

Before the Expert Panel appointed under the
Fast-track Approvals Act 2024

FTAA-2604-1207

Under the Fast-track Approvals Act 2024 (FTAA)

In the matter of the Southern Link Inland Port

By Southern Link Property Limited

**STATEMENT OF EVIDENCE BY BRYONY MILLER ON BEHALF OF SOUTHERN LINK
PROPERTY LIMITED**

Freshwater Ecology

19 August 2026



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1. INTRODUCTION

1.1 My full name is Bryony Miller. My qualifications and experience, and my role in the Southern Link Inland Port Project (**SLIP**) are set out in the Freshwater Ecology Impact Assessment (April 2026) (**FEcIA**) included in Part B.04 of the substantive application for the SLIP.

1.2 I have been asked by Southern Link Property Limited (**SLPL**) to provide a response to specific matters within my areas of expertise in freshwater ecology contained in the written comments on the SLPL application from persons invited by the Panel to comment under s 53 of the FTAA. The comments that I respond to are:

- (a) Freshwater Ecology comments from Mr Raymond Chang and Ms Emily Lion-Cachet¹ of Beca on behalf of Otago Regional Council (**ORC**). Their analysis is Appendix 4 to the ORC comment and dated 31 July 2026.
- (b) Otago Fish and Game (**F&G**) Council comment, 12 August 2026.
- (c) Te Rūnunga o Ōtākou, Treaty Impact Assessment (**TIA**) June 2026. While the TIA was filed in June 2026, it is referred to in s 53 comments.

1.3 I note that Dr Richard Allibone also provides a statement on freshwater ecology, focussed on issues relevant to freshwater fish arising from these same comments.

Code of Conduct

1.4 I confirm that I have read the Code of Conduct for Expert Witnesses contained in section 9 of the Environment Court Practice Note 2023 and have complied with it in preparing this evidence. I confirm that the issues addressed in this evidence are within my area of expertise, and I have not

1 Please note; for conciseness all responses within this section are directed to Mr Chang as it is unclear who specifically raises each point.

omitted material facts known to me that might alter or detract from my evidence.

2. MR CHANG, FRESHWATER ECOLOGY REVIEW, APPENDIX 4 TO THE COMMENT OF ORC

Adequacy of effects assessment

2.1 Mr Chang states that “The FEClA provides a generally appropriate description of the site and the Silver Stream receiving environment, and the survey effort undertaken is considered to be sufficient to characterise the existing ecological values.”² However, Mr Chang is critical of the adequacy of the effects assessment stating “there is insufficient information to justify the assigned overall level of effect. The FEClA does not provide a clear rationale linking the identified impacts to their potential ecological consequences, nor does it demonstrate how the overall magnitude and level of effect on freshwater values have been determined.”³

2.2 The assessment of freshwater effects is considered appropriate and follows standard Environmental Institute of Australia and New Zealand (**EIANZ**) guideline methods.⁴ Potential impacts with and without appropriate treatment are discussed in Section 5 of the FEClA. The stormwater treatment system has been the subject of ongoing, iterative work by Stantec to ensure that the treatment system suitably protects the ecological values that had been identified within Silver Stream. This was based on an initial e3Scientific (**e3s**) draft ecological characterisation report which included details about existing water quality within the Silver Stream, based on an initial baseline sample in September 2025 and long-term Otago Regional Council (**ORC**) monitoring sites upstream (3-Mile) and downstream (Gordon Rd) of the site.

² Page 2.

³ Page 3.

⁴ Roper-Lindsay, J., Fuller, S. A., Hooson, S., Sanders, M. D., & Ussher, G. T. (2018). Ecological impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd edition. Environmental Institute of Australia and New Zealand.

