Appendix A
Cross Reference Table

Supplementary EIS Comment Cross Reference Table

Table 1 Supplementary Environmental Impact Statement Cross Reference Table

Comment	Response section
Aboriginal Areas Protection Authority (the Authority)	
As noted in the Draft EIS, the Authority has issued Authority Certificate C2019/004 for this proposal, in accordance with the Northern Territory *Aboriginal Sacred Sites Act* 1989. The outline of the Project footprint shown in Figure 1 appears to align within the bounds of the Subject Land covered by Authority Certificate C2019/004. However, the spatial files for the project area, provided with the Draft EIS, indicate an extent beyond the edge of the Subject Land on the northern side. The Authority clarifies that only activities carried out within the Subject Land are covered by the Authority Certificate.	Section 3.15
The Draft EIS correctly acknowledges that there are two sacred sites adjacent to the proposal area and there is potential for the proposal to negatively impact on these sites. Modelling for the Draft EIS indicated that any impacts due to hydrological changes are likely to be minor and the two sites are unlikely to be affected. The proponent has committed to monitor sediment at the sacred sites pre- and post-construction. It is unclear what action would be undertaken if significant changes to sediment are detected. Conditions within Authority Certificate C2019/004 state that no damage shall occur to the two sacred sites. Any impact considered to be damage would be a contravention of the certificate. The Terms of Reference for the Draft EIS requested addressing measures to protect sacred sites including 'transit of vessels in the vicinity of sacred sites'. The transit of vessels in the vicinity of sacred does not appear to have been addressed in the Draft EIS.	Section 3.16
Heritage Branch, Department of Territory Families, Housing and Communities	
There is an inconsistency in the definition and scope of physical remains associated with the Flying Boat Base (FBB), which may lead to poor mitigation outcomes. While the definition of FBB physical remains in the draft EIS excludes underwater cultural objects, the archaeology report (Appendix M) notes the continuing presence of underwater cultural objects. The underwater deposits are a part of the historical /archaeological remains of the FBB site. Further, although past studies have recorded parts of this deposit, therefore providing some mitigation, that work was either selective or limited by tidal exposure (See item below for further detail and actions).	Section 3.17
The 2017 Cosmos Archaeology report, commissioned by the Heritage Branch, details a grid and transect survey done in relation to the FBB jetty footprint. The work involved the recording, recovery and analysis of diverse FBB related material, which has significantly informed our understanding of life and operations at that base. The report confirmed that 25% of the jetty area (the deepest part) was not included in the study because it could not be reached by foot. Appendix M of the draft EIS provides a hierarchy of options responding to this unsurveyed area. The Heritage Branch confirms that, considering the rich material deposit recorded elsewhere in the jetty footprint, and that this area will be lost, only the first (highest) option is acceptable. This first option is to conduct	Section 3.18

Comment	Response section
a maritime survey to recover, record and analyse the artefact deposit prior to the commencement of work. A commitment to this work should be a condition of environmental approval. This preconstruction work will greatly reduce the likelihood of discoveries of underwater cultural heritage during the construction and dredging phase. The commitment to a heritage discovery protocols during construction and dredging should remain, as already outlined in the draft EIS and Appendix M.	
Additional site recording measures are required to mitigate loss. The FBB should be recorded at spring low tide using drone and photogrammetric tools to produce a high resolution 3D visual model. This should include the adjacent Z Special Unit (LMS) remains which operated concurrently. Bush and low trees at the LMS may need to be trimmed to provide greater visibility and coverage. A commitment to this work should be a condition of environmental approval.	Section 3.19
The Draft EIS and Appendix M recommend the installation of signage about the FBB to be installed at the entrance to the ship lift facility as an action to mitigate loss. This measure is supported, but the measure should be extended to include a more public location, such as the East Arm Boat Ramp. The signage should be of a size and level of detail in line with the significance of the site. The scale and level of investment will determine whether this measure stands as a form of mitigation. The integration of LMS history should be considered. The Heritage Branch acknowledges the commitment by the proponent to work with the Heritage Branch on signage (Table 10.5). An interpretation plan and commitment to deliver should be a condition of environmental approval.	Section 3.20
The consistent reference throughout the draft EIS to the FBB not being heritage listed is true, and this status does remove some impediments from a process point of view. However, the fact it is not heritage listed should not be taken as an assessment that the site is not significant. Heritage listing is a process, which does involve an assessment of significance, but then also involves a series of other steps, including stakeholder and land owner consultation. Strong opposition to heritage listing can suspend the process. This is relevant to measuring the impact of the project and discussing a commitment to mitigation.	Section 3.21 and Section 6.4
Department of Chief Minister and Cabinet – Strategic Policy Division	
Jobs and economic benefits can be strengthened by including economic analysis and modelling. Indigenous participation goals could also be described and committed to in the EIS text. Benefits can be enforced by attaching conditions to any approvals in relation to procurement, training, local employment and Indigenous employment.	Section 3.22
Economic studies are not been included in the draft EIS and workforce numbers, skills and economic impact are quoted from material and studies provided by the Proponent. It is recommended that the materials and briefings that have been relied upon are referenced in the final EIS, and potentially included as an annexure to inform the assessment process and conditioning. This will also assist the Proponent in drafting management plans. The figures for job numbers and economic opportunity vary widely. If there is any opportunity to refine these numbers, it would be useful.	Section 3.22

