Fast-track

Te Kāwanatanga o Aotearoa
New Zealand Government

Your Comment on the Takitimu North Link – Stage 2 application

Please include all the contact details listed below with your comments and indicate whether you can receive further communications from us by email at substantive@fastrack.govt.nz

1. Contact Details			
Please ensure that you have authority to comment on the application on behalf of those named on this form.			
Organisation name (if relevant)	Director-General of Conservation		
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2. We will email you draft conditions of consent for your comment			
X	I can receive emails and my email address is correct	☐	I cannot receive emails and my postal address is correct

3. Please provide your comments on this application
Please find comments attached

[redacted]

Stef Bowman
Permissions Regulatory Delivery Manager
Regulatory Authorisations

Acting pursuant to delegated authority on behalf of the Director-General of Conservation.
Date: 9/12/2025
Note: A copy of the Instrument of Delegation may be inspected at the Director-General's office at Conservation House Whare Kaupapa Atawhai, 18/32 Manners Street, Wellington 6011

Comments on a fast-track consenting application

Fast-track Approvals Act 2024 section 53

To: The Expert Panel

From: Director-General of Conservation

Regarding fast-track project: Takitimu North Link – Stage 2

Fast track Reference: FTAA-2507-1085

1 Background

1.1 New Zealand Transport Agency (NZTA/'the applicant') has applied for resource consent approvals under the Fast-Track Approvals Act 2024 ('the Act'). The project is the second stage of the Takitimu North Link Project and involves the construction, operation and maintenance of a new four-lane median-divided highway from Takitimu North Link Stage 1, extending from near Loop Road to just before the Waipapa Stream. It is approximately 7.7km in length.

1.2 In accordance with 53(2)(m)(i) of the Act, the Director-General of Conservation has been invited to comment on the substantive application. Statutory delegations are in place for the Department of Conservation (DOC / the Department) to provide commentary on behalf of the Director-General.

1.3 The proposal is not on, or near, public conservation land.

1.4 The applicant has facilitated discussions with their experts and DOC staff (including its ecology experts) and assisted the Department in developing its understanding of the Project.

2 Department of Conservation advice

2.1 The Department has provided comments on the application relating to the actual and potential ecological effects of the proposal and has not commented on consistency with the wider statutory framework. However, it is recognised that the project will have significant national and regional benefits as outlined in the Application. The need for the Project to provide a safer and more efficient connection between Tauranga and Ōmokoroa is fully acknowledged and supported in principle.

2.2 Overall, the Department has concerns about the assessment provided on freshwater stream values and the effects management approach proposed for stream reclamation.

2.3 Given the time constraints with the Fast-track process, where possible, proposed new conditions are recommended to address these concerns. The Department's remaining

concerns can be resolved by amending existing conditions to ensure there are clear objectives, standards and outcomes required to be achieved in management plans, including detailed mechanisms for implementation of those conditions.

2.4 The Department has relied on the advice of the technical expertise of Senior Technical Freshwater Advisor, Jacob Williams, Environmental Scientist, Dr Martin Neale and Senior Technical Fauna Advisor, Rhys Burns. The credentials and freshwater memos of these advisors are provided in **Appendix A-C.**

3 Assessment

Freshwater values and assessment

3.1 The Ecological Effects Assessment (EcEA)[1] identifies that the Project intersects with 12 waterways/catchments and assesses the associated values and effects on these waterways as a result of the Project. The following sections provide a review of the applicant's ecological assessment undertaken and identifies where the Department's Freshwater experts do not agree with this assessment.

Survey Methods for Waterways

3.2 The applicant has undertaken an ecological evaluation using desktop-based information as well as site specific surveys across some of the waterways. These methods included physical habitat assessments, benthic sediment quality, Stream Ecological Valuation (SEV) assessments, macroinvertebrate community assessments, fish surveys and eDNA surveys. Overall, it is considered that the methods used by the applicant are robust and follow best practice.

3.3 However, Mr Williams[2] has noted that the eDNA surveying was only undertaken using a single replicate within two catchments. Although a standard eDNA methodology was not developed at the time of sampling in 2021, current best practice recommends that six replicate samples be collected (NIWA, 2023)[3]. This ensure species detection rates are >90%, meaning it is more than 90% likely that eDNA detected the presence of a particular species if it was present in the waterway. A wider spatial scale eDNA survey across all affected waterways would provide additional information on species present within the activity footprint.

3.4 Further, Mr Williams notes that if a species is detected within a catchment and there are no significant barriers to fish passage, its presence should be assumed within the activity area. This is because fish species are mobile, their use of specific habitats may be temporary, and they rely on unobstructed passage to complete their life cycles. The implications of this gap in the assessment are discussed further below in terms of assessing the freshwater values.

[1] EEA, dated 31 July 2025, Section 3.2, Freshwater Ecology, page 94-118
[2] Mr William's Freshwater Comments, Appendix B, dated 27 November 2025
[3] NIWA. 2023: *Environmental DNA guidelines and field protocols for lotic systems*¸ National Institute of Water & Atmospheric Research, Hamilton, New Zealand.

Waterways Value assessments

3.5 The applicant's Freshwater Assessment follows the Ecological Impact Assessment (EcIA) guidelines developed by the Environment Institute of Australia and New Zealand (Roper-Lindsay et al, 20184), which are a recognised approach for evaluating the ecological effects of construction projects like the Takitimu North proposal. The applicant has assessed the freshwater values of the impacted waterways as having *low* ecological values (Oturu Creek 4B, 4A, 3C, 2, wetland/watercourse 6, Tributary 1, 2, 5, 6, 7) or *moderate* ecological values (Tributaries 3 and 4).

3.6 However, based on Mr Williams comments, the Department considers that several of the sites assessed as having 'low value' should be ranked as 'moderate value'. This is because the applicant's assessment, as noted above, does not consider that indigenous species recorded in the catchments are likely to also be present within the waterways at the Project site. As such the ecological assessment does not adequately consider the presence of long fin eel and inanga which are classified as *At Risk-Declining* species in the conservation status of NZ freshwater fisheries.

3.7 Based on the EcIA guidelines and presence of *At-Risk Declining species*, this raises the biodiversity values (rarity and distinctiveness) to high at sites where they occur or are expected to occur. Mr Williams has provided a re-assessment of the freshwater values in his comments at Appendix B, Table. In summary, the values are considered to be 'moderate' to 'high' for each of the waterway sites identified and are therefore undervalued in the applicant's assessment provided.

Assessment of the Magnitude of Effects on Waterway Values

3.8 Based on the technical advice provided, the Department does not agree with the approach taken in assessing the magnitude of freshwater ecology effects. The applicant has assessed the magnitude of effects of the project "*based on the extent of proposed stream modification as a proportion of the total linear length of similar sized watercourse/reaches within the wider catchment (Oturu Creek catchment, Te Puna catchment, Mangawhai Bay catchment and Waipapa River catchment)"* (Boffa Miskell, 2025[5], P. 134). The applicant also states that they "*consider linear length is an appropriate basis on which to assess and manage the quantum of effect, with the caveat that any offsite mitigation also considers the width of the impacted watercourse(s)*" (Boffa Miskell, 2025, P. 134).

3.9 However, Mr Williams notes that by comparing the loss of habitat within each main catchment, the magnitude of the impact at the site is minimised in comparison to a reach/site-based

[4] Roper-Lindsay, J., Fuller, S., Hoonson, S. Sanders, M., & Ussher, G. 2018: *Ecological Impact Assessment (EcIA) EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems* (2nd ed., Environmental Institute of Australia and New Zealand Inc, Melbourne, 2018).
[5] Boffa Miskell Limited, 2025: *Takitimu North Link – Stage 2: Ecological effects assessment,* report prepared by Boffa Miskell Limited for NZTA.

assessment. This approach also does not align with the EIANZ Guidelines which explicitly refer to 'site'[6] when describing criteria for magnitude of effect rather than catchment scale.

3.10 Mr Williams[7] has re-assessed the proposed activities at the reach[8] or site scale and considers that for some activities such as for culverting, stream reclamation and realignment, the effects have a High to Very High magnitude of effect. This is because these activities can result in a permanent loss of current and potential ecological value and hydrological function. Realigned streams are likely to have different hydrological character and habitat quality than the original waterways and is an inherently risky process that can lead to poor ecological outcomes[9]. Erosion and sedimentation especially during large rainfall events can cause damage to freshwater biodiversity. Suspended and deposited sediment can cause habitat loss, impacts on fish and invertebrate feeding, smother spawning sites and can take a long time to work through the waterway system.

3.11 Overall, based on the advice provided, it is considered that the level and magnitude of effect for the activities assessed by the applicant are underestimated. Providing an accurate determination of the magnitude of effect for each activity is important as it represents the degree of change expected in an ecological component due to the activity. This evaluation helps identify where mitigation or offsetting measures are necessary to reduce the overall level of effects (ecological impact) and how this can be appropriately addressed in conditions.

Effects Management Approach for Waterways

3.12 Based on the technical advice provided[10], the Department has concerns about the proposed effects management approach and the achievement of a no-net-loss outcome for both stream extent and values. This is due to three main issues identified with the applicant's EcEA[11] including:

a. Complete reliance on stream alignments to manage loss of streams;

b. Stream alignment being classified as 'remediation' rather than 'offset' when assessed as part of the Effects Management Hierarchy (EMH)[12]; and

c. Not accounting for potential values in the assessment of stream values and effects management.

