
TO: Alisha Nair, Department of Conservation

FROM: Amber McEwan, Riverscapes Freshwater Ecology Limited

CC: Emily Bayliss

DATE: 16.07.2026

Re: Hunua Quarry: S51 Complex Freshwater Fisheries technical advice



1. Document review

To prepare the below advice, I reviewed the following documents (versions accessed from the Fast Track website on 14-16 July 2026):

1. Part B Assessment of Environmental Effects
2. Part E Complex Freshwater Fisheries Activity Authority
3. B12.4.5a Ecological Effects Assessment
4. B12.4.5b Ecological Effects Assessment
5. B12.4.6a Mangapū tributary realignment – preliminary design and effects technical report
6. B12.4.6b Mangapū tributary realignment – preliminary design and effects technical report
7. B12.8.3 Aquatic fauna and salvage and relocation plan. Accessed from Fast Track website 15.07.25
8. B12.8.7 Stream Realignment Management Plan
9. [Letter to the EPA from Boffa Miskell](#) (22 June 2026), Department of Conservation RFI tracker – Appendix 1.
10. Letter to the EPA from Boffa Miskell (8 June 2026).
11. [Memo to DOC](#) (attention myself) from the Applicant's ecologist (Ian Boothroyd) dated 9 July 2026.
12. Appendix B12.7 Conditions (as at 14 July 2026).

2. The alignment of the proposed activity with best practice and the New Zealand Fish passage Guidelines (clause 4(a))

The applicant has correctly identified the activities that fall under FTAA definitions as Complex Freshwater Fisheries Activities (CFFAs): **1)** permanent diversion of approximately 1 km¹ of the Mangapū tributary (Trib 1), and creation of a new channel with appropriate fish facility incorporated into the channel design; **2)** the installation of two culverts on Mangapū tributaries 3 and 4 (Trib 3, Trib 4) that will permanently block upstream passage of all fish species; and **3)** the potential for instream works to occur during the relevant spawning season of native fish.

The applicant updated their plans (review document 10) to note that they proposed to use a temporary weir to better control flow from the to-be-removed channel into the constructed channel during the staged livening process. The applicant adopts a conservative approach by considering that the operation of the weir and the staged livening of the constructed channel represent instream works that last longer than 3 months and is thus a CFFA.

I consider that the proposed activities are consistent with best practise and the New Zealand Fish Passage Guidelines (NZFPGs) for the most part. The exception relates to the use of culverts that block fish passage on Tribs 3 and 4²—and my concern relating to fish passage is conditional on 1) the outcomes of further surveying in these tributaries (which hasn't happened yet), and 2) certainty regarding the tributaries' future.

Regarding 1) – if robust and species-specific survey methods detect shortjaw kōkopu in these tributaries (see memo section 5), then I consider that the preservation of populations and their habitats to be of high importance and as such, would warrant

¹ Review document 2 notes '941 m', whereas review document 1 notes 'approximately 1200 m'.

² Section B1 of review document 1 clearly refers to the culverting of two tributaries of the Mangapū Stream (Trib 3 and 4). However, Section E1 of review document 2 notes the installation of **two culverts on Trib 3** and makes no mention of culverting on Trib 4. Later, the same document (in section E4.10) describes the intention to salvage fish from both tributaries. Given that project discussion so far has related to one culvert being installed on each of Tribs 3 and 4, I will proceed with these comments based on that being the case (and the section E1 reference being an error). It would be good to clarify this though, given that a lot of my input relates to the culverts on these tributaries.

changes relating to presently proposed culverts and future consideration of removing these tributaries.

Regarding 2) – if surveying does not detect shortjaw kōkopu, the tributaries are still valuable habitat in a context where such is rare. It is difficult for me to comment on the proposal to block fish passage into the tributaries because the alignment of this with best practise and the NZFPGs is dependent on the future possibility of removing these tributaries that is mentioned by the applicant (and Table 33 of review document 4 seems to indicate that this would not occur for ‘some decades’). I am not aware if this has been consented or not, and it seems problematic to justify an activity based primarily on something that may not happen. If I was certain that the tributaries would be removed, then I would agree that blocking fish passage into them would not significantly add to the harm associated with the removal of the tributaries. If the tributaries were not to be removed in the future however then I would consider that greater emphasis on avoiding affecting fish passage into these streams would be in line with best practise (based on them being headwater streams that are comparatively close to reference condition in a heavily deforested and otherwise impacted catchment that seems vulnerable to continued piecemeal, cumulative loss of remaining forested headwaters).

