Delmore Fast-Track

25/06/2025 – Auckland Council Response

Annexure 22:

Freshwater Ecology

Antoinette Bootsma

To:	Dylan Pope – Lead Planner, Carly Hinde - Principal Project Lead
From:	Antoinette Bootsma, Senior Freshwater Ecologist - Earth Streams and Trees team, Specialist Unit, Planning & Resource Consents Department
Date:	17/06/2025

1.0 APPLICATION DESCRIPTION

Application and property details

Applicant's Name:	Vineway Limited
Application number:	BUN60444768 (LUC60444824, LUS60444826)
Activity type:	Construction of culvert, wetland reclamation
Site address:	88, 130, 132 Upper Orewa Road and 53A, 53B and 55 Russell Road, Orewa

2.0 PROPOSAL

2.1 Proposal relevant to this permit only

The applicant is seeking consent to undertake works to establish 1,250 dwellings, one unserviced residential superlot, open space areas, areas of protected vegetation, roads including partial construction of the NoR 6 road, supporting infrastructure and other associated works. This residential development is known as “Delmore”. Specifically, the following activities are relevant to my assessment:

- A total of 24 existing farm culverts across the Site will be removed;
- A total of 13 new culverts are proposed;
- Earthworks within wetlands are required for the installation of 5 of the 13 proposed culverts (culverts 1, 5, 7, 9 and 10).

3.0 REASON FOR CONSENT

AUCKLAND UNITARY PLAN OPERATIVE IN PART (AUP:OP):

- Consent as a Discretionary activity under rule **E3.4.1(A44)** is required for culverts 3 to 7, 8, 9 and 11, not complying with standard E3.6.1.14(1)(b), where scour management works exceeds 5m on either side.

NATIONAL ENVIRONMENTAL STANDARD FOR FRESHWATER 2020 (NES-F):

- Consent as a Discretionary activity under r**egulation 71** is required for culverts 7, 9, 10, which do not meet the Permitted Activity standard 70(2)(d).

- Consent as a Restricted Discretionary activity is sought under rule **45C(1) to 45C(5)** for vegetation clearance and land disturbance within, and within a 10m setback from natural inland wetlands, land disturbance outside a 10 but within a 100m setback, and diversion and discharge for the purpose of urban development.

PERMITTED ACTIVITIES:

- Culverts 1 to 6, 8, and 11 complying with the conditions in regulation 70(2) of the NES-F
- Proposed wastewater pipe bridges complying with the standards in E3.6.1.16, permitted under AUP(OP) rule E3.4.1(A29).
- I consider that removal of the 24 existing culverts under the AUP(OP) rule E3.4.1(A24), complying with the standards in E3.6.1.13 is a Permitted Activity

ADDITIONAL REASONS FOR CONSENT:

- Culverts 1, 2, 7 and 10 are proposed as permitted activities under the AUP(OP) rule E3.4.1(A32). The applicant notes that these culverts meet the standards in E3.6.1.18. However, standard E3.6.1.18(1) requires that the activity complies with standards E3.6.1.14. Standard E3.6.1.14(1)(c) requires that a new structure must not be erected or placed in individual lengths of 30m or less where this would progressively encase or otherwise modify the bed of a river or stream. When applying this standard on a site basis, none of the culverts comply with this standard. In particular, culverts 1 and 12 are placed across the same reach and I interpret this as progressive encasement. I consider that all culverts require consent as a Discretionary activity under rule **E3.4.1(A44).**
- I note that the Earthworks Report states that: "Temporary stream crossings may be provided as part of haul roads to transport cut material between earthworks areas for filling. Details on the construction of any crossings will be provided by the earthwork's contractor to Council for approval prior to commencement of works." Without further information I cannot confirm if additional consent is required for temporary crossings under the AUP(OP) Chapter E3.
- Consent for the removal of constructed ponds (technically complying with the definition of a lake under the RMA) is required under **E3.4.1(A49).**
- Consent for earthworks within 100m of natural inland wetlands that result in groundwater drawdown and consequently lead to hydrological changes to wetlands have not been discussed in this application. I note that significant groundwater drawdown is discussed in the Geotechnical assessment prepared by Riley Consultants Limited, dated 14/02/2025. This assessment has not been considered in the ecological assessment. I consider that consent may be required under the **NES-F regulation 45C(3) and (4)** for earthworks, taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland as a restricted discretionary activity. I note that, in her memo on groundwater diversion and dewatering, Hester Hoogenboezem also identifies a potential additional reason for consent in relation to regulation 45C(4) regarding the proposed taking and diversion of water within a 100m setback from a natural inland wetland.

