

22 October 2025

Greenhill Industrial Park Consortium

C/o Barker and Associates Limited
Attn Fraser McNutt

Greenhill Industrial Park Fast Track Referral Application - Ecology

Introduction & Project Description

The Greenhill Industrial Park Consortium are proposing an industrial development at Greenhill Road, Puketaha, near Hamilton, through the Fast Track Approvals Act (2024) (Greenhill Industrial Park, hereafter, the 'Project Area'). The Project Area covers approximately 180 ha of farmland, located across four titles at 133 Greenhill Road, Puketaha and adjoining State Highway 1 (the Waikato Expressway) (Figure 1). The Project Area is currently zoned 'Rural' in the Waikato District Plan – Operative in Part (WDP-OiP).

Greenhill Industrial Park Consortium, as the applicant, has engaged Ecological Solutions Limited to provide ecological consultancy services to inform the master planning, consenting and design of Project development for the referral stage of the project.

According to the proposed masterplan, the Greenhill Industrial Park will include industrial lots, along with residential lots, open spaces (stormwater ponds and riparian areas), and infrastructure (including retention of the existing radio aerial and overhead powerlines). The proposed master plan for the Project Area is shown in Figure 2.

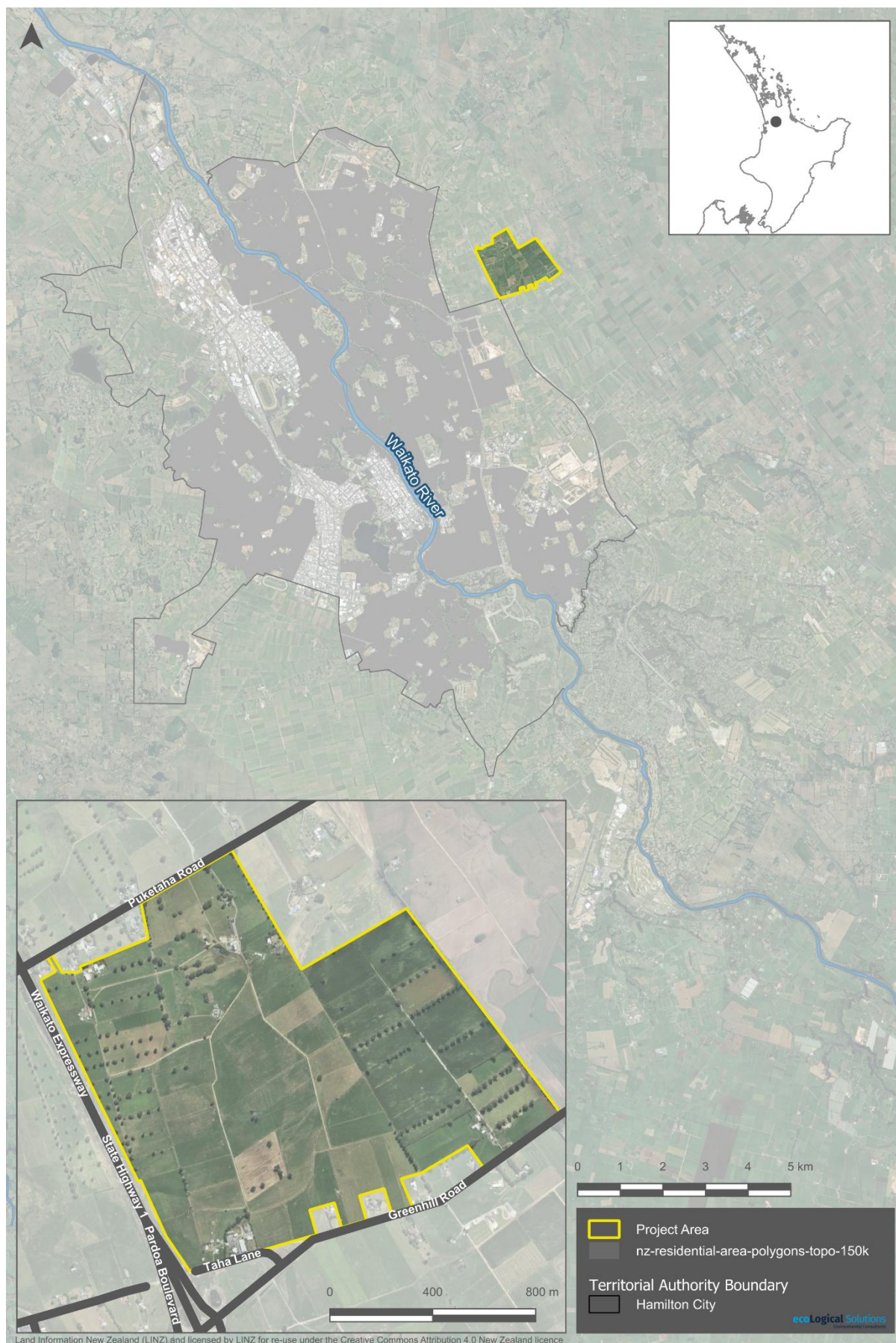


Figure 1: Location of Project Area.



Figure 2: Proposed Masterplan for the Project Area.

Background Analysis and Receiving Environment

Surveys and Analysis

The ecological values within the Project Area were identified and quantified during a field survey (17-18 September 2025), with reference to existing ecological databases (New Zealand Freshwater Fish database (NZFFDB), Department of Conservation (DOC) Bioweb and eBird), council spatial data, and relevant historical maps and previous reports. Significant Natural Areas (SNAs) were identified from Waikato District Council and Waikato Regional Council REST GIS layers.