Comment	Response section
Northern Territory (NT) Police, Fire and Emergency Services	
The NT Fire and Rescue Service will consider the emergency response capability and capacity during construction, completion and general business actives of the project	Section 3.23
Department of Infrastructure, Planning and Logistics – Transport and Civil Services Division	
• The Transport and Civil Services Division has identified significant transport planning and safety concerns with regards to the fill material haulage and traffic impacts on the intersections/road network within the study area. • The Division will directly discuss with the Proponent requirement of further safety analysis and required updates to the current version of the traffic impact assessment • Additional measures are recommended to avoid, mitigate or manage the potential significant impacts: - alternative route solutions to the proposed fill material haulage plan - other developments/changes within the study area which may impact on the haulage operation - significant safety improvements required in the study area - provision of passing lane along Arnhem Highway haulage route at priority controlled intersections and active intersections used by other existing extractive industries. - vehicles not to travel in convoy to allow for passing vehicles	Section 2.2 and 3.24
Department of Environment, Parks and Water Security – Flora and Fauna Division	
The proponent refers to EMPs throughout the draft EIS. It states that actions formulated within these EMPs will mitigate potential impacts and thus pose a low risk to flora and fauna, and the habitats /environmental conditions they rely on. However, these EMPs are yet to be drafted. As such it is impossible to assess if the proposed mitigating actions are adequate. The Flora and Fauna Division supports the proponent's commitment to develop detailed EMPs and recommends that these EMPs are reviewed by appropriate external experts before any work is commenced.	Section 3.14 and Appendix E: Updated Environmental Management Framework
The draft EIS has undertaken sediment transport and plume modelling. The models use a number of approximations, assumptions and limitations that are relevant when interpreting the modelling results. The draft EIS did not undertake field observations to validate the models. The Flora and Fauna Division recommends that the Dredging and Dredge Spoil Placement Management Plan includes a monitoring program to validate the sediment transport and plume models. This has relevance to assessing the health of sensitive receptors, like benthic primary producers, from sediment deposition.	Section 3.11 and Appendix C: Draft Dredging and Dredge Placement Management Plan
A cumulative impact assessment was undertaken for the draft EIS. The assessment included projects that have commenced construction, projects that have been approved but not commenced and projects that are currently being assessed. The assessment used INPEX's maintenance and dredging and Spoil Management Plan (INPEX 2018) to set triggers for Wet season and Dry season conditions. The assessment concluded that "It is noted that all dredging programs undertaken in the Darwin Harbour require Developmental Consent and an approved Dredging and Dredge Spoil Placement Management Plan and hence the impacts and proposed measures to manage and mitigate	Section 2.2, 3.12 and Appendix C: Draft Dredging and Dredge Placement Management Plan

