

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of an application to **HAMILTON CITY COUNCIL** for private plan change 7 to the operative Hamilton City District Plan by **GREEN SEED CONSULTANTS LIMITED**

STATEMENT OF EVIDENCE OF DEAN CRAIG MILLER

1. INTRODUCTION

1.1 My name is Dean Craig Miller. I am a Principal Ecologist at Tonkin & Taylor Ltd (**T+T**). I have been employed at T+T for 19 years, and I have been in my current role as a principal ecologist for five years.

Qualifications and experience

1.2 I hold the qualifications of Bachelor of Science and Master of Science and Technology with First Class Honours in Biological Sciences, from the University of Waikato. I am a member of the New Zealand Freshwater Sciences Society.

1.3 I have 19 years' experience in environmental consulting, specialising in resource evaluation and management work in freshwater environments, with specific areas of expertise in water quality, freshwater ecology, fish passage and assessment of ecological effects.

1.4 I have been involved in freshwater ecology-related aspects of projects in New Zealand since 2002. This work has included preparation and implementation of ecological monitoring and management plans, specialist water quality and ecology advice, coordination of small and large-scale ecological evaluations, assessment of ecological effects for projects within and affecting freshwater environments, and technical review of resource consent applications.

1.5 Recent projects I have been involved in include the following:

(a) I prepared a comprehensive assessment of ecological effects for the proposed Rotokauri Greenway Stormwater management corridor for Hamilton City Council. I presented technical evidence at the Notice of Requirement hearing.

(b) I provide freshwater ecology technical services for several Hamilton City Council Integrated Catchment Management Plan (**ICMP**) projects. This includes

comprehensive catchment investigations, stakeholder liaison, input into ICMP documents, and technical review.

- (c) I am the lead freshwater ecologist on Hamilton City Council's Southern Links Ecological Management and Monitoring Plan (**EMMP**) project. I coordinated comprehensive ecological surveys for streams impacted by the proposed Southern Links Road, contributed to restoration planning and am involved in the implementation of the freshwater ecology aspects of the EMMP.
- (d) I have provided ecology and water quality expertise to Hamilton City Council in relation to the Council's comprehensive stormwater discharge consent compliance project since 2010. This work has included development and implementation of a detailed city-wide receiving environment effects focused monitoring programme.

Involvement in the Project

- 1.6 I was engaged by Green Seed Consultants Limited (**GSCL**) (via Hamilton City Council) to undertake a technical review of stream classifications across the Plan Change 7 (**PC7**) land (**the site**) and prepared a report detailing my assessment. This was in order to provide a clear indication of the stream classifications in accordance with the Waikato Regional Plan (**WRP**). My report entitled 'Rotokauri North Development Area: Technical review of stream classifications' (**stream classification report**), dated 7 December 2018 was submitted as part of the PC7 application.
- 1.7 T+T was later instructed to undertake a bat survey in 2020. The work was undertaken by suitably qualified bat ecologists at T+T. My role as T+T's Project Director was to provide project oversight. The T+T report entitled 'Long tailed bat survey – Rotokauri North Subdivision' (**bat survey report**), dated 25 June 2020 was submitted as part of the PC7 application.
- 1.8 I have been engaged to prepare evidence for the upcoming hearing of PC7 on those two inputs that have been provided on PC7 by T+T.

Purpose and scope of evidence

- 1.9 The purpose of my evidence is to summarise the findings of stream classification and bat survey reports. Those reports can be referred to for detail. My comments on the bat survey are factual only as this is outside of my area of expertise.
- 1.10 To that end, my evidence covers the following:
 - (a) Overview of the stream classification and bat survey reports (Section 3);

- (b) Comments on the Council's section 42A report (**section 42A report**) (Section 4); and
- (c) Conclusions (Section 5).

1.11 I provide a brief summary of my evidence in Section 2 below.

1.12 I have visited the site on two occasions as part of my work on PC7, most recently in December 2018. T+T ecologists working under my instruction visited the site more recently in May 2021 and have confirmed the information in the 2018 watercourse classification report remains relevant.

