
Under the Fast-track Approvals Act 2024 ('FTAA')

In the matter of A substantive application under the FTAA for an alteration to an existing designation, resource consents, a wildlife approval, archaeological authorities and a complex freshwater fisheries activity, to construct, maintain and operate the Belfast to Pegasus Project.

By **New Zealand Transport Agency Waka Kotahi**
Applicant

**Memorandum of Counsel for New Zealand
Transport Agency Waka Kotahi regarding results of
a Canterbury Mudfish survey and withdrawal of the
project archaeologist**

Dated 5 June 2026

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To the Expert Panel:

- 1 This memorandum is filed on behalf of the New Zealand Transport Agency Waka Kotahi (**'NZTA'**) in relation to NZTA's application for approvals (**'Application'**) to construct, operate and maintain the State Highway 1 North Canterbury – Woodend Bypass Project (Belfast to Pegasus) (**'B2P'** or **'the Project'**).
- 2 The purpose of this memorandum is to update the Expert Panel (**'Panel'**) on matters that have arisen following the Applicant's response to comments. NZTA provides the following:
 - a Results of a Canterbury mudfish survey carried out to assess the potential presence of Canterbury mudfish and mudfish habitat within a wetland assessed as part of the Project. The survey did not record any mudfish, and assessed wetland habitat as providing low potential for mudfish; and
 - b Notification to the Panel that it withdraws its application for approval of Dr Jeremy Habberfield-Short as a person nominated to carry out activities under the archaeological authorities.

Canterbury mudfish survey results show that it is unlikely mudfish are present in wetlands affected by the Project

- 3 The Department of Conservation (**'DOC'**) and Environment Canterbury (**'ECan'**) provided advice during the comments process that there is potential for Canterbury mudfish habitat, and therefore Canterbury mudfish, to be present within Project wetlands. The Applicant qualitatively reassessed the wetlands impacted by the Project for potential mudfish habitat, and considered that wetland WC_W6_NPSFM and the immediately connected Waihora Stream has potential mudfish habitat and is impacted by the Project.
- 4 The Applicant has now carried out additional survey work to assess potential Canterbury mudfish habitat in the Waihora Stream complex. No mudfish were recorded within the survey location, and the wetland habitat was assessed as providing low potential for mudfish. The survey concluded that it is unlikely that mudfish are present in and immediately connected to the Waihora Stream wetland WC_W6_NPSFM. Nonetheless, the survey report concluded that the survey should be repeated in spring. Accordingly, NZTA continues to seek imposition of proposed conditions C1.30 and C.31 on the regional consents.¹

¹ See pages 18 and 19 of Attachment 8 to NZTA's response to comments.

- 5 A report detailing the results of the mudfish survey is provided at **Appendix A**. This report describes in greater detail the survey location, design, methodologies and results.

Withdrawal of application for approval for Dr Jeremy Habberfield-Short to be appointed as person to carry out activities under the archaeological authorities

- 6 The FTAA provides that an application that seeks an archaeological authority under the FTAA may include an application for approval of any person nominated to undertake an activity under the authority ('**Project Archaeologist**').² If an archaeologist is not appointed under the FTAA, then this person may be appointed outside the FTAA process under section 45 of the Heritage New Zealand Pouhere Taonga Act ('**HNZPTA**').³
- 7 The FTAA requires Heritage New Zealand Pouhere Taonga ('**HNZPT**') to provide a recommendation as to whether a panel should approve an application for approval of a Project Archaeologist.⁴ HNZPT must be satisfied that the person has sufficient skill and competency, is fully capable of ensuring that the proposed activity is carried out to the satisfaction of HNZPT, and has access to appropriate institutional and professional support and resources.⁵
- 8 NZTA's FTAA application sought approval for Dr Jeremy Habberfield-Short to be the person nominated to undertake an activity under the authority.
- 9 HNZPT has advised that it cannot recommend Dr Habberfield-Short be approved as the Project Archaeologist as it is not satisfied that the requirements of clause 5(3) of the FTAA or s45(2) of the HNZPTA have been met.⁶ HNZPT's concerns arise, in part, from the fact that Dr Habberfield-Short has an outstanding report yet to be provided to HNZPT for another NZTA project. Accordingly, HNZPT proposed an additional condition (condition 5) requiring the Project Archaeologist be approved prior to giving effect to the authorities.⁷

² FTAA, sch 8, cl 7(1) and cl (2)(a).

