WINSTONE AGGREGATES

Boffa Miskell

Part E

Hunua Quarry Development

Substantive Application
Part E – Complex Freshwater Fisheries Activity Authority
Prepared for Winstone Aggregates

30 March 2026

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Approved for issue:
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E1. Introduction

1. Winstone Aggregates (**"Winstone"**), a division of Fletcher Concrete and Infrastructure Limited are currently preparing a substantive application under the Fast Track Approvals Act 2024 ('FTAA') to authorise the development of the Hunua Quarry to increase annual quarry production to approximately 5.4 million tonnes of aggregate, and to enable the extraction of aggregate for a 80 years.

2. Authorisation is sought under the s42(4)(j) Fast-track Approvals Act 2024 ("**FTAA**" or "**the Act**") for activities related to the Hunua Quarry Development that would typically require an application under regulations 42 and 43 of the Freshwater Fisheries Regulations 1983 ("**Freshwater Fisheries Regulations**") and section 26ZM(2)(a) of the Conservation Act 1987.

3. Section 43(3)(j) of the FTTA sets out that a substantive application for approval for a complex freshwater fisheries activity must include the information required by clause 3 of Schedule 9 of the FTAA. This section of the substantive application (Part E) outlines the information necessary to obtain approvals for a complex freshwater fisheries activity.

4. The proposed Hunua Quarry Development involves the permanent diversion of 941m of the Mangapū tributary (identified as Tributary 1 in Figure 1 below). The design of the new watercourse channel will provide fish passage for native climbing species. Works may occur during the relevant spawning season of native fish.

5. Additionally, the proposal involves the construction of two culverts over Mangapū Tributary 3 as part of the Stage 2 haul road, which will not provide for fish passage.

6. Consequentially, Winstone is seeking approval for complex freshwater fisheries activities associated with the proposed stream diversion and stage 2 culverts under the FTAA and associated fish salvage and relocation activities.

7. This report draws on information provided by the authors of the following technical assessments: **Appendix B12.4.5** the Long-term Development Project: Assessment of Ecological Effects prepared by Boffa Miskell, dated 30 March 2026 (**Ecological Assessment**), the Appendix B12.4.6 Mangapū Tributary Realignment – Preliminary Design and Effects Technical Report, prepared by PDP (**Appendix B12.4.6**) and the Appendix B12.4.15 West Haul Road Culvert – Design and Flood Risk Assessment, prepared by PDP (**Appendix B12.4.15**). Conditions are also recommended and included at Appendix B12.7 with those related to the Complex Freshwater Fisheries Activity approval are provided below in Section E.8.

E1.1 Statement of Qualifications and Relevant Experience

8. **Lucy Deverall** is an Associate Principal Planner with over 15 years' experience in both policy planning and resource consenting. She holds the qualifications of a Bachelor of Arts in Political Studies and Sociology (2005) and a Masters in Planning Practice (2007) from the University of Auckland. Lucy is a full member of the New Zealand Planning Institute. Recent experience includes preparation of resource consent applications for quarry expansions, overburden expansions and new quarry

development as well as Quarry Management Plans. Lucy is also experienced in the preparation of submissions on district and regional proposed plans and plan changes.

9. This report has been prepared and reviewed in accordance with the Environment Court's Code of Conduct for Expert Witnesses, contained in the Environment Court Practice Note 2023.

10. The qualifications and experience of the authors of those reports identified in paragraph 7 above are set out in the introduction of each assessment.

E2. Existing Freshwater Environment

E2.1 Mangapū Stream catchment

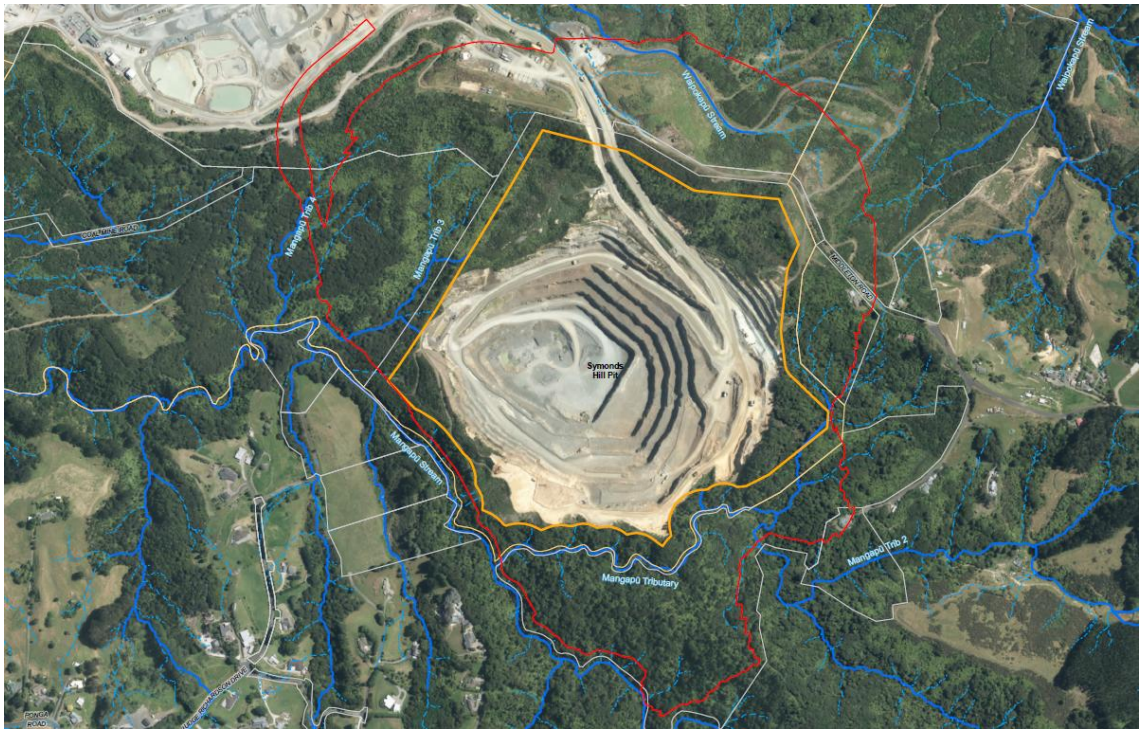

***Figure 1**: Freshwater Catchments.*

11. The Mangapū Stream forms part of the Slippery Creek catchment (along with Slippery Creek, Hays Waipokapū Stream and Waihoihoi Stream). Refer to **Figure 2** above. These discharge via Slippery Creek to the upper Pāhurehure Inlet of the Manukau Harbour beneath the Southern Motorway Over bridge.

