28 September 2026

Waikato Thoroughbred Racing
c/- Samuel Simpson
General Manager - Operations
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Via email

Our Ref: AWA.00806

Dear Sam

Waikato Thoroughbred Racing Greenfields Hub
Long-tailed Bat Effects Assessment Update

1 Executive summary

Bluewattle Ecology has reassessed the effects of the proposed Waikato Thoroughbred Racing Incorporated Greenfields Hub on pekapeka-tou-roa or long-tailed bats (*Chalinolobus tuberculatus*) and their habitat use within the site. This supplementary assessment supports the Awa Ecology Ecological Impact Assessment (**EcIA**). It incorporates the revised Master Plan layout, the referral-stage planning memorandum, the track-lighting overview, and the habitat-area schedules.

Following an automatic bioacoustic monitor (**ABM**) survey during November- December 2025, long-tailed bats are confirmed across the site and occur at relatively high activity levels within the kahikatea stand and its associated wetland. Eight of nine acoustic detectors recorded bats, and 191 passes were recorded over the monitoring nights. The highest activity occurred at the northern and southeastern edges of a native treeland remnant, dominated by mature kahikatea trees. Notably, the survey results showed feeding 'buzzes' by bats in this stand. The treeland remnant also contains potential bat roost trees and thus may support solitary or communal roosting of a local population of bats (see **Figure 1**). Large exotic trees, shelterbelts, ponds, swales, wetlands and open pastoral areas provide structural compositions likely part of a wider functional habitat matrix regularly used by the local bat population.

The 160 ha proposal will convert an intensively farmed, predominantly pastoral landscape, to racecourses, training tracks, built facilities, parking, roads, buildings, houses with associated residential and commercial activities. Potential unmitigated effects on this bat habitat include partial loss of habitat use and permeability, disturbance of commuting and foraging behaviour, potential loss of use of roost-trees, adverse effects associated with artificial lighting spill and urban-edge effects.

Part of the ecological mitigation package includes:

- Retention, rehabilitation and protection of the kahikatea treeland stand;
- Setting outdoor artificial lighting performance standards to create a dark zone through the Residential LifeStyle Blocks (**RLBs**). This will in turn facilitate a bat access corridor to the kahikatea treeland stand, as well other grassland and artificial wetland treatment features on site.
- A separate draft Bat Management Plan (**BMP**) which details how these measures will be implemented to address the adverse effects of the proposal on bats and existing bat habitat.

However, applying a precautionary approach, these combined measures may not provide sufficient assurance that residual adverse effects on significant long-tailed bat habitat will be no more than minor.

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Following analysis of data collected from additional monitoring to be undertaken over the 2026-2027 spring/summer seasons, a residual-effects and compensation analysis may also be required to address residual adverse effects on bats and their habitat on the site. Regardless, it is considered that the residual effects on bat habitat usage will not be so significant that avoidance will be the only option available. Access to the restored bat habitat areas is only likely to be partially restricted as long as the lighting controls proposed are adhered to.