4.0 TECHNICAL ASSESSMENT OF EFFECTS

4.1 Scope of Assessment

This assessment covers the actual and potential adverse effects of the proposed streamworks and works affecting wetlands. In particular, effects relating to the following matters are discussed in detail below:

- Removal of existing culverts and construction of new culverts (fish passage, aquatic fauna);
- Changes to wetland hydrology;
- Offsetting for wetland loss; and
- Potential stream erosion.

4.2 Removal of culverts and new proposed culverts

Many of the existing culverts proposed to be removed currently restrict hydrological connectivity and inhibit fish passage. The EcIA notes that their removal is expected to improve stream hydrology and reduce localised flow disruptions.

With the exception of culverts 7, 9 and 10, all new culverts are less than 30 m in length, 1.3 x the stream width and embedded by 25%. In contrast, while culverts 7, 9 and 10 are less than 30 m in length and embedded by 25%, they have not been designed to be 1.3 x the stream width, as these culverts are located in wide flat areas which are impractical to span by a culvert.

While I agree that, during construction of culverts, fish passage can be maintained through clean water diversion channels and that fish passage may be ensured during the effective life of the culvert (refer to recommended consent conditions below), I defer to the Design Engineer and Geomorphologist for their assessment of the effect of culverts that fail to span the prescribed 1.3 x the stream width on the regional hydrograph, flood effects and soil stability (particularly erosion).

The EcIA notes that the magnitude of effect on the streams as a result of the removal of existing farm culverts, and installation of new culverts is considered to be moderate, mitigated to low through appropriate design and the implementation of fish management. I agree with this assessment and note potential additional triggers for consent in the section above (i.e. progressive encasement). I further recommend conditions of consent to manage potential adverse effects to aquatic fauna below.

4.3 Changes to wetland hydrology

The EcIA indicates thirty four natural inland wetlands, as per the NPS-FM definitions, were identified within 100 m of the proposed activities. While earthworks will occur within the wetland catchments, earthworks are not expected to alter the size of the catchment significantly. Additionally, the wetlands within the site are associated with the stream network, the stormwater approach for the site mimics, as far as practicable, the existing catchments. Based on this conclusion, the EcIA notes that it is not expected that there will be complete or partial drainage of all or part of a wetland or that there will be a change to the water level range or hydrological function of the wetland. However, the Geotechnical report concludes that extensive groundwater drawdown will occur and the EcIA does not refer to the Geotechnical data.

I consider it important that the ecological assessment correlate with the geotechnical data to confirm if hydrological changes to wetlands can be ruled out. These effects are not

currently accounted for. I defer to Council's groundwater specialists, Hester Hoogenboezem for her assessment of groundwater matters.

4.4 Offsetting for wetland loss

The application proposes to defer the wetland assessment to conditions of consent. No motivation is provided for the proposed 3:1 offset ratio as opposed to the more rigorous BOAM offset calculation which is based on site specific calculations. I further note that delivery of part of the NoR 6 arterial road is specifically relevant to offsetting of freshwater habitats proposed in this application. However, the application documents do not provide any information about how the proposed offsetting is integrated with NOR requirements. Essentially, the assessment of offset provided in this application is not aligned with Appendix 6 of the NPS-FM, principles for aquatic offsetting.

4.5 Potential Stream Erosion

If not appropriately designed and managed, changes to a site's stormwater regime could result in adverse effects on the freshwater environment, such as reduced baseflows to streams and wetlands, altered flow regimes, erosion and sedimentation, and contaminant loading. McKenzie and Co. have prepared a Stormwater Management Plan (McKenzie and Co., 2025a) to promote sustainable stormwater management and land development on the Site. Application documents indicate that retention and detention consistent with standard SMAF provisions will be implemented as an accepted methodology to protect streams from erosion from regular low flow events. However, no site-specific assessment of changed high energy flows and their effect on the already eroded stream network is provided.

I defer to Healthy Water's memorandum for its assessment of stream erosion matters, particularly in considering changes to peak flows, as well as the increased duration of elevated high energy flows in the context of the erosion potential of soils on the site. I note that streams on the site are already quite eroded and that erosion dynamics on this particular site may require specific management in addition to regional standards or best practice.

