RIVERLEA
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Hamilton City Council
Council Building
Garden Place
Hamilton

28 September 2018

On behalf of the Riverlea Environment Society I attach our submission to the resource consent application by Weston Lea Ltd. for the subdivision off Peacocke Road known as Amberfield.

Please find enclosed our submission in the following documents:

- The formal submission form
- A full description of issues we have raised and suggested mitigations
- Appendix A: Significant Natural Areas of and near Amberfield
- Appendix B: Bat Ecologist's Report
- Appendix C: Northern River Road and Esplanade Cross Section (Drawing A17134-067, Rev D)
- Appendix D: Signatories to Riverlea Environment Society Submission to Hamilton City Council on the Resource Consent Application for the Amberfield Development by Weston Lea Limited

Allan Pearson
Chair of the Riverlea Environment Society

Hamilton City Council
Te kaunihera o Kirikiriroa

Submission on a Notified Resource Consent Application

Resource Management Act 1991

OFFICE USE ONLY
File No: _____
Submission No: _____

Submitter's Details

Full name:	Riverlea Environment Society Inc		
Address:	c/- 40 Chesterman Rd, Hamilton	Postal code:	3216
Name of agent: *(if any)*			
Address for service: *(if different from above)*			
Work Phone:	858 3464	Mobile:	
Home Phone:		Fax:	
Email:			

Submission Details

I/we ○ **support** parts or all of ◉ **oppose** parts or all of ○ in **neutral** to parts or all of
(tick as many as relevant)

the ◉ resource consent ○ change or cancellation of a condition of an existing resource consent
(tick one)

on the application made by (name of applicant):

Weston Lea Ltd

to (describe the proposal):

Obtain resource consent to develop Amberfield subdivision

at (address of proposal):

Peacocke Rd

1. The particular parts of the application I support/oppose/in neutral to (delete as many as relevant) are:

We oppose the application as a whole in its present form.
Of particular importance:
We oppose the location of roading and residential sections almost immediately adjacent to the riverbank. This design is poorly aligned with the Peacocke Structure Plan;
The adverse effects of the proposal on long-tailed bats will be significant. We oppose the off-site mitigation proposed for long-tailed bats as a stand-alone method of addressing those effects;
We oppose the lack of a green corridor between Mangakotukuku gully and the Waikato River;
We oppose the inappropriate modification of landforms.

2. The reasons for my submission are:

The proposal does not avoid, remedy or sufficiently mitigate the harm that Amberfields lighting and habitat loss will do to the North Island long-tailed bat, now ranked as threatened
nationally critical (Conservation status of New Zealand bats, Department of Conservation, 2017).
The RMA (s6c) states that the protection of areas of significant habitats of indigenous fauna is a matter of national importance. The applicant must avoid adverse effects by adopting measures on site. The applicants attempts to do this (notably without reducing residential section numbers) leave a remaining significant effect on a critically threatened species. Their proposal to essentially compensate financially via a Trust that has not been formed at a location that has not been decided is not an appropriate way of addressing those effects.
Notably, the current design does not take account of two points that make the Amberfield location ecologically precious: (1) It is opposite Hamiltons most biodiverse forest remnant, Hammond bush, and the adjacent Mangaonua gully, and (2) Its northern riverbank is a missing link in an ecological corridor of Significant Natural Areas.
These two points also mean that avoiding the adverse effects of the proposed development on habitat at this valuable ecological site is even more important. This site is not exchangeable.
The Peacocke Structure plan deliberately locates a reserve that is 100 metres wide (from the top of the riverbank) at the northern bend; this is not conformed to in the proposed design.

3. The decision I wish the Council to make is (include any conditions of a general nature):

a. Decline the application; or, alternatively, if it is decided that the effects of the proposal can be adequately addressed through consent conditions;
b. Require the creation and maintenance of a substantial pest-controlled native forest reserve on the Western bank of the Waikato River as a substantial riverside buffer and significant biodiverse riverside habitat. This will achieve the following:

1. Avoidance, remediation and mitigation of the effects of urban development on long-tailed bat habitat loss. It will increase the quantity and quality of their riverside foraging area and insect sources.
2. Screen and protect Hammond Park bush and Mangaonua esplanade bats from Amberfields light spill.
3. Complete an SNA ecological corridor and enhance its value for the long-tailed bat and for birds and invertebrates.
4. Maintain and enhance the biodiversity and sustainability of Hammond bush, encouraging indigenous plants seed rain and movement of bats, birds and invertebrates between the two sites.
5. Increase Hamiltons level of indigenous vegetation to move it towards the 10% goal specified in the district plan.
c. Require an appropriate green corridor between Mangakotukuku gully and the Waikato River;
d. Impose consent conditions to prevent inappropriate modification of landforms;
e. Alter the proposed order of subdivision staging so that the northern bend is developed last, and its reserve planting is done first, thus allowing time for the plants to become more established before the area is subject to development.
f. Require that the riverbank vegetation along the entire length of Amberfield is restored.
g. Impose such other conditions as are appropriate to avoid, remedy or mitigate the adverse effects of the proposal on the ecology and landform of the locality, and achieve restoration and protection of the Waikato River.

I wish to be heard in support of my submission: *(If not ticked, Council will assume **'NO'**)* (•) Yes ( ) No

If others make a similar submission I/we will consider presenting a joint case with them at a hearing: ( ) Yes (•) No

I have attached additional information in support of my submission: (•) Yes ( ) No

Signature of submitter: _____ Date: 28 September 2018

Signature is not required if you are making a submission by email

- ***The closing date for serving a submission on Hamilton City Council is the 20th working day after notification date.***
- ***A copy of your submission must be served by you (the submitter) to the applicant at their address of service as soon as reasonably practicable after serving your submission to Hamilton City Council.***
- ***For more information on making a submission please refer to the website: www.mfe.govt.nz***

Send

Email this form and supporting documents to planning.guidance@hcc.govt.nz, or drop into the duty planner at the ground floor at Municipal Building, Garden Place between 8am-4.45pm Monday to Friday.

or post to:

Planning Guidance Manager

Planning Guidance Unit
Hamilton City Council
Private Bag 3010
Hamilton 3240

Remember to:

- ✔ Attach all supporting documents
- ✔ Serve a copy of your submission to the applicant at their address of service

28 September 2018

RIVERLEA
environment society

RIVERLEA ENVIRONMENT SOCIETY INC SUBMISSION

TO HAMILTON CITY COUNCIL RE PROPOSED AMBERFIELD DEVELOPMENT

1. *The particular parts of the application I oppose (delete as many as relevant) are:*

   We oppose the application as a whole in its present form.

Of particular importance:

We oppose the location of roading and residential sections almost immediately adjacent to the riverbank. This design is poorly aligned with the Peacocke Structure Plan;

The adverse effects of the proposal on long-tailed bats will be significant. We oppose the off-site "mitigation" proposed for long-tailed bats as a stand-alone method of addressing those effects;

We oppose the lack of a green corridor between Mangakotukuku gully and the Waikato River;

We oppose the inappropriate modification of landforms.

2. *The reasons for my submission are summarized as:*

The proposal does not avoid, remedy or sufficiently mitigate the harm that Amberfield's lighting and habitat loss will do to the North Island long-tailed bat, now ranked as "threatened – nationally critical" (Conservation status of New Zealand bats, Department of Conservation, 2017).

The RMA (s6c) states that the protection of areas of significant habitats of indigenous fauna is a matter of national importance. The applicant must avoid adverse effects by adopting measures on site. The applicant's attempts to do this (notably without reducing residential section numbers) leave a remaining significant effect on a critically threatened species. Their proposal to essentially compensate financially via a Trust that has not been formed at a location that has not been decided is not an appropriate way of addressing those effects.

