and CP2 (Figure 11), constructed ponds CP2 and CP3 (Figure 12), Constructed ponds CP3 and CP4 (Figure 13), and constructed ponds CP4 and CP5 (Figure 14) in Development Area B and D.

A further series of rock weirs is present between constructed ponds CP9 and CP10 in Development Area A (Figure 15).

A small culvert is located beneath a residential road between Development Areas D and E, providing a hydraulic connection between constructed ponds CP3 and CP7 (Figure 16). Depending on its condition and the prevailing flow conditions, this culvert may also present a potential barrier to fish passage.



Figure 11: Rock weir between constructed ponds CP1 and CP2



Figure 12: Rock weir between constructed ponds CP2 and CP3



Figure 13: Rock weir between constructed ponds CP3 and CP4



Figure 14: Rock weir between constructed ponds CP4 and CP5



Figure 15: Stepped rock weir system between constructed ponds CP9 and CP10 in Development Area A.



Figure 16: Small diameter culvert under a residential road between Development Areas D and E, connecting constructed ponds CP4 and CP7

9.0 Wetlands

9.1 Wetland Presence

A total of 24 confirmed or potential wetlands (W1-W18; Figure 5), totalling approximately 17 ha, have been identified within the proposed development site based on a site walkover and desktop assessment. Based on this assessment, each wetland was assigned an indicative ecological value:

- ✧ **‘Very High’** include wetlands W1, W2, W3 and W5;
- ✧ **‘High’** include wetlands W6 and W14;
- ✧ **‘Moderate’** include wetlands W11, W12, W13, and W15;
- ✧ **‘Low’** include wetlands W7, W9, W10, and W17; and
- ✧ **‘Very Low’** include wetlands W4, W8, W16, and W18-W24 (Table 3).

All Very High value wetlands (W1-W3, and W5), High value wetlands W6 and W14 (Figure 17), and Moderate value wetlands W12 and W13 will be retained within the site (Table 3).

Wetlands W10, W11, and W22 will be expanded as part of the stormwater management design. Low and very low value wetlands W4, W7, W8 and W23 will be retained and have scope to be enhanced as part of the development.

Moderate value wetland (W15), Low value wetlands W9 and W17, and Very Low value wetlands (W16, W18-W21, and W24) will be removed as part of the proposed development. In total, approximately 2 ha of the 17 ha of wetland area will be lost (representing 12% loss of area).



Figure 17: Wetland W14 in Development Area A.

Table 3: Confirmed or unconfirmed wetlands and the proposed change in area								
Wetland No.	Confirmed or Unconfirmed ¹	DA	Relative Value	Brief Description	Photo No in App 1	Existing Area (ha)	Proposed Area (ha)	Proposed Change (%)
W1	Confirmed	E	Very High	Taerutu Wetland occupies a shallow gully system known as Taerutu Gully. The wetland was constructed to provide stormwater management functions during the development of the former Pegasus Golf and Sports Club and adjacent Mapleham residential area (Eliot Sinclair, 2020). Native, trees, shrubs, sedges, rushes, and grasses. Remnant dune slack wetland system. Species include cabbage tree, harakeke (<i>Phormium tenax</i>), raupō (<i>Typha orientalis</i>), and hanging sedge (<i>Carex secta</i>). Open water at north end.	39-42	2.15 ha	2.15 ha	0%
W2	Confirmed	E	Very High	Native shrubs, trees, sedges, rushes, and tussock grasses. Remnant dune slack wetland system. Includes boulders. There is spillway from Pond 7 to Wetland 2. Species include cabbage tree, and raupō. Pondered water was present.	43-46	0.97 ha	0.97 ha	0%

Table 3: Confirmed or unconfirmed wetlands and the proposed change in area								
Wetland No.	Confirmed or Unconfirmed ¹	DA	Relative Value	Brief Description	Photo No in App 1	Existing Area (ha)	Proposed Area (ha)	Proposed Change (%)
W3	Confirmed	F	Very High	Native shrubs, trees, sedges, rushes, and grasses. Remnant dune slack wetland system. Species include willow (<i>Salix</i> sp.), cabbage tree, and harakeke. Ponded water was present.	47-48	2.67 ha	2.67 ha	0%
W4	Unconfirmed	E	Very Low	Tussock grasses and scattered rushes. No standing water present at the time of the walkover.	49	0.05 ha	0.05 ha	0%
W5	Confirmed	E	Very High	Native trees, shrubs, and grasses. Remnant dune slack wetland system. Species include podocarps, cabbage tree, and hanging sedge. Ponds with duckweed (<i>Lemna minor</i>) & ferny azolla (<i>Azolla pinnata</i>).	50-51	2.3 ha	2.3 ha	0%
W6	Confirmed	E	High	Native trees, shrubs, rushes, sedges, and tussock grasses. Species include cabbage tree, harakeke, and toetoe (<i>Austroderia toetoe</i>). Low elevation prone to flood waters. Ponded water was present.	52-53	5.27 ha	5.27 ha	0%
W7	Unconfirmed	E	Low	Tussock grasses and a single cabbage tree, oak (<i>Quercus</i> sp.), and toetoe. Low elevation prone to flood waters. No standing water present at the time of the walkover.	54-55	0.1 ha	0.1 ha	0%

Table 3: Confirmed or unconfirmed wetlands and the proposed change in area

Wetland No.	Confirmed or Unconfirmed ¹	DA	Relative Value	Brief Description	Photo No in App 1	Existing Area (ha)	Proposed Area (ha)	Proposed Change (%)
W8	Unconfirmed	E	Very Low	Tussock grasses and occasional rush. Possible artifact of remnant dune slack wetland system. No standing water present at the time of the walkover.	56-57	0.04 ha	0.04 ha	0%
W9	Unconfirmed	E	Low	Tussock grasses and rushes. No standing water was present at the time of the walkover.	58-59	0.14 ha	0 ha	100% loss
W10	Confirmed	E	Low	Native tussock grasses in depression adjacent to Taranaki Stream. No standing water present at the time of the walkover.	60	0.04 ha	0.04 ha	0%
W11	Confirmed	C	Mod	Native tussock grasses, rushes, and raupō in a depression. No standing water present at the time of the walkover.	61-62	0.31 ha	0.31 ha	0%
W12	Confirmed	B	Mod	Native tussock grasses, sedges, cabbage trees, kōwhai (<i>Sophora microphylla</i>), and oak. No standing water present at the time of the walkover.	63-64	0.19 ha	0.19 ha	0%
W13	Confirmed	B	Mod	Native tussock grasses and sedges, oak trees, bordered by grassland and a podocarp and poplar (<i>Populus</i> sp.) treeline. No standing water present. Connected to constructed pond CP1.	65	0.21 ha	0.21 ha	0%