The constructed channel has been designed to provide fish passage for climbing species via the inclusion of appropriate habitat features that match unimpacted reaches, and the applicant provides details and drawings that are in line with best practise and the NZFPGs. Monitoring conditions should require adherence to the provided information and should facilitate effective data collection that can robustly inform whether fish passage remains unaffected compared to baseline information (particularly given that the constructed channel is proposed to have a steeper gradient than the existing reach).

The design of the temporary weir has been informed by the NZFPG and includes design features to enable climbing fish passage such as a rounded crest and a shallow gradient downstream face. The structure will also have a v-shaped profile to provide areas of different flow velocity. The surface will be varied due to the rock sizing to create a

hydraulically diverse flow environment, but one that replicates the natural characteristics of the existing stream.

I consider the proposed staged livening process in line with best practise because – despite causing prolonged instream disturbance – the research opportunity this method presents has the potential to generate valuable information for future improvement of relevant practices such as fish salvage, stream channel design, and mitigation of instream works effects on resident stream fauna.

Aquatic fauna salvage and relocation will be undertaken in accordance with best practice. Review document 7 provides details and notes that additional site-specific planning will be prepared closer to the time. I consider it important that these plans include a certification requirement and that they direct any salvage that may be carried out in Tribs 3 and 4 to only work in the immediate vicinity of culvert installation sites, because aquatic fauna does not need to be salvaged from other parts of these tributaries in association with the activities presently under consideration.

3. The management of risks to freshwater values or habitat, including prevention of access to or spread of invasive species (clause 4(b))

I consider that risks to freshwater values and habitat in relation to fish passage (including migration associated with spawning) is adequately managed in relation to Trib 1 (diversion, new channel creation, prolonged instream works), although I note that risk assessments may need to be updated with the latest threat classifications (see memo section 5).

Regarding the proposed culverting of Tribs 3 and 4, I do not consider that robust risk assessment in this context is presently possible i.e. without **1)** certainty regarding the future of Tribs 3 and 4, and **2)** further surveying targeted at shortjaw kōkopu (and assessment updates related to threat status for relevant fish species).

Based on site topography and description of activities, I agree with the applicant's assessment that there is no associated risk of spreading introduced species that are present in the lower reaches of Slippery Creek.

4. The availability and quality of the habitat upstream and downstream from the proposed activity (clause 4(c))

The applicant has mostly provided sufficient information regarding upstream and downstream habitats for me to form an adequate understanding of the longitudinal context in which fish passage would be affected by the Trib 1 diversion and culverting on Tribs 3 and 4. The applicant describes forested permanent and intermittent streams that include barriers to passage of non-climbing fish species, and that are vulnerable to scouring by high flows. The downstream catchment is highly modified and developed. Table 37 of review document 4 describes the ecological value of Trib 1 as 'Very High' and Tribs 3 and 4 as 'High'.

5. The presence of threatened, data-deficient, or at-risk species under the New Zealand Threat Classification System in the vicinity of the proposed activity (clause 4(d))

The applicant carried out eDNA sampling with best practise replication and detected longfin eel, shortfin eel, banded kōkopu, kōura, and two species of *Zephlebia* that are classified as At Risk – 'Naturally Uncommon' in Trib 1.

I did not find discussion of regional threat classifications in the documents, and the applicant has applied superseded³ national threat classifications for fish. The main consequence of this is that the applicant has performed assessments with banded kōkopu assigned a status of 'Not Threatened', whereas the current national status of this species is 'At Risk – Naturally Uncommon'. Banded kōkopu are not threatened within the Auckland Region, but this is due to the region being classified as a banded kōkopu stronghold (and home to more than 20% of the national population)⁴.

³ The current threat classifications are available in Dunn, N.R.; Closs, G.P.; Crow, S.K.; David, B.O.; Goodman, J.M.; Griffiths, M.; Hicks, A.S.; Hickford, M.J.H.; Jack, D.C.; Kitson, J.C.; Ling, N.; Waters, J.M.; Wylie, M.J.; Hitchmough, R.A.; Makan, T. 2025: Conservation status of New Zealand freshwater fishes, 2023. New Zealand Threat Classification Series 46. Department of Conservation, Wellington. 66 p.

⁴ Regional threat classifications are available in Bloxham M, Woolly J, Dunn N, Chaffe A, Tutt C, Melzer S 2023. Conservation status of freshwater fishes in Tāmaki Makaurau/Auckland. Auckland Council Technical Report 2023/13.

