Beachlands South Fast-track

Auckland Council Specialist Memo

Annexure Q:

Damming Water / Dam Safety

Don Tate

09 October 2026

Application and property details	
Fast-Track project name:	Beachlands South
Fast-Track application number:	EPA reference: FTAA-2606-1256 Council reference: BUN60467962

2.0 Technical Specialist Memo – Dam Safety

To:	Brooke Dales – Lead Planner Adonica Giborees – Principal Project Lead
From:	Don Tate
Qualifications & Relevant Experience:	I hold the qualification of: Bachelor of Civil Engineering and have 40 years of experience in dam design and engineering including dam safety and geotechnical engineering. I am a full member and a fellow of Engineering New Zealand and a Chartered Professional Engineer(CPEng). I have prepared expert evidence and technical assessments for multiple resource consent applications for dams and have appeared as an expert witness before consent authorities and the Environment Court on several occasions.
Preparation in Accordance with the Code of Conduct:	I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses (**Code**), and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.
Signature:	
Date:	9 October 2026

3.0 Executive Summary / Principal Issues

N/A

4.0 Documents Reviewed

The following documents within the substantive application have been reviewed in preparing this memorandum:

- Attachment 9F Stormwater management Plan Template – Beachlands South (Ver. 2), dated 24 June 2026.
  - Attachment 9G (Appendix A of the above)
  - Attachment 9H (Appendix B of the above)
- Attachment 9J, Existing Topographical Plan/Features

I have focused on sub catchments 1 and 2, which are proposed to discharge under Jack Lachlan Drive.

5.0 Additional Reasons for Consent Not included in AEE / Incorrect Reasons for Consent

N/A

6.0 Specialist Assessment

Damming Water / Dam Safety

My review has only just commenced and following recent discussions the focus is on whether the 2 road embankment crossings are dams by the AUP and Building Act definitions. The applicant has stated they consider they do not meet the dam definition.

It appears that the proposed works rely upon the damming of water behind the Jack Lachlan Drive Road Embankment. Effects of changing the use of the road embankment asset (to dam water), do not appear to have been considered by the applicant:

- *The Jack Lachlan Drive Road Embankment does not currently meet definition of a Dam under the AUP OP.*
- *The proposed works would add a primary function to the embankment, of impounding / attenuating / throttling water, which would mean that the embankment would meet the definition of a Dam under the AUP OP.*

If the proposed works are to use the road embankment as a dam (to attenuate floodwaters from the development), then consent to Dam Water (AUP OP Chapter E7, Activity A35) should be sought. This consent would require supporting information which at this stage I have not defined.

It should also be confirmed whether (or not) the structure would meet the definition of a Classifiable Dam, under the Building (Dam Safety) Regulations 2022.

7.0 Section 67 Information Gap

At the time of writing this Memo I have identified information gaps related to using the Jack Lachlan Drive embankment to dam water:

At present, the Jack Lachlan Drive embankment acts as an inadvertent dam in two separate locations shown in Figure 1 (denoted Embankment 1 and Embankment 2). During flood events, the embankments temporarily form two existing stream basins (Figure 1).

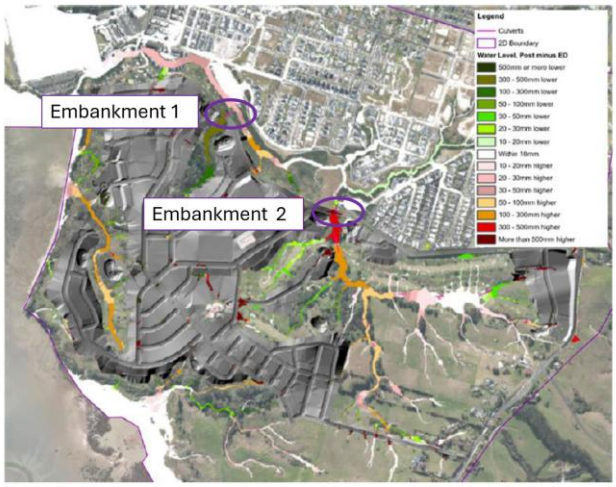


Figure 1: Difference in 1% AEP flood depth and extents, resulting from the proposed development (Annotations to Figure 30 within the Stormwater Management Plan)

Not currently a dam:

Chapter J of the Auckland Unitary Plan Operative in Part (AUP OP), defines a dam as "*a structure which temporarily impounds surface water as its primary function*". The definition specifically excludes culverts and their headwalls, which are generally considered appurtenant structures to a dam embankment.