12. Auckland Council (2015) report that some 50% of the Slippery Creek catchment is pastoral land, over 25% of the catchment is dominated by indigenous forest and a further 5% in exotic forestry blocks. Less than 15% of the total catchment is currently built up, however under the AUP, this may double to 30% of the total catchment area.

13. Auckland Council (2015) surveyed a total of 20 km of Mangapū Stream including 2.6 km of intermittent to ephemeral stream. The catchment was classified into three mainstream types:

- Low land agricultural.
- High land native forest.
- High Land agricultural.

14. Auckland Council (2015) describe the high land native forest streams (upper 7 km of the main channel of Symonds Stream), as typically 2.5 to 3 m wide but up to 5 m wide in places with an average depth of approximately 0.4 m except for parts of the mainstem, which averaged 0.7 m deep with pools up to 1.3 m deep. Banks averaged 0.4 to 2 m high with less than 20% erosion. The three highest scoring SEV sites (SC1, SC9, SC10) were within the High Value Indigenous Forest Management Zone, with all three sites scoring higher than 0.83. (i.e., high-quality stream function).

15. Auckland Council (2015) recommended the following goals and objectives for the High Value Indigenous Forest:

- Protect high value natural streams and gullies within significant ecological areas to maintain reference conditions.
- Protect shortjaw kokopu habitat
- Improve fish passage downstream to enable access to high-quality habitat.
- Support Kauri dieback disease control programmes.
- Control feral goat and deer populations to reduce damage to watercourses and riparian vegetation within existing covenant areas.

E2.2 Mangapū Stream

E2.2.1.1 Habitat

16. The Mangapū stream is a predominantly hard-bottomed stream dominated by gravels, cobbles, boulders and bedrock, with small amount of silt/sand present.

17. In the mid-reaches of the Mangapū Stream, the channel is some 1.5 – 5.5 m wide, with depths ranging from 0.41 - 0.49 m. Hydrological heterogeneity is high along the reach with a mix of riffles, runs and deep and shallow pools present. Riparian vegetation is well established with a well-developed canopy and abundant understory consisting predominately of nīkau and ponga, and smaller ferns along the stream margin.

18. As set out in the Ecological Assessment, sampling undertaken in 2019 found a diverse range of macroinvertebrate communities, with up to 34 taxa recorded, including dominant communities (namely the single-gill mayfly *Deleatidium*) and sensitive EPT taxa (47%) found in good habitat and water quality conditions. The 2019 MCI sampling scores range from 105 to 118, signalling good quality water.

19. SEV testing undertaken between 2010 – 2020 indicate a high-quality in-stream habitat with high-ecological function.

E2.2.2 Mangapū Stream Tributary 1

20. The Mangapū Stream Tributary (the Tributary 1') which is subject to the proposed diversion, flows around the south of the proposed pit, in an east-west direction and is located within an area of native forest (which is predominately subject to SEA_T_5323). Tributary 1 is classified as a permanent stream.

21. In the lower reaches of the stream, channel width ranges from 0.9 – 5.7m in width, with depths ranging from 0.02 – 0.9m. Hydrological heterogeneity is high along the reach with a mix of runs, riffles and deep and shallow pools present. Riparian vegetation is well established with a thick canopy and abundant understorey, providing shade to over 90% of the stream surface.

22. In the mid reaches, the channel is some 1.5 – 5.5 m wide, with depths ranging from 0.41 - 0.49 m. Hydrological heterogeneity is high along the reach with a mix of riffles, runs and deep and shallow pools present. The stream substrate is dominated by a strong mix of cobbles, gravel, bedrock and silt /sand with fewer large boulders than the lower reaches. Riparian vegetation is well established with a well-developed canopy and abundant understory. This vegetation provides shade to approximately 75-85% of the water surface, with some areas of open sunlight. The riparian community consists of abundant nikau and ponga and abundant smaller ferns along the stream margin.

23. The headwater streams, not subject to realignment, occur in an area of varied topography including a series of gullies running generally north to south and are classified as ephemeral, with some intermittent reaches also identified.

E2.2.2.1 Mangapū Tributary 1 Habitat

24. EDNA results identified the presence of climbing fish, including the Longfin Eel (At Risk – Declining), Shortfin Eel (Not threatened) and Banded Kōkopu (Not threatened). Detection strength of eels was greatest in the lower-mid-reaches of the tributary, while detection of banded kokopu was greatest in the mid-reaches and headwaters. An absence of swimming species was confirmed and no introduced or pest fish were detected.

25. The eDNA also confirmed the presence of two mayfly species both of which are classified as Naturally Uncommon.

26. Macroinvertebrate communities were indicative of high-quality habitat and water quality, with MCI and QMCI scores ranging from 125 – 115 and 6.81 – 6.65 respectively. There was also a high proportion of pollution-sensitive EPT taxa, however also abundant were taxa indicative of good habitat and water quality. A wide range of vegetation was observed around the stream.

27. SEV testing scores indicate a high-functioning stream with very high scores for hydraulic and biodiversity functioning.

E2.2.3 Mangapū Tributaries 3 and 4

28. The values and habitats associated with tributary 3 are based on data and observations gathered in 2019. The conditions and values of tributary 4 are assumed to be the same or similar to tributary 3.

29. Tributary 4 (the north-west watercourse) was classified as intermittent, becoming ephemeral further upstream. Tributary 3(the larger south-east watercourse) was classified as permanent.

30. Tributary 3 was shallow and rocky with areas of silt. The stream banks were vertical and heavily eroded, with projecting tree roots, indicating substantial scouring flows. The upstream reaches are very steep with bedrock cascades and waterfalls likely to impede fish passage. Riparian vegetation consists of mature native vegetation, which together with the steep terrain provided very high shade.

