



memorandum



TO	Tim Carter	FROM	Lexi Hunter
	Carter Group Limited	DATE	10 September 2026
RE	531 & 535 Mill Road Residential Development Project – Avifauna Survey		

1.0 Introduction

Carter Group Limited (CGL) engaged Pattle Delamore Partners (PDP) to undertake an avifauna assessment for a proposed residential development at 531 and 535 Mill Road, Ōhoka (the site). The previous PDP avifauna memorandum, dated 3 June 2026, accompanied the substantive application for the Project.

Since lodgement, PDP has undertaken an additional field survey during the bird breeding season. This memorandum has been updated to include the results of that survey. The desktop review and findings from the 25 May 2026 survey remain unchanged from those presented in the previous memorandum.

This memorandum summarises the desktop review and field survey findings, assesses potential effects of the proposed development on avifauna, and outlines recommended management and mitigation measures to avoid or minimise adverse effects. This memorandum, dated 10 September 2026, updates and supersedes the previous memorandum dated 3 June 2026.

2.0 Desktop Survey

A desktop survey was undertaken using the Global Biodiversity Information Facility (GBIF) database to review avian observations recorded within a 10 km radius of the site over the last 10 years (GBIF.org, 2026). A total of 69 species were identified, comprising of 26 introduced and 43 native species. Of the native species, 23 were classified as Not Threatened, 10 as At Risk, seven as Threatened, and three as Migrant or Coloniser (Robertson et al., 2021).

Many of the highly threatened species identified in the desktop survey, including Australasian bittern (*Botaurus poiciloptilus*; Threatened – nationally critical), white heron (*Ardea alba*; Threatened – nationally critical), and Australasian crested grebe (*Podiceps cristatus australis*; Threatened – nationally vulnerable), are wetland-associated species. Although wetland habitat is present on the site, it is not of sufficient size or quality to support these species in significant numbers for breeding or nesting. In unlikely scenarios, Australasian bittern may occasionally use the site's drainage channels for foraging while moving between higher value wetlands, but the site is highly unlikely to provide suitable nesting or breeding habitat.

3.0 5-Minute Bird Counts

3.1 Methodology

On 25 May 2026 (Visit 1), a PDP terrestrial ecologist visited the site to undertake an avian survey. Five-minute bird counts (5-MBCs) were completed in accordance with the Department of Conservation's (DOC) bird count guidelines (Hartley & Greene, 2012).

Counts were undertaken at locations that provided sightlines across a range of microhabitats within the site, including pasture, edge planting, and farm buildings (Figure 1). All birds seen or heard during the survey were recorded. An additional bird count was undertaken at Ōhoka Bush, a regenerating native forest located immediately east of the site (see Site 3 in Figure 1). Counts were undertaken in fine weather within two-hours of sunrise to ensure birds were at their most active and more easily detected.



Figure 1: Location of 5-minute bird count (5-MBC) locations at 531 & 535 Mill Road and Ōhoka bush reserve.

Although birds are active year-round in New Zealand, peak activity typically coincides with the breeding and nesting season (August to February). As the survey was undertaken outside this period, seasonal migrants and any active nesting behaviour were unable to be observed.

An additional survey was carried out on the 3rd September ('Visit 2'), 2026, within the general bird breeding season to assess any nesting or seasonal species that may not have been accounted for in the initial survey. The same birdcall stations were used to carry out 5-MBC, as well as a site walk over to identify any potential nests or breeding/nesting behaviours from birds on site.

3.2 Results

A total of 15 species were identified at the site across both survey visits, and six species were identified at the adjacent Ōhoka Bush Reserve. Of the species recorded on the site, eight were native species, all of which had a conservation status of Not Threatened (Table 1).

During Visit 1, most birds were recorded around exotic tree stands on the site, with only paradise shelduck (*Tadorna variegata*), spur-winged plover (*Vanellus miles*), and magpie (*Gymnorhina tibicen*) observed within pasture areas. Welcome swallow (*Hirundo neoxena*) and rock pigeon (*Columba livia*) were witnessed roosting within farm structures under open roofing.

