BEFORE INDEPENDENT HEARING COMMISSIONERS
APPOINTED BY THE HAMILTON CITY COUNCIL

IN THE MATTER	of the Resource Management Act 1991 (**Act**)
AND	
IN THE MATTER	of an application for subdivision and land use consent for the Amberfield development pursuant to the Act.
APPLICANT	Weston Lea Limited
CONSENT AUTHORITY	Hamilton City Council

EVIDENCE-IN-CHIEF OF ANDREW RUSSELL BLAYNEY FOR WESTON LEA LIMITED

Dated: 12 April 2019

Solicitors on Record

WYNN WILLIAMS LAWYERS
SOLICITOR — LUCY DE LATOUR

PO Box 4341, Christchurch 8140
P 03 379 7622 F 03 379 2467 E lucy.delatour@wynnwilliams.co.nz

Counsel

R A MAKGILL
BARRISTER

PO Box 77-037, Mt Albert, Auckland 1350
P 09 815 6750 E robert@robertmakgill.com

SUMMARY OF EVIDENCE

1. My name is Andrew Russell Blayney and I am a terrestrial ecologist with Boffa Miskell Limited. I am providing evidence in relation terrestrial vegetation, herpetofauna (lizards), and avifauna (birds). I summarise my evidence, according to the key headings in this statement, as follows:

Assessment methodology *(Page 7)*

(a) I used desktop analyses and site investigations to complete the terrestrial ecological assessment for vegetation, herpetofauna, and avifauna. I followed the Ecological Impact Assessment guidelines EIANZ (2015) to determine the level of effects on terrestrial ecological values. I have provided an updated assessment in this statement of evidence to align with updated guidance from EIANZ (2018).

Ecological context of proposed development site *(Page 7)*

(b) The development area contains two previously identified SNA and is located on the western bank of the Waikato River. Several other additional identified SNAs are located on the eastern bank of the Waikato River opposite the proposed development site.

Existing terrestrial ecological features *(Page 10)*

(c) The site contains some areas of high value vegetation on the Waikato River bank with the rest of the vegetation having low or negligible value. There are low herpetofauna ecological values on site. The avifauna habitat along the Waikato River has medium to high ecological value, while the rest of the site is of low value for avifauna.

Assessment of ecological impacts *(Page 14)*

(d) Most native vegetation, and habitats of ecological value for herpetofauna and avifauna, occur along the Waikato River and the proposed development avoids most of these areas. As such, the potential level of effect on vegetation, herpetofauna, and avifauna ecological values is low.

Recommendations / proposed mitigation *(Page 16)*

(e) I have recommended opportunities for increasing ecological value within the proposed development site including planting areas of native vegetation and the long-term management of vegetation to protect existing ecological values. I have also recommended ways to manage direct and indirect effects on native fauna which may be present.

Issues raised in Submissions *(Page 19)*

(f) I provide response to submissions related to the scope of my evidence and explain the assessment and management recommendations related to these submissions.

Section 42A Report *(Page 21)*

(g) I provide response to the Section 42A Council report, with which I am in general agreement. However, I recommend changes to several conditions proposed by Council.

Conclusion *(Page 23)*

(h) Ecological values for vegetation, herpetofauna, and avifauna vary across the site and in general the highest value habitat and vegetation occurs on the Waikato River banks. The development largely avoids these areas. I am therefore of the view that the potential level of effects on vegetation, herpetofauna, and avifauna ecological values is low. I have provided recommendations to further mitigate potential effects and further improve ecological values on site.

INTRODUCTION

2. My name is Andrew Russell Blayney.

Qualifications and experience

3. I am a senior terrestrial ecologist at Boffa Miskell Limited (**Boffa Miskell**), in Hamilton. I have held this role since January 2017. Prior to that date I was employed by the Bay of Plenty Regional Council as Subject Matter Expert – Integrated Catchments (February 2016 to December 2016) and Land Management Officer (June 2012 – February 2016). I hold the qualifications of Master of Science – Zoology (1st class Honours), Massey University (2013) and Bachelor of Science - Ecology & Zoology, Massey University (2010).

4. I have listed a selection of projects I have worked on to highlight my experience which is relevant to the evidence I shall give:

   (a) Ruakura Inland Port and Logistics Area (**RIPLA**), Hamilton (2017 to present). I am the lead project ecologist in the design and implementation of the RIPLA and associated supporting infrastructure. This includes the assessment and management of fauna, providing ecological input into the development and design of wetlands and lizard habitat for mitigation, and providing technical advice on ecological constraints and opportunities associated with the project.

   (b) SH12 Matakohe Bridges Project, Matakohe (2017). I assessed the terrestrial ecological values over a new 2.75 km section of highway. The ecological assessment included native vegetation patches, potential native lizard habitat, and wetlands and addressed the potential effects from the proposed highway. I also contributed to an environmental management plan to detail how the effects on these aspects of terrestrial ecology were to be addressed.

   (c) Rangitahi Peninsula Precinct B Development, Raglan (2018). I assessed the terrestrial vegetation and herpetofauna values within Precinct B of the Rangitahi Peninsular development. The ecological assessment included native vegetation patches, potential native lizard habitat, and wetlands and addressed the potential effects from the proposed development. I also contributed to an environmental

management plan to detail how the effects on these aspects of terrestrial ecology were to be addressed.

Involvement in the proposed development

I have been retained by Weston Lea Limited to prepare a statement of evidence on its application for land use and subdivision consent from the Hamilton City Council for the Amberfield development (**proposed development**).

5. My role in the proposed development has been to assess the ecological values of the terrestrial vegetation, herpetofauna (lizards), and avifauna (birds) present on site, and the potential effects of the proposed subdivision on those ecological values. In addition, I have provided recommendations to mitigate potential adverse effects. Accordingly, my evidence addresses the ecological assessment in relation to terrestrial vegetation, herpetofauna, and avifauna. My evidence does not include any assessment of habitat values and potential effects on long-tailed bats. Bat ecology is addressed in the evidence of Georgia Cummings and Dr Stuart Parsons.

