ENVIRONMENTAL MANAGEMENT PLAN

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5. ENVIRONMENTAL MANAGEMENT PLAN

This Environmental Management Plan (EMP) has been prepared by Hyder Consulting to consider all environmental values identified during preparation of the EIS and incorporates the impact mitigation measures recommended by specialist consultants who were commissioned to conduct detailed site investigations.

5.1 Purpose

This EMP has been prepared to provide detailed policies, performance criteria and procedures to minimise the impacts of construction and operation of the TOT project on the social, economic and ecological environments. In addition, the EMP provides monitoring and reporting mechanisms whereby environmental performance can be measured, and agreed corrective actions are implemented in a timely manner should non-compliances occur.

5.2 General Environmental Duty

This EMP recognises the *Environmental Protection Act 1994* (EP Act) requirements relating to "general environmental duty". The EP Act requires that a person carrying out an activity that causes or is likely to cause environmental harm has a "general environmental duty" to take all reasonable and practicable measures to prevent or minimise the harm.

Where the person conducting an activity becomes aware that serious or material environmental harm is caused or threatened, the person must notify the administering authority of the nature and circumstances of the event as soon as reasonably practicable after becoming aware of the event. If the person is carrying out the activity as an employee, the person must notify the employer who must notify the administering authority.

5.3 Terminology

The following terms have been used throughout this EMP and have the specific meanings and refer to the specific parties as defined below.

Term	Definition	Refers to
Proponent	The party or company that proposes development of the site.	City Pacific Limited and Tabcorp as identified in Section 1.1 of this EIS
Contractor	The party or company performing construction works on site (includes all employees of the Contractor and sub-contractors) on behalf of the Proponent.	TBA
Consultant	The Principal Consultant and any specialist consultant commissioned by the Proponent.	Hyder Consulting Pty Ltd
EPA		Environmental Protection Agency

5.4 Components of the EMP

The components of the EMP are specific to the construction or operational phases of the development and have been separated accordingly. The EMP has been prepared in a format that nominates for each environmental issue or impacting activity, the tasks that are required to be

addressed during the construction and operational phases of the development. The purpose of each component of the EMP is described below.

Project Element: The aspect of the environment requiring management consideration.

Environmental Objectives: The environmental performance objectives that are to be achieved.

Environmental Values: Identification of the environmental values associated with each element that are to be protected.

Control Measures: The actions to be undertaken to achieve the stated environmental objectives.

Responsibility: Assignment of responsibility for carrying out each control measure to a relevant person and/or organisation.

Monitoring: The process of measuring actual performance and nomination of the time frame in which monitoring is to be carried out.

Reporting: Description of the required reporting arrangements including auditing.

Performance Indicators: Nomination of the criteria against which the level of achievement of the stated environmental objectives are to be measured.

Corrective Action: Nomination of the action to be implemented if the stated objectives are not being met, including the person or organisation responsible for implementing the required action.

5.5 Implementation of the EMP

All staff employed and contractors appointed by the Proponent shall be formally advised of their obligations under this EMP, and informed of the significance of this EMP. The EMP shall be made available to all staff and contractors by the Proponent as a reference document. It is proposed the EMP for the residential areas shall be provided to the Body Corporate(s) responsible for management of the Breakwater Cove Precinct.

5.6 Document Concurrency

The EMP is to be treated as a “living” document to be revised where new assessment information is available that may alter parameters for the management of environmental elements. The EMP shall be maintained as a controlled document to ensure all relevant parties are informed of any changes in the procedures and actions that may potentially affect the environment.

The currency of all copies of the EMP shall be reviewed annually to ensure that current versions of the EMP are available to staff and contractors and obsolete versions are removed to avoid errors and confusion. All controlled documents issued to staff, agencies, consultants and contractors shall be recorded on a Document Register. The name and date that the document was issued shall also be recorded for reference.

5.7 Records

All records required to be kept by this EMP shall be kept at the project site for a period of at least three years and be available for examination by a person or agent authorised at law to inspect the EMP. Records shall be kept in the form of annual summaries after that period.

5.8 Responsibility

5.8.1 Proponent Responsibilities

The Proponent is generally responsible for documentation, implementation and maintenance of the EMP during all stages of the project. The Proponent's commitments to legislative obligations and environmental responsibilities relating to design, construction and operation of the development and this EMP are as outlined below.

- Ongoing review of this EMP as required.
- Approval of the Contractors' EMPs.
- Reporting and investigating incidents of non-compliance with the EMP.
- Auditing of the Contractor for environmental compliance with this EMP and the Individual Contractors' EMPs at least once during construction works on a four monthly basis.

5.8.2 Contractor Responsibilities

The Contractor is generally responsible for ensuring that the provisions of the EMP are met, except for certain planning or design issues, which are explicitly noted as being the responsibility of the Proponent or the Consultant, as appropriate.

The Contractor shall be responsible for the following.

- Undertaking the application for any licences, permits and approvals required prior to or during construction.
- Conducting pre-construction and site establishment processes in accordance with this EMP.
- Monitoring adherence of Contractors to this EMP and recommending required changes to the Proponent.
- Ensuring all Sub-Contractors engaged on the project are aware of environmental responsibilities and obligations and have received environmental training in accordance with this EMP.

The Contractor will also be required to provide an Environmental Officer who will be responsible for the day to day environmental aspects of the construction works.