1.13 For the purposes of my evidence, I have read the following:

- (a) The memorandum prepared by John Turner of WSP to Craig Sharman of Hamilton City Council in support of the section 42A report, dated 3 September 2021;
- (b) The sections of the 'Stormwater System Report' prepared by Bloxam Burnett & Olliver, dated 23 July 2021 (Attachment J to PC7) that are relevant to freshwater ecology (**Stormwater System Report**); and
- (c) The sections of the report 'Receiving environment and rapid erosion assessment – Rotokauri North Sub-Catchment' prepared by Morphum, dated September 2018 (Attachment D of Attachment 9 to PC7) (**Morphum Report**) related to stream classification.

Expert Witness Code of Conduct

1.14 I have been provided with a copy of the Code of Conduct for Expert Witnesses contained in the Environment Court's 2014 Practice Note. I have read and agree to comply with that Code. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

2. SUMMARY OF EVIDENCE

2.1 My evidence summarises the findings of stream classification and bat survey investigations undertaken in the PC7 land by T+T. I was the author of the stream classification report and had oversight at T+T of the bat survey report.

2.2 The stream classification report confirmed that within the PC7 area, the majority of the watercourses within Ohote and Te Otamanui sub-catchments are artificial watercourses, in accordance with the relevant definitions from the WRP. In my opinion the lower reaches of both tributary systems are appropriately classified as "modified

watercourse". I support the protection and enhancement of the sections of modified watercourses on the site, concepts for which are set out in the Stormwater System Report.

- 2.3 T+T ecologists undertook two bat surveys at the site in late 2019 and early 2020. No long-tailed bat passes were detected in either of these bat surveys. However, the potential that bats periodically use the site for commuting, foraging or roosting cannot be ruled out. Bat management will therefore be needed prior to site clearance.

3. **OVERVIEW OF THE STREAM CLASSIFICATION AND BAT SURVEY REPORTS**

The site

- 3.1 The site comprises approximately 140 hectares of predominantly rural agricultural land, bounded by Te Kowhai Road (State Highway 39) to the north, greenfield lands to the east and south, and Exelby Road to the west and south. The site has some rolling hills around the southern and eastern edges, but is largely flat.
- 3.2 The site was historically a wetland, which was drained in the 1900s to enable agricultural land practices. The historic extent fen wetland prior to human modification is shown on the stream classification map **attached as Appendix 1**. This is from the historical wetland GIS layer sourced from the Ministry for the Environment. The site has subsequently been used for livestock and dairy farming. Currently, the site contains some rural-residential lifestyle lots, and continued agricultural use.

Stream classification report

- 3.3 The Morphum Report (at page ii) states that the Rotokauri North sub-catchment has four receiving environments, the Ohote and Te Otamanui streams to the west, Mangaheka to the north and Lake Rotokauri to the south. The bulk of the site is drained by unnamed tributaries of the Ohote and Te Otamanui streams, and these watercourses were the focus of the stream classification report. As such, I briefly summarise the classification of these watercourses under the WRP in the following paragraphs.
- 3.4 The watercourse definitions from the WRP that are relevant to stream classification are **attached in Appendix 2**. The definitions for ephemeral streams, perennial streams, modified watercourse and artificial watercourse are most relevant to the site and my assessment. None of the watercourses on site are completely unmodified. The most relevant watercourse definitions to my assessment are therefore "modified watercourse" vs "artificial watercourse". I note that based on WRP definitions "farm drain" is a type of artificial watercourse.

Te Otamanui sub-catchment

- 3.5 The unnamed tributary of Te Otamanui Stream comprises a network of managed channels within an agricultural setting and all of the watercourses on site are straightened. The watercourse network is shown on the map in Appendix 1.
- 3.6 In its current state the entire network is arguably “artificial watercourse”, given there are no natural portions or channels from headwaters to the confluence with a river or stream. However, it is highly likely there would have been a stream drainage feature from this area prior to development of the land for agriculture. Only the main stem is likely to be in the vicinity of any original watercourse alignment with any certainty and my view is that the lower portion of this would be appropriately classified as “modified watercourse”. This upstream extent of the section of “modified watercourse” as shown in Appendix 1 is arbitrary other than it is the likely upstream extent of perennial flow. The remainder of the watercourses within the Te Otamanui Stream catchment within the site in my view are artificial.

