

Green Seed Consultants Ltd  
C/- Tollemache Consultants Ltd  
7 Conway Road  
Mount Eden  
Auckland 1024

Attention: Renee Fraser-Smith

Dear Renee

## 1 Long-tailed bat survey - Rotokauri North Subdivision

Tonkin & Taylor Ltd (T+T) was engaged by Green Seed Consultants Ltd (GSCL) to undertake long-tailed bat (*Chalinolobus tuberculatus*) surveys to inform resource consent applications to Hamilton City Council (HCC) for the proposed Rotokauri North subdivision<sup>1</sup>.

The survey work covered the Rotokauri North subdivision area (c. 107 ha) which will be subject to a private plan change application. The Rotokauri North private plan change area is hereafter referred to as 'the site'. This letter report presents the results of two bat surveys undertaken across the site. The approximate boundaries of the Rotokauri North private plan change area are shown on the location plan provided in Appendix A.

## 2 Background

Long-tailed bats are currently classified as a 'Threatened – National Critical' species and are endemic to New Zealand<sup>2</sup>. Populations of long-tailed bats are known to inhabit Hamilton City and the surrounding landscapes and have been recorded approximately 3 km from the site. Local 'hotspots' of long-tailed bat activity are along the Waikato River and its associated gullies at the southern end of Hamilton and the Hakarimata Ranges which are approximately 10 km from the site.

A 2019 assessment of habitat within the site identified features suitable for commuting (e.g. linear features such as shelterbelts and low amounts of artificial lighting), foraging (e.g. watercourses containing slow and standing water) and roosting (e.g. trees with obvious cavities, cracks, flaky bark and broken limbs)<sup>3</sup>. The subsequent report recommended acoustic bat monitoring surveys over the site during spring and summer 2019/2020 to establish whether long-tailed bats are present on site, the levels of bat activity on site and to determine how long-tailed bats may be utilising the site (i.e. commuting, foraging or roosting activity).

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<sup>1</sup> This letter has been prepared in accordance with the T+T proposal dated 22 November 2019 and terms agreed between T+T and GSCL on 22 June 2020.

<sup>2</sup> O'Donnell, C., Borkin, K., Christie, J., Lloyd, B., Parsons, S. and Hitchmough, R. (2018). Conservation status of New Zealand bats, 2017. New Zealand Threat Classification Series 21. Department of Conservation, Wellington.

<sup>3</sup> Longstaff, K. & Bartels, B. (2019). Rotokauri North Stage 1 Subdivision: Ecological Assessment. Technical report produced by Tonkin & Taylor Ltd.

### 3 Methodology

Two bat surveys were undertaken across the site (Appendix A). The first survey was completed using 12 Automated Bat Monitors (ABMs; ARM v1.31 DSP v1) and spanned 28 nights from 18 December 2019 to 15 January 2020 (Appendix A). The second survey was completed using 11 ABMs<sup>4</sup> over 15 nights from 3-18 March 2020 (Appendix A). ABMs were deployed in locations where bat activity was considered most likely to be detected e.g. along shelterbelts and areas with potential roost trees.

Bat activity is impacted by weather conditions and the lunar cycle<sup>5</sup>. Weather conditions were monitored during the survey periods to determine if conditions may have been limiting bat activity in the area. Suitable weather conditions for bat activity include:

- Minimum temperature of 10 °C within the first two hours after sunset;
- ≤ 2.5 mm rainfall over the first two hours after sunset;
- Mean overnight wind speed no greater than 20 km/h; and
- Maximum overnight wind gust of 60 km/h.

High night-time light levels during full moons is expected to limit long-tailed bat activity due to the increase risk of predation. The lunar cycle was checked to identify nights of full moons. Full moons occurred on 11 January 2020 and 10 March 2020. These dates and one night either side are considered unsuitable for monitoring long-tailed bats.

Data collected on nights where weather conditions and moon phase were unsuitable have been excluded from any analysis. Data collected on suitable monitoring nights were analysed using BatSearch3 software by a suitably qualified bat ecologist.

### 4 Results

Weather conditions and moon phase were suitable for monitoring bat activity on 23 of the 28 survey nights for the first survey and 10 of the 14 survey nights for the second survey.

No long-tailed bat passes were detected by any of the ABMs in either of the surveys.

### 5 Conclusions

The results of two specific surveys found no evidence of long-tailed bats inhabiting the site. However, we cannot rule out the potential that bats periodically use the site for commuting, foraging or roosting due to the wide-ranging behaviour of the species, the potential habitat available on site, and the proximity to recorded long-tailed bat activity.

### 6 Applicability

This letter has been prepared for the exclusive use of our client Green Seed Consultants Ltd, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application for resource consent and that Hamilton City Council as the consenting authority will use this report for the purpose of assessing that application.

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<sup>4</sup> 12 ABMs were deployed but one did not function for reasons unknown.