<u>Reliance on Stream Alignment to manage loss of streams</u>

3.13 The comments set out in Appendix C by Dr Neale considers that stream realignment is an inherently risky management approach and has resulted in poor ecological outcomes (refer to examples provided in Figure 1 of Dr Neale's evidence). Dr Neale considers that it is not

[6] Refer to Page 82 and Table 8 of the EiANZ guidelines. 'Site' is referred to in other places throughout the document.
[7] Refer to Appendix B, Table 2
[8] Meaning a length of river that has a set of consistent features e.g. a run, pool, riffle etc. They will usually have a set slope, discharge, and velocity.
[9] Refer Dr. Neale's comments, Appendix C.
[10] Refer to Appendix C, Memo from Dr Martin Neale dated 25 November 2025
[11] Takitimu North Link – Stage 2. Ecological Effects Assessment. Prepared by NZTA by Boffa Miskell. Dated 31 July 2025.
[12] Effects Management Hierarchy Definition, clause 3.21 of the National Policy Statement for Freshwater Management

possible to fill in a natural channel and move it to an artificial channel *without a significant loss of ecological function and life supporting capacity*. He sets out that stream diversions create risks of the stream:

a. Losing water through the soil because of the absence of consolidated stream bed sediments and loss of connectivity with groundwater.

b. Downcutting through the new stream bed due to the absence of consolidated bed sediments, creating an eroding channel. To mitigate this, newly constructed channels are armoured with impervious materials (usually concrete, sometimes with rocks added for 'habitat' complexity). Such concrete channels then become drainage features with little ecological value, even if the artificial channel is designed with a naturalised appearance.

3.14 Further, there is a lack of detail provided on the design of the stream alignments proposed for the Project. The application sets out that this detail will only be provided post decision in a 'Culvert and Stream Hydraulic Design Report' (proposed conditions 38 and 39). This creates further uncertainty about the outcomes. Although a schematic design has been provided in the Stormwater Assessment (Appendix 9.4.9, Figure 2)), Dr Neale has noted that this design is similar to the examples provided, where previous stream alignments have resulted in poor ecological outcomes.

3.15 It is noted that every environmental management project has an element of risk (which is normally accounted for in offset calculations). However, Dr Neale notes that the level of risk is not the same across projects. For example, for stream restoration, tried and trusted options such as riparian planting are a proven management approach with multiple studies documenting positive environmental outcomes. In contrast, Dr Neale points out that stream realignments are not proven, and, in his experience, positive outcomes are not achieved. Dr Neale was also unable to find any peer-reviewed published studies of stream realignments.

3.16 Given the above, the Department considers that stream diversions have high risks of not meeting flow and ecological outcomes and should therefore be treated with an appropriate level of uncertainty in any effects management approach. As set out in Dr Neale's comments, stream diversions can result in the loss of stream habitat for fish, macroinvertebrates and plants (due to the absence of water or reduced water width and depth), a loss of fish passage (where no flow or only sub-surface flows prevents fish migration) and loss of connections with riparian vegetation and food sources for fish and invertebrates. This is mainly due to reduced or no flow of water in the channel.

Stream alignment assessment as a 'remedy' of the effects rather than an offset

3.17 The Department does not agree that stream diversions are a 'remedy' in the EMH and should be considered as an 'offset'. As noted in Dr Neale's comments, the process of reclamation (to allow for development) involves the total loss of extent and values in the reclaimed stream. The lost ecological values may be offset by creating a new channel and diverting the stream flow into it. An appropriate offsetting tool should then be used to guide the process by

estimating the magnitude of lost values in the reclaimed stream and values that may be gained in the stream diversion.

3.18 However, the applicant's EcEA assesses the use of stream realignment as a 'remedy action'. The Department disagrees with this approach as the original stream channel is not remedied in any way – rather it is filled in and no longer exists. A remedy action would involve restoring the original stream channel after any disturbance. However, in this case, this would not be possible as a road will be constructed in its place. Furthermore, Dr Neale notes that the stream alignments proposed as 'remediation' are often in a different part of the catchment to the impacted streams. Table 26 in the EcEA shows that 7 of the 15 impacted streams do not have sufficient stream realignment to match the reclamation proposed to occur.

3.19 The National Policy Statement for Freshwater Management (NPSFM) requires that the applicant demonstrate how each step of the EMH[13] will be applied to any loss of extent or values of the stream and where remedying the effects is not possible, to progress to the next steps of the hierarchy being offsetting and compensation considerations. As noted above, given that 'remedying' the effect of a reclaimed stream is not possible, the applicant should progress to assessing how the effects are managed by offsetting and/or compensation. This is the approach taken in the applicant's EcEA for wetlands[14] whereby the loss of wetland extent will be offset by recreating wetland habitat elsewhere.

Potential Values in the assessment of stream values and effects management

3.20 The NPSFM, requires that the 'potential values' of a river be considered when assessing loss of values of a river and in the application of the EMH[15]. However, the EcEA only assesses the current state of the streams to be filled in and does not account for any of the potential values, despite these being lost as a result of the Project.

3.21 It is acknowledged that the streams are currently compromised by the effect of rural land management, however the level of impairment is consistent with other poorly managed rural stream systems. Dr Neale notes that the streams assessed in this application, may be improved, even with simple management interventions such as fencing and riparian planting (refer to examples provided in Dr Neale's comments).

3.22 This is considered relevant, as the *potential values* of a stream that will be lost as a result of the Project need to be factored into the effects management assessment and any offset package proposed.

[13] NPSFM, Clause 3.24 Rivers, subclause 3
[14] Appendix-9.4.4, Boffa Miskell Ltd, Takitimu North Link – Stage 2, Ecological effects assessment, 18 July 2025, Sections 5.3 and 5.6
[15] NPSFM, Clause 3.21 definition of loss of values & Clause 3.24

Summary of Freshwater Values and Assessment

3.23 Overall, the Department considers that the assessments undertaken to identify the waterways values and magnitude of effects of the Project on these values are underestimated. This will need to be considered carefully in the effects management hierarchy assessment and proposed conditions.

3.24 The Department considers that the stream alignments proposed are not a remediation measure, as has been assessed by the applicant, and that it falls as stream offsetting. The offsetting proposed needs to be aligned with the NPSFM requirements particularly in regard to the aquatic offsetting principes set out in Appendix 6. This requires consideration of a range of factors such as quantitative loss/gain calculation which incorporates potential values and time lags.

Terrestrial Ecology - Effects on Lizards

3.25 The ecological surveys undertaken did not observe or identify native lizards within the Project site[16], however it is noted that this cannot confirm that native species are absent from the Project Area. There is a lack of data available on the DOC Bioweb herpetofauna database. The EcEA considers that copper skinks (*At Risk Declining)* would be the most likely to be present in the greatest number as it is identified that this species tends to be the most resilient and adaptable of the native species potentially found in the area.

3.26 Section 4 of the EcEA identifies the potential effects of the Project on lizards and lizard habitat including:

- mortality and injury of lizards during vegetation clearance and earthworks;
- permanent loss of habitat; and
- modification of remaining lizard habitat that may lead to a degradation of habitat value or total functional loss of habitat such as habitat fragmentation and isolation and increased levels of noise, lighting and disturbance during both construction and operation.

3.27 The EcEA identifies that[17]: *The Project will result in the permanent loss of approximately 510,000m^2 of Low value herpetofauna habitat. We consider this loss of habitat is likely to result in a* ***Very High*** *magnitude of effect on the species*. Overall assessed magnitude of effects of Project construction is assessed as **Very High** due to herpetofauna being relatively immobile in the landscape compared to more mobile taxa**.**

3.28 The applicant proposes to manage the impacts of the Project on herpetofauna habitat by incorporating habitat elements for copper skink into wetland enhancement and riparian zone enhancement (outside of flood zones), particularly within the large areas proposed for riparian

[16] Appendix-9.4.4, Boffa Miskell Ltd, Takitimu North Link – Stage 2, Ecological effects assessment, 18 July 2025, Section 3.1.3.1
[17] Appendix -9.4.4, Boffa Miskell EcEA, Section 4.6, page 130

planting in the Ōmokoroa and Merrin Wetland. Under the Wildlife Act Authority, the applicant is also proposing to salvage and relocate lizards to Te Puna Quarry and Mauao.

3.29 The applicant has applied for a Wildlife Approval as part of this Fast-track application and submitted a draft Lizard Management Plan (LMP). They have also commented[18] that they do not consider that there is a need to submit a LMP for certification as part of the resource consent application and that the effects on lizard habitat will be managed under proposed conditions of consent relating to restoration and landscape planting.

3.30 It is noted that the Wildlife Approval differs from the resource consent approval in that it seeks protection of wildlife directly harmed by the Project, rather than the protection or maintenance of habitat occupied by lizards. For example, while lizards that can be salvaged and translocated will be managed under a Wildlife Approval, their habitat within the site will not, particularly with regard to adaptive management and ongoing monitoring of areas to be restored/enhanced. DOC therefore considers that resource consent conditions are required to manage the effects on lizard habitat.

3.31 As noted above, the Project will result in the loss of herpetofauna habitat as a result of earthworks and construction as well as modification to remaining habitat. It is considered that a LMP is an appropriate document in which to record the areas of habitat on site and how removal of these areas will be managed, and disturbance minimised. The LMP is also a suitable document in which to capture the way in which the Applicant's proposed planting regime and enhancement of other areas of lizard habitat will be undertaken and monitored. These measures are critical to the management of effects on lizard habitat.

3.32 To ensure that the avoidance of biodiversity loss extends to lizard habitat, certification of the LMP is required by Council, and provisions for adaptive management, including but not limited to monitoring of the success of plantings and procedures for succession or remedial planting, overseen by a herpetologist should be included within the LMP.

3.33 This is the approach that has been undertaken in the recently approved Fast-track Consent for Rangitoopuni (FTAA-2504-1055) whereby a Lizard Management Plan has been approved under the Wildlife Approval and conditions are included under the resource consent decision requiring a Lizard Management Plan to be submitted for certification.