³ FTAA, sch 8, cl 7(2)(b).

⁴ FTAA, sch 8, cl 7(3).

⁵ FTAA, sch 8, cl 7(5)(a).

⁶ See Attachment 5 – NZTA response to comments from Heritage New Zealand Pouhere Taonga in relation to State Highway 1 North Canterbury – Woodend Bypass Project (Belfast to Pegasus), comment ID 4.6.

⁷ Comment from HNZPT, Appendix A recommended conditions, condition 5.

- 11 In response, NZTA stated that:
- a It considered the other NZTA project to be of a unique scale and complexity with reporting obligations that are larger than this Project.⁸
 - b If the Panel is minded not to include approval for Dr Habberfield-Short as the Project Archaeologist then NZTA will accept additional condition 5 recommended by HNZPT.⁹
- 12 However, NZTA now considers that Dr Habberfield-Short does not have the available capacity to be appointed as the Project Archaeologist for this Project. Accordingly, NZTA withdraws its application to appoint Dr Habberfield-Short in this role.
- 13 NZTA is comfortable with condition 5 as proposed by HNZPT,¹⁰ and intends to make an application under section 45 of the HNZPTA to appoint a different person to carry out activities under the archaeological authority.¹¹ Accordingly, this application will be made at a later stage outside the FTAA process.

Dated 5 June 2026



Nicky McIndoe / Liam Bullen

Counsel for the New Zealand Transport Agency Waka Kotahi

⁸ See Attachment 5 – NZTA response to comments from Heritage New Zealand Pouhere Taonga in relation to State Highway 1 North Canterbury – Woodend Bypass Project (Belfast to Pegasus), comment ID 4.6.

⁹ See Attachment 5 – NZTA response to comments from Heritage New Zealand Pouhere Taonga in relation to State Highway 1 North Canterbury – Woodend Bypass Project (Belfast to Pegasus), comment ID 4.6.

¹⁰ Condition 5 relates to the Approved Person and is as follows: 'This Authority may not be exercised until a person to undertake the work required has been approved in writing by HNZPT under section 45 of the Heritage New Zealand Pouhere Taonga Act 2014'. See comment from HNZPT, Appendix A recommended conditions, condition 5.

¹¹ As provided for by sch 8, cl 7(2)(b) FTAA.

**Appendix A Canterbury mudfish survey of Waihora Stream -
wetland complex**

5 June 2026
Job No: 1095459.0000
11320-AUR-0350-PWI-EN-RPT-0014

Aurecon New Zealand Limited
PO Box 9762
Newmarket
Auckland 1149

Attention: Colm Harvey

Dear Colm

State Highway 1 North Canterbury—Woodend Bypass Project (Belfast to Pegasus)
Canterbury mudfish survey of Waihora Stream - wetland complex

Department of Conservation (DOC) and Environment Canterbury (ECan) provided advice to the SH1 North Canterbury Belfast to Pegasus Fast Track Approvals Act (FTAA) Panel that there is potential for Canterbury mudfish (kōwaro, *Neochanna burrowsius*) habitat (and as such mudfish) to be present within Project wetlands.

Tonkin & Taylor Ltd (T+T) qualitatively reassessed the wetlands impacted by the Project for potential mudfish habitat;- refer to Statement of Evidence of Patrick Lees dated 15 May 2026¹. The reassessment showed that wetland WC_W6_NPSFM and the immediately connected Waihora Stream has potential mudfish habitat, is impacted by the Project, and is inside the designation. Further to this, the evidence of Mr Lees also noted that while there is a low likelihood that mudfish are present within the Waihora Stream complex there was agreement on the requirement that a mudfish specific survey is completed, and he recommended that:

- A survey is completed in the Waihora Stream and immediate surrounds of WC_W6_NPSFM.
- New resource consent conditions are developed.

The recommended survey specific to targeting mudfish has been completed.

¹ Submitted as a Section 55 response to the FTAA Panel on 15 May 2026
Together we create and sustain a better world

This letter report provides a summary of that mudfish specific survey and is provided as supplementary information to the FTAA panel. This letter report should be read in conjunction with the Ecological Impact Assessment (EclA) report (Volume 3I), and the Statements of Evidence of Patrick Lees and Fiona McIntosh², which provided a response to DOC and ECan comments on mudfish and wetlands, respectively.