MBIE's Guide to Complying with the Dam Safety Regulations, highlights that road embankments can have dual functions:

> "*It is possible that a road … embankment could have a dual function as a road … embankment and a dam, however this would need to be assessed on a case-by-case basis*"

In this case, the road embankments weren't specifically designed to retain water. While the embankments do currently impound surface water to some degree, impounding surface water is not currently a primary function of either road embankment 1 or 2.

Proposed to act as a Dam

It appears that the proposed works would lead the impoundment/attenuation/throttling of surface water, to become a primary function of both embankment 1 and 2. The proposed works are therefore intending to use the Jack Lachlan Drive road embankment as a dam.

This conclusion was reached noting that:

1. The executive summary of the Stormwater Management Plan states that:

"The Project utilises existing culverts within the northern catchments to throttle flows to the downstream watercourse. Site-specific 2-D flood modelling concluded that no augmentation of these structures is required to mitigate flood risk impacts".

2. Section 6.1 Principles of stormwater management, within the same document states that:
   "Surplus attenuation above the 50% AEP storm, i.e. during the 10% AEP and 1% AEP storm to be attenuated within the existing stream basins upstream of the two existing Jack Lachlan culverts prior to off-site discharge."

Specific to the two embankments we note:

Embankment 1

The proposed works are shown to reduce peak flood depths, within the embankment 1 reservoir upstream of Jack Lachlan Drive.

- This could be a result of peak inflows and/or peak inflow volumes to the embankment 1 reservoir being reduced (as a result of the proposed development). If this is the case, then the embankment 1 embankment is not actually proposed to be relied upon to attenuate floodwaters, and therefore the proposed works would not be using the road embankment as a dam.
- However, if the reduction in peak flood depths is a result of the reservoir upstream of Jack Lachlan Drive being modified to store a greater volume of water (or store water at a higher elevation). And/or the proposal is relying on attenuation from embankment 1 (over and above what is currently inadvertently present). Then embankment 1 would be being proposed to be used as a dam.

There appears to be insufficient information available to confirm which case is occurring here.

Embankment 2

The proposed works are shown to increase peak flood depths by 300mm to 500mm, within the embankment 2 reservoir upstream of Jack Lachlan Drive. The proposed works are therefore relying on the ability of embankment 2 to retain additional water (over and above what would currently inadvertently be present). It therefore appears that the proposed works intend to use embankment 2 as a dam, and to also store additional water, at a higher level behind the embankment.

It therefore seems that the applicant should be seeking consent to dam water behind Jack Lachlan Drive.

Description of Missing Information

The proposed works have not applied for consent to dam water, or provided any assessment against the relevant provisions within AUP OP, chapter E7 Taking, using, damming and diversion of water and drilling. The most relevant activity would be: Dams not otherwise listed or not meeting the permitted activity standards or controlled activity standards (A35). Consent for such an activity generally requires additional information including:

1. *Assessment of the downstream effects, that could result if the dam were to fail/breach (often for large dams, this is termed a Potential Impact Classification Assessment).*
2. *Assessment of geotechnical aspects of the embankment (slope stability, ability to retain water), to a degree appropriate for the Potential Impact Classification of the dam.*
3. *Assessment of hydraulic operation of the culvert through the embankment, and any overflow spillway(s), to a degree appropriate for the Potential Impact Classification of the dam.*

4. *The road embankment may need modification to allow it to safely retain additional water, and/or safely act as a dam.*
5. *A plan for routine inspections of the structure.*

At this stage I have not considered whether all of the above are applicable in this particular situation.

Regardless of whether the structures are considered dams. If additional water is proposed to be retained within the structures (or if water is proposed to be retained at a higher level), the potential impacts of a failure/breach of the embankments should be considered (as an effects-based assessment under the RMA).

Confirmation of whether the structures would meet the definition of a Classifiable Dam in terms of the Building (Dam Safety) Regulations 2022 should also be provided.

8.0	Recommendation
N/A	

9.0	Proposed Conditions
N/A	