

**BEFORE THE MANAWATŪ-WHANGANUI REGIONAL COUNCIL
INDEPENDENT HEARING PANEL**

IN THE MATTER of the Resource Management
Act 1991 ("RMA" or "the
Act")

AND

IN THE MATTER of resource consent
applications to **MANAWATŪ-
WHANGANUI REGIONAL
COUNCIL** by **WINSTONE
PULP INTERNATIONAL
LIMITED** to discharge up to
750m³/day of condensate
wastewater, and land
disturbance together with
any ancillary diversion of
water and discharge of
sediment for the associated
construction of a wetland
(ATH-2010011593.03 and
ATH-202609463.00).

**STATEMENT OF EVIDENCE OF TREFFERY JEAN BARNETT
DATED 29 SEPTEMBER 2026**

1. SUMMARY OF EVIDENCE

- 1.1 My evidence provides the results of instream ecological surveys of aquatic life in the Whangaehu River, along with an ecological assessment of the construction of the proposed new polishing wetland.
- 1.2 The Whangaehu River exhibits unique water quality conditions influenced by volcanic inputs from Mt Ruapehu, resulting in naturally very low pH (acidic water).
- 1.3 The consistently naturally very low pH is an ecologically limiting factor in the river, resulting in a naturally very low macroinvertebrate abundance and diversity, and no native fish.
- 1.4 Consequently, the ecological value of the Whangaehu River for native fauna, in the assessment reach, is assessed as Very Low.
- 1.5 The ecological value of vegetation and habitat for native fauna at the proposed polishing wetland site is assessed as Negligible. The loss of the

vegetation for the construction of the new wetland is assessed as a High magnitude of effect, resulting in an overall Very Low level of effect. With the proposed native planting on the bunds within and adjacent to the wetland, the magnitude of effect is assessed as Positive, resulting in a Net Gain level of effect.

- 1.6 The Whangaehu River is a large receiving environment relative to the volume of the proposed discharge and provides significant dilution. Based on the available information, the discharge is not expected to result in adverse water quality effects on the ecology of the Whangaehu River after reasonable mixing.

2. INTRODUCTION

- 2.1 My name is Treffery Jean Barnett. I am a Technical Director (Freshwater and Coastal Ecology) at Babbage Consultants Limited.
- 2.2 This evidence has been prepared in respect of the resource consent applications by Winstone Pulp International Limited ("**WPI**" or "**the Applicant**") to consent the discharge of up to 750 m³/day of condensate wastewater associated with the proposed wood processing operations, in addition to consent for land disturbance together with any ancillary diversion of water and discharge of sediment associated with construction of the wetland ("**the Proposal**") at 1002 State Highway 49, Tangiwai ("**the Site**") under the Horizons Regional Council One Plan ("**One Plan**").

Qualifications and experience

- 2.3 I have practiced as a consultant ecologist for the past 30 years.
- 2.4 I am the Technical Director of Freshwater and Coastal Ecology, and a Senior Ecologist at Bioresearches, Consulting Biologists in Auckland, which is a subsidiary of Babbage Consultants. I have been in this role for 11 years.
- 2.5 I have a Bachelor of Science (1983) and Master of Science (Hons) (1985) from the University of Auckland. I am a Certified Environmental Practitioner - Ecology Specialist (CEnvP-Ecology Specialist), and I am a member of the New Zealand Freshwater Sciences Society, the Ornithological Society of New Zealand, and the Environment Institute of Australia and New Zealand.
- 2.6 My speciality and particular area of expertise is freshwater and coastal ecology. During my career, I have been responsible for undertaking and coordinating numerous assessments of rivers, streams, wetlands and coastal environments throughout New Zealand.

- 2.7 I have given expert opinions and evidence on issues and matters relating to freshwater ecology in hearings, including mediation in the Environment Court. I commonly appear on behalf of clients before consent authorities.
- 2.8 Examples of my experience relevant to this project are:
- (a) Watercare Services Limited - Beachlands Wastewater Treatment Plant – Water Quality and Biological Monitoring Assessments, Te Puru Stream Tributaries, Maraetai (2016–2026), including the preparation of an Ecological Impact Assessment for expansion and new consents.
 - (b) OceaniaGold Waihi – water quality and biological monitoring and annual reporting for treated mine water discharges to the Ohinemuri River (2023 – 2024).
 - (c) Waste Management New Zealand – Freshwater ecological effects of Redvale Landfill Expansion on the Rangitopuni River and tributaries. (2024 – 2026).
 - (d) Ecological effects of water intakes and discharges for Te Tahi Water treatment plant; Bremner Road bridge construction over the Ngakaroa Stream; New Zealand Steel Waikato River; Synlait Pokeno effluent disposal; Waihou River and Puri River intakes.