4.6 Conclusion

My assessment concludes that significant gaps remain in the applicant's consideration of how expected groundwater drawdown will affect wetlands. This lack of consideration means that consent triggers and management of effects cannot be fully assessed. Although I acknowledge that decrease in water recharge to groundwater will be balanced with discharge of stormwater into the stream and wetland network, however, I do not consider that the applicant has adequately discussed how stream morphology will be protected from increased erosion pressure. I consider inadequate controls are likely to lead to local and downstream loss of stream value in the receiving tributary of the Orewa River. I consider that erosion will result in mobilisation of sediment beyond the State Highway 1 to the east of the site. Recorded populations of aquatic invertebrates (including the endemic *Paratya curvirostris*) and fish that are particularly sensitive to sediment pollution (including banded kokopu) will be affected. I consider it likely that increased sedimentation and an eroded stream channel will significantly reduce the ability of these migratory fish to utilise this stream network, extending from the estuary approximately

2km downstream of the site, to the upstream reaches, approximately 1.3km to the west.

5.0 RECOMMENDATION AND CONDITIONS

5.1 Recommendation

The assessment in this memo identifies the following significant information gaps which limit my ability to support this application:

1. The effect of groundwater drawdown on wetlands noted in the geotechnical assessment is not integrated with the ecological assessment. Consequently consent triggers and effects cannot be confirmed. I consider that there is a potential for wetlands to be lost as a result of significant groundwater drawdown reported in the Geotechnical assessment. I note overlap with Council's groundwater specialist, Hester Hoogenboezem's assessment.

2. I consider that standard SMAF retention and detention of stormwater with the standard 10m riparian yard may not be sufficient to manage the already highly eroded streams on this site in the context of increased high energy stormwater input. The applicant has not provided an assessment confirming that the standard proposed measures are sufficient to ensure stabilisation of site-specific soil in eroded stream gullies. I consider that this may result in cumulative adverse effects on stream value on site as well as downstream. I consider that the loss of aquatic invertebrates and diadromous fish (fish that are dependent on migration to complete their life cycle) will result along the full upstream and downstream extent of this stream network (approximately 2km downstream and 1.3km upstream of the site boundaries). I note overlap with Healthy Water's assessment.

5.2 Conditions

I have reviewed the applicant's draft conditions and recommend the following amendments and additional conditions be imposed, should consent be granted.

PRE-COMMENCEMENT

X125. Prior to the commencement of any works within wetlands and streams, a Stream Works Management Plan (SWMP), must be submitted to Auckland Council for certification. The purpose of the SWMP is to provide a finalised streamworks methodology and management measures that enable effects of streamworks to be managed during construction in accordance with best practice. The SWMP must include as a minimum but is not limited to:

a) A plan showing the specific areas where streamworks are to occur;
b) Management measures to demonstrate how erosion and sediment controls will avoid sediment or sediment laden water entering the stream in accordance with best practice;
c) Management of contaminants to water (e.g. hydrocarbons, construction materials);

d) An explanation of how and measures to ensure maintenance of fish passage during and after the streamworks is achieved;

~~e) A Native Fish Capture and Relocation Plan. This shall be prepared by a suitably qualified and experienced freshwater ecologist;~~

f) Methodology for diverting upstream flows during the streamworks, including how sufficient flow will be maintained at all times below the site of the works to maintain in-stream biota, and the location and nature of any temporary diversion structures;

g) A detailed methodology for the installation of permanent structure(s). The final methodology shall be in general accordance with the memorandum prepared by McKenzie & Co titled "Delmore – Methodology for Culvert Works within Stream"; and

h) Details of final streambed remediation or stabilisation upon completion of stream works.

