



12 March 2026
REF:20260312NTEPA

Chief Executive Officer
Northern Territory Environment Protection Authority
Level 1, Arnhemica House,
16 Parap Road,
Parap NT 0820

Dear Sir/Madam,

Re: Submission in Response to Public Consultation on GEMCO's Supplementary Environmental Report for their Excess Water Disposal Project Proposal

The Anindilyakwa Land Council, (ALC), appreciates the opportunity to provide comment on the Groote Eylandt Mining Company Pty Ltd, (GEMCO's) Supplementary Environmental Report (SER) for their Excess Water Disposal Project, ("the Project").

The Project is concerns the release of wastewater from GEMCO's mining operation into the sea and impacts the environment, as well as the rights and interests of traditional Aboriginal owners (Traditional Owners) and other Aboriginal people. These rights and interests are protected at law by a framework of legislative acts, including:

- *Water Act 1992 (NT)*;
- *Environment Protection Act 2019 (NT)*
- *Aboriginal Sacred Sites Act 1989 (NT)*
- *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*;
- *Native Title Act 1993 (Cth)*; and the
- *Aboriginal Land Rights Act (Northern Territory) 1976 (Cth)*.

Under the *Aboriginal Land Rights (Northern Territory) Act 1976 (Cth) (Land Rights Act)*, the ALC has a statutory role and responsibility as the representative body for the Traditional Owners of Groote Eylandt, to protect the interests of Traditional Owners, and other Aboriginals interested in the affected lands and waters. (see in particular: Section 23(1) *Land Rights Act* and the *Native Title Act* generally). Where the Project impacts the seas adjacent to Groote Eylandt, the Northern Land Council, (NLC), is the responsible Native Title Representative Body, and works collaboratively with the ALC.

Further, the ALC has responsibilities where the Project impacts the rights and interests of traditional Aboriginal owners, and other affected Aboriginal people, within the Indigenous Protected Area managed by the ALC's Land and Sea Rangers.

In accordance with our statutory responsibilities, the ALC engaged independent aquatic environmental specialists, H2O Consulting Group, to undertake a thorough review of the SER. Their findings have informed the enclosed submission.





The ALC understands the ground water issues that GEMCO faces and important role GEMCO plays in the NT economy, but any potential environmental impacts, including impacts that have the potential to cause permanent environmental damage, must be well understood so that risks associated with the Project are appropriately managed, and the rights and interests of Traditional Owners are not adversely impacted.

The ALC respectfully requests that the NT EPA give full and careful consideration to the matters raised in our submission and be mindful of the broader legal framework that operates with respect to the Project. The ALC is not insisting that the necessary further GEMCO activities detailed in our response are required before environmental approvals, however any such approvals must be conditional upon the completion of these matters before construction and any subsequent discharge takes into full account outcomes from the work detailed.

We thank you for your attention to this important matter and the ALC remains available to discuss these matters further should the NT EPA require clarification or additional information. Please forward any correspondence on this matter to the undersigned, who is the key contact person in relation to this matter.

Yours sincerely,

Michael Trainor

Mining and Sustainability Manager
Anindilyakwa Land Council





**Submission to the NT EPA
in Response to Public
Consultation on GEMCO's
Excess Water Disposal
Project Proposal
Supplementary
Environmental Report**

12 March 2026

ANINDILYAKWA
LAND COUNCIL



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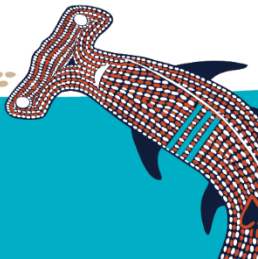
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1 INTRODUCTION

The Anindilyakwa Land Council, (ALC), is submitting this public comment on GEMCO's Supplementary Environmental Report (SER), of the proposed Excess Water Disposal Project, (Project). The ALC has engaged expert aquatic ecologists, H2O to provide appropriate advice regarding the SER. The review was led by the following Subject Matter Experts:

- Dr David Wainwright (Salients) - Coastal engineering and management, numerical modelling, geomorphology.
- Dr Marcus Lincoln Smith (Ecology Matters) – Marine and freshwater ecology, water quality, experimental design in ecology.
- Dr David Cummings (H2O Consulting Group) – Marine and freshwater ecology and water quality, aquatic ecological assessment.