The characterisation of fauna values in Tribs 3 and 4 are less clear⁵, and I am unsure if the fish noted as present in Trib 3 (and thus Trib 4 by assumption) is based on eDNA or on extrapolation from nearby data. Figure 30 of review document 3 (Fig. 1 below shows snip and paste of this figure) seems to indicate that eDNA site 1 is downstream of the Trib 3 confluence (so presumably in part reflects eDNA originating from Trib 3). Table 12 of review document 3 (snipped and pasted as Fig.2) notes that eDNA sampling at eDNA site 1 detected mostly the same species as at eDNA sites 2 and 3 (i.e. multiple native species – 4 of which are nationally or regionally ‘At Risk’). I could be misunderstanding the sampling site map, which would mean that no information regarding fauna values was specifically collected from Tribs 3 and 4. In this case, I would agree with the applicant’s reasonable conclusion that these tribs are likely to contain the same species as Trib 1.



Figure 1. Sample sites at Huna Quarry used to inform effects assessment.

⁵ Page 144 of review document 4: “Upstream of [the proposed culvert site on] trib 4 is ephemeral and is unsuitable habitat for fish.” And,

Page 143 of review document 4: “The fish species recorded in the Mangapū Stream with access to trib 3 and lower reaches of trib 4: • Long fin eel (At Risk declining) • Short fin eel (Not threatened) • Banded kokopu (Not threatened)” And,

Section E4.7 of review document 2: “As set out in section E2.2.3 above, shortfin eel (Not threatened), banded kokopu (Not threatened) and koura (Not threatened) are identified within Tributary 3 and may be present within Tributary 4.”

Table 12: Summary of threatened and selected freshwater macrofauna detected from eDNA sampling from Mangapū Tributary, November 2025. Single tick = DNA detected, multiple ticks = stronger relative eDNA signal. Sample sites are provided in Figure 30.

Common name	Scientific name	Māori Name	Threat status	Site 1 Downstream of Mangapū Tributary	Site 2 Mangapū Tributary	Site 3 Mangapū Tributary
Fish						
Longfin eel	<i>Anguilla dieffenbachii</i>	Tuna	At Risk – Declining	✓✓✓	✓✓	✓
Shortfin eel	<i>Anguilla australis</i>	Tuna	Not threatened	✓✓	✓	✓
Banded kōkopu	<i>Galaxias fasciatus</i>	Kōkopu	Not threatened	✓	✓	✓✓
Crustacea						
Freshwater crayfish	<i>Paranephrops planifrons</i>	Kōura	Not threatened	✓	✓	
Mollusca						
Mud snail	<i>Potamopyrgus antipodarum</i>		Not threatened	✓✓	✓	✓
Freshwater limpet	<i>Latia</i>		Not threatened / data deficient	✓		
Insecta						
Single gill mayfly	<i>Deleatidium lilli</i>		Not threatened	✓✓	✓	
Double gill mayfly	<i>Zephlebia pirongia</i>		Naturally uncommon	✓	✓	✓
Double gill mayfly	<i>Zephlebia aff. tuberculata sp. 1</i>		Naturally uncommon	✓	✓	✓
Double gill mayfly	<i>Zephlebia borealis</i>		Not threatened	✓✓	✓✓	✓

Figure 2. snip and paste of eDNA sampling results from review document (my impression from the sample sites map is that eDNA site 1 was taken downstream of the Trib 3 confluence).

Regardless of data source, I consider that the species likely to be affected by the activities in terms of fish passage are longfin eel, shortfin eel, banded kōkopu, and potentially shortjaw kōkopu.

Fish surveying commissioned by [Auckland Council in 2015](#)⁶ recorded shortjaw kōkopu in the Waihoihoi Stream (also in the Slippery Creek catchment) in forested habitat potentially quite similar to that in the Mangapū Tributaries (Fig. 3). Shortjaw kōkopu are classed as ‘Threatened – Nationally Vulnerable’, and in the Auckland region are classed as ‘Threatened – Regionally Critical’⁷. This is the highest threat classification possible, and the regional report (footnote 7 below) notes that barriers to fish passage are considered a key pressure for this species.