5.8.3 Individual Contractor Responsibilities

The Individual Contractors shall be responsible for undertaking works in accordance with their specific contracts (eg. earthworks, roadworks and landscaping contracts) including the following.

- Implementing specific control measures contained in this EMP that fall under the responsibility of their individual contract.
- Advising the Contractor of any non-compliance with this EMP.
- Developing a Contractor's EMP in accordance with any site specifications under their individual contracts and the requirements of this EMP.
- Ensuring all staff attend induction and training sessions as required.
- Consulting with Council, State Agencies and community throughout construction on works which may affect their daily activities in accordance with the EMP.

The Contractor is also responsible for any subcontractors engaged in works at the site, and must ensure that these subcontractors are aware of environmental responsibilities.

5.8.4 Construction Team Responsibilities

Each member of the construction team is responsible for environmental compliance. There is a duty of care to the environment by all personnel and particularly management teams. All members within the chain of command should be identified, along with their roles and responsibilities, including environmental responsibilities.

5.8.5 Operator Responsibilities

Upon the expiry of the on-maintenance period, infrastructure works (roads, drainage etc) will be accepted by Council or the Proponent as applicable. The Council, Proponent, Body Corporate or relevant authority may wish to adopt their own environmental management and monitoring programme, which would be suited to the regional context.

It is proposed the EMP for the future operational phase of the development shall be provided to the Body Corporate(s) responsible for management of the Breakwater Cove Precinct and the Operator of the TOT Precinct.

5.9 Reporting Requirements

5.9.1 Monitoring and Reporting

A regular program of monitoring and reporting shall be implemented by the Contractor to ensure that the requirements of the EMP are complied with. Should an area of non-compliance be identified, actions should be agreed upon with the Proponent, and where required, the relevant agency, to ensure compliance and minimise the potential for non-compliance in the future. Regular monitoring to determine the effectiveness of management measures are outlined in each element of this EMP.

5.9.2 Environmental Incident Reporting

An incident reporting system is to be prepared by the Contractor in accordance with the EMP prior to works commencing to allow the tracking and identification of non-compliances within construction and operation activities. All personnel are to be trained in the use of incident reports and be encouraged to use these reports when an incident is identified within the project site.

5.9.3 Complaints Response Procedure

In the event of a complaint being received by the Proponent or Contractors appointed by the Proponent relating to activities which are the subject of this EMP, a written report shall be prepared by the designated responsible person detailing:

- The date and time of the complaint;
- The method by which the complaint was lodged;
- Any personal details of the complainant which were provided by the complainant;
- The nature of the complaint; and
- The action taken by the responsible person in relation to the complaint, including any follow-up contact with the complainant.

This information shall be retained for a period of no less than three years from the date of receiving the complaint.

5.9.4 Management and Reporting Structure

The chain of command for management and reporting during the relevant phases of the development is summarised below.

Phase	Title and Organisation
Construction	The Proponent or Proponent's representative. The Contractor.
Operation	For the Breakwater Cove Precinct– the Body Corporate(s) responsible for management of the precinct For the TOT Precinct – the TOT Operator

5.10 Communication

5.10.1 Project Management Meetings

Regular project management site meetings will be used as a means of identifying all issues at the site, including Workplace Health and Safety and Environmental Management. Details of the meeting program are to be provided by the Contractor in the Contractor's EMP.

5.10.2 Site Induction and Training

Construction personnel and sub-contractors site induction training will be one method of communication of the environmental management procedures which will operate at the site.

All staff involved on the site are to be made aware of their environmental responsibilities and requirements of the project, including meeting the requirements of the EMP. In addition to site specific construction induction, training in environmental requirements and responsibilities is to be provided as part of the induction process. This process will incorporate the training in regard to the Environmental Complaints Register and the Environmental Incident Reporting Management Systems.

5.10.3 Complaints by Local Community

There is potential for complaints by the local community during construction activities. As such, a formal complaint registered and management system is to be implemented by the Contractor that will monitor complaints and identify and track any follow-up actions required in accordance with the EMP Proforma "Environmental Forms".

A contact telephone number should be provided which will allow the community to discuss complaints regarding the project. A verbal response should be provided to Complainants within 4 hours of the complaint during construction times and 24 hours during non-construction time. A written response should be provided to the proponent within five (5) days of the complaint.

5.11 Non-Conformance and Corrective Action

5.11.1 Non-Conformance Requirements

The ongoing monitoring and auditing of the development is designed to detect areas of non-conformance with this EMP and the Contractor's EMP. The obligations for reporting any non-conformance are:

- The Contractor shall report non-conformance to the Proponent;

- The Proponent will report to the relevant regulatory agencies any breaches of legislative or approvals requirements.

5.11.2 Corrective Action

The Contractor shall complete a Correction Action Request (CAR) Form and provide to the Proponent within one working day of any of the following:

- a complaint regarding any environmental impact;
- a departure from approved procedure;
- non-compliance with legislative approvals, permits and Licences, this EMP or the Contractor's EMP performance criteria; and
- major non-conformance with the legislative approvals, permits and Licences, this EMP or the Contractor's EMP performance criteria.

The CAR will include details of the complaint or environmental effect as indicated on the proforma forms contained in the EMP, action taken to correct the problem and proposed measures to prevent the occurrence of a similar incident.

The Proponent may direct operation to cease in the area where the corrective action has been recorded. Once corrective action had been undertaken, the Proponent may give clearance for operations to recommence.