Table 3: Confirmed or unconfirmed wetlands and the proposed change in area								
Wetland No.	Confirmed or Unconfirmed ¹	DA	Relative Value	Brief Description	Photo No in App 1	Existing Area (ha)	Proposed Area (ha)	Proposed Change (%)
W14	Confirmed	A	High	Swallow water and swamp wetland. Native tussock grasses & rushes. This wetland is stormwater and irrigation-fed.	66-67	0.39 ha	0.39 ha	0%
W15	Confirmed	G	Mod	Native rushes, sedges, and tussock grasses. No standing water present at the time of the walkover.	68-69	0.51 ha	0 ha	100% loss
W16	Unconfirmed	G	Very Low	Tussock grasses. Possibly an artifact of surface water and/or irrigation dynamics. No standing water present at the time of the visit walkover.	70	0.03 ha	0 ha	100% loss
W17	Confirmed	F	Low	Tussock grasses, sedges, and a few harakeke. No standing water present at the time of the walkover.	71	0.43 ha	0 ha	100% loss
W18	Unconfirmed	F	Very Low	Tussock grasses. No standing water present at the time of the walkover.	72	0.04 ha	0 ha	100% loss
W19	Unconfirmed	D	Very Low	Flora not closely observed during site walkover. No standing water present at the time of the walkover.	N/A	0.01 ha	0 ha	100% loss
W20	Unconfirmed	A	Very Low	Flora not closely observed during site walkover. No standing water present at the time of the walkover.	N/A	0.06 ha	0 ha	100% loss

Table 3: Confirmed or unconfirmed wetlands and the proposed change in area

Wetland No.	Confirmed or Unconfirmed ¹	DA	Relative Value	Brief Description	Photo No in App 1	Existing Area (ha)	Proposed Area (ha)	Proposed Change (%)
W21	Unconfirmed	A	Very Low	Flora not closely observed during site walkover. No standing water present at the time of the walkover.	N/A	0.13 ha	0.13 ha	100% loss
W22	Unconfirmed	A	Very Low	Flora not closely observed during site walkover. No standing water present at the time of the walkover.	N/A	0.02 ha	0.02 ha	0%
W23	Unconfirmed	C	Very Low	Flora not closely observed during site walkover. No standing water present at the time of the walkover.	N/A	0.24 ha	0.24 ha	0%
W24	Unconfirmed	C	Very Low	Flora not closely observed during site walkover. No standing water present at the time of the walkover.	N/A	0.19 ha	0 ha	100% loss

Notes:

1. Confirmation as a natural inland wetland, as defined in the National Policy Statement for Freshwater Management (NPS-FM) 2020, needs to be determined through a wetland assessment and delineation undertaken following the Ministry for the Environment's Wetland Delineation Protocols (MfE, 2022).

9.2 Wetland Delineation

The presence and extent of natural inland wetlands will need to be confirmed during the Substantive Phase through a formal wetland delineation undertaken in accordance with the Ministry for the Environment *Wetland Delineation Protocols* (MfE, 2022). This assessment will determine whether areas meet the definition of a natural inland wetland under the National Policy Statement for Freshwater Management (NPS-FM) 2020 (MfE, 2020) and accurately delineate wetland boundaries.

Where wetlands are confirmed, further ecological investigations will be undertaken to characterise their ecological values and gather additional information to confirm their extent, classification, condition, and significance, providing the information required to inform the detailed ecological assessment and project design.

10.0 Terrestrial Vegetation

The former golf course itself is dominated by intensively managed amenity turf, rank exotic grassland swathes, with scattered exotic specimen and shelter trees, which is typical of golf courses. Established native restoration plantings along Taranaki Stream, Taerutu Stream and the West Ridge Conservation Area form continuous vegetated corridors through and along the eastern margin of the site.

10.1 Native Plants

Native vegetation within the wider Pegasus catchment comprises a range of indigenous trees, shrubs, herbs, sedges, grasses, rushes, ferns and aquatic plants associated with spring-fed waterways, wetlands, and restoration plantings. Ti kouka/cabbage tree (*Cordyline australis*) is a common canopy tree on the site, while wetland margins support species such as harakeke/New Zealand flax (*Phormium tenax*), raupō/bulrush (*Typha orientalis*), tussock sedge (*Carex secta*), common rush (*Juncus gregiflorus*), and toetoe (*Austroderia richardii*). Aquatic habitats also support native floating and submerged species such as kārearea/duckweed (*Lemna minor*). Representative native plant species recorded within the Pegasus catchment, including taonga species to Ngāi Tahu, are listed in Table 4 (Mahaanui Kurataiao Ltd, nd; Ngāi Tahu, 1998).

There is potential for Threatened or At-Risk indigenous plants to be present on site – this will be identified during plant surveys at the substantive stage.

Table 4: Representative native plant species within the Pegasus catchment		
Māori Name	Common Name	Scientific Name
Trees		
Ti kōuka ¹	Cabbage tree	<i>Cordyline australis</i>
Kōwhai ¹	Kōwhai	<i>Sophora microphylla</i>
Kaikahikatea ¹	White pine	<i>Dacrycarpus dacrydioides</i>
Kānuka ¹	Kanuka	<i>Kunzia ericoides</i>
Tōtara ¹	Totara	<i>Podocarpus totara</i>
Matai ¹	Black pine	<i>Prumnopitys taxifolia</i>
Mānuka ¹	Tea tree	<i>Leptospermum scoparium</i>
Horoeka ¹	Lancewood	<i>Pseudopanax crassifolius</i>
Tarata ¹	Lemonwood	<i>Pittosporum eugenioides</i>
Mānata ¹	Ribbonwood	<i>Plagianthus regius</i>
Akeake ¹	Akeake	<i>Oleria</i> spp.
Shrubs		
Mingimingi ¹	Mingimingi	<i>Leucopogon fasciculatus</i> / <i>L. juniperina</i> / <i>Coprosma propinqua</i>
Tātaraheke	Sand coprosma	<i>Coprosma acerosa</i>
Poroporo ¹	Poroporo/bullibulli	<i>Solanum lactiniatum</i>
Herbs		
Harakeke ¹	New Zealand flax	<i>Phormium tenax</i>
Raupō ¹	Bulrush	<i>Typha orientalis</i>
Puawhananga ¹	Bush clematis	<i>Clematis paniculata</i>
Pukatea	Fireweed	<i>Senecio glomeratus</i> subsp. <i>glomeratus</i>
Kōwhaikura	New Zealand silverweed	<i>Argentina anserinoides</i>
N/A	Petrie's starwort	<i>Callitriche petriei</i>
N/A	Narrow-leaved willowherb	<i>Epilobium cinereum</i>
Raoriki / waorik	Swamp buttercup	<i>Ranunculus macropus</i>

Table 4: Representative native plant species within the Pegasus catchment		
Māori Name	Common Name	Scientific Name
Kōwhitiwhiti / poniu	Marsh yellow cress	<i>Rorippa palustris</i>
N/A	Swamp nettle	<i>Urtica perconfusa</i>
Sedges		
Pūkio ¹	Tussock sedge	<i>Carex secta</i>
Rautahi	Cutty grass	<i>Carex coriacea</i>
Toetota rautahi	Spreading swamp sedge	<i>Carex lessoniana</i>
N/A	Sea sedge	<i>Carex litorosa</i>
N/A	Sand sedge	<i>Carex pumila</i>
Kōpūngāwhā / Kukuraho / Rirīwak	Caldwell's clubrush	<i>Bolboschoenus caldwellii</i>
'utu'utu	Slender spike sedge	<i>Eleocharis gracilis</i>
Grasses		
Toetoe ¹	Toetoe	<i>Austroderia richardii</i>
Rushes		
Wīwī ¹	Common rush	<i>Juncus gregiflorus</i>
Ferns		
Rārahu / rārauhe	Bracken fern	<i>Pteridium esculentum</i>
Kiokio ¹	Blechnum fern	<i>Blechnum novae-zelandiae</i>
Ngarara wehi ¹	Leather leaf fern	<i>Pyrrosia eleagnifolia</i>
Aquatic Plants		
Kārearea	Duckweed	<i>Lemna minor</i>
Rērēwai/mānihi	Red pondweed	<i>Potamogeton cheesemanii</i>
N/A	Water-meal	<i>Wolffia australiana</i>
Sources:		
1. Taonga species (Mahaanui Kurataiao Ltd., nd; Ngāi Tahu, 1998).		