6. I am familiar with the application site and surrounding environment, having visited the site on at least 10 occasions in the period between October 2017 and October 2018. These site visits were undertaken to assess and discuss terrestrial ecological values within the scope of my evidence, and to assist with the onsite assessment of ecological values associated with long-tailed bats (*Chalinolobus tuberculatus*) and freshwater habitat.

7. In preparing this evidence I have read the following documents:

   (a) Statement of evidence prepared by Ms Georgia Cummings;

   (b) Statement of evidence prepared by Dr Stuart Parsons;

   (c) Statement of evidence prepared by Ms Rachel de Lambert;

   (d) Statement of evidence prepared by Mr Kieran Miller; and

   (e) Statement of evidence prepared by Mr Dave Serjeant.

   (f) Submissions related to the scope of this evidence.

(g) Council officer's s 42A report and associated statement of evidence prepared by Mr Kessels.

CODE OF CONDUCT

8. I have read the Environment Court Code of Conduct for expert witnesses and agree to comply with it.

9. I confirm that the topics and opinions addressed in this statement are within my area of expertise except where I state that I have relied on the evidence of other persons. I have not omitted to consider materials or facts known to me that might alter or detract from the opinions I have expressed.

ASSESSMENT METHODOLOGY

10. I undertook literature research and desktop analyses of existing plans and databases[1] and carried out site investigations to complete my ecological assessment.

11. I carried out site investigations in October 2017. These included terrestrial vegetation surveys and classification into vegetation types, qualitative assessment of habitat values for native herpetofauna, casual visual and call observations of avifauna, and five-minute bird counts. The detailed methodology of my assessments is provided in the terrestrial ecological effects assessment (**TEEA**).

12. The TEEA followed the Environmental Institute of Australia and New Zealand (**EIANZ**) Ecological Impact Assessment Guidelines (Environment Institute of Australia and New Zealand 2015) and involved assessing the magnitude of the proposed development's potential adverse effects combined with the site's ecological values to determine the level of effect. The Ecological Impact Assessment Guidelines have been updated since the initial assessment was completed.[2] Within this statement of evidence, I have reviewed and followed these updated guidelines and provided an assessed level of effect consistent with the updated guidelines. In some areas this has resulted in minor changes to my assessment of the ecological values and level of effects recorded in the TEEA.

13. For the "magnitude of effects" assessment I have assumed total loss of vegetation within the earthworks extent of the proposed development. I consider that this represents a worst-case scenario for assessing impacts within the proposed development area.

ECOLOGICAL CONTEXT OF PROPOSED DEVELOPMENT SITE

14. The proposed development site is situated in the Hamilton Ecological District on a low terrace on the western bank of the Waikato River. It is within a typical

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1 A full list of sources and databases queried is provided in the TEEA.

2 Roper-Lindsay, J., S. A. Fuller, S. Hooson, M. D. Sanders, and G. T. Ussher. 2018. Ecological Impact Assessment (EcIA). EIANZ Guidelines for Use in New Zealand: Terrestrial and Freshwater Ecosystems. 2nd ed. Melbourne: EIANZ.

Hamilton City landscape of river terraces, river banks, and steeply incised gullies. The Mangakotukutuku gully occurs to the west of this site and the Mangaonua gully is located to the east on the opposite side of the Waikato River.

15. Historic clearance for farming has removed almost all original indigenous vegetation with indigenous vegetation only occurring on the banks of the Waikato River and in small discrete patches and plantings beyond the riverbank. Consistent with this history is the area's category 1 (<10% indigenous cover remaining) classification under the Land Environments New Zealand Threatened Environment Classification[3]. This means any remaining indigenous vegetation is high priority for protection due to its rarity.

16. Within the site, along the Waikato River bank, two areas have been identified as significant natural areas (**SNA**) under the Hamilton District Plan[4] (see **Figure 1** below):

    (a) SNA 54 Riverside Kānuka, Peacocke: a 3.3ha kānuka/mahoe-privet forest that runs 1.2km along the Waikato River. This SNA is described as having moderate ecological value (ecological rank 3) and runs along Waikato River on the western edge of the site.[5]

    (b) SNA 48 Riverside Kānuka, Peacocke: a 2.4ha kānuka-privet-mamaku forest described as having high ecological value (ecological rank 2).[6] A small section (approximately 0.18 ha) of this SNA is included within the proposed development site in the north-western corner.

17. The previously identified SNA boundaries in general align with vegetation onsite. However, in SNA 54 there are areas of privet-alder dominated

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3 Landcare Research Ltd. 2012. "Land Environments of New Zealand (LENZ)." Landcare Research. 2012. http://www.landcareresearch.co.nz/resources/maps-satellites/lenz.

4 Cornes, T. S., R. E. Thomson, and B. D. Clarkson. 2012. "Key Ecological Sites of Hamilton City: Volume I and Volume II" CBER Contract Report 121. Hamilton: Centre for Biodiversity and Ecology Research for Hamilton City Council.

Hamilton City Council Operative District Plan. 2017. Hamilton City Council.