Watercourses were classified in accordance with the definitions in the Waikato Regional Plan and an overview of species using watercourses (fish and invertebrates) was obtained from five environmental DNA (eDNA) samples taken from a representative selection of watercourses. Additionally, a fish survey using 45 Gee-minnow traps was undertaken in a representative selection of watercourses to determine if black mudfish (*Neochanna diversus*) were present within the Project Area.

Ecological features such as vegetation, habitat for indigenous fauna and wetlands were indicatively mapped, noting that comprehensive studies, especially with respect to wetlands, will be undertaken to inform the substantive application, should the application be accepted and referred under The Fast-track Approvals Act 2024.

Terrestrial Ecological Values

The Project Area was farmed at the time of the survey. The near absence of indigenous vegetation, and the modified and degraded nature of the watercourses and wetlands within the Project Area, reflects this history.

At the time of the survey, the Project Area was mostly exotic pasture, with mature exotic paddock trees, shelterbelts, hedgerows, ornamental plantings, and scrub / rank vegetation were present along fence lines and around buildings. Indigenous vegetation included several podocarp trees, including kahikatea (*Dacrycarpus dacrydioides*), tōtara (*Podocarpus totara*) and mataī (*Prumnopitys taxifolia*) in the northwestern portion of the Project Area, and sparse regenerating ferns, such as whekī (*Dicksonia squarrosa*) and native rush/ wīwī (*Juncus edgariae*) along riparian margins. Areas with indigenous vegetation are indicatively mapped in Figure 3.

No plant species of botanical or conservation interest were observed during the survey. There was no remnant or regenerating native vegetation, such as conifer-broadleaf forest on dry mounds or secondary growth of mānuka (*Leptospermum scoparium* agg.) / rushland on alluvial flats, which would be indicative of historic vegetation types. The native podocarp trees (noted above) appear to have been planted.

There were no SNA's, Significant Amenity Landscapes or Notable Trees within or immediately surrounding the Project Area¹.