10.2 Exotic Plants

Exotic vegetation on the proposed site is dominated by ornamental and shelter trees, amenity and pasture grasses, and a range of naturalised weeds associated with disturbed habitats, wetlands, and watercourses. Common exotic woody species on the site include wīrou/whiro/willow (*Salix* spp.), gorse (*Ulex europaeus* L.), and parakipere/blackberry (*Rubus fruticosus* agg.), mostly associated with waterways. Representative exotic plant species known to occur within the wider Pegasus catchment are presented in Table 5.

Table 5: Representative exotic plant species within the Pegasus catchment

Māori Name	Common Name	Scientific Name
Trees		
Wīrou/whiro	Crack willow	<i>Salix x fragilis</i>
Wīrou/whiro	Grey willow	<i>Salix cinerea</i>
N/A	Radiata pine	<i>Pinus radiata</i>
N/A	Chinese tamarisk	<i>Tamarix chinensis</i>
Shrubs and Vines		
N/A	Gorse	<i>Ulex europaeus</i> L.
Parakipere	Blackberry	<i>Rubus fruticosus</i> agg.
N/A	Wild broom	<i>Cytisus scoparius</i>
N/A	Elderberry	<i>Sambucus nigra</i>
N/A	English ivy	<i>Hedera helix</i>
Herbs		
N/A	Greater willowherb	<i>Epilobium hirsutum</i>
N/A	Sheep's sorrel	<i>Rumex acetosella</i>
N/A	Catsear	<i>Hypochaeris radicata</i>
N/A	Storksbill	<i>Erodium cicutarium</i>
N/A	True lupin	<i>Lupinus arboreus</i>
N/A	Beggar's ticks	<i>Bidens frondosa</i>
N/A	Scotch thistle	<i>Cirsium vulgare</i>
N/A	Bittersweet	<i>Solanum dulcamara</i>

Table 5: Representative exotic plant species within the Pegasus catchment		
Māori Name	Common Name	Scientific Name
Rushes		
Wīwī	Jointed rush	<i>Juncus articulatus</i>
Wīwī	Bulbous rush	<i>Juncus bulbosus</i>
Wīwī	Soft rush	<i>Juncus effusus</i> var. <i>effusus</i>
Grasses		
N/A	Browntop	<i>Agrostis capillaris</i>
N/A	Creeping bent	<i>Agrostis stolonifera</i>
N/A	Marram grass	<i>Calamagrostis arenaria</i>
N/A	Yorkshire fog	<i>Holcus lanatus</i>
Aquatic Plants		
N/A	Ferny azolla	<i>Azolla pinnata</i>

11.0 Lizards

11.1 Lizard Species

Desktop assessment results identified three indigenous lizard species within 5 km of the site: Canterbury grass skink (*Oligosoma* aff. *polychroma* Clade 4), Waitaha gecko (*Woodworthia brunnea*), and southern grass skink (*Oligosoma* aff. *polychroma* Clade 5) (Table 6). All species are classified as At Risk – Declining under the New Zealand Threat Classification System (Hitchmough et al., 2026).

Wildlands conducted lizard surveys for the State Highway 1 North Canterbury – Woodend Bypass Project between December 2024 and March 2025, recording 134 Canterbury grass skinks across the approximately 105 ha project footprint. The nearest records to the proposed development comprised eight individuals recorded approximately 150 m southwest of Development Area A at 1188 Main North Road in March 2025, and one individual recorded approximately 300 m west of Development Area G at 130B Main North Road in February 2025 (Wildlands Consultants, 2026).

Waitaha geckos are typically associated with scrubland and rocky habitats, which are absent from the proposed site, making their presence unlikely. Although a record of southern grass skink exists within 5 km of the site, this represents the northernmost known record for the species in Canterbury. Given its currently understood distribution, the species is considered highly unlikely to occur on the proposed site.

Table 6: Lizard species recorded within 5 km of the proposed site				
Māori Name	Common Name	Scientific Name	Conservation Status ¹	Closest Distance & Date Recorded
Mokomoko	Canterbury grass skink	<i>Oligosoma</i> aff. <i>polychroma</i> Clade 4	At Risk - Declining	150 m southwest at 1188 Main North Road ² in March 2025. 300 m west at 130B Main North Road ² in February 2025.
Moko-pāpā	Waitaha gecko	<i>Woodworthia brunnea</i>	At Risk - Declining	1.9 km southwest ³ in 2021.
Mokomoko	Southern grass skink	<i>Oligosoma</i> aff. <i>polychroma</i> Clade 5	At Risk - Declining	4 km northeast ³ in 2024.
Sources: 1. Conservation status of reptiles in Aotearoa New Zealand, 2025 (Hitchmough et al. 2026) 2. Lizard survey report for State Highway 1, North Canterbury, Woodend Bypass Project (Belfast to Pegasus) (Wildland Consultants, 2026) 3. DOC Bioweb herpetofauna database (DOC, 2026b)				

11.2 Lizard Habitat

There is approximately 20 ha of lizard habitat across the proposed site, as described in Table 7 and mapped on Figure 19 (representative photographs 73 to 79 in Appendix B, and in Figure 18 below). Of this 20 ha, 19.4 ha will likely be lost from the proposed development (97% loss).



Figure 18: Suitable lizard habitat in the rank tussock grassland along the southern edge of Development Area G.

Table 7: Suitable lizard habitat on the site and the proposed change in area

Development Area	Description of suitable lizard habitat	Photo No in App 1	Existing Area (ha)	Proposed Area (ha)	Proposed Change (%)
A	Rank grassland surrounding Pond 9, Pond 10, and Wetland 14; rank grassland along the woodland edge of the southern boundary; northern boundary adjacent to path; large rank grassland swathe through the centre of Development Area A and far east corner.	73	5.6 ha	0 ha	100% loss
B	Rank grassland off the north side of Pond 12; rank grassland in and around Wetlands 12 and 13; rank grassland along the northern boundary of Development Area B.	74	0.57 ha	0 ha	100% loss
C	Rank grassland along the entire northeast, northwest and southwest boundaries of Development Area C; rank grassland in and around Wetlands 10 and 11; rank grassland at the far west end of Pond 8.	75	2.68 ha	0 ha	100% loss
D	Rank grassland swathes north of Pond 2, linking up with the northwest end of Pond 3.	76	2.05 ha	0 ha	100% loss
E	Extensive reptile habitat across Development Area E including within and surrounding Wetlands 1, 2, 4 to 9; along the east bank of Pond 7; Taranaki Stream riparian zone on the north boundary; scrubland on the east boundary.	77	1.17 ha	0.6 ha	~50% loss
F	Rank grassland around Pond 13 and in and around Wetlands 17 and 18; rank grassland around the south and east boundaries, and off the west extent of Wetland 3.	78	2.1 ha	0 ha	100% loss
G	Extensive reptile habitat throughout Development Area G, including north of Pond 12, in and around Wetlands 15 and 16, along the east, south, west, and north boundaries, and along the Wai Hora riparian zone on the southwest boundary.	79	6.01 ha	0 ha	100% loss



Figure 19: Potential lizard habitat on the site.