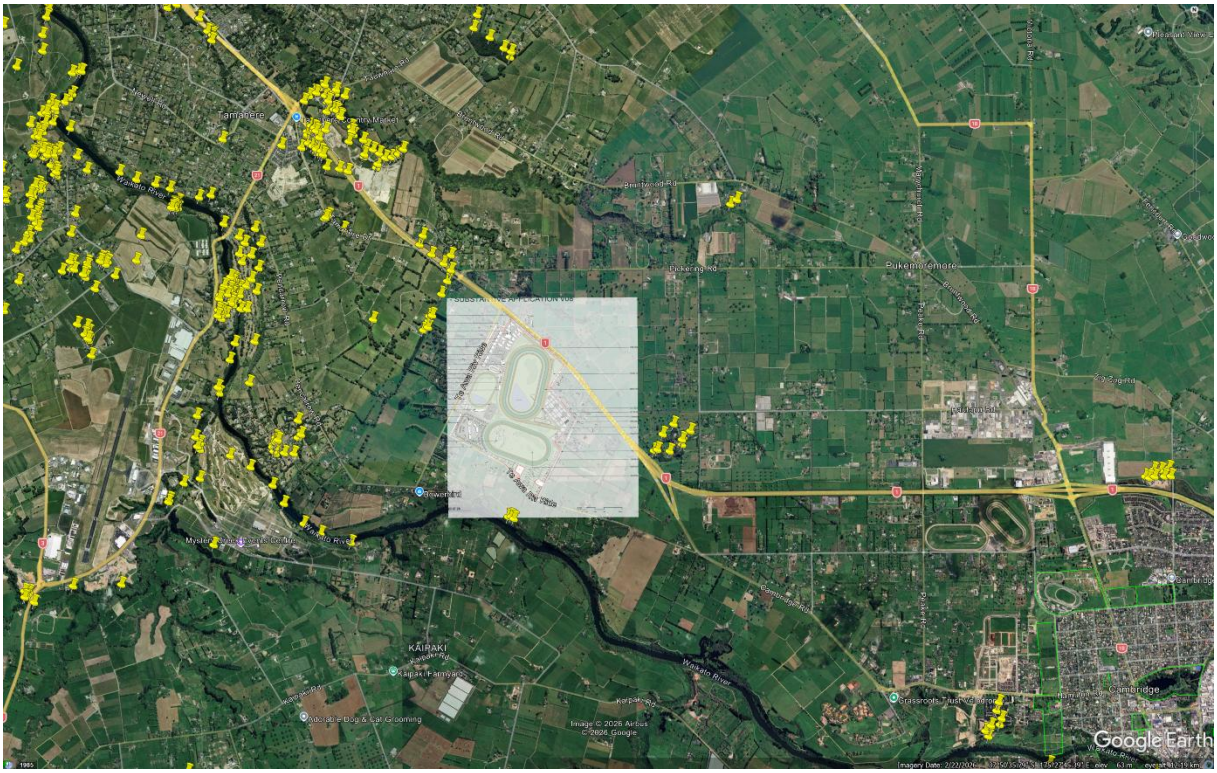


Figure 1. Waikato Thoroughbred Racing Greenfields Hub in relation to existing long-tailed bat records in the locality (yellow pins)

2 · Purpose and scope

This memorandum revises the draft effects assessment for the proposed Waikato Thoroughbred Racing Greenfields Hub. It complements the project EcIA, addresses updates from the master-plan site layout, presents a set of recommendations to address artificial lighting and other potential construction and operational effects on bats and use of habitat on site.

3 · Project and existing environment

3.1 Proposal relevant to bats

The project occupies approximately 160 ha, most of which is currently intensively grazed pasture, with smaller areas being farm buildings, houses, track and other associated farming infrastructure. The current kahikatea treeland is less than 1 ha in size. The proposal will change the landuse, combining thoroughbred and harness racing and training, events, equine services, roads, parking, stormwater facilities, lifestyle RLB housing, retirement living and commercial activities. The landuse changes allocate about 35 ha to racetracks, 23.5 ha to infrastructure or higher-density residential use, 38 ha to landscape planting, 7.5 ha to RLBs, 5.45 ha to ponds/swales/wetlands, 2.7 ha to restoration of the kahikatea stand and associated buffer plantings, with the residual area attributed to grassed areas.

Harness racing includes night operations and training is expected to begin from about 4:30 am. These periods overlap with nocturnal bat activity, which is related to potential effects of high intensity artificial

lighting dissuading bats from using the treeland, restored plantings and wetlands and grass areas on site from 4.30 am until dawn (discussed in greater detail later in this report).

3.2 Determination of bat habitat value

The EcIA shows that bats regularly use areas on the site, and is thus considered to meet section 6(c) of the Resource Management Act as habitat for significant indigenous fauna species.