Ohote sub-catchment

- 3.7 The unnamed tributary of Ohote Stream also comprises a network of managed channels within an agricultural setting. All of the watercourses are straightened other than a 200 m long reach of the main stem at the downstream end of the site, although this also appears to have a modified channel (deepened). The watercourse network is shown on the map in Appendix 1.
- 3.8 In my view the lower reach of the main stem would be appropriately classified as “modified watercourse”. This is on the basis that the most downstream section follows the natural topography and that a stream would have been present historically in the vicinity of the main channel. The upstream extent of the section of “modified watercourse” is arbitrary other than it is the likely upstream extent of perennial flow. The remainder of the watercourses on site in my view are artificial and constructed for land drainage purposes.

Bat survey report

- 3.9 The following paragraphs present a brief summary of the bat survey work undertaken at the site by T+T.
- 3.10 A 2019 assessment of habitat within the site by T+T ecologists 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). T+T were subsequently engaged to undertake bat survey work at the site.

- 3.11 T+T ecologists undertook two bat surveys, using Automated Bat Monitors (**ABMs**) in areas where bat activity was considered most likely (primarily along shelterbelts and areas with potential roost trees) across the site as follows:
- (a) 28-night survey from 18 December 2019 to 15 January 2020 using 12 ABMs; and
 - (b) 15-night survey from 3 March 2020 to 18 March 2020, using 11 ABMs.
- 3.12 Only data collected on nights with optimal conditions were included in the analysis. This represented 23 of the 28 survey nights in the first survey, and 10 of the 14 survey nights in the second survey.
- 3.13 No long-tailed bat passes were detected by any of the ABMs in either of the surveys. The report concluded that the potential that bats periodically use the site for commuting, foraging or roosting cannot be ruled out.

4. **SECTION 42A REPORT**

- 4.1 I have read the parts of the section 42A report prepared by Mr Craig Sharman that are relevant to ecology, and the ecology technical review report prepared by Mr John Turner.
- 4.2 With respect to site watercourses, Mr Turner concludes as follows:

"The proposed 'Green Spine' provides an opportunity to enhance the form and function of the existing streams and develop green corridors through the site that are of higher ecological value than currently exist. Provided the approach to habitat enhancement detailed in the Stormwater System Report is implemented, ecological enhancement will be achieved."

- 4.3 'Green Spine' areas are shown on Structure Plan Maps: Figure 2-8A. I note that the indicative 'Green Spine' areas capture the sections of modified stream as determined through my stream classification assessment for the Ohote and Te Otamanui Stream tributaries, and the protection and enhancement of these is consistent with my previous advice to GSCL. I have read the information on stream enhancement provided in the Stormwater System Report. I support the concept level information provided in Section 4.5 and Section 8 as it relates to stream enhancement.
- 4.4 Mr Turner's review mentions the black mudfish survey work undertaken as part of the Morphum report and that no mudfish were detected at five survey locations at the site. I note that further survey work is needed to better understand the presence or otherwise of black mudfish in site watercourses, including sections of artificial watercourse. In my opinion, it is not necessary to resolve this for the PC7 process.

4.5 With respect to bats, Mr Turner concludes that given the apparent expansion of bat activity within the city, including Waiwhakareke, that inclusion of rules in the district plan requiring further bat survey prior to site clearance are appropriate. I agree that bat management will be needed prior to site clearance. Matters relating to district plan provisions are addressed in the evidence of Mr Tollemache and Ms Fraser-Smith.