31. An electrofishing survey undertaken in the vicinity of the proposed haul road recorded the presence of shortfin eel, banded kokopu and kōura. Although diversity was low, the Fish IBI score of 40 was Good, above the 70th percentile for Auckland sites but with some signs of stress.

32. Macroinvertebrate communities were indicative of high-quality habitat and water quality, however, compared to regional reference site data, Taxa Richness (24) and MCI (106) values were below the average for hard-bottomed exotic or native forest sites (mean Richness 28 – 33, MCI 126 – 127) and rural site values (mean Richness 26, mean MCI 100).[1]

33. Similarly, an SEV score of 0.76 is within the “Good” range, however below the mean for native forest reference sites (0.92 for native forest sites, 0.80 for exotic forest sites and 0.61 for rural sites).

34. While conditions are generally fair, results indicate overall values are sub-optimal, most likely as a result of periodic high flows and associated channel erosion and sediment deposition.

E3. Proposed Activity

35. The Hunua Quarry development seeks to expand and deepen the existing Symonds Hill Pit to secure additional greywacke resource, extending the operational life of the quarry up to 80 years. The proposed development initially focuses on the southern and northwestern ends of the quarry complex. The new extraction footprint will initially expand the existing Symonds pit to the south and east, followed by areas to the north and west. These development works will occur entirely within Winstone-owned land and integrate with existing quarry infrastructure.

36. To allow for pit development, the proposal involves the diversion of 1200m of a tributary of Mangapū Stream and the construction of two culverts as part of the Stage 2 haul road.

37. Section 4 of the FTAA defines a complex freshwater fisheries activity to mean:

> *an activity that includes construction of any of the following:*
>
> ***(a) a culvert or ford that permanently blocks fish passage:***

[1] Section 7.5.5 of Appendix B12.4.5_Long-term Development Project: Assessment of Ecological Effects_20260330, prepared by Boffa Miskell (**Appendix B12.4.5**)

(b) a permanent dam or diversion structure:

(c) works—

(i) that require disturbance to a water body, including diversions, in-stream operations, and removal of gravel, that persists for more than 3 months; or

(ii) that require disturbance of any duration during the whitebaiting season to a water body within 500 m of the coast; or

(iii) that require disturbance of any duration during the relevant spawning season to a water body that is known for the spawning of trout, salmon, or native fish; or

(iv) that require repeated disturbance to a water body and are temporary works for which there is a period of 6 months or less between each period of work

38. With regards to the stream diversion, the design of the new watercourse channel will provide fish passage for native climbing species. However, the proposed stage 2 culverts will not provide for fish passage. Therefore, the stage 2 culverts trigger clause (a).

39. The proposed stream diversion also triggers clause (b) as it results in a permanent diversion structure, and (c)(iii) as due to the duration of the proposed works it is likely that works may occur during the relevant spawning season of native fish.

40. Accordingly, the stage 2 culverts and the proposed diversion and associated works are considered to meet the definition of a complex freshwater fisheries activity under Section 4 of the FTAA.

Approval for associated fish salvage and relocation activities is also sought (under s26ZM of the Conservation Act 1987) as provided for in the amended section 42(4)(j) FTAA.

E4. Schedule 9 Information Requirements

E4.1 Type of Activity (Schedule 9, cl. 2(a) and (b).

41. The proposal involves constructing a permanent diversion structure (a new watercourse channel) that will provide fish passage for climbing species. This replicates the fish passage within the existing Mangapū Tributary.

42. The proposal involves the construction of two culverts that will block fish passage.

43. Fish salvage and relocation is proposed as discussed in section E4.9 below.

E4.2 Description & dimensions of structure (Schedule 9,cl.3 (i)&(ii))

E4.2.1 Diversion channel

44. The diversion channel will be approximately 570m long, including meanders and includes:

- 19m wide high flow stream channel, and
- 1m wide low flow channel that meanders within the 19m wide high flow corridor, and
- 10m wide access road on western side of diversion corridor; and
- 470m of stream length @ 1:16.6 grade from inlet to outlet (not including meanders).

45. The new channel will be constructed in fractured rock and will include a low permeability liner and rocks to prevent the channel seeping into the rock.

E4.2.2 Culverts

46. The north-western culvert will be a circular 600mm diameter pipe, 40m in length. The outlet structure will have an apron approximately 1.8m wide and 6.5m long.

47. The south-eastern culvert will be circular 1200mm diameter pipe, 75m in length. The outlet structure will have an apron approximately 3.6m wide and 16.7m long.

E4.3 Placement of the structures (Sch.9cl.3 (iv)

E4.3.1 Diversion channel

48. The placement of the diversion structure is shown on Figures 2 - 4 below. Figure 2 demonstrates indicative cross-sections at Stages 2 and 8. Figure 3 provides a cross-section of the typical low flow channel, overlaid with the mean annual flood channel and demonstrating the location of the channel liner. Figure 4 shows a plan view of the diversion channel to demonstrate the location of the diversion and proposed discharge point / new confluence with the Mangapū Stream.