1 Survey methodologies

Surveys to assess the presence / absence of Canterbury mudfish were completed between 25 and 28 May 2026. Surveys were conducted by three T+T freshwater ecologists.

1.1 Preceding weather conditions

The weather preceding the surveys had been calm with minimal rain³ and mild temperatures over the entirety of May⁴. Although low rainfall during the preceding month could potentially reduce wetted habitat extent within the survey location, rainfall from December 2025 through to March 2026 was greater than the historical average. In addition, as the Waihora Stream is flow supplemented, via a water take from the Taranaki Stream, flows within the stream have been constant during the summer and autumn periods. Consequently, the extent and condition of open-water habitat at the time of sampling were likely broadly representative of the habitat conditions typically present at this time of year.

1.2 Canterbury mudfish survey design

Survey design followed the methods described in Ling et al (2013)⁵ and in accordance with proposed condition C1.30⁶. The purpose of the survey was to confirm presence/ absence of mudfish in, or within the area connected to, the Project wetland WC_W6_NPSFM ("the survey location" and as shown on Figure Appendix A.1:). Ling et al. (2013) recommend that surveys be conducted in Autumn for Canterbury mudfish.

The survey was completed throughout the multiple habitat types present within the survey location. The survey location was split into three survey areas; at each survey area five survey sites were delineated. Each survey site comprised an 8 m diameter area, where six Gee's Minnow Traps (GMT) were placed at irregular - random distances within the site. If mudfish are present at the survey location it was expected that they would be in low abundance, therefore, the survey design utilised close spacing where habitat characteristics allowed, e.g., 2 – 4 m spacing between each GMT.

In total 30 baited⁷ GMT were deployed at one survey area for one night. Surveying continued for three consecutive nights until all survey areas were sampled. The GMTs were placed so that they were not fully submerged, i.e., GMT were only submerged to just above the widest part of the GMT; and were placed within contiguous habitat within each of the survey areas.

² Submitted as a Section 55 response to the FTAA Panel on 15 May 2026

³ Only 5.2 mm of rain had been recorded at Christchurch Airport (AWS-93781) prior to the 27 May surveying.

⁴ Temperature minimum = -2.2 °C and maximum = 24.8 °C

⁵ Ling, N.; O'Brien, L.K.; Miller, R.; Lake, M. 2013: A revised methodology to survey and monitor New Zealand mudfish. Department of Conservation, Wellington (unpublished).

⁶ Attachment 8—Updated Proposed Resource Consent conditions (May 2026)

⁷ With yeast based spread (i.e., vegemite)

1.3 Habitat characterisation

Prior to setting the GMT at each survey area, simple habitat characteristics of the area were collected. This was completed to provide a qualitative understanding of the type of habitats present at each survey area and provide further information on whether the survey location is providing potential habitat for mudfish.

A summary of habitat characteristic is provided in Table Appendix B.1.

2 Survey results

No mudfish were recorded within any of the GMTs set over the three nights of trapping. Similarly, no other fishes (native or non – native) were identified from within the survey location.

Within Survey Area 1: Habitat 1 – 4 a high number of large damselfly larva (*Xanthocnemis sp*) were identified, as well as water boatmen (*Sigara sp*) and back swimmers (*Anisops sp*). All three of these macroinvertebrate taxa are common within pond-like soft bottomed systems of the Canterbury region.

Within each of the WC_W6_NPSFM survey areas, habitat was of overall low quality and was constrained by moderate to deep muds with a high organic content, which was decomposing and producing a noticeable anoxic smell. Where open water habitat was present within WC_W6_NPSFM this was generally shallow (< 350 mm) with a maximum water depth of ~ 600 mm. Surrounding riparian vegetation was predominantly crack willow (*Salix x fragilis*) and common native wetland vegetation species, such as harakeke (*Phormium tenax*), ti kouka (*Cordyline australis*), *Carex virgata*, rautahi (*Carex geminata*).