<sup>5</sup> O'Donnell, C.F (2000). Influence of season, habitat, temperature, and invertebrate availability on nocturnal activity of the New Zealand long-tailed bat (*Chalinolobus tuberculatus*). *New Zealand Journal of Zoology*, 27(3), 207-221.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:

Authorised for Tonkin & Taylor Ltd by:



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Technical review by Trevor Connolly, Senior Terrestrial Ecologist

ADPU

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report.docx

**Appendix A: Location map of acoustic bat monitors  
across the proposed Rotokauri North  
subdivision area**

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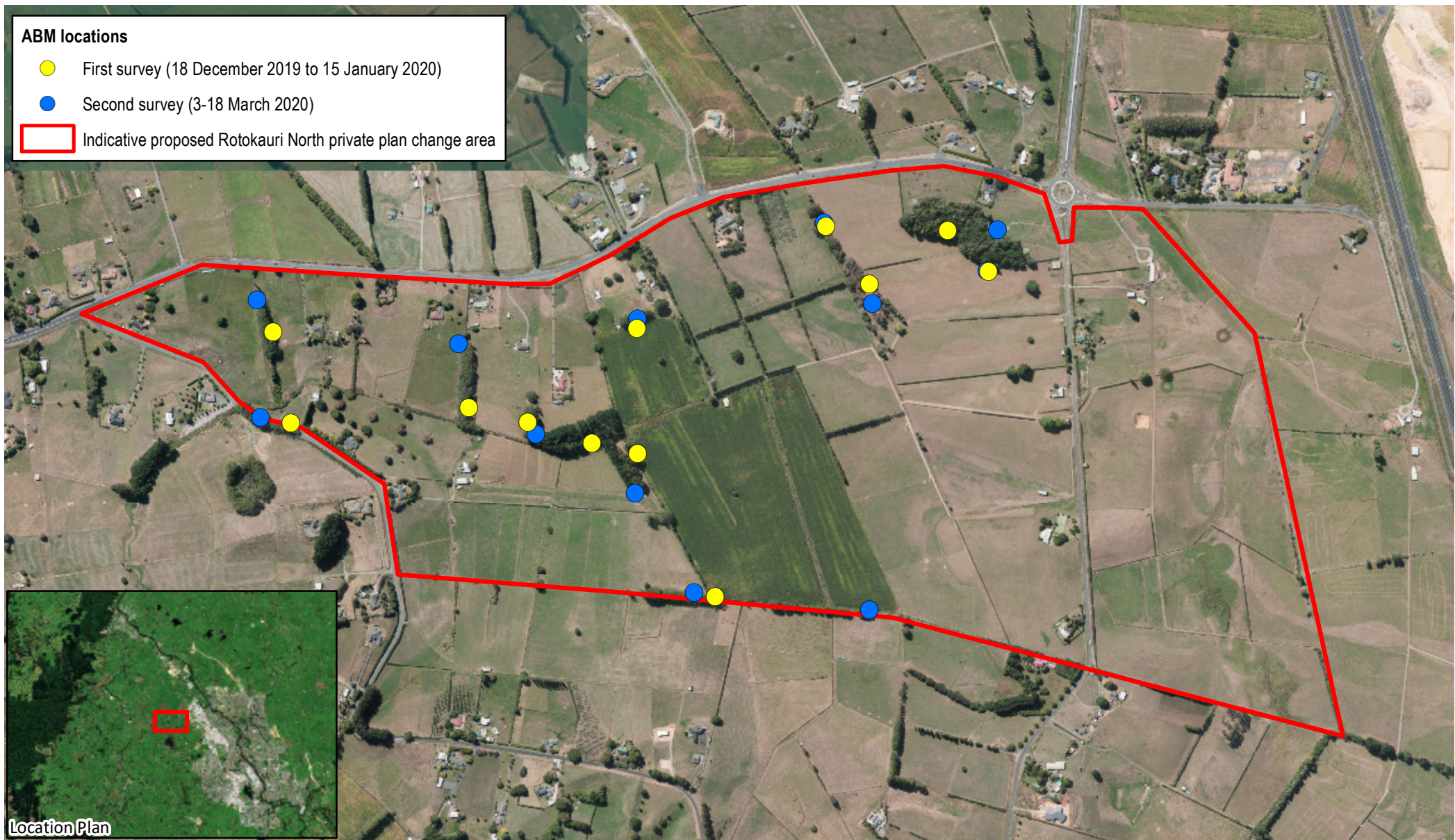
Path: T:\Hamilton\Projects\1011199\WorkingMaterial\Phase 3 Bat surveys\GIS\Rotokauri\_ADPU.mxd Date: 23/06/2020 Time: 11:29:10 am

**ABM locations**

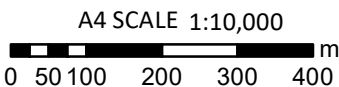
● First survey (18 December 2019 to 15 January 2020)

● Second survey (3-18 March 2020)

▭ Indicative proposed Rotokauri North private plan change area



**Notes:**  
 No bat passes were detected in either survey.  
 Aerial Imagery sourced from the LINZ Data Service and licensed for re-use under the CC 4.0.  
 Proposed subdivision boundaries are indicative only and should not be used for legal purposes.



**Tonkin+Taylor**  
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DRAWN	ADPU	Jun.20
CHECKED	MOLI	Jun.20
APPROVED	DCM	Jun.20
ARCFILE		
Rotokauri_ADPU.mxd		
SCALE (AT A4 SIZE)		
1:10,000		
PROJECT No.		
1011199		

**GREENSEED CONSULTANTS LTD.**  
 ROTOKAURI NORTH STAGE 1 SUBDIVISION  
 Acoustic Bat Monitor Locations

FIGURE No. Appendix A

Rev. 0