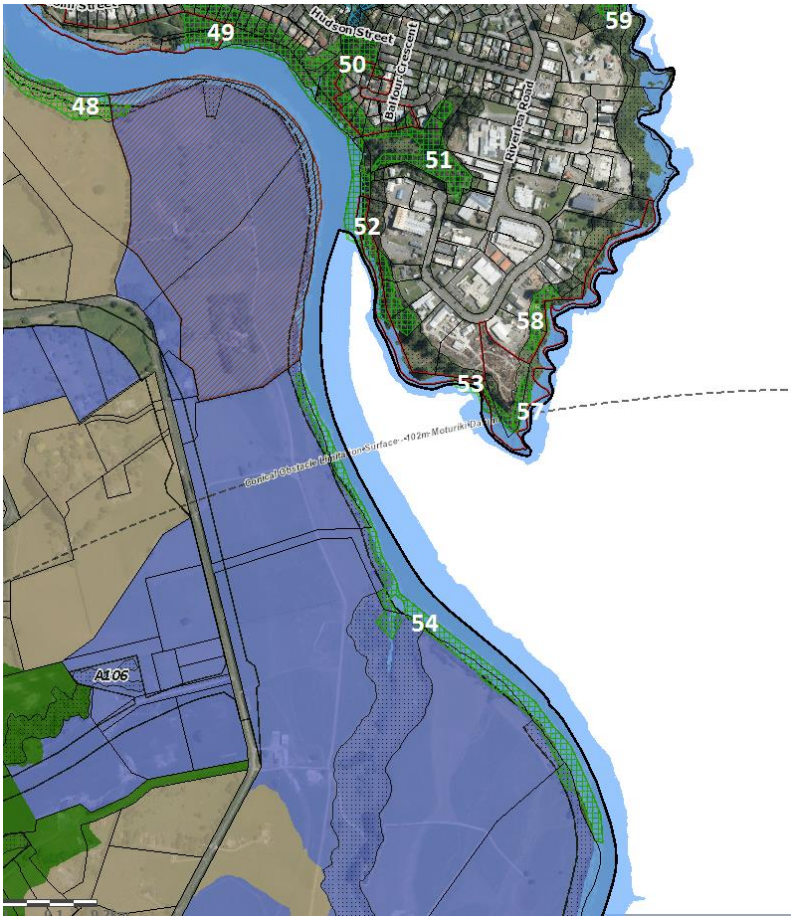
5 Site number; 16.13 in Cornes, T. S., R. E. Thomson, and B. D. Clarkson. 2012. "Key Ecological Sites of Hamilton City: Volume I and Volume II" CBER Contract Report 121. Hamilton: Centre for Biodiversity and Ecology Research for Hamilton City Council.

6 Site number; 16.6 in Cornes, T. S., R. E. Thomson, and B. D. Clarkson. 2012. "Key Ecological Sites of Hamilton City: Volume I and Volume II" CBER Contract Report 121. Hamilton: Centre for Biodiversity and Ecology Research for Hamilton City Council.

vegetation and areas adjacent to the defined area of kanuka dominated vegetation.

18. Within the wider area, several other identified SNAs exist along the Waikato River and in surrounding gullies (see **Figure 1**). Hammond Bush and the associated gully SNAs (Site numbers 49, 50, and 51) are ecologically important. Hammond Bush is ecologically important as remnant indigenous forest (approximately 1 ha) which includes a small population of the threatened - nationally critical swamp maire (*Syzgium maire*). These nearby SNAs and those onsite provide a network of interconnected vegetated areas which link the wider river and gully networks.

Figure 1: *Amberfield site in context. Operative District Plan Map[7] - green hashed areas are SNAs (site numbers in white), as mapped in the Hamilton City Council Operative District Plan.*



EXISTING TERRESTRIAL ECOLOGICAL FEATURES

Vegetation and Flora

19. Within the proposed development site, indigenous dominated vegetation is restricted to the riparian areas of the Waikato River, the minor gully to the south, and three small discrete areas of planted native species. Outside of the gully and riparian areas, exotic pasture grassland dominates the proposed development site, interspersed with predominantly exotic shelterbelts, hedgerows, and residential gardens.

20. The Waikato River riparian margin is vegetated for its entire length within the proposed development site, comprising several vegetation types, variously

[7] Accessed via Hamilton City Council Operative District Plan map portal: <http://gisviewer.hcc.govt.nz/Templates/PropQueryCompare/> on 16/11/2018.

dominated by kānuka, mahoe, and pest plants such as Chinese privet, tree privet, and willows. Pest plant species dominate most of the vegetation types, which contain little sub-canopy vegetation and support few or no native plants to provide a succession to native forest.

21. The vegetation types described above are shown on a map attached to my evidence as **Annexure** "**A**".

22. The TEEA states that no "threatened or at risk" plants were found during site surveys. A subsequent update of the conservation status of New Zealand indigenous vascular plants[8] has revised the threat classifications for species within the Myrtaceae family, several of which are found within the Amberfield site. White rata (*Metrosideros perforata*), pōhutukawa (*Metrosideros excelsa*), and kānuka (*Kunzea robusta*) are now classified as threatened – nationally vulnerable.

23. I note that this threat classification is a precautionary measure based on the potential impact of myrtle rust (*Austropuccinia psidii*) which arrived in mainland New Zealand sometime between April and May 2017. I have updated the assessed ecological values used within this statement of evidence to be consistent with the updated classification of threat status where appropriate.

24. All vegetation of ecological value within the proposed development site occurs within the Waikato River riparian margin, and includes:

    (a) kānuka-mahoe-privet forest in various locations along the Waikato River;

    (b) planted native vegetation at the confluence of the minor gully stream and the Waikato River; and

    (c) mahoe-privet-alder forest at the southern end of the proposed development site.

[8] Lange, P. J. de, J. R. Rolfe, J. W. Barkla, S. P. Courtney, P. D. Champion, L. R. Perrie, S. M. Beadel, et al. 2018. "Conservation Status of New Zealand Indigenous Vascular Plants, 2017." New Zealand Threat Classification Series 22. Wellington: Department of Conservation.

25. I assessed kānuka dominated vegetation (3.37 ha), mahoe dominated vegetation (0.94 ha) and the area of planted native vegetation and kānuka (1.89ha) to be of very-high[9] ecological value. These very-high value areas total 6.2ha and represent approximately 5.12% of the 121.5 ha survey area[10].

26. I assessed 11.28ha of non-pasture vegetation within the site to be of low[11] ecological value for vegetation and flora, as it comprises mainly non-native vegetation and small areas of planted native trees. This represents approximately 9.28% of the survey area. Pasture covers the remainder of the site, interspersed with scattered, isolated trees that I consider that are of negligible ecological value with regard to vegetation.