The bioacoustic survey conducted in Nov-Dec 2025 demonstrates bat commuting and feeding use and that nearby roosting cannot be excluded (refer to section 3.2.1 of the EcIA, and as summarised in Table 1 below).

The kahikatea stand appears to be the focal bat habitat feature on site, but ecological function for bats extends beyond it. Large exotic trees and shelterbelts can provide roosting, navigation and foraging opportunities; ponds, swales and wetlands support prey; vegetated edges provide structural cues; and dark pasture remains permeable commuting as well as providing foraging habitat.

Table 1. Interpretation of the Bioacoustic bat surveys

Result	Interpretation
Site 4 - mean 9.2 passes per night; seven feeding buzzes; bats on all but one survey night; 73 passes between midnight and 1:00 am; possible social call at 1:50 am on 23 November.	Relatively high use, consistent with commuting and occasional feeding. A nearby roost cannot be ruled out.
Site 9 - south-eastern point of kahikatea stand; mean 7 passes per night over six nights; six feeding buzzes; activity concentrated around 1:00-2:00 am.	Relatively high use consistent with the habitat value of the kahikatea remnant in relation to the wider Tamahere landscape.
Bats detected at eight of nine monitors.	Use is not confined to the kahikatea stand; the wider dark rural matrix contributes commuting and foraging function.

4 Effects assessment

Effects on bats are considered using the effects management hierarchy: avoid first, then minimise and remedy, followed by offset or compensation for residual effects. The assessment distinguishes direct loss from functional degradation. A habitat mosaic can remain physically present but become less usable through artificial light. Table 2 summarises the potential adverse effects of the Greenfields Hub on bats and their habitat use on the site, as well as the effects which will require management solutions.

Table 2. Summary of potential effects on long-tailed bats and their habitat values and managmnet responses

Effect pathway	Unmanaged consequence	Ideal management
Removal of confirmed or potential roost trees	Loss of scarce roost resource; direct injury or mortality; reduced roost network resilience.	Avoid; redesign; seasonal and weather-constrained current DOC protocols; supervised felling; replacement habitat; compensation linked to actual loss.
Loss of shelterbelts, tree lines, wet edges and pasture matrix	Reduced foraging area and edge habitat; severed routes; conversion from rural to developed habitat.	Map and retain strategic links; staged clearance; establish dark vegetated corridors before severance.
Track floodlighting	Avoidance, delayed emergence, reduced foraging and corridor use; possible exclusion around key habitat.	Shielding, warm spectrum, kahikatea stand buffer planting .
Public, road, parking, commercial and residential light	Cumulative erosion of dark habitat and permeability across the site.	Low light dark corridors; adaptive controls and audit.

Effect pathway	Unmanaged consequence	Ideal management
Construction and operational noise	Disturbance or displacement near roosts and along corridors; overlap with emergence and foraging periods.	Unlikely to be significant.
Traffic and headlights	Collision risk, corridor avoidance and repeated light pulses.	Low-speed bat-sensitive zones, dipped headlights, planting screens and route design.
Tall masts and wires/structures	Potential behavioural barrier or collision risk, especially when lit.	Unlikely to be significant.
Increased predators and domestic animals	Higher predation pressure at roosts and restored habitat.	Pest management, predator bands where appropriate, refuse control and domestic animal rules for residential components.
Construction disturbance and accidental discovery	Injury, mortality or abandonment of roosts.	Induction, demarcation, exclusion areas, stop-work and emergency response.
Cumulative landscape change	Loss of resilience and connectivity within the southern Hamilton/Tamahere bat landscape.	Coordinate monitoring and habitat enhancement with wider initiatives; secure off-site compensation if required.

4.1 Habitat loss, modification and fragmentation

Roads, buildings, race infrastructure and housing would divide the remaining grassland habitat into smaller patches, reduce edge continuity and increase the distances bats must cross through open or illuminated space. The magnitude of this change can be minimised by planting or retention of mature trees, lighting controls to create dark zone corridors and integration of 'bat friendly' planting and animal pest control on site, but particularly for restoration of the kahikateas stand, the RLB areas and the site wide wider landscape-planting network.