- 2.3** Ecological values were identified as 'High' in this initial work (see Section 4.5 of FEClA) and the site-specific water quality was assessed as 'good' at upstream and downstream sites, indicating the majority of inputs affecting the lower sections of Silver Stream from an ecological perspective occur downstream of the site. The evidence of Dr Claire Conwell demonstrates how the proposed approach to stormwater management on the site responds to these ecological values.
- 2.4** Mr Keenan also discusses the technical components of the stormwater treatment standards in paras 2.9 to 2.17 of his evidence. The activities occurring on site are proposed to be similar to those currently occurring at the Port Otago Ltd site in Port Chalmers, Dunedin, and the Stantec assessments have utilised this existing stormwater data to assist to verify the Contaminant Load Model (**CLM**) which is appended to the evidence of Dr Conwell. In order to further validate this work in the context of the Silver Stream receiving environment, a robust ongoing validation monitoring programme is proposed both within consent conditions within the Stormwater Monitoring Plan (**SMP**) which incorporates management actions if treatment is less effective than anticipated.
- 2.5** This iterative design process, i.e. the stormwater treatment designed to protect the identified ecology of the Silver Stream, allows for effects to be primarily avoided, in alignment with the hierarchical management strategies outlined in the EIANZ guidelines. The effects that could potentially arise are in my opinion sufficiently assessed within the FEClA to enable risk assessments and targeted stormwater treatment validation monitoring for the maintenance of existing ecosystems. Further effects regarding sediment mobilisation during construction is also discussed within the FEClA with mitigation and instream monitoring actions proposed. The proposed conditions require the preparation and implementation of a suitable ESCP as part of the Construction Management Plan. In my opinion, this will be an effective way of monitoring and managing the effects of construction-related sediment discharges within the site, arising from earthworks during construction of the Project.

2.6 Based on this, it is my opinion that the stormwater treatment system will suitably protect the ecology of Silver Stream and the effects from the discharge of stormwater are primarily avoided, which aligns with the hierarchical management strategies outlined in the EIANZ guidelines. The FEcIA is in my view both transparent and robust and aligns with both regional and national guidelines standards.⁵

2.7 To respond to Mr Chang's request for further detail on potential risks or effects (page 3 of Mr Chang's comments), the following is provided:

- (a) **The potential impact of degradation of instream habitat quality and availability by sediment** – this is discussed in section 2.1 and 5.2 of FEcIA. This will be minimised by the ESCP procedures/practices and the outlined Auckland GD05 Guidelines⁶ included in Section 2.1 and 5.2.1 of FEcIA, the designed stormwater attenuation and treatment systems.
- (b) **Loss of spawning habitat** – This is covered by Dr Allibone's evidence and is also discussed in Section 4.4.1 of FEcIA. A small area of works may be required to connect the stormwater outlets to the stream channel; however, based on preliminary designs provided by Stantec, the outlet primary footprint will be outside the wetted bed. If works are required in the wetted bed (this is not confirmed), avoidance of trout spawning time is proposed (See Section 5.2.1 of FEcIA and Evidence of Dr Allibone). Threatened or At Risk fish spawning habitat characteristics are discussed in section 4.4.1 of FEcIA and Dr Allibone's evidence and were not identified as present within the potential outlet area.
- (c) **Disruption of fish migration and ecological connectivity** – this is covered by Dr Allibone's evidence and also discussed in Section 4.4.1 and 5.2.1 of the FEcIA.

5 ORC (Updated April 2026). Water for Otago. NPS-FM (updated 2025)

6 Auckland Council. (2016). Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region. Auckland: Auckland Council.

- (d) **Impairment of biological processes** – avoidance, and mitigation measures are proposed to minimise potential adverse effects, see Section 5 of FEClA. Potential impacts are discussed in the FEClA (Section 5.2) and include effects on ecological attributes within the Silver Stream from nutrient, contaminant and sediment inputs, water temperature changes and flow regime change. Based on the proposed stormwater treatment system, ecological impacts from these sources are very unlikely to occur, and targeted, management-orientated monitoring and triggers are proposed on a precautionary basis to verify this assessment within the SMP.

2.8 As stated in the FEClA Section 5, the ecological effects of a proposed stormwater discharge are primarily dependent on the proposed treatment train and erosion and sediment control measures. Therefore, understanding how these aspects will work and ensuring they will protect the described ecological values is key to avoiding ecological impacts.