3.34 It is considered that only one LMP need be prepared to satisfy both the requirements of the resource consent matters and the Wildlife Approval.

Potential Effects on Bats

3.35 The applicant has provided details on the bat surveys (using automatic bat monitoring units, ABM) undertaken within the Project area. The surveys targeted habitat features in the Project Area identified as being preferred by long-tailed bats for roosting, commuting, and foraging. No bat passes were detected as a result of the surveys undertaken by the applicant in 2020

[18] Substantive application, Section 3.1.2, page 63

and 2021. It is noted in the assessment that previous surveys in 2017 detected bats approximately 2.5km east of the eastern end of the Project Area. The applicant notes that the area was re-surveyed in 2021, and no bat passes were recorded[19]. However, this relatively recent record of bats very close to the Project Area means bats may still be present in the Project area.

3.36 Long-tailed bats (bats) have the highest threat classification of Nationally Critical based on the New Zealand Threat Classification System (NZTCS). They are predicted to decline by >70% over the next three generations. Long-tailed bats are Absolutely Protected Wildlife under the Wildlife Act.

3.37 Based on the technical advice received, the Department notes that the DOC bat distribution database shows there are records of long-tailed bats being detected (2017) on the Stage 1 Takitimu alignment of the proposed road and in close proximity to the Project site.

3.38 Roads, through their construction and operation, will have various effects on bats including:

- Construction effects including loss of breeding and/or feeding habitat, and movement pathways for commuting;
- Operational Effects such as noise and artificial light have been known to have adverse effects on long-tailed bats. When sites are lit, bats use those areas less often and begin to use them later each night. When sites are noisy, bats avoid that area. This results in loss of connectivity between sites outside the road designation and alignment, light ingress into areas of habitat, direct injury and mortality to bats due to vehicle collision and avoidance of habitat due to disturbance.

3.39 The effects of the project on bat habitat needs to include the whole Project Area in the absence of knowing the location of any roosts, key flight paths and core areas. Bat habitat is defined as areas to provide roosting, breeding, foraging, drinking and commuting.

3.40 In recognition that bats are *known from the wider area*[20], the Applicant recommends that a proposed condition of consent require a subsequent *bat presence* survey is undertaken prior to the clearance of any prospective bat habitats within the Project Area. If bats are detected, a bat management plan is required to be prepared via a condition of consent. However, based on the above assessment, it is the Department's view that a Bat Management Plan is required without the need for further surveys to manage the effects on bats as a result of the Project. This takes a precautionary approach where the effects are uncertain and could cause significant or irreversible damage to the long-tailed bat population[21]. Further commentary on conditions is provided below.

[19] Appendix 9.4.4 Ecological effects assessment, Section 3.1.3.3, page 87
[20] Appendix 9.4.4 Ecological Effects Assessment, Section 5.7, page 168
[21] National Policy Statement for Indigenous Biodiversity (NPSIB) Policy 3 and Clause 3.7

4 Comments on conditions

4.1 The Panel is required, under the Act, to provide draft conditions and invite comments on them before they grant an approval. To assist the Panel, the Department has provided preliminary comments on the Applicant's proposed resource consent conditions to ensure that they are clear, enforceable and implement the technical recommendations in the Application.

4.2 The Department has engaged with the Bay of Plenty Regional Council (BOPRC) on the applicant's proposed conditions and support the changes recommended by the BOPRC to manage the environmental effects of the Project. The Department provides further comments on specific conditions identified below.

Conditions requiring Management Plans

4.3 As set out in the Fast-track Panel Conveners' practice and procedure guidance[22] where draft management plans are not provided, sufficient information as to the purpose, structure, content and drafting process for management plans is necessary to ensure that these management plans will be sufficient to address the identified adverse effects. In accordance with the practice and procedure guidance and based on best practice, conditions requiring management plans should:

- contain clear and effects-based objectives and performance standards, to ensure that environmental outcomes are understood from the outset, and that the management plans will lead to actions 'on the ground' to achieve those outcomes;
- have ongoing effect, and require ongoing implementation during the life of the consent;
- set intervention thresholds to allow review and intervention if objectives or performance standards are not being met;
- require ongoing monitoring and reporting;
- provide for adaptive management where appropriate;
- include certification by a specifically qualified and experienced person (SQEP);
- include mandatory implementation of the certified management plan; and
- be enforceable.

4.4 The comments made below adopt the above best practice where relevant for management plan conditions.

Condition 14 Biosecurity Management Plan (BMP)

4.5 The applicant has proposed a BMP in the conditions. The Department recommends amendments to these conditions to limit the potential impacts of invasive freshwater species, especially gold clam which is located in the adjacent Waikato region.

[22] Fast Track Panel Convenors Practice and Procedure Guidance, Section 21, page 21 Management plan conditions

(a)(3) Management protocols to prevent the spread of invasive freshwater and marine species (including protocols for machinery and stand down periods (of at least 48 hours in dry conditions); and

(a)(4) Measures to ensure compliance with the Bionet A16 (revised 2020) "Keep it clean" *and MPI "Check, Clean Dry (North Island)"* guidelines, as far as practicable.

Condition 24 Aquatic Fauna Management and Monitoring Plan (AFMMP)

4.6 The applicant has proposed an AFMMP to manage and minimise the effects on native freshwater fish and kākahi prior to and during any required stream works. The Department recommends that this condition is amended to better protect freshwater biodiversity values through restricting the timing of works for spawning/migration periods or detailing how activities during this period will be managed to mitigate impacts.

4.7 The Department supports Condition 24.1.b which requires certification of the AFMMP by Council.

New Proposed Condition - Stream Offsetting

4.8 Based on the assessment above and the concerns raised with the effects management approach for streams (remedy vs offset assessment); it is recommended that a new condition is included. This is recommended given that there is currently insufficient information in the application to determine specific effects management requirements for the streams and given the short timeframes under the Fast Track process.

4.9 Dr Neale recommends a condition that requires an effects management plan for stream reclamation to be developed and refined as the project advances, that accounts for the loss of ecological values associated with stream reclamation, and the uncertain outcomes associated with stream alignment (stream diversions) as an offset action (not remedy).

4.10 It is recommended that this condition is required instead of trying to manage it through the Stream Management and Monitoring Plan (SMMP). The issue is that if the realignments were to fail through monitoring, then a retrospective process is required to deal with this (and any required offsetting measures) at a later stage. A proposed condition is recommended below:

Condition X: Stream Offset Management Plan

*X The EMP shall include a **Stream Offset Management Plan (SOMP)**. The purpose of SOMP is to achieve no net loss of stream extent and values after residual adverse effects on freshwater ecology have been offset.*

X The SOMP must include, but not be limited to, the following:

(a) Details quantifying the magnitude of ecological values lost by stream reclamations;
(b) Details of the assessment based on:

i. *the estimate of the quantum of offset that will be required. Calculation of the offset required must use stream ecological valuations and environmental compensation ratio methodologies.*
ii. *identification of streams within the designation [reference/label] that will be suitable for stream offsets.*
iii. *Identification of streams outside the designation [reference/lable], within the same ecological district, that will be suitable for stream offsets.*

(c) *A freshwater offset package that will result in no net loss of stream extent and values*

X. The Consent Holder must provide a draft of the SOMP to DOC for comment before it is submitted to the Council for certification in accordance with Condition [XX]. The SOMP must include a summary of comments received from DOC (if any comments are received within 10 Working Days of the draft SOMP being provided to DOC) and outline how feedback has been incorporated into the SOMP and, if not, the reasons for that.

X. Forty working days before prior to the commencement of Project Works, the SOMP shall be submitted to the Bay of Plenty Regional Council for written certification by a suitably qualified and experienced Freshwater Ecologist. Certification shall be for the purpose of reviewing the SOMP and ensuring compliance with consent conditions.

X. The certified SOMP must be implemented for the duration of the Project Works and thereafter until success has been confirmed. Success shall be determined by a SQP (freshwater ecology) report based on post construction monitoring to demonstrate no net loss of stream extent or values.

X. Within 2 months of Completion of Construction, the Consent Holder must provide a report from a Suitably Qualified Person in freshwater ecology to the Council to confirm that the Watercourse riparian works have been completed in compliance with Condition XX.

X. The consent holder shall review and update the SOMP on an annual basis for the duration of this consent. Any updates must be provided to the Bay of Plenty Regional Council for written certification by a suitably qualified and experienced professional prior to implementation.

Condition 27 Stream Management and Monitoring Plan (SMMP)

4.11 The proposed SMMP in proposed Condition 27 outlines the monitoring and management approach for the waterways impacted by the proposed works. The Department considers that this condition as currently drafted does not provide enough clarity on what actions need to be undertaken to ensure adverse effects are adequately mitigated (or offset/compensated as noted above). Overall, it is recommended that the above proposed condition manages the offsetting requirements for the stream alignments and diversions. This management plan would therefore focus on the monitoring required setting out baseline monitoring

requirements, post construction monitoring to measure the success of the offsetting proposed and adaptive management if the monitoring demonstrates the outcomes do not meet the stream alignment objectives and outcomes. If the Panel are of the mind to require all of these measures under one management and monitoring plan then the following comments address how this condition can be improved.