Notably, the current design does not take account of two points that make the Amberfield location ecologically precious: (1) It is opposite Hamilton's most biodiverse forest remnant, Hammond bush, and the adjacent Mangaonua gully, and (2) Its northern riverbank is a "missing link" in an ecological corridor of Significant Natural Areas.

These two points also mean that avoiding the adverse effects of the proposed development on habitat at this valuable ecological site is even more important. This site is not 'exchangeable'.

The Peacocke Structure plan deliberately locates a reserve that is 100 metres wide (from the top of the riverbank) at the northern bend; this is not conformed to in the proposed design.

3. *The decision I wish the Council to make is (include any conditions of a general nature):*
   a. Decline the application; or, alternatively, if it is decided that the effects of the proposal can be adequately addressed through consent conditions;

b. Require the creation and maintenance of a substantial pest-controlled native forest reserve on the Western bank of the Waikato River as a substantial riverside buffer and significant biodiverse riverside habitat. This will achieve the following:

    1. Avoidance, remediation and mitigation of the effects of urban development on long-tailed bat habitat loss. It will increase the quantity and quality of their riverside foraging area and insect sources.
    2. Screen and protect Hammond Park bush and Mangaonua esplanade bats from Amberfield's light spill.
    3. Complete an SNA ecological corridor and enhance its value for the long-tailed bat and for birds and invertebrates.
    4. Maintain and enhance the biodiversity and sustainability of Hammond bush, encouraging indigenous plants seed rain and movement of bats, birds and invertebrates between the two sites.
    5. Increase Hamilton's level of indigenous vegetation to move it towards the 10% goal specified in the district plan.

c. Require an appropriate green corridor between Mangakotukuku gully and the Waikato River;
d. Impose consent conditions to prevent inappropriate modification of landforms;
e. Alter the proposed order of subdivision staging so that the northern bend is developed last, and its reserve planting is done first, thus allowing time for the plants to become more established before the area is subject to development.
f. Require that the riverbank vegetation along the entire length of Amberfield is restored.
g. Impose such other conditions as are appropriate to avoid, remedy or mitigate the adverse effects of the proposal on the ecology and landform of the locality, and achieve restoration and protection of the Waikato River.

Further particulars

This submission represents the views of the Riverlea Environment Society Inc. (RESI), and its advisers. RESI was established in 2007 to represent the environmental protection and enhancement goals of residents of Riverlea. The suburb is located in the south east of Hamilton bordering the Waikato River immediately opposite northern Amberfield. More than 250 residents are on our supporters email list and/or subscribe to our social media (see also www.resi.org.nz and www.facebook.com/Riverleaenvironmentsociety). We draw our community together through the ecological restoration of the Hammond Park bush, the suppression of rodents, mustelids and possums across the suburb through our Riverlea Pest Free group, and as an advocate for excellent environmental management of the area.

The submission is supported by a large number of community members; see Appendix D.

We are developing a specific proposal to protect the bats and Hammond bush with our ecologists (restoration ecologist Bruce Clarkson and bat ecologist Rebecca Stirnemann) for mitigation of effects, as an alternative to declining the application. Our preliminary work suggests the following:

- A minimum 125-metre wide reconstructed bush reserve, plus extra buffering for edge effects (which extend for 20 to 40 metres; Drinnan, 2005; Denyer et al 2006), at the northern bend riparian margin;
- A 50-metre wide reserve (minimum) for the rest of Amberfield riparian margin;
- Appropriate species planted as advised by the Hamilton Gully Guide and Clarkson et al's Indigenous Vegetation report (2007).
- Ongoing pest control for rodents, mustelids and possums;
- Ongoing maintenance of restoration planting (weeding and replanting as necessary);
- A delay in developing the northern bend in order to allow time for plantings to grow.

Statutory Context

Resource Management Act 1991

The basis for the management of indigenous biodiversity stems primarily from Part 2 of the RMA. The following sections of the RMA address indigenous biodiversity:

- Section 5(2)(b) safeguarding the life-supporting capacity of air, water and ecosystems;
- Section 6(c) protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna as a matter of national importance.
- Section 7(d) Having regard to the intrinsic values of ecosystems.

It is submitted that the Amberfield proposal does not safeguard the life-supporting capacity of this high value ecosystem, nor protect this significant habitat of indigenous fauna, nor give appropriate regard to the intrinsic values of this ecosystem.

RESI's proposals to significantly increase restorative indigenous forest planting, particularly at the north end of the proposed development, will go a significant way to effectively avoiding, remedying and mitigating the adverse effects of the development. Unfortunately, no measure will guarantee the survival of the long-tail bat in the local area, although again RESI's proposal for significantly more forest planting will more likely avoid and mitigate the adverse effects on bats than the off-site alternative proposed.

Waikato Regional Policy Statement 2016 (RPS)

In accordance with section 104 of the RMA, when considering an application for resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to a regional policy statement.

The Waikato Regional Policy Statement 2016 (RPS) provides substantive, and sometimes quite detailed, guidance in respect of indigenous biodiversity. Objective 3.19 of the RPS seeks that the full range of ecosystem types, their extent and the indigenous biodiversity that those ecosystems can support exist in a healthy and functional state.

Policy 11.1 of the RPS seeks to promote positive indigenous biodiversity outcomes to maintain the full range of ecosystem types and maintain or enhance their spatial extent. Policy 11.1 also identifies a number of focus areas to assist in achieving the maintenance and enhancement of <u>all</u> indigenous biodiversity. The focus areas that are particularly relevant to this proposal include: the continued functioning of ecological processes; the re-creation and restoration of habitats and connectivity between habitats; supporting (buffering and/or linking) ecosystems, habitats and areas identified as

significant indigenous vegetation and significant habitats of indigenous fauna; the health and wellbeing of the Waikato River and its catchment; managing the density, range and viability of indigenous flora and fauna; and the consideration and application of biodiversity offsets. The approach in Policy 11.1 looks beyond just SNAs to consider all the different elements that combine to provide for ecosystem functioning.

RPS Policy 11.2 seeks that significant indigenous vegetation and the significant habitats of indigenous fauna be protected. This policy applies to areas of SNA that meet the criteria for determining the significance of indigenous biodiversity contained in Section 11A of the RPS. The Waikato River meets criterion 3 of Section 11A of the RPS because it is habitat for a threatened indigenous species, the long-tailed bat; the applicant's Terrestrial Ecological Assessment reports heavy use of the riparian margin opposite Hammond Park by these bats.

Amberfield's ecological value

In terms of ecological value and potential, Amberfield is in an unequalled location in Hamilton due to the combination of four factors:

1. It is extensively used by long-tailed bats, a nationally critical species in terms of extinction risk.
2. It is located directly opposite Hamilton's most biodiverse forest remnant (de Lange, 1996), which is also an important site for long-tailed bats (Dekrout et al, 2014).
3. Its riverfront is the missing link in a series of SNAs (SNAs 48 and 54 lie north and south of it, and across the river are SNAs 49-53 and 57-59).
4. Its riverside location means that it is intrinsically valuable to bats as a commuting corridor.

Long-tailed bats

The risk of extinction of long-tailed bats as a species is nationally critical. This is the highest risk category and is the same as held by kakapo.

We acknowledge the applicant's efforts to reduce the development's effects on bats: lighting design; restoration of a gully, extra riparian buffer and screening planting; and care when felling potential roost trees. We suggest that these be secured through conditions of consent, should the application be granted.

However, the Terrestrial Ecological Report states that regardless of these measures, "our ecological assessment has concluded that the development will result in a Very High level of effect" on long-tailed bats (page 58, Terrestrial Ecological Assessment). This is reiterated in the Assessment of Environmental Effects, which in terms of the effects on the long-tailed bat states that the effects are considered to be more than minor (page 49, AEE). This is contrary to the District Plan Policy 20.2.1n: The loss of habitat that supports indigenous species classified as at risk or threatened shall be avoided.