2.9 The FEClA Sections 2.1 (Activity Description) and 5 (Impact Assessment) and Stormwater Report by Stantec contain the majority of details Mr Chang requests in his comments. These are briefly referred to below:

- (a) **Duration** - The duration of each stormwater discharge will cease 24 hours after a rainfall event has ceased, see Section 2.1 of FEClA and also Section 3.5.3.1.7 of the Stantec Stormwater report.
- (b) **Frequency** - The frequency of large discharges is expected to align with the modelled flood frequency of 12.3 events per year (NIWA 2026). This is discussed in greater detail in the Stormwater report (Stantec) and provided in section 2.2.1 of the FEClA.
- (c) **Reversibility** - The short duration of the stormwater discharge events aids in maximising the reversibility of potential effects. Temporary turbidity, temperature or dissolved oxygen shifts will quickly return to baseline levels once the discharge from the rain event ceases. The discharge is designed to be treated to a level to ensure that it is very unlikely to result in instream habitat

modification (from sediment deposition) and no associated loss of sensitive taxa (outside of natural flood occurrences altering benthic habitat). No long-term bed sediment metal accumulation is predicted due to the proposed treatment train, ESCP standard procedures and consent conditions. A precautionary trigger-led monitoring approach is proposed to confirm these expectations are correct, and associated management actions proposed to ensure if unforeseen effects arise these can be effectively managed (refer to Stormwater Monitoring Plan (**SMP**) Table 2 and consent conditions).

- (d) **Extent** – Extent has been addressed in the SMP. This has been assessed as the zone of influence to be a 50 m mixing zone (10 x the stream width) based on Ozanne (2023)⁷. A Dunedin City Council (**DCC**) untreated stormwater outlet is located 65 m downstream of the proposed site outlet. This outlet conveys stormwater from a nearby sawmill, roading, rail crossings and commercial properties and as such confounds further assessment of mixing zones outside the 50 m.

Adaptive Management – a. Baseline Sampling

2.10 Mr Chang criticised the initially proposed baseline water quality sampling suite in the FEClA (Table 3) for being too extensive; however, I maintain that a wider range of parameters is required initially to support a precautionary approach, particularly across seasonal conditions.

2.11 Silver Stream baseline characteristics are well understood in general terms due to the ORC long-term water quality dataset and the number of freshwater ecological studies that have been completed in the vicinity of the site. Based on this, the highly modified nature of the Silver Stream adjacent to Mosgiel township is well understood in terms of eutrophication and there is sufficient certainty around the wider stream reach baseline conditions. However, ongoing site-specific baseline sampling is currently occurring to

⁷ Ozanne (2023) reference added in full here.

isolate the potential inputs from the proposed discharge activity comparative to the numerous point source and overland flow discharges that already affect the Silver Stream at or near to the subject site. A conservative approach has been utilised with regards to the proposed sampling parameters.

Adaptive Management – c. Monitoring Triggers

2.12 Regarding comments from Mr Chang on page 5 around setting the trigger levels; ideally an effective precautionary approach would be to align discharge contaminant limits with ANZG (2018) 99th percentile ecological protection limits, particularly given the high fish ecological values being sustained within the stream.⁸ However, this was not practicable at this site due to some existing water quality parameters at this location (and downstream) not currently meeting the guideline values for that level of species protection. Therefore, an alternative standardised method is required to ensure water quality standards are maintained, without inadvertently causing unrelated compliance issues due to upstream ambient water quality being influenced by existing activities. This method, which involves determining a baseline modification factor and the setting of site-specific trigger limits is discussed in further detail in the evidence of Mr Simon Bloomberg.

2.13 Regarding the utilisation of monitoring triggers for the setting of limits within stormwater discharge consents, I have completed a review of recently approved stormwater discharge consents including:

- (a) Blackpool Stormwater Assessment in Auckland (Beca, 2025);⁹
- (b) Selwyn District Council Stormwater (ECan 2026; CRC167468).¹⁰

⁸ Macroinvertebrate communities present at the site are indicative of a moderately disturbed system based on NPS-FM attribute bands.

⁹ Accessed via <https://www.aucklandcouncil.govt.nz/content/dam/ac/docs/have-your-say/notified-rc-applications/36-tui-street-/BUN60451970-5-%20Lodged%20Ecological%20Assessment.pdf>.