4.12 The condition requiring the Stream Management and Monitoring Plan should include:

- What the objective is of the management and monitoring plan, as well as specifying specific objectives for each stream alignment (this was proposed in the applicant's EcEA[23]);
- Establish what the current state of the waterways are to ensure that they stay stable or improve rather than decrease over time;
- That all permanent watercourse diversion is designed and constructed to maintain stream flows (both volume and velocity) in a similar state to its natural state at the time of commencement of construction work.
- Detail on what mitigation contingency methods will be used if monitoring (or trigger events) indicates decreasing trends and potential solutions (offsetting/compensation) if these do not stop the impacts;
- Certainty around the design of the reclaimed streams i.e. "*the dimensions of each realigned watercourse (depth, width and gradient pattern) must be similar to the reclaimed watercourse that it replaces to achieve similar velocities, water volume, depth profiles and wetted widths*".
- Success monitoring should be carried out for the stream realignments for a minimum of 10 years following completion of construction.

4.13 It is also recommended that there is a limit to the amount of waterways impacted by the proposed realignment and culverting. On this basis, the Department recommends the following condition (the numbers are based on estimates provided by NZTA rounded up):

The Consent Holder must ensure that the total length of Watercourses impacted by the realignment and culverting is no greater than 3500m, of which no more than 500m is culverting.

4.14 It is noted that a recent meeting was held between the applicant, the Department and BOPRC with an action to input further on the above proposed condition to ensure that it appropriately manages the adverse effects of stream reclamation and realignments. Further amendments are likely to result from these discussions.

[23] Boffa Miskell Ltd, Ecological effects assessment, 18 July 2025, Section 5.8.1, page 169

Condition 28 Ecological restoration and landscape planting

4.15 The standards proposed in Condition 28 do not provide certainty that the riparian planting associated with the stream diversions will be protected via fencing or provide a buffer of a given width which was proposed in the EcEA[24]. Additional conditions should be included to cover these aspects.

4.16 Further proposed Condition 28.5 states that that the planting shall be maintained for a period of 5 years from the date planted. The Department notes that 5 years is likely enough for the vegetation to establish, however monitoring and maintenance should continue 10 years from planting to ensure that there is no failure e.g. weed invasion and plant death.

Condition 36.8 General Works – contaminant release (concrete)

4.17 The applicant has proposed conditions to prevent concrete/cement from entering a waterbody, however the applicant should be using pre-cast concrete in any situations where there may be contamination with waterways and wetlands or undertake measures to isolate them from the concrete activities. Any discharge water should be released at a location where it cannot enter a waterbody.

4.18 On this basis, the following amendment is recommended:

> *36.8 The Consent Holder shall ensure that no water associated with the mixing, pouring, placing and cleaning of concrete structures and/or equipment is released into a Waterbody.~~, unless that water has been treated and the pH of the stormwater discharged is between 5.5 and 8.~~*

Condition 38 – 39 Culverts and Stream Hydraulic Design Report and Permanent Diversion/Stream Realignments

4.19 As noted in the comments above, the applicant is proposing to divert watercourses within the Project area and place them into newly created channels in a new location. A Culverts and Stream Hydraulic Design Report is required under proposed Condition 38.3 and proposed Condition 39.1 requires that the stream alignments are undertaken in general accordance with this report. Currently there is no draft version of this report to understand how effects of the stream diversion/realignments will be managed.

4.20 In the absence of a draft of this report, the Department recommends that the conditions of consent relating to the permanent diversion/stream realignments include details that:

- Specify the maximum length of watercourse to be reclaimed and realigned in accordance with the ecological assessment/EMP (approximately 3.1 km).
- Specify the maximum length of watercourse to be culverted in accordance with the ecological assessment (approximately 470 m).

[24] The applicant's assessment of effects is based on the streams becoming fenced and with stock exclusion (Boffa Miskell, 2025).

- Ensure the freshwater habitat characteristic of reclaimed water ways reflects the pre-activity habitat (length, width, area, grade, geomorphological form). This can be achieved through specific performance targets.
- Fish passage is maintained in realigned streams following the New Zealand Fish Passage Guidance document[25].

New Proposed Condition – Lizard Management Plan

4.21 No conditions are offered to address effects on herpetofauna and their habitat on the grounds that the applicant is applying for a Wildlife Act authority. For the reasons outlined already, this approach is not supported. The herpetofauna assessment describes the adverse effects on herpetofauna including Copper Skinks (At Risk-Declining) and recommends measures to mitigate those effects. The Department recommends a condition that requires a LMP to provide certainty on how adverse effects on lizards will be managed under the resource consent approved activities. A recommended condition requiring a LMP is copied below:

X. The EMP shall include a Lizard Management Plan (LMP). Prior to the commencement of any works within the application site, a LMP shall be prepared by a suitably qualified and experienced herpetologist. The objective of the LMP is to minimise adverse effects on indigenous lizards within the areas of vegetation clearance associated with the Project and to create and enhance habitats for lizards.

(a) The LMP shall include, but not be limited to:

i. undertake lizard surveys to establish the presence of native lizards;

ii. the process and timing to extract lizards from the site prior to works;

iii. measures to salvage native lizards from any suitable habitat within the Site in accordance with the Wildlife Act Authority;

iv. details of suitable release site(s) for salvaged lizards in accordance with the Wildlife Act Authority; and

(b) In consultation with a SQEP, undertake measures and methods to minimise effects on lizards, including but not limited to:

i. Restoring vegetation as soon as practicable following works (where practicable);

ii. Details of wood piling or any other provision of lizard habitat

iii. measures to promote the success of the salvage population(s) such as pest control and habitat enhancement;

iv. details of monitoring and reporting to confirm the effectiveness of measures required above;

[25] Franklin, P., Baker, C., Gee, E., Bowie, S., Melchior, M., Egan, E., Aghazadega, L., Vodjansky, E. 2024: *New Zealand Fish Passage Guidelines: Second Edition (Version 2.0)*, Prepared for the Ministry for Environment, Earth Sciences New Zealand (NIWA), Wellington.

v. *details of in perpetuity legal protection for release sites i.e. consent notices and covenants,*

vi. *details of the person(s)/organisation that will undertake the work, and*

vii. *measures to ensure consistency with requirements of the Wildlife Act 1953.*

(c) *At least 20 Working Days before starting Project Works, the LMP shall be submitted to the BOPRC for written certification by a suitably qualified and experienced professional that the LMP satisfies the requirements of Condition X.*

(d) *The certified LMP shall be implemented for the duration of Project Works.*

(e) *A suitably qualified and experienced herpetologist approved to oversee the implementation of the LMP must certify that the Lizard related works have been carried out according to the certified LMP.*

Advice Note

The application documents contain a draft LMP which will be finalised through this condition. The Consent Holder has obtained a permit under the Wildlife Act 1953 to capture and translocate any indigenous lizards. Any capture and relocation of indigenous lizards will need to be undertaken in accordance with that permit. Some management actions required under the Wildlife Act may overlap with the management actions set out in the LMP prepared to meet this resource consent decision. To avoid duplication, it is recommended that the Consent Holder provides a single LMP that satisfies both the requirements of Condition X and the approval process under the Wildlife Act 1953.

Condition 26 Bat Management Plan

4.22 As outlined above, the Department recommends that given there are records of bats in the area, Condition 26.1 is deleted and Condition 26.2 amended as follows:

~~26.1 Within the 12 months prior to starting Project Works in areas where long-tailed bat may be impacted by Project Works, a SQEP shall conduct a bat presence survey to identify long-tailed bats within the Designation. The monitoring shall be conducted during November - March and for a minimum of 21 suitable survey nights.~~

26.2 ~~If the survey in Condition 26.1 above confirms a long-tailed bat presence,~~ *The EMP shall include a Bat Management Plan (Bat MP). Prior to the commencement of any works, the Consent Holder shall submit* a **Bat Management Plan (Bat MP)** ~~shall be~~ prepared *by a suitably qualified and experienced bat ecologist*. The ~~*purpose*~~ *objective* of the Bat MP *shall be as follows:*

(a)~~is~~ to ~~identify methods to be adopted to avoid and/or minimise adverse effects on bats~~ *achieve no net loss of indigenous biodiversity values for long-tailed bats and their habitat.*

(b) To protect bats that persist within the Project Area by:

(i) Avoiding injury and/or mortality of roosting long-tailed bats during any tree removal

(c)To avoid or minimise adverse effects on bats within the Project Area by:

(i)Avoiding, or otherwise minimising adverse effects of lighting and noise

(ii) Provide habitat replacement and/or restoration to offset or compensate for the loss of habitat values

(~~b~~*d*) The Bat MP shall include:

1. Identification of potential bat roosts within areas of vegetation clearance;
2. Measures to avoid and minimise potential bat roost removal;
3. Where potential roost felling is not able to be avoided, detail on current best practice *and adherence to the Department of Conservation 'Protocols for minimising the risk of felling bat roosts (Version 4, October 2024) or updated version* for tree removal protocols to avoid injury and/or mortality of roosting long-tailed bats; and
4. Identification of required habitat replacement and/or restoration outside the Project Area to manage the effects of habitat loss on long-tailed bats. *Species selection and planting plans must take into account the New Zealand Bat Recovery Group Advice Note – Planting to provide roosts for bats in the long-term (dated, 28 August 2025);*

5. Measures to mitigate the adverse effects of noise and lighting, for lighting, measures that are consistent with the Department of Conservation Bat Recovery Group Advice Note – Steps to take to reduce the impact/effect of artificial light on pekapeka (bats) dated 19 August 2025 or updated version.

x. At least 20 Working Days before starting Project Works, the Bat MP ~~(if required)~~ shall be submitted to BOPRC for certification that the Bat MP satisfies the requirements of Condition 26.2(a).

y. The Bat MP ~~(if required)~~ shall be implemented for the duration of Project Works *and all planting required under the Bat MP shall be maintained for a minimum period of five years from the date planted, with annual monitoring to assess the establishment of planting.*

z. *The Consent Holder shall ensure that all restoration undertaken as offsetting and compensation is maintained for the duration of this consent.*

za. *The consent holder shall review and update the Bat MP on an annual basis for the duration of this consent. Any updates must be provided to the Bay of Plenty Regional Council for written certification by a suitably qualified and experienced professional prior to implementation.*

5 Conclusions

5.1 Overall, DOC has some concerns about the adequacy of the assessment provided on freshwater stream values and the effects management approach for stream reclamation and proposed stream realignment. The Department does not consider that the conclusions on the residual impacts are accurate due to insufficient information on freshwater values.