Through this review the ALC has identified several matters in the SER, which need addressing before any discharge can occur.

The GEMCO mining operation does play an important part in the Groote and broader Northern Territory economy, however this does not negate the need to properly evaluate and develop the necessary measures to ensure that any environmental risks are appropriately controlled. The ALC is required under its obligations under the ALRA and PGPA Acts, to ensure that any proposal which may impact the land and waters of Traditional Owners is carried out to a sufficient level of detail and addresses all matters. This is particularly important with projects that have a high risk, from either a likelihood of occurrence perspective or potential impact perspective. It is a fundamental right under the ALRA that Traditional Owners provide their consent for the Project prior to any Project works commencing. The ALC will not seek consent from Traditional Owners for any part or aspect of the Project to commence until all potential impacts are thoroughly understood and the necessary management plans are developed to an appropriate level of detail. This is necessary to not only ensure that the Project will not lead to any significant, non-reversible environmental impacts, which may also impact the cultural and social aspects of Traditional Owner life, but to also ensure that the fundamental principles of free, prior and informed consent are being followed.

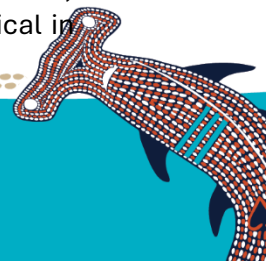
The ALC considers the SER as a reasonable follow up to GEMCO's Marine Ecology Assessment, (MEA). However, due to the identified matters, the ALC insists that further research, evaluations and detailed program operating and monitoring systems are appropriately undertaken, prepared by GEMCO and independently reviewed, before construction commences. Without these the ALC will not be in a position to seek any form of final consent from Traditional Owners, with respect to the Project.

The following is a list of the concerns which the ALC has identified from a review of the SER.

2 COMMENTS ON THE SER

2.1 Summary

In summary, the SER has addressed many of the concerns previously raised. However, there remains a number of areas which pose an elevated risk to the marine and aquatic environment, where mitigation measures, effective monitoring and adaptive management will be critical in





ensuring the ecological values of the aquatic and marine environment are not significantly impacted. These include:

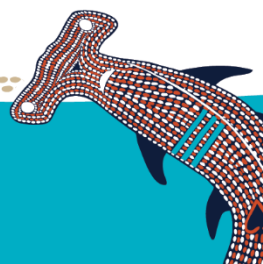
- Limited additional information and consideration for potential for marine turtle nesting have been provided in the SER. Thus, mitigation measures will need to assume that turtle nesting may occur and a strong management framework will need to be developed and implemented to avoid any impacts, should nesting occur. This will need to be implemented through a detailed and thorough marine fauna management plan.
- Limited additional information and consideration of freshwater aquatic ecology values have been provided in the SER. The assessment of freshwater creeks/drainages is based on dry conditions and assumes they are highly ephemeral. Given this, all works within creeks must be conditioned to only occur during dry conditions with no flow.
- Limited additional information and consideration on how different potential contaminants (e.g. metals) may interact when occurring together in the marine environment has been provided in the SER. Thus, a more detailed water quality impact assessment that accounts for interactive and synergistic effects and toxicology of the discharge water should be prepared.
- Changes to the construction methodology proposal will account for impact piling which poses an elevated risk of harm and disturbance to marine fauna. Given the potential for marine fauna to also include a number of threatened species, a detailed and thorough marine fauna management plan will be an essential requirement for these works.

Any release of mine (waste) water poses a risk to water quality and values of the marine environment around Groote Eylandt and the Indigenous Protected Area, (IPA). Thus, the highest level of protection of water quality needs to be applied to this proposal. This needs to include a detailed water monitoring program that includes monthly sampling of potential contaminants and real time monitoring of key water quality indicators at multiple sites both within and beyond the mixing zone.