Diurnal birds observed at the time of the survey, as well as those in the local area recorded in the eBird database and potentially utilising habitat within the Project Area, include common exotic species, such as chaffinch (*Fringilla coelebs*), mallard (*Anas platyrhynchos*), magpie (*Gymnorhina tibicen*), myna (*Acridotheres tristis*), sparrow (*Passer domesticus*) and skylark (*Alauda arvensis*), and common native species, such as kāhu (*Circus approximans*), kōtare (*Todiramphus sanctus vagans*), pūkeko (*Porphyrio m. melanotus*), ruru (*Ninox n. novaeseelandiae*), rīrorīro (*Gerygone igata*), pīwakawaka (*Rhipidura fuliginosa placabilis*), tuī (*Prosthemadera n. novaeseelandiae*), spur-winged plover (*Vanellus miles novaehollandiae*) and warou (*Hirundo n. neoxena*). Given the pastoral setting,

¹ Waikato District Council GIS layers (Accessed 29 September 2025).

predominantly open and limited vegetation, the presence of pest animals (e.g., rodents), and degraded condition of wetlands, suitable habitat for bird species is limited.

Native copper skink (*Oligosoma aeneum*) are considered 'At Risk – Declining' (Hitchmough et al. 2021), and have been recorded within 11.1 km of the Project Area (DOC Bioweb). If present within the Project Area, copper skink are likely to be present at low density and restricted to the very small areas of suitable habitat associated with woody debris piles, shrubs and vines, scrub/shelterbelts and overgrown grass along fence lines (e.g. habitat associated with existing dwellings/buildings).

Native long-tailed bats/pekapeka (*Chalinolobus tuberculatus*) are considered 'Threatened – Nationally Critical' (O'Donnell et al. 2023), and have been recorded in similar pastoral habitat locally (e.g., within 2 km west of the Project Area) (DOC Bioweb). The closest known record is located 200 m from the western property boundary, within an area referred to by WDC as "Urban Expansion Area – R2". Mature and senescent exotic trees, such as oak (*Quercus robur*), willow (*Salix* spp.), poplar (*Populus* sp.), Lawson cypress (*Chamaecyparis lawsoniana*) and pine (*Pinus radiata*), particularly within the northwestern, centre and eastern extent of the Project Area, could provide foraging and roosting habitat for long-tailed bats, but this is yet to be confirmed. More detailed surveys will be undertaken as part of the substantive application should the project be referred.

Wetland Ecological Values

The Project Area contains two small (collectively, 1,982 m²) putative wetlands within paddocks which could meet the RMA definition of a 'wetland' and the NPS-FM (2020) definition of a 'natural inland wetland'. These putative wetlands are indicatively mapped in Figure 4. The putative wetlands within the Project Area will vary over time in terms of size, vegetation composition and location as a result of farming and grazing practices; however, those observed during the survey collectively covered approximately 0.2 ha.

All putative wetland areas have been affected by historic vegetation removal, drainage and livestock access. As a result, they are highly modified and degraded. Vegetation typically comprised locally established exotic rushland with low-stature exotic species such as grasses, herbs and sedges. Common native plant species such as rush/ wīwī (*Juncus australis*, *J. edgariae*) and slender clubrush (*Isolepis cernua*) were sparse.

Three artificial farm ponds were located in the northern portion of the Project Area (see Figure 4). These are considered 'deliberately constructed water bodies' and are therefore excluded from the RMA and NPS-FM wetland definitions.

No wetland plant species of botanical or conservation interest were observed during the survey. The potential wetland habitat present did not reflect historically expected vegetation types, such as kahikatea swamp forest or peat bog communities, such as mānuka (*Leptospermum scoparium* agg.), greater wire rush (*Empodisma robustum*), restiad (*Sporadanthus ferrugineus*) rushland.



Figure 3: Terrestrial vegetation at Project Area.



Figure 4: Watercourses and wetland habitat at Project Area.

Freshwater Ecological Values

Watercourses draining the Project Area primarily flow north into the central drainage system managed by WRC (e.g., Waikato Central: Komakorau) as shown in Figure 5. This system forms part of the modified Komakorau and Mangatoketoke streams, and subsequently joins the Mangawara River, ultimately discharging into the Waikato River near Taupiri. A small portion of the Project Area drains northwest into the Pukenui central drainage system, which forms part of the Kirikiriroa Stream, ultimately discharging into the Waikato River near Harrowfield (Hamilton City).