Herpetofauna

27. A review of the New Zealand Herpetofauna Bioweb database (most recent database retrieval date 13/11/2018) revealed only copper skink (*Oligosoma aeneum*) (Not Threatened),[12] non-native frog species, and the invasive Australian plague skink (*Lampropholis delicata*) records in the nearby area (10 km radius) to the proposed development site.

28. Based on their widespread distribution within the Hamilton area I expect that copper skinks are present onsite. I have assumed that copper skinks are present in my assessment of herpetofauna ecological value.

29. Based on my field observations, the land use history of the site, and the associated extensive modification and disturbance of the vegetation onsite, I regard the occurrence of any lizard species classified as at risk or threatened within the site as highly unlikely.

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9 Changed from high ecological value in the TEEA due to the presence of kānuka (threatened – nationally vulnerable).

10 The survey area goes slightly beyond the proposed development site's boundary to include the riparian vegetation to the Waikato River edge where it occurs directly adjacent to the proposed development's property boundary. This vegetation is ecologically relevant to the assessment and as such this area total differs from the area presented by other witnesses,

11 While planted kānuka is present in small amounts in the planted native areas to the south of the site the areas lack other ecological attributes that would be consistent with a higher assessed ecological value. As such it is my opinion that the assessment provided in the TEEA is still appropriate post kānuka's threat status update for these areas.

12 Hitchmough, R. A., Ben Barr, Marieke Lettink, Jo Monks, James Reardon, Mandy Tocher, Dylan van Winkel, and Jeremy Rolfe. 2016. "Conservation Status of New Zealand Reptiles, 2015." New Zealand Threat Classification Series 17. Wellington: Department of Conservation.

30. I did not undertake a formal lizard survey. Detection rates for New Zealand herpetofauna during surveys are generally poor,[13] and the development footprint is generally limited to highly modified farmland where (in the Hamilton area) habitat is only likely to support the occasional copper skink and more often high numbers of plague skinks. Surveys would only function to confirm the presence of lizards (copper skinks), but not provide useful quantitative information on their numbers and therefore would add no value to an assessment that already assumes their presence.

31. Copper skinks are not threatened (although they are a protected species under the Wildlife Act 1953) and have been found to be relatively widespread, in low numbers, throughout the wider Hamilton area. Therefore, I have assessed the site's overall ecological value for herpetofauna as low.

32. In terms of the relative value of copper skink habitat within the proposed development site, I identified 4.52 ha of high quality habitat[14],12.26 ha of medium quality habitat and 1.87 ha of low quality habitat. The high and medium quality habitats include dense undergrowth, natural and artificial debris, and long rank grass, mainly within vegetation on the Waikato River margin, in the minor gully, and the ornamental gardens in the north of the site. These areas are shown on the map attached to my evidence as **Annexure** "**B**".

Avifauna

33. Avifauna observed within the project site were all common native or exotic species that I would expect to see within the agricultural, peri-urban, and river landscape in the Hamilton area. The findings of my surveys are consistent with records from biennial surveys carried out by Landcare Research in the Hamilton area.[15] The biennial surveys, however, have also found several at risk species not recorded in my site surveys:

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13 Anderson, Peter, Trent Bell, Simon Chapman, and Keith Corbett. 2012. SRARNZ New Zealand Lizards Conservation Toolkit: A Resource of Conservation Management of the Lizards of New Zealand. Society for Research on Amphibians and Reptiles of New Zealand.

14 Quality of habitat for copper skink should not be confused with ecological value. This presents only the habitat value to copper skinks.

15 Fitzgerald, N., and J. Innes. 2013. "Hamilton City Biennial Bird Counts: 2004 – 2012." LC 1484. Landcare Research.

(a) North Island kākā (*Nestor meridionalis septentrionalis*), pied shag (*Phalacrocorax varius varius*) and New Zealand dabchick (*Poliocephalus rufopectus*) which are classified as At risk – Recovering; and

(b) little black shag (*Phalacrocorax sulcirostris*) and black shag (*Phalacrocorax carbo novaehollandiae*) which are classified as At risk – Naturally uncommon.[16]

34. There is no suitable habitat for New Zealand dabchick onsite and this proposed development is not likely to have an effect on this species. North Island kākā are irregular visitors to the Hamilton and surrounding areas but are unlikely to inhabit the area for long periods as they generally arrive for short visits when dispersing during winter. I cannot rule out that North Island kākā might inhabit the proposed development site periodically. However, the proposed development site has no special importance for kākā.

35. The three at risk shag species may use the riparian vegetation of the Waikato River along the eastern boundary of the proposed development site for roosting or nesting, as the habitat is suitable. These shags are widespread species that utilise waterbodies across the region. The site is unlikely to have any special importance for these species, but their potential presence has been considered for ecological value and effects assessment.

36. I have assessed the Waikato River riparian habitats (10.57ha) within the site as having medium-high ecological value and the reminder of the surveyed area (110.93ha) is of low ecological value for avifauna.

ASSESSMENT OF ECOLOGICAL IMPACTS

Vegetation

37. I evaluate the direct effects of the proposed development on vegetation in the following paragraphs.

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[16] Robertson, H. A., Karen Baird, John E. Dowding, Graeme P. Elliott, Rodney A. Hitchmough, Colin M. Miskelly, Nikki McArthur, et al. 2017. "Conservation Status of New Zealand Birds, 2016." New Zealand Threat Classification Series 19. Wellington: Department of Conservation.

38. The proposed development maintains a set-back from both the Waikato River riparian strip and the minor gully to the south and avoids most of the existing native vegetation (**Annexure** "**A**").

39. Based on the indicated development extent, 5.30ha out of 11.28ha (47.0%) of 'low value' vegetation within the site will be removed, which I have assessed as a moderate magnitude of effect. A moderate magnitude of effect in an area of low ecological value represents a low[17] level of effect.