4.2 Artificial light

Section 6.3.1 of the EcIA provides a summary of the potential adverse effects of artificial lighting on habitat use by long-tailed bats, which is summarised in Table 3 below.

The large illumination events associated with main and practice harness tracks detailed in the EcIA would be periodic and, in particular for the training track, restricted to after 4.30 am, so exceedance due to the mast lighting will not be for an entire night period.

Other artificial lighting associate with infrastructure, traffic, security lighting and residential areas will emit artificial lighting for the rest of the night, which may deter bats from making best use of potential habitat on site.

To address this artificial lighting effect, and to facilitate access to the kahikatea stand, as well as other potential habitat features on site, such as grass areas and constructed stormwater wetlands and ponds, a dark zone should be created through the RLBs. This can be achieved by creating performance standards on outdoor lighting within the RLB areas. The draft BMP addresses implementation standards to be met for the dark zone. Bats should then still be able to utilise the restored kahikatea stand and grass areas as foraging, commuting and potential roosting habitat outside of these high luminesce periods.

Table 3. Lighting proposal and ecological implications

Lighting component	Indicative design	Bat-effects implication
Harness main track	1,000 lux at track; 1,200 lux toward CTV cameras; 2,000 lux finish line; about 200 LED floodlights; 18-24 m masts	Very high source intensity and elevated luminaires; substantial potential for direct spill, glare, reflected light and sky glow.
Harness training track	40 lux; about 14 floodlights, using main harness-track masts	Night/crepuscular use and overlap with bat activity; source remains over 100 times the 1 lux ecological criterion.
Gallops training tracks	20 lux; 48 floodlights; eight 30 m masts	High masts increase visibility and potential landscape-scale glow; early-morning operation overlaps bat activity.
Back-track training	20 lux; 24 floodlights; six 25 m masts	Creates an additional illuminated operational area and potential fragmentation of dark habitat.
Public and building lighting	Roads, paths, parking, commercial development, equine precinct and tunnel lighting	Cumulative fixed lighting, headlights and security lighting.

4.3 Disturbance and operational effects

Race meetings, training, public-address systems, crowds, vehicles, generators, maintenance, domestic activity and pets would introduce repeated nocturnal disturbance. These effects may alter flight paths and reduce the availability and functionality of otherwise retained habitat. Their effects have been assessed cumulatively with lighting and habitat fragmentation, rather than as isolated pathways, and are addressed in the draft BMP.

4.4 Roost-tree effects and direct harm

Removal or disturbance of a potential roost tree creates a risk of mortality or injury and loss of future roost opportunity. Avoidance of potential roost tree removal is the primary means of managing effects on bats. Any unavoidable removal requires current DOC best practice decision tool and protocols, competent bat ecologists, appropriate seasonal and weather restrictions, pre-felling surveys, supervised felling, stop-work procedures and replacement roost opportunity to be applied. How the protocols are to be applied is set out in the draft BMP.

5 Effects management recommendations

Thee following measures are recommended to reduce the scale of these potential adverse effects (also see Table 4):

- Retain, and legally protect the kahikatea stand and create a functionally adequate buffer ecotone around it.
- Set a dark-zone outdoor lighting performance standard set for the RLB areas to create a dark zone, and hence access pathway for bats into the potential habitat areas.
- Avoid potential bat roost-tree removal where practicable; otherwise apply current DOC bat-roost protocols when felling bat roost trees. Incorporate planting cavity bearing trees within the landscape and restoration planting plans.
- If analysis of the two further '26/'27 bioacoustic monitoring rounds suggest regular and relatively high use, determine if there are residual, unmitigated adverse effects on use of key habitat by long-

tailed bats. If residual effects are predicted, compensate for residual adverse effects on bats and their habitat using targeted additional long-term predator control and habitat enhancement in high value habitat offsite, but within the home range for the local population (see section 6 below). It is considered that the residual effects on bat habitat usage will not be so significant that avoidance will be the only option available as access to the restored habitat areas is only likely to be partially restricted, particularly with the proposed artificial lighting controls in place.