Given that the District Plan seeks to avoid the loss or disruption of corridors or connections provided by the Waikato River corridor and gully systems which link indigenous ecosystems and habitat fragments (**Objective 21.2.1**; see also **Policies 20.2.1d, 20.2.1e, 20.2.1f, 20.2.1n**), any development of this land for residential use must incorporate an appropriate width and form of vegetated setback and enhancement along the margins of the Waikato River.

Please see Appendix B for a report and recommendations from a bat ecologist on the applicant's proposal.

We are keen to engage with the applicant regarding mitigation measures, as an alternative to declining the application.

Hammond Park bush

The Amberfield development represents a once-only opportunity to utilise the existing biodiversity of Hammond Park while simultaneously enhancing the resilience of this small 200 year-old forest fragment. This bush is Hamilton's most biodiverse forest remnant (de Lange, 1996), which is intensively used by long-tailed bats for foraging and roosting. It is located immediately opposite Amberfield, and the applicant's Terrestrial Ecological Assessment reported an extremely high reading of bat activity opposite Hammond Park. There is a risk that light spill from the development will stop bats using this site ("These disturbance effects have the potential to also significantly impact and change the characteristics of the dispersal corridors and high value habitats close to the development site." Page 52, Terrestrial Ecological Assessment; and "Lighting and noise disturbance which extends into key roosting habitats for the Hamilton lt-bats such as Hammond Park also has the potential to alter roost emergent timing and behaviour, disrupt social interactions, and … cause the avoidance of once valuable habitats" (S92 response, question 70).

This forest is an example of what could be achieved at Amberfield. It is home to numerous bird species including a pair of kereru and even occasional visiting kaka, and contains rare mature swamp maire trees. It is easily the most biodiverse bush remnant in the Hamilton area with 243 documented vascular plants, and is a refuge for several regionally threatened species within the Hamilton basin (de Lange 1996).

Our community, together with HCC, began 20 years ago to weed, plant and expand the bush, and this has been hugely successful.

The proposed design does not take into account Amberfield's location opposite Hammond Park. This omission is not consistent with District Plan **Objective 3.3.6:** Development responds to land suitability including topography, landscape, natural features, soil type, natural hazards, heritage features, adjoining land uses; or **Policy 3.3.6d** The scale and quantum of development and land use type recognises land characteristics and suitability and adjoining land uses.

Concern about the proposed Trust

The developers state that their proposed onsite mitigation leaves a very significant residual effect on the long-tailed bat, which we agree with. They state that there are effects that cannot be managed within the development context in the Peacocke Structure Plan area. We do not accept that the only possible onsite mitigation outside of the gully area can reasonably consist of a narrow strip of vegetation and specialized lighting. This is only the case if the developer will not reduce the residential yield, or consider an alternative sustainable urban development design, to enable avoidance of effects.

The applicant is required to avoid the adverse effects by measures adopted onsite if at all possible, and our proposal of the creation of a substantial forested riverside area should form part of that mitigation.

It is unreasonable to fund a Trust to consider aspects such as "habitat enhancement, protection and creation; pest control, and monitoring" while simultaneously removing an opportunity for substantial habitat protection and enhancement at an ecologically valuable site that bats are already using. If a Trust is formed to which Peacocke developers contribute money, its members may conclude that setting aside areas of Peacocke for bat-friendly habitat restoration would be a successful mitigation. But it will be too late. Amberfield is directly opposite Hammond bush and next to the river corridor; this is not an area that is exchangeable.

The proposal of funding a Trust is essentially compensation for the harm they will cause a critically threatened species, and is not in alignment with RMA and District Plan requirements to avoid, mitigate or remedy. The time delay that would be involved in implementing the research and advice of a Trust is not appropriate for a species that is facing extinction.

Lack of habitat is a major force driving long-tailed bats towards extinction (see Appendix B). It is not logical to allow established bat habitat to be covered with roads and houses in exchange for money to pay people to think about how to prevent bats becoming extinct.

Given the conservation status of the long-tailed bat, a precautionary approach is required that gives reasonable certainty now of the success of mitigation measures. Studies show that offset mitigation has poor record of success in New Zealand and that a third of ecological compensation requirements are never met:

"The significant number of conditions not complied with indicate that present tools and practice within the domestic field of impact assessment are not securing the necessary benefits from ecological compensation requirements that are required." – Brown et al, 2014.

"Ecological compensation, and biodiversity offsets in particular, are often highlighted as a mechanism to achieve 'no net loss or preferably net gain' of biodiversity (ten Kate et al. 2004). This generally requires that what is lost in development is counterbalanced by conservation gains that are at least equivalent and preferably greater in value, although the definition of this goal and measurement of success or failure varies across stakeholders and jurisdictions (Bull et al. 2013). … The goal itself is criticised as being symbolic and rarely achieved (Burgin 2010), with Walker et al. (2009) referring to it as 'administratively improbable and technically unrealistic'. Further, as the Transmission Gully Board of Inquiry noted, applicants can choose to state 'no net loss' as a goal, but they are not legislatively bound to demonstrate that it has been achieved (Environmental Protection Authority 2011)." - Brown et al, 2013.

A Trust could, however, have a role overseeing maintenance and long-term success of onsite measures.

The applicant states in the AEE that a Trust will be a better alternative to "*disparate and project-specific responses to mitigation"* by various developers of Peacocke, and that any extra onsite migitation would be "*dependent on other developers within the wider Peacocke Structure Plan area to continue said mitigation further west*" (Terrestrial Ecological Assessment, pg. 59). There need be nothing disparate and project-specific about it; a strong requirement of Weston Lea to set aside a substantial conservation area will set a precedent for future developers. The landowners could even begin to prepare and plant it now. Hamilton has a wealth of bat experts to advise on the best way forward for the area as a whole, and the "tail" (the fact that there are different developers) should not be allowed to "wag the dog" (effective bat conservation measures, with the District Plan directive being avoidance rather than mitigation).

In fact, the applicant's proposal to mitigate effects "offsite" rather than avoiding them would make that same approach likely in the remaining developments, setting a concerning precedent for all other Peacocke river margins.

We note that even with the applicant's onsite mitigation measures and the proposed Trust, they state that the effects will still be considered to be more than minor (AEE page 49).

Waikato River and SNA corridor connection

Our proposal would create a new SNA to complete an SNA ecological corridor and enhance its value for the long-tailed bat and other indigenous species. The northern Amberfield riverbank is a "missing link" SNA (see Appendix A for a map), and if restored to become an SNA would provide connectivity between surrounding SNAs. This pre-development phase is an ideal opportunity – and probably the only opportunity – for this restoration to occur.

Connectedness is consistently found to be vital for ecological health:

> *Isolation effects were observed in the form of an inverse linear relationship between distance to other large reserves and species richness for fungi, birds and frogs. Corridor connectivity also produced an overall positive relationship for birds, frogs and plants. It is concluded that the identification of fragmentation thresholds and relationships provides an important management tool for the design of networks aimed at conserving biodiversity in fragmented urban environments. – Drinnan, 2005.*

The primary direction-setting document for the management of the river is Te Ture Whaimana o Te Awa o Waikato – the Vision and Strategy for the Waikato River. In giving effect to this, the District Plan requires in **Objective** 21.2.1 that "The ecological, amenity, landscape and cultural values of the river corridor and gully system are restored and protected". Under more than a century of farming, the Amberfield riparian esplanade has become degraded. Our proposal will restore its ecological values. Restoration and protection extend beyond addressing the effects of this proposal. Enhancement proportionate to the development is required by the Vision and Strategy of the Waikato River and the District Plan.