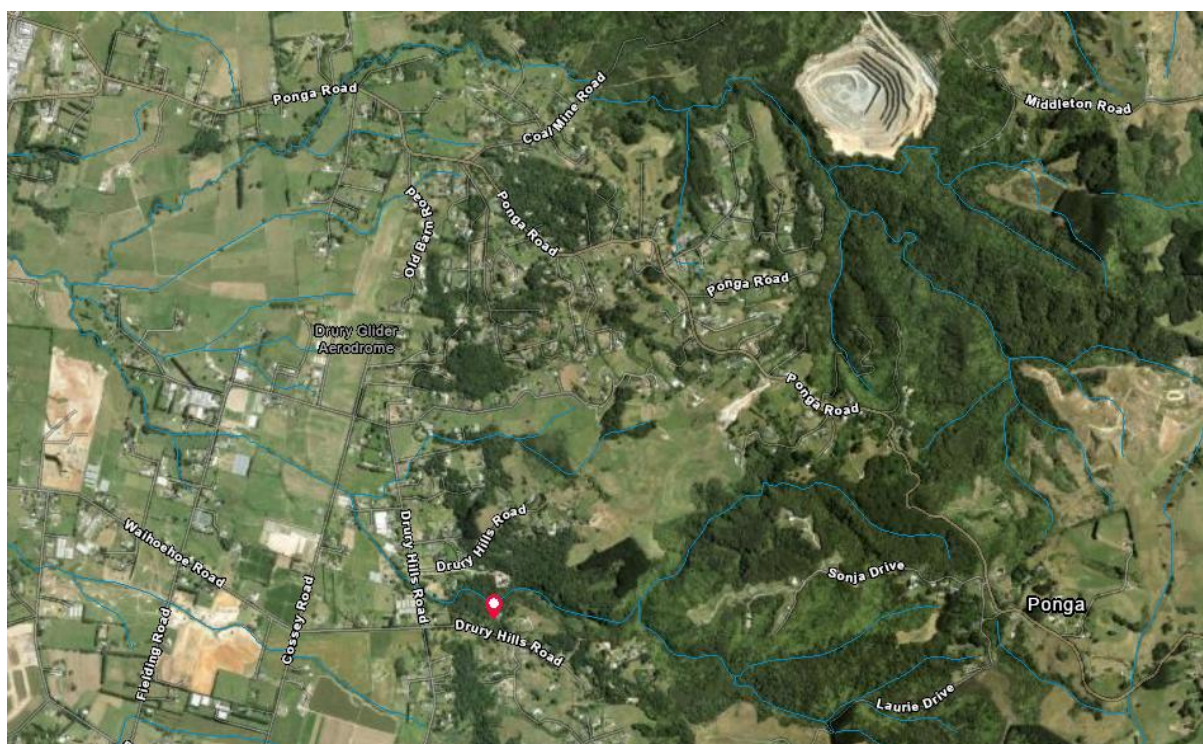


Figure 3. Satellite image showing nearby location (red pointer) where shortjaw kōkopu were recorded (in Waihoihoi stream, Slippery Creek).

⁶ Ingley, R., Rieger, A., Magee, J., Reeves, E., Macintosh, K., Lowe, M., Young, D. (2016) Watercourse Assessment Report: Slippery Creek Catchment. Morphum Environmental for Auckland Council.

⁷ Bloxham M, Woolly J, Dunn N, Chaffe A, Tutt C, Melzer S 2023. Conservation status of freshwater fishes in Tāmaki Makaurau/Auckland. Auckland Council Technical Report 2023/13.

The Mangapū Stream is a permanent stream in the Slippery Creek catchment, which discharges to the upper Pāhurehure Inlet of the Manukau Harbour beneath the Southern Motorway Overbridge. Table 1 presents the available data regarding fish presence in the Slippery Creek catchment as a whole and specifically in the Mangapū Stream.

Table 1. Current knowledge regarding freshwater fish and decapod crustacean presence in the Slippery Creek catchment. Only includes records that identify to species level. Threat classifications are provided for fish (regionally⁸ and nationally⁹) and invertebrates¹⁰.

Species	Conservation status		Recorded as present by: DB (Freshwater fish database); AP (eDNA survey by the applicant); AC (Auckland Council Slippery Creek fish survey report)		
	National	Regional	Slippery Creek Catchment	Mangapū Stream site	Mangapū Stream downstream
Shortfin eel <i>Anguilla australis</i>	Not threatened	Not threatened	DB, AC	DB, AP	DB, AC
Longfin eel <i>Anguilla dieffenbachii</i>	AT RISK Declining	AT RISK Declining	DB, AC	AP	DB, AC
Torrentfish* <i>Cheimarrichthys foster</i>	AT RISK Naturally uncommon	THREATENED Regionally vulnerable	DB		
Banded kōkopu <i>Galaxias fasciatus</i>	AT RISK Naturally uncommon	Not threatened	DB, AC	AP	
Īnanga <i>Galaxias maculatus</i>	THREATENED Nationally Vulnerable	AT RISK Declining	DB, AC		DB, AC
Shortjaw kōkopu <i>Galaxias postvectis</i>	THREATENED Nationally Vulnerable	THREATENED Regionally critical	AC		
Common bully <i>Gobiomorphus cotidianus</i>	Not threatened	Not threatened	DB, AC		DB, AC
Redfin bully <i>Gobiomorphus huttoni</i>	AT RISK Naturally uncommon	AT RISK Declining	DB		DB

⁸ Bloxham M, Woolly J, Dunn N, Chaffe A, Tutt C, Melzer S 2023. Conservation status of freshwater fishes in Tāmaki Makaurau/Auckland. Auckland Council Technical Report 2023/13.

