Submission on the Dohles Rocks Seawall Reconstruction Concept Design

Submitted by: The Moreton Bay Foundation

To: Drainage, Waterways and Coastal Planning, City of Moreton Bay

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Introduction

The Moreton Bay Foundation (TMBF) welcomes the opportunity to comment on the proposed 540-metre Dohles Rocks Seawall reconstruction. We acknowledge the urgent need to address the damage from Tropical Cyclone Alfred (March 2025) and protect the Pine River foreshore from coastal erosion. However, we strongly urge Council to look beyond traditional, uniform "grey" infrastructure and pioneer a hybrid or nature-based approach for this highly sensitive estuarine environment.

About The Moreton Bay Foundation

Mission: Independent, evidence-led environmental charity dedicated to protecting and restoring Moreton Bay as a connected marine, wetland, and catchment system.

The Value of the Bay: Supports highly diverse ecosystems (mangroves, saltmarsh, shellfish reefs, shorebirds, and threatened species), delivering vital economic, recreational, and First Nations cultural values.

Academic Core: Partnered with Griffith University, University of the Sunshine Coast, The University of Queensland, and QUT to support evidence-based coastal stewardship.

Recommendations

Redesign rock armour seawall to a nature-based solution (NBS)

The proposed rock armour and concrete crest wall risks "ecological homogenization" in the highly biodiverse Pine River estuary. We urge Council to integrate eco-engineering features based on established global research:

- **Structural Complexity & Biodiversity:** Traditional rock armour lacks the micro-habitats (pits, crevices) of natural shores by up to 50%, degrading marine life (Perricone et al., 2023).

Retrofitting textured eco-engineering panels or artificial rockpools successfully increases species richness in 89% of cases by creating a living ecosystem (Salauddin et al., 2021).

- **Hydrodynamic Performance:** While rock armour relies on sheer mass, adding physical protrusions or textured tiles increases **hydraulic roughness**. Wave flume experiments prove this roughness dissipates wave energy and boat wake far more effectively than smooth surfaces, significantly reducing wave overtopping (Salauddin et al., 2021).
- **Climate Adaptability & Value:** Traditional grey structures are entirely static. Nature-based and hybrid designs shift the paradigm toward dynamic resilience and are often significantly more cost-effective over their lifecycle (Narayan et al., 2016; Morris et al., 2022).

Feature	Rock Armour (Proposed Grey)	Living Seawalls (Recommended Hybrid)	Nature-Based Solutions (Green)
Mechanism	Static material mass.	Structures enhanced with eco-panels (Salauddin et al., 2021).	Living habitats (mangroves, shell reefs) (Perricone et al., 2023).
Adaptability	**Static.** Requires costly, carbon-heavy physical upgrades to meet sea-level rise.	**Static base,** but hydraulic roughness buffers unexpected overtopping (Salauddin et al., 2021).	**Dynamic.** Grows, traps sediment, and naturally accreting with sea-level rise (Morris et al., 2022).
Ecosystem	Minimal to no habitat value.	Restores localized intertidal biodiversity.	Sequesters carbon, filters water, and supports local fisheries (Morris et al., 2022).

TMBF Recommendation: Incorporate pre-cast textured surfaces, habitat panels, and artificial rockpool features into the concrete crest wall and rock armour profile.

2. Strategic Placement of Access Stairs and Small Boat Launch Points

To accommodate the planned reduction of public access points without creating safety hazards or environmental degradation, Council should:

- **Consolidate into Access Hubs:** Combine access stairs and small boat/kayak launch pathways into singular, designated hubs to keep the remaining sections of the seawall undisturbed.
- **Utilize Already-Modified Zones:** Locate these hubs near existing high-use infrastructure (such as the western end near the main boat ramp). This capitalizes on existing parking, clearly separates non-motorized paddlers from motorized watercraft, and prevents the clearing of pristine foreshore.
- **Align with Footpath Nodes:** Align stairs precisely with land-side footpath intersections or seating zones. If access is inconvenient, pedestrians will scramble directly over the 6-to-7-metre boulder field, creating a safety liability and destabilizing the rock armour.

3. Integrated Coastal Planning

- **Align with Long-Term Resilience:** Ensure the detailed design directly integrates with the forthcoming *Dohles Rocks Local Resilience Plan* and broader coastal hazard adaptation planning to avoid locking in a rigid, unadaptable structure.
- **Improve Stormwater and Water Quality:** Use the disruption of the existing outfalls to integrate Water-Sensitive Urban Design (WSUD), erosion control, and gross pollutant traps. This will reduce sediment and litter inputs into the Pine River.
- **Monitor and Report Environmental Outcomes:** Conduct and publish a baseline ecological assessment before construction. Post-construction monitoring should evaluate the success of the eco-engineering features to inform future seawall upgrades across the City of Moreton Bay.

Conclusion

The Moreton Bay Foundation supports the reconstruction of the Dohles Rocks Seawall where it is necessary to protect public assets, maintain safe access and manage ongoing coastal erosion. However, this project should not simply replace damaged grey infrastructure with a like-for-like structure. It is an opportunity for the City of Moreton Bay to demonstrate best-practice coastal adaptation by delivering infrastructure that protects the foreshore while also improving habitat value, water quality, community access and long-term resilience.

TMBF recommends that Council revise the detailed design to incorporate eco-engineering and nature-based features, consolidate public access points in already disturbed areas, improve stormwater outcomes, and commit to baseline and post-construction ecological monitoring. With these improvements, the Dohles Rocks Seawall Reconstruction could become a practical model for nature-positive coastal infrastructure across Moreton Bay.

Sincerely,

Katie Walters
Chief Executive Officer

The Moreton Bay Foundation

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