Connectivity is vital to bats. The most important factors for maintaining long-tailed bats in Hamilton are 1) habitat protection, 2) the prevention of further habitat fragmentation and 3) predator control (see Appendix B). This is accordance with the objectives and policies of the District Plan: **Policy 21.2.1f** states that "The loss or disruption of corridors or connections provided by the Waikato River corridor and gully systems which link indigenous ecosystems and habitat fragments shall be avoided". As it stands, Amberfield light spill will disrupt corridors, and the planned proximity of roads and residential sections will preclude the establishment of a new SNA.

This loss would be ecologically damaging overall because "… habitat loss can result in habitat degradation through fragmentation. Fragmentation can increase the proportion of vulnerable 'edge habitats' and can also result in species isolation, making populations more vulnerable to chance events." (Ministry for the Environment, 2018).

Policy 21.2.1g states that **"**The connectivity and protective buffering of indigenous ecosystems provided by the Waikato River Corridor and gully system shall be maintained".

Our vision is also supported by the HCC Open Space Strategy, which prioritises protecting and restoring the Waikato River corridor and Hamilton's gully ecosystems, and developing an ecological corridor network.

Other policies speak directly to the need to protect significant sites (such as Hammond Park) and species (such as long-tailed bats): **Objective 21.2.4** The health and wellbeing of the Waikato River and gully systems shall be restored and protected; **Policy 21.2.4a** Significant sites, fisheries, flora and fauna within the Waikato River and gully systems shall be protected and enhanced; **Policy 21.2.4b** Recognition and avoidance of adverse cumulative effects on the health and wellbeing of the Waikato River and gully systems.

The language here is not simply around protecting, but actively restoring and enhancing.

Working towards a 10% level of indigenous vegetation

At least 10% of an urban area needs to be in indigenous vegetation if biodiversity loss is to be halted (Clarkson et al, 2018). Reflecting this, policy **20.2.1o** of the District Plan states that "Significant Natural Areas shall be restored and enhanced to meet the 10% threshold for habitat sustainability".

"Biodiversity generally declines with greater degrees of fragmentation because small, isolated patches of indigenous ecosystems can support only small populations of species. These populations lack resilience and are at high risk from disturbance such as further habitat loss, fire or climate change. This can be remedied by enhancing connectivity between patches of indigenous cover to facilitate species dispersal through the wider landscape and the enhancement of metapopulations. Ecological restoration and reconstruction in the heterogeneous land use matrix around fragments and corridors can also benefit indigenous biodiversity (Kupfer et al., 2006)." – Clarkson et al, 2018.

Our vision would reconstruct an indigenous ecosystem representative of those that once existed *outside of the gully system* in Hamilton; this is a sorely underrepresented ecosystem in the city. The need for such representation is why HCC's Open Space Strategy prioritises protecting and reconstructing indigenous ecosystems *outside of the gully system*. Most of Hamilton's indigenous vegetation is in gullies that were deemed unsuitable for development, and Amberfield's primary restoration area is also proposed to be in a gully.

Peacocke Structure Plan

There are several aspects of the current proposal that are not in accordance with the Peacocke Structure Plan (HCC District Plan, chapter 3.4):

1. Insufficient environmental emphasis

The formal vision for the Peacocke Structure Plan is (bolding added):

The vision for the Peacocke area is that it will become a high quality urban environment that is based on urban design best practice, social well-being, and ***environmental responsibility.***

The goal for Peacocke is that development will respond positively to its natural setting and built form to develop a number of well connected neighbourhoods based on an urban development concept that ***respects and restores the area's natural environment****.*

We support the gully restoration and additional planting that the applicant proposes, but its environmental emphasis is insufficient given the presence of a critically threatened species.

2. Poor alignment with specified width of northern bend reserve

In the structure plan, the esplanade at the northern bend – a critical environmental area with Hammond Park bush immediately opposite it – is 100 metres wide from the top of the riverbank (Figure 2 below; personal communication, HCC, 27th September 2018). This figure was set purposefully and deliberately.

In 2007 the Hamilton City Council notified the proposed Peacocke Structure Plan. RESI and other Riverlea residents submitted to it using arguments almost identical to those voiced in this submission (Peacocke Structure Plan Hearing Report, 2009, pp. 37-38). Then, as now, we were concerned about the impact of suburban development on the area's ecology, including on bat habitats. We advocated for a larger reserve opposite Hammond Park.

The authors of the subsequent Peacocke Structure Plan Hearing Report (2009) concluded (p. 19):

> *Following further studies, it was established that the development of high density areas and a collector road in close proximity to the Waikato River would negatively impact on the ecologically sensitive areas along the River. Hammond Bush and the Waikato River provide habitat for some significant flora and fauna that are sensitive to the effects of development within close proximity to the riverbank.*

The final plan therefore incorporated an enlarged reserve immediately opposite Hammond Park (HCC Peacocke Structure Plan Hearing Report, 2009, pp. 39-41). At its maximum extent, the redrawn reserve was approximately 120 metres wide opposite the Hudson Street gully (see Figure 1 below). After appeals were heard and other adjustments were made (both of which RESI was unaware of until recently), the width of the reserve was reduced to 100 metres from the top of the riverbank (Figure 2, below). This was notified in the final Peacocke Structure Plan which remains in force until the present day.

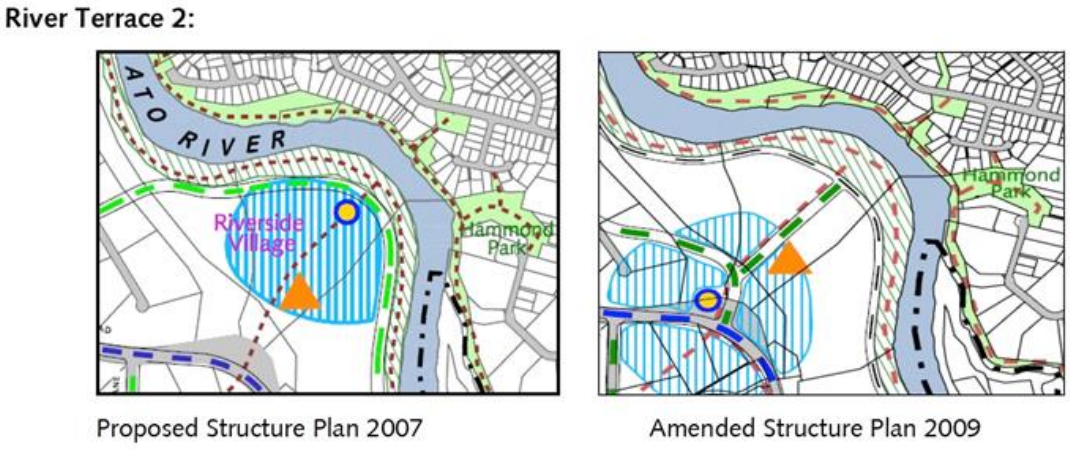

Figure 1. Proposed Peacocke Structure Plan map of Amberfield's northern bend.