12.0 Avifauna

12.1 Avifauna Species

Site walkovers undertaken on 13 and 23 June 2026, together with a review of publicly available records, identified 54 bird species on the proposed site (Table 8; Figure 20). Although ruru/morepork (*Ninox novaeseelandiae*) and tūi (*Prosthemadera novaeseelandiae*) were not recorded, both species are known to occur in the surrounding area, and suitable habitat is present within the site, although this habitat is not anticipated to be impacted by the proposed works.

The constructed ponds and wetlands on the site do not provide suitable habitat for cryptic wetland bird species such as koitareke/kotoreke/marsh crake (*Zapornia pusilla*), pūweto/spotless crake (*Zapornia tabuensis*), moho pererū/banded rail (*Hypotaenidia philippensis*), or mātātā/fernbird (*Poodytes punctatus*).

Matuku/Australasian bittern (*Botaurus poiciloptilus*) was recorded approximately 1.8 km east of the site in 2026. Although the species may occasionally use the site's deeper waterbodies for foraging and the larger sedges for temporary shelter, the site does not provide suitable breeding habitat and is unlikely to support resident or breeding individuals. Matuku/Australian bittern is regarded as taonga species to Ngāi Tahu (Mahaanui Kurataiao Ltd, nd).



Figure 20: Raipo/papango/New Zealand scaup (*Aythya novaeseelandiae*) and Australian coot (*Fulica atra australis*) on Pond 3 in Development Area D.

Table 8: Bird species recorded using the proposed site

Māori Name	Common Name	Scientific Name	National Conservation Status ¹	Year Recorded on Site
Waterfowl				
Weweia	New Zealand grebe	<i>Poliocephalus rufopectus</i>	At Risk – Nationally Increasing	2026 ⁴
Raipo/ papango ⁵	New Zealand scaup	<i>Aythya novaeseelandiae</i>	Not Threatened	2026 ^{2,3}
Kuruwhengi ⁵	Australasian shoveler	<i>Spatula rhynchotis</i>	Not Threatened	2026 ^{2,3}
Tētē ⁵	Grey teal	<i>Anas gracilis</i>	Not Threatened	2026 ^{2,3}
Putangitangi ⁵	Paradise shelduck	<i>Tadorna variegata</i>	Not Threatened	2026 ^{2,3}
Pārera ⁵	Mallard	<i>Anas platyrhynchos</i>	Introduced and Naturalised	2026 ^{2,3}
N/A	Pacific black duck x mallard (hybrid)	<i>Anas superciliosa x platyrhynchos</i>	Introduced and Naturalised	2026 ^{2,3}
Kuihi	Canada goose	<i>Branta canadensis</i>	Introduced and Naturalised	2026 ^{2,3}
Kuihi	Graylag goose	<i>Anser anser</i>	Introduced and Naturalised	2026 ³
Wāna	Mute swan	<i>Cygnus olor</i>	Introduced and Naturalised	2026 ³
Wāna	Black swan	<i>Cygnus atratus</i>	Introduced and Naturalised	2026 ^{2,3}
N/A	Australian wood duck	<i>Chenonetta jubata</i>	Non-Resident Native - Coloniser	2025 ⁴

Table 8: Bird species recorded using the proposed site

Māori Name	Common Name	Scientific Name	National Conservation Status ¹	Year Recorded on Site
Water Birds				
Kōtuku ⁵	White heron	<i>Ardea alba</i>	Threatened – Nationally Critical	2026 ³
Kāruhiruhi ⁵	Pied cormorant	<i>Phalacrocorax varius</i>	At Risk - Recovering	2026 ³
Kawau paka ⁵	Little shag	<i>Microcarbo melanoleucos</i>	At Risk – Relict	2026 ^{2,3}
Kōtuku ngutupapa	Royal spoonbill	<i>Platalea regia</i>	At Risk – Naturally Uncommon	2026 ³
Kawau tūī	Little black cormorant	<i>Phalacrocorax sulcirostris</i>	At Risk – Naturally Uncommon	2026 ³
N/A	Australian coot	<i>Fulica atra australis</i>	At Risk – Naturally Uncommon	2026 ^{2,3}
Kawau/kawau pū ⁵	Black shag	<i>Phalacrocorax carbo</i>	Not Threatened	2026 ^{2,3}
Matuku moana	White-faced heron	<i>Egretta novaehollandiae</i>	Not Threatened	2024 ⁴
Kōtare ⁵	Sacred kingfisher	<i>Todiramphus sanctus</i>	Not Threatened	2019 ⁴
Pūkeko ⁵	Australasian swamphen	<i>Porphyrio melanotus</i>	Not Threatened	2026 ^{2,3}
Kōtuku	Cattle egret	<i>Bubulcus ibis</i>	Non-Resident Native - Migrant	2026 ³
N/A	Little egret	<i>Egretta garzetta</i>	Non-Resident Native - Vagrant	2026 ³

Table 8: Bird species recorded using the proposed site

Māori Name	Common Name	Scientific Name	National Conservation Status ¹	Year Recorded on Site
Shore Birds				
Tarāpunga	Red-billed gull	<i>Chroicocephalus novaehollandiae</i>	At Risk - Declining	2026 ³
Tōrea	South Island oystercatcher	<i>Haematopus finschi</i>	At Risk - Declining	2026 ^{2,3}
Tōrea pango	Variable oystercatcher	<i>Haematopus unicolor</i>	At Risk – Recovering	2026 ³
Karoro ⁵	Southern black-backed gull	<i>Larus dominicanus</i>	Not Threatened	2026 ^{2,3}
Poaka ⁵	Pied stilt	<i>Himantopus leucocephalus</i>	Not Threatened	2025 ⁴
N/A	Masked lapwing	<i>Vanellus miles</i>	Not Threatened	2026 ^{2,3}
Raptors				
Kāhu ⁵	Swamp harrier	<i>Circus approximans</i>	Not Threatened	2026 ^{2,3}
Ruru nohinohi	Little owl	<i>Athene noctua</i>	Introduced and Naturalised	2026 ³
Passerines				
Korimako ⁵	Bellbird	<i>Anthornis melanura</i>	At Risk - Naturally Uncommon	2024 ⁴