Birds recorded at the Ōhoka Bush Reserve were mainly observed within a large eucalyptus stand adjacent to the reserve. Bird calls in this area were high, making it difficult to distinguish individual calls. Within the reserve itself, few birds were recorded and a stoat was observed actively hunting during the survey.

Visit 2 returned similar results to Visit 1. Large numbers of Paradise Shelduck were witnessed within pasture on the site, with more than 20 being identified during the 5-MBC at station 1. Only one species not previously identified within Visit 1 was seen during Visit 2 – Pied Stilt (*Himantopus himantopus*) – a single pair was seen at Site 1 and were not witnessed exhibiting any notable behaviour.

Table 1: Species identified during site visits to 531 & 535 Mill Road, and Ōhoka Bush Reserve. Native species have been highlighted.

Common name	Species Name	Conservation Status (Robertson et al., 2021)	Visit Identified
Magpie	<i>Gymnorhina tibicen</i>	Introduced	1
Paradise Shelduck	<i>Tadorna variegata</i>	Not Threatened	1,2
Swamp harrier	<i>Circus approximans</i>	Not Threatened	1,2
Fantail	<i>Rhipidura fuliginosa</i>	Not Threatened	1,2
Welcome swallow	<i>Hirundo neoxena</i>	Not Threatened	1,2
Spur winged plover	<i>Vanellus miles</i>	Not Threatened	1,2
Blackbird	<i>Turdus merula</i>	Introduced	1,2
Rock pigeon	<i>Columba livia</i>	Introduced	1,2
Tui	<i>Prothemadera novaeseelandiae</i>	Not Threatened	1

Table 1: Species identified during site visits to 531 & 535 Mill Road, and Ōhoka Bush Reserve. Native species have been highlighted.

Common name	Species Name	Conservation Status (Robertson et al., 2021)	Visit Identified
California quail	<i>Callipepla californica</i>	Introduced	1
Common starling	<i>Sturnus vulgaris</i>	Introduced	1,2
Bellbird	<i>Anthornis melanura</i>	Not Threatened	1
Finch sp.	<i>Fringillidae sp.</i>	Introduced	1,2
Silver eye	<i>Zosterops lateralis</i>	Not Threatened	1,2
Pied Stilt	<i>Himantopus himantopus</i>	Not Threatened	2

4.0 Assessment of Effects

4.1 Ecological values

The site comprises predominantly pasture, with exotic tree stands and farm buildings interspersed. These habitats are common in the wider rural landscape. Pasture provides foraging habitat for open-country species, particularly paradise shelduck, which occurred in high abundance throughout the site. Passerine activity was concentrated around exotic vegetation and farm buildings near Bird-count Station 1.

All native bird species recorded on the site are classified as Not Threatened. The site provides little to no suitable nesting habitat for wetland-associated species due to the absence of wetlands of sufficient size or quality. Native passerines may occasionally use the site for foraging or movement; however, nesting is unlikely because indigenous woody vegetation is scarce. Paradise shelduck likely utilise cavities or sheltered locations within trees or buildings for nesting, although no nests or breeding behaviour were observed during either survey. A pair of pied stilt were recorded on the site during Visit 2; however, the species typically nests in association with open habitats near water. While solitary nesting can occur, it is uncommon. Given the lack of suitable nesting habitat and the absence of any breeding behaviour, it is unlikely that the observed pair was using the site for nesting purposes.

On this basis, the avifauna habitat and species assemblage within the site have low ecological value. This rating reflects the modified and common habitat, the absence of threatened or At-Risk species during field surveys, and the limited nesting opportunities for indigenous birds. While the observation of a Tui during Visit 1 is possibly regionally significant

4.2 Potential effects

Potential effects on avifauna were assessed in accordance with the EIANZ Ecological Impact Assessment guidelines (Roper-Lindsay et al., 2018). The key potential effects identified are the permanent loss of foraging and roosting habitat, temporary disturbance or displacement of birds during construction activities, and the incidental injury or mortality of birds and active nests.