Table 4. Summary of effects management response requirements

Requirement	Timing	Recommended outcome
Bat Management Plan	Submit a final BMP before enabling or construction works	Prepared by a suitably qualified bat ecologist; independently peer reviewed; DOC and council given at least 20 working days to comment; certified before works begin.
Habitat protection	Before works and in perpetuity	Restore and legally protect the kahikatea stand and its ecotone. No built development or artificial lighting infrastructure within this area except approved ecological works.
Corridor and connectivity	Plant before, or in the first suitable season following, relevant works. Implement dark zone lighting standards within the RLBs.	Provide performance standards to achieve a dark zone corridor within the RLB area as outlined in the draft BMP.
Vegetation clearance	Before and during clearance	Avoid removal potential bat roost trees wherever possible. Where removal cannot be avoided, use current DOC tree-felling protocols as detailed in the draft BMP.
Compensation (if required)	Determine if compensation is required following further '26/'27 bioacoustic surveys. In required secure compensation package before relevant habitat impact; fund before construction starts.	If required provide funding for mammalian predator control/habitat enhancement in high-potential bat-roost habitat.
Reporting and review	Annual reporting; formal reviews at years 1, 3, 5 and 10	Report habitat loss, lighting compliance, planting, pest results, bat activity, incidents, expenditure and responses. Council may require BMP amendments or further compensation after review.

6 Residual-effects assessment and response pathway

Table 5 outlines potential habitat available for utilisation by bats once the Greenfield Hub is operational, and once these features achieve functional habitat value for bats. Of the 160 ha associate with the development, some 112.7 ha of the areas itemised in Table 4 will be potentially available for utilisation by bats. However, as noted above, artificial lighting will restrict utilisation to these areas to an unquantifiable extent.

Lighting controls are recommended in sections 4 and 5, and the draft BMP. These measures will likely reduce access deterrence associated with artificial lighting. Due to the nature of the race and training track activities, and lighting associated with other infrastructure on site, there still may remain some residual adverse restrictions for bats to use the full extent of available habitat, even with lighting restrictions.

Residual-effects and compensation analysis is recommended to address possible residual adverse effects on bats and their habitat on the site following analysis of data collected from additional monitoring to be

undertaken over the 2026-2027 spring/summer seasons. If required, a rationally derived compensation payment, the quantum of which is determined by suitably experienced and qualified bat ecologists, can then be made to a competent conservation provider for pest control and/or other proven bat habitat enhancement measures in a number of smaller high-potential bat-roost habitats within the home range of this population of bats.

The regulatory pathway precedent has been set by several other consents and plan changes in the Waikato basin. For example, the recommended consenting solution to addressing any residual effects is a consent-backed compensation package can be based on the approach used in the SH1 Cambridge-to-Piarere Fast-track decision, but scaled accordingly for this project.

Table 6. Areas of potential bat habitat associated with Greenfields Hub

Potential habitat	Area
Compensation: kahikatea rehabilitation	2.70 ha
Compensation: off-site pest control	45.00 ha
Compensation: ponds/swales enhancement	5.45 ha
Compensation: open grass retained	52.06 ha
Compensation: rural residential	7.50 ha
Total compensation	112.71 ha

7 Conclusion

The project site supports confirmed, relatively high long-tailed-bat activity around the kahikatea stand and a wider functional habitat matrix in a locality with well-established and widespread long-tailed bat utilisation.

The proposed intensity of development and lighting creates residual adverse effects on bats and their use of habitat on the site through physical habitat loss, illumination, fragmentation, disturbance and delayed replacement-habitat function, which will be avoided, remedied, mitigated or compensated (if required) through implementation of the measures recommended above.

Yours faithfully



GHA (Gerry) Kessels

Ecologist

Bluewattle Ecology

Documents reviewed

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