Comment	Response section
these potential cumulative impacts can be further considered and coordinated by regulators". The Flora and Fauna Division considers this assessment inadequate. The draft EIS did not undertake any plume modelling that included potential sediment discharges from other projects within Darwin Harbour. Nor did it include suspended sediment discharges from its own reclamation activities (infill activities and dredge spoil disposal of coarse sediments). The Flora and Fauna Division recommends that plume modelling should at least include all of the Ship Lift project's activities that impact on suspended sediment (e.g. dredging and land reclamation, see also Zone of Influence comment) and provide the Dredging and Dredge Spoil Placement Management Plan for review by appropriate experts before any dredging commences.	
The zone of impact and influence was determined using the WA EPA Technical Guidance for Environmental Impact Assessment of Marine Dredging Proposals (EPA 2016) and was based solely on plume and sediment transport modelling for dredging activities. The sediment composition for dredge material is largely sand and coarse sediments. As a result of sediment characteristics, the modelling results suggest that the zones of impact and influence are restricted to the Project footprint for most of the time. The Flora and Fauna Division considers this assessment is inadequate because it did not include plume modelling for land reclamation activities (see Appendix I). Land reclamation activities will resuspend muddier surface sediments into the water column, in particular within the mangrove habitat. Given that dredging activities and land reclamation both occur at the same time and over the same seven quarter-periods, the zone of impact and influence should be remodelled to accommodate the cumulative impacts of both activities. If modelling changes the zone of impact and influence, then risk assessment for benthos and water quality should be reassessed.	Section 3.4
The draft EIS proposes to establish a reactive water quality monitoring program as part of the Dredging and Dredge Spoil Placement Management Plan. To support this the proponent undertook water quality monitoring over a period of six weeks and nine weeks during the late Dry season and Wet respectively. In addition, the data was compared to data collected by URS (2008, 2011) for the INPEX project and pooled for analysis to determine appropriate trigger levels for mitigation actions. The draft EIS arrives at similar trigger values that were used for INPEX's reactive monitoring program. The INPEX reactive monitoring program relied on turbidity data that were logged over a number of days and assessed whether triggers were exceeded and mitigations actions were required. A summary of INPEX's nearshore environmental monitoring program (Cardno 2014) reports that coral cover was reduced at South Shell Island during its coral monitoring program. Monitoring at the site indicated an increase of sediment deposition. However, Cardno could not attribute this solely to dredging activities. Further there is a high likelihood that the zone of impact / influence is larger than predicted (see comments above re Cumulative Impacts and	Section 3.5 and Appendix C: Draft Dredging and Dredge Placement Management Plan

Comment	Response section
Zone of Impacts/influence), and therefore may impact on further afield benthic primary producing habitats. Therefor the Flora and Fauna Division recommends the proponent: a) review its trigger values by considering a precautionary approach in determining trigger values for its Dredging and Dredge Spoil Placement Management Plan, and b) implements a monitoring program that uses live turbidity data to allow continuous assessment of duration and frequency turbidity levels against trigger values, so that appropriate management actions can be immediately implemented if trigger values are exceeded.	
The draft EIS provides options for their dredging campaign. Under option 1, a cutter section dredge will be used, with dredge material being pumped to pond K and subsequently pond E before the supernatant is discharged through permeable bund walls into Darwin Harbour. Further the draft EIS notes that testing of tail water will be undertaken before discharge to ensure all environmental targets are met. Discharge of tail water through permeable bund walls seems to infer that there is no control over when the discharge takes place. This seems to contradict the statement that testing of all tail water will be undertaken before discharge. The Flora and Fauna Division recommends that the Dredging and Dredge Spoil Placement Management Plan addresses how environmental targets will met if supernatant is discharged from pond E through permeable bund walls.	Section 3.6 and Appendix C: Draft Dredging and Dredge Placement Management Plan
The draft EIS discusses how the proponent wishes to reclaim land for hard stand and land based infrastructure. It proposes to infill incrementally from the land seawards until the revetments can be placed. Filling incrementally will cause sediment to be resuspended, and water, laden with excess suspended sediment from dredge disposal, will drain into Darwin Harbour. Tidal flow could cause extensive sediment plumes. The extent of this sediment plume has not been established (see Zone of impact and influence and Cumulative impacts comments). The draft EIS does not provide any actions for mitigating elevated suspended sediments caused by infill activities. The Flora and Fauna Division recommends that the Dredging and Dredge Spoil Placement Management Plan discusses options to mitigate sediment plume from infill activities. This should also include an assessment whether revetments can be placed before infill commences and thus containing the extent of the sediment plume within the reclamation area.	Section 3.7 and Appendix C: Draft Dredging and Dredge Placement Management Plan
The draft EIS has identified that marine mammals and turtles occur in East Arm and Darwin Harbour. That there are three species of coastal dolphin (Australian Humpback, Snubfin and Bottlenose) that consistently use the area for foraging and social activities (Brooks et al 2017). Given the occurrence of marine turtles within the footprint and neighbouring areas, turtles are likely to use the filter feeder habitat for foraging. The draft EIS has noted that these species may potentially be impacted by the Project's activities, such as vessel traffic, dredging operations, pile driving and associated underwater noise, and lighting. Therefore,	Section 3.13, Appendix C: Draft Dredging and Dredge Placement Management Plan, Appendix E: Environmental Management Framework