Within the survey area most closely aligned with the Waihora Stream (e.g., Survey Area 1: Habitat 1 – 4 and Survey Area 2: Habitat 4), these consisted of very slow flowing low gradient pool type habitats. Water depth ranged from 100 – 650 mm and wetted width ranged throughout the reach from < 1 m to > 2.5 m. Substrates were comprised of deep muds (200 mm – 800 mm) within Survey Area 1 and moderately deep surface muds (< 350 mm) with loose gravel present underneath at Survey Area 2: Habitat 4. Sludge periphyton was present throughout most of the upper Waihora Stream (in and around at Survey Area 2: Habitat 4), while no periphyton was observed within Survey Area 1.

Overall, the habitat types recorded during the site visit likely provided low potential for mudfish, primarily due to the low quality and proportional extent of clear open water habitat. The presence of anoxic and low-quality substrate habitat conditions (due to increased organic decomposition within the mud substrates which produces very low oxygenated areas) would likely restrict the ability for mudfish to populate this survey location year-round. However, it should be noted that mudfish have been shown to gulp air in hypoxic conditions and have high rates of cutaneous respiration which allows a tolerance of emersed conditions⁸.

⁸ O'Brien, K.L. 2005. The Conservation ecology of Canterbury Mudfish (*Neochanna burrowsius*). PhD thesis. University of Canterbury.

3 Conclusion and recommendation

Mudfish surveys were completed over three consecutive nights at the survey location in and immediate connected to the Waihora Stream wetland WC_W6_NPSFM. Surveys followed methods prescribed in Ling et al (2013) and undertaken in accordance with proposed condition C1.30. Results from these surveys showed that no mudfish, or other fishes, were trapped.

Overall, and post this survey it is unlikely that mudfish are present in and immediately connected to the Waihora Stream wetland WC_W6_NPSFM.

However, to confirm absence of mudfish within this location, a follow up survey is to be completed in spring 2026. Although spring is not prescribed in Ling et al. (2013) as the most appropriate time to survey for Canterbury mudfish, the reasoning is primarily due to the requirement to avoid the disturbance of a threatened species during spawning. However, a spring survey is likely to provide the best opportunity to detect mudfish presence, as mudfish abundance and habitat availability are expected to be greatest at that time, reducing the risk of returning a false absence. If targeted surveys at these times of the year do not detect mudfish, then it would be considered highly unlikely that the habitat can support mudfish populations at any time of year or intermittently across years. Even with the recommendation for a spring survey, the proposed conditions suggested in the 15 May 2026 evidence and response to comments by the New Zealand Transport Agency are still considered appropriate to impose on the consents.

Yours sincerely,



Patrick Lees
Senior Freshwater Ecologist

Technically reviewed by Mike Lake | Senior Ecologist and Liza Kabrle | Principal Aquatic Ecologist