Involvement in project

- 2.9 I was engaged by WPI in February 2026 to review the previous ecological surveys of the Whangaehu River relating to the application, including Horizons Regional Council notification report on Aquatic Ecology; carry out site assessments and prepare an assessment of ecological effects of the application.
- 2.10 I am the author of Technical Memo 3 (Karioi Wood Processing – Ecological Information) dated 29 April 2026. .
- 2.11 This evidence should be read alongside that assessment.
- 2.12 I have read the following documentation:
- (a) The resource consent application prepared by Suhki Singh of Babbage Consultants Limited dated 30 April 2026 and associated technical memorandums;¹

1 Being the Technical Memorandums 1-8.

- (b) Council's section 92 request dated 18 May 2026, and Babbage Consultants Limited's response dated 11 June 2026 and associated attachments;²
- (c) The ecological assessments in the Assessment of Environmental Effects Report prepared by Viridis & Mitchell Daysh (dated March 2025);
- (d) The submissions filed on the application;
- (e) The Applicant's memorandum dated 8 September 2026; and
- (f) Council's s 42A reports ("**s 42A Report**") prepared by Ms Fiona Morton and Mr Kerry Pearce dated 22 September 2026 and attachments.

2.13 I last visited the site on 5th March 2026.

Purpose and scope of evidence

2.14 The purpose of my evidence is to:

- (a) Provide the results of instream ecological surveys of aquatic life in the Whangaehu River and two adjacent tributaries (for comparison);
- (b) Provide an assessment of the construction of the proposed new wetland system located on the Site; and
- (c) Assess the water quality report³ in relation to effects on ecology.

2.15 Specifically, my evidence will:

- (a) Briefly describe the Proposal, receiving environment, and Site context (Section 3);
- (b) Provide my instream fauna assessment methodology and findings (Section 4);
- (c) Discuss the ecological effects of the proposed wetland (Section 5);
- (d) Assess the water quality report in relation to the effects on ecology (Section 6); and

² Being Attachments 1-7.

³ Prepared by Lobo Coutinho dated 29 April 2026.

- (e) Comment on the Council Officer's s 42A Report (Section 8).

Expert Witness Code of Conduct

- 2.16 I have read the Code of Conduct for Expert Witnesses, contained in the Environment Court's Practice Note (2023) and I agree to comply with it. I can confirm that the issues addressed in this statement are within my area of expertise and that in preparing my evidence I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

3. **THE PROPOSAL, RECEIVING ENVIRONMENT, AND SITE CONTEXT**

- 3.1 The description of the Proposal, the receiving environment, and Site context is outlined in the planning evidence of Sukhi Singh and Council's s 42A Report. Further to this, I note the following specific matters that are relevant to my evidence:

- (a) The Whangaehu River exhibits unique water quality conditions influenced by volcanic inputs from Mt Ruapehu, resulting in naturally very low pH (acidic water). The consistently naturally very low pH is an ecologically limiting factor in the river.
- (b) The Whangaehu River is a large receiving environment relative to the volume of the proposed discharge and provides significant dilution and capacity.

4. **INSTREAM FAUNA ASSESSMENT METHODOLOGY AND FINDINGS**

Methodology

- 4.1 Macroinvertebrate communities, including the structure, abundance and diversity, are indicators of the long-term health of streams and water quality. Different taxa display varying tolerance to pollutants, and the presence or absence of particular taxa can provide useful indicators to stream health and condition.

4.2 Macroinvertebrates were sampled from the upstream and downstream monitoring site habitats in the Whangaehu River, and two tributaries to the Whangaehu River, the Wahianoa and Waitangi Streams (Figure 1).