5.2 As outlined above, it is recommended that a Lizard Management Plan is required as a condition of consent under the resource consent approvals. This provides certainty on how adverse effects on lizards will be managed as part of the Project.

5.3 Bat surveys have detected long-tailed bats within close proximity to the Project Area. Long-tailed bats have a conservation status of 'Nationally Critical' which is the highest threat category before extinction. It is recommended that conditions of consent are strengthened to ensure that effects on long tailed bats are adequately managed.

5.4 The Department's remaining concerns can be resolved through new or amended conditions to ensure there are clear outcomes and more certainty on how the adverse effects of the Project will be managed.

5.5 The Department is prepared to provide further commentary on draft conditions.

5.6 Thank you for the opportunity to comment.

Appendix A: Technical expert credentials

The Department has relied on the advice of the technical expertise of those listed below. Their credentials are set out below. The freshwater advice is attached in Appendix B and C.

Senior Technical Advisor (Freshwater) – Jacob Williams

Mr Jacob Williams is employed by the Department of Conservation and based in the Manawatu as a Senior Technical Advisor for Freshwater. Jacob has worked for the Department of Conservation continuously since August 2017, as an RMA Planner and then as a Technical Advisor Freshwater for 6 years where he has provided advice from a freshwater technical (hydrological, river process and ecological) perspective on notified and non-notified consents and regional and district plan changes and reviews. He has been engaged as a Senior Technical Advisor since the beginning of 2025.

Jacob's qualifications are a BSc in Geography from Massey University, and a PGDipSci in Geography from Massey University. He has provided Council-level evidence in his capacity as an RMA Planner.

Environmental Scientist – Dr Martin Neale

Dr Martin Neale is the lead Environmental Scientist and a Director at Puhoi Stour Limited. He holds the qualifications of BSc (Hons) Biological Sciences (University of Plymouth, UK (1995)), MSc Environmental Quality (Bournemouth University, UK (2000)) and a PhD in Freshwater Ecology (University of Ulster, UK (2004)).

Martin has over 25 years' experience in research and management of freshwater environments, with experience gained in the public and private sectors in Europe (1998 to 2007) and New Zealand (2007 to present). He is a member of the Royal Society of New Zealand, the Society for Freshwater Science, the Freshwater Biological Association, Water New Zealand and the New Zealand Freshwater Sciences Society.

Since 2012, Martin has held an Honorary Lectureship at the University of Auckland, where he is involved in teaching and research activities. These teaching responsibilities include leading the delivery of a post-graduate course on "Assessing Environmental Effects". His research has focussed on novel methods of assessing and managing freshwater health, which has led to the publication of multiple internationally significant journal papers.

In his previous roles at Auckland Regional Council/Auckland Council between 2007 and 2015, Martin led the development of the Stream Ecological Valuation (SEV) and Environmental Compensation Ratio (ECR) tools that are used to assess and manage effects on streams from development projects. During this time, he also managed the regional State of the Environment monitoring and Applied Environmental Research programmes, including a range of complex environmental research and monitoring programmes covering air quality, soil science, biodiversity, marine and freshwater.

Martin has completed the Making Good Decisions course for decision makers under the Resource Management Act 1991 (RMA) and actively serves as a hearings commissioner. Martin is currently a Panel Member for the Kings Quarry project currently being considered under the Fast Track Approvals Act 2024.

Senior Technical Advisor (fauna) – Rhys Burns

Mr Rhys Burns has been employed at the Department of Conservation for 26 years in Terrestrial biodiversity management and 21 years as a terrestrial advisor.

Rhys is the leader of the Kōkako Recovery Group, Weka Recovery Group, and member of the Native Frog Recovery Group

Rhys has been an expert witness for DOC in terrestrial biodiversity at Council-level Hearings (e.g. Mt Messenger Road Bypass and Kaiwaikawe windfarm); and Environment Court (Waste Management NZ – Dome Valley).

Rhys has a PhD and BSc (Hons) (Biochemistry) from the University of Otago.

Senior Science Advisor (bats) – Dr Kerry Borkin

Dr Kerry Borkin is employed by DOC as a Senior Science Advisor. Kerry's qualifications include a PhD in Biological Sciences from the University of Auckland (2010). Prior to this, Kerry was employed by Wildland Consultants Limited as a senior ecologist, and prior to that, I was employed as a research technician by Manaaki Whenua – Landcare Research.

In total, Kerry has 26 years' experience in ecological management and research, including about 19 years focused specifically on New Zealand bats.

Her qualifications include a PhD in Biological Sciences from the University of Auckland (2010). This research focussed on the ecology of long-tailed bats in plantation forest. Over the period 2006-2010, her PhD research involved the capture and radio-tracking of long-tailed bats, as well as monitoring of their activity (comparison of activity between habitat types), observations at roosts and of roost emergence, and training of others in these skills**.**

Kerry has a Postgraduate Diploma in Wildlife Management, with Distinction, from the University of Otago (1999). This included surveying the distribution of long-tailed bats throughout the Waikato Region for the Department of Conservation. As part of this survey, Kerry used handheld detectors to record long-tailed bats in the Te Miro area, just north of the Project Footprint. Her research dissertation for the Diploma focussed on feral cat diet and cat responses to prey abundance changes. Kerry has a BSc (Zoology and Ecology) from Massey University (1997).

Kerry has previously appeared as an expert witness on behalf of the Waikato Regional Council regarding bat-related matters for the Hamilton Section of the Waikato Expressway; and on behalf of the Director General of Conservation regarding bat-related matters for the Amberfield subdivision and the Peacocke Structure Plan change (PC5).

Appendix B: Review of the Ecological Effects Assessment for Waterways

MEMO	
DATE:	27 November 2025
TO:	Liz Williams (Senior Resource Management Planner)
CC:	Gen Hewett (Senior Fast-Track Advisor)
FROM:	Jacob Williams (Senior Technical Advisor (Freshwater)
SUBJECT:	Freshwater assessment of the NZTA application for the Takitimu North Link Stage 2 project

Context

This memo contains comments from myself on the freshwater ecology reports that support the application by the New Zealand Transport Agency the Takitimu North Link Stage 2 project. This is not a comprehensive summary of the values and effects of the proposed highway. My comments primarily focus on areas where the applicant could undertake different or additional avoidance, mitigation, offsetting or compensation measures which would lead to improvements in freshwater biodiversity at and around the impact sites. I have not visited the sites. This memo does not cover the impacts on wetlands as this has been covered by the Terrestrial Team or go into detail around aspects related to freshwater offsetting as this is covered in the review prepared by Dr. Neale. Fish passage considerations are discussed in more detail in the S51 report prepared by the Department of Conservation.

Introduction

The proposed highway will have numerous freshwater effects including direct impacts, stream relocation, water quality, water quantity (flows and hydrology), fish passage etc. These effects are often associated with proposed mitigation practices that aim to limit the impacts of the roading project. These effects and mitigations can be complex and cover a wide range of freshwater ecosystems and values, so, as a general statement I consider that the proposed activity should result in:

- No net loss in the extent of waterways (length and area)
- No net loss in the values associated with the affected streams (including potential value)

It is important that monitoring is implemented to ensure that these high-level outcomes are achieved. Robust conditions are also critical to ensure that the effects are minimised, mitigation is monitored and that hypothetical gains are achieved.

Applicants Survey Methods

The applicant has undertaken an ecological evaluation using desktop-based information as well as site specific surveys across some of the waterways. These methods included physical habitat assessments,

benthic sediment quality, Stream Ecological Valuation (SEV) assessments, macroinvertebrate community assessments, fish surveys and eDNA surveys. Overall, the assessment methods used by the applicant are robust and follow best practice, except for eDNA surveying methodology.

eDNA sampling was only undertaken using a single replicate within two catchments. While I acknowledge that eDNA methodology was not developed at the time of sampling in 2021, best practice recommends that six replicate samples be collected (NIWA, 2023)[26]. This ensure species detection rates are >90%, meaning it is more than 90% likely that eDNA detected the presence of a particular species if it was present in the water way. A wider spatial scale eDNA survey across all affected waterways would provide additional information on species present within the activity footprint. Furthermore, if a species is detected within a catchment and there are no significant barriers to fish passage, its presence should be assumed within the activity area. This is because fish species are mobile, their use of specific habitats may be temporary, and they rely on unobstructed passage to complete their life cycles.

Freshwater Values

The NZTA Freshwater Assessment follows the Ecological Impact Assessment (EcIA) guidelines developed by the Environment Institute of Australia and New Zealand (Roper-Lindsay *et al*, 2018[27]), which are a recognised approach for evaluating the ecological effects of construction projects like the Takitimu North proposal.

