Project Number: 5-W1100.15

Proposed Plan Change 58: Outer Castlecliff – Ecological Assessment

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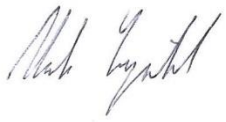

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1 Executive Summary

Whanganui District Council have developed a scoping report and draft plan change which proposes rezoning land in Castlecliff to residential, an area of previous low residential growth and demand. The proposed rezoning will comprise of approximately 115 lots. This will result in vegetation clearance to provide for the proposed development.

The purpose of this report is to identify existing ecological values of the area, provide an assessment of the anticipated ecological effects of the proposed vegetation removal and habitat for wildlife, and propose measures to avoid, remedy and mitigate adverse effects where possible. This report provides supportive information to the plan change and resource consents as required.

This assessment includes a desktop review of existing information and field surveys conducted in December 2019.

During the site visit, the vegetation present was assessed for each zone of the proposed plan change. Generally, the four plan change areas were dominated by common native and exotic species, with many of the areas being planted in amenity garden species.

The larger areas of naturally regenerating vegetation were noted in areas 2-4. The majority of the areas surveyed are mown and not grazed and are generally not of high ecological value. The area proposed for rezoning, is of low ecological value. It does not meet the criteria to be a schedule F habitat under the Horizons regional council One Plan.

Birds were identified when seen or heard. No bat survey or lizard survey was completed. Existing records for the area were assessed. Further surveys will confirm the current presence of bats and lizards in this area.

The overall effects rating for the key ecological attributes and features impacted by the project ranges from very low to low, this reflects the ecological values of these areas and the environmental impacts of the proposal

A number of assumptions and recommendations have been made to minimise any potential adverse effects of the proposal. Assuming implementation of these measures including commissioning of further bat and lizard survey, it is considered that these effects can be managed.

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2 Introduction

2.1 Background

Whanganui District Council have developed a scoping report and draft plan change which considers rezoning land in Castlecliff currently zoned Reserves and Open Spaces or Rural Lifestyle to the Residential Zone to residential. The proposed rezoning will comprise of approximately 115 lots. This will also involve an upgrade to the existing stormwater network (discussed in WSP Opus, 2019 report).

Whanganui's population is increasing faster than projected in 2015. The 2015 projections of a population increase of 200 persons per year were used as the basis for infrastructures 30-year 2018-2048 Infrastructure Strategy. This has grown to 700 per year for the last three years. Castlecliff itself is experiencing a resurgence with community and council revitalisation projects and signs of gentrification of housing demand. Developers are seeking to invest in outer Castlecliff and require more land to facilitate development. The purpose of this plan change is to undertake this rezoning process in a comprehensive manner to avoid fragmented development and zoning outcomes.

WSP have been contracted by the Whanganui District Council to prepare an assessment of ecological effects of the proposed rezoning of land, to ensure that increasing the residential density in these areas will not cause significant adverse effects.

2.2 Purpose and scope

The purpose of this report is to provide an assessment of the environmental effects of the proposed plan change to rezone land at Castlecliff currently zoned Reserves and Open Spaces or Rural Lifestyle to the Residential Zone.

The scope of this report comprises of the following:

- A description of the vegetation, fauna, and ecological features found within the sites;
- As assessment of the existing ecological values;
- An outline of the nature and magnitude of potential adverse effects from the proposed rezoning; and
- Proposed measures to avoid, remedy or mitigate adverse ecological effects, where necessary.

2.3 Site location

The proposed areas to be rezoned to residential (shown in Figure 1) are located in Castlecliff, approximately 5.5km west of Whanganui's town centre.

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Figure 1: Location of Castlecliff proposed rezoning areas.

The total area of the proposed residential area to be rezoned can be seen in Figure 2 below (approximately 30ha). The outer Castlecliff area is currently zoned Rural Lifestyle under the Whanganui District Plan.