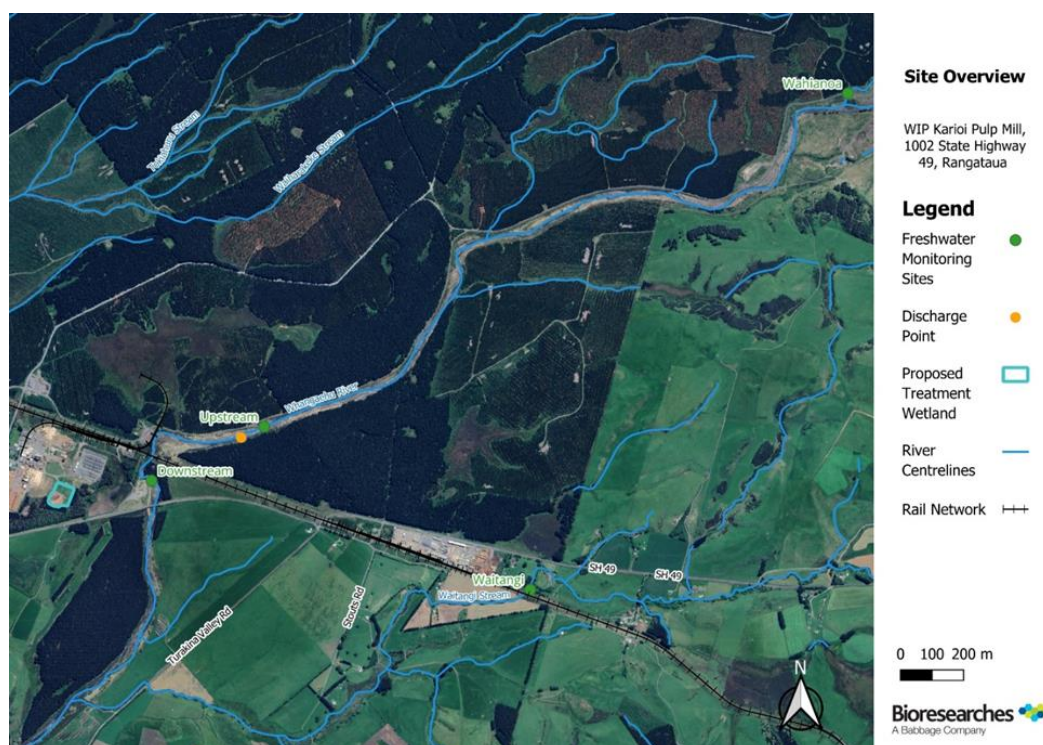


Figure 1. WIP Karioi Pulp Mill instream survey and monitoring sites.

4.3 Five biotic indices were calculated, namely:

- (a) The number of taxa;
- (b) The number and percentage of Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) recorded in a sample (% EPT);
- (c) The Macroinvertebrate Community Index (MCI); and
- (d) The Semi-Quantitative Macroinvertebrate Community Index (SQMCI).

4.4 Fish communities can also be good indicators of stream ecosystem health. Fish communities were sampled on 4 – 5 March 2026. At each survey location, four fyke nets and eight Gee's minnow traps were set, where sufficient water was present. Nets and traps were baited and left overnight at each site. Nets and traps were set in general accordance with the New

Zealand Freshwater Fish Sampling Protocols (Joy et al., 2013), but in a modified position or density because of the high velocity of the rivers.

- 4.5 The results of the fish surveys were used to calculate the fish Index of Biotic Integrity (IBI). The IBI compares the community of fish present, with what might be expected to occur considering altitude and distance inland from the coast.

Results

- 4.6 The Whangaehu River was a swiftly flowing, cobble and boulder river with sandy and boulder flood plain and banks. Although there were no pools present, the hydrological variation was high with riffle run sequences, rapids and eddies around boulders. At the time of the Site visit, the river water was milky in colour with suspended material. The riparian vegetation was depauperate, comprising of small dominantly exotic shrubs. Although the riparian vegetation transitioned to pine plantation, it provided no or minimal shading to the river.
- 4.7 Although the macroinvertebrate number and diversity of taxa in the Whangaehu River was very low, the Whangaehu River macroinvertebrates were mostly very high scoring EPT taxa, resulting in 'Excellent' MCI and SQMCI scores.
- 4.8 The spot measurements of water quality in the Whangaehu River showed the pH to be acidic, pH 3.2, and high conductivity, 1676-1732 $\mu\text{S}/\text{cm}$. These water quality parameters result in macroinvertebrate communities that are depauperate, less diverse, with many taxa disappearing entirely as the pH drops. Generally, the first taxa to be lost are the more sensitive EPT taxa. These macroinvertebrate results for the Whangaehu River are therefore unexpected, and it is likely that the more sensitive, mature taxa (such as Plectoptera) would have arrived at the Site through drift from an upstream tributary, or possibly developed in a microrefuge such as a groundwater seep.
- 4.9 No fish were caught in the nets and traps in the Whangaehu River, and only two juvenile rainbow trout in each of the side streams. Records from The New Zealand Freshwater Fish Database of over 30 km of the Whangaehu River, 15 km each side of the site, showed no native fish (12 records), with one record of a single rainbow trout, which is well downstream (see **Appendix 1**).

- 4.10 The Whangaehu River exhibits unique water quality conditions influenced by volcanic inputs from Mt Ruapehu, resulting in naturally very low pH (acidic water) and high phosphorus concentrations. The consistently naturally very low pH is an ecologically limiting factor in the river, resulting in a naturally very low macroinvertebrate abundance and diversity and no native fish. Consequently, the ecological value of the Whangaehu River for native fauna, in the assessment reach, is assessed as Very Low.