The assessment of risks is to be strengthened by completing a detailed modelling assessment of plume discharge and dispersion around a dodge tide period, with a variable tidal current in the near field.

While the marine monitoring strategy provides a high-level summary of the monitoring requirements for ecological communities, the ALC has concerns that the proposed monitoring effort lacks adequate measure of reference conditions, spatial and temporal variability and ultimately statistical power to detect ecological changes as a result of both construction and operation of the outfall. Thus, a detailed benthic monitoring plan will need to be prepared that as a minimum must include the following:

- Clear objectives that align with impacts and recovery hypothesised within the ecological assessment.
- Identification of indicators and performance measures.
- Experimental design (following BACI framework) with sufficient spatial and temporal resolution to detect impacts both from construction and operation phases of the proposal.





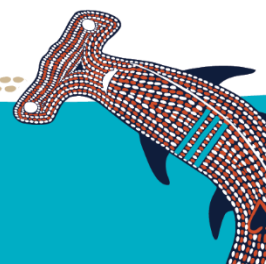
Detailed methodology that includes sampling methods, locations, statistical analysis procedures (including power analysis).

- Collection of a minimum of 1 year of baseline data and 3 years of operation data (with the later subject to review).

It will also be essential that all monitoring data (water quality and ecological) are analysed in a timely manner to inform and guide adaptive management actions and rectify potential processes that are impacting on the environment.

The environmental aspects associated with the decommissioning and removal of the infrastructure installed has not been addressed. This should be well planned out prior to the construction works.

Furthermore, the ALC requires that all further assessments, monitoring plans and management plans are independently reviewed by an external and independent expert in the field (+20 years' experience) before being provided to the ALC for review.



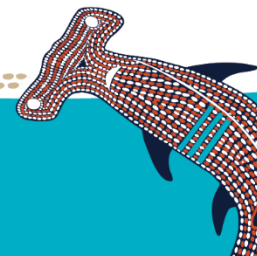


2.2 Details

2.2.1 General – Fisheries

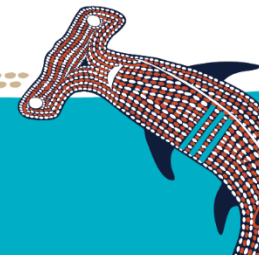
Key Elements	GEMCO's SER	ALC Response to SER
Traditional Fisheries	GEMCO has reiterated that consultation was undertaken with senior men on Country regarding fishing and Traditional fishing and foraging activities in the Project Area in October 2023. The consultation concluded that Traditional Owners do not use the port area or launch boats from the jetty, but that areas north and south of the port are used for boating and fishing. The 2023 consultation also concluded that there were no concerns regarding the proposal.	The discussions with senior men took place without the full understanding as to the size and impacts of the Project. The discussions held can in ALC's view only be described as preliminary, due to the number of people involved, inadequate knowledge of the extent of the project and its impacted area. Further detailed community consultations must be undertaken, to ensure that Traditional Owners can be heard and their concerns in this matter are fully considered before any discharge
Northern Prawn Fishery	The SER acknowledges that parts of the Project Area and operational area are within the Northern Prawn Fishery. Hydrodynamic modelling has been completed that considers nitrogen enrichment and the flushing rate within the nearshore area. The impacts have been considered as negligible, with the nearshore area possessing a 'good' flushing rate (<4 days).	ALC agree that potential impacts to the Northern Prawn Fishery have been adequately considered.