5.12 Project Contacts

5.12.1 Departmental Contacts

The developed EMP will include the phone numbers of the relevant government agencies and emergency services:-

Townsville City Council:	
Environmental Protection Agency:	
Department of Natural Resources & Mines:	
Department of Primary Industries:	
Great Barrier Reef Marine Park Authority:	
Police (non-emergency):	
Ambulance (non-emergency):	
Fire Brigade (non-emergency):	

Note: The emergency services schedule (above) is to be updated and completed prior to commencement of construction.

5.12.2 Contacts – Input to the EMP

The following individuals and companies have provided input into the preparation of the EMP.

Master Planning	Buchan /Cullen Grummitt & Roe
Construction Design, EMP Co-ordination	Hyder Consulting
Fauna and Flora	C&R Consulting

Flooding and Tidal Hydraulics	Coastal Engineering Solutions
Oceanography	GEMS
Landscape and Planting Scheme Open Space	Chenoweth
Stormwater System	Hyder Consulting
Contaminated Land	C&R Consulting
Water Quality	C&R Consulting
Geotechnical Engineering	Golder Associates
Traffic Engineering – External	Bob Holland / Veitch Lister
Acid Sulfate Soils	Golder Associates

5.13 Statutory Approvals

This EMP may form part of the conditions of development approvals for the TOT project Site. The Proponent, contractors, operators and subcontractors will be responsible for implementation of and compliance with the EMP as amended in accordance with future development approvals issued by relevant Local and State Government assessment agencies. These responsibilities are outlined in Section 5.8.

It is also likely that the Commonwealth Government will condition any approval pursuant to the EPBC Act to require adherence to the EMP.

In the event of any inconsistency arising between the implementation of the EMP, and State or local government approvals required for the undertaking of the project, the conditions of the approvals will take priority in accordance with the relevant statute under which the approval is issued.

Construction EMP – Breakwater Cove and Ocean Terminal

CEMP Element 1	Noise Control	
Environmental Objectives	To mitigate impacts on nearby noise-sensitive receptors. To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Noise) Policy 1997* (EPP Noise).	
Environmental Values	The environmental values identified by the EPP Noise include: • the wellbeing of the community (including social and economic amenity); and • the wellbeing of the individual (including the opportunity to have sleep, relaxation and conversation).	
Control Measures		Responsibility
The Contractor shall establish a Construction Noise Control Plan to prevent noise levels that would be an annoyance to the community in accordance with the requirements of this element.		Contractor
All noise generating plant and equipment, and processes shall be controlled to minimise noise emission in accordance with AS 2436.		Contractor
Noise suppression measures shall include: • The fitting of effective residential grade exhaust silencers to all mobile plant. • The fitting of engine acoustic shielding. • Using exhaust silencers on compressed air exhausts. • Working within approved working times.		Contractor
All workers shall wear appropriate hearing protection if exposed to noise-generating equipment for extended periods. Warning signs shall be displayed restricting entry of persons without hearing protection.		Contractor
Lighting devices shall be used instead of whistles, bells and buzzers to control site operations unless audible alarms are required for safety purposes, including mandates of the Workplace Health and Safety Act.		Contractor
Activities that may cause noise impacts shall not be undertaken during early morning or late afternoon.		Contractor
Noise generating equipment shall be sited away from noise-sensitive places to increase the distance between the noise source and receptors		Contractor
Noise control measures to be implemented at the Riverside Marine site shall include: • provision of engineering controls for stationary noise sources such as acoustic enclosures for barges' diesel engines and silencers for engine exhausts; • construction/maintenance of barriers and/or stockpiles during material deliveries to act as acoustic screening between the noise sensitive residences and the Riverside Marina loading point; • fitting warning lights instead of audible reverse alarms on mobile equipment (excavator/front end loader) during night-time operation, where safety measures are not compromised; • maintenance and operation of equipment in proper and efficient condition/manner; and • turning equipment off when not in use rather leaving them on idle.		Contractor
Work on the site will comply with section 6W of the Environmental Protection Regulation 1998, which states "a builder or building contractor must not carry out building work on a building site in a way that makes or causes audible noise to be made from the building work: • on a Sunday or public holiday, at any time; or • on a Saturday or business day, before 6.30am or after 6.30pm. Building work shall comply with Council Local Laws and Policies. Where the Council Local Laws have a shorter working hour requirement, these shall be followed by the Contractor.		Contractor
The Construction Contractor shall develop a Noise Control Plan to implement the requirements of this EMP. Measures to be implemented shall include:		Contractor

• maintain and operate construction equipment including trucks in proper and efficient condition/manner; • warm up plant as far as possible from noise sensitive receivers prior to moving them to work sites and turn plant off when not in use instead of leaving them on idle; • plan and schedule noisy activities not to occur at the same time; • locate fixed plant equipment such as de-watering pumps behind shielding structures, as far as possible from noise sensitive receivers and provide hoarding or enclosures where feasible and practical; • where feasible and practical, locate equipment behind construction site offices, sheds and structures so that it is shielded as much as possible from the noise sensitive receivers; • establish a complaint hotline with contact details displayed in an appropriate location, register the number of complaints and the nature of complaints (if any) and investigate options to minimise the impacts. • noise generating activities that may affect marine mammals shall be 'ramped up' to alert fauna and provide the opportunity for them to move away.	
Monitoring	Responsibility
Weekly inspections shall be undertaken of all noise producing sources to record details and compliance of noise control measures. Daily inspections shall be made for presence of marine mammals in waterways surrounding the site prior to commencement of noise generating activities that may impact on them. Plant operators shall conduct a 'walk round' inspection of plant on a daily basis prior to operation.	Contractor
Noise monitoring shall be undertaken at the nearest noise-sensitive receptors or at any complainant's property on receiving instructions from regulatory agencies.	Contractor
Reporting and Recording	Responsibility
Monthly reports shall be provided to the Proponent on the monitoring of noise control measures and of any complaints received and corrective action taken.	Contractor
Records shall be maintained of all noise-related complaints received with details of corrective actions undertaken.	Contractor
The Contractor shall make copies of all reports available to Council and EPA on request.	Contractor