¹⁰ Accessed via <https://www.ecan.govt.nz/do-it-online/resource-consents/notifications-and-submissions/notified-decisions/2026/selwyn-district-council>.

My review found that these stormwater consents generally focus on water quality contaminants and utilise, whenever possible, the ANZG (2018) guidelines as triggers for management actions including stormwater treatment maintenance or reviews. Numerical ecological or habitat triggers were not commonly utilised as effects are usually managed via implementation of a management plan. However, if ecological triggers are used, a response framework is generally applied to ensure the best practicable treatment and site management to minimise effects.

Adaptive Management – c. Monitoring triggers – Aquatic Ecology

- 2.14** Mr Chang states on page 5 that ‘the proposed 20% MCI trigger would permit a decline in ecological values from Attribute Band C to Attribute Band D, below the National Objectives Framework (NOF) bottom line (NPS-FM 2020, amended 2025). This represents a measurable degradation in ecological condition, and we do not consider it reasonable to characterise this potential change as a Low level of effect’.
- 2.15** Following further investigation and interrogation of the initial monitoring thresholds, I acknowledge Mr Chang’s comments around the proposed MCI change threshold. Whilst a 20% decrease would remain within the existing natural variability of Silver Stream and not necessarily be aligned with a measurable degradation, this change could result in a decrease below the national bottom line. Despite guidance from Greater Wellington Regional Council (GWRC) on macroinvertebrate outcomes for aquatic ecosystem health in rivers and streams stating, *“a standard of no more than 20% change in Quantitative Macroinvertebrate Index (QMCI) score is recommended to apply to specific consented activities such as point source discharges or water abstractions”*¹¹, I acknowledge that under the NPS-FM (2020) any changes are more aligned with attribute bands than specific QMCI values.

11 Greenfield S. 2014. Macroinvertebrate outcomes for aquatic ecosystem health in rivers and streams: Technical report to support the draft Natural Resources Plan. Greater Wellington Regional Council, Publication No. GW/ESCI-T-14/59, Wellington.

- 2.16** Based on this, the proposed trigger in Section 4.3 of the SMP is altered from 20% change to a 10% change threshold (see also condition B.31). This should be assessed against baseline conditions from the FEcIA for macroinvertebrate community index (MCI), quantitative macroinvertebrate community index (QMCI) and average score per metric (ASPM). If 2 of these 3 metrics change by greater than 10%, unless the upstream reference site shows a similar change, this will trigger management actions that are outlined in the SMP. As mentioned in para 2.13 above, it is not common to impose trigger values on macroinvertebrate metrics for a commercial site stormwater discharge; however, regardless of trigger levels, ongoing monitoring of this aspect provides an understanding of longer-term changes to the site and ensures a better understanding of the habitat health for mahinga kai and trout spawning and rearing, amongst other ecological processes.
- 2.17** Unlike water quality which can be distinguished more readily from upstream or natural environmental conditions by testing the discharge alongside an upstream and downstream mixing zone sample, ecological metrics are susceptible to natural habitat variability, and a decrease does not necessarily directly allude to a decline in ecological health from the discharge. It may derive from natural flood events, seasons (change in water temperature, light availability macroinvertebrate or periphyton growth) and upstream activities (i.e. forestry). Therefore, it is important that this monitoring and associated trigger thresholds are assessed alongside water quality results and, if triggered, create a feedback loop to understand if this is activity-related¹² or environmentally driven, prior to any compliance actions.
- 2.18** The macroinvertebrate communities cover a continuum from high to low value and the NPS-FM attribute bands are assigned reasonably arbitrarily along this continuum, and the demarcations do not align between the various metrics¹³. Therefore, a reduction in metric value (e.g. by 10%) is

12 i.e. review most recent water quality results to assess if exceedances have occurred and if analyte exceedances are attributable to changes in macroinvertebrate communities.

13 Wright-Stow, A. E., & Winterbourn, M. J. (2003). How well do New Zealand's stream-monitoring indicators, the macroinvertebrate community index and its quantitative variant, correspond? *New Zealand Journal of Marine and Freshwater Research*, 37: 461-470.

more appropriate to detect an ecological effect than a change to a different attribute band if a site happens to be near an attribute band boundary.