⁹ Dunn, N.R.; Closs, G.P.; Crow, S.K.; David, B.O.; Goodman, J.M.; Griffiths, M.; Hicks, A.S.; Hickford, M.J.H.; Jack, D.C.; Kitson, J.C.; Ling, N.; Waters, J.M.; Wylie, M.J.; Hitchmough, R.A.; Makan, T. 2025: Conservation status of New Zealand freshwater fishes, 2023. New Zealand Threat Classification Series 46. Department of Conservation, Wellington. 66 p.

¹⁰ Grainger, N.; Harding, J.; Drinan, T.; Collier, K.; Smith, B.; Death, R.; Makan, T.; Rolfe, J. 2018: Conservation status of New Zealand freshwater invertebrates, 2018. New Zealand Threat Classification Series 28. Department of Conservation, Wellington. 25 p

Cran's bully <i>Gobiomorphus basalis</i>	AT RISK Naturally uncommon	AT RISK Declining	DB, AC	DB
Kōura <i>Paranephrops</i>	Not threatened	-	DB	DB, AP
Decapod shrimp <i>Paratya curvirostris</i>	Not threatened	-	DB	DB
Common smelt <i>Retropinna retropinna</i>	AT RISK Declining	THREATENED Regionally vulnerable	DB	
Goldfish <i>Carassius auratus</i>	Introduced		AC	
Koi carp <i>Cyprinus rubrofuscus</i>	Introduced		DB	
Mosquito fish <i>Gambusia affinis</i>	Introduced		DB, AC	AC
Rudd <i>Scardinius erythrophthalmus</i>	Introduced		DB	

6. The advantages and disadvantages of providing fish passage upstream or downstream of the proposed activity

The applicant has provided sufficient information for me to understand that there is significant advantage to maintaining fish passage in relation to the staged diversion and quarrying of Trib 1 and the creation of the new channel.

Regarding Tribs 3 and 4, I am uncertain of the advantages and disadvantages of providing fish passage due to the unknown future of these tributaries. In E5.1 of Part E the applicant notes in relation to Tribs 3 and 4: *“It is considered there is limited benefit to providing for fish passage given the lack of suitable upstream habitat and given the tributaries are intended to be removed at Stages 7 and 8.”*

However, other parts of the reporting describe features that suggest that maintaining fish passage into these tributaries would be an advantage. The descriptions of the tributaries in the AEE indicate valuable headwater habitats in a highly modified catchment (I wasn't able to achieve certainty regarding extent¹¹) that likely contain nationally and regionally 'At Risk' species, and may – pending further survey work – also contain a species that is Nationally Vulnerable and Regionally Critical (shortjaw kōkopu).

7. Disagreement with the applicant's description of discussion outcomes

Page 24 of 22 June letter from BM to EPA (review document 9) summarises the issues that the applicant's ecologist and I met to discuss on 16 June 2026. I do not agree with how the applicant has presented the outcomes of this meeting. The applicant states that no response was received from DOC – which in this table could be interpreted as meaning that (as at 22 June) I had been provided with their meeting summary notes and chose not to respond. To be clear, the applicant did provide a direct response to DOC, but not until 9 July (review document 11).

The letter to the EPA (22 June) and the memo to DOC (9 July) have differing responses to the issues Ian and I discussed. Below, for ease of reference and hopefully clarity of understanding I have pasted the responses from both documents and addressed them together:

¹¹ Table 13.2 in review document 4 estimates that Trib 3 total removal will cause the loss of **435 m** of stream and total removal of Trib 4 will result in the loss of **40 m** of stream, although it is not clear if these figures refer to permanent, intermittent, or ephemeral reaches, and the small extent noted for Trib 4 seems at odds with stream map visuals – e.g. see Fig.1 of this memo. And,

Table 37 of review document 4 characterises the loss of Tribs 3 and 4 with more information but slightly different numbers: "*Unavoidable loss of **527 m** length of intermittent and permanent watercourses*".

Letter to EPA from applicant, 22 June (review document 9)