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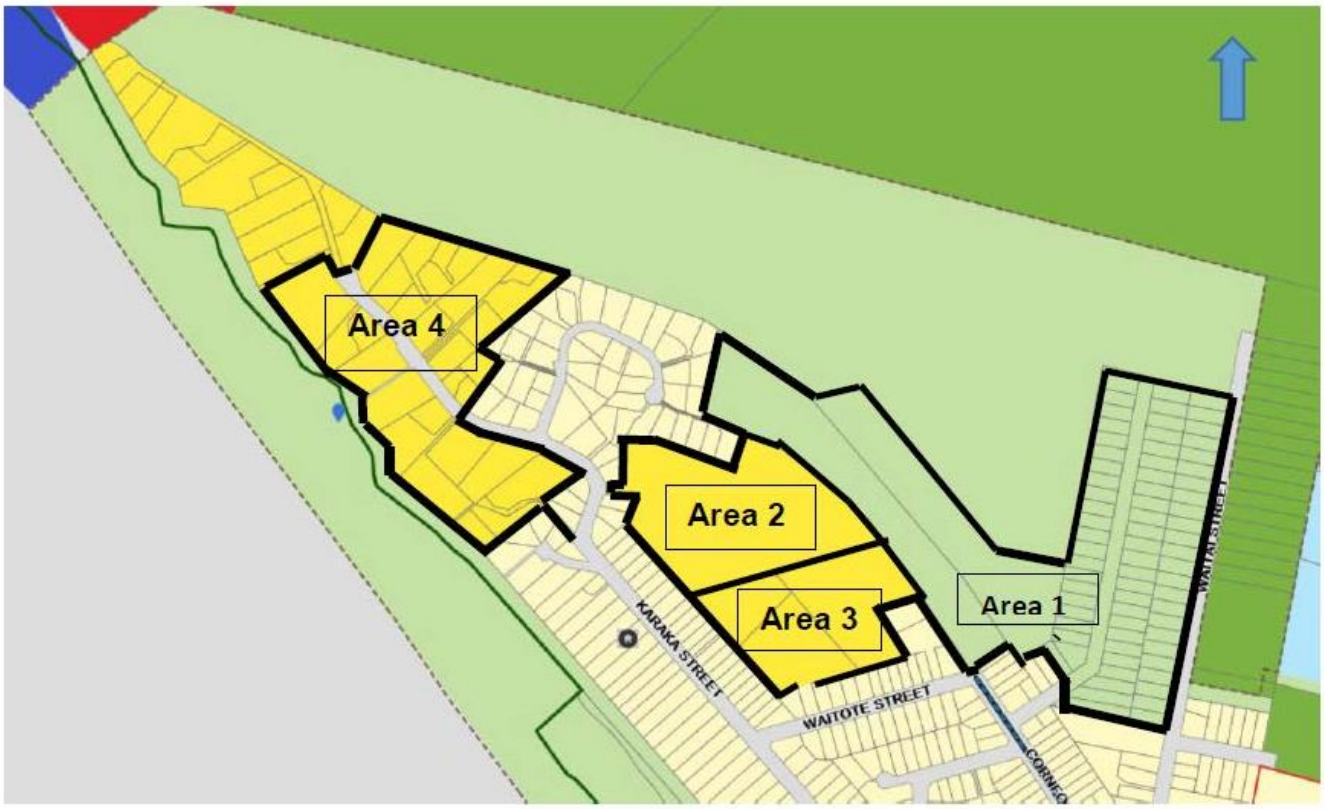

Figure 2: Outer Castlecliff area proposed to be rezoned Residential. (Map retrieved from the Whanganui District Council Plan Change 58).

Outer-Castlecliff has a morphology typical of its near coastal setting, it is located approximately 0.4km from the sea. It is characterised by mixed grasses, planted exotic and native trees and shrubs associated with a rural/rural-residential setting.

Karaka wetland is located between the coast and long beach drive, the impacts of the proposed rezoning on this wetland are discussed in WSP Opus, 2019.

2.4 Proposed works

The proposed works include the rezoning of area 1-4 described in Figure 2 (above). The proposed rezoning will lead to an increase in residential density in these areas. These works will involve:

- Vegetation clearance
- Construction earthworks
- Upgrades to network utilities
- New roading infrastructure

As the proposal is at the Plan Change stage details on the construction and roading layout/infrastructure are not known. Therefore, the areas 1-4 were assessed as a whole for any significant ecological values.

This report identifies the ecological values for the areas to be rezoned and their context within the surrounding landscape.

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3 Methodology

3.1 Desktop and field survey methodology

3.1.1 Desktop review

The desktop assessment included the following:

- A review of aerial photographs;
- A review of the Regional Planning Maps and Schedules.
- Review of eBird database
- Review of Department of Conservation bat bioweb database
- Review of Department of Conservation herpetofauna bioweb database

3.1.2 Vegetation and terrestrial fauna field survey

The vegetation and terrestrial fauna survey was carried out during a site visit on the 3rd of December 2019 by Melanya King (Intermediate Ecologist, WSP). The survey recorded:

- Vegetation/habitat types and plant species
- Birds heard or observed were also noted
- The potential of the habitat to support bats was assessed based on known habitat preferences and local species distribution.

