

RC14513 / COASTAL PROTECTION STRUCTURE AND ASSOCIATED ACTIVITIES SUMMARY
STATEMENT OF ADAM DAVIDSON (COASTAL ENGINEERING)

This summary highlights the key matters addressed in my Coastal Engineering review dated 16 July 2025.

1. We consider that the full landward extent of the Type 2 structure is unjustified on the basis that the existing groynes and channel training walls remain in place. The properties behind the reserve are not currently at risk of storm cut back event while the groynes and their retained beach material remain. The groyne structures perform an important task of preventing flooding of the wider area, therefore it is unlikely that they will be removed and not reinstated in some form.
2. As long as these structures remain, a significantly shorter hard structure layout between properties 12-15, and then a natural dune management approach (supporting and aiding the existing dune development using the material excavated from the channel) for properties 13, 11 & 9 would create much less disturbance to the natural environment during construction, at a lower cost.
3. If in the future the Three Mile Creek management changes significantly, then at that point the proposed buried seawall could be added if still deemed the preferred solution.
4. If this 'type 2' section is considered necessary at this time, we agree that its impacts on the coastal processes following construction will be negligible given it will be near permanently buried.
5. For the "type 1" length of the proposed structure we acknowledge that a hard structure could be justified for coastal protection along the Type 1 section to protect the southernmost properties where there is not currently a lot of width of dune fronting the property boundary (12, 14 and 16), These properties gain no benefit from the existing groynes. We agree that the type 1 structure is appropriately designed.
6. However we consider that its alignment should be adjusted to better comply with the NZ Coastal Policy Statement in that hard structures should be designed to "*minimise adverse effects on the coastal environment*". Locating the structure on the property boundary (or 1.5m off it) would reduce the impact that the hard structure has on the beach, coastal environment, and end effects on the area to the south.
7. It could be clearly seen in the photos presented yesterday, that the existing dunes fronting 12,14 and 16 are only around 4-5m in width from the property boundary. This is similar to what could be achieved with the seawall set 1.5m in front of the boundary, as we will have 1.5m behind the structure, then a crest of 3.5m planted crest over the structure giving up to 5m of planted habitat.
8. Therefore, the original proposal of an 5m corridor, and 3.5m planted crest, would almost be doubling the width of the existing dunes. On the face of it, this sounds positive. However, this means that any planting in front of the structure will be significantly seaward of any existing natural dunes, and as we know, and has been demonstrated by previous attempts, trying to apply

soft engineering solutions in a location more seaward than the surrounding shoreline is highly likely to fail.

9. Therefore it must be understood that this length of type 1 structure will first and foremost be a hard structure and that, unless there is significant natural beach recovery in levels, it will be exposed almost immediately. Based on the graphs submitted using T&T recession rates, exposure (with the structure located 5 metres off the boundary) is predicted within two years and with the advanced position the suggested development of fronting dunes is considered unlikely.
10. In my opinion the artificial images presented yesterday were misleading, as they only suggested a snap shot of one event, and not a representation of what sea level rise and greater exposure would look like in the future. Furthermore, in my opinion the comparison with the actual photo of the erosion and cliffing was also misleading because given that the position on the beach profile between the structure and the cliffing would be similar, the height and levels of the cliffing and the height of the exposed rock would also be similar (if we are comparing like for like locations as the evidence implied)
11. For the “type 1” length of the proposed structure, once exposed it can increase the end effects potentially accelerating recession to the adjacent reserve. This recession has been acknowledged and accommodated in the design of the protection of the Glen Isla properties, but steps to mitigate this recession and protect the reserve from the adverse effects are lacking in the proposal.
12. In addition to the end effects, once exposed there could also be minor localised beach lowering to the zone fronting the exposed structure as a result of wave reflection. Examples of this occurring can already be witnessed from similar exposed rock structures along the Waihi Beach frontage. I appreciate that those structures are far more seaward than this proposal, but based on the rates of recession being used to justify the need for the proposal, it is only a matter of time and sea level rise before this structure would be presenting similar conditions (as is also supported by the applicant’s suggestion of needing to provide access over the top of the structure in the future to maintain beach access.)