Freshwater habitat within the Project Area has been highly modified through vegetation removal, drainage and channel modification. The current watercourses within the Project Area are shown in Figure 4.

Watercourses and artificial drains within the Project Area appear to have been constructed or modified to drain historic wetlands. Aerial imagery from 1952 (Retrolens²) and Digital Evaluation Model (DEM 2023) in the general location of Watercourse A, shows evidence of former channels (indicative of a natural watercourse), alongside an initial constructed drain and extensive wetland areas that are no longer present today³. The drain visible in the 1952 aerial imagery appears to have been subsequently piped, buried, and realigned, as shown in the 1963 imagery (Retrolens), to closely match its present-day position. This is the only semi natural 'modified watercourse' (referred to as 'Watercourse A') identified within the Project Area (see Figure 4), with all the others considered artificial drains.

The NZFFDB holds numerous records of native fish within the Komakorau Catchment⁴, some of which are considered 'At Risk' by Dunn et al. (2018), including longfin eel (*Anguilla dieffenbachii*), torrentfish (*Cheimarrichthys fosteri*), giant kōkopu (*Galaxias argenteus*), īnanga (*G. maculatus*), and black mudfish (*Neochanna diversus*).

Environmental DNA surveys identified three native fish species; longfin eel ('At Risk – Declining'), shortfin eel (*Anguilla australis*) and common smelt (*Retropinna retropinna*) (both 'Not Threatened'). No black mudfish were detected in eDNA samples or Gee-minnow traps. Only one shortfin eel was captured in the fish survey using traps.

² <https://retrolens.co.nz/>

³ Historic wetlands, such as those present in the 1840s, and remnants still visible in the southeastern portion of the Project Area in 1952, appear to have been part of the broader Komakorau Bog system within the Hamilton Basin (Clarkson 2002, McCraw 2011, Nicholas 2002, van der Zwan and Kessels 2017). By 1952, much of the bog's original extent had already been extensively cleared and drained for agricultural development.

⁴ Catchment boundary follows the Komakorau central drainage system as defined by WRC.