2.2.2 Marine Ecology – Habitat and Fauna





Key Elements	GEMCO's SER	ALC Response to SER
Protected Matters	The SER has sufficiently updated the significant impact assessments for the Australian Snubfin Dolphin and Australian Humpback Dolphin. The SER has also conducted a significant impact assessment for the Whale Shark, which had the likelihood of occurrence updated to 'likely to occur' after a sighting of eight juveniles off Groote Eylandt by ALC Land and Sea Rangers and Australian Institute of Marine Science.	The ALC is comfortable that significant impacts to these species can be avoided with adequate management procedures during construction. These will need to be captured in a fauna management plan for the project.
Marine Turtles	No further consultation or incorporation of Traditional knowledge of mobile marine fauna use of the area has been provided in the SER. The existing Referral Report and Marine Ecology Assessment (GEMCO/GHD 2025) identified potential risks to turtles from underwater noise from piling and interaction with vessels and marine plants. Identified management actions including pre-start checks at the piling area. The SER provided minimal additional discussion of marine turtles. The SER did include standard observation and shutdown zones for threatened fauna to avoid and minimise impacts of underwater noise.	The main concern is regarding the potential presence of marine turtles nesting, resting or foraging along nearshore or shoreline areas during the works. The management of development and operation actions will need to be captured in a very detailed fauna management plan for the project before construction commences.
Benthic Habitat	Additional survey data have been incorporated from GEMCO field programs (June 2024 and October 2024) and from additional benthic surveys specific to the project (November 2025). Additional surveys have targeted growth periods of seagrasses in the region (~October to November) and provided better representation of the potential seasonal	The additional surveys have identified a greater coverage of benthic habitats within and near the marine footprint, including (but not limited to) seagrasses, mixed algae and sponge/soft coral on sand, and rocky reef with coral/coral rock (refer to Figure 8 in section 7.1.4 of SER). Updated survey results convey the importance of capturing



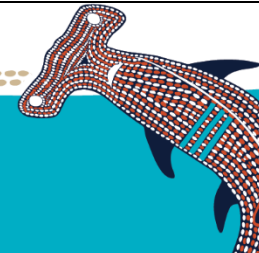


Key Elements	GEMCO's SER	ALC Response to SER
	distribution of benthic habitats within the Project Area.	temporal and spatial variation in assessment and monitoring of benthic communities in this region. GEMCO has yet to undertake benthic surveys in the Wet Season. The consideration of temporal and spatial variation of the various marine communities will be critical in the design of the monitoring program for benthic habitats/communities. GEMCO needs to undertake wet season surveys to inform a monitoring program, before construction commences.
Underwater Noise and Vibrations	An underwater noise assessment has been undertaken as impact piling may now be required, using the appropriate noise source level and the TTS and PTS threshold levels calculated considering all fauna groups including fish.	The underwater noise assessment identified that impact piling activities have potential to impact marine fauna. This assessment also identifies several mitigation and management measures that are considered standard practice for marine construction in such settings. These measures will need to be captured in a fauna management plan for the project before construction commences.
Species Abundance and Diversity	Direct impacts to 0.77 ha of <i>Halophila</i> spp. within the marine footprint have been identified in the SER, predicted to be impacted during excavation in the intertidal and surf zone. The proposed construction methodology/boundary of coffer dam vs shallow trenching at the 5 m water depth mark is not shown on figures in the SER, and it must be assumed that the 0.77 ha of seagrasses predicted to be impacted encompass the coffer dam, shallow trenching and the side casting footprint. Mixed algae and sponge/soft coral on sand also occurs within the area that would be lost, although the remaining area of disturbance comprises sandy substratum within the SER.	The coffer dam and silt curtains are proposed to contain most sedimentation and adverse water quality during construction. Their effectiveness will be dependent on regular maintenance and positioning. Some disturbance to benthic communities may also occur from the physical presence of silt curtains (e.g. seabed abrasion), especially if they are placed in close proximity to reef or seagrass assemblages. Potentially, some smothering, sedimentation or water quality disturbances could still occur from the construction of the sand-based temporary work platform that have not been captured. The SER predicts that the benthic community (infauna) would recover over weeks to months, with reference to recovery of