Adaptive Management – d. Monitoring Programme

- 2.19** Mr Chang states that “The proposed SMP is not consistently linked to the effects assessment”. He also states “The SMP contains considerable duplication between the construction and operational monitoring frameworks and repeats the rationale for monitoring and adaptive management in several sections”.
- 2.20** The SMP provides for a monitoring and management framework which builds from the FEIA findings and recommendations. Ecological receptors identified as present within Silver Stream that are known to be sensitive to stormwater discharges are included in the monitoring plan, i.e. benthic invertebrates, and sediment dwelling fish such as the ammocoetes of kanakana/lamprey. The SMP aims to primarily provide greater detail around the proposed monitoring (what, how, why, and when) to support a clear framework with rationale, locations, high level methods, management actions, timeframes and outputs to provide certainty that any adaptive management aspects are transparent and clear.
- 2.21** The SMP aims to follow a clear pathway to ensure monitoring requirements are outlined for construction and operational phases and breaks the monitoring into water quality, ecological and sediment aspects. Each activity (construction or operation) could be undertaken in isolation and therefore should be a standalone monitoring programme which has specific monitoring designed to capture the potential effects of that activity. There is also the potential for overlap (construction of subsequent stages whilst part of the site is operating) therefore the SMP is required to cover both activities, including where they simultaneously occur. These monitoring frameworks are also clearly stated in consent conditions B.21C to B.32.

- 2.22** A baseline deposited fine sediment survey was undertaken in September 2025, and the results are described in Section 4.2 (Table 4 of the FEClA). This survey utilised the SAM-1 method which provides very similar results to SAM-2 (Clapcott *et. al.* 2011). The SMP will be updated to include the use of the SAM-2 method (Clapcott *et. al.* 2011) to assess instream bed cover across multiple transects across comparable run habitat at the upstream and downstream ecological monitoring sites. This is covered in condition B.32.

3. OTAGO FISH AND GAME (F&G) COUNCIL, 12 AUGUST 2026

- 3.1** F&G express concern around the potential for instream works disrupting trout spawning. The FEClA section 5.2 outlines avoidance of brown trout spawning times for instream works and timeframes associated with this. The Evidence of Dr Allibone further assesses the importance of the Silver Stream and its headwater streams for brown trout spawning and proposes that instream works avoid from 15 May to 30 September.

- 3.2** Alternative water quality standards are proposed by F&G in para 25 of their submission. The guideline values proposed by Otago F&G from Hay *et. al.* (2006) have been superseded by more up-to-date guidelines. The Australian and New Zealand Environment and Conservation Council (ANZECC) (2000) has been replaced by the Australia and New Zealand Guidelines (ANZG, 2018) and updated aspects are as follows:

- (a) Updated Temperature standards are outlined in the Otago Regional Plan (updated April 2026), as per the evidence of S. Bloomberg. The updated SMP proposes <3 °C change from upstream and not greater than 25°C in line with ORC standards.
- (b) Dissolved oxygen - the ANZECC (1992) is superseded by the NPS–FM (2020).
- (c) Periphyton largely reflects Biggs (2000) within the NPS–FM (2020), and Stark (1985) has been superseded by the NPS–FM (2020). However, periphyton monitoring is not proposed, see response regarding this in paragraph 3.4.

- (d) Nitrogen (nitrate), phosphorus and ammonia has been superseded by the ANZG (2018) and NPS–FM (2020). ANZG guidelines are to be used in conjunction with a comparison to upstream concentrations.
- (e) Water clarity is outlined within the NPS–FM (2020) and “other toxicants” has been updated within the ANZG (2018). ANZG guidelines are to be used in conjunction with a comparison to upstream concentrations.

3.3 Additionally, I note the guideline values proposed by F&G are for when the waterway is at baseflow (< median flow). The stormwater outflow will operate during rainfall events, and the Silver Stream is unlikely to be at or below median flow at that time.