40. Two small, isolated areas of 'very-high value' vegetation are likely to be removed. These two areas are located on the edge of the vegetation mapped as "kanuka – privet – mahoe 4" and "mahoe – privet – alder" in **Annexure "A**". I have assessed this potential loss of 0.019ha out of 6.2ha (0.31%) of 'very high value' vegetation within the survey area as a negligible magnitude of effect. A negligible magnitude of effect in an area of very-high ecological value represents a low[18] level of effect.

Herpetofauna

41. The potential impacts on copper skinks related to the proposed development include direct injury, mortality, and avoidance of disturbed (or nearby) areas due to land clearance, earth works, construction activities, and associated noise. Potential impacts also include permanent loss of habitat through the conversion of farmland to an urban environment.

42. I estimate the potential loss of habitat from within the development footprint as: 1.44 ha out of 1.87 ha (76.7%) of low quality, 3.11 ha out of 12.26 ha (25.4%) of medium quality, and 0.77 ha out of 4.52 ha (17.1%) high quality habitats within the surveyed area.

43. The development footprint avoids most of the medium and high value copper skink habitat available onsite. I have also assessed the potential impact of permanent loss of habitat and associated temporary construction disturbance effects on native herpetofauna as contributing to a potential moderate

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17 Updated from very-low in the TEEA to reflect updated EIANZ guidance.

18 Updated from very-low in the TEEA to reflect updated EIANZ guidance.

magnitude of effect. A moderate magnitude of effect in an area of low ecological value represents a low level of effect.

Avifauna

44. The proposed development is likely to cause only minor disturbance to the bird species present within the site. Most of the effects will occur as a result of the change in habitat from pasture dominated farmland to an urban landscape.

45. Most of the impact areas are low value habitat for avifauna. This includes the grazed pasture and other low value vegetation outside of the riparian corridor. A small amount (0.019 ha out of 10.57 ha or 0.18%) of Waikato River riparian vegetation will be potentially impacted which has been assessed as being of moderate-high ecological value for avifauna.

46. Construction activities and vegetation removal also has the potential to have indirect and direct impacts on native birds present onsite such as: injury, mortality, nest site destruction, nesting failure, increased frequency and duration of nest absence and abandonment of disturbed nests.

47. I have assessed the potential magnitude of impact on avifauna associated with construction impacts and habitat loss as low.

48. A permanent increase in noise, activity, and disturbance will result from the urbanisation of the area and may have an effect on avifauna. However, the species present frequently occur within the urban and greenspace environment throughout Hamilton City. I have assessed the overall magnitude of effect as low.

49. Overall, considering all the potential temporary and permanent effects of the proposed development I consider that the potential level of effect on avifauna is low.

RECOMMENDATIONS / PROPOSED MITIGATION

50. The effects on the ecological values of vegetation, herpetofauna, and avifauna are predominantly avoided or assessed to be of a potential low level of ecological effect. The recommendations and mitigation I outline below

detail the opportunities to enhance the ecological value of the area and mechanisms to manage the direct and indirect impacts on fauna.

Vegetation and its management

51. The proposed vegetation strategy[19] includes a total of 16.64ha. In the long-term will have high vegetation and habitat values. A detailed summary of potential vegetation loss and gain is provided in Table 1.

Table 1: *Summary of vegetation losses and gains for the proposed Amberfield development (excludes areas under pasture, buildings, and associated infrastructure).*

Vegetation type	**Vegetation current state (ha)**	**Vegetation potentially lost (ha)**	**Indigenous dominated vegetation proposed to be planted (ha)**	**Vegetation post development (ha)**
Existing low value	11.28	5.3		5.98
Existing high value	6.2	0.019		6.18
Buffer and amenity planting along Waikato River			7.5	7.5
Gully bank and tree ferns and nikau plantings			6.32	6.32
Riparian vegetation			2.77	2.77
Summary	17.48	5.319	16.59	28.75

52. The planting proposed by the vegetation strategy should be conducted under a detailed planting plan to ensure species appropriate to the area are selected, and to outline the required preparation and maintenance requirements of the plantings. These requirements are detailed within conditions 77 to 81, and for those requirements related to fauna habitat specifically in conditions 71 to 76, in Mr Serjeant's evidence.

53. It is my opinion that the additional planting proposed, and long-term management of vegetation within the proposed development site will deliver

[19] Amberfield open space framework and addressed within Ms de Lambert's evidence. This vegetation strategy has been updated since the TEEA was submitted. As such the following areas and assessments reflect the updated open space framework.

a net benefit for vegetative ecological values within the proposed development site.

Herpetofauna

54. In my opinion, active management such as salvage of copper skinks within this proposed development site would be an ineffective method for managing direct and indirect impacts on copper skink populations. The reasons for this are:

    (a) lizard survey methods currently available have poor detection rates because of typically low population densities, species cryptic colouration, difficulty in surveying preferred habitats and behaviour/activity patterns.[20] As such, salvage activities tend to only capture a small percentage of a population and most individuals are either injured, killed or displaced by construction works regardless of survey and salvage attempts; and

    (b) previous lizard salvage efforts in the wider Hamilton area have consistently resulted in the capture and relocation of few individuals, even with significant effort and resource inputs in attempts to salvage them from impacted habitats.

55. In this context, I recommend that management of copper skinks on this site focuses on creating new habitat and improving existing habitats onsite. This should include plantings and habitat elements which maximise the copper skink's preferred habitat attributes such as: dense vegetation, rotting logs, leaf litter, and any other natural cover that may provide refugia[21]. The proposed plantings and management of these areas discussed above in paragraphs 51 to 53 would provide appropriate additional habitat for copper skinks. The addition of pest animal control could also contribute to the restoration and creation of copper skink habitats. However, pest invasion into the habitat areas due to their high edge to area ratio may limit potential pest suppression.