PRELIMINARY DEPARTMENT OF CONSERVATION_RFI's

Point of Request	Request for Further Information	Applicant Response
ECOLOGY Amber McEwen	No surveying of aquatic values in the wetlands. 0.44 ha of natural inland wetlands will be lost, and no surveying of the aquatic values of these wetlands is presented. Wetlands can provide important habitat for several native fish and aquatic invertebrate species (including Threatened and At Risk species). I consider that surveying (or justification for why surveying was not considered) is warranted, and depending on outcomes, aquatic values should be included in salvage management planning. In particular, further investigation (optimally using a combination of eDNA sampling and spotlighting) of Mangapū tributaries 3 and 4 which will lose fish passage as a result of the haul road culverts (particularly tributary 4 which looks like it is downstream of the eDNA sampling sites) is important. I realise that these tributaries will be lost if future planned developments go ahead, but the status of this species means that – if they are present in any of these tributaries then I consider that fish passage provision (and reconsideration of future plans) is warranted.	Meeting 15 June 2026 <i>These are small wetland alongside the Mangapū tributary that will be removed as part of the diversion. WA's ecologist pointed out that some of these are not easily accessible. We have categorised them as all similar (Parataniwha wetlands) and we have given them a value but we did not make specific values assessment. WA's ecologist suggested that prior to loss we will, as much as possible, undertake a values assessment perhaps of a subset to confirm and make sure our proposed offset will meet suitable values. We think this is a reasonable approach. We believe this is largely an operational matter at the time of wetland loss and does not materially affect any of our assessment or proposed outcomes.</i>
	Shortjaw kōkopu I think that more work is needed to increase confidence that shortjaw kōkopu and their habitats will not be affected (and that targeted effects management measures are described if needed). This species is not currently considered in the application. This report (completed for Auckland Council) notes that shortjaw kōkopu (also a climbing species) were captured in a Hays Stream tributary in 2015 – same catchment, nearby, similar looking habitat and downstream challenges. Shortjaw kōkopu are classified as Threatened – Nationally Vulnerable, and identifying and protecting remaining suitable habitat for this species is a high priority.	<i>WA's ecologist and DOC agree that at the time of salvage a survey for shortjaw is reasonable – especially in Tribes 3 and 4 but also in Mangapū Tributary. Using eDNA as well as some night spotting. We believe this is reasonable although note that to date there are no records of shortjaw in the Mangapū. It is largely an operational matter at the time of fish salvage and does not materially affect any of our assessment or proposed outcomes.</i>
	Effects of pit dewatering on downstream catchment The proposed dewatering at Symonds Hill Pit will significantly reduce base flows and – based on the information available in the AEE – will probably have significant permanent effects on what seems like a very large area with significant and potentially significant values. The applicant proposes remedy for this by flow augmentation to MALF. I need more information from the applicant to understand the predicted effects of dewatering, and the expected outcomes (including assessment of certainty regarding outcomes) of augmentation. From the material I have been provided, it seems that large amounts of the downstream catchment will permanently experience more low flow periods as a result of the dewatering (even with augmentation).	Applicant is still considering a response.

Q1 No surveying of aquatic values in the wetlands.

0.44 ha of natural inland wetlands will be lost, and no surveying of the aquatic values of these wetlands is presented. Wetlands can provide important habitat for several native fish and aquatic invertebrate species (including Threatened and At Risk species). I consider that surveying (or justification for why surveying was not considered) is warranted, and depending on outcomes, aquatic values should be included in salvage management planning.

Response

The wetland areas to be removed (0.44 ha in total) comprise eight small forest gully or toeslope seepages eastward of the existing Symonds Hill quarry pit, and two which are exotic grass dominated swamps on terraces in the northern part of the Site. The forest seepage features are located on riparian terraces of the Mangapū Tributary, or adjoin intermittent to ephemeral reaches of this watercourse. The exotic grassland features are within the catchment of Waipokapū stream but are disconnected from the watercourse as a result of historic earthworks. Details of these wetland types are provided in Section 5.4.2 and Figure 27 of the Ecological Assessment (Appendix 12.4.5a of the substantive application).

The descriptions of the wetlands clarifies that the wetland types are vegetated features with no open water. No rare or threatened species were identified in our surveys, and the absence of open water or water channels means that these features do not provide habitat suitable for fish. We have applied the Effects Management Hierarchy to the loss of wetlands, and we have provided offset and/or compensation for the loss of the values and extent of these features. Accordingly, we do not consider that further assessments of ecological values of these features are necessary.

Q2. Shortjaw kōkopu

I think that more work is needed to increase confidence that shortjaw kōkopu and their habitats will not be affected (and that targeted effects management measures are described if needed). This species is not currently considered in the application. [This report](#) (completed for Auckland Council) notes that shortjaw kōkopu (also a climbing species) were captured in a Hays Stream tributary in 2015 – same catchment, nearby, similar looking habitat and downstream challenges. Shortjaw kōkopu are classified as Threatened –

Nationally Vulnerable, and identifying and protecting remaining suitable habitat for this species is a high priority.

In particular, further investigation (optimally using a combination of eDNA sampling and spotlighting) of Mangapū tributaries 3 and 4 which will lose fish passage as a result of the haul road culverts (particularly tributary 4 which looks like it is downstream of the eDNA sampling sites) is important. I realise that these tributaries will be lost if future planned developments go ahead, but the status of this species means that – if they are present in any of these tributaries then I consider that fish passage provision (and reconsideration of future plans) is warranted.