3.4 The proposed discharge will not increase water temperature or nutrient concentrations which are the primary drivers of changes in periphyton. Given the change in land use (from agricultural to commercial) and the introduction of the stormwater treatment systems, it is likely that nutrient inputs from the site will decrease. Therefore, periphyton is very unlikely to be altered by this activity, and as such it is my opinion that no meaningful indicator or threshold can be associated to it and such a measure is not necessary. The macroinvertebrate monitoring is proposed to provide an ecological indicator to ensure the erosion and sediment control plan (**ESCP**) is functioning as intended when construction activities are occurring¹⁴. The proposed annual ecological monitoring will be triggered if *any* construction activities happen with the 12-month timeframe concurrently with the operation of the SLIP (see consent condition B. 30); providing a precautionary approach and ensuring any construction activities are suitably monitored. I note that ecological and sediment monitoring of the nature proposed is often undertaken 3 or 5 yearly in similar consents.¹⁵

¹⁴ Sedimentation is a primary driver of macroinvertebrate community declines in stream ecosystems.

¹⁵ Selwyn District Council (2016). Global Stormwater Network Consents: Prebbleton Stormwater Monitoring Programme. Jacobs. Christchurch.

3.5 In response to para 49, I note that the Stormwater design report (Stantec) and ESCP demonstrate how sediment will be managed at source to prevent it from entering the Silver Stream during construction activities. The proposed monitoring within the SMP is intended to validate the treatments discussed and recommended in these documents. Turbidity and total suspended solids (**TSS**) guidelines within the Silver Stream are included in the SMP proposed triggers, based on baseline and storm sampling that is occurring currently. The SMP focusses on monitoring in the receiving environment (i.e. Silver Stream), whilst the ESCP will need to include sediment and total suspended solids monitoring within the site (i.e. prior to discharging to the receiving environment). This is further discussed in Nick Keenan's evidence para 3.1-3.3.

3.6 In response to para 74, the FEClA section 2.1 (Activity Description) recommends the construction activities to be managed to follow best practice ESCP following Auckland Council guidance.¹⁶ The evidence of Mr Keenan provides additional detail about the measures to be applied to attenuate stormwater runoff, manage sediment migration and treat stormwater.

4. TE RŪNUNGA O ŌTĀKOU, TREATY IMPACT ASSESSMENT (JUNE 2026)

4.1 The TIA expresses concern regarding improper stormwater maintenance having the potential for environmental impacts. I agree that, in general, not maintaining stormwater treatment systems can reduce the efficacy of the systems. However, the proposed design and maintenance schedule is to be outlined in the Construction Management Plan to be certified by ORC prior to construction, consent conditions 5, 17, 18, 19 and Table 2 of the SMP which sets out management actions including stormwater maintenance, cleaning and system checks.

¹⁶ Auckland Council. (2016). Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region. Auckland: Auckland Council.

- 4.2** Concern was also expressed over the adequacy of the monitoring of Silver Stream / Whakaehu upstream and downstream of the site and the length of time monitoring was to occur. As discussed in paragraphs 2.20-2.22 of this evidence, a SMP has been prepared to provide further details regarding the proposed monitoring and associated triggers and management actions. SLPL is required to provide this SMP (updated as required) to ORC for certification. Monitoring is proposed to cover the duration of the consent, unless experts and ORC agree otherwise.
- 4.3** An ecological assessment provides for an understanding of ecosystem health; however, it does not attempt to understand cultural significance of a waterway. A cultural monitoring programme has been requested within the TIA and is stipulated in consent condition 12c. I consider local hapū and iwi to be best placed to speak to cultural perspectives and incorporate effective cultural health indicators.
- 4.4** Mahika kai values and fish consumption concerns were identified in the TIA, prior to development of the SMP. In my opinion, the water quality trigger limits discussed in Mr Bloomberg's evidence and the SMP will ensure that discharge quality remains consistent with the range of natural variability already present within Whakaehu. I note that the next stormwater outlet is located 65m downstream of the proposed discharge point. This currently and will continue to contribute to water quality issues further downstream in Whakaehu.
- 4.5** The TIA discussed that, as Whakaehu is already "highly modified", adding industrial pressure to an already stressed system can compound existing degradation, and noted that this site sits near the boundary of the better-quality upstream habitat and the more highly modified downstream habitat. I agree with these statements and the intent of the ESCP, "best practice stormwater treatment" and associated monitoring thresholds and management actions is proposed to maintain current water quality and ecological values at this location, to avoid cumulative impacts downstream and any exacerbation of the degradation present. Cumulative effects are of