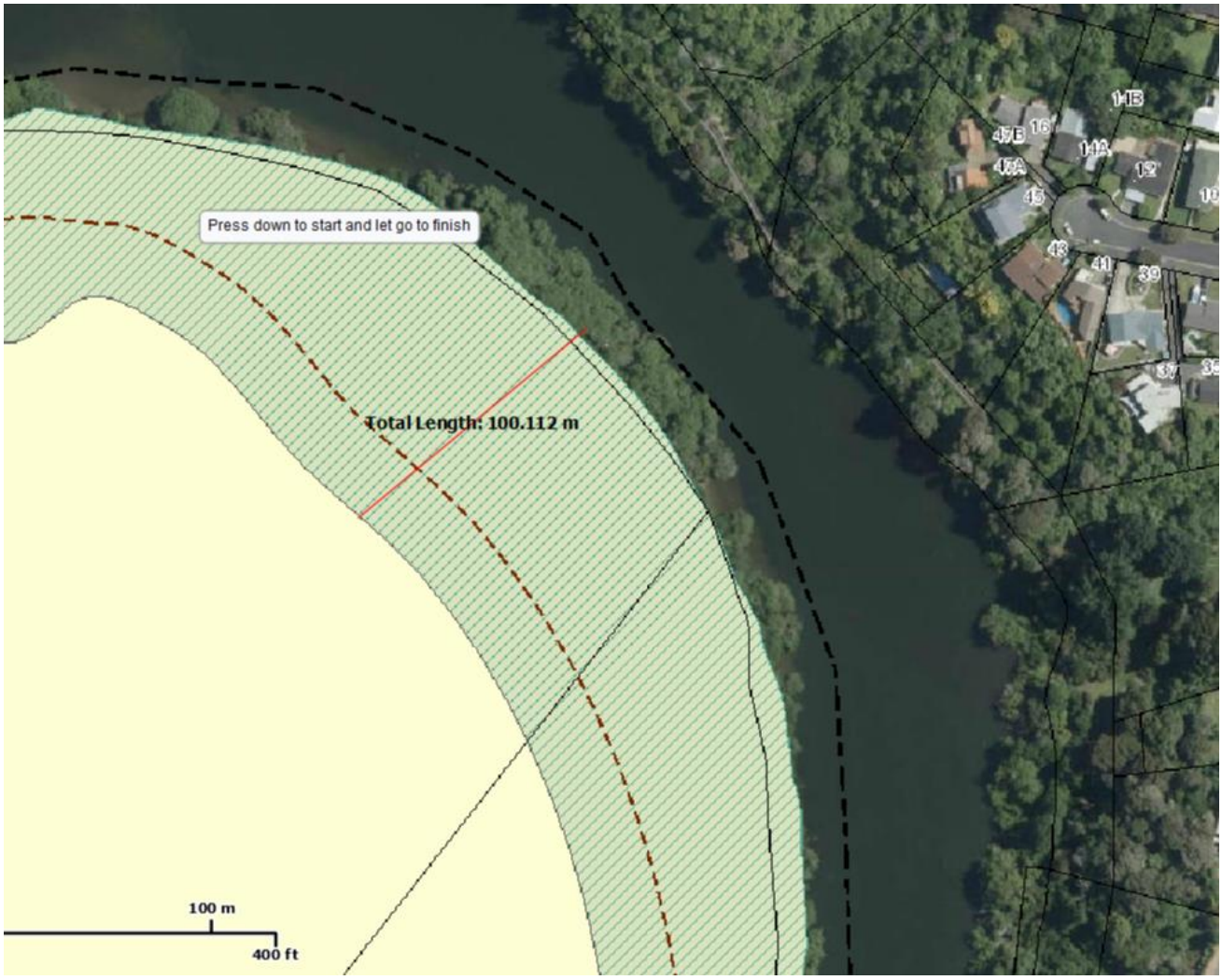

Figure 2. Enlargement of the present Operative District Plan's map of Amberfield's northern bend. Note that the measured reserve width extends to the top of the riverbank, not the water's edge.

This purposeful provision of the Peacock Structure Plan contrasts sharply with Weston Lea Ltd's proposal for this area: roading development and earthworks to within approximately 7 metres of the top of riverbank (see Appendix C).

We oppose this deviation from the Peacocke Structure Plan and seek a revised subdivision configuration, in consultation with the HCC, RESI and other interested parties. We propose that the reserve be set aside for ecological purposes and is the site of a reconstructed river terrace forest. Furthermore, it should be larger than it was when the 100 m specification was made, for two reasons: (1) In 2007 the long-tailed bat's risk of extinction was classified as nationally vulnerable (Hitchmough et al, 2005), which is two levels below the species' current classification of nationally critical (O'Donnell et al, 2018); (2) The applicant's terrestrial ecological assessment now makes it clear how extensively long-tailed bats use the area.

More southern areas of Amberfield appear to have wider esplanades than in the structure plan, but the area opposite Hammond bush is of prime ecological importance and thus cannot be 'exchanged' for another area.

3. Lack of green corridor between Mangakotukutuku gully and the Waikato River

The HCC District Plan prescribes a preserved corridor between the Mangakotukutuku gully and the Waikato River (**Objective 3.4.1.2:** Create ecological and open space links between gully and river; **Policy 3.4.1.2a:** Provide green corridors between the major arms of the Mangakotukutuku Gully and Waikato River). The applicant's proposal does not include provision for such a corridor, which is a vital one for long-tailed bats. They move and forage between the Waikato River and the Mangakotukutuku gully, and it is this foraging linkage that the shelterbelt removal will fragment. See Appendix B for a bat ecologist's recommendation for a green corridor.

4. Disallowed modification of landforms

The river terrace of the northern bend is proposed to hold a road that is elevated to a level of 4 metres above the current ground level. This will require extensive contouring earthworks, which are not in accordance with the District Plan's objectives and policies for the Peacocke area (**Objective 3.4.1.3** Develop only on suitable slopes and avoid modification of landforms; **Policy 3.4.1.3b** Large-scale earthworks and modifications to landforms should be avoided to ensure development responds positively to the landscape and enables the creation of a distinctive urban form.) The river terrace landform would be most beneficially left unmodified and restored to native vegetation.

4. Other relevant Peacocke Objectives and Policies

Objective 3.4.1.1: Protect and enhance significant natural areas.

Policy 3.4.1.1a: Protect the physical integrity and ecological and stormwater function of the Mangakotukutuku Gully and Waikato River margins

Policy 3.4.1.1d: Provide for revegetated gullies and river margins.

Appropriate land development

The District Plan makes it clear that land development must minimise any adverse effects on the environment (**Objective 25.1.2.2**: Any development of land is carried out in a manner which reflects the physical constraints on its use and development, and minimises any adverse effects on the environment; **Policy 25.1.2.2b** Development shall be located and designed to maintain or enhance any … Significant natural area).

Subdivision, specifically, must occur in a manner that recognises historic heritage and natural environments (**Objective 23.2.5**) and protect and enhance riparian margins of the river (**Policy 23.2.5c**).

Funding for ecological restoration

The costs of restoring a forest may be at least partially met by external funding. The Waikato River Authority is a source of funding to engage professionals to design, plant and maintain restored riverside areas. Its vision is: "for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come."

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Appendix A: Significant Natural Areas of and near Amberfield