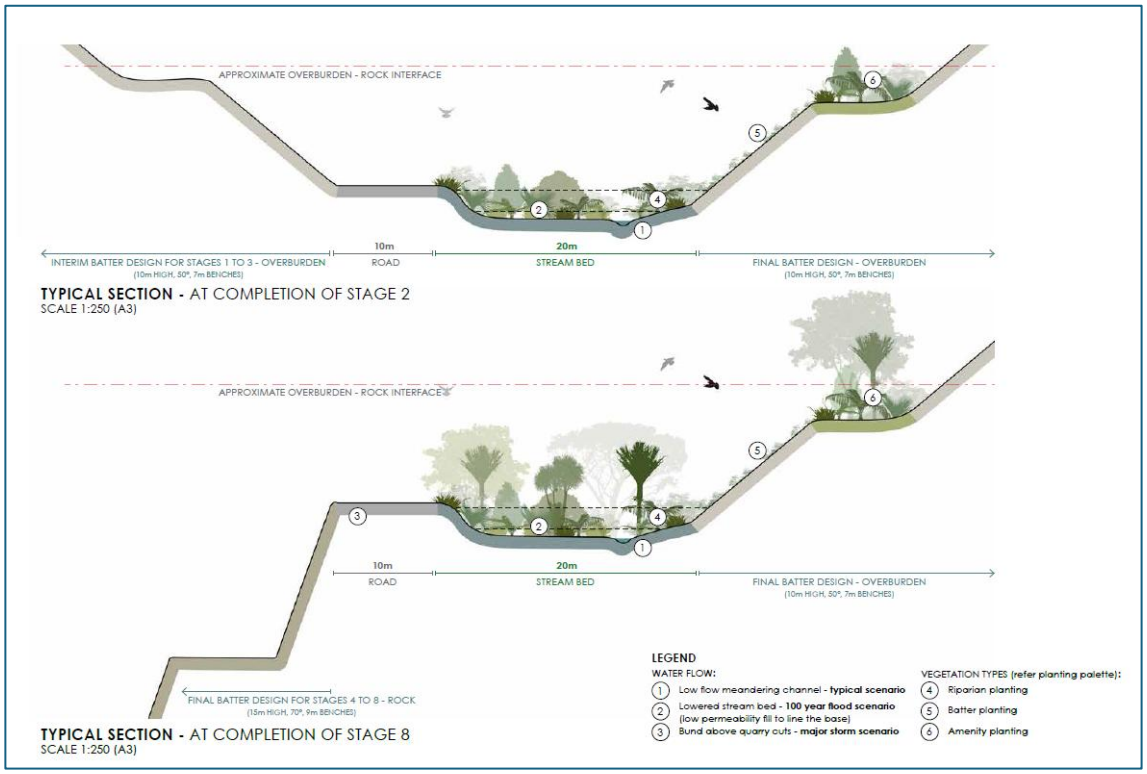

Figure 2: Indicative cross-sections of the realigned channel

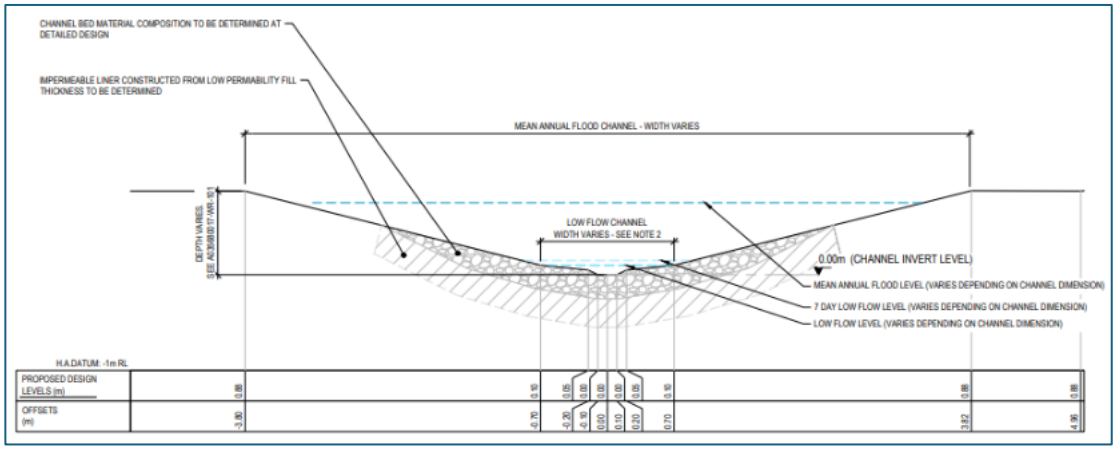

Figure 3: Typical low flow cross-section

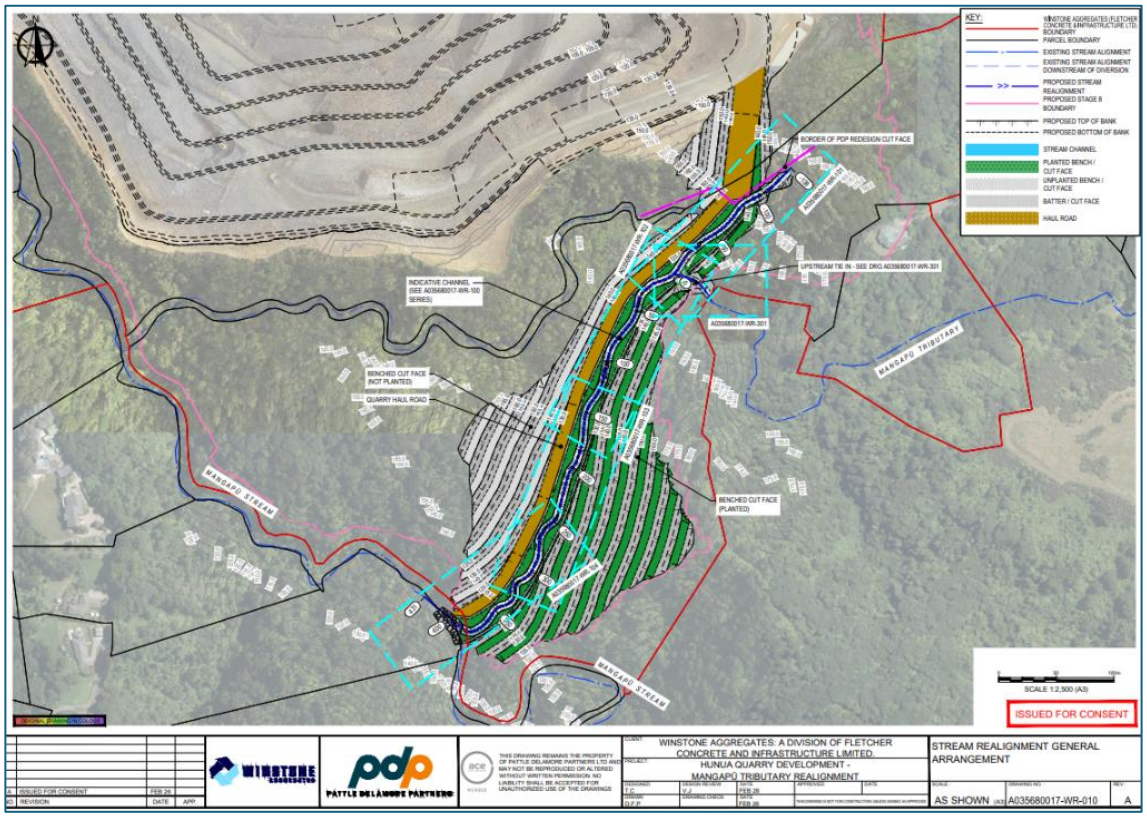

Figure 4: General location of proposed stream diversion channel.