3.2 Assessment of effects methodology

3.2.1 EIANZ Guidelines

Guidelines for undertaking Ecological Impact Assessments (EcIA) published by the Environment Institute of Australia and New Zealand (Roper-Lindsay et al, 2018) have been used to aid in assessing the ecological impacts of the Project. The guidelines assist in assessing values and effects in a consistent and transparent way. However, sound professional judgement is still required when applying the framework and matrix approach.

The approach involves assigning values for vegetation, habitats or species using the criteria in Table 1 and then assigning a magnitude of effects rating using the criteria in Table 2. An overall level of effects is then determined by combining the value of an ecological feature or attribute with the rating for the magnitude of effect using the matrix (Table 3).

3.2.2 Assessment of Ecological Values

The first step of the EcIA guidelines approach requires ecological values of each feature to be assigned on the scale given in Table 1. Species were assigned a value according to their conservation status; those 'At Risk' or 'Threatened' were valued at a higher level than those classified as 'Not Threatened'. Threat classifications have been sourced as follows: birds (Robertson et al., 2017); fish (Dunn et al. 2018), bats (O'Donnell et al. 2018), and plants (de Lange et al., 2018).

Horizons Regional Council One Plan identifies Schedule F habitats of Indigenous biological diversity, that are rare, threatened or at-risk habitats, this has also been taken into account.

Table 1 Assignment of values within the site to vegetation, habitats and species (adapted from Roper-Lindsay et al, 2018)

VALUE	SPECIES VALUE REQUIREMENTS	VEGETATION/HABITAT VALUE REQUIREMENTS
Very High	Nationally 'Threatened' species occur or expected to occur within the Project footprint on a permanent or seasonal basis.	Meets the majority or all of the ecological criteria outlined in Regional Policy Statement for the Manawatu-Whanganui region (Policy 6).

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High	Nationally 'At Risk - Declining' species occur or expected to occur on a permanent or seasonal basis.	Meets some of the ecological criteria outlined in the Regional Policy Statement for the Manawatu-Whanganui region (Policy 6).
Moderate	Species listed in any other category of 'At Risk' occur or are expected to occur in the project area on a permanent or seasonal basis, this includes locally uncommon or distinctive species.	Habitat does not meet the ecological criteria outlined in the Regional Policy Statement for the Manawatu-Whanganui region (Policy 6) but does provide locally important ecosystem services (e.g. erosion and sediment control, and landscape connectivity).
Low	No species present that are Nationally Threatened, At Risk, locally uncommon or rare, or considered keystone species occur or are expected to occur within the project area seasonally or permanently, including nationally and locally common indigenous species.	Nationally or locally common habitat that does not provide locally important ecosystem services.
Negligible	Exotic species, including pests, and species with recreational values occur or are expected to occur within the project area either permanently or seasonally.	Limited ecological values other than as a local habitat.

3.2.3 Magnitude of Effects

In determining a rating for the magnitude of effects on each ecological value consideration was given to the scale of habitat loss relative to the size of the available resource, duration of the effect, likely effect at population level with respect to individual species and degree to which the Project was likely to impact on the sustainability of the ecosystem and associated species. The magnitude of the effects are described in Table 2. In considering the magnitude of effect, the timescale of potential effects must be considered, whether effects are permanent, long-term, or temporary.

The magnitude of an effect is determined based on best practise in terms of minimising effects and post construction restoration.

Table 2 Criteria for describing the magnitude of effects (Roper-Lindsay et al, 2018)

MAGNITUDE	DESCRIPTION
Very high	Total loss of, or very major alteration to, key elements/features of the existing baseline conditions, such that the post-development character, composition and/or attributes will be fundamentally change and may be lost from the site altogether; AND/OR Loss of a very high proportion of the known population or range of the element/feature.
High	Major loss or major alteration to key elements/features of the existing baseline conditions such that the post-development character, composition and/or attributes will be fundamentally changed; AND/OR Loss of a high proportion of the known population or range of the element/feature.
Moderate	Loss or alteration to key elements/features of the existing baseline conditions such that the post-development character, composition and/or attributes will be partially changed; AND/OR Loss of a moderate proportion of the known population or range of the element/feature.
Low	Minor shift away from existing baseline conditions. Change arising from the loss/alteration will be discernible, but underlying character, composition and/or attributes of the existing baseline condition will be similar to pre-development circumstances or patterns; AND/OR Having a minor effect on the known population or range of the element/feature.
Negligible	Very slight change from the existing baseline condition. Change barely distinguishable, approximating to the 'no change' situation; AND/OR Having negligible effect on the known population.

3.2.4 Overall Level of Effects

The last step in the effects assessment process was to determine the overall level of effect using the EIANZ matrix (Roper-Lindsay et al, 2018)

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Table 3 Criteria for describing the level of effects (Roper-Lindsay et al, 2018).