Comment	Response section
mitigation of potential impacts is important to reduce the risk to these species. However, the draft EIS does not mention appropriate mitigation measures. It does note that the project is committed to developing a number of environmental plans (EMP) to mitigate potential impacts and associated risks. The Flora and Fauna Division recommends that the proponent consider at least the following mitigation measures be incorporated into EMPs in relation to vessel traffic, dredging, pile driving and lighting: • Implementation of vessel speed limits during construction and operation phase; • Marine megafauna observation zones and exclusion zones; • Observation period for marine megafauna prior to commencing dredging and pile driving is 20 minutes and the observer is solely dedicated to the task of sighting and recording marine megafauna interactions prior to and during dredging and pile driving operations. • Lighting specifications follow National guidelines	
The draft EIS notes that construction and operational activities will be 24/7. It also mentions that it intends to mitigate interaction through visual assessments by trained observers. The Flora and Fauna Division requests a clarification of how the proponent intends to mitigate interaction during night time construction and operational activities when visual assessments are likely to be inadequate.	Section 3.8
The draft EIS notes that additional work was undertaken as part of the Water Quality baseline study. This program also included two instrument deployments to record turbidity (nephelometric turbidity units [NTU]) and photosynthetically available radiation (PAR) at the South Shell Island site. Turbidity data was analysed as part of setting turbidity trigger values (see above). However, the relationship between turbidity and light availability at the seafloor was not investigated. Dredging activities and land reclamation may have impacts on marine flora and fauna through increased turbidity from suspended sediments, which can lead to smothering of benthos and reduced light availability for benthic primary producers. The Flora and Fauna Division recommends that the relationship between turbidity and light availability at the seafloor is analysed and results are incorporated into setting turbidity trigger values.	Section 3.9
The draft EIS discusses the spatial distribution of benthos within a Darwin Harbour and Zone of Influence context. The review predominantly uses references predating 2013 and habitat modelling undertaken in 2019. To supplement existing data the proponent contracted AIMS to undertake additional benthic surveys for the East Arm precinct. Appendix F notes that modelling of pooled habitat data found to have poor predictive ability and AIMS attributed this to an overall low structural complexity and relief, and the low prevalence of key benthic classes. Consequently a refined habitat map could not be created. The Flora and Fauna Division considers the habitat map to be inadequate. The draft EIS has not made use of the latest modelling approaches, nor has it used the latest revised benthic habitat map.	Section 3.10 and Section 6.6