E4.3.2 Culverts

49. As per the PDP memo, the proposed culverts are proposed to be laid at a similar gradient to the existing stream and 25% of the pipes will be embedded.

E4.4 Design of structure & water flows (Schedule 9,cl.3 (iii)&(v).

E4.4.1 Diversion channel

50. The diversion channel design will have two main components: a large out-of-bank flood channel incorporating a smaller, meandering low flow channel. The new flood channel has been designed to the following parameters:

- The stream cut will convey the 1% AEP flow with climate change to 3.8 degrees of warming and include a minimum of 500 mm of freeboard below the proposed haulage road on the true right bank.
- A meandering channel designed to convey regular rainfall events up to the mean annual flood.

- Waterfalls / cascade sequence at the tie in with the existing upstream channel (Mangapū Tributary) to allow for the level transition.
- An average flow channel in the base of the meandering channel designed to accommodate regular flow conditions and' minimum flows (seven-day low flow) to sustain aquatic life.

51. The upper section of the stream will range from 0.5 - 4 m wide with good mix of cobbles, gravel, bedrock and silt /sand and few boulders. The lower section will range from 0.5 - 2.5 m wide with a dominance of large boulders with mix of cobbles, gravel, bedrock and silt/sand.

52. The proposed new channel will have a steeper gradient (approximately 7.5%) than the existing Mangapū tributary (approximately 5%). To achieve stream bed grade, waterfalls / cascade sequence are proposed at the tie in with the existing upstream channel (Mangapū tributary) and downstream connection at Mangapū Stream.

53. Existing stream features to replicate within the channel include water flows and riffle run sequences, pools, cascades, waterfall, backwaters and where practicable, undercut bank sections. A high-level description of each is set out below.

- **Stream Runs**

  Stream runs will make up approximately 40 - 60% of the total stream profile in 3 - 80 m sections with a low to moderate grade and slow-moving water. The width of the channel will be relatively narrow.

- **Stream Riffles**

  Stream riffles will make up approximately 15 - 20% of the total stream profile and typically be 0.5 - 10 m in length at a low gradient with a wider cross-sectional profile.

- **Stream Cascades**

  Rock cascades will make up approximately 5 – 15% of the stream profile with height and widths ranging from 0.5 m to 1.5 m. The gradient is typically moderate and will be used to create changes in grade.

- **Pools**

  Pools will mostly feature at the downstream end of waterfalls. They will be of a low gradient, 1.5 - 3 m radius and 0.3 - 1 m deep. Pools will make up 5 - 10% of the total stream length profile.

- **Waterfalls**

  Waterfalls are needed to address the elevation differences at the upstream and downstream ends of the stream diversion and to provide some grade variation within the stream. They will typically be 1 - 3 m high (suitable for native climbing fish) and make up 5 - 10% of the total stream length profile.

- **Backwaters**

  Backwaters will be hydraulically connected to the flow channel and positioned adjacent to the flow channel. They will be 1 - 3 m wide and where possible make up 2 - 5% of the stream profile.

54. Native riparian vegetation will be planted along the length of the stream diversion channel. Riparian planting will be close to, and extend over, the surface water to provide stream edge habitat, shading, and potential habitat for macroinvertebrate species, as demonstrated in Figure 2 above.

E4.4.2 Culverts

55. Both culverts have been designed to convey the 50-year ARI peak flows without surcharging. Rock aprons are sized based on the 100-year ARI event.

E4.5 Water quality (sch.9 cl. 3(c))

56. An overview of water quality monitoring undertaken at the Mangapū Stream in the habitat downstream of the proposed diversion and culverts is provided in the Ecological Assessment.

57. In summary, water quality of the Mangapū stream has been measured since 2011, including for Augmentation Flow Monitoring and the Mangapū Stream Summer Monitoring. Monitoring locations are all downstream of the Mangapu Tributary subject to the proposed diversion. Key parameters monitored include temperature, dissolved oxygen and turbidity. Mean temperatures (ranging between 14.6-16.9°C) and mean dissolved oxygen levels (95.1-101.5%) scored well (with temperatures considered excellent), while water clarity results showed elevated turbidity.[2]

E4.5.1 Diversion channel

58. No official monitoring has been undertaken in the Mangapu Tributary to be diverted, or upstream of the diversion. However, as noted in section E2.2.2.1 above, macroinvertebrate scores and the presence of pollution sensitive EPT taxa are indicative of high water quality.

59. The proposed new channel has a much steeper gradient (approximately 7.5%) than the existing Mangapu tributary (approximately 5%). The steeper gradient of the proposed diversion channel will generate increased flow and velocity. As noted in both the Engineering Report and Ecological Assessment, this has the potential to generate erosion and sediment deposition within the Mangapū Stream, particularly downstream of the new confluence with the diversion channel.

60. The Engineering Report notes that the stream is embedded in rock which will assist in limiting erosion of sediment. Furthermore, any effects of erosion and sedimentation are anticipated to reduce further downstream of the proposed confluence as flow and velocity are predicted to reduce.

61. Overall, the proposed diversion is not anticipated to significantly alter water quality within the Mangapū Stream catchment.

[2] See section 6.4.3 of Ecological Assessment in **Appendix B12.4.5**

E4.5.2 Culverts

62. Regarding Tributary 3, monitoring was undertaken during 2019 which found water quality to be good, with moderate temperature (12.6^{o}C) and high dissolved oxygen (94%) and clarity (0.68m).