5-Jun-26

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Appendix A Survey location

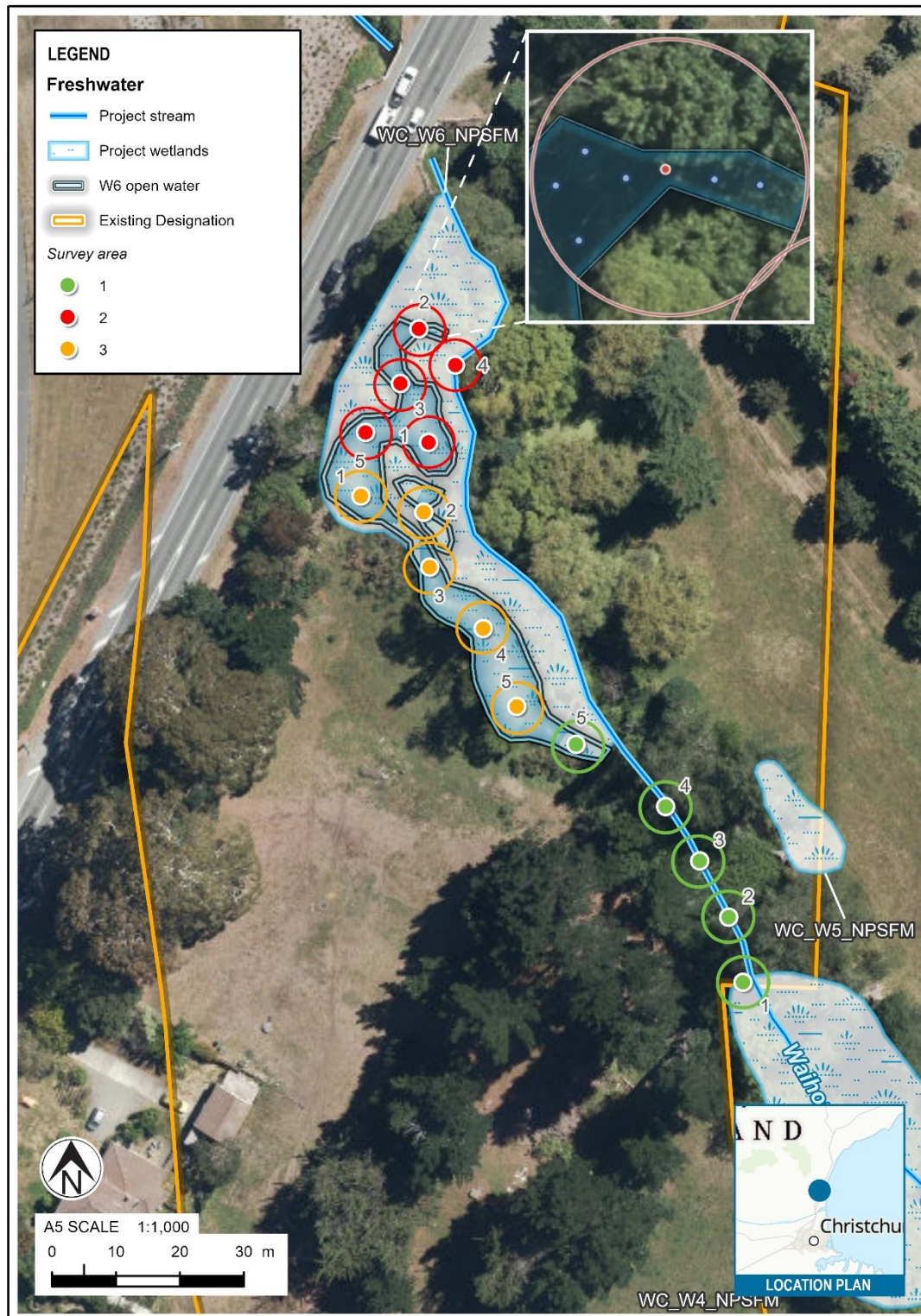


Figure Appendix A.1: Survey areas (including 8 m survey sites) and habitats located within the Waihora Stream survey location. Inset figure shows an example of the distribution of the six GMTs (blue dots).

Appendix B Site information

Table Appendix B.1: Survey and site information collected between 25 – 28 May 2026

Survey area and habitat identification	Site photo	Habitat characteristics	Fauna present
Area 1 – Habitat 1		• Deep mud (200 – 800 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Shallow water (100 – 300 mm). • Connected directly to Waihora Stream as a floodplain wetland. • Large open water habitat with connection to wider habitat types within the survey location	No fish trapped. Aquatic macroinvertebrates: • Damselfly (e.g., <i>Xanthocnemis sp.</i>). • Water boatmen (<i>Sigara sp.</i>). • Back swimmer (<i>Anisops sp.</i>).
Area 1 – Habitat 2		• Deep mud (200 – 500 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – 450 mm. • Immediately adjacent to Waihora Stream as a floodplain wetland. • Large open water habitat with connection to wider habitat types within the survey location	No fish trapped. Aquatic macroinvertebrates: • Damselfly (e.g., <i>Xanthocnemis sp.</i>). • Water boatmen (<i>Sigara sp.</i>). • Back swimmer (<i>Anisops sp.</i>).

Survey area and habitat identification	Site photo	Habitat characteristics	Fauna present
Area 1 – Habitat 3		• Moderately deep mud (< 350 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – 650 mm. • Within Waihora Stream – no flow, essentially large low gradient pool. • Habitat features include overhanging vegetation, undercut banks, instream debris. • No connection to floodplain wetlands at this location.	No fish trapped.
Area 1 – Habitat 4		• Moderately deep mud (< 350 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – 650 mm. • Within Waihora Stream – no flow, essentially large low gradient pool. • Habitat features include overhanging vegetation, undercut banks, instream debris, backwaters. • No connection to floodplain wetlands at this location.	No fish trapped.