Comment	Response section
Further, there are questions around the suitability of the surveys undertaken for the purpose of predictive habitat mapping. An outcome of the Galaiduk et al (2019) was that surveys should specifically target rare habitats such as benthic primary producers (seagrass, algal and coral communities). This would require surveying lower intertidal habitats and shallow subtidal habitats, which both seem to be poorly represented by the additional transects undertaken for the draft EIS. The Flora and Fauna Division recommends that that South Shell Island and Catalina Island are resurveyed to determine the extent and composition of benthic primary producer habitats. This will allow the proponent to design an appropriate monitoring program that can reliably measure the response of these habitats to disturbance from dredging and landfill activities.	
Department of Environment, Parks and Water Security – Environment Division	
Air quality impact assessment (AQIA) must be conducted as per NSW approved methods using the Level 2 assessment method. Modelled concentrations must be assessed against recommended criteria provided in the document, noting that the values used for some primary air pollutants are equivalent to values used in the National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM) standards and some of these standards were strengthened recently. Cumulative impact of primary air pollutants are assessed at identified receptor sites and incremental impact of toxic air pollutants are assessed at and beyond the boundary of the development. Fugitive emissions must be included in the emissions inventory for the model. Examples of fugitive emissions include dust from stockpiles and the volatilisation of vapour from vats, open vessels, or spills and materials handling. Abrasive and abraded surface coating materials that cannot be fully contained in the blast and paint facility may become airborne during the abrasive blasting process, and these fugitive emissions must be modelled. The Elizabeth River Boat Ramp and the future suburbs of Weddell and Mitchell should be included as sensitive receptors. In addition to xylenes, there are several toxic compounds and odorous compounds in paint emissions and the AQIA of these should assessed, as well as the heavy metals in emitted abrasive material.	Section 3.1 and Section 5.1
Historical data from different studies have been compiled and used for background noise at identified receptors. The proponent must measure background noise at residential receptors. Include future sensitive receptor locations such as Weddell and Mitchell, which are potential development sites. Include noise emissions from abrasive blasting activities. There will be several service providers working at the development during the operational period, ensure that noise emissions from these operators have been estimated and included in the projections.	Section 3.2 and Section 5.2
Department of Environment, Parks and Water Security – Rangelands Division	
The disturbance of land with an acid sulfate soil risk should be avoided, however if disturbance is necessary for a proposed development area, then an acid sulfate soil field investigation will be required. The geotechnical site investigation must be undertaken by a suitably	Section 3.3

Comment	Response section
qualified and experienced professional, preferably a Certified Professional Soil Scientist (CPSS) with Soil Science Australia, in accordance with the Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines to delineate the presence of acid sulfate soils. Essential to an investigation is the requirement for Chromium Reducible Sulfur (CRS) soil testing at an appropriate site density and to a soil depth immediately below the proposed disturbance. If acid sulfate soils are detected through CRS testing, and exposure of these soils is still unavoidable then an acid sulfate soil management plan is required. The acid sulfate soil management plan will include the following: • exact location of the proposed disturbance • depth and volume of soil to be disturbed (m 3) • clearly presented CRS results • acid base accounting results which clearly indicate an accurate liming rate • appropriately designed treatment pads • lime/soil mixing regimes • an appropriate monitoring program.	
Department of Infrastructure, Planning and Logistics –Lands and Planning Division	
The subject land related to the project footprint is Sections 5420, 5163, 6370 & 5167 Hundred of Bagot which is in Zone DV (Development) of the Northern Territory Planning Scheme 2020. • A ship lift is a use not defined by the planning scheme and requires planning consent in Zone DV. Ship maintenance areas, garages, and blast and paint facilities would be defined as industry-general and require consent in Zone DV. Reclamation, dredging and works within a storm surge affected area also required consent by overlay. Planning consent is required under the Planning Act 1999 for both the development as described, in addition to the proposed subdivision and consolidation of the land. • The purpose of Zone DV is 'Facilitate the development of major strategic industries that are of importance to the future economic development of the Northern Territory, including gas, road, rail or port related industries'. Zone Outcome 1 is 'A range of strategic industry activities, including abattoir, fuel depot, major industrial development, transport terminal, and warehouse uses that benefit from proximity to ports and rail infrastructure and require larger lots due to the scale of activities'. The proposal is considered to broadly align with the zone purpose and zone outcome 1, and is generally a type of development expected in this location. • The proponent has liaised separately with Development Assessment Services (DAS) with regard to the information required to form part of the planning application. DAS have no specific comments or requirements for the draft EIS.	Section 3.25
The proponent is liaising with Crown Land Estate in relation to tenure considerations related to the project. Crown Land Estate has no specific comments or requirements for the draft EIS.	Section 3.26
Department of Industry, Tourism and Trade, Tourism NT	
Cruise and expedition shipping plays an important role in the Territory's tourism industry, generating an estimated $60 million in expenditure within the Northern Territory in 2018-19 (i.e. pre-pandemic). The	Section 3.27