63. The proposed culverts will have relatively high velocities due to the steep nature of the stream channels. Accordingly, rock placement is proposed at the culvert outlets to protect the stream bed from scouring. Rock will likely need to be grouted into the culverts to ensure a stable erosion control measure.

64. Overall, the proposed culverts are not anticipated to significantly alter water quality within the Mangapu Stream catchment.

E4.6 Water quantity , flows and operating regime (sch.9(3)((a)(v) and (vi) and (c).

E4.6.1 Diversion channel

65. As set out in section 2.2 of the Engineering Report, the proposal will result in an approximate 0.12 km^2 reduction in catchment area in the lower portion of the Mangapū Tributary catchment.

66. The existing catchment areas (prior to realignment) are:

- Mangapū Tributary upstream of the confluence: 1.67 km^2.
- Mangapū Stream at proposed tie in location: 1.84 km^2.
- Confluence of Mangapū Stream and Mangapū Tributary: 4 km^2.

67. The modified catchment statistics following the Stage 2 works are:

- Mangapū Tributary at the realignment point: 1.55 km^2 (7.2% reduction).
- Confluence of Mangapū Stream and Mangapū Tributary after the realignment: 3.88 km2 (3% reduction).

68. This reduction in catchment will result in a small reduction in flows to the realigned watercourse and Mangapū Stream. The proposed diversion will also change the confluence location of where Mangapū Stream tributary flows into the Mangapū Stream.

69. The increased flow and velocity associated with the steeper gradient of the diversion channel has the potential to alter the form and function of the Mangapu Stream downstream of the new confluence. It is proposed that engineered meandering, and the use of plunge pools / scour basins at the end of waterfalls and cascades and rock placement, will assist in managing flow depth and velocities along the length of the channel.

70. Additionally, it is noted that the increased velocities are likely to cause the stream to widen where the underlying geology is softer soil (rather than rock). The widening will result in flows reducing and becoming shallower over time. Overall, the widening of the stream will not negatively impact the conveyance of flows.

E4.6.2 Culverts

71. The catchment area for the north-western culvert is approximately 1.7ha. The culvert will be designed to accommodate flows up to 0.23m^3/s (being the 50-year ARI event), with an estimated 7-day low flow of 0.03L/s.

72. The south-eastern culvert has a catchment area approximately 10.2ha. The culvert will be designed to accommodate flows up to 1.23 m^3/s (50-year ARI event), with an estimated 7-day low flow of 0.21 L/s.

73. The PDP memo notes that the proposed culverts will restrict the flow of flood waters, causing flood waters to back up the channel. However, due to the steep nature of the gully in which the watercourses are contained, flood waters will be contained. The proposed rock aprons at the outlets will prevent scouring and minimise erosion and stream widening.

74. While the proposed culverts result in increased velocities, the overall water quantity and form and function of the watercourse will be similar to the existing situation.

E4.7 Freshwater species and values present Sch.9(3)(b)

75. A description of the existing freshwater environment is provided in section E2 above. The Ecological Report provides an overview of the range of species identified through eDNA within the Mangapū Stream, and two testing points within Tributary 1.[3] In summary, species identified in the Mangapū tributary 1 via eDNA include:

- Longfin eels (At Risk-declining)
- Shortfin eel (Not threatened)
- Banded kokopu (Not threatened)
- Freshwater crayfish (Not threatened)
- Mud snail (Not threatened)
- Single gill mayfly (Not threatened)
- Double gill mayfly *Zephlebia pirongia* (Naturally uncommon)
- Double gill mayfly *Zephlebia aff. tuberculata sp. 1* (Naturally uncommon)
- Double gill mayfly *Zephlebia borealis* (Not threatened)

76. No data-deficient species were identified within Tributary 1, however it is noted that Freshwater limpet (*Latia*) were identified within the main Mangapu Stream and are noted as being a data-deficient species (as well as Not threatened).

[3] See Table 12 of the *Hunua Quarry Development ecological Assessment*, prepared by Boffa Miskell, dated 24 March 2026 (Appendix B12.4.5).

77. 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.

78. It is noted that all of the species present within Tributary 1, 3 and 4 are identified as also being present within the Mangapū Stream.

79. Overall, the ecological value of the Tributary 1 is assessed as high in the Ecological Assessment due to high habitat quality and diversity, 100% native vegetation, moderate shading and diversity of the macroinvertebrate community.

80. The overall ecological value of Tributary 3 and 4 is "Good", noting suboptimal conditions due to scouring and erosion during periodic high flows.

E4.8 Provision of fish passage (Sch.9,cl3(d))

E4.8.1 Diversion channel:

81. The proposed channel will be designed in accordance with the New Zealand Fish Passage Guidelines (NIWA 2024) to enable fish passage for native climbing species.

82. Relevant climbing fish species include longfin eel, shortfin eel, and banded kokopu. Design features consider enabling migration of these fish species, including areas for rest and feeding. Certain stream features, such as waterfalls, will block passage for non-climbing exotic fish. This replicates existing passage environment within the Mangapū Tributary.

83. Table 1 below sets out the relevant swimming speeds as identified in the Ecological Assessment and guided by the New Zealand Fish Passage Guidelines. The New Zealand Fish Passage Guidelines explain that fish use sustained swimming for activities like migration and foraging and that maintaining burst swimming over a period of less than 20-30 seconds results in muscle fatigue. The Ecological Assessment recommends the channel design focus on sustained swimming speeds.

Table 1: Mean critical swimming speeds for native fish

	Mean maximum sustained swimming speed (m/s)	**Mean critical swimming speed (m/s)**	**Mean size (cm)**
Banded Kokopu	0.25	0.36	4.2
Longfin elver	0.22	0.41	4.1

84. Table 2 below identifies the flow velocities associated with key stream features intended to be incorporated within the channel design.

Table 2: Channel feature velocity

In-stream Feature	**Velocity at low flow (m/s)**
Pool	0.010 – 0.014

Riffle	0.013 – 0.019
Run	0.019 – 0.027
Cascade	0.049 – 0.069
Waterfall	0.067 – 0.075

85. The velocities for each feature are less than the swim speeds of the identified fish species. Accordingly, the flow conditions are appropriate to provide fish passage for native climbing species.