Survey area and habitat identification	Site photo	Habitat characteristics	Fauna present
Area 1 – Habitat 5		• Moderately deep mud (< 350 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – 650 mm. • Within Waihora Stream – no flow, essentially large low gradient pool. • Habitat features include overhanging vegetation, undercut banks, instream debris (natural and anthropogenic). • No connection to floodplain wetlands at this location.	No fish trapped.
Area 2 – Habitat 1		• Moderately deep mud (< 350 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – 450 mm. • Immediately adjacent to Waihora Stream as a semi- connected floodplain wetland. • Small open water habitat with connection to wider habitat types within the survey location. • Habitat features include overhanging vegetation, woody debris, shallow pools and small embayments.	No fish trapped.

Survey area and habitat identification	Site photo	Habitat characteristics	Fauna present
Area 2 – Habitat 2		• Moderately deep mud (< 350 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – 450 mm. • Immediately adjacent to Waihora Stream as a semi- connected floodplain wetland. • Small open water habitat with connection to wider habitat types within the survey location. • Habitat features include overhanging vegetation, woody debris, shallow pools and small embayments.	No fish trapped.
Area 2 – Habitat 3		• Moderately deep mud (< 350 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – 450 mm. • Immediately adjacent to Waihora Stream as a semi- connected floodplain wetland. • Moderate open water habitat with connection to wider habitat types within the survey location. • Habitat features include overhanging vegetation, woody debris, shallow pools and small embayments.	No fish trapped.

Survey area and habitat identification	Site photo	Habitat characteristics	Fauna present
Area 2 – Habitat 4		• Moderately deep mud (< 350 mm) with gravel substrates below mud. • High organic content (leaves, small to large woody debris). • High cover of light brown sludge type periphyton. • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – 700 mm. • No through to very minimal flow, essentially large low gradient pool. • Habitat features include overhanging vegetation, undercut banks, instream debris (natural and anthropogenic), and backwaters. • No connection to floodplain wetlands at this location.	No fish trapped.
Area 2 – Habitat 5		• Moderately deep mud (< 350 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – 450 mm. • Immediately adjacent to Waihora Stream as a semi- connected floodplain wetland. • Moderate open water habitat with connection to wider habitat types within the survey location. • Habitat features include overhanging vegetation, woody debris, shallow pools and small embayment's.	No fish trapped.

Survey area and habitat identification	Site photo	Habitat characteristics	Fauna present
Area 3 – Habitat 1		• Moderately to very deep mud (< 350 – 600 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – < 300 mm. • Largely disconnected from Waihora Stream, still operates as a connected floodplain wetland. • Large shallow open water habitat with connection to wider habitat types within the survey location. • Habitat features include overhanging vegetation, woody debris, shallow pools and small embayment's.	No fish trapped.
Area 3 – Habitat 2		• Moderately to very deep mud (< 350 – 600 mm). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – < 300 mm. • Largely disconnected from Waihora Stream, still operates as a connected floodplain wetland. • Large shallow open water habitat with connection to wider habitat types within the survey location. • Habitat features include overhanging vegetation, woody debris, shallow pools and small embayment's.	No fish trapped.

Survey area and habitat identification	Site photo	Habitat characteristics	Fauna present
Area 3 – Habitat 3		• Moderately deep mud (< 350). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – < 300 mm. • Largely disconnected from Waihora Stream, still operates as a connected floodplain wetland. • Large shallow open water habitat with connection to wider habitat types within the survey location. • Habitat features include overhanging vegetation, woody debris, shallow pools and small embayment's.	No fish trapped.
Area 3 – Habitat 4		• Moderately deep mud (< 350). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content. • Open water depth ranged from 100 – < 300 mm. • Largely disconnected from Waihora Stream, still operates as a connected floodplain wetland. • Large shallow open water habitat with connection to wider habitat types within the survey location. • Habitat features include overhanging vegetation, woody debris, shallow pools and small embayment's.	No fish trapped.

Survey area and habitat identification	Site photo	Habitat characteristics	Fauna present
Area 3 – Habitat 5		• Moderately deep mud (< 350). • High organic content (leaves, small to large woody debris). • Anoxic smell due to decomposition of the high organic content Open water depth ranged from 100 – < 300 mm. • Largely disconnected from Waihora Stream, still operates as a connected floodplain wetland. • Large shallow open water habitat with connection to wider habitat types within the survey location. • Habitat features include overhanging vegetation, woody debris, shallow pools and small embayment's.	No fish trapped.