Response

Our investigations into the fish fauna of the Mangapū Stream catchment (and more broadly in the Slippery Creek catchment) involved searches of databases and previous surveys, as well as the use of eDNA. For the Mangapū Tributary shortjaw kōkopu were not recorded previously or detected from eDNA. Accordingly, in our assessment, the shortjaw kōkopu is not given specific attention.

We agreed that confirmatory detection for the presence or absence of shortjaw kōkopu using eDNA will be undertaken in Tributaries 3 and 4 of the Mangapū Stream. If detected night spotting for shortjaw kōkopu can be applied during salvage operations as required.

Q3 Effects of pit dewatering on downstream catchment

The proposed dewatering at Symonds Hill Pit will significantly reduce base flows and – based on the information available in the AEE – will probably have significant permanent effects on what seems like a very large area with significant and potentially significant values. The applicant proposes remedy for this by flow augmentation to MALF. I need more information from the applicant to understand the predicted effects of dewatering, and the expected outcomes (including assessment of certainty regarding outcomes) of augmentation. From the material I have been provided, it seems that large amounts of the downstream catchment will permanently experience more low flow periods as a result of the dewatering (even with augmentation).

Response (with hydrogeologist expert)

The Critical Issue is Maintaining the Baseline

From an ecological perspective, the most important factor for stream health during low flow periods is ensuring that flows do not fall below the natural low flow baseline (MALF). Flows below MALF represent conditions that are outside the natural range of variability; and it is these conditions that are most likely to cause significant ecological stress. The proposed augmentation (if required) is designed to do exactly that by preventing flows from dropping below MALF. This ensures the stream does not experience artificially low flows caused by quarry dewatering.

Duration at MALF is a Secondary Consideration

The length of time a stream remains at MALF is not considered the primary concern. This does not represent a failure of the augmentation. The key point is that the stream is not being pushed below its natural baseline. Maintaining flows at or above MALF means the stream continues to function within its natural low flow envelope - even if that envelope is slightly extended especially considering the duration of MALF conditions is also influenced by natural climate variability (e.g., drought years).

The proposed augmentation does not "create" low flow conditions - it simply prevents dewatering from making them worse.

The objective is to prevent adverse effects from dewatering and maintaining flows at or above MALF achieves that objective. The proposed monitoring and adaptive management framework will detect and address any ecological effects.

My response to the applicant's comments relating to my three queries (wetland values, shortjaw kōkopu, pit dewatering).

Wetland values

Review document 9 seems to suggest that the applicant is considering more surveys, whereas review document 11 indicates that the applicant considers no further surveying is needed.

My query regarding aquatic values in the wetlands not being surveyed was in relation to aquatic fauna, and the applicant's ecologist and I discussed further wetland surveying related to fish and aquatic invertebrates only. The applicant has characterised our discussion as if it was in relation to all wetland values but this is not the case. To clarify, **the applicant has resolved my concern relating to fish and aquatic invertebrates values only - a wetland ecologist will be providing comment on behalf of DOC on wetland values other than native fish and aquatic invertebrates.**

Shortjaw kōkopu

Our discussion regarding shortjaw kōkopu and their potential presence in tributaries appears very much mischaracterised by the applicant's summary in review document 9. Review document 11 seems to contain a similar, but briefer response that leans harder on the applicant's opinion that their survey methods were adequate (I would point out that the methods apparently missed the Auckland Council survey data that recorded shortjaw kōkopu in the catchment). I disagree that it has been adequate *given the shortjaw kōkopu context* (i.e. highly threatened species found nearby in similar habitat in same catchment – and little or no actual survey data for the affected tribs I am concerned about).

I consider that my comments make it clear that whether or not this species is present in Mangapū tributaries 3 & 4 needs to be established prior to works starting (not as part of fish salvage because that would still involve the habitat being lost) because I consider that the presence of this species would warrant an avoidance response and thus changes to future plans to remove these tributaries. In CFFA terms, the applicant is applying for approval to block fish passage into these tributaries in the beginning stages of the works, and frames the effects in terms of the possible removal of these tributaries in the future. My position is that (aside from the issue of the uncertain future of the tributaries themselves) the presence/absence of shortjaw kōkopu ('Nationally Vulnerable' and 'Regionally Critical') needs to be more robustly investigated because I consider it should inform decision making regarding possible future removal of the tributaries, and thus decision making in the present regarding fish passage into the tributaries.