5. **PROPOSED WETLAND – ECOLOGICAL EFFECTS**

Methodology

- 5.1 The site of the proposed constructed wetland was assessed, including an assessment for the presence of natural inland wetlands.
- 5.2 The assessment of the ecological effects follows current best practice, with the use of the EIANZ Ecological Impact Assessment Guidelines (Roper-Lindsay et al., 2018), which provide a structured framework for evaluating ecological value, assessing the magnitude of potential effects, and determining the overall level of effect. The EIANZ methodology enables ecological effects to be expressed transparently and consistently, facilitating informed decision-making and alignment with national best practice for ecological assessment in New Zealand.

Findings

- 5.3 The proposed constructed wetland will be situated within a predominantly flat, landscaped and maintained area of the Site. The site of the proposed wetland includes a large, constructed pond. Existing vegetation surrounding the constructed pond is dominantly mown grass, bounded by a mix of native and exotic shrubs and pines. No natural inland wetlands were recorded within the site or immediate proximity.
- 5.4 In accordance with the EIANZ guidelines, the ecological value of vegetation and habitat for native fauna at the proposed polishing wetland site is assessed as Negligible. The loss of the vegetation for the construction of the new wetland is assessed as a High magnitude of effect, resulting in an overall Very Low level of effect. With the proposed native planting on the bunds within and adjacent to the wetland, the magnitude of effect is assessed as Positive, resulting in a Net Gain level of effect.

6. **REVIEW OF WATER QUALITY MEMORANDUM**

- 6.1 As part of the ecological assessments, Technical Memo 2 - Water Quality Assessment (Babbage, 2026) was reviewed in the context of ecological effects.
- 6.2 The revised application shows a significant (85%) reduction in volume of discharge (750m³/day) compared to the former consented discharge (5,200m³/day). With the use of the wetland system to polish and discharge wastewater to the Whangaehu River, there will be an improvement in the quality of the discharge, compared to both the former consented discharge and the previous notified application (4,000m³/day).
- 6.3 My review of the parameters assessed within the Water Quality Assessment demonstrate that the introduction of the treated discharge, which represents less than 0.4% of the 7-day MALF flow, is highly unlikely to result in adverse effects on the river's ecology. In addition, several aspects of the Proposal provide for positive outcomes when compared to the former WPI discharge.
- 6.4 I agree with Dr Ausseil's calculations in paragraph 41 of his s 42A Report, that the maximum potential temperature increase caused by the discharge after full mixing (at a dilution ratio of 1:266) would be less than 0.2°C. I therefore conclude that the magnitude of effects on river water temperature on the freshwater flora and fauna, after mixing, would be negligible.
- 6.5 When the ecological effects of the Proposal's discharge are assessed using the EIANZ guidelines, the ecological values of the native fauna in the Whangaehu River are assessed as Very Low, and the magnitude of the effect of the discharge will be negligible (very slight change from the existing baseline condition), resulting in a Very Low level of ecological effect.

7. **COMMENT ON ISSUES RAISED IN THE COUNCIL OFFICER'S REPORT**

- 7.1 I have reviewed the s 42A Reports and supporting technical assessments. I agree with Dr Ausseil's conclusion that any effects on the river's living communities and ecology will be no more than minor. As noted above, I have characterised those effects as negligible, resulting in a Very Low level of effect.
- 7.2 I have also reviewed and agree with Council's proposed conditions.

Treffery Jean Barnett
29 September 2026

APPENDIX 1 - CURRENT RECORDS AND NEW ZEALAND FRESHWATER FISH DATABASE RECORDS FOR THE WHANGAEHU WITHIN APPROXIMATELY 15 KM RADIUS OF THE SITE

Site		nzffd record #	Species found	Native species richness	Total species	% native fish	IBI score	Ecological class
Wahianoa River	US 1		No species recorded	0	0	0	0	No native fish
Wahianoa River	US 2		No species recorded	0	0	0	0	No native fish
Wahianoa River			No species recorded	0	0	0	0	No native fish
Waitangi Stream			No species recorded	0	0	0	0	No native fish
Whangaehu River		8002	No species recorded	0	0	0	0	No native fish
Whangaehu River		8003	No species recorded	0	0	0	0	No native fish
Whangaehu River		8004	No species recorded	0	0	0	0	No native fish
Whangaehu River		8006	No species recorded	0	0	0	0	No native fish
Whangaehu River		8007	No species recorded	0	0	0	0	No native fish
Whangaehu River		8008	No species recorded	0	0	0	0	No native fish
Whangaehu River		8011	No species recorded	0	0	0	0	No native fish
Whangaehu River tributary		17681	No species recorded	0	0	0	0	No native fish
Whangaehu River tributary		17682	Rainbow trout	0	1	0	0	No native fish
Whangaehu River tributary		17683	No species recorded	0	0	0	0	No native fish
Whangaehu River tributary		17684	No species recorded	0	0	0	0	No native fish
Whangaehu River tributary		30441	No species recorded	0	0	0	0	No native fish
Whangaehu River tributary		30442	Rainbow trout	0	1	0	0	No native fish