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20 Anderson, Peter, Trent Bell, Simon Chapman, and Keith Corbett. 2012. SRARNZ New Zealand Lizards Conservation Toolkit: A Resource of Conservation Management of the Lizards of New Zealand. Society for Research on Amphibians and Reptiles of New Zealand.

21 Peace, Joanne E. 2004. "Distribution, Habitat Use, Breeding and Behavioural Ecology of Rainbow Skinks (Lampropholis Delicata) in New Zealand." University of Auckland.

56. In my opinion, the proposed addition of copper skink habitat and retention of most of the medium and high value copper skink habitat, offers a potential net benefit for copper skink populations within the proposed development site as a result of the proposed development.

Avifauna

57. The addition of large amounts of planting proposed within the proposed development site and the addition of trees within the streetscape, greenspaces, and amenity areas within the proposed development site will increase the bird habitat available onsite.

58. To manage the direct and indirect effects on birds during construction, I recommend that nesting bird surveys are carried out prior to any vegetation removal and areas where native birds are detected to be nesting should be avoided until chicks are fledged. This approach should be outlined in an avifauna management plan for the proposed development site.

With addition of planting and pre-construction bird surveys it is my opinion that there is potential for a neutral or slightly beneficial impact on avifauna related to this proposed development.

ISSUES RAISED IN SUBMISSIONS

59. The Department of Conservation (**DOC**) have raised the issues of:

(a) The absence of a lizard management plan and subsequent content, and DOC's ability to assess the plan's adequacy at mitigating the potential effects of the proposed activity on lizards;

(b) The lack of lizard survey undertaken; and

(c) Disagree with the assessed very low level of ecological effect of the proposed development on lizards and consider the scale and nature of the activities may cause the loss of any resident lizard species at the site.

60. These concerns are dealt with in my evidence in chief (Paragraphs 27, 28, 32, 41, 42, and 43) in essence:

(a) The approach to lizard management, and the low level of effect on lizards, means there is high likelihood of success of the mitigation proposal. Additionally, Hamilton City Council will be required to certify any lizard management plan and will assure appropriate considerations are included and compliance is adhered to. The implementation of a lizard management plan was agreed by all parties with the joint witness statement of terrestrial experts (February 18, 2019).

(b) Surveys within the wider Hamilton area and DOC Bioweb database records are consistent in their detection of only the species I have considered within the assessment, and I consider the value of a survey as negligible.

(c) Copper skinks are not threatened and have a widespread distribution within the Waikato area. As such a low ecological value with regards to herpetofauna habitat is consistent with EIANZ guidance. As the majority of potential lizard habitat is avoided by development within this site, it is appropriate to assess potential impact on herpetofauna as moderate. This moderate magnitude of impact and low ecological value contribute to a low[22] level of ecological effect following EIANZ ecological impact assessment guidance. I consider the assessment appropriate for the potential effects of the proposed development. It is also my opinion, due to the avoidance of the majority of lizard habitat, that the loss of lizard species at this site is an unlikely effect of the development.

61. The Riverlea Environment Society Incorporated (**RESI**) has requested that a SNA corridor be completed linking previously identified SNAs along the river on the Waikato River bank on the proposed development site.

62. I consider the intent of RESI's request is for the area of non-native vegetation between the two previously identified SNAs of the Waikato River bank within the proposed development site to be controlled and restored to native vegetation. While the vegetation here predominantly comprises exotic pest plants, it already provides ecological functions including buffering to the river

[22] Updated from very-low in the TEEA to reflect the updated EIANZ (2018) guidance.

and a corridor for fauna. While I do not disagree that restoration to a native plant dominated vegetation would be ecologically beneficial in some respects, I do not consider this is required to mitigate for the effects of the development in relation to vegetation, herpetofauna, or avifauna.

63. Various submitters have raised concerns such as:

    (a) Concern at a lack of vegetative buffer/a desire to see a greater buffer or conservation zone and ongoing pest control along the river and particularly opposite Hammond Park;

    (b) Felling of large trees affecting biodiversity; and

    (c) Concern of a lack of a green corridor between the Mangakotukutuku gully and Waikato River.

64. I do not disagree with these submitters that incorporating these requests could have positive ecological effects for the area. I do not consider this is required to mitigate the effects of the development in relation to vegetation, herpetofauna, and avifauna.

65. The Waikato Branch of Forest and Bird have concerns about the compliance with and maintenance of mitigation measures and request a financial bond be lodged to ensure the successful implementation of mitigation measures.

66. I consider that the proposed management plans discussed through my evidence in chief have been adequately captured in conditions 67 to 81 in the proposed conditions presented in Mr Serjeant's evidence. As such, the development in the area will be required to adhere to these conditions and carry out the mitigation measures outlined. Due to the relatively low potential effects I consider the mitigation proposed in regard to vegetation, herpetofauna, and avifauna to have high likelihood of achieving achieve adequate mitigation of the potential effects on these aspects of the site's ecology.

ISSUES RAISED IN SECTION 42A REPORT

67. Within the scope of this statement of evidence there does not appear to be any disagreement or issues in contention with the assessment I have

undertaken and the evidence in chief of Mr Kessels. The s 42A report aligns with Mr Kessels' evidence and as such I consider there are no new items to address arising from the s42A report.

68. I note that Mr Kessels' evidence[23] expressed uncertainty regarding whether 0.0019ha of high[24] vegetation will be removed. I confirm this still to be the case in paragraph 40 and depicted under Annexure "A". The effects of this vegetation removal on vegetation, avifauna, and herpetofauna are addressed in the "Assessment of Ecological Impacts"[25] section of my evidence.