Table 8: Bird species recorded using the proposed site

Māori Name	Common Name	Scientific Name	National Conservation Status ¹	Year Recorded on Site
Pīwakawaka ⁵	New Zealand fantail	<i>Rhipidura fuliginosa</i>	At Risk – Naturally Uncommon	2026 ^{2,3}
Warou	Welcome swallow	<i>Hirundo neoxena</i>	Not Threatened	2026 ^{2,3}
Tauhou ⁵	Silvereye	<i>Zosterops lateralis</i>	Not Threatened	2024 ⁴
Rioriro ⁵	Grey warbler	<i>Gerygone igata</i>	Not Threatened	2024 ⁴
Kereru ⁵	New Zealand pigeon	<i>Hemiphaga novaeseelandiae</i>	Not Threatened	2026 ³
Pīpīwharau ⁵	Shining cuckoo	<i>Chalcites lucidus</i>	Not Threatened	2023 ⁴
Kōurarini	European goldfinch	<i>Carduelis carduelis</i>	Introduced and Naturalised	2026 ^{2,3}
Manupango	Eurasian blackbird	<i>Turdus merula</i>	Introduced and Naturalised	2026 ^{2,3}
Kererū aropari	Rock pigeon	<i>Columba livia</i>	Introduced and Naturalised	2026 ^{2,3}
Manu-kai-hua-rakau	Song thrush	<i>Turdus philomelos</i>	Introduced and Naturalised	2026 ^{2,3}
Tāringi	European starling	<i>Sturnus vulgaris</i>	Introduced and Naturalised	2026 ^{2,3}
Makipai	Australian magpie	<i>Gymnorhina tibicen</i>	Introduced and Naturalised	2026 ^{2,3}
Tiu	House sparrow	<i>Passer domesticus</i>	Introduced and Naturalised	2026 ^{2,3}
Pahirini	Common chaffinch	<i>Fringilla coelebs</i>	Introduced and Naturalised	2023 ⁴

Table 8: Bird species recorded using the proposed site

Māori Name	Common Name	Scientific Name	National Conservation Status ¹	Year Recorded on Site
N/A	Dunnock	<i>Prunella modularis</i>	Introduced and Naturalised	2024 ⁴
Karūriti	European greenfinch	<i>Chloris chloris</i>	Introduced and Naturalised	2023 ⁴
Hurukōwhai	Yellowhammer	<i>Emberiza citrinella</i>	Introduced and Naturalised	2024 ⁴
Kairaka	Eurasian skylark	<i>Alauda arvensis</i>	Introduced and Naturalised	2024 ⁴
Korowai	Redpoll	<i>Acanthis flammea</i>	Introduced and Naturalised	2023 ⁴
Game Birds				
Kuaka/peihana	Pheasant	<i>Phasianus colchicus</i>	Introduced and Naturalised	2024 ⁴
Tikaokao	California quail	<i>Callipepla californica</i>	Introduced and Naturalised	2022 ⁴
Sources: 1. Conservation status of birds in Aotearoa New Zealand, 2021 (Robertson et al., 2021) 2. PDP Ecologist recorded during site walkover in June 2026 3. Bird species recorded in Taranaki Stream (eBird, 2026) 4. GBIF New Zealand Database (GBIF New Zealand, 2026) 5. Taonga species (Mahaanui Kurataiao Ltd, nd; Ngāi Tahu, 1998)				

12.2 Avifauna Habitat

There is avifauna stopover, nesting, roosting, foraging and overwintering habitat in all Development Areas of the proposed site, most notably aquatic and pasture grazing habitat for waterfowl and waterbirds, as described in Table 9.

For context, Waimakariri District is regionally important for birds, specifically acting as critical breeding and nesting habitat for rare braided river and threatened wetland species, and native forest birds. Bird hotspots close to the site include:

- ✧ Pegasus Lake (constructed), approximately 500 m east;
- ✧ Te Kohanga Wetlands, approximately 1 km east;
- ✧ Tūtaepatu Lagoon, approximately 1.6 km southeast;
- ✧ Ashley River/Rakahuri estuary, approximately 3.6 km northeast;
- ✧ Kaiapo Lakes and Wildlife Reserve (constructed), approximately 4.2 km southwest; and
- ✧ Northbrook Wetlands & Ponds (constructed), approximately 5.3 km west.

Table 9: Suitable avifauna habitat on the site and the proposed change in area		
DA	Description of suitable avifauna habitat	Photo No in App 1
A	Nesting and foraging habitat including three open water ponds, a swamp wetland, single mature trees, mature coniferous and deciduous treelines, shrubs, raupo, and large rank grassland swathes.	30-34; 66-67; 73; 80
B	Nesting and foraging habitat including one open water pond, wetlands, mature coniferous and deciduous treelines (e.g., willow), shrubs, raupo, and rank grassland.	9-12; 63-65; 74; 81
C	Nesting and foraging habitat including one open water pond, two wetlands, Taranaki Stream, riparian zone, mature coniferous and deciduous treelines (e.g., eucalyptus, poplar, weeping willow), shrubs, raupo, and large rank grassland swathes.	27-29; 60-62; 75; 82
D	Nesting and foraging habitat including five open water ponds, mature coniferous and deciduous treelines, shrubs, raupo, and rank grassland swathes.	12-23; 76; 83

Table 9: Suitable avifauna habitat on the site and the proposed change in area		
DA	Description of suitable avifauna habitat	Photo No in App 1
E	Nesting and foraging habitat including multiple wetlands, one open water pond, Taerutu Gully with wetland complex and Taerutu Stream, Taranaki Stream riparian zone, mature coniferous (e.g., podocarp) and deciduous treelines, ponded areas, shrubs, raupo, and large rank grassland swathes.	19-20; 24; 39-46; 49-59; 77; 84
F	Nesting and foraging habitat including multiple wetlands, one open water pond, Taerutu Gully with Taerutu Stream, mature coniferous and deciduous treelines (e.g., poplar), ponded areas, shrubs, raupo, and rank grassland swathes.	37-38; 46-48; 71-72; 78; 85
G	Nesting and foraging habitat including a wetland, one open water pond, Wai-Hora Stream and riparian zone, mature coniferous and deciduous treelines, shrubs, raupo, and extensive rank grassland swathes.	7-8; 35-36; 68-70; 79; 86

13.0 Preliminary Assessment of Effects

The proposed project has the potential to result in adverse effects on ecological components during construction and ongoing operation of the proposed development, as summarised in Table 10. However, with the implementation of appropriate management measures, examples of which are provided in Section 13.0, these adverse effects could be reduced.

Table 10: Potential key adverse ecological construction- and operation-related effects		
Ecological Component	Potential Effect	Capable of Resolution?
Taranaki Stream	Construction: potential reduced water quality and sedimentation during earthworks. Operations: potential altered hydrology from stormwater network changes, and reduced water quality from stormwater.	Yes (see Section 13.0).
Taerutu Stream	Construction: potential reduced water quality and sedimentation during earthworks.	Yes (see Section 13.0).

Table 10: Potential key adverse ecological construction- and operation-related effects		
Ecological Component	Potential Effect	Capable of Resolution?
	Operations: potential altered hydrology from stormwater network changes, and reduced water quality from stormwater.	
Wai-Hora Stream	Construction: potential reduced water quality and sedimentation during earthworks. Operations: potential altered hydrology from stormwater network changes, and reduced water quality from stormwater.	Yes (see Section 13.0).
Constructed ponds	Construction: approximately 76% loss (5.7 ha) of open water/wetland margin ponds. Operations: net loss of open water habitat for waterfowl and water birds, and native fish.	Yes (see Section 13.0).
Fish and fish habitat	Construction: risk of accidental harm and/or mortality to all life stages (eggs, fry, larvae, adults) during salvage/relocation. Construction/operations: net loss of fish habitat through removal of most constructed ponds. Potential reduction in native fish population on site.	Yes (see Section 13.0).
Fish passage	Construction: risk of causing blockage to fish passage during near or instream earthworks.	Yes (see Section 13.0).
Wetlands	Construction: approximately 12% loss (2 ha) of potential wetland area, and alteration of some existing wetlands. Construction/operations: net loss of wetland plants, and wetland bird and native fish habitat.	Yes (see Section 13.0).
Native vegetation	Construction: loss, damage, and/or degradation of native plants during earthworks and vegetation clearance.	Yes (see Section 13.0).
Lizards and lizard habitat	Construction: risk of disturbance, accidental harm, and/or mortality to all life stages (juveniles and adults) during salvage and relocation.	Yes (see Section 13.0).