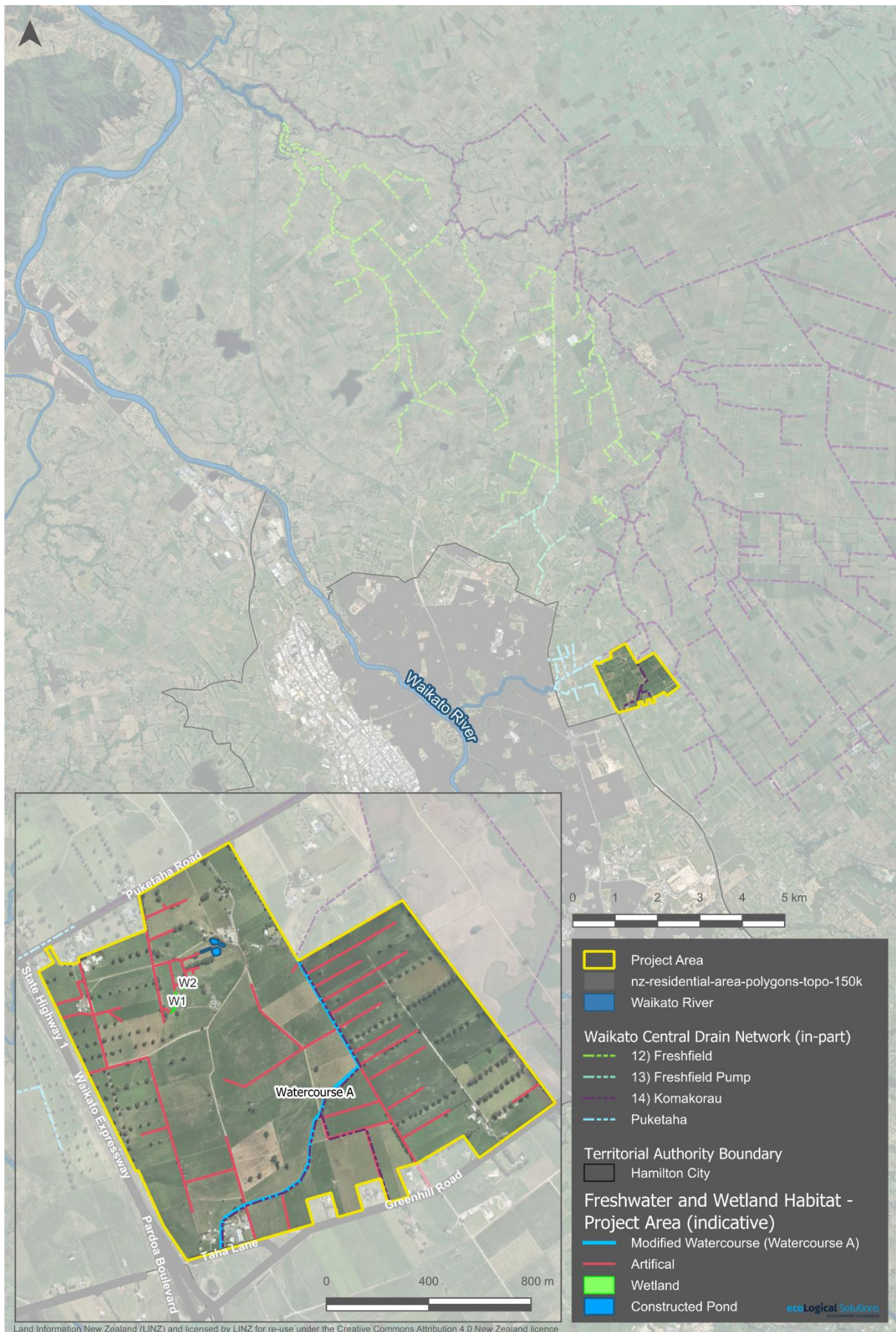


Figure 5: Watercourse and drain network within the Project Area.

Key Known and Anticipated Effects

The Project will involve works which have the potential for both positive and adverse effects on the ecological values of the Project Area. Based on the proposed Masterplan (Figure 2), the anticipated effects include:

Potential Positive Effects:

- Riparian restoration along Watercourse A (removal of livestock, stream realignment and naturalisation and native planting) and wetland creation; increasing the amount of native vegetation and botanical values within the Project Area, and enhancing (and potentially connecting) habitat for native fauna.
- Removal and/ or upgrading of existing culverts, enhancing fish passage.
- Landscape planting between industrial and residential/ rural land uses both within the Project Area, and between the Project Area and adjacent rural land. This planting will increase the amount of habitat for fauna and promote connectivity between habitats.

Potential Adverse Effects:

- Removal of poor quality, predominantly exotic, terrestrial vegetation (pasture, crops and mature and senescent exotic trees) and habitat, and the potential for effects of this loss on terrestrial fauna which may be using it, including long-tailed bats.
- The potential for unavoidable loss of and/ or effects on low-quality wetland habitat, which provides habitat for common native bird species (e.g., pūkeko).
- The potential for the removal of artificial watercourses that may provide low quality and/or temporary habitat for longfin and/or shortfin eel.
- The potential for unavoidable loss or modification (e.g., culverting) of modified (natural) permanent stream, which may provide habitat for longfin and/or shortfin eel.
- Potential adverse effects on water quality and aquatic life in the freshwater environment due to sediment mobilisation and/or contaminant discharge from sediment runoff during construction, stormwater and wastewater discharges post-construction.
- Depending on timing of works, the potential for disturbance of fish migration and spawning during the works (if affected species are present).
- The potential for additional weed species to be introduced to the Project Area.
- Effects of lighting on bats post construction.