69. With regards to the conditions recommended within the s 42A report, I provide the following recommendations/considerations:

(a) Condition 76(k&l) should be provided as subsets of Condition 76(j) as they relate to the performance standards related to wetland creation outlined in Condition 76(j);

(b) Condition 77(i)(i) appears to be an unnecessary double up of 77(i)(ii) and condition 78 and that 75% canopy cover is a sufficient requirement for the cessation of plant maintenance. I recommend Condition 77(i)(i) be removed;

(c) Condition 77(i)(ii) is inappropriately included as a subset of Condition 77(i) as it relates beyond those matters specific to copper skink habitat creation. I recommend Condition 77(i)(ii) be removed as a subset of 77(i) and reinserted as Condition 77(j); and

(d) Conditions 80, 81, and 82 appear to provide Hamilton City Council the ability to carry out ad-hoc review of management plans and amend them. I do not consider this is necessary or appropriate and recommend these conditions be removed for the following reasons:

i. It is required in Condition 66 that the Ecological Management Plan includes "performance measures, actions, methods, and monitoring programmes designed to achieve the objectives

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23 Paragraph 53.

24 Consistent with the TEEA but updated within this statement to be very-high.

25 Paragraphs 37 to 49

specified". As such the implementation of monitoring and performance measures achieves the same outcome as Conditions 80 to 82.

ii. The Ecological Management Plan is required to be submitted to Hamilton City Council for certification by Condition 66. As such if Hamilton City Council requires change to or is uncomfortable in the ability of the methods, performance measures, and monitoring programmes outlined within the management plans to meet the conditions and outcomes specified they can require changes at this stage.

iii. As such I see no additional value these conditions add to the processes already required to ensure the implementation of the Environmental Management Plan achieves the ecological outcomes specified.

70. The conditions presented within Mr Serjeant's evidence reflect the above recommendations.

CONCLUSION

71. In summary, I conclude that:

(a) There is variable ecological value across the site with regards to vegetation with high value vegetation being the native dominated areas along the Waikato River Bank.

(b) The proposed development site is of low ecological value for herpetofauna. Copper skink is probably the only native lizard species present on site. Copper skinks are not threatened and are widespread in the Waikato Region.

(c) Avifauna species found onsite are common native or exotic species and are consistent with species assemblages found throughout the wider Hamilton area. As there is potential for shag species that are classified as at risk utilising the Waikato River riparian vegetation, I have assessed this as having medium-high ecological value with the rest of the site considered low ecological value with regards to

avifauna.

(d) As most of the non-pasture habitats are avoided by the proposed development, there is potential for a low level of effect on vegetation, herpetofauna, and avifauna ecological values.

(e) Despite the proposed development's avoidance of greater than low level of effects on vegetation, herpetofauna, and avifauna, I have recommended opportunities for increasing ecological value within the area including planting more native plants (summarised in Table 1) and the long-term management of vegetation to protect existing ecological values.

(f) Beyond the planting and management of existing habitats I have proposed management of copper skinks and avifauna such as specific habitat enhancement and creation, and for avifauna pre-construction surveys to prevent the disturbance of any nesting native birds present.

(g) These recommendations have been included as proposed draft consent conditions.

Dated this 12th day of April 2019

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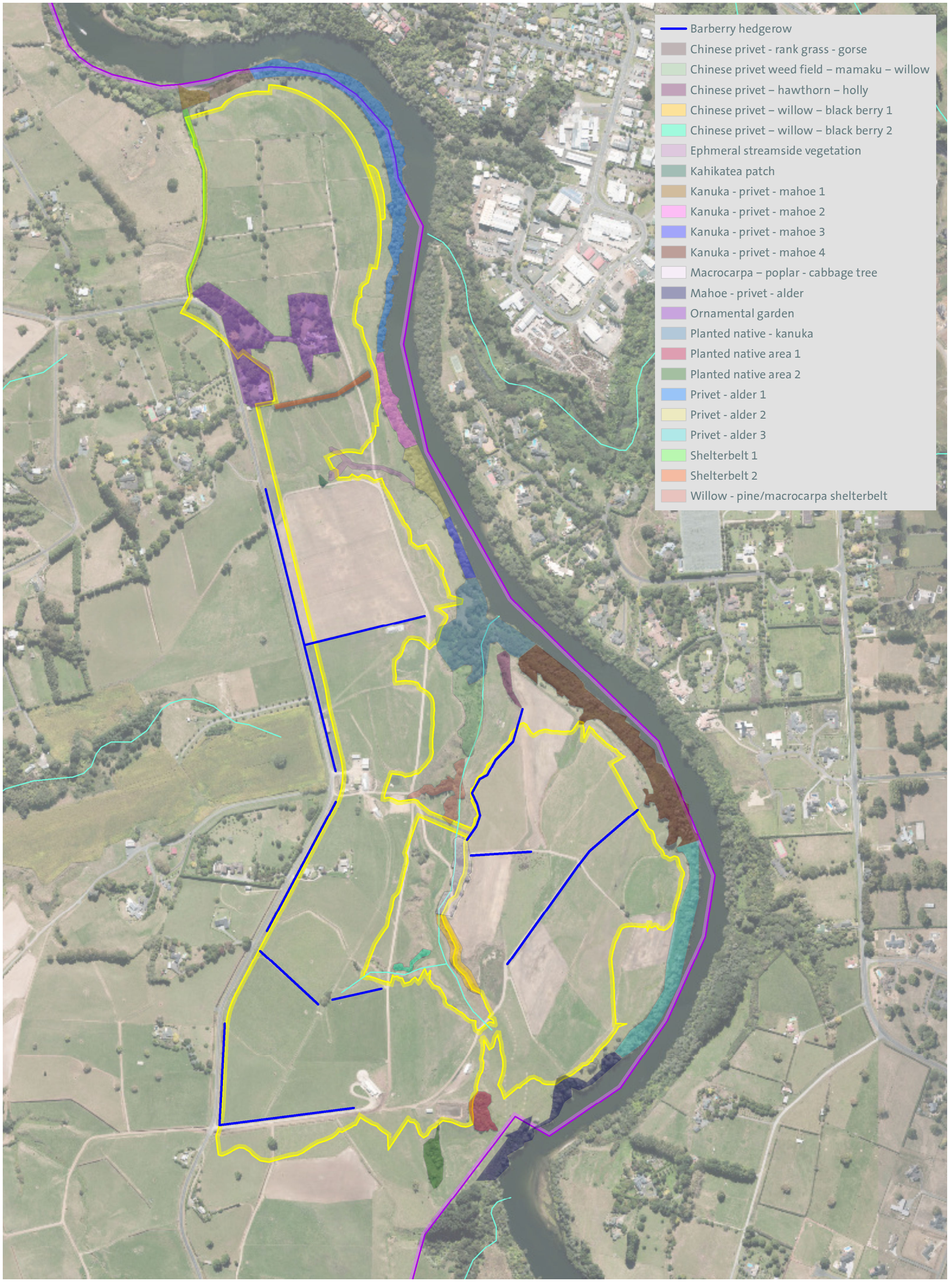
Andrew Blayney