MAGNITUDE	ECOLOGICAL VALUE				
	Very High	High	Moderate	Low	Negligible
Very High	Very High	Very High	High	Moderate	Low
High	Very High	Very High	Moderate	Low	Very Low
Moderate	High	High	Moderate	Low	Very Low
Low	Moderate	Low	Low	Very Low	Very Low
Negligible	Low	Very Low	Very Low	Very Low	Very Low
Positive	Net Gain	Net Gain	Net Gain	Net Gain	Net Gain

The level of effect or risk posed on ecological values ranges from very high/high to low/very low. Moderate level effects or greater, typically require measures to avoid, remedy or mitigate effects, while Low to Very low effects are not normally of concern, although care may be required to minimise effects through design, construction and operation.

4 Ecological description

4.1 Vegetation

During the site visit, the vegetation present was assessed within each zone of the proposed plan change. Generally, the four areas (Figure 1 & 2) were dominated by common native and exotic species, with many of the areas consisting of amenity garden species.

The larger areas of naturally regenerating vegetation were noted in areas 2-4. The majority of the areas surveyed are mown and not grazed and are generally of low ecological value. Each area is described in Table 4 (below) and the species list for each area can be found in Appendix A. Photos of each of the vegetation types in each of these zones are shown in Figure 3.

Table 4: Vegetation types of each area to be rezoned. Full species list can be found in Appendix A.

AREA	DESCRIPTION
1	Existing land is currently occupied by a golf course. The vegetation generally consists of manicured grassland and amenity/shade trees (mainly exotic species).
2	Existing land is currently occupied by lifestyle sections. Vegetation is dominated by exotic grass and pest plant species.
3	Existing land is currently occupied by lifestyle sections. Vegetation is dominated by exotic grass and pest plant species.
4	Existing land is dominated by grassed lifestyle blocks. Vegetation consists of some native regenerating species and amenity plantings. A pohutukawa tree was noted within this zone, this is a species identified as Threatened - Nationally vulnerable (however it was likely planted, and its associated threat status is due to the risk of decline with Myrtle rust).

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A

B

C

D

E

F

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Figure 3: Representative photos of each zone. Zone 1 (A& B), Zone 2 (C&D), Zone 3 (E&F) Zone 4 (G&H).

4.2 Fauna

The bird fauna are common species typical of a modified landscape in a residential/semi-rural/coastal setting. The birds noted during the site visit are listed in Table 5 below:

Table 5: Bird species observed during the site visit and associated conservation ratings (Robertson et al. 2017).

Scientific Name	Common Name	Conservation Status
Alauda arvensis Linnaeus	Eurasian Skylark	Introduced
Circus approximans	Australasian Harrier	Not Threatened
Coturnix ypsilophora	Brown quail	Introduced
Passer domesticus	House sparrow	Introduced
Phasianus colchicus Linnaeus	Common pheasant	Introduced
Prosthemadera novaeseelandiae	Tui	Not Threatened
Turdus merula Linnaeus	Eurasian blackbird	Introduced
Turdus philomelos Brehm	Song Thrush	Introduced
Rhipidura fuliginosa	New Zealand Fantail	Not Threatened
Zosterops lateralis	Silvereye	Not Threatened

The area is likely to provide habitat for other common native species not observed during the survey. It is possible that Castlecliff as a whole supports At Risk or Threatened bird species, an extensive bird survey looking for these species was not conducted at this time. There are no site-specific records found on eBird for the site. The closest records are those of the Whanganui River Estuary (table 6). It is possible that some of these birds may be found within the Castlecliff area. The estuary is approximately 3km south east of the site.

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Table 6 Birds identified on eBird[1] for the Whanganui River Estuary and their conservation status:

Latin Name	Common Name	Status
Acridotheres tristis	Common myna	Introduced
Alauda arvensis	Eurasian Skylark	Introduced
Anas platyrhynchos	Mallard	Introduced
Carduelis chloris	European greenfinch	Introduced
Emberiza citronella	Yellowhammer	Introduced
Haematopus finschi	South Island Oystercatcher	Declining
Haematopus unicolor	Variable Oystercatcher	Recovering
Himantopus himantopus	Pied Stilt	Not Threatened
Hirundo neoxena	Welcome Swallow	Not Threatened
Hydroprogne caspia	Caspian Tern	Nationally Vulnerable
Larus dominicanus	Southern Black Backed Gull	Not Threatened
Larus novaehollandiae	Red Billed Gull	Declining
Limosa lapponica	Bar-tailed godwit	Declining
Passer domesticus	House Sparrow	Introduced
Phalacrocorax sulcirostris	Little Black Cormorant	Naturally Uncommon
Platalea regia	Royal Spoonbill	Naturally Uncommon
Prosthemadera novaeseelandiae	Tui	Not Threatened
Sterna striata	White Fronted Tern	Declining
Sturnus vulgaris	Starling	Introduced
Vanellus miles	Spur-winged Plover	Not Threatened
Zosterops lateralis	Silver-eye	Not Threatened

Both possums and ferrets are known pests in the area. As the area contains residential dwellings cats are also present in high numbers.