5. **CONCLUSIONS**

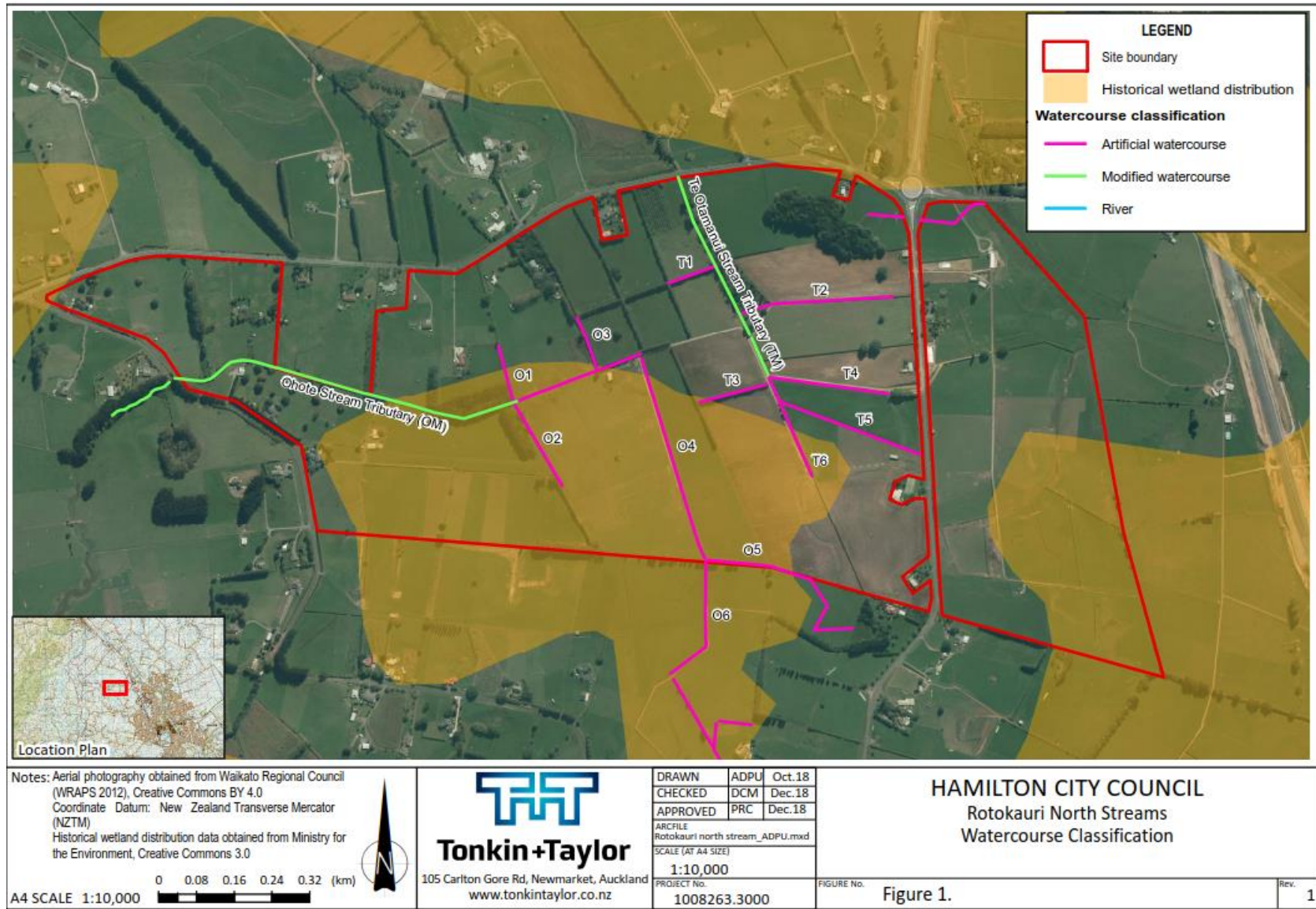
5.1 In summary, with respect to the two specific areas of investigation that have been undertaken in the PC7 land by T+T:

- (a) The stream classification report confirmed that within the PC7 area, the majority of the watercourses within Ohote and Te Otamanui sub-catchments are artificial watercourses, in accordance with the relevant definitions from the WRP. In my opinion the lower reaches of both tributary systems are appropriately classified as "modified watercourse"; and
- (b) While no long-tailed bat passes were detected by any of the ABMs in either of the bat surveys undertaken by T+T, the potential that bats periodically use the site for commuting, foraging or roosting cannot be ruled out.

Dean Craig Miller

24 September 2021

Appendix 1: Rotokauri North Streams: Watercourse Classification



Appendix 2: Waikato Regional Plan – Glossary of relevant terms

| Term | Definition |
|------------------------|---|
| Ephemeral streams | Streams that flow continuously for at least three months between March and September but do not flow all year. |
| Perennial streams | A stream that flows all year round assuming average annual rainfall. |
| River | A continually or intermittently flowing body of fresh water, and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal). |
| Modified watercourse | An artificial or modified channel that may or may not be on the original watercourse alignment and which has a natural channel at its headwaters. |
| Artificial watercourse | A watercourse that contains no natural portions from its confluence with a river or stream to its headwaters and includes irrigation canals, water supply races, canals for the supply of water for electricity power generation and farm drainage canals. |
| Farm drainage canal | An artificial watercourse on a farm that contains no natural portions from its confluence with a river or stream to its headwaters, and includes a farm drain or a farm canal. |