Table 10: Potential key adverse ecological construction- and operation-related effects

Ecological Component	Potential Effect	Capable of Resolution?
	Construction: approximately 97% loss (19.4 ha) of potential lizard habitat. Operations: net loss of potential lizard habitat.	
Birds and bird habitat	Construction: risk of disturbance, accidental harm, or mortality to all life stages (eggs, nests, chicks, fledglings, adults). Construction: loss of avifauna habitat including open water ponds, wetlands, trees, grassland, and shrubs. Operations: net loss of stopover, resting, foraging, roosting, and breeding habitat for birds. Likely reduction in native bird population on site.	Yes (see Section 13.0).

14.0 Indicative Effects Management

The effects management hierarchy is a sequential framework used to manage the actual and potential adverse effects of development. The four prongs of the mitigation hierarchy are:

- ✧ **Avoid** – prevent adverse effects from occurring (e.g., no development in sensitive wetlands or waterways).
- ✧ **Minimise** – reduce the scale, duration, or intensity of the adverse effects (e.g., staging construction to avoid the bird breeding season).
- ✧ **Remedy** – repair or restore the environment after a construction impact (e.g., replanting disturbed indigenous vegetation).
- ✧ **Offset** – to counterbalance any residual adverse effects. In-kind onsite offsetting is most favoured (e.g., creating onsite wetlands), and out-of-kind offsite offsetting is least favoured (e.g., creating offsite stream habitat).

The international and New Zealand standard is to achieve no net loss, and preferably a net gain, of indigenous biodiversity. To achieve this, the proposed project must prioritise avoiding adverse effects on ecological components by redesigning the project footprint and through well-considered construction approaches, to avoid sensitive ecological areas. Where adverse effects cannot be completely avoided, steps must be taking to reduce the effects to the greatest extent possible, before considering remedial actions to repair disturbed land.

Biodiversity offsetting would be required for residential effects that cannot be remediated onsite.

Examples of potential management measures for the ecological components on the proposed site are provided in Table 11, based on the Indicative Masterplan (Appendix A). Feasibility of management measures will be further investigated at the substantive application stage.

Table 11: Example management measures for the ecological components	
Ecological Component	Example Management Measure
Taranaki Stream	Retain stream extent through the site. Widen the existing esplanade reserve/strip.
Taerutu Stream	Covenant riparian area for future protection. Appropriate design of stormwater management devices to reduce water quality impacts and potentially improve existing water quality in Taerutu Stream.
Wai-Hora Stream	Retain stream extent through the site. Covenant riparian area for future protection.
Constructed ponds	Retain the higher ecological value constructed ponds (e.g., CP7 and CP12), especially those with high bird counts, nesting habitat, and native fish populations. Create engineered permanently wet stormwater basins with open water elsewhere on the site.
Fish and fish habitat	No loss of instream or riparian habitat or waterway length (Taranaki Stream, Taerutu Stream, Wai-Hora Stream). Create engineered permanently wet stormwater basins with open water and new wetlands elsewhere on the site. Salvage and relocate native fish. Careful management and protection of freshwater and customary fisheries, with special consideration to Threatened and At-Risk fish species such as Canterbury mudfish (if present). Remove any exotic fish present.
Fish passage	Maintain fish passage across the site and beyond the site boundary. Any instream structures included in the substantive application must adhere with the New Zealand Fish Passage Guidelines (NIWA, 2024). Opportunity to improve fish movement and migration in Taerutu Stream by removing any existing fish barriers.

Table 11: Example management measures for the ecological components	
Ecological Component	Example Management Measure
Wetlands	Retain wetlands W1-W8, W10-W14, and W22-W23. For retained wetlands, undertake native wetland planting, weed control, mammalian predator control, fencing. Create wetland habitat on site to offset loss of wetland area.
Native vegetation	Regularly mow former golf course lawn to limit weed and invasive plant infestation and spread into native areas. Replant or seed disturbed areas using indigenous species, locally sourced. Widen stream riparian zone of Taranaki Stream, Taerutu Stream and/or Wai-Hora Stream with planted indigenous streamside plants.
Lizards and lizard habitat	Reduce loss of rank grassland across the site. Create lizard habitat within the 'Green Network' on the Indicative Master Plan (Appendix A). Rigorously maintain mowing of the former golf course lawn to avoid the land going fallow and attracting lizards. Salvage and relocate native lizards to a receptor site.
Birds and bird habitat	Retain highest value bird nesting habitat (e.g., treelines, mature trees, dense scrub). Create engineered permanently wet stormwater basins with open water, and new wetlands on the site. Enhance stream, gully, and wetland habitat for cryptic wetland birds such as Australian bittern and marsh crake. Stage construction activities to avoid the bird breeding season. Undertake bird nest surveys prior to vegetation clearance and protect active bird's nests.

14.1 Minimum Ecological Setback Distances

A key ecological constraint for the proposed project is minimum setback distances for the various waterways, wetlands, and constructed ponds on the site. A summary of desktop research of minimum setback distance in the *Resource Management Act, 1991*, the *Partially Operative Waimakariri District Plan* (WDC, 2025) and *Canterbury Land and Water Regional Plan* (Environment Canterbury, 2025) is provided in Table 12.

Ecological setbacks will be determined in consultation with iwi, Environment Canterbury, and Waimakariri District Council.

Table 12: Minimum setback distances for waterways, wetlands, and constructed ponds on the site

Name	Minimum Setback Distance	Comment
Taranaki Stream	20 m esplanade reserve/strip (no subdivision) ¹ 20 m for earthworks stockpiling ²	Scheduled Natural Character Freshwater Body (Schedule 2). River type: spring-fed plains
Western Ridge Conservation Area	20 m (for a wetland ecosystem of 0.5 – 0.99 ha) ³ 15 m (for a wetland ecosystem of >1 ha) ³	Significant Natural Area (SNA) - historic coastal sand dune
Taerutu Wetland	10 m for vegetation clearance & earthworks ^{4,5} 50 m for earthworks stockpiling ⁴	Natural inland wetland - historic coastal sand dune
Natural inland wetlands	10 m for vegetation clearance & earthworks ^{4,5} 50 m for earthworks stockpiling ⁴	Other natural inland wetlands on site TBD via a wetland delineation survey
Taerutu Stream	5 m for vegetation clearance and earthworks ⁶ 20 m for earthworks stockpiling ⁴	River type: spring-fed plains
Wai-Hora Stream	5 m for vegetation clearance and earthworks ⁶ 20 m for earthworks stockpiling ⁴	River type: spring-fed plains
Constructed ponds	5 m for vegetation clearance and earthworks ⁶	Entirely artificial (e.g., clay or PVC-lined, stormwater)

Sources:

1. Resource Management Act, 1991 (Part 10, Section 230(3) Requirement for esplanade reserve or esplanade strip) (New Zealand Government, 1991).
2. Partially Operative Waimakariri District Plan, 2025 (ER-R4 (3) Earthworks stockpiling)
3. Partially Operative Waimakariri District Plan, 2025 (Appendix APP2: Standards for creation of any bonus allotments and establishment of any bonus residential units).
4. Resource Management (National Environmental Standards for Freshwater) Regulation, 2020 (Part 3, Subpart 1 [Regulation 45C]).
5. Environment Canterbury actively enforces the Resource Management (National Environmental Standards for Freshwater) Regulation, 2020 10 m setback rule for lowland wetlands.
6. Canterbury Land and Water Regional Plan, 2025 (Rules 5.167 [vegetation clearance] and 5.168 [earthworks]).