No bat records were recorded in close proximity to the site during desktop assessments. The closest records from the Department of Conservation bioweb bat database were long tailed bats (*Chalinolobus tuberculatus*) observed approximately 21km north-west of the site. There is potential that the large trees in the golf course may provide roost trees for long tailed bats,

[1] eBird. 2019. eBird: An online database of bird distribution and abundance. eBird, Whanganui District, New Zealand. Available https://ebird.org/hotspot/L2604460?yr=all&m=&rank=mrec (Accessed January, 9 2020).

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however, only a few of these will be felled to allow for residential development. Due to proximity the coast and connectivity to other areas, bats are not expected to be present in these areas.

No lizard survey took place. A search of the Department of Conservation herpetofauna bioweb database found several records within 5km of the site within the last 20 years. This included the native grass skink (*Oligosoma polychroma*), and kupe skink (*Oligosoma aff. infrapunctatum*) 'southern north island', as well as the introduced plague skink (*Lampropholis delicata*). Grass skink and kupe skink can occupy a variety of habitats including duneland, grassland, and scrubland (van Winkel et al., 2018) which is found within the rezoning footprint. Grass skinks have a conservation status of 'Not Threatened' and kupe skink 'Threatened – Nationally Vulnerable' (Hitchmough et al. 2017). The introduced plague skink is classed as an "Unwanted Organism" by the Ministry of Primary Industries (MPI) (Biosecurity Act, 1993) and therefore this species is not considered further in this assessment.

Most of these lizard records are over 20 years old and the areas have undergone extensive modification during this time. A lizard survey would confirm the current presence of lizards within this site and allow the effects of lizards to be assessed for the rezoning.

5 Assessment of ecological values

The 4 zones assessed contain areas of common native and exotic vegetation as well as areas of amenity/garden plantings, a single pohutukawa tree was noted within zone 4, this is identified as nationally vulnerable. However, this tree was identified on private property (was likely planted) and is unlikely to be cleared, should the landowner want to subdivide.

The habitat of the 4 zones provides suitable roosting, shelter and nesting sites for birds found in the area.

The vegetation composition found in these areas is similar to that of the surrounding areas and likely provides connectivity for the birds who live in the area (including Karaka Wetland). The ecological value of the 4 zones to be rezoned has been described in Table 7 (below).

5.1 Ecological value

Table 7: Assignment of value to habitat.

Vegetation/Habitat/Species	Value	Comments
Vegetation	Low	The areas of vegetation within the proposed rezoning areas are comprised of common native species, and the areas were not noted to contain any At Risk to Threatened species. Therefore, the value of these areas as habitat has been described as low. A pohutukawa tree was noted within zone 4, this is a nationally vulnerable species. However, this tree was identified on private property (likely planted) and is unlikely to be cleared, should the landowner want to subdivide.
Fauna	Low	No At Risk or Threatened species of bird were noted to be present within the 4 zones. It is unlikely that the site supports any At Risk or Threatened species with any regularity. However, it is worth noting that this site may still provide habitat for a range of common species. It is also unlikely that the areas to be rezoned support large populations of bats.

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		A lizard survey was not conducted however there is potential that lizards may be present within this site.

6 Assessment of ecological effects

The main ecological effects from the proposed rezoning of the four zones of land are considered to be:

- Loss of vegetation and habitat for fauna
- Disturbance to fauna

6.1 Loss of vegetation and habitat for fauna

The total area of land to be rezoned is approximately 30ha. This will require clearing the existing vegetation in order to provide for residential development. The zone change will be from rural lifestyle to residential, which will eventually result in higher density housing.

The current land use consists of rural lifestyle properties with low density grazing and a portion of a golf course. The general area is of low ecological value as the vegetation that will be removed is predominantly exotic pasture species, and native vegetation species that will be lost by the proposal are all common and found throughout New Zealand and the wider area.

The loss of this area of vegetation will also result in the loss of areas of suitable habitat for birds to nest and shelter in. Birds will be displaced whilst the vegetation is being cleared, however following development residential planting and street trees will provide some suitable habitat for birds to shelter and nest in.