The applicant has assessed the freshwater values of the impacted waterways as having low ecological values (Oturu Creek 4B, 4A, 3C, 2, wetland/watercourse 6, Tributary 1, 2, 5, 6, 7) or moderate ecological values (Tributaries 3 and 4). Based on the information provided in the NZTA ecological assessment, I believe that several of the sites assessed as having 'low value' should be ranked as 'moderate value'. The primary explanation for the discrepancy of my analysis with the NZTA assessment arises because of my consideration of indigenous species recorded in the catchments and likely to also be present at the sites. In my opinion, the NZTA assessment does not adequately consider the presence of long fin eel and inanga. These species are classified as At Risk – Declining and therefore, based on the EcIA guidelines, raises the biodiversity values (rarity and distinctiveness) to high at sites where they occur or are expected to occur. The presence of one criteria value as 'high' in conjunction with either moderate or low criteria for the rest places the overall assessment of value as 'moderate'. Or at sites that rate 'high' for one criteria and moderate for the remained result at an overall assessment value of 'high'.

[26] NIWA. 2023: *Environmental DNA guidelines and field protocols for lotic systems*¸ National Institute of Water & Atmospheric Research, Hamilton, New Zealand.

[27] Roper-Lindsay, J., Fuller, S., Hoonson, S. Sanders, M., & Ussher, G. 2018: *Ecological Impact Assessment (EcIA) EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems* (2nd ed., Environmental Institute of Australia and New Zealand Inc, Melbourne, 2018).

Table 1. Comparison of the NZTA assessment of freshwater values against my own assessment.

Site	At-Risk, Declining species recorded[28]	NZTA rarity and distinctiveness assessment	DOC rarity and distinctiveness assessment	NZTA Value ranking (NZTA/mine)	DOC Value
Oturu Creek 4B	Longfin eel, kākahi[29]	Low	High	Low	Moderate
Oturu Creek 4A	Longfin eel, kākahi	Low	High	Low	Moderate
Oturu Creek 3C	Longfin eel, kākahi	Low	High	Low	Moderate
Oturu Creek 2	Inanga, kākahi	Low	High	Low	Moderate
Wetland/Watercourse 6[30]		Low			
Tributary 1	Longfin eel, inanga, kākahi	Low	High	Low	Moderate
Tributary 2	Longfin eel, inanga, kākahi	Low	High	Low	Moderate
Tributary 5	Longfin eel, inanga, kākahi	Low	High	Low	Moderate
Tributary 6	Inanga, kākahi	Low	High	Low	Moderate
Tributary 7	Longfin eel, kākahi	Low	High	Low	Moderate
Tributary 3	Longfin eel, inanga, torrentfish, kākahi	Low-Moderate	High	Moderate	High

[28] This is based on information from the applicant's ecological assessment and the New Zealand Freshwater Fish Database.
[29] Kākahi have only been recorded in Tributary 1 (New Zealand Freshwater Fish Database Record) but the applicant has not undertaken specific surveys for them and therefore their presence cannot be ruled out.
[30] No benthic, SEV, macroinvertebrate community, fish or eDNA surveys completed for this site.

Tributary 4	Longfin eel, inanga, kākahi	Low-Moderate	High	Moderate	High

Freshwater Magnitude of Effects

The applicant has assessed the magnitude of effects of the project "based on the extent of proposed stream modification as a proportion of the total linear length of similar sized watercourse/reaches within the wider catchment (Oturu Creek catchment, Te Puna catchment, Mangawhai Bay catchment and Waipapa River catchment)" (Boffa Miskell, 2025[31], P. 134). The applicant also states that they "consider linear length is an appropriate basis on which to assess and manage the quantum of effect, with the caveat that any offsite mitigation also considers the width of the impacted watercourse(s)" (Boffa Miskell, 2025, P. 134). By comparing the loss of habitat within each main catchment, the magnitude of the impact at the site is minimised in comparison to a reach/site-based assessment. In contrast, the EIANZ Guidelines explicitly refer to 'site' when describing criteria for magnitude of effect rather than catchment scale.

There are impacts on freshwater biodiversity and ecosystems associated with the proposed highway. These impacts are related to the construction of the highway and the ongoing operation impacts (which are permanent) after it has been constructed. The applicant's assessment of effects (pre-mitigation) state that effects on freshwater will range from positive to very high. I do not agree with all the proposed pre-mitigation effects, especially when they are assessed at a reach or site scale. The assessed effects I disagree with specifically are highlighted in Table 2 below.

Culverting (where it is replacing an existing open channel) and stream reclamation and realignment represent a permanent loss of current and potential ecological value in the waterways as well as hydrological functioning. This is reflected and that being High - Very high magnitude of effect. Realigned streams are likely to have different hydrological character and habitat quality than the original waterways and is an inherently risky process that can lead to poor ecological outcomes[32]. Erosion and sedimentation especially during large rainfall events can cause damage to freshwater biodiversity. Suspended and deposited sediment can cause habitat loss, impacts on fish and invertebrate feeding, smother spawning sites and can take a long time to work through the waterway system.

Table 2. Comparison of the NZTA assessment of the projects unmitigated effects on freshwater compared to my own.

Effect	NZTA ranking	DOC ranking
Watercourse modification (construction and operation) – stream length	Positive	Very high (negative effect)
Watercourse modification – habitat provision	Low to moderate (depending on the site)	Very high (negative effect)

[31] Boffa Miskell Limited, 2025: *Takitimu North Link – Stage 2: Ecological effects assessment,* report prepared by Boffa Miskell Limited for NZTA.
[32] This is further discussed in the assessment by Dr. Neale.

Fish passage – with correct culvert installation (operation)	Positive	Negligible (where it is replacing an existing culvert) to very high (negative effect) (where it is replacing an open channel)
Fish passage - with poor culvert installation (operation)	Very low to low (depending on the site)	Moderate (negative effect) (where it is replacing and existing culvert) to high (negative effect) (where it is replacing an open channel)
Erosion and sedimentation from earthworks (construction)	Very low to low (depending on the site)	Moderate (negative effect)

Accurate determination of the magnitude of effect for each activity is crucial as it represents the degree of change expected in an ecological component due to the activity. This evaluation helps identify where mitigation or offsetting measures are necessary to reduce the overall level of effects (ecological impact). However, it is possible once effects management is considered, that the magnitude of effects for each activity can be reduced from Very High to Negligible, or even Positive and therefore reduce the overall level of effects to an acceptable level. The applicant's assessment of effects (post mitigation) states that all effects on freshwater will be either negligible or positive (Boffa Miskell, 2025, Table 31). I do not agree with all the proposed post-mitigation effects, specifically those highlighted in Table 3 below. As discussed above culverting and stream modification represent a permanent loss of current and potential ecological value in the waterways as well as hydrological functioning and result in a very high/high level of effect.

I agree that contamination release from concrete can be given a negligible effect post mitigation, however the conditions proposed by the applicant still allow for concrete wash water to be discharged to locations where it can enter a waterway.

Table 3. Comparison of the NZTA assessment of the projects mitigated effects on freshwater compared to my own.

Effect	NZTA ranking	DOC ranking
Watercourse modification – Habitat provision[33]	Positive	Low-Moderate (negative effect)

[33] I am unable to find a definition of what impact/effect this is referring to.

Watercourse modification (construction and operation)	Positive	Very high (negative effect)
Fish passage – with correct culvert installation (operation)	Positive	Very low (negative effect) (where it is replacing an existing culvert) to very high (negative effect) (where it is replacing an open channel).
Contaminant release	Negligible	Moderate (negative effect)

Overall Level of Effects on Freshwater

The EciA guidelines determine the overall ecological impact (referred to here as the 'level of effects') by assessing both the ecological value of the affected habitat and the magnitude of impact caused by the proposed activity. The level of effects serves as an indicator of the appropriate type of effects management response. According to the EciA guidelines, activities classified as having Low or Very Low effects generally do not warrant concern. In contrast, those with Moderate or High levels of effects require thorough evaluation and appropriate management measures, which may include avoidance, mitigation, offsetting, or compensation. The differences between NZTA and myself on the assessment of some of the ecological values and the magnitude of effect highlights that the overall level of effect reached by NZTA is underestimated and will need to be considered carefully in the effects mitigation hierarchy and conditions.

Mitigation proposed through conditions

The applicant is proposing to manage a lot of the activities through the use of management plans and reviews/involvement of a suitably qualified person. These management plans must be approved by the Regional Council with no Department of Conservation involvement. I believe that management plans can be beneficial in large project such as Takitimu North Link - Stage 2, however there should still be constraints and certainties established in the conditions to ensure that the activities and their management are clear to all parties and can be achieved.

NZTA appears to be seeking a flexible approach to construction of the highway and managing potential effects on freshwater habitats. This is reflected in a lack of a 'condition 1' and the use of management plans with a broad envelope of approaches in them. This approach makes it difficult to assess the impacts on freshwater environments and how these impacts will be managed through the effects management hierarchy. Consent conditions will need to provide maximum limits to which the activity can disturb freshwater habitats (in terms of fish passage disturbance, stream reclamation and stream realignment) so that the magnitude of effects can be properly assessed and management of these effects is appropriate.

Ecological Management Plan

The proposed ecological management plan (condition 38) does not require certification from the Regional Council; this should be added to the condition to ensure oversight of the proposed approach.

Stream Management and Monitoring Plan

The proposed Stream Management and Monitoring Plan in condition 45 outlines the monitoring and management approach for the waterways impacted by the proposed works. I believe that these conditions do not provide enough clarity on what the actions need to be undertaken to ensure impacts are adequately mitigated (or offset/compensated). The conditions should include:

- Objective to be achieved
- Establish what the current state of the waterways are to ensure that they stay stable or improve rather than decrease over time.
- Detail on what mitigation contingency methods will be used if monitoring (or trigger events) indicate decreasing trends and potential solutions (offsetting/compensation) if these do not stop the impacts.
- Certainty around the design of the reclaimed streams i.e. "*the dimensions of each realigned watercourse (depth, width and gradient pattern) must be similar to the reclaimed watercourse that it replaces to achieve similar velocities, water volume, depth profiles and wetted widths".*
- More detail around the reporting requirements under 45 (a) (vii).