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Data Sources: LINZ Aerials, Hamilton City Council, Waikato Regional Council, Boffa Miskell.

Projection: NZGD 2000 New Zealand Transverse Mercator

Legend
- Peacocke Structure Plan
- Development extent
- Streams

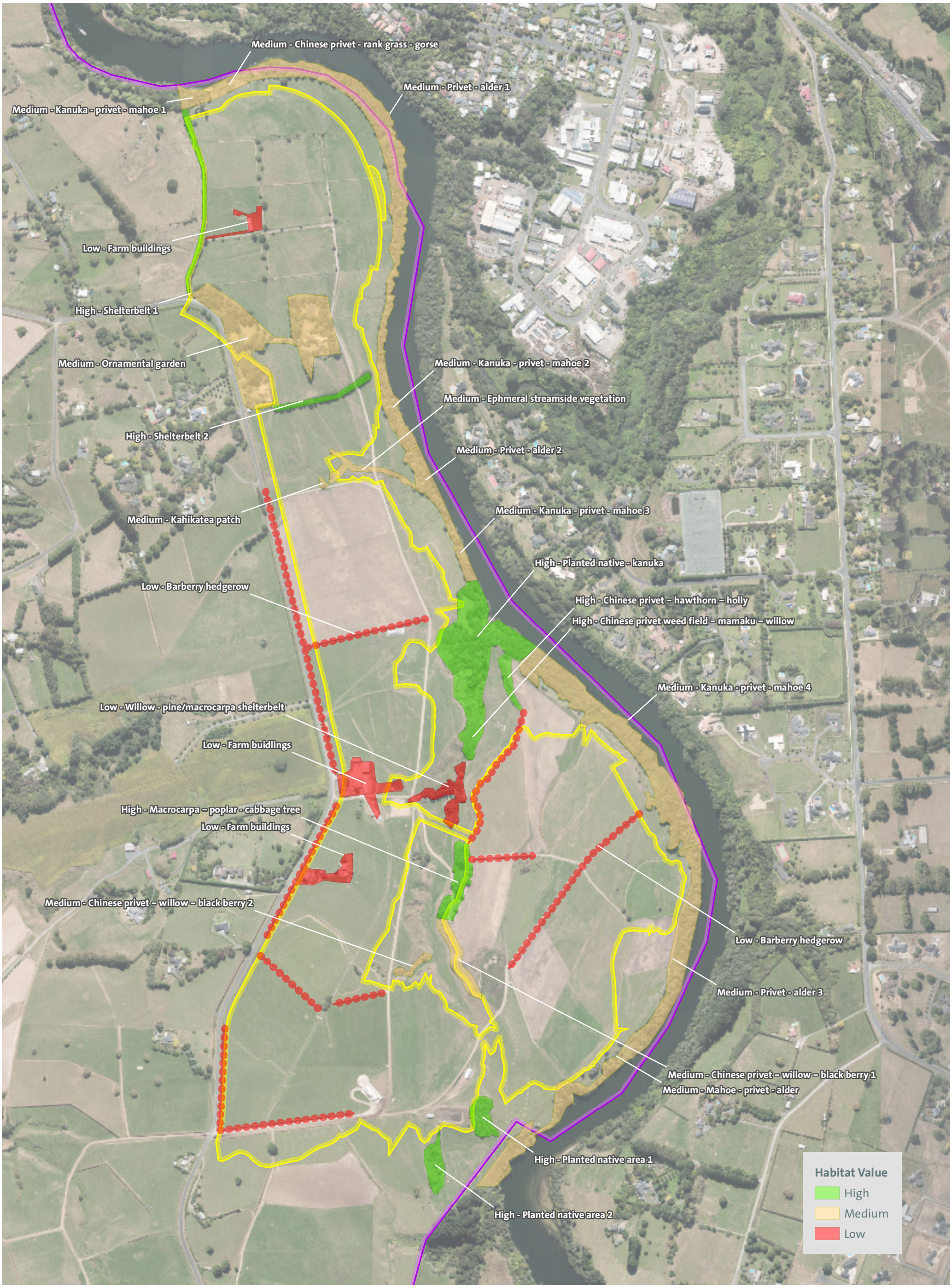
A17134 HAMILTON SOUTH DEVELOPMENT

Amberfield - Vegetation Map

Date: 10 April 2019 | Revision: 4

Plan Prepared by Boffa Miskell Limited

Project Manager: Rachel.deLambert@boffamiskell.co.nz | *Drawn:* JWa | *Checked:* ABl



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Data Sources: LINZ Aerials, Hamilton City Council, Waikato Regional Council, Boffa Miskell.

Projection: NZGD 2000 New Zealand Transverse Mercator

Legend
- Peacocke Structure Plan
- Development extent

A17134 HAMILTON SOUTH DEVELOPMENT

Amberfield – Herpetofauna Habitat Value Map

Date: 10 April 2019 | Revision: B

Plan Prepared by Boffa Miskell Limited

Project Manager: Rachel.deLambert@boffamiskell.co.nz | *Drawn:* JWa | *Checked:* ABl