4.2.1 Habitat loss and displacement.

The proposed development would remove pasture and may remove exotic trees or farm structures used for foraging, shelter or roosting. Paradise shelduck made extensive use of pasture habitat across the site during both survey visits. Although development will permanently remove this habitat within the project footprint, pasture is a common and widespread habitat type in the surrounding rural landscape, and alternative foraging opportunities are readily available nearby.

Passerine activity was concentrated around the farm buildings and exotic vegetation near Station 1. The removal of these features would result in a temporary reduction in habitat availability. However, the proposed development includes extensive landscaping, with plans showing a substantial increase in vegetation across the site. In particular, a 10 m wide native planting buffer is proposed throughout the development. Once established, this planting is expected to provide a greater extent of native vegetation than is currently present on the site, increasing the availability of foraging, shelter, and potential nesting habitat for native species.

Generally, affected habitat on site is common locally, supports mainly widespread Not Threatened or introduced species, and does not provide important wetland or indigenous vegetation communities capable of sustaining specialist wetland bird populations.

The unmitigated magnitude of this effect is assessed as **low to moderate** site wide.

4.2.2 Disturbance of nesting birds.

Construction noise, machinery, and vegetation or building clearance could displace nesting birds, cause active nest abandonment or reduce breeding success. It is highly likely that native species, particularly Paradise Shelduck, are nesting on site, given the size of the property, number of individuals observed and habitat present.

The unmitigated magnitude is assessed as **low to moderate** because the extent of suitable nesting habitat throughout the site for Paradise Shelduck.

4.2.3 Incidental injury or mortality.

The bird species recorded on the site are highly mobile and would generally be able to flee from disturbance associated with construction activities. However, vegetation clearance, earthworks, and the demolition of farm structures could result in the incidental injury or mortality of eggs, chicks, or incubating adults if active nests are present within the works area. Given the limited availability of suitable nesting habitat on the site and the absence of active nests during the surveys, the magnitude of this effect is assessed as **low to moderate** in the absence of mitigation. It should be noted that all active native bird nests are protected under the Wildlife Act 1953.

4.3 Overall level of effect

The EIANZ framework combines ecological value with the magnitude of effect. For a feature of low ecological value, a low magnitude generally results in a **very low** overall level of effect, while a moderate magnitude generally results in a **low** overall level of effect.

Table 2: Assessment of Effects on bird populations at 531 & 535 Mill Road

Potential effect	Ecological value	Magnitude	Overall level of effect
Loss of foraging, roosting and shelter habitat	Low	Low to moderate	Low - moderate
Disturbance or loss of active nests	Low	Low to moderate	Low - moderate
Incidental injury or mortality of individuals, eggs or chicks	Low	Low to moderate	Low - moderate

The ratings assume that no Threatened or At-Risk species, or previously unidentified high-value nesting habitat, is present within the works footprint.

5.0 Effects Management & Mitigation

Where practicable, vegetation clearance and the removal of farm buildings should be undertaken outside the main bird breeding season, generally August to March (inclusive). If works are scheduled during this period, a suitably qualified ecologist should undertake a pre-construction nest survey to identify any active native bird nests within areas proposed for disturbance.

If an active native bird nest is identified, works should cease within an appropriate species-specific buffer until the ecologist confirms that the nest is no longer active or that any dependent young have successfully fledged. The preparation and implementation of a Bird Management Plan would provide a clear framework for managing nesting birds and responding to any nests identified during works.

All contractors should receive a site induction covering bird nest identification, stop-work procedures, reporting requirements, and the contact details of the project ecologist.

In the longer term, the proposed 10 m wide native planting buffer described in Section 4.2.1 is expected to replace and enhance foraging, shelter, and potential nesting habitat lost during development. Once established, this planting is expected to provide a greater extent of native vegetation than is currently present on the site. With the implementation of a Bird Management Plan, pre-works nest surveys, and appropriate nest avoidance measures, residual effects on avifauna are expected to be very low.