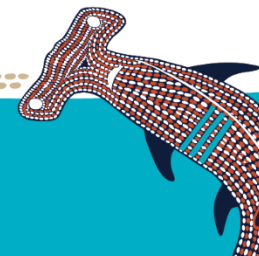
Key Elements	GEMCO's SER	ALC Response to SER
		communities following maintenance dredging (McCauley 1997). The excavation works are anticipated to run for approximately 8 months and recovery of infaunal communities may be delayed due to the length of this disturbance or further affected by operational disturbances to habitat. While the communities are described to be localised and of low significance in the SER with minimal supporting information, they do provide important ecological indicators to detect impacts and measure recovery in the marine environment. Thus, monitoring of infauna communities will need to test hypotheses on recovery based on those predicted as part of the assessment. The SER predicts that recovery of seagrass beds would occur on a scale of months if supported by vegetative regrowth, and longer (but unspecified) if reliant on immigration of plant fragments or seeds, although vegetative regrowth is expected. Impacts to seagrasses are most likely to be localised to the area of direct disturbance; the area of disturbance is ~7,700 m². Thus, recovery over an area of this size may be much slower. Moreover, recovery would depend on the extent of loss of rhizomes, roots, leaves and the seed bank, any plant-specific growth characteristics, seasonal conditions, and external environmental pressures (e.g. cyclones) that may occur over several years at this scale. There also remains potential for increased sedimentation and changes in water quality to result in operational impacts on seagrass over wider spatial scales. Thus, an appropriate BACI design before





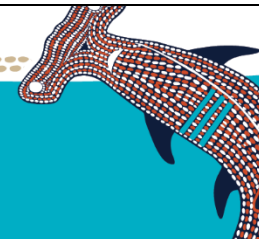
Key Elements	GEMCO's SER	ALC Response to SER
		construction commences will be required to monitor both recovery of seagrasses (with objectives to test hypotheses on recovery based on those predicted as part of the assessment) and operational impacts.
Freshwater Habitats (Terrestrial)	The SER has reiterated the surveys completed as part of the Terrestrial Ecology Assessment, with specificity regarding the Mertens' water monitor. Surveys and assessment of impacts to this species are well justified. The initial concern was regarding the lack of information about freshwater fauna communities (freshwater fish and invertebrates) and that potential impacts to these faunae had not been appropriately considered. Limited additional information and assessment regarding freshwater fish and invertebrates have been provided based on the assumption that these creeks / water bodies are highly ephemeral. The SER has provided an appropriate definition of a 'suitably qualified GEMCO staff member' that will undertake pre-clearance surveys. The SER states that the Construction Environmental Management Plan (CEMP) will include an Unexpected Threatened Species Finds Procedure and fauna/flora management measures.	Consideration of freshwater habitats and biota is extremely limited. Before construction commences a detailed freshwater habitat, including surrounding terrestrial study of the impact zones needs to be undertaken A formal Fauna Management Plan and Unexpected Threatened Species Finds Procedure needs to be also prepared.

2.2.3 Water & Sediment Quality and Modelling



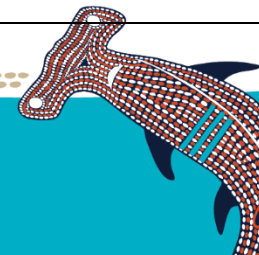


Key Elements	GEMCO's SER	ALC Response to SER
Baseline Water Quality Monitoring	Further detail, supported by the modelling, has been provided in the SER, which has predicted the bioaccumulation/biomagnification risk as low.	Development and implementation of an adequate water quality monitoring program for all potential contaminants will be critical in testing this prediction and allowing adaptive management to be applied should elevated risks occur. This needs to be completed before construction commences
Sediment Quality and Acid Sulfate Soils	Geotechnical investigations were conducted within the marine footprint in March 2025 by GEMCO and are presented in the SER. The investigations found: Subsurface materials were predominantly clay/silty sand with up to 30% gravel and secondary materials being sandy clay with up to 60% fines content. Acid Sulphate Soil (ASS) screening tests were performed on 14 samples, collected along the proposed pipeline alignment and throughout the depth profile. Thirteen of the samples returned results indicating that Potential ASS (PASS) is unlikely and one sample returned results that indicated PASS. The assessment concluded that the presence of PASS is considered unlikely in the depths tested.	GEMCO will need to develop a detailed CEMP or associated management plans before construction commences, which will need to include adequate procedures to identify potential ASS during construction and appropriate management actions should it be unexpectedly encountered. It is difficult to review the ASS testing results as the spatial distribution of the samples is not presented. A significant improvement would be showing a long section of the sample locations along the proposed pipeline route, alongside the expected depth of excavation and highlighting which sample returned a positive result. This is required before construction commences
Marine Discharge Modelling	The SER and Appendix A of the SER include an updated modelling report which has considered the influence of waves. The modelling found that the inclusion of waves has no negative impact on the area of dilution, with the mixing zone slightly reduced in size. The updated modelling report has also considered cumulative impacts from the proposed mine water discharge and the existing STP treated effluent discharge on nutrient	GEMCO has selected 2022 as a representative year. It isn't specifically stated, but seems to be implied that the wave model was run for the period spanning 2015-2024 and results were extracted from the proposed diffuser location. There is no description of the parameters adopted in the running the wave model (apart from mesh sizes). The extent of the model domain for the wave model is unclear.