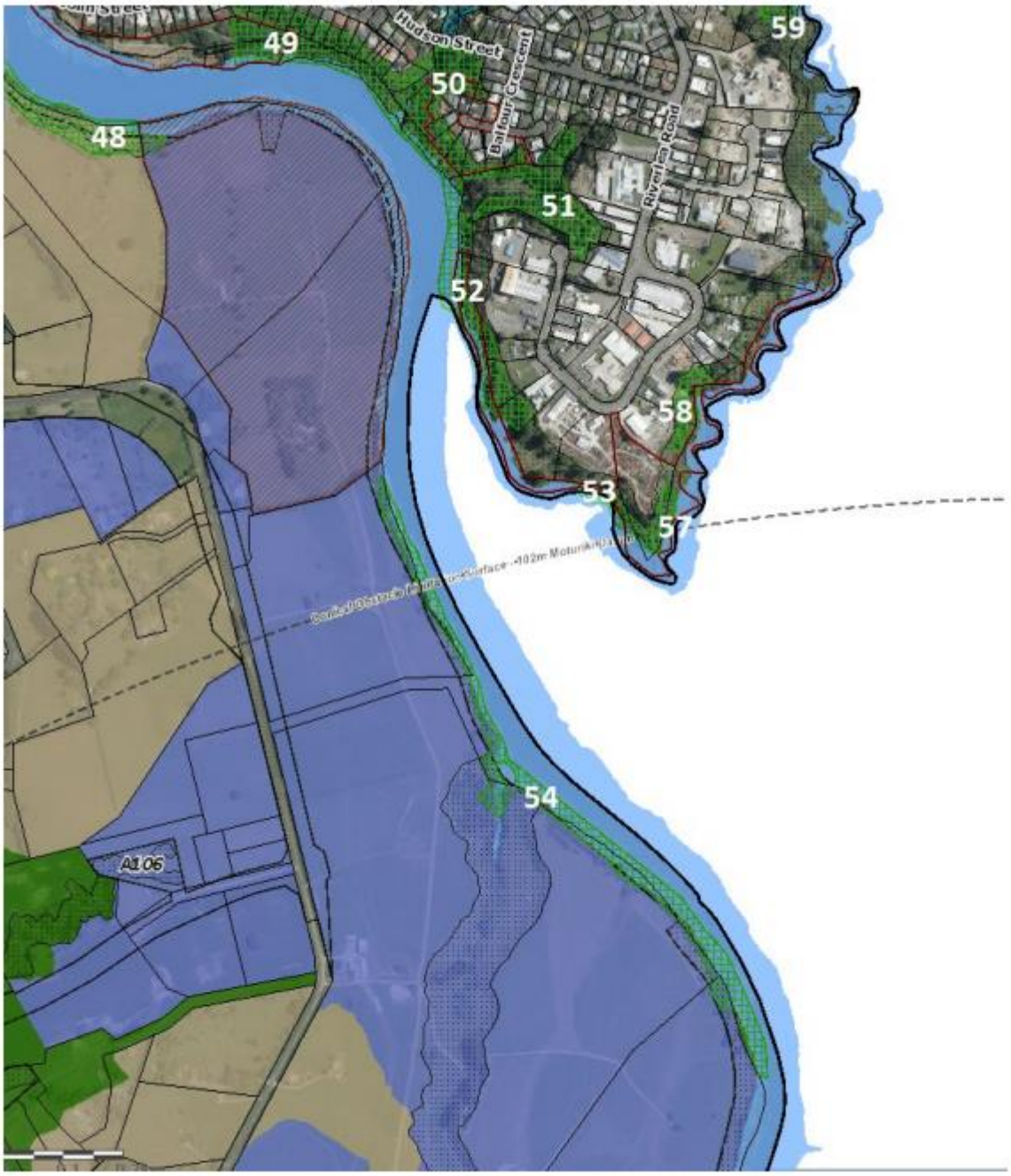

Figure 3: Amberfield site in context. Operative District Plan Map[3] - green hashed areas are defined Significant Natural Areas and white numbers are their site numbers as defined within the Hamilton City Council Operative District Plan.

Appendix B: Bat Ecologist's Report

1. QUALIFICATIONS AND EXPERIENCE

1.1 My full name is Rebecca Liv Stirnemann.

1.2 I am an Ecologist. My qualifications include a PhD in Biological Sciences from the University of Massey (2016). I have a MSc from Trinity college Dublin on climate change and a second MSc from the University of Pretoria., My MSc research in Pretoria focussed on the ecology of micro-bats. My BSc and Postgraduate diploma in GIS are both from Waikato University.

1.3 I have considerable experience working in New Zealand on native bats with a level 4 bat qualification by the Department of Conservation's Bat Recovery Group. This means that I am considered highly competent at locating bat roosts, capturing and handling bats using a variety of techniques, and undertaking monitoring and surveys.

1.4 I have been involved in the oversight and interpretation of bat monitoring surveys at various sites in the North and South Islands. I have also developed methods for bat surveys to be undertaken more widely in Europe, Australia, the Pacific Islands and in South Africa. My work experience also includes providing of technical input and advice into the design of mitigation packages, development and implementation of management, mitigation, restoration, and monitoring plans that focus on bats and birds.

1.5 In 2007, I undertook research with Andrea Dekrout which involved the capture and radio-tracking of long-tailed bats and we monitored their activity in Hamilton. Many of the captures of long-tailed bats were in Hammond bush and then we radio tracked them on the farm land surrounding and across the river.

1.6 I have published 15 peer-reviewed scientific papers and books. Two of these focus on microbats. In total I have over 15 years' experience in ecological management and research. That work experience also includes involvement with a wide variety of other ecological projects such as invasive predator impacts, seabird research including windfarm impacts and determining what was leading to declines in endangered birds and the development of techniques for bird and bat monitoring.

1.7 I have been engaged by Riverlea Environment Society to prepare evidence in relation to the Amberfield Development because of my expertise in ecology and with long-tailed bats in particular.

1.8 Except where I state that I am relying on the evidence of another person, this written evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

2 SCOPE OF EVIDENCE

2.1 I have been asked by Riverlea Environment Society to address the following matters:

- A review of the threat status
- A description of the spatial use of the long-tailed bat with a specific emphasis on habitat use in Hamilton
- Potential ecological effects of the proposed development
- What impact nocturnal lighting of the proposed development could have on the long-tailed bats found at Hammond Park and the wider Hamilton area.
- Any conditions or mitigation measures which could be considered when dealing with the potential adverse effects.
- In preparing this evidence, I have reviewed relevant sections of the reports and statements of evidence of other experts giving evidence relevant to my area of expertise.

3 Long-tailed bats status

3.1 The New Zealand long-tailed bat (*Chalinolobus tuberculatus*) is an endemic New Zealand bat species. It is considered to be threatened with extinction and is ranked as "Nationally Critical" - the highest threat classification ranking in the Department of Conservation's threat classification. This threat ranking is because the species is undergoing a "very high ongoing or predicted decline (> 70%)." Loss of habitat is a major factor driving the loss of this species.

4 Spatial use and foraging habits

4.1 A home range is defined as an area over which an animal or group of animals regularly travels in search of food or mates, and which may overlap with those of neighbouring animals or groups of the same species. The extent of an individual bats home range is usually determined by attaching a radio-transmitter and then tracking movement. Individuals can then be followed and the area that they use is then able to be determined.

4.2 Long-tailed bat home ranges can be large. In and around Hamilton, male long-tailed bats have home ranges from 25.9 - 871 hectares, and can cover 0.8- 7.3 kilometres in length.

4.3 Within their home ranges, long-tailed bats are often detected utilising forest edges, or other linear landscape features, such as bush pasture margins, waterways, or hillsides. Activity is highest near to the forest/vegetation margins or in areas where the flight path would lead to a gully containing native vegetation or to water. This is not surprising given that long-tailed bats are attracted to key resources associated with:

- mature exotic and native vegetation for roosting purposes;
- insect prey as a food resource;
- freshwater for drinking; and
- linear landscape corridors for movement and navigation.

4.4 Monthly surveys conducted by Dekrout et al (2014) at 18 green spaces found *C. tuberculatus* in only one urban forest reserve, Hammond Bush, where they were found consistently throughout the year.

4.5 While the Hammond Bush area may be small in comparison to a bats' home range, it appears to be a critical site which enables the species to be maintained in Hamilton and indeed for the connectivity of the surrounding landscape in general.

4.6 Twice-yearly citywide surveys conducted over 2 years in Hamilton by Dekrout et al (2014), determined the distribution and habitat associations of long-tailed bats in the city. Bats were found only in the Southern part of Hamilton city and were strongly associated with the Waikato River. Bat activity was negatively correlated with housing and street light density and positively correlated with topographical complexity.

4.7 The development of infrastructure in sites surrounding and within Hamilton has resulted in bats no longer being present, for example, at the current Te Uku windfarm site.

5 Potential Ecological Effects

5.1 Potential impacts of the proposed development on long-tailed bats can be divided into two groups – direct impacts and indirect impacts.

Direct impacts could include:

- Loss of roosts and impacts on roosting bats, in the course of the development
- Habitat fragmentation
- Loss of foraging habitat
- The creation of habitat edge effects, altering the composition and habitat value of adjacent vegetation.