Performance Indicators	No noise complaints are received in relation to on site construction works. In the event that noise monitoring is required by regulatory agencies, the daytime noise levels at noise-sensitive receptors shall not exceed the project objectives stated in the Noise and Vibration Assessment Report.
Corrective Actions	All activities utilising plant, equipment and processes producing excessive noise shall be stopped and remedial action taken to the satisfaction of the Contractor. This may include a review of the times of operation of the plant. Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register. The Contractor shall implement the following corrective action.

CEMP Element 2	Air Quality (Dust and Greenhouse Gases)
Environmental Objectives	To minimise airborne transportation of pollutants from the project site. To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Air) Policy 1997* (EPP Air).
Environmental Values	The environmental values identified by the EPP Air are "the qualities of the air environment that are conducive to suitability for the life, health and well-being of humans".

Air Quality Control Measures	Responsibility
The Contractor shall prepare a Construction Air Quality Control Plan, prior to commencing work, to manage air quality control on the site in accordance with the requirements of this Element.	Contractor
Air monitoring stations shall be established outside the project site boundaries prior to commencement of works on the site to monitor off-site transport of dust.	Contractor
Site entry and exit locations shall be designated and clearly signed. These shall be the only entry and exit points used by plant and vehicles during construction.	Contractor
Construction vehicles shall be restricted to designated access tracks and a speed limit of 20km/hour shall be maintained by within the site.	Contractor
All equipment shall be operated in accordance with established operating procedures and maintained to minimise exhaust emissions. Engines shall not be left idling needlessly.	Contractor
All materials (e.g. paints) or processes (e.g. painting) that may generate fumes or odours shall be properly stored and used in accordance with approved procedures	Contractor
Dust control measures (e.g. water spraying, wood chip layers, wind breaks, etc) shall be used on all processes that may generate dust.	Contractor
Exposed ground and access roads within the site shall be watered as required to prevent dust generation. Over-watering shall be avoided to prevent ponding or runoff.	Contractor
Dust-generating activities shall not be undertaken during unfavourable weather conditions.	Contractor
Truck loads that are subject to loss by wind suspension shall be covered prior to transport from the site.	Contractor
Material stockpiles shall be kept below 4m in height and shall be covered or stabilised if they are to be left for more than 2 weeks.	Contractor
Completed construction stages shall be stabilised as soon as practicable following completion.	Contractor
New equipment purchased for construction shall be selected with regard for fuel and energy efficiency.	Contractor
Equipment shall be maintained to retain high levels of fuel and energy efficiency.	Contractor
Material transport distances shall be minimised by selecting local suppliers to minimise emission of greenhouse gases in transport of materials.	Contractor
Disturbed areas within the construction site shall be progressively stabilised as construction of land fingers proceed to minimise airborne dust.	Contractor
Monitoring	Responsibility
Weekly inspections of control measures shall be undertaken to record locations, types and integrity of measures in place.	Contractor
Visual inspections of dust generated and blown of site shall be undertaken on a daily basis to monitor the effectiveness of control measures.	Contractor
Air quality monitoring shall be undertaken at any complainant's property on receiving instructions from regulatory agencies.	Contractor

<table>
<tr><td colspan="2">Reporting</td><td>Responsibility</td></tr>
<tr><td colspan="2">Monthly reports shall be provided to the Proponent (with copies to be provided by the Proponent to Council and EPA) on all monitoring activities, control measures and corrective actions undertaken.</td><td>Contractor</td></tr>
<tr><td>Performance Indicators</td><td colspan="2">Dust generated from construction activities shall comply with the following air quality targets.

<table><tr><th>Parameter</th><th>Maximum Acceptable Concentration</th></tr><tr><td>24 hour average dust concentration</td><td>150 µg/m^3</td></tr><tr><td>Annual, 24 hour averaged dust concentration</td><td>90 µg/m^3</td></tr><tr><td>Dust deposition rate</td><td>120 mg/m^2/day</td></tr></table>
No complaints are received from surrounding land users.</td></tr>
<tr><td>Corrective Actions</td><td colspan="2">If air quality reduction occurs outside the site boundary, activities impacting adversely on air quality shall cease and additional control measures will be applied by the Contractor. A reduction in air quality will be defined when two (2) or more valid air quality complaints are received by the Contractor or Consultant, from adjacent residents.

Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register.</td></tr>
</table>

CEMP Element 3	Residential Amenity	
Environmental Objectives	To protect the amenity of nearby residential areas.	
Environmental Values	The residential and recreational amenity values within Cleveland Bay, the GBRMP and residential areas adjacent to the site shall be protected.	
Control Measures		Responsibility
A program of community consultation shall be established to inform nearby residents and local community members of the proposed development and to provide ongoing feedback to concerned residents.		Proponent
Occupants of all residences located within 200 metres of the project site shall be informed of the extent and nature of the proposed construction activities and the proposed construction program.		Proponent / Contractor
Residents shall be advised at least 24 hours in advance of construction activities that may impact upon them.		Contractor
All construction areas shall be fenced to protect local residents. Signs shall be placed around the site to inform and protect the residents and public; the signs shall include 24 hour contact telephone numbers and details of a representative of the Contractor.		Contractor
Ensure that excessive noise-generating activities are restricted to times that will cause minimum disturbance to nearby residential areas.		Contractor
A system to receive and record complaints and comments from and to seek the cooperation and assistance of the community shall be established.		Contractor
Monitoring		Responsibility
The Contractor shall maintain records of the Contractor's induction training, and a complaints register. The complaints register will detail the date, time, name, contact details, complaint, investigation, and corrective action taken.		Contractor
Reporting		Responsibility
Monthly report shall be provided by the Contractor to the Proponent on the monitoring and recording of community complaints and feedback.		Contractor
Performance Indicators	No complaints received in relation to construction works.	
Corrective Actions	Construction activities resulting in a valid complaint from a resident or residents shall be stopped or remedial action initiated by the Contractor.	

CEMP Element 4	Traffic and Transport	
Environmental Objectives	To maintain safe and equitable traffic and pedestrian movement on and around the site during all stages of construction. To ensure construction traffic impacts on the Local and State controlled road network are minimised.	
Environmental Values	Road pavement conditions and road user safety shall be protected during construction	
Control Measures		Responsibility
All measures necessary for the safety of vehicular or pedestrian traffic shall be undertaken in accordance with the requirements of the Department of Main Roads Specification "MRS11.02-Control of Vehicular Traffic at Roadworks" and supply of signs in accordance with the "Manual of Uniform Traffic Control Devices".		Contractor
A Traffic Management Plan shall be prepared for the construction phase in consultation with the Department of Main Roads and Townsville City Council.		Contractor
If required, a Traffic Control Permit shall be obtained from the Traffic Operations Section of the Department of Main Roads and/or Townsville City Council.		Contractor
Construction haul routes shall be identified for transport of construction materials in consultation with the Department of Main Roads and Townsville City Council.		Contractor
Comply with the capacity of nominated haul routes and intersections including compliance with approved hours of haulage.		Contractor
Heavy vehicle movements shall be undertaken to avoid peak traffic hours and to avoid scheduled events at nearby schools, local businesses and entertainment facilities.		Contractor
Any unavoidable disruption to existing road networks shall be identified and notified to relevant agencies along with details of temporary road closures and proposed traffic diversions.		Contractor
Proposed traffic diversions or temporary road closures shall be notified to the local community, businesses and emergency services at least 2 weeks prior to the planned closure or diversion.		Contractor
Where required by authorities, additional measures including traffic controllers, traffic signalling, message signage and real-time monitoring of traffic conditions shall be employed to ensure safe traffic conditions are maintained.		Contractor
Any potential disruption to public transport networks and emergency vehicle access shall be identified and notified to relevant agencies along with measures proposed to ensure satisfactory access is maintained.		Contractor
Prior to haulage of material on or off-site, photographic and road pavement assessment of haul routes shall be undertaken for the monitoring of construction impacts on road pavements.		Contractor
Ensure the requirements of the Department of Main Roads and Townsville City Council are met with respect to traffic operations including compliance with standard working hours.		Contractor
Ensure unimpeded access is maintained to all adjacent properties affected by the construction. If disruption to access is anticipated seven days and 48 hours written notice shall be provided to the affected parties.		Contractor
Pedestrian and cycling networks in the vicinity of the construction site shall be maintained in safe condition and key linkages to open space, public infrastructure and community facilities shall be maintained.		Contractor
For all works on roads and public footpaths, signage shall be provided in accordance with the requirements of the Manual of Uniform Traffic Control Devices issued by the Department of Main Roads.		Contractor
All vehicles employed in the transport of materials to and from the project site shall be appropriately maintained to prevent impacts relating to air and noise emissions and the safety of road users.		Contractor
All construction vehicles leaving the site shall be directed through a truck 'shake down' or 'wheel wash' at the site access point for removal of loose soil and other material.		Contractor
Haulage personnel and subcontractors shall comply with all speed limits at all times.		Vehicle Operator