86. Additionally, both confluences of the channel will include a waterfall / cascade to enable passage of climbing fish. Due to the steep elevation at the upstream end of the channel, placed rock of variable sizes will enable climbing fish to travel both up and down stream.

87. Overall, the proposed diversion channel will provide full passage for climbing fish species. This reflects the current fish passage environment within the Mangapū Tributary.

E4.8.2 Culverts

88. The New Zealand Fish Passage Guidelines (NIWA 2024) have been considered in the design of the culverts. In accordance with the New Zealand Fish Passage Guidelines, the PDP memo assesses fish passage design flow against 10% and 50% of the 2-year flow and identifies:

- In 10 % of the 2-year flow the average flow depth is 0.01 m, and velocity 0.87 m/s,
- In 50 % of the 2-year flow the average flow depth is 0.03 m, and velocity 1.14 m/s.

89. Given the similarities in present fish species, the swimming speeds identified in Table 1 above are considered applicable to the culverts. Accordingly, the proposed culverts will have flow velocities significantly higher than the mean swimming speeds of identified fish species.

90. Additionally, the PDP memo notes that the NZ fish passage guidelines recommend a minimum water depth of 150 mm at the lower flow threshold (10 % of the 2-year flow). The proposed estimated flow depth for the culverts is 100mm which is less than the recommended flow depth.

91. The proposed culverts will at a similar gradient as the stream channels, resulting in water velocities which are too fast, and flow depths which are insufficient to provide for fish passage.

92. Aquatic fauna salvage and relocation will be undertaken in accordance with the proposed Aquatic Fauna Salvage and Relocation Plan.

E4.9 Freshwater Fisheries Regulations 1983

93. Pursuant to FTAA Section 42(4)(j)(i) (culverts) and (ii) (diversion structure) a substantive application may include an approval that would otherwise be applied for under regulations 42 and 43 of the Freshwater Fisheries Regulations 1983 ('FFR') in respect of a complex freshwater fisheries activity.

94. Pursuant to Regulation 42(1) FFR, no person shall construct any culvert in any natural river, stream or water in such a way that the passage of fish would be impeded, without the written approval of the Director-General incorporating such conditions as the Director-General thinks appropriate.

95. The proposed stage 2 culverts will not provide fish passage due to the steep gradient of the channel, high velocities and low flow depths. Additionally, it is noted that there is limited suitable habitat upstream of the proposed culverts and that it is intended to eventually remove the tributaries completely. The salvage and relocation of aquatic fauna is proposed in accordance with an Aquatic Fauna Salvage and Relocation Plan which is included as a condition to this Complex Freshwater Fisheries Activity Approval (see Section E7 below). Additionally, proposed conditions set out detailed monitoring and reporting requirements to ensure the success of salvage and relocation measures.

96. Pursuant to Regulation 43(1) FFR, the Director-General may require a dam or diversion structure include a fish facility. Regulation 43(2)(b) requires that approval for or dispensation from the provision of a fish facility must be sought.

97. Regulation 2A defines a fish facility to mean:

> *any structure or device, including any fish pass or fish screen inserted in or by any water course or lake, to stop, permit, or control the passage of fish through, around, or past any dam or other structure impeding the natural movement of fish upstream or downstream.*

98. It is proposed to stage the diversion of flow from the Mangapu tributary into the channel. This will be achieved through the placement of materials including rock, gravels, sandbags and geotextile fabric within the stream bed. Materials will be added/removed to achieve staged flow over an 18 – 24 month period. It is intended that initially, fish passage will continue unimpeded along the Tributary, with materials remaining low enough to enable climbing fish passage.

99. Prior to closing off the connection between the channel and the Mangapū tributary, it is proposed to undertake fish salvage and relocation. Fish will either be salvaged and relocated into the new channel (which will by that stage contain sufficient flow), or slightly downstream in the main Mangapū Stream. Fish salvage will be undertaken in accordance with the Aquatic Fauna Salvage and Relocation Plan (**Appendix B12.8.3**).

100. Accordingly, a fish facility is not considered necessary given the placement of materials will not initially disrupt fish passage, and that fish salvage and relocation is proposed prior to passage becoming impeded or blocked.

E4.10 Conservation Act 1987

101. Pursuant to FTAA Section 42(4)(j)((iv) a substantive application may include an approval that would otherwise be applied for under s26ZM(2)(a) of the Conservation Act 1987.

102. Pursuant to s26ZM(2)(a) the prior approval of the Minister of Fisheries shall be required for the movement of live aquatic life between locations where the species already exists.

103. The proposed stream realignment involves fish salvage and relocation from the existing Mangapu Tributary to either the proposed new diversion channel, or further downstream in the Mangapū Stream so that fish can climb into the new diversion channel independently. The proposed stage 2 culverts also involve salvage and relocation of aquatic fauna. The aquatic fauna will be relocated from Tributary 3 and 4 downstream into the Mangapu Stream.

104. As noted in section E4.7 above, and in Table 12 of the Ecological Assessment, all aquatic fauna are being relocated to freshwater systems where these species already exist. All salvage and relocation will be undertaken in accordance with the Aquatic Fauna Salvage and Relocation Plan.

E5. Statutory Assessment

E5.1 Fast Track Approvals Act 2024

105. Pursuant to Schedule 9, Clause 5 FTAA, in considering NZTA's application for complex freshwater fisheries activities, the panel must take into account, given the greatest weight to (a):