Approach to Addressing Effects

- The removal of predominantly exotic vegetation (or habitats) can be managed to avoid impacts on native terrestrial fauna. A management plan approach specifying management objectives is proposed to address any effects on birds, lizards and bats so that they are avoided and/ or adequately mitigated or offset as required:
 - Management of lizards is subject to the provisions of the Wildlife Act 1953, and would require a Wildlife Act Authority in order to handle, capture and relocate salvaged lizards, and any incidental killing of lizards that are not collected. Mitigation via creation of new habitat would be required.
 - The approach to managing effects on bats would involve following the Department of Conservation protocols for tree felling. By implementing these protocols, one should not be in a position where bats require handling, thus a Wildlife Act Authority would not be required.

- If bat roosts are identified during detailed surveys, appropriate avoidance and/ or mitigation and/or offsetting will be set out in the management plan. Mitigation via creation of new habitat in the long term.
 - The direct effects of vegetation removal on nesting birds would be managed by avoidance (i.e., avoidance of felling during nesting season, or if outside this period, avoiding felling any tree with a nest until chicks have fledged). On that basis a Wildlife Act Authority for disturbing the nests of native birds would not be required. Mitigation is also proposed for loss of habitat through new native planting and habitat creation within proposed restoration works of the retained modified watercourse and riparian corridor.
- The reduction in potential stream values as a result of culverting will be addressed via restoration of the remaining stream reach. This may include stream realignment (to a more natural meandering pattern) and naturalisation (planting, addition of instream habitat etc) to ensure no net loss of extent or ecological values.
- The magnitude of adverse effects on water and aquatic habitat quality (and ultimately fish and invertebrates) due to sediment discharges and sediment and contaminant deposition during construction will be minimised through:
 - Using best practice approaches to the timing of works.
 - Careful construction methodologies for erosion and sediment control for soil disturbing activities implemented in accordance with the Waikato Regional Council TR 2009/02 required under the WDP-OiP.
- With respect to management of water discharge effects, connecting to the wastewater network is the preferred option. However, if that is not viable, wastewater will be treated onsite before discharge. The effects of any wastewater discharge (if required) will be carefully managed to ensure discharge water quality aligns with the respective receiving environments. The new technologies available for wastewater treatment plants enable the quality of treated wastewater to be tailored to the specific receiving environment (e.g., land or freshwater) so as to avoid adverse effects on water quality and aquatic ecology.
- The potential effects of stormwater discharge from the Project Area will be managed using best practice stormwater treatment devices, hydrology mitigation (e.g., retention and detention), whilst factoring in allowances for climate change in accordance with the Waikato stormwater management guideline (TR 2020/07) and Waikato stormwater runoff modelling guideline (TR 2020/06).
- The removal of artificial watercourses could disrupt migration and spawning for native fish species for the duration of the works unless appropriately managed. This is of particular relevance for species of conservation interest. Whilst such species have been recorded in the catchment, they were not detected during the site survey. These effects will be reduced (if required) by managing the timing of the works and through fish relocations (see below).
- There is the potential for fish to be directly affected during works in modified natural watercourses and artificial drains unless managed. Fish capture and transfer can be used to manage the direct impacts of habitat loss on native fish. These effects will be addressed via a dedicated fish management (salvage and relocation) plan.
- Any proposed culverts, if not designed properly, could impede fish passage. Fish passage shall be designed in accordance with best practice solutions, drawing on the New Zealand Fish Passage Guidelines (NIWA 2024).
- The risk of weed introduction can be managed via Project Area biosecurity protocols (e.g., for earthworks machinery entering the Project Area) and including weed management actions as part of planting and restoration management.