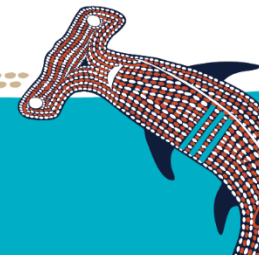


Key Elements	GEMCO's SER	ALC Response to SER
	concentrations. The modelling found no cumulative effects between aluminium and iron, and minimal change in the mixing zone for nitrate.	The wave environment is characterised by low height, short period seas. Even though these waves are small, they act to speed up mixing of the plume and hence reduce the size of the mixing zone. The near field modelling software (Visual Plume / UM3) does not, seemingly provide a way to include the impact of waves, GEMCO need to undertake this before construction commences.
	The SER has clarified that an increase in mine discharge water salinity is not anticipated to exceed 3 PSU (ambient marine salinity has median of 35.6 PSU). If salinity in the discharge water increases, the difference between discharge and marine water salinity will require lower dilution to meet salinity target. Additionally, the SER identified the plume buoyancy would be expected to marginally reduce, which may result in a slight increase in vertical depth of plume and increase dilution achieved. The SER concludes that for salinity targets, the mixing zone would reduce.	Providing that the discharge water from the mine does remain predominantly fresh, and at a higher temperature than the marine receiving waters, it should remain positively buoyant, tending to rise towards the surface. Based on the information provided, it seems unlikely that a negatively buoyant plume which settles towards the bed would occur, with subsequent impacts on benthic habitats. The risk is that salinity does increase, which based on current known information, may occur. Continuous live monitoring of receiving waters would seem to be a suitable strategy to manage any remaining risk. The monitoring plan needs to be developed before construction commences The SER has stated that the proposed benthic community monitoring program will consider any potential impacts on benthic habitats from less buoyant plumes. Thus, operational monitoring of infauna will be an important indicator within this area.
	The SER and Appendix A of the SER include an updated modelling report which has considered dispersion modelling of suspended sediment and deposition during discharge, including waves and cumulative discharge with the existing	There are a few matters of some concern relating to the consideration of TSS/Turbidity:



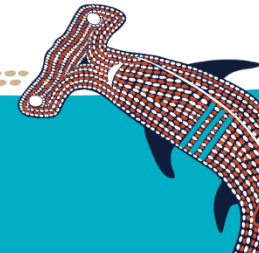


Key Elements	GEMCO's SER	ALC Response to SER
	STP.	• While a relationship between TSS and NTU has been developed from Marine Environment Management Plan (MEMP) data (which we understand is based on pre-existing monitoring data, this has been assumed to be linear. This may well be reasonable for the range of TSS values considered (<10 mg/L), but at higher concentrations, such as the 90mg/L adopted as representative of the mine discharge the relationship may become decidedly non-linear. • The TSS/NTU relationship is based on conditions in the marine environment. It seems that the discharge waters will have a much higher concentration and, the nature of SSC in that discharge waters may well have a very different SSC/NTU relationship. The implications of turbid mine discharge water mixing with marine water in terms of light attenuation remains unclear. • The thresholds developed are seemingly based on changes to SSC (and sedimentation depths). However, NTU may be a better measure, relating to light attenuation, which is more important for aquatic ecology impacts. • For reasons similar to those above, reliance upon data and experience from other sites (INPEX, 2022 and KBR, 2023) may be invalid and must be clearly justified. Laboratory testing to assess the SSC/NTU relationship for mine discharge waters and mixtures of discharge waters with