FTAA requirements (Schedule 9, clause 5(1)	**Comment**
(a) the purpose of the FTAA	The benefits associated with the Hunua Quarry Development are set out in Part A of the Substantive Application. Approval of the complex freshwater activity is an important element to facilitate the delivery of the Hunua Quarry Development project and thereby realise those benefits. The stream diversion is a fundamental part of the project design, enabling access to critical aggregate resource, while avoiding the complete loss of that part of the Mangapū Tributary. The stage 2 haul road is also a fundamental element of the project

	design, enabling the most efficient means of accessing the resource.
(b) the alignment of the proposed activity with best practice and the New Zealand Fish Passage Guidelines; and	The design of the proposed diversion channel has designed in accordance with the NZ Fish Passage Guidelines and appropriate fish passage is provided for as outlined in section E4.8 above. The NZ Fish Passage Guidelines were considered in the design of the proposed culverts, however given the steep gradient of the stream channels, it is not possible to achieve velocities and flow depths sufficient to provide fish passage. Aquatic Fauna Salvage and Relocation will be undertaken in accordance with best practice.
(c) how the proposed activity will manage risks to freshwater values or habitat, including prevention of access to or spread of invasive species; and	With regards to the stream diversion channel, he gradient of the channel coupled with design features such as waterfalls and cascades will prevent access to exotic swimming species. Additionally, the proposal includes a comprehensive package of monitoring and maintenance program targeted at diversion channel to ensure objectives and functions are being met. This includes monitoring and maintenance of riparian vegetation, instream ecological monitoring and an on-going pest management program. With regards to the culverts, given the steep gradient of the culverts, increased velocities and insufficient flow depth, it is considered unlikely to that there would be suitable habitat for invasive species. It is noted that Tributaries 3 and 4 are intended to be removed at Stage 7 and 8 of the quarry development and that a comprehensive package of offset and compensation measures is proposed to address loss of stream extent and values, including the on-going pest management program identified above.
(d) the availability and quality of the habitat upstream and downstream of the proposed activity; and	The Mangapū Stream and Tributary are both assessed as being of high ecological quality. The proposed package of mitigation measures, including the proposed engineered meanders and design features, will assisting in generating a high-quality habitat within the channel diversion and maintaining habitat quality within

	the whole of Mangapū Stream (both upstream and downstream of the diversion). There is limited suitable habitat upstream of the proposed culverts. Proposed mitigation planting will assist in enhancing the quality of habitat downstream of the culverts where it is proposed to relocate aquatic fauna.
(e) the presence of threatened, data-deficient, or at-risk species under the New Zealand Threat Classification System in the vicinity of the proposed activity; and	Freshwater species have been described in section E4.7 above. In summary: Within the Mangapu Tributary 1, eDNA identifies Longfin eels (At Risk-declining) as being present. No data-deficient or threatened species are identified within the tributary. Within Tributary 3 and 4, previous surveys did not detect any threatened, at-risk or data deficient species. It is noted that Freshwater limpet (data-deficient) are identified as being present within the main stream.
(f) the advantages and disadvantages of providing fish passage upstream or downstream of the proposed activity.	As set out above, the proposed diversion will provide for full fish passage for native climbing fish species – mimicking the existing fish passage environment in the Mangapū Tributary. Swimming species are not detected within the Mangapu Tributary or Stream. Providing passage for additional species risks enabling access for exotic or pest species. As set out above, the proposed culverts will not provide for fish passage in either direction as the steep nature of the stream channel results in high velocities and insufficient flow depth within the culverts. 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.

106. Granting the complex freshwater fisheries activity will support the purpose of the FTAA by allowing Winstone to undertake the stream diversion and construct the stage 2 haul road which will enable access to the aggregate resource and enable benefits to be realised.

E6. Consultation

E6.1 Department of Conservation

107. The Department of Conservation (DoC) are the administering agency for the Complex Freshwater Fisheries Activity Approval.

108. DoC attended a site visit on 23 January 2026. The purpose of the visit was for Winstone to provide an overview of the site and a summary of the Hunua Quarry Development, including key drivers, programme considerations, and strategy.

109. A follow up memorandum was sent to DoC on 20 February 2026 regarding approvals relating to complex and standard freshwater fisheries activities and the wildlife authority. The purpose of the memo was to provide an overview of the proposal, as it related to those three approvals and to seek a meeting with DoC to understand key issues and interests.

110. A further meeting was not able to be arranged prior to lodgement of the Substantive Application.

E6.2 Iwi and Mana Whenua

111. An overview of Iwi and Mana whenua engagement is provided in the Hunua Cultural Values and Consultation Summary Report (**Appendix A6.7**). Maintaining ecological integrity was identified as a core value or interest for the majority of Mana whenua who responded, as was a desire to be involved in management planning and implementation. The following Iwi / Mana whenua raised the interests specific to fish passage:

- Ngāti Te Ata sought the project maintain ecological integrity across the catchment including for fish passage, with the exception that no loss of existing species occurs as a result of the proposed diversion.
- Te Ākitai Waiohua sought recognition of ecological values, including taonga species, habitat, fish passage and overall ecological function
- Ngāti Tamaoho sought involvement in ecological monitoring, including for fish.

E7. Conclusion

112. It is concluded that this report including the conditions, the Ecological Assessment and PDP technical report and memo satisfy the necessary requirements of Section 42(4)(j) of the FTAA that requires a substantive application for complex freshwater fisheries activities that would otherwise be sought under regulations 42 and 43 of the Freshwater Fisheries Regulations 1983 ("**Freshwater Fisheries Regulations**") and section 26ZM(2)(a) of the Conservation Act 1987.

113. Subject to further input from the Department of Conservation as the administering agency, sufficient information has been provided relating to the approval of this

Complex Freshwater Fisheries Activity Approval under the FTAA to allow Winstone Aggregates:

- Dispensation from the provision of fish passage through two culverts;
- Dispensation from the provision of a fish facility within the diversion channel; and

114. Approval for the fish salvage activities - movement of aquatic life between locations where the species already exists.

E8. Conditions

115. The following draft conditions are proposed:

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.
2. 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;
    c. procedures for pre-stream works site visits prior to any works commencing within any streams, with each site visit addressing at a minimum:
        i. the extent of works proposed;
        ii. the timing and methods proposed for stream works;
        the methods proposed for fish salvage;
        iii. monitoring methods;
        iv. locations for relocation sites;
        v. 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.
3. Any fish capture and relocation must occur prior to and during the dewatering of any watercourses.

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

Detailed design

5. During detailed design of the stream diversion channel, the Dispensation Holder shall, to the extent practicable, follow good 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

6. A SQEP shall inspect all culverts and the stream realignment to monitor fish passage success. 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.

7. 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.

8. Following completion of the final inspection of the structures required by Condition 4, 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 may 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.*