- Any loss of low quality natural inland wetland habitat will be addressed via avoidance where practicable, and where loss cannot be avoided, onsite offsetting (within the Project Area) will be implemented. A provisional area of six hectares has been identified for wetland creation if required. To maximise the ecological benefits, this area would be integrated with the proposed watercourse realignment and restoration and stormwater basins. This is expected to provide an ecological net-gain, and contribute to the development of a well-functioning and sustainable wetland ecosystem. Any proposed offset/compensation proposed as part of the substantive application should the project be referred will be designed using the Biodiversity Compensation Model (BCM) as a decision support tool (Baber et al. 2021).

Further Assessment Required to Inform Substantive Application

As part of any substantive application, a suitably qualified and experienced ecologist(s) will prepare a description of the current ecological values, provide an assessment of the actual or potential effects of the project and set out the methods to avoid, remedy, mitigate and offset/compensate those effects on the values identified. This will include a thorough description of the existing environment by undertaking:

- Stream assessments (stream classification according to Waikato Council Definitions).
- Wetland assessments (according to the definition in both the RMA 1991 and NPS-FM, 2020 and following the delineation protocols outlined in NPS-FM, 2020).
- Fauna surveys (birds, bats, lizards and fish).
- Detailed mapping of vegetation, including species identification, community description and mapping of habitat for specific fauna.

Specific detailed ecological management plans required to address any adverse effects on ecological values will be prepared, including applications for any statutory authorisations (e.g., Wildlife Act Authorisation). Once the necessary resource consents are obtained, appropriately qualified and experienced ecologists will also assist with implementation of any ecological management plans as required.

Wildlife Act Authorities (WAA)

It is acknowledged that WAA obligations require management of populations of protected fauna species where they or their habitats are threatened by land use changes.

It is anticipated that the indigenous species that may be present and may require a WAA will be native lizards. Native reptiles are legally protected under the Wildlife Act 1953 (and subsequent amendments), and vegetation and other features that provide habitat for these species are recognised by the Resource Management Act 1991.

Direct impacts on birds and bats will be managed during construction, to avoid active nests or roosts.

Conclusion

The anticipated adverse effects of the Project on ecological values would be managed via development of suitable consent conditions and the effective implementation of Project Area and species-specific management plans (i.e., for fish, birds, bats and lizards) and habitats (e.g., watercourses and wetlands). A Wildlife Act Authorisation will be required for the management of absolutely protected indigenous lizards during vegetation clearance including salvage and relocation measures.

With respect to wetlands and streams, any unavoidable loss will likely require biodiversity offsetting. Approximately 6 ha of land within the Project Area (adjacent to the existing modified watercourse and proposed stormwater infrastructure) has been identified for potential wetland and stream offsetting activities (subject to further investigations). This is expected to be more than sufficient for the 0.2 ha of wetland present.

Should the application be accepted and referred under The Fast-track Approvals Act 2024, a detailed ecological assessment and ecological management plan(s) will be included in the substantive application package.

Qualifications and Experience

Ecological Solutions Ltd (formerly Freshwater Solutions Ltd and The Ecology Company Ltd) are expert freshwater and terrestrial environmental consultants with offices based in Northland, Auckland, Tauranga and Nelson from where we service our national client base. The company is managed by Richard Montgomerie who founded Freshwater Solutions Ltd in 2009. Dr Gary Bramley is the terrestrial team lead and Nick Carter is the freshwater team lead, each with more than 20 years' experience managing a diverse range of environmental projects, including significant infrastructure and housing projects, throughout the country.

Becky Bodley one of our senior ecologists, is the project manager for the Greenhill project. Becky has over 14 years' experience as a consultant and has managed the ecology component for plan change applications and consenting for housing projects including most recently Warkworth Ridge (Plan Change 40) and the Rotokauri Greenway Project, located in Waikato which was granted consent under the COVID-19 Recovery (Fast-track Consenting) Act 2020 in July 2024.

Ecological Solutions Ltd has extensive experience in the Waikato area, having provided ecology services for numerous land development projects and primary sector clients since 2009. Ecological Solutions Ltd are experienced in developing appropriate mitigation and biodiversity offsets required to offset terrestrial, wetland and stream habitat loss and for a range and flora and fauna.

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