All road train operators shall, where practical and safe, either slow down or pull over to allow any queued traffic to pass.	Vehicle Operator
Drivers shall report any pavement damage to the Haulage Contractor's representative	Vehicle Operator
The Haulage Contractor shall consult with the Department of Main Roads on pavement damage where required and rectify where necessary.	Haulage Contractor
All planned stops and parking shall only occur at approved locations along the haulage route.	Vehicle Operator
A haulage vehicle must not pull up on the side of a highway for a planned stop.	Vehicle Operator
In the event of an unplanned stop, the driver shall pull the vehicle well off the road and request assistance from the relevant service vehicle.	Vehicle Operator
In the event of a driver being unable to pull the vehicle well off the road, safety road triangles shall be appropriately placed to indicate the parked vehicle to other road users.	Vehicle Operator
If necessary, the local police shall be notified of an unplanned vehicle stop to gain traffic control assistance.	Vehicle Operator
All haulage vehicles shall only be serviced within designated areas.	Haulage Contractor
Re-fuelling of haulage vehicles shall only be undertaken at approved areas along the haulage route.	Vehicle Operator
Construction vehicles shall be restricted to designated access roads and a speed limit as notified by the site access protocols or of 20km/hour shall be maintained by within the project site.	Vehicle Operator
Access roads within the site shall be watered as required to prevent dust generation. Over-watering shall be avoided to prevent ponding or runoff and water waste.	Contractor
Vehicle loads that are subject to loss by wind suspension shall be covered prior to transport to and from the site.	Vehicle Operator
All drivers shall comply with the specific safety signage and access protocols when traversing the temporary construction bridge or floating bridge	Vehicle Operator
Temporary construction site access shall be constructed with access limited to authorised vehicles. Vehicular access points shall be displayed on site plans.	Contractor
On-site and off-site queuing locations for construction vehicles shall be identified and displayed on site plans.	Contractor
Ensure all staff are aware of the requirements of the EMP and where possible restrict staff parking in any local streets. Site staff parking shall be in the approved designated areas.	Contractor
Monitoring	Responsibility
Monitoring of traffic flows shall be undertaken monthly and compared with predicted flows for assessment under the Traffic Management Plan.	Contractor
Reporting	Responsibility
Monthly reports shall be provided to the Proponent on the condition of roadways and haul routes, operation of local road networks and providing details of any road accidents directly related to construction activities.	Contractor
Performance Indicators	All vehicle operators comply with directions issued by the Contractor and the Haulage Contractor. Construction traffic does not cause environmental impacts or impacts on road user safety.
Corrective Actions	Incidents, accidents and near miss events shall be recorded and fully investigated by the Haulage Contractor and relevant authorities shall be notified as required.
	Non-conformance with this TMP shall be documented and a corrective action request (CAR) issued. All CAR's shall be implemented in a timely manner and shall be included in a non-conformance register.

CEMP Element 5	Water & Sediment Quality	
Environmental Objectives	To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Water) Policy 1997* (EPP Water).	
Environmental Values	The water quality of Cleveland Bay shall be maintained to prevent impacts on environmental values within the GBRMP and adjacent aquatic ecosystems including seagrass communities, benthic communities, wetland communities, migratory and threatened species and recreational and visual amenity.	
Control Measures		Responsibility
Dewatering undertaken during site reclamation and earthworks shall direct water through a series of temporary sediment control devices (such as filter fences and sedimentation basins) for removal of suspended solids prior to discharge.		Contractor
Washdown of equipment and materials shall be undertaken within a designated bunded containment area. No washdown of equipment or materials shall occur over water.		Contractor
Any chemicals (including lime) or fuel/oil stored on site shall be stored under cover in a bunded area or placed sufficiently above ground level to preclude contamination of surface water.		Contractor
The perimeter of the site shall be protected by the use of sediment filter fences and perimeter bunds to ensure there is no uncontrolled discharge to waterways.		Contractor
Turbidity trigger values shall be determined by baseline survey results and turbidity monitoring locations shall be agreed with the EPA and DPI&F. 'Corrective Action' threshold and 'Stop Work' threshold for turbidity shall be established.		Contractor
Corrective actions shall include reducing the volume of earthworks being undertaken at any one time and/or installation of control measures such as floating silt curtains to contain the extent of any turbidity plume.		Contractor
If stop work thresholds are reached, works shall cease immediately and the Proponent shall be notified. Works shall not recommence until notified by the EPA or any other relevant agency.		Contractor
Sampling and analysis of surface water within Cleveland Bay shall be undertaken during construction to allow early identification of changes in baseline water quality conditions. Monitoring shall be undertaken in accordance with the programme outlined below.		Contractor
Sampling and analysis of sediment quality within Cleveland Bay shall be undertaken during construction to allow early identification of changes in baseline sediment quality conditions. Monitoring shall be undertaken in accordance with the programme outlined below.		
Sampling and analysis of surface water within the site shall be undertaken during construction to determine treatment requirements prior to discharge from the site. Monitoring shall be undertaken in accordance with the programme outlined below.		Contractor
Silt curtains shall be used during all dredging wherever practical.		Contractor
Dredging shall not occur during times of strong wind-driven currents in the direction of seagrass beds and coral reefs;		Contractor
Refuelling shall occur well away from sensitive environments and must be controlled by contingency plans; and		Contractor
Chemicals shall be stored and handled according to the MSDS, and appropriate training of all staff must be undertaken before the initiation of construction works.		Contractor
Monitoring		Responsibility
Water quality shall be monitored on an event basis during dredging and other construction activities that are likely to increase turbidity. Permanent data loggers shall be placed at 5 locations including impact and control sites to monitor turbidity, pH and salinity during these events.		Contractor

Water sampling for other analytes and contaminants shall occur at seagrass, coral reef and control sites during summer (January-February), winter (July-August) and the end of the wet season (March) and following climatic events to monitor copper lead zinc, nickel, cobalt, manganese, chromium, arsenic, cadmium and nutrients.

Sediment sampling for other analytes and contaminants shall occur at seagrass, benthic impact and control sites during winter (July-August) and the end of the wet season (March) and following climatic events to monitor copper, lead, zinc, nickel, manganese and arsenic.

On site monitoring of discharge water quality during dewatering shall be undertaken during construction in accordance with the following monitoring program.