6.0 Conclusions

The site supports a limited range of avifauna habitats, primarily associated with exotic tree stands, pasture, and existing farm buildings. Most bird activity was concentrated around the tree stands and farm structures, particularly near Bird-count Station 1, while pasture habitat was used predominantly by paradise shelduck. Paradise shelduck were recorded in high abundance during both survey visits, reflecting the availability of foraging habitat within the pasture. Welcome swallow and rock pigeon were also observed using farm buildings for roosting, and welcome swallow may potentially nest within these structures. However, suitable nesting habitat for wetland-associated species is largely absent, and native passerine nesting opportunities are limited due to the scarcity of indigenous woody vegetation.

The desktop assessment identified a range of notable bird species within the wider area. However, many of these species are associated with higher-value habitats, including wetlands, braided river systems, and indigenous forest remnants that are either absent from the site or present only in a highly modified form. Native species recorded during field surveys were all classified as Not Threatened. Although a pair of pied stilt were observed during the spring survey, no breeding behaviour was recorded and the site lacks

habitat typically associated with pied stilt nesting. The adjacent Ōhoka Bush reserve is expected to provide substantially higher-value habitat for forest-associated bird species than the site itself.

The additional breeding-season survey undertaken in September 2026 recorded one additional species, pied stilt, but did not identify any threatened or At-Risk species, active nests, or other features that would alter the conclusions of the assessment presented in the 3 June 2026 memorandum. The additional survey supports the earlier conclusion that the site has low avifauna value.

Avifauna habitat present on the site is considered to have low ecological value. Potential effects associated with the proposed development relate primarily to habitat loss, disturbance of nesting birds, and incidental injury or mortality of individuals or nests during construction. Habitat loss and disturbance effects are assessed as low to moderate in magnitude, reflecting the removal of commonly occurring habitat types and the limited potential for nesting by native species. Incidental injury or mortality effects are assessed as low to moderate prior to mitigation, recognising the potential for active nests to occur within vegetation, mature trees, or farm buildings.

Appropriate management measures, including pre-construction nest surveys during the bird breeding season, implementation of species-specific exclusion buffers around active nests, contractor induction requirements, and preparation of a Bird Management Plan, would substantially reduce construction-related risks to avifauna. In addition, the proposed landscaping plan includes extensive indigenous planting, including a 10 m native planting buffer throughout the development. Once established, this planting is expected to provide a greater extent of native vegetation than is currently present on the site, resulting in an increase in available foraging, shelter, and potential nesting habitat for common bird species.

Overall, the proposed development is unlikely to result in significant adverse effects on avifauna at either the site or landscape scale. With the implementation of the recommended mitigation measures and establishment of the proposed indigenous planting, residual effects on avifauna are expected to be very low.

7.0 References

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- Roper-Lindsay, J., Fuller, S. A., Hooson, S., Sanders, M. D., & Ussher, G. T. (2018). *Ecological Impact Assessment: EIANZ guidelines for use in New Zealand, terrestrial and freshwater ecosystems* (2nd ed.). Environment Institute of Australia and New Zealand. [EIANZ EcIA Guidelines](#).
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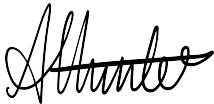
8.0 Limitations

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LANDSCAPE TREATMENT A

Along Whites and Bradleys Road (except adjacent to the commercial area), a 10m wide vegetation buffer combined with a 15m building setback from the site boundary is proposed to ensure a 'rural-character' is maintained at the edges of the proposed development. This is further combined with a post and rail fence or post and wire fence, with the installation of solid fencing along these boundaries not permitted. It is also proposed for a 2.5m wide shared gravel path to run the full length of both roads to support active transport. The landscape buffer is not applied along the commercial interface as this area is intended to provide an active, visible and accessible interface where building presence can better support commercial and pedestrian activity.