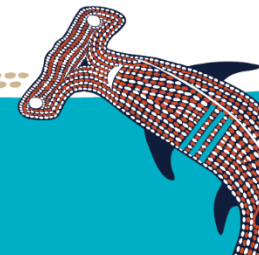


Key Elements	GEMCO's SER	ALC Response to SER
		marine waters is recommended to better understand the nature of this process. The assessment of potential impact to sensitive benthic receptors is reliant on the robustness of the model results. The models developed should be improved through validation with additional data. We recommend that salinity, and NTU also be measured, in addition to the parameters listed, within the model validation modelling proposed. Apart from updates to the modelling as outlined above, the ALC requires that a conservative approach be adopted, which includes adequate monitoring across temporal and spatial scales for all potential benthic receptors before, during and after construction. A marine turbidity monitoring program designed to monitor real-time turbidity in discharge source water and in the receiving environment is also required. These requirements must be completed before construction commences
	Other Modelling matters	The area around Groote Eylandt experiences so-called 'dodge' tides, where there are occasional periods of 2-3 days with minimal change in the tide level (< 0.3m or so) and likely next to no tidal currents for a similar length periods. As these do occur, the ALC requires this conditioned to be modelled and any changes reflected in the various plans before construction commences. The SER implies that UM3 is only capable of assessing one





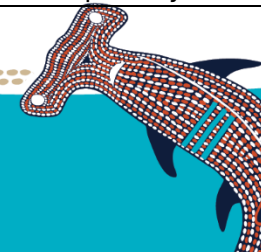
Key Elements	GEMCO's SER	ALC Response to SER
		steady-state condition. The manual for VisualPlumes, however, indicates that a timeseries file can be used to define a temporally varying current speed, direction, salinity, temperature and background concentration to represent ambient conditions. The ALC requires that option must be used to investigate the build-up of any contaminants in a plume during a 'dodge' tide. If the results are unsatisfactory, options for alternative discharge or storage may need to be considered during these dodge tide periods (which can be predicted well in advance). It seems that a single flow velocity of 0.13 m/s has been adopted in the models and that this wasn't varied with depth. Calibration of the model with a single current speed record with an unknown depth (or elevation above the bed) is a shortcoming of the modelling effort and needs to be rectified before construction commences. Of particular importance to the far field modelling is understanding the formulation / parameters adopted in modelling turbulent dispersion. We were unable to find anywhere if this had occurred and/or whether any sensitivity testing of these parameters had been undertaken. It seems that no effort has been made to calibrate the advection and dispersion processes in the Mike3 model, so this is a matter which should be resolved. Without sensitivity testing (or calibration to AD processes) completed, the flushing simulations results presented can be readily questioned. This needs to be rectified before construction commences