Indirect impacts could include:

- Disturbance either from the development and associated activities (light, predators, human presence) and associated behavioural responses such as avoidance of the area;
- Reduced breeding success of bats because of the loss of feeding habitat and because of the loss of roosting trees and thus possible effects on meta-population dynamics.
- Changes in interactions between species such as predator prey dynamics, e.g. increased predation and scavenger pressure in the area because of the development

Multiple compounding interactive effects may enhance other impacts.

6 Potential effects of nocturnal lighting and road development

6.1 Research has found that long-tailed bat activity rates are highest in areas with no or very low light levels and is negatively associated with street light density (Dekrout et al 2014).

6.2 Increasing light is likely therefore to result in less use or complete avoidance of that site by long-tailed bats.

6.3 Some recent research suggests that long-tailed bat activity decreases near roads with high vehicle traffic volumes. Roads may therefore produce a fragmentation effect (Borkin et al 2016)

7 Mitigation measures

7.1 The three most important factors for maintaining long-tailed bats in Hamilton are 1) habitat protection, 2) the prevention of further habitat fragmentation and 3) predator control. Each of these is discussed further below.

7.2 Dark reserves, close to gullies and rivers are particularly important for maintaining this species. Protecting important forest habitat from light pollution loss will be critical for maintaining long-tailed bats in Hammond Bush. The size of the forest directly across from Hammond should be vegetated to a depth which is sufficient to reduce the risk of light pollution. Appropriate native vegetation growth will take time and appropriate measures to avoid light pollution until and indeed after regeneration has occurred should occur both prior and after any development in this area to reduce the risk of long-tailed bats being lost in the surrounding area. Any development should be staged giving the planting along the river and in connecting belts time to establish so it can both provide a barrier to disturbance and replace the habitat being lost. This is important because a time lag between any habitat loss and the establishment could result in adverse effects to the long-tailed bats. Any development which occurs prior to establishment should be away from Hammond bush and other key habitat sites.

7.3 To maintain the bats I recommend that at least a 125 meter forest depth is restored along the river across from Hammond bush with an appropriate buffer in addition (addressed below). It is also critical that appropriate green corridors are developed. For instance, this should be addressed and added to the plan between the river and the Mangakotukutuku gully.

7.4 Research has shown that the responses of canopy invertebrates and vegetation are similar to each other in regards to edge effects, although the effect on predator abundance extended into the forest for at least 100 m (Denyer et al. 2006). Therefore to ensure the insects the long-tailed bats feed upon are available, a 20meter buffer is recommended. This 20 meter buffer should be in addition to any additional mitigation required since in itself it will not provide additional habitat.

7.5 The loss of foraging habitat and potential impact on connectivity must also be considered and mitigated against. Substantial foraging habitat will be lost should the development occur as proposed. One method to mitigate against the loss of foraging habitat will be to increase the quality foraging habitat available. This could be achieved with the appropriate with pest control against wasps, possums, rats and cats in a sufficiently large restored forest area.

7.6 It is also important to consider how development will result in increased predator numbers. Ongoing pest control should occur in any restored area to mitigate against this impact.

7.7 To encourage the bats to utilise the area and mitigate loss of access to roost sites I recommend that bat boxes are also provided.

7.8 There will be a tipping point whereby the species can no longer survive in the city if appropriate, time framed and sufficient mitigation during and prior to property development does not occur.

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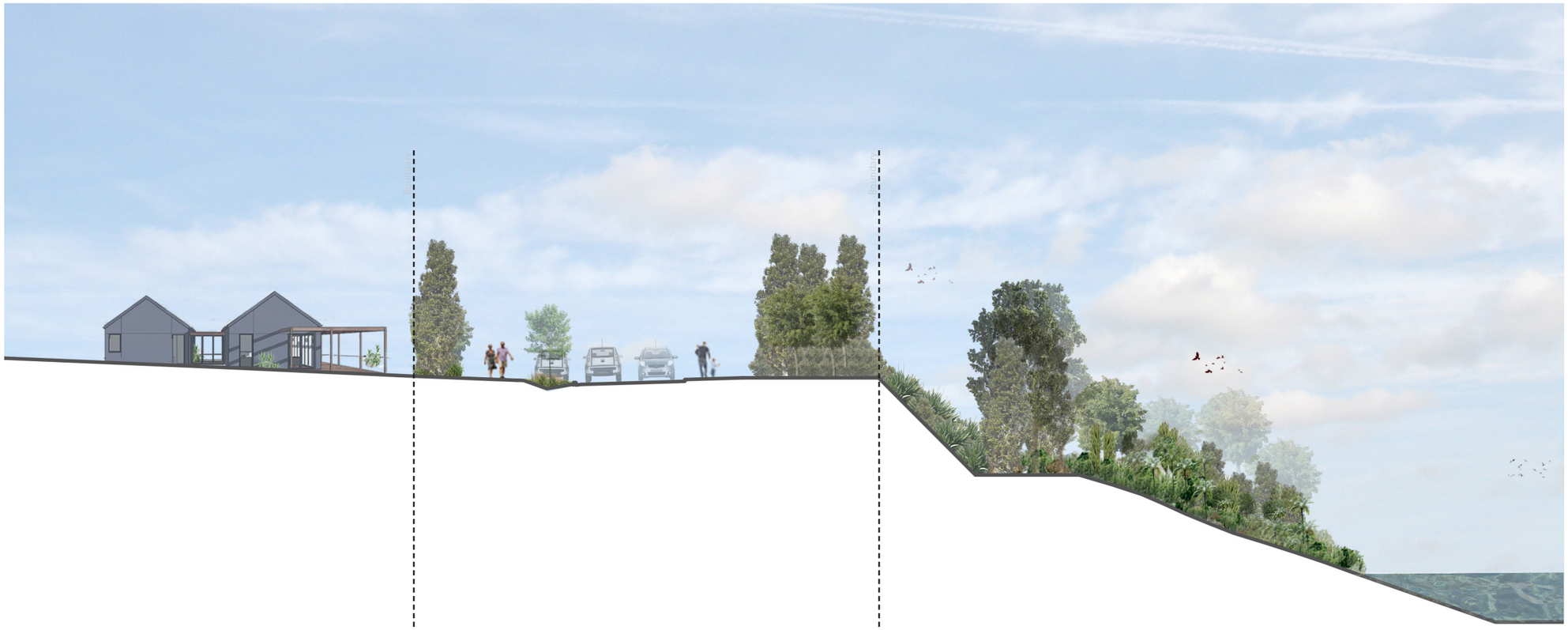
Appendix C: Northern River Road and Esplanade Cross Section (Drawing A17134-067, Rev D)



Northern River Road Cross Section
1:250 @ A3

LOCATION PLAN

0 7.5m
1:250 @ A3

AMBERFIELD
PEACOCKE STRUCTURE PLAN

Northern River Road and Esplanade Reserve Cross Section

DRAWING NUMBER A17134_067

Date: 20 September 2018
Revision: D

Plan prepared for Weston Lea Ltd
by Boffa Miskell Limited

Project Manager: **Rachel.deLambert**
@boffamiskell.co.nz

Drawn: BCl| Checked: RdL

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Appendix D: Signatories to Riverlea Environment Society Submission to Hamilton City Council on the Resource Consent Application for the Amberfield Development by Weston Lea Limited