As I made clear in my written and verbal communications, much of the reasoning behind my concern is based on the habitat seeming suitable and being similar to nearby confirmed shortjaw kōkopu sites, and that survey effort needed to be increased in Trib 3, and carried out in Trib 4 (because Trib 4 appeared to have not been covered by the eDNA sampling, and it is also possible that Trib 3 wasn't covered). I'm not sure why the applicant has split my comment related to shortjaw kōkopu into two parts and presented them in separate table rows (in review document 9). This action seems to make my query less clear.

The applicant notes that there are no records of shortjaws in the tribs at their site but frames it in a way that suggests that this fact makes further surveying less important. This is confusing because this fact forms much of the basis of my query i.e. there is not sufficient certainty that this species isn't present because there are no existing fish survey records in Trib 4 and only limited (or potentially none based on the location of eDNA site 1 as discussed above) data for Trib 3.

The applicant concludes that "*A's ecologist and DOC agree that at the time of salvage a survey for shortjaw is reasonable*". To clarify, I did not agree this – ***I strongly disagree that the timing of this action is appropriate.*** To reiterate, I consider that a survey for shortjaw well before any works are carried out is needed, because the outcome of the survey is required ***before*** robust decisions can be made regarding the proposal to block fish passage on Tribs 3 and 4. ***My concern relating to shortjaw kōkopu is not yet resolved.***

Pit dewatering

Review document 9 notes that the applicant is still considering a response, and review document 11 provides a response. I plan to address this issue as part of S53 comments because this activity was not included in the CFFA approval application.

8. Proposed conditions

Conditions in accordance with Schedule 9, clause 6 of the Act

I suggest the following amendments to Part J of review document 12:

Aquatic Fauna Salvage and Relocation plan

1. The objective of the Aquatic Fauna Salvage and Relocation Plan (AFSRP) is to detail the measures and procedures to avoid or minimise potential adverse effects on native aquatic fauna (fish and kōura) by way of relocating native aquatic fauna prior to any works being undertaken within watercourses at the Site.

The AFSRP must include:

- (a) a description of the aquatic fauna values to be addressed by the AFSRP;
- (b) plans identifying the locations where salvage of fish and kōura will be undertaken, and—in Tributaries 3 and 4—restrict salvage to culvert installation sites only;

(c) procedures for pre-stream works site visits prior to any works commencing within any streams, with each site visit addressing at a minimum:

- vi. the extent of works proposed;
- vii. the timing and methods proposed for stream works;
- viii. the methods proposed for fish salvage;
- ix. monitoring methods; x. locations for relocation sites;
- xi. information necessary to inform the Relocation Event Salvage Plan;

(d) a description of the process for developing and content of Relocation Event Salvage Plans;

(e) a description of methods to be used for fish salvage activities;

(f) timeframes for the implementation of the AFSRP;

(g) procedures to ensure compliance with all other permits and approvals required for fish salvage activities;

(h) a description of how salvage and relocation actions will be monitored and reported, including timeframes, and measures of success;

(i) a process for review of the AFSRP to adapt to any changes in the receiving environment.

2. Any fish capture and relocation must occur prior to and during the dewatering of any watercourses.

3. All pumps used to dewater the stream(s) must have a 3mm mesh screen to prevent fish from entering the pump.

Detailed design

4. During detailed design of the Project, the Dispensation Holder shall, to the extent practicable, follow food practice design standards as outlined in the NZ Fish Passage Guidelines Version 2.0 2024 in relation to the Dispensation. The Dispensation Holder shall set clear fish passage objectives and performance standards, incorporating appropriate design standards to provide passage for the target fish species that will be implemented in the final design of the Project.

Monitoring and reporting

5. A SQEP shall inspect all culverts and the realignment of the Mangapū Tributary to monitor fish passage success. Success, and how to measure it should be pre-defined in a way that facilitates robust inference from monitoring data. Inspections shall be

carried out one year, two years and four years following completion of construction. The Dispensation Holder shall provide inspection results to DOC annually by 30 June.

6. If, after the inspections at year one and year two the SQEP concludes that fish passage is unlikely to be provided by the four-year inspection without intervention, the SQEP shall recommend a range of methods and interventions to support the provision of fish passage. The Dispensation Holder shall implement the recommended methods and interventions, to the extent practicable.

7. Following completion of the year four inspection of the structures required under Condition 5, the SQEP shall assess whether the structures have adequately provided for fish passage. If the SQEP concludes fish passage has not been adequately provided for, the SQEP shall recommend a range of methods and interventions to support the provision of fish passage. The Dispensation Holder shall implement the recommended methods and interventions, to the extent practicable.

Advice Note: data collected as part of the inspections required to be undertaken by the Dispensation Holder should include, but not be limited to, the data required by the Fish Passage Assessment Tool (NIWA 2025), so that data can be uploaded to the Fish Passage Assessment Tool database by the applicant.