15.0 Wildlife and Fish Authorisations

15.1 Wildlife Act Authority

Under the *Wildlife Act*, 1953, all native lizards (skinks and geckos) and most indigenous freshwater fish are protected. Consequently, it is an offence to capture, handle, or relocate protected wildlife without a Wildlife Act Authority.

The proposed project may require the salvage and relocation of protected lizards and indigenous freshwater fish from areas affected by the development. These activities are ordinarily authorised under Section 53 of the *Wildlife Act*, 1953; however, it is understood that Wolfbrook intends to seek all necessary statutory approvals through the FTAA process, including a Wildlife Act Authority.

To support the application, a suitably qualified ecologist must prepare a Wildlife Act Authority (General) application and a Wildlife Management Plan (WMP), as part of a substantive application. If approved, a panel appointed to hear the substantive application will issue a Wildlife Act Authority, authorising the capture, handling, and release of protected wildlife.

The WMP must describe the proposed capture methods (e.g., pitfall traps for lizards and minnow traps for freshwater fish), procedures to minimise stress, injury and accidental mortality during handling, identify the proposed release site(s), and post-release monitoring. For lizards, the WMP must demonstrate that release sites provide suitable habitat, effective predator control, and long-term protection from future development. For freshwater fish, the WMP must demonstrate that recipient waterways have suitable habitat and water quality, no downstream barriers to fish passage, and sufficient capacity to support relocated populations.

Where relocation is proposed onto land outside the site, written permission must be obtained from the relevant landowner or administering authority.

15.2 Conservation Act Authorisation

Under Section 26ZHB(2)(a) of the Conservation Act (1987) taking indigenous freshwater fish for salvage and relocation generally requires an authorisation. For construction-related fish salvages, authorisation conditions typically require fish to be released into suitable habitat within the same reach or catchment where practicable. More complex salvage operations may require a more detailed authorisation conditions from the Director-General of Conservation.

15.3 Freshwater Fisheries Regulations Authority

Under Regulation 62 of the Freshwater Fisheries Regulations (1983) the transfer of sports fish from one catchment to another catchment requires written authority from the Director-General of Conservation. Such authority may only be granted with the written agreement of the relevant Fish & Game Council(s).

The proposed project may therefore need a Complex Freshwater Fisheries Approval (CFFA) for fish salvage works under the Freshwater Fisheries Regulations.

16.0 Key Matters for Further Assessment

Ecological matters to address at the substantive application stage include:

- ✧ Undertaking a formal wetland assessment and delineation to identify natural inland wetlands and their extent on the proposed site.
- ✧ Undertaking lizard and bird habitat assessments of the proposed site, which will include detailed habitat mapping.
- ✧ Identifying the presence and species of freshwater fish and their habitats in the constructed ponds, Taerutu Stream, and wetlands on the proposed site, and wider study area, through a baseline fish and fish habitat survey.
- ✧ Identifying any current fish barriers onsite.
- ✧ Undertaking a baseline bird survey of the proposed site.
- ✧ Identifying the presence of native lizards on the proposed site through a baseline lizard survey.
- ✧ Undertaking a plant survey of the proposed site, including identifying exotic and indigenous species, and any Threatened or At-Risk species.
- ✧ Identifying the area and potential locations of biodiversity offset habitat to offset the loss of fish, lizard, and bird habitat on the site.
- ✧ Preparation of wildlife management plans (including those required for any wildlife and fish authorisations [Section 15.0]) (e.g., Bird Management Plan, Lizard Management Plan).
- ✧ Preparation of an offsetting and compensation plan.

17.0 Conclusion

Overall, the proposed site supports ecological values associated primarily with freshwater habitats, wetlands, and terrestrial environments. While the proposed development will result in the loss or modification of some habitats, including constructed ponds, wetlands, and grassland areas, these effects are not considered prohibitive to development. Subject to the strict application of the effects management hierarchy and implementation of appropriate avoidance, minimisation, remedial, and offset measures, adverse ecological effects can be appropriately managed. Accordingly, the ecological constraints identified at this stage are considered capable of being addressed through subsequent design

refinement and approvals processes, supporting progression of the project under the Fast-track Approvals framework.

18.0 Limitations

This ecology report has been prepared by Pattle Delamore Partners (PDP) for Wolfbrook Developments (Pegasus) Limited, their professional advisors, the Minister for Infrastructure, and other invited commenters/participants that are involved in the consideration of a referral application under the Fast-track Approvals Act 2024 including the relevant local authorities. No liability is accepted by PDP or any employee or sub-consultant of this company with respect to its use by any other person.

The findings and conclusions in this ecology report are based on information available at the time of preparation and serves as a preliminary evaluation prepared for the purpose of supporting the FTAA referral application. Ecological surveys and assessments have not been undertaken at this referral stage and will be required at the substantive stage.

The assessment has been prepared on the basis that information provided is accurate, complete, and adequate. To the extent that any information proves to be inaccurate or inadequate, PDP takes no responsibility for any loss or damage that may result.

19.0 References

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**Appendix A: Pegasus West Development –
Fast Track Application –
Indicative Master Plan**

LEGEND

- FTAA (REFERRAL) PROJECT AREA
- STORMWATER MANAGEMENT AREAS , INCLUDING WET BASIN AREAS
- GREEN NETWORK/ COMMUNITY RESERVES
- COMMUNITY/ COMMERCIAL
- PONDS/ WETLANDS
- GULLY PLANTING
- TAERUTU GULLY ENVIRONMENTAL ENHANCEMENT
- RESIDENTIAL
- RESIDENTIAL - LOW IMPACT HOUSING AREA
- TRAIL NETWORK
- WOODEND BYPASS (ALIGNMENT INDICATIVE ONLY)
- POTENTIAL ACOUSTIC TREATMENT
- CR COMMUNITY RECREATION
- A PROTECTED ARCHAEOLOGY
- P POTENTIAL PLAYGROUND/ RECREATION RESERVE
- U EXISTING UNDERPASS RETAINED
- A AREA A
- B AREA B
- C AREA C
- D AREA D
- E AREA E
- F AREA F
- G AREA G



A. INDICATIVE MASTER PLAN (SCALE 1:6,000@A3)

This drawing is indicative only, subject to change

PROPOSAL - INDICATIVE MASTER PLAN



Photograph 1: Taranaki Stream between Development Areas C and E (facing downstream)



Photograph 2: Taranaki Stream between Development Areas C and E (facing upstream)



Photograph 3: Taranaki Stream off southwest corner of Development Area C (facing downstream)