There is potential that native lizards may be present within the site, a lizard survey would confirm the current presence of lizards within the site and allow the effects of lizards to be assessed for the rezoning of land.

6.2 Disturbance to fauna

Under certain circumstances substantial noise increases from earthworks and construction activities may reduce the likelihood of birds finding mates and maintaining territory. In this case, the period of increased noise will be limited to the construction period for development of the rezoned land.

Birds may be displaced temporarily whilst earthworks/construction is occurring, however these works are expected to be of relatively short duration. Following the residential development of the area, they will likely return to the area.

It is recommended that vegetation removal occurs outside of bird nesting season (September to January inclusive) and that the duration of works is as short as possible to minimise any potential adverse effects.

An acoustic bat survey should be undertaken and/or bat tree clearance protocols should be implemented in areas where large trees are proposed to be removed. This will confirm the presence or absence of bats at this site and avoid risk of felling trees occupied by bats

6.3 Magnitude of effects summary

Table 8 summarises the magnitude of effects on the key ecological features of the site and assigns a magnitude of effects rating to effects on habitat, construction processes, and the aquatic environment.

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Table 8: Magnitude of effects on the key ecological features of the site.

Vegetation/Habitat/Species	Magnitude	Comment
Vegetation	Low	The proposed rezoning of approximately 30ha of land in Castlecliff will impact on an area of generally low value vegetation. The area is dominated by common native and exotic plant species.
Fauna	Low	Birds within the area may be displaced during the construction of the proposed residential area or killed during vegetation clearance. However, the vegetation clearance works will be of short duration and once complete will not cause significant adverse effects to birds in the surrounding area. It is unlikely that bats will be affected by the proposal, however an acoustic bat survey can confirm their presence or absence within the area to be rezoned. There is potential that lizards will be affected by the proposal, however a survey is required to determine their current presence in the area.

7 Effects minimisation/recommendations

A summary of the recommended measures proposed to minimise the effects of the project are given below. These measures address disturbance to wildlife during the vegetation clearance and construction period, and measures to reduce mortality of birds and bats

- Consideration should be given to construction works occurring outside of the main bird nesting season which is September-January inclusive.
- An acoustic bat survey should be undertaken and/or bat tree clearance protocols should be implemented in areas where large trees are proposed to be removed. This will confirm the presence or absence of bats at this site and avoid risk of felling trees occupied by bats.
- Any areas of exposed earth (as a result of construction) will be revegetated to minimise sediment loss to receiving environments.
- Preparation and implementation of an erosion and sediment control plan should be a condition of consent. This should take into account best practice and principles set out in the Horizons Regional Council One Plan.
- It is recommended that following development of the area, the street trees to be planted should be appropriately chosen native species, to improve the general biodiversity of the area and provide appropriate habitat for local birdlife.
- No lizard habitat assessments or lizard surveys took place during the site visit. Consideration should be given to completing a habitat assessment and/or lizard survey to confirm the presence of absence of lizards at the site as they potentially may utilise vegetation and habitats within the sites. The existing records for lizards in this site are over 20 years old and the areas have undergone extensive modification during this time. A lizard survey would confirm the current presence of lizards within this site and allow the effects of lizards to be assessed for the rezoning.

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8 Overall level of effects rating

Table 9 provides an overall level of effects rating based on the EIANZ matrix shown in Table 3. Ecological values have been taken from Table 7 and the magnitude of effects from Table 8. This assumes that the effects minimisation measures above are implemented.

Table 9: Overall level of effects rating based on the EIANZ matrix.

Vegetation/Habitat/Species	Ecological value	Magnitude of effect	Level of effect
Flora	Low	Low	Very Low
Fauna	Low	Low	Very Low

The overall effects rating for the key ecological attributes and features impacted by the project ranges from very low to low, this reflects the ecological values of these areas and impact of the proposal.

9 Conclusion

Whanganui District Council have developed a scoping report and draft plan change which proposes rezoning land in Castlecliff from rural lifestyle to residential. The proposed rezoning will comprise of approximately 115 lots. This will result in vegetation clearance to provide for the proposed development.

This report looks into the effects of the vegetation clearance as a result of the above proposal. The proposal will result in a number of potential ecological effects. These impacts include loss of vegetation and habitat for fauna, and wildlife disturbance.

The overall effects rating for the key ecological attributes and features impacted by the project ranges from very low to low, this reflects the ecological values of these areas and the environmental impacts of the proposal.