Ecological restoration and landscape planting

The conditions proposed through these conditions (55-59) do not provide certainty that the riparian planting associated with the stream diversions will be protected via fencing or provide a buffer of a given width[34]. Additional conditions should be included to cover these aspects. Condition 59 states that that the planting shall be maintained for a period of 5 years from the date planted. I believe that 5 years is likely enough for the vegetation to establish, however monitoring and maintenance should continue 10 years from planting to ensure that there is no failure e.g. weed invasion and plant death.

Watercourse modification

The applicant is proposing to divert watercourse in the project area and place them into newly created channels in a new location. The conditions that cover this activity (RC8 and RC9 condition 55) states:

55. Stream realignments and diversions shall be undertaken in general accordance with the Culvert and Stream hydraulic Design Report.

It is assumed that this report will be developed in the future, as such I cannot comment on its contents. In absence of the report, or in conjunction with it, I recommend conditions be included that:

- Specify the maximum length of watercourse to be reclaimed and realigned that align with the ecological assessment (approximately 3.1 km).
- Specify the maximum length of watercourse to be culverted that align with the ecological assessment (approximately 470 m).
- Ensure the freshwater habitat characteristic of reclaimed water ways reflects the pre-activity habitat (length, width, area, grade, geomorphological form). This can be achieved through specific performance targets.
- Fish passage is maintained in realigned streams following the New Zealand Fish Passage Guidance document[35].

[34] The applicant's assessment of effects is based on the streams becoming fenced and with stock exclusion (Boffa Miskell, 2025).

[35] Franklin, P., Baker, C., Gee, E., Bowie, S., Melchior, M., Egan, E., Aghazadega, L., Vodjansky, E. 2024: *New Zealand Fish Passage Guidelines: Second Edition (Version 2.0)*, Prepared for the Ministry for Environment, Earth Sciences New Zealand (NIWA), Wellington.

Fish injury and mortality

The applicant has proposed an Aquatic Fauna Management and Monitoring Plan to manage and minimise the effects on native freshwater fish and kākahi prior to and during any required stream works. This is covered in RC1 - RC5 condition 41. This condition could be improved to better protect freshwater biodiversity values through:

(a) (ii) restricting the timing of works for spawning/migration periods or detailing how activities during this period will be managed to mitigate impacts.
(b) This plan should be submitted to the regional council for written certification not just information.

Contaminant release (concrete)

The applicant has proposed conditions to prevent concrete/cement from entering a waterbody through RC1 - RC5 conditions 17-18. Ideally the applicant should be using pre-cast concrete in any situations where there may be contamination with waterways and wetlands or undertake measures to isolate them from the concrete activities. Any discharge water should be released at a location where it cannot enter a waterbody.

17. *The Consent Holder shall ensure that no water associated with the mixing, pouring, placing and cleaning of concrete structures and/or equipment is released into a Waterbody~~, unless that water has been treated and the pH of the stormwater discharged is between 5.5 and 8.~~*

Biosecurity

The applicant has proposed a biosecurity management plan in RC1 - RC5 condition 36-37. These conditions provide some controls however additional wording will help limit the potential impacts of invasive freshwater species, especially gold clam which is located in the adjacent Waikato region.

36. *(b) (ii) A machinery stand down period of at least 48 hours in dry conditions since being in contact with another Waterbody, for all machinery or vehicles entering a Waterbody*.

(iv) The Bionet A16 (revised 2020) "Keep it clean" and MPI "Check, Clean Dry (North Island)" guidelines to be complied with, as far as practicable.

Conclusions

I believe that the NZTA ecological assessment downplays the freshwater values present at the sites, the magnitude of the activity effects and therefore the overall level of effect of this activity on the freshwater habitats. The management of effects hierarchy has not been adhered to; this downplaying of the values minimises the overall assessed level of value and effects in the NZTA assessment. The current proposed conditions allow a wide envelope of actions to be undertaken by NZTA in the freshwater environment. Appropriate offsetting/compensation needs to be considered by the panel to manage the unmitigated effects on freshwater biodiversity.

Recommendation

That comments be provided to the Fast-Track panel to highlight the concerns with the NZTA freshwater assessments that I discuss above. Suggestions to improve the wording of the freshwater conditions should also be provided.

Memorandum

To: Liz Williams

From: Martin Neale

Cc: Jacob Williams

Date: 25 November 2025

Topic: Takitimu North Link Stage 2 – Freshwater effects management

Purpose

This Memorandum has been prepared to provide expert freshwater ecology advice in relation to the effects management for streams in the Takitimu North Link Stage 2 project.

Overall, I have substantial concerns about the proposed effects management approach and the achievement of a no-net-loss outcome for both stream extent and values. My concerns are due to the following issues, which I provide commentary on in the body of the Memorandum.

- Complete reliance on stream realignments to manage loss of streams
- Stream realignment being classified as 'remediation' rather than 'offset' as per the Effects Management Hierarchy
- Not accounting for potential values in the assessment of stream values and effects management.

I accept resolving these shortcomings within the timeframe available to the Panel is problematic, and I propose that a process to account for the issues identified below is included in the project conditions.

Stream Reclamation and Realignment

I have significant concerns about the reliance on stream realignments (or diversions) as part of the effects management approach. The project proposes to reclaim (i.e. fill in) over 3 km of stream channel and manage the effects of this by diverting water flows into newly created channels (i.e. realignments or diversions). Stream realignment is an inherently risky management approach associated with poor ecological outcomes and when used, should not be considered a remedy action.

Stream realignment outcomes

Based on my experience of stream realignments, I find it extremely difficult to expect that the new streams channels will achieve the ecological outcomes referred to the Ecological Effects Assessment[36] (hereafter EcEA).

Streams are located in their current position because they have reached equilibrium with the physical environment. This includes interactions with groundwater that will be disrupted by any artificial change in location arising from the proposed reclamation and realignments.

The visible part of the stream is only a component of the whole stream system. In a natural stream, there are up-welling and down-welling zones where water is exchanged with the groundwater below. This interchange is

[36] Takitimu North Link – Stage 2. Ecological Effects Assessment. Prepared by NZTA by Boffa Miskell. Dated 31 July 2025.

functionally crucial to a healthy stream ecosystem and much of the stream functioning and biodiversity occurs below the visible stream bed in the area known as the hyporheic zone (Scarsbrook & Halliday, 1996; Burrell & Scarsbrook, 2004).

Thus, it is not possible to fill in a natural channel and move it to an artificial channel without a significant loss of ecological function and life supporting capacity. Stream diversions create risks of the stream:

1. Losing water through the soil because of the absence of consolidated stream bed sediments and loss of connectivity with groundwater
2. Downcutting through the new stream bed due to the absence of consolidated bed sediments, creating an eroding channel. To mitigate this, newly constructed channels are armoured with impervious materials (usually concrete, sometimes with rocks added for 'habitat' complexity). Such concrete channels then become drainage features with little ecological value, even if the artificial channel is designed with a naturalised appearance

These risks have played out in every stream version project I have had any knowledge of, and I discuss three examples below.

Long Bay (Stream 1B)

In the Long Bay development, a stream was consented to be re-aligned to provide greater areas for urban development. Due to the loss of connectivity with groundwater and natural stream bed sediments, the new stream channel has been unable to retain water (Figure 1 -outcome photo taken by author).

State Highway 1 (Puhoi to Warkworth)

For the SH1 Northern Corridor (Puhoi to Warkworth) improvements, several streams were realigned to facilitate the new road. Again, the diversion channels did not retain any water.

The image in Figure 1 (provided by Auckland Council Consent Compliance) was taken several months after 'livening' and there was no surface water in the diverted channel. Importantly, surface flow was present upstream in the remainder of the natural stream channel, but this was lost when the flow reached the stream diversion. Even in the absence of water, the channel does not contain the habitat diversity proposed in the design, rather is a simple trapezoidal channel with no habitat diversity.

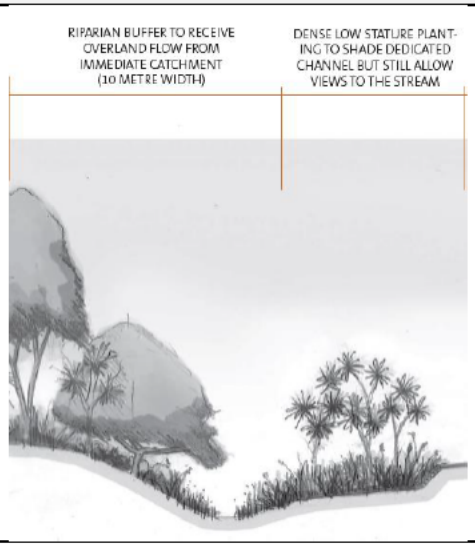
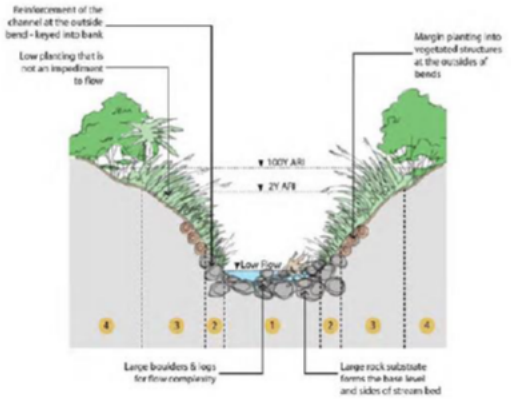
Transmission Gully

For the SH1 Transmission Gully development, nearly 8km of stream was reclaimed and diverted to facilitate the new road. The Transmission Gully streams have been subject to ongoing monitoring, which continues to show major problems with achieving flow and ecological outcomes in the diverted streams.