Photograph 4: Taranaki Stream off southwest corner of Development Area C (facing upstream)



Photograph 5: Taerutu Stream (facing downstream)



Photograph 6: Taerutu Stream in Taerutu Gully (facing upstream)



Photograph 7: Wai-Hora along the southwest boundary of Development Area G (facing downstream)



Photograph 8: Wai-Hora along the southwest boundary of Development Area G (facing upstream)



Photograph 9: Pond 1 – far west channel (facing north)



Photograph 10: Pond 1 - west end (facing east)



Photograph 11: Pond 1 - east end (facing south)



Photograph 12: Channel connecting Pond 1 to Pond 2 with rock wall (facing west)



Photograph 13: Pond 2 with rock wall (facing east)



Photograph 14: Pond 2



Photograph 15: Pond 3 (facing west)



Photograph 16: Pond 3 (facing north)



Photograph 17: Channel between Pond 3 and Pond 4 (facing northeast)



Photograph 18: Pond 4 (facing north)



Photograph 19: Channel between Pond 4 and Pond 7 (facing east)



Photograph 20: Channel between Pond 4 and Pond 7 (facing west)



Photograph 21: Pond 5 (facing south)



Photograph 22: Channel and rock wall between Pond 5 and Pond 6 (facing north)



Photograph 23: Pond 6 (facing east)



Photograph 24: Pond 7 (facing north)



Photograph 25: Pond 17 showing wooden siding around entire perimeter (facing north)



Photograph 26: Spillway between Pond 7 and Wetland 2 (facing west)



Photograph 27: Pond 8 (east end) (facing west)



Photograph 28: Pond 8 with small line of native trees in the riparian area (facing south)



Photograph 29: Pond 8 (west end) (facing south)



Photograph 30: Pond 9 with rock weir in foreground (facing north)



Photograph 31: Pond 9 (facing northwest)



Photograph 32: Pond 10 showing raupō in foreground (facing east)



Photograph 33: Pond 10 (facing southeast)



Photograph 34: Pond 11 (facing west)



Photograph 35: Pond 12 (facing southwest)



Photograph 36: Pond 12 (facing northeast)



Photograph 37: Pond 13 showing raupō around the pond margins (facing north)



Photograph 38: Pond 13 margin showing gravel edge and rank grass (facing east)



Photograph 39: Wetland 1 (south end) (facing north)



Photograph 40: Wetland 1 (north end) (facing northwest)



Photograph 41: Wetland 1 (north end) (facing west)



Photograph 42: Wetland 1 (north end) showing orifice weir that connects to Taranaki Stream (facing northwest)



Photograph 43: Wetland 2 (west edge) connection to Pond 7 (facing northeast)



Photograph 44: Wetland 2 (south end) (facing east)



Photograph 45: Wetland 2 (south end) (facing north)



Photograph 46: Path between Wetland 2 and Wetland 3 (facing east)



Photograph 47: Wetland 3 (north end) (facing south)



Photograph 48: Wetland 3 (south end) (facing northwest)



Photograph 49: Wetland 4 (unconfirmed natural inland wetland) (facing southwest)



Photograph 50: Wetland 5 showing open pond (facing northeast)



Photograph 51: Wetland 5 showing swamp habitat (facing northeast)



Photograph 52: Wetland 6 showing open water (facing northwest)



Photograph 53: Wetland 6 (facing northeast)



Photograph 54: Wetland 7 (unconfirmed natural inland wetland) (facing west)



Photograph 55: Wetland 7 (unconfirmed natural inland wetland) (facing south)



Photograph 56: Wetland 8 (unconfirmed natural inland wetland) (facing north)



Photograph 57: Wetland 8 (unconfirmed natural inland wetland) (facing south)



Photograph 58: Wetland 9 (unconfirmed natural inland wetland) (facing northwest)



Photograph 59: Wetland 9 (unconfirmed natural inland wetland) (facing southeast)



Photograph 60: Wetland 10 (facing east)



Photograph 61: Wetland 11 (south end) (facing north)



Photograph 62: Wetland 11 (north end) (facing northwest)



Photograph 63: Wetland 12 (facing northwest)



Photograph 64: Wetland 12 (facing southwest)



Photograph 65: Wetland 13 (facing southwest)



Photograph 66: Wetland 14 (facing north)



Photograph 67: Wetland 14 with surrounding extensive rank grass (facing east)



Photograph 68: Wetland 15 (facing west)



Photograph 69: Wetland 15 (facing northwest)



Photograph 70: Wetland 16 (unconfirmed natural inland wetland) (facing east) – poor quality image



Photograph 71: Wetland 17 (facing north)



Photograph 72: Wetland 18 (unconfirmed natural inland wetland) (facing west)



Photograph 73: Lizard habitat along southern boundary of Development Area A (facing west)



Photograph 74: Lizard habitat in northwest corner of Development Area B (facing southwest)



Photograph 75: Lizard habitat in northern section of Development Area C (facing southeast)



Photograph 76: Lizard habitat west of Pond 6 in Development Area D (facing northwest)



Photograph 77: Lizard habitat adjacent to Wetland 5 in Development Area E (facing northeast)



Photograph 78: Lizard habitat in southern section of Development Area F (facing northeast)



Photograph 79: Lizard habitat in southern section of Development Area G (facing north)



Photograph 80: Coniferous tree line along southern boundary of Development Area A (facing southeast)



Photograph 81: Deciduous tree line along private land parcel adjacent to Development Area B (facing southeast)



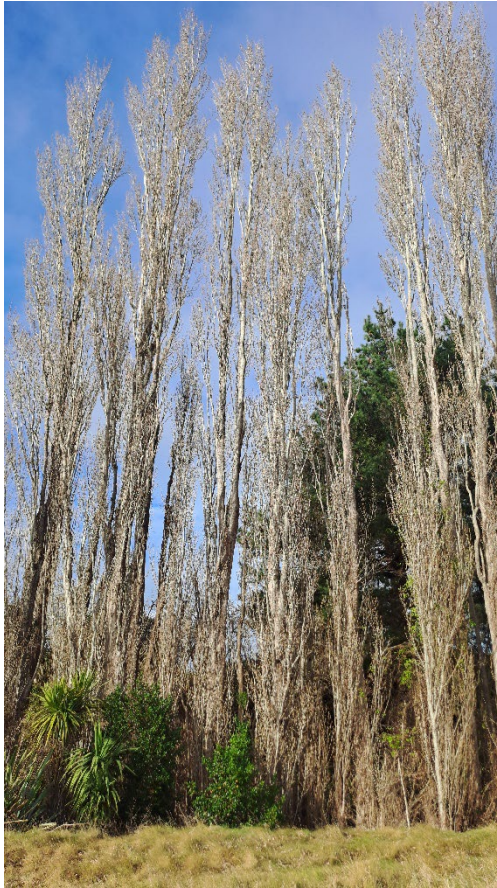
Photograph 82: Eucalyptus and poplar tree line along northeast boundary of Development Area C (facing northeast)



Photograph 83: Mixed tree line along northwest boundary of Development Area D (facing southwest)



Photograph 84: Podocarps adjacent to the east side of Wetland 2 Development Area E (facing northwest)



Photograph 85: Poplar treeline in Taerutu Gully along east boundary of Development Area F (facing east)



Photograph 86: Mixed treeline along west boundary of Development Area G (facing west)