X126. Prior to the commencement of any streamworks (including reclamation of ponds), a Native Fish Capture and Relocation Plan (NFCRP) must be submitted to the Council for certification. The Native Fish Capture and Relocation Plan must be prepared by a suitably qualified and experienced Freshwater Ecologist and must include the following detail;

a) Methodologies to capture fish within the impact stream, or justification there is no habitat for native fish present at the time of construction;

b) Hand search of the base sediments of the stream bed and banks for native fish that may have burrowed into the soils,

c) Fishing effort;

d) Details of the relocation site;

e) Storage and transport measures including prevention of predation and death during capture;

f) Euthanasia methods for diseased or pest species; and

g) Confirmation on the habitat availability of the relocation site to support fish at the time of streamworks.

h) An accidental discovery protocol for aquatic fauna which require specialised handling and relocation effort that is not otherwise covered in the standard methodologies (i.e. regionally threatened species as per the Conservation Status of Freshwater Fishes in Tāmaki Makaurau / Auckland). This includes a protocol to implement the following actions:

   i. Immediately cease streamworks (including dewatering) upon accidental discovery of any unexpected aquatic fauna and notify the Council.

   ii. Ensure aquatic fauna are left in a suitable environment where they will be unharmed while the NFCRP is updated.

   iii. Update the NFCRP to address handling and relocation of the unexpected aquatic fauna to be submitted to Council for re-certification.

   iv. Only re-commence the capture and relocation upon re-certification of the NFCRP.

DURING CONSTRUCTION

X127. The consent holder must complete the streamworks activity (involving any disturbance, deposition, and vegetation clearance) to the stage of finalised re-vegetation and / or stabilisation of stream beds within a six month period from the commencement of the activity.

X128. Native fish capture and relocation must be undertaken in accordance with the certified Native Fish Capture and Relocation Plan, and must only be undertaken by a suitably qualified and experienced freshwater ecologist. The freshwater ecologist must also be onsite during the dewatering process to ensure that any remaining native fish that is not caught during de-fishing are salvaged.

X129. All streamworks must be undertaken in accordance with the certified SWMP and measures identified within the SWMP must be implemented and maintained throughout the streamworks activity.

Advice Note:

If any other management plans are required as conditions of any other resource consents for the proposal, such as a construction management plan, you are advised to ensure that the requirements are integrated to ensure comprehensive site management during physical works.

POST-CONSTRUCTION

X130. Within twenty (20) working days following completion of the installation of the culverts, the consent holder must submit to the council the information required by regulations 62 and 63 of the National Environmental Standard for Freshwater (2020), specifying the time and date of collection.

X131. Within twenty (20) working days following completion of the culvert, the consent holder must submit a Fish Passage Monitoring and Maintenance Plan (FPMMP) to the council for certification. The FPMMP must specify the ongoing monitoring and maintenance measures of the culverts to ensure fish passage is maintained and does not reduce over the lifetime of the culverts, and include the following detail:

a. Specific aspects of the structure to be monitored to ensure that the structure's provision for the passage of fish does not reduce over its lifetime.

b. Programme and method of routine monitoring and maintenance.

c. Visual inspection of the structure following a significant natural hazard high flow events, or events that may otherwise affect the culverts and provision for fish passage.

d. Record keeping of monitoring results including photos,

e. Follow up actions including the preparation of as-built plans and supporting information, further steps, and remediation measures.

X132. If any of the routine monitoring or visual inspections identify that provision for fish passage has been reduced, or the culverts are damaged, the consent holder must undertake maintenance or remediation works as soon as practicable to remedy the issues identified.

X133. The consent holder must maintain a record of:

i. All placement, alteration, extension and reconstruction works for the culvert structures, including when the works commence, how long they take, and when the works are completed; and

ii. Details of all monitoring and maintenance works undertaken on the culvert structures, including photos and evidence of any maintenance works undertaken.

If requested, the consent holder must provide this record to the Council within 10 working days of the date of request.

X134. Within twenty (20) working days of any changes to the culvert structures or detail as a result of routine monitoring and maintenance, or following a significant natural hazard or event that may otherwise affect the structure's provision for fish passage, the consent holder must provide:

a) Updated as-built information of the structure and associated fish passage, and

b) Further steps to be taken to ensure that the structure's provision for the passage of fish does not reduce over its lifetime.

X135. Fish passage must be maintained through the culvert structures in perpetuity, and monitoring, maintenance and remediation measures must be undertaken in accordance with the certified FPMMP throughout the lifetime of the culvert and weir structures.

6.0 REVIEW

Memo prepared by:

Antoinette Bootsma

Senior Specialist – Earth, Streams & Trees Team
Specialist Unit, Resource Consents

Date: 19th June 2025

Technical memo reviewed and approved for release by:

Fiona Harte

Team Leader, Earth, Streams and Trees Team
Specialist Unit, Resource Consents

Date: 19th June 2025