The area proposed for rezoning, is of low ecological value. It does not meet the criteria to be a schedule F habitat under the Horizons Regional Council One Plan. A number of assumptions and recommendations have been made to minimise any potential adverse effects of the proposal. Assuming implementation of these measures including commissioning of a bat and lizard survey, it is considered that these effects can be managed.

Any effects in the known populations/range of plant and animal species found in these sites will likely be minor. A lizard survey would confirm the current presence of lizards within this site and allow the effects of lizards to be assessed for the rezoning.

There is also potential to increase the biodiversity of the area by developing council owned/maintained reserve areas within the rezoned areas, planted with the aim of increasing biodiversity in Castlecliff. Planted street trees could also be suitable natives, thus maintaining some suitable bird habitat. These areas could be used recreationally whilst still providing suitable habitat for wildlife in the surrounding area.

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10 References

Dunn, N. R., Allibone, R.M., Closs, G.P. Crow, S.K., David, B.O., Goodman, J.M., Griffiths, M., Jack, D.C., Ling, N., Waters, J..M., Rolfe, J.R., (2018) 'Conservation status of New Zealand freshwater fishes, 2017', New Zealand Threat Classification Series 24, Department of Conservation, Wellington.

de Lange, P.J., Rolfe, J.R; Barkla, J.W; Courtney, S.P; J.W; Champion, P.D; Perrie, L.R; Beadel, S.M; Ford, K.A., Breitwieser, I; Schönberger, I; Hindmarsh-Walls, I.R; Heenan, P.B; Ladley, K. (2018). Conservation status of New Zealand indigenous vascular plants. 2017. New Zealand Threat Classification Series 22, Department of Conservation.

Hitchmough, R., Barr, B., Lettink, M., Monks, J., Reardon, J., Tocher, M., van Winkel, D. and Rolfe, J; (2016). Conservation status of New Zealand reptiles, 2015. New Zealand Threat Classification Series 17, Department of Conservation, Wellington, New Zealand.

O'Donnell, C.F.J.; Borkin, K.M.; Christie, J.E.; Lloyd, B.; Parsons, S.; Hitchmough, R.A. (2018). Conservation status of New Zealand bats, 2017. New Zealand Threat Classification Series 21, Department of Conservation, Wellington, New Zealand.

Robertson., H, Baird., K, Dowding., J, Elliot., G, Hitchmough, R., Miskelly., C, McArthur., N, O'Donnell., C, Sager., P, Scofield., P, Taylor., G; (2017). Conservation status of New Zealand birds, 2016. New Zealand Threat Classification Series 19, Department of Conservation, Wellington, New Zealand.

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 edition.

Van Winkel, D., Baling, M., & Hitchmough, R. (2018). Reptiles and Amphibians of New Zealand: A Field Guide. Auckland University Press.

WSP Opus (2019). Assessment for Ecological Effects, Stormwater discharge points, Castlecliff Whanganui. Prepared for Whanganui District Council in August 2019.

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Appendix A

Flora species list

Habitat Area	Common Name	Scientific Name	Threat Status
Area 1	Broadleaf	*Griselinia littoralis*	Not Threatened
	Karo	*Pittosporum crassifolium*	Not Threatened
	Lupin	*Lupinus sp.*	Exotic
	Macrocarpa	*Cupressus macrocarpa*	Exotic
	Manicured grass	*Lolium sp.*	Exotic
	Norfolk Island pine	*Araucaria heterophylla*	Exotic
	Palm tree	*Howea belmoreana*	Exotic
	Pines	*Pinus radiata*	Exotic
	Pohuehue	*Muehlenbeckia sp.*	Not Threatened
	White poplar	*Populus sp.*	Exotic
	Wiwi	*Ficinia nodosa*	Not Threatened
	Eucalyptus	*Eucalyptus sp*	Exotic

Habitat Area	Common Name	Scientific Name	Threat Status
Area 2	Blackwood	*Acacia melanoxylon*	Exotic
	Blackberry	*Rubus fruticosus agg.*	Exotic
	Boxthorn	*Lycium ferocissimum*	Exotic
	Bracken	*Pteridium esculentum*	Not Threatened
	Fennel	*Foeniculum vulgare*	Exotic
	Grass	*Lolium sp.*	Exotic
	Ivy	*Convolvulus*	Exotic
	Lupin	*Lupinus sp.*	Exotic
	Pohuehue	*Muehlenbeckia sp.*	Not Threatened
	Sweat pea	*Polygala myrtifolia*	Exotic
	Wandering Jew	*Tradescantia fluminensis*	Exotic