A recent independent assessment of Transmission Gully estimated at least 45% of stream diversions are not meeting flow conditions, with 'large lengths of stream diversions that do not retain surface flow in a similar state to the natural stream sections'[37]. The assessment also found that the issues were for an extended period, noting the situation had 'not noticeably improved over the years'.

[37] Transmission Gully Project: Observations for site visit on 19 and 20 September 2023. Memo from Keith Hamill (River Lake Ltd) to Gwen Stewart (GWRC). Dated 25 October 2023.

Figure 1: Stream realignment examples

Stream location	Design	Outcome
Long Bay (Stream 1B)		
SH1 (stream diversion)		

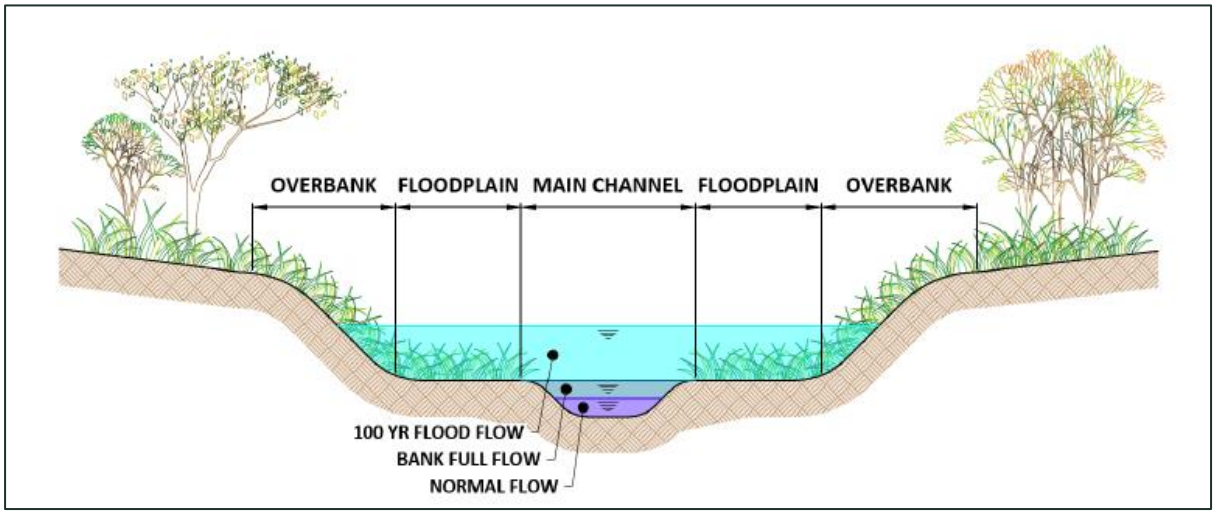
I note the design of the stream realignments for Takitimu are proposed to be developed as part of a 'Culvert and Stream Hydraulic Design Report' post granting of consent (Condition 39). The lack of detail about the stream design creates further uncertainty about the outcomes. However, a schematic design is provided in the Stormwater Assessment provided as part of the substantive application (Appendix 9.4.9). This design (Figure 2) is similar to those proposed in previous stream alignments mentioned above, which bear very little resemblance to the achieved outcome.

While every environmental management project has an element of risk (which is normally accounted for in offset calculations), the degree of risk is not consistent across projects. In relation to stream restoration, tried and trusted options, such as riparian planting are a proven management approach with multiple studies documenting positive environmental outcomes. In contrast, stream realignments are not proven. My personal experience is that positive outcomes are not achieved, and I have been unable to find any peer-reviewed published studies of stream realignments. Hence, evidence of success is anecdotal at best.

Overall, the examples provided show stream diversions have high risks of not meeting flow and ecological outcomes, and therefore should be treated with an appropriate level of uncertainty in any effects management approach because they are associated with:

1. Loss of stream habitat for fish, macroinvertebrates and plants, either:
    a. partially through reduced water width and depth, or
    b. completely through the absence of water in the channel.
2. Loss of fish passage, where no flow or only sub-surface flows prevents fish migration
3. Loss of connections with riparian vegetation and food sources for fish and invertebrates

Figure 2: Schematic design for stream realignment (Source: Stormwater Assessment Report (Appendix 9.4.9).



Remedy or offset

I do not consider stream diversions are a 'remedy' in the Effects Management Hierarchy, and they should be treated as an offset.

The process of reclamation (to allow for development) involves the total loss of extent and values in the reclaimed stream. The lost ecological values may be offset by creating a new channel and diverting the stream

flow into it. An appropriate offsetting tool should then be used to guide the process by estimating the magnitude of lost values in the reclaimed stream and values that may be gained in the stream diversion.

However, the use of stream realignment in the EcEA does not constitute a remedy action as the original stream channel is not remedied in any way – rather it is filled in and no longer exists. A remedy action would involve restoring the original stream channel after any disturbance. This is clearly impossible once a road has been constructed upon on it, so the management of effects should progress to the next steps in the Effects Management Hierarchy (i.e. offset and/or compensation).

Furthermore, the stream alignments proposed as 'remediation' are often in a different part of the catchment to the impacted streams. Table 26 in the EcEA shows that 7 of the 15 impacted streams do not have sufficient stream realignment to match the reclamation proposed to occur. Therefore, the proposed effects management is distant to the location of effect and claiming it as remediation is extremely tenuous.

In this regard, the EcEA is inconsistent in how effects are managed in different ecosystems. For example, the filling of wetlands to construct the road and managing those effects by constructing wetlands in different locations is considered an offset action (and is guided by NPSFM principles for offsetting and other best practice). Whereas filling of streams to construct the road and managing those effects in different locations is considered a remedy action. In my view, both approaches are offset actions for the reasons stated above.

Potential values

At a high level, I broadly agree with the assessment of the values for the stream systems, in that they are showing typical signs of impairment associated with rural land management practices. Importantly, I consider that these effects are reversible, therefore the streams have potential values that could be realised by improved land management (e.g., stock exclusion and riparian planting). These potential values are not accounted for in the NZTA Freshwater Assessment

The National Policy Statement: Freshwater Management (NPSFM), states that 'potential values' should be considered when assessing loss of value and in the application of the Effects Management Hierarchy thus:

1. At 3.21, the definition of loss of value "means the wetland or river is less able to provide for the following existing or potential values".
2. At 3.24(3)(a)(i), in relation to an application for a consent, the applicant must demonstrate 'how each step in the effects management hierarchy will be applied to any loss of extent or values of the river (including cumulative effects and loss of potential value).

The EcEA uses the current state of the streams to be filled in, and does not account for any of the potential values , despite these being lost if the project were to proceed with the currently proposed effects management approach.

These streams may be improved, even with simple management interventions. While the streams are currently compromised by the effects of rural land management, the level of impairment is consistent with other poorly managed rural stream systems, and they show typical signs of reversible impairment associated with rural land use practises

For example, long term monitoring of a small rural stream in the Long Bay catchment in Auckland detected improvements in stream ecology after being fenced to prevent stock access. Over the five years after fencing, the macroinvertebrate community showed statistically significant improvements, even with no active riparian planting (Neale et al, 2007)

Similar studies have recorded similar results in other small rural streams in the Waikato Region, with detectable improvements in ecological condition occurring between 7 and 13 years (Quinn, 2009; Wright-Stow & Wilcock, 2017).

Therefore, I consider it appropriate to account for potential values in the effects management because:

1. Such consideration is a requirement of the NPS-FM
2. These streams have potential values that could be realised by improved land management
3. Loss of the opportunity for ecological improvement is an environmental and community benefit that should be accounted for.

Conditions

A. New condition required

Given the management of effects on streams is inadequate, I consider a new condition is required to address this. I propose this approach because we do not have sufficient information to arrive at specific effects management requirements at this moment in time, and given the Panel's time constraints, there is insufficient time to generate this information ahead of a decision by the Panel.

Therefore, an agreed framework for robust management of effects may be a way forward. I propose a condition that requires an effects management plan for stream reclamation to be developed and refined as the project advances, that accounts for the loss of ecological value associated with stream reclamation, and the uncertain outcomes associated with stream realignment (stream diversions) as an offset action (not remedy). I suggest the effects management plan should be developed in accordance with proposed steps below.

Condition X: Stream effects management

(a) Quantify the magnitude of ecological values lost by stream reclamations.

(b) Carrying out a transparent assessment to estimate the quantum of offset that may be required.

(c) Identifying streams within the designation that may be suitable for stream offsets.

(d) Identifying streams on nearby land held by Environmental Management agencies (e.g. BOPRC, DOC) that may be suitable for stream offsets.

(f) Confirming an offset package based on the above that will provide a degree of certainty that the project will result in no-net-loss of stream extent and values.

(g) I recommend independent technical experts in offsetting and freshwater ecology review and approve any such offset package.

B. Existing conditions

Condition 15.1: Ecological Management Plan

Clause 15.1(a)1 should include reference to fencing (for stock exclusion) as the EcEA is based on the assumption that it occurs.

Condition 24.2: Aquatic Fauna Management and Monitoring Plan.

I note the condition now required certification rather than being for information. I support this change.

Condition 27: Stream Management and Monitoring Plan

The condition has been updated and is now contains more meaningful detail which is supported.

If a new condition on effects management (proposed above) is included, then 27.1(a)2 should be linked to the predicted offsetting outcomes.

While the condition is improved, there remains a substantial amount of detail to be populated in the Plan, including the aims and objectives, proposed outcomes and indicators, and sampling locations. As written, DOC will have no ability to influence this detail. Given this, it may be appropriate for DOC to have review role (or similar) for this Management Plan.

References

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