Parameter	Frequency	Reporting
Turbidity	During discharge event (defined as >25mm in any 24 hour period) and monthly in primary sediment ponds	Non complying test results are to be notified within 24 hours to Council officers
pH	During controlled discharge events from sedimentation basins and monthly in primary sediment ponds	Non complying test results are to be notified immediately to Council

Event-based water quality monitoring during dredging and construction activities. Permanent data loggers shall placed in strategic positions to monitor turbidity.	Contractor
Reporting	**Responsibility**
Water quality monitoring results shall be forwarded to an appropriately qualified professional appointed by the Proponent for interpretation and preparation of monthly reports to the Proponent who will provide to EPA and GBRMPA. The Contractor shall be responsible for rectifying the impacts.	Consultant

Performance Indicators

Water Quality Parameter	Investigation Level	Intervention Level
turbidity	Above 110% of relative value	Above 120% of relative value
pH	<7.5 or >8.6	<7.0 or >8.8
Salinity/conductivity	below 90% or above 110% relative value	below 5% or above 115% relative value
Copper	3 ug/L	3 ug/L
lead	10 ug/L	20 ug/L
Zinc	7 ug/L	23 ug/L
Nickel	7 ug/L	70 ug/L
Cobalt	3.8 ug/L	14 ug/L
Manganese	50 ug/L	100 ug/L
chromium	5 ug/L	27.4 ug/L
arsenic	3 ug/L	24 ug/L
cadmium	2 ug/L	5.5 ug/L
Ammonia as N	60 ug/L	550 ug/L
Nitrite as N	15 ug/L	30 ug/L
Nitrate as N	100 ug/L	200 ug/L
Total Nitrogen as N	600 ug/L	1500 ug/L
Total Phosphorous as P	50 ug/L	100 ug/L
Reactive Phosphorous as P	8 ug/L	20 ug/L

<table>
<tr><td></td><td>
<table>
<tr><th>Sediment Quality Parameter</th><th>Investigation Level</th><th>Intervention Level</th></tr>
<tr><td>Copper</td><td>7 mg/kg</td><td>14 mg/kg</td></tr>
<tr><td>lead</td><td>13 mg/kg</td><td>26 mg/kg</td></tr>
<tr><td>Zinc</td><td>32 mg/kg</td><td>64 mg/kg</td></tr>
<tr><td>Nickel</td><td>9 mg/kg</td><td>18 mg/kg</td></tr>
<tr><td>Manganese</td><td>475 mg/kg</td><td>950 mg/kg</td></tr>
<tr><td>arsenic</td><td>12 mg/kg</td><td>24 mg/kg</td></tr>
</table>
</td></tr>
<tr><td>Corrective Actions</td><td>If Investigation levels are reached, further assessment must be undertaken to determine if water quality decline is a result of project activities.

If Intervention levels are reached, immediate action must be undertaken to assess the source of the contamination. If necessary, all construction or dredging activities must cease and reactive monitoring must be initiated.

Remediation of negative impacts on water quality is usually extremely difficult to achieve. Consequently, any negative impacts shall be assessed on a case by case basis by an appropriately qualified professional.

Non-conformance with this plan shall be documented and a Corrective Action Request (CAR) issued. All CAR's shall be included in the non-conformance register.</td></tr>
</table>

CEMP Element 6	Stormwater and Erosion & Sediment Control
Environmental Objectives	To maintain and protect the integrity of adjacent waterways. To comply with the Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites, prepared by Institute of Engineers. To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Water) Policy 1997* (EPP Water).
Environmental Values	The water quality values of Cleveland Bay shall be protected from sediments mobilised in stormwater runoff from the site.

Control Measures	Responsibility
All erosion and sediment control devices shall be installed prior to construction and maintained until completion of construction.	Principal Contractor
Erosion and sediment control devices shall be installed in accordance with the *Soil Erosion and Sediment Control Guidelines for Queensland Construction Sites* and an approved Erosion and Sediment Control Plan.	Principal Contractor
All stormwater drains receiving flows from the site shall have sediment controls in place.	Principal Contractor
All areas of exposed soil within the site shall be contained within erosion and sediment controls.	Principal Contractor
Clean stormwater shall be diverted away from disturbed areas, stockpile locations and hazardous material storages within the site.	Contractor
All stormwater runoff within the site shall be directed to sediment control devices to minimise sediment transport.	Contractor
The Contractor shall install whatever additional measures are considered necessary (such as silt fences or hay bales) to minimise the impact of construction activities during unexpected storm activities.	Contractor
Silt fences and hay bales shall be stored within the project site to be available to use during storm events.	Contractor
All sediment shall be swept from roadways and not hosed to prevent entry of pollutants to stormwater drains.	Contractor
All stockpiles shall be stabilised or covered and shall be contained within erosion and sediment controls.	Contractor
All sediment control structures shall be operated and maintained in an effective operational condition.	Contractor
These structures shall not be allowed to accumulate sediment volumes in excess of 70% sediment storage design capacity.	Contractor
Materials removed from sediment retention basins shall be disposed of in an approved manner that does not cause pollution.	Contractor
Permanent stormwater treatment measures shall be provided as soon as possible after completion of the construction areas.	Contractor
Erosion and sediment controls shall only be removed after successful stabilisation of exposed soils.	
Monitoring	Responsibility
On site monitoring of discharge water quality shall be undertaken during construction in accordance with the monitoring program outlined in Element 5.	Contractor
Visual inspection of control devices shall be undertaken daily during construction and immediately following rainfall events.	Contractor
The inspection shall be undertaken systematically on site (e.g. walking anticlockwise from main entrance) and recording: • installation/removal of any erosion and sediment control device;	Contractor