Habitat Area	Common Name	Scientific Name	Threat Status
Area 3	Blackwood	*Acacia melanoxylon*	Exotic
	Agapanthus	*Agapanthus praecox subsp. Orientalis*	Exotic
	Bamboo	*Bambusa glaucescens*	Exotic
	Banksia	*Banksia integrifolia*	Exotic
	Boxthorn	*Lycium ferocissimum*	Exotic
	Bracken	*Pteridium esculentum*	Not Threatened
	Cabbage tree	*Cordyline australis*	Not Threatened
	Coastal daisy	*Olearia solandri*	Not Threatened
	Fennel	*Foeniculum vulgare*	Exotic
	Flax	*Phormium tenax*	Not Threatened
	Grass	*Lolium sp.*	Exotic
	Hebe	*Veronica stricta*	Not Threatened
	Hydrangea	*Hydrangea macrophylla*	Exotic
	Karo	*Pittosporum crassifolium*	Not Threatened
	Lupin	*Lupinus sp.*	Exotic
	Macrocarpa	*Cupressus macrocarpa*	Exotic
	Nightshade	*Solanum sp.*	Exotic
	Pampas	*Cortaderia selloana*	Exotic
	Pines	*Pinus radiata*	Exotic
	Pohuehue	*Muehlenbeckia sp.*	Not Threatened
	Ragwort	*Jacobaea aquatica*	Exotic
	Kanono	*Coprosma grandifolia*	Not Threatened
	Shore bindweed	*Calystegia soldanella*	Not Threatened

Habitat Area	Common Name	Scientific Name	Threat Status
Area 4	Blackwood	*Acacia melanoxylon*	Exotic
	Agapanthus	*Agapanthus praecox subsp. Orientalis*	Exotic
	Bamboo	*Bambusa glaucescens*	Exotic
	Blackberry	*Rubus fruticosus*	Exotic
	Bottlebrush	*Melaleuca citrina*	Exotic
	Boxthorn	*Lycium ferocissimum*	Exotic
	Bracken	*Pteridium esculentum*	Not Threatened
	Broadleaf	*Griselinia littoralis*	Not Threatened
	Cabbage tree	*Cordyline australis*	Not Threatened
	Coastal tree daisy	*Olearia solandri*	Not Threatened
	Kanono	*Coprosma grandifolia*	Not Threatened
	Thin leaved coprosma	*Coprosma areolata*	Not Threatened
	Cutty grass	*Carex sp.*	Not Threatened

	Dandelion	*Taraxacum officinale*	Exotic
	Edible orange	*Citrus sinensis*	Exotic
	Fennel	*Foeniculum vulgare*	Exotic
	Fig	*Ficus carica*	Exotic
	Fivefinger	*Pseudopanax arboreus*	Not Threatened
	Flax	*Phormium tenax*	Not Threatened
	Grass	*Lolium sp.*	Exotic
	Gum	*Eucalyptus sp.*	Exotic
	Hebe	*Veronica stricta*	Not Threatened
	Hydrangea	*Hydrangea macrophlla*	Exotic
	Ivy	*Delairea odorata*	Exotic
	Karaka	*Corynocarpus laevigatus*	Not Threatened
	Karo	*Pittosporum crassifolium*	Not Threatened
	Kowhai	*Sophora microphylla*	Not Threatened
	Lavender	*Lavandula stoechas*	Exotic
	Lemonwood	*Pittosporum eugenioides*	Not Threatened
	Lupin	*Lupinus sp.*	Exotic
	Macrocarpa	*Cupressus macrocarpa*	Exotic
	Ngaio	*Myoporum laetum*	Not Threatened
	Nightshade	*Solanum sp.*	Exotic.
	Norfolk Island pine	*Araucaria heterophylla*	Exotic
	Onion weed	*Allium triquetrum*	Exotic
	Pine	*Pinus radiata*	Exotic
	Kohukohu	*Pittosporum tenuifolium*	Not Threatened
	Pohuehue	*Muehlenbeckia sp.*	Not Threatened
	Pohutukawa	*Metrosideros excelsa*	Threatened Nationally Vulnerable
	Puka	*Griselinia lucida*	Not Threatened
	Ragwort	*Jacobaea aquatica*	Exotic
	Red Matipo	*Myrsine australis*	Not threatened
	Rhubarb	*Gunnera manicata*	Exotic
	Knobby clubrush	*Ficinia nodosa*	Not Threatened
	Rosemary	*Salvia rosmarinus*	Exotic
	Shore bindweed	*Calystegia soldanella*	Not Threatened
	Sweat pea	*Polygala myrtifolia*	Exotic
	Toetoe	*Austroderia toetoe*	Not Threatened
	Twiggy tree daisy	*Olearia virgata*	Not Threatened
	Wiwi	*Ficinia nodosa*	Not Threatened

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