The planting is to consist of the following species planted at 1m centres to achieve a minimum height of 5m once established:

- (a) Kōhūhū/black matipo (*Pittosporum tenuifolium*);
- (b) Tarata/Lemonwood (*Pittosporum eugenioides*);
- (c) Shrubby Toraro (*Muehlenbeckia astonii*);
- (d) Tōtara (*Podocarpus totara*);
- (e) Tī Kōuka / cabbage tree (*Cordyline australis*);
- (f) Kōwhai (*Sophora microphylla*);
- (g) Kahikatea (*Dacrycarpus dacrydioides*);
- (h) Harekeke/NZ Flax(*Phormium tenax*);
- (i) Prostrate Kōwhai (*Sophora prostrata*);
- (j) Miki Miki (*Coprosma virescens*);
- (k) Koromiko (*Veronica salicifolia*);
- (l) Toe toe (*Austroderia richardii*);
- (m) Kāpuka/broadleaf (*Griselinia littoralis*); and
- (n) Korokio (*Corokia* sp.).

LEGEND

- A** Future residential development setback from Whites Road / Bradleys Road by a minimum of 15m.
- B** 10m landscape corridor to consist of native plant species.
- C** 1.2m high post and rail or post and wire fencing along road boundaries.



A. WHITES ROAD BOUNDARY TREATMENT (BOUNDARY TREATMENT A)

LANDSCAPE TREATMENT B

Landscape Treatment B involves the retention of the existing shelter belts (Tree Groups 67, 69 and 78 identified in the Treetech Tree Report) running along the southern boundary of the Site and planting a 6m wide strip landscape strip consisting of (or a mix of) the following trees to achieve a minimum height of 5m with trees once established at a maximum spacing of 2m:

- (a) Pine (*Pinus radiata*);
- (b) Arizona cypress (*Cupressus arizonica*);
- (c) Lawson's Cypress (*Chaemaecyparis lawsoniana*);
- (d) Lombardy Poplar (*Populus nigra*);
- (e) Tōtara (*Podocarpus totara*);
- (f) Tarata/Lemonwood (*Pittosporum eugenioides*);
- (g) Harekeke/NZ Flax (*Phormium tenax*);
- (h) Portuguese laurel (*Prunus lusitanica*); and
- (i) Kāpuka/broadleaf (*Griselinia littoralis*).

LANDSCAPE TREATMENT D

Landscape Treatment D is proposed along Whites Road where the road reserve adjoins to a proposed stormwater management area. Landscape Treatment D is to be continuous with Landscape Treatment A, and includes post and rail/ post and wire fencing, a 2.5m wide shared gravel path and a landscape strip. The landscape strip will be 3m wide, as opposed to the 10m wide planting proposed as part of Landscape Treatment A.

The planting is to consist of the following species planted at 1m centres to achieve a minimum height of 5m once established:

- (a) Kōhūhū/black matipo (*Pittosporum tenuifolium*);
- (b) Tarata/Lemonwood (*Pittosporum eugenioides*);
- (c) Shrubby Toraro (*Muehlenbeckia astonii*);
- (d) Tōtara (*Podocarpus Totara*);
- (e) Kahikatea (*Dacrycarpus dacrydioides*);
- (f) Harekeke/NZ Flax (*Phormium tenax*);
- (g) Miki Miki (*Coprosma virescens*);
- (h) Koromiko (*Veronica salicifolia*);
- (i) Toe toe (*Austroderia richardii*);
- (j) Kāpuka/broadleaf (*Griselinia littoralis*); and
- (k) Korokio (*Corokia sp.*).

LANDSCAPE TREATMENT C

Landscape Treatment C is positioned to create a buffer between the development area and the existing village properties on the southern side of Mill Road (290 Bradleys Road; 344 Bradleys Road; 507 Mill Road; 547 Mill Road; and 401 Whites Road). The planting consists of a single row of any of the following species along the shared internal boundaries to achieve a minimum established height of 4m once established and a width of 2m, with planting at a maximum spacing of 1.5m:

- (a) Portuguese laurel (*Prunus lusitanica*);
- (b) Tarata/Lemonwood (*Pittosporum eugenioides*);
- (c) Kōhūhū/black matipo (*Pittosporum tenuifolium*);
- (d) Kāpuka/broadleaf (*Griselinia littoralis*);
- (e) Kanuka (*Kunzea ericoides*); and
- (f) Mānuka (*Leptospermum scoparium*).