• the condition of each device employed (particularly outlet devices), noting whether it is likely to continue effective condition until the next self audit; • circumstances contributing to damage to any devices, accidental or otherwise; • storage capacity available in pollution control structures; • time, date, volume and type of any additional flocculants; • the volumes of sediment removed from sediment retention systems, where applicable, and the site where sediment is disposed; • maintenance or repair requirements (if any) for each device; • repairs undertaken on erosion and sediment control devices	
Signed, completed self audits, original test results, weekly and other result sheets shall be kept on site and are to be available on request to Council officers and other relevant statutory authorities.	Contractor
Reporting	Responsibility
Monthly reports on all monitoring requirements of this element shall be forwarded to the Principal Contractor who shall forward to a suitably qualified consultant for analysis as required.	Principal Contractor / Consultant
Performance Indicators	Water discharged off site shall comply with the following water quality criteria or shall constitute less than 10% change in baseline water quality conditions as determined by baseline monitoring and as agreed with EPA. • suspended solids 50 mg/L or less; and • pH between 7.0 and 8.5.
Corrective Actions	Non-conformance with this plan shall be documented and a Corrective Action Request (CAR) issued. All CAR's shall be included in the non-conformance register. Corrective action responses are required in accordance with Element 5 to rectify non-complying discharge water quality results. If there is a breach or infringement of conditions, action will be taken consistent with the nature and seriousness of the breach or infringement. Action may include: • issue of "stop work notice" • notice to comply pending reinspection of the site.

CEMP Element 7	Flora and Fauna
Environmental Objectives	To ensure compliance with the *Nature Conservation Act 1992*, the *Vegetation Management Act 1999* and the *Environment Protection & Biodiversity Conservation Act 1999*. To prevent significant damage to species and ecosystems in Cleveland Bay, To mitigate significant impacts of the proposed development activities; and To undertake appropriate amelioration and remediation measures as necessary.
Environmental Values	Valuable ecosystems and species known to occur within Cleveland Bay include seagrass beds, subtidal benthic communities, coral reefs within the Great Barrier Reef Marine Park, an abundant, fish communities, rare and/or protected marine mammals and reptiles, rare and vulnerable bird species and intertidal habitats.

Control Measures	Responsibility
Pile driving silencers shall be fitted and be fully operational prior to commencement of works.	Contractor
No blasting shall be undertaken without prior approval obtained from the EPA.	Contractor
Shielded lighting shall be installed within marina berth areas to minimise impacts on marine species.	Contractor
All aquatic works areas shall be inspected on a daily basis during construction to determine the presence of marine fauna species prior to commencement of dredging and sand/rock material placement.	Contractor
The site shall be inspected daily for the presence of injured or stranded marine fauna species. Such sightings shall be reported to the Proponent who will then report to the EPA (Queensland Parks and Wildlife Division).	Contractor
Where construction works are likely to impact on marine fauna species in the vicinity of the project site, works shall cease until the animal moves on.	Contractor
All construction personnel shall be instructed on the likely presence of significant fauna species so that sightings may be recorded and reported.	Contractor
All construction personnel shall be instructed not to feed fauna species including birds within the project site.	Contractor
Marine plants such as seagrasses, saltcouch or mangrove species shall not be damaged or removed except under the authority of a Marine Plants Permit.	Contractor
Any authorised damage or removal shall be undertaken strictly in accordance with the conditions of the Marine Plants Permit.	Contractor
Any non-compliance with the conditions of the Marine Plant Permit shall be immediately notified to the DPI&F. Any required remediation works shall be undertaken in consultation with the DPI&F.	Contractor
Silt curtains shall be installed during dredging to control suspended solids and turbidity and to prevent dispersion of pollutants.	Contractor
Lighting used on dredge equipment shall be shielded or employ sodium vapour lamps.	Contractor
Dredging activities shall be timed to avoid marine species nesting periods.	Contractor
Dredging shall not occur during strong SE winds or strong wind-driven currents	Contractor
Turtle exclusion devices shall be fitted to dredging equipment and shall be fully operational prior to commencement of works.	Contractor
Water jets on the dredge suction head shall be activated to deter marine fauna.	Contractor
Wherever possible dredging should be timed to avoid turtle nesting periods.	Contractor
A fauna spotter/catcher shall be present during dredging activities to identify marine fauna in the dredge path	Contractor

Where marine fauna is identified within proximity of dredging operations and capture or strike is likely, works shall cease until the animal moves on.	Contractor
Monitoring	Responsibility
Event based monitoring of seagrass beds and of turbidity in the water column surrounding seagrass beds at sites specified in the C&R Nature Conservation Report Seasonal monitoring to detect natural variations in communities. Sampling of microalgae and other organisms in seagrass beds during seagrass monitoring.	Contractor
Annual monitoring of benthic communities density and species composition at sampling sites specified in the C&R Nature Conservation Report Monitoring of sediments during dredging operations at sampling sites specified in the C&R Nature Conservation Report.	Contractor
Event-based monitoring of coral reef community composition and percent cover at sites specified in the C&R Nature Conservation Report. Turbidity meters shall be placed at key impact and control sites for monthly monitoring.	Contractor
Event based monitoring of intertidal communities and visual survey of mangroves immediately adjacent to the project site. Sampling of intertidal organisms to determine density and species composition.	Contractor
Boat based survey of dolphins within Cleveland Bay. Liaison with research agencies and review of current literature on marine mammals and reptiles.	Contractor
Reporting	Responsibility
Reporting