28 September 2018

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#	Name	Address
1	Ross & Lyn Clarke	55 Malcolm Street, Riverlea
2	Richard & Trisha Howard	4 Geoffrey Place, Riverlea
3	Malcolm Williams	38 Malcolm Street, Riverlea
4	Genaya Macklow	212A Newell road, Tamahere
5	Tracey Seifert	4 Malcolm Street, Riverlea
6	S Ilanko & K Ilanko	57 Hudson Street, Riverlea
7	Ray Cooper	17 Callard Place, Riverlea
8	Chris & Moira Hubbard	53 Malcolm Street, Riverlea
9	Quiyan (Abby) Chen	4 Louise Place, Riverlea
10	Zhonghua Cao & Zhenmei Du	14 Sheriff Place, Riverlea
11	Ruth & Chris Eames	54 Hudson Street, Riverlea
12	Dr Martin Thrupp & Ms Marika Karshagen	20 Silva Crescent, Riverlea
13	Paul Stucki	66 Hudson Street, Riverlea
14	Adelaide Roza-Marie	59 Pickering Road, RD 1, Cambridge 3493
15	Alison Nicholls	3 Louise Pace, Riverlea
16	Margaret & Richard Thomson	7 Sheriff Place, Riverlea
17	John Elley & Pani Berghan	179 Riverlea Road, Riverlea
18	Donna McCracken	

19	Sandy Wilson	15 Callard Place, Riverlea
20	Rae Hartsone	14A Balfour Crescent, Riverlea
21	Bill & Gill Wright	22 Silva Crescent, Riverlea
22	Elaine Bliss	Howell Avenue, Riverlea
23	Sue & Alan Saunders	340 Cobham Drive, Hillcrest
24	John & Marie Conroy	Suite G6 2 Minogue Drive. Te Rapa 3200
25	Mary Cave-Palmer	16 Silva Crescent, Riverlea
26	Louise Stoneham	37 Chesterman Road, Riverlea
27	Graeme & Jennifer Stubbs	15 Johnsview Tce, Riverlea
28	John Duncan	17 Malcolm Street, Riverlea
29	Kay Young	19 McGregor Place, Hillcrest
30	Milwyn & Heather Rees	32 Howell Avenue, Riverlea
31	David & Debbie Clark	2 Callard Place, Riverlea
32	Kārên Rayner	111 Howell Avenue, Riverlea
33	Lynley & Lindsay Cumberpatch	60 Malcolm Street, Riverlea
34	Alec Forbes	149A Riverlea Road, Riverlea
35	Val McMullen	8 Norma Place, Riverlea
36	Leanne & Gordon Bills	7 Olympia Place, Riverlea
37	Karl Beckert Anna Friedlander	44 Chesterman Road, Riverlea
38	Bob Cuming	82 Morrinsville Road, Hillcrest
39	Lester & Susan Finch	41 Balfour Crescent, Riverlea
40	Fred & Sheryl Hayward	8 Sutton Crescent, Hillcrest
41	Deanna Nikoia	24 Johnsview Terrace, Riverlea
42	Mrs J Anderson	4C Hudson Street Riverlea
43	Bruce Laugesen	5 McCracken Avenue, Riverlea

44	Don & Helen Burns	28 Hudson Street, Riverlea
45	Sandra & Simon Murphy	60 Hudson Street, Riverlea
46	Ray & Alison Littler	78 Hudson Street, Riverlea
47	Ineke Castina & Helen Courtney	56 Hudson Street, Riverlea
48	Nitinchandra Paruleaker & Shubhangi Paruleakar	47 Howell Avenue, Riverlea
49	Ken & Judy Chandler	21 Newell Rd, RD 3, Hamilton 3283
50	Kirsty Stoddart	6 Hudson Street, Riverlea
51	Anna Kingsbury	17 Malcolm Street, Riverlea
52	Barry Barton	
53	Stephen Hamilton, PhD, ASAAP	23 Alan Street, Palmerston North 4414
54	Gregory Spencer Hill	52 Morris Road, Hillcrest
55	Tracy Cox	12 Malcolm Street, Riverlea
56	Patricia Macky	34A Silva Crescent, Riverlea
57	Graham & Robyn McBride	37 Balfour Crescent, Riverlea
58	Winnie Arntsen	
59	Sonia Fursdon	14 Riverlea Road, Riverlea
60	Cambridge Road Community Kindergarten	218 Cambridge Road, Riverlea
61	Sam & Frances Edwards	41 Malcolm Street, Riverlea
62	Maree McNulty	1 Olympia Place, Riverlea
63	John & Glenda Caradus	8 Geoffrey Place, Riverlea
64	Josie Lambert	10 Chesterman Road, Riverlea
65	Kay & Graham Young	36 Howell Avenue, Riverlea
66	Charles Friedlander & Anne Ferrier-Watson	35 Chesterman Road, Riverlea
67	James McNulty	1 Olympia Place, Riverlea

68	Vicki Moss	24 Hudson Street, Riverlea
69	Celia & Tim Hope	22 Eton Drive, Hillcrest
70	Ken & Chris Johnson	47B Balfour Crescent, Riverlea
71	Phil Irvine	18 Sheriff Place, Riverlea
72	Mike Ballard	81 Howell Avenue, Riverlea
73	Stephanie Jones	15 Chesterman Road, Riverlea
74	Natasha & Liam Ryan	23 Cranwell Place, Hillcrest
75	Karina Brown	34b Mansel Avenue, Hillcrest
76	Amanda & Simon Young Alice Young Ben Young Joyce Tao Bill Christensen Merle Whittaker	27 Balfour Crescent, Riverlea
77	Antoinette Maulder	24 Mansel Avenue, Hillcrest
78	Louise McKinnon	8 Mansel Avenue, Hillcrest
79	Raelyne Selby	167 Raynes Road, Hamilton
80	Leonie Wouterson & Derek Conran	8 Olympia Place, Riverlea
81	John-Paul Oliver & Helen Lynch	98 Howell Avenue, Riverlea
82	Catherine Fife	4 Norma Place, Riverlea
83	Dr Ngaire Phillips	27 Johnsview Terrace, Riverlea
84	Kim Endres	7 Silva Crescent, Riverlea
85	Roderick Aldridge	Barrie Crescent, Silverdale
87	John Wort	6A Howell Avenue, Riverlea
88	Elizabeth Hamilton	20 Johnsview Terrace, Riverlea
89	Helene Barron	322 Cobham Drive, Hillcrest
90	Christine Baigent	18 Sheriff Place, Riverlea
91	Lucy McKergow & Andrew Hughes	25 Hudson Street, Riverlea

92	Rebecca Hamilton	2 Sheriff Place, Riverlea
93	Kim de Waard	784 Whatawhata Road, RD5 Hamilton 3285
94	Glenda Knox	20 Chesterman Road, Riverlea
95	Jan Black	48a Hudson Street, Riverlea
96	Margaret & Jim MacFarlane	29 Hudson Street, Riverlea
97	Nadia Gush	5 Howell Avenue, Riverlea
98	Catherine & Rodney Murray	78 Howell Avenue, Riverlea
99	Judy Cole	2a Howell Avenue, Riverlea
100	Laura Jones	40 Urlich Avenue, Melville
101	Kay Wells	Waikato Bedding, Riverlea Road
102	Liz Selby	4 Clark Place, Hillcrest
103	Terence & Margaret John McDonald	12 Callard Place, Riverlea
104	Julia French	8 McCracken Avenue, Riverlea
105	Minh-Long Nguyen & Sharon Helen Nguyen	11 Balfour Crescent, Riverlea
106	Allan Pearson	47a Balfour Crescent, Riverlea
107	Margaret Nicol	35 Howell Avenue, Riverlea
108	Bruce & Linda Winders	40 Chesterman Road, Riverlea
109	Hattie Cui	45 Balfour Crescent, Riverlea
110	Andrea & Ian Graves	27 Hudson Street, Riverlea
111	Tania Macdonald	60a Malcolm Street, Riverlea
112	Robert Welch	54 Malcolm Street, Riverlea
113	John Badham	44 Howell Avenue, Riverlea
114	Tim Cavanagh	5 Silva Crescent, Riverlea
115	David Pattemore	28 Howell Ave, Riverlea.
116	Anna Sinclair	Matangi Road

117	Thelma Hodson	93 Riverlea Road
118	Crystal Felman	30 Chesterman Road