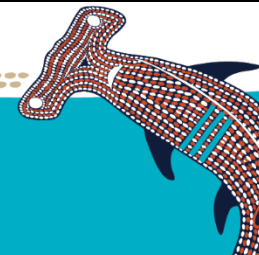
2.2.4 Management Measures

Key Elements	GEMCO's SER	ALC Response to SER
Management Measures	The SER and Appendix D and E of the SER include measures to avoid and mitigate impacts to water quality and the environment including the following to be implemented as part of a receiving environment monitoring program (REMP). These include • Real time monitoring of turbidity of water to be discharged, including a tiered early warning system based on turbidity thresholds. • Monitoring of turbidity and underwater light in receiving environment at inshore rocky reef between jetty and marine footprint, reef/seagrass area to south of marine footprint and within at least four suitable far-field reference locations (2 each to the north and south of the proposed works). • Development of trigger values (e.g. measure of turbidity expressed as a percentage difference between the works site and the reference locations) • Validation monitoring will be undertaken to validate the outcomes of the marine discharge modelling and used to inform existing GEMCO MEMP and possible amendments.	The ALC requires that the following additional actions need to be included in the wider marine monitoring strategy: • Continuation of existing GEMCO MEMP, which includes monitoring at sites in vicinity of port and control locations to north and south. • Continuous live stream water quality data monitoring • Annual sampling occurs for metals, hydrocarbons and nutrients collected from surface waters, sediments and biota (every two years). Monthly water quality monitoring in Milner Bay also occurs as part of the STP treated effluent discharge which includes analysis of surface waters for metals, nutrients, TSS, turbidity, EC, TDS and DO. • Model validation monitoring to test the predictions of the hydrodynamic modelling, including metals, nutrients, pH and TSS. The above must be incorporated into a detailed Project Water Quality monitoring plan based on best practise and guidance with the ANZECC Guidelines. Where information collected as part of the existing GEMCO MEMP is utilised within this plan, it must be clearly identified. This plan must then be independently reviewed by a subject matter expert (20+ years' experience in water quality assessment and monitoring) for adequacy before final ALC approval.
Benthic Habitat/	A brief marine monitoring strategy has been provided as part of the SER which includes monitoring of benthic	The marine monitoring strategy does not include for adequate spatial replication especially amongst reference





Key Elements	GEMCO's SER	ALC Response to SER
Ecological Monitoring	communities (coral, seagrass, macroalgae) and infauna. This monitoring strategy for coral and seagrass proposes the following: - Two test locations (reef edge and marine footprint). - One far field reference location. - Monitoring twice per year for a minimum of two years. The monitoring strategy for infauna proposes the following: - Locations within the marine footprint, Zone of Influence and far field reference location. - Collection of 3 replicate samples at each site/location. - Monitoring twice per year for a minimum of two years.	sites. The BACI framework requires multiple reference and treatment (both reef edge and marine footprint) locations. This along with adequate replication of each quantitative measure/indicator within each monitoring location will be essential in measuring and accounting for adequate spatial variability. Monitoring for a minimum of two years is also insufficient, as at least 1 year of baseline data will be required. Construction will take approximately 1 year and recovery is predicted in the SER to take at least several months, and potentially a number of years. Two years of monitoring would also not be able to detect any operational impacts. Collection of three replicate infauna samples (or of any ecological measure) at each site is not sufficient to account for spatial variability of infauna (or other communities) and provide enough statistical power to detect a change/impact as a result of the proposal. Three replicates are near to the statistical minimum and would be reliant on an abundant target community and very uniform assemblages to provide any meaningful data. The ALC requires GEMCO to develop before construction commences, a well-designed, statistically robust and detailed benthic monitoring plan, that includes clear objectives and identification of indicators of change for the above ecological assemblages/communities.
Marine Pests and Disease	The SER has considered occurrences of Carpet Sea Squirt in the region and has provided management measures in	Acceptable





Key Elements	GEMCO's SER	ALC Response to SER
	Appendix D of the SER for general marine pests.	
Fauna Interaction	Vessel speed limit of 6 knots has been identified for all vessels utilised within and around the wharf (Appendix D of SER).	This will need to be incorporated with other management measures for marine within the marine fauna management plan.

3 CLOSING

Whilst the ALC appreciates that GEMCO has a significant hydrology issue, and that they have in the SER undertaken necessary additional evaluations however before construction commences there is a need for further detailed evaluation and planning. The ALC needs to ensure that the receiving environment has been assessed thoroughly, and that operational options, processes and management systems, covering all aspects, have been evaluated and prepared in detail. The ALC is not insisting that this work is required before environmental approvals, however any such approvals must be conditional upon the completion of the matters detailed in the preceding and any subsequent discharge takes into full account outcomes from the work detailed. Traditional Owner engagement in the Ocean Outfall planning has been limited to date. While Traditional Owners are aware of the generalised project concept, the details have not been presented. The ALC will have ongoing discussions with Traditional Owners however until all matters raised by the ALC in this document have been completed to a level of detail required by the ALC, then the ALC cannot, in accordance with the principles of Free, Prior and Informed Consent, seek final Traditional Owner consent for the project. This consent is required before construction commences. It must also be noted that such consent may require the involvement of the Northern Land Council.