greater concern at base flow conditions (when stormwater is generally not discharging) and the management approach allows for assessing effects at baseflow and storm flow conditions in the affected reach. Discharges from this site will be transient, short duration, and will occur during high flow events, whilst also being treated to ensure that existing water quality values are maintained. The attenuation pond will slow the release of the stormwater so as not to contribute to the existing flood conditions within Whakaehu during a rainfall event. These attributes ensure that the stormwater discharge will be in alignment, or improved, from the existing overland flow and run-off from the site and will not add further cumulative effects to those already present.

5. CONCLUSION

5.1 In summary, I disagree with Mr Chang's views that the freshwater ecological impact assessment 'lacks a transparent and evidence-based justification for the conclusion that residual effects on freshwater values will be Low'. As stated in my evidence, an iterative approach to the freshwater ecological impact assessment allows for the effects of the proposed discharge to be primarily avoided via the specific design of the stormwater treatment system for this receiving environment (i.e. Silver Stream), resulting in a low magnitude of effects. This approach utilises the application of the hierarchical management strategy outlined in EIANZ guidance for impact assessments in Australia and New Zealand, whereby 'avoidance' is recommended as the initial strategy to adopt within an ecological impact assessment.¹⁷ Potential ecological impacts are referred to in the FEcIA and are discussed in context with the proposed activity as described in Section 2 and Section 5.2 of the FEcIA. There are clear linkages between the potential impacts and the management strategies required to reduce impacts to a low level of effect. Theorising impacts beyond the proposed activity description,

17 Roper-Lindsay, J., Fuller, S. A., Hooson, S., Sanders, M. D., & Ussher, G. T. (2018). Ecological impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd edition. Environmental Institute of Australia and New Zealand.

as Mr Chang requests, adds no further evidential basis, transparency nor rigour to this assessment.

- 5.2** I also disagree with Mr Chang's views regarding the adequacy of the adaptive management framework and monitoring parameters. The proposed monitoring, includes: water quality, ecological (macroinvertebrates, habitat, kanakana/lamprey), and sediment, which covers all identified sensitive receptors within the FEClA, and includes trigger values and management actions established to ensure the discharge does not result in a decline in water quality or ecology immediately downstream of the site.
- 5.3** I understand F&G wish to protect the spawning and habitat characteristics of trout in Silver Stream and Dr Allibone addresses this matter. I disagree that the alternative water quality parameters suggested by F&G from the 2006 study and discussed in para 3.2 of this evidence, should be utilised for this discharge. These are baseflow water quality parameters and have largely been updated and incorporated into ORC, and NPS-FM formats where their applicability is discussed in the SMP and Simon Bloomberg's evidence. I also note that the proposed ESCP, Construction Management Plan and construction activity monitoring (SMP) are designed to ensure sediment remains within the site and is not discharged to Silver Stream, as further discussed in Mr Keenan's evidence.
- 5.4** The addition of a cultural monitoring programme has been discussed with iwi representatives and is stipulated in consent condition 12c. I agree that this would add value to the existing monitoring programme and framework, particularly supporting greater understanding of the cultural significance of Whakaehu.
- 5.5** The overarching goal of the ecological characterisation of Silver Stream (Sections 2.2, 3 and 4 of the FEClA) and associated impact assessment has been to ensure the freshwater ecology is not adversely affected by the proposed discharge. During the assessment, reporting and consultation stages this has remained the consistent objective. Feedback from Mr Chang,

F&G and Te Rūnunga o Ōtākou has been included in updates to the FEClA, the preparation of the SMP and further explanatory memos to ensure concerns raised were being addressed and monitoring was aligned with the activity, site practicalities and internal and external feedback.

- 5.6** Overall, it is my opinion that the proposed approach to stormwater attenuation and treatment on the site, construction management, monitoring and the setting of discharge limits will ensure this discharge will maintain the ecological attributes within the Silver Stream identified during the baseline assessments.

Dated: 19 August 2026

A handwritten signature in cursive script, appearing to read 'B Miller'.

Bryony Miller