Comment	Response section
geographic location of the Top End and its close proximity to Asia makes it an ideal Australian gateway port for visiting cruise ships. The cruise sector offers commercial opportunities for local businesses in providing on-shore touring, retail, and servicing/resupplying of the vessel. Importantly, cruise shipping supports visitation in the Northern Territory's traditional low season (that is, over summer). It is estimated in 2018 Darwin received approximately 60 superyacht visits, the majority of which arrived to undertake maintenance and take on supplies. Darwin has an important geographical advantage in respect this sector, being 700 nautical miles closer to Indonesia than are competitor facilities in Cairns. Having a world class ship lift, repair and maintenance facility will help attract attention of the superyacht and cruise sectors. Increased visits and economic return to the Territory are anticipated. For these reasons, the development of this new piece of infrastructure is supported.	
ECNT submission	
The proponent delay development of the DDSPMP until the Darwin harbour dredging strategy has been completed.	Section 4.1.2
Dredging operations are only permitted to occur on neap tides in calm conditions when no other dredging operation is taking place to limit dredge plumes as much as possible.	Section 4.2.2
The DDSPMP includes an investigation into how much maintenance dredging will be required and determines the best way to mitigate ongoing impacts.	Section 4.3.2
Cumulative underwater noise studies are undertaken that include nearby operations at East Arm wharf, Inpex Ichthys LNG facility and the Middle Arm Sustainable Development Precinct so a comprehensive cumulative underwater noise impact model can be developed.	Section 4.4.17
Pile driving is only permitted to occur during spring low tides to minimise the disruption of movement of marine fauna between Elizabeth River and the outer harbour.	Section 4.4.10 and 4.4.20
The proponent completes a marine fauna (including fish) biodiversity survey of East Arm to establish a comprehensive biodiversity baseline before further development occurs.	Section 4.5.2
A comprehensive Barramundi movement study is developed to better inform management of the Elizabeth River Recreational fishery	Section 4.4.16
Additional information to be provided in the Supplement to the Draft Environmental Impact Statement	
Provide a discussion of potential impacts of land reclamation, including but not limited to mobilisation of sediment, and discuss proposed controls and their effectiveness. If there is potential for a sediment plume to result from land reclamation provide an updated plume model.	Section 3.4 and Section 5.1.2
If an updated plume model is required (see above), reassess the zones of impact and influence for the proposal (including all impact sources of the proposal such as from land reclamation and dredging). If the plume	Section 3.4, Section 5.1.2 and Section 5.1.4

Comment	Response section
model is revised and the zones of impact and influence change, potential impacts on benthos and water quality should also be reassessed.	
Provide an assessment of options for managing and mitigating sediment generated through infill, including an assessment of the potential for placing revetments prior to commencement of infill.	Section 3.4, Section 5.1.5 and Section 5.1.6
South Shell Island and Catalina Island should be resurveyed using appropriate methods and with sufficient sampling intensity to provide robust understanding of baseline extent and composition of benthic primary producer habitats.	Section 3.10 and Section 5.1.8
Provide a draft Dredging and Dredge Spoil Placement Management Plan (noting that the plan may need to be updated for consistency with the NT EPA's Assessment report and any Environmental Approval) including monitoring and reactive management of water quality. Provide written validation by an independent qualified person, demonstrating that the monitoring and reactive management measures are sufficiently sensitive to detect and respond to any impact of dredging and dredge spoil placement activities.	Appendix C: Draft Dredging and Dredge Placement Management Plan
Provide a map of the tailwater test and release location.	Figure X: Section 3.6
Where the draft EIS refers to environmental management plans that have not been developed yet, ensure that the supplement describes in sufficient detail, the impact avoidance and mitigation measures that will be implemented to reduce the likelihood or extent of each impact or risk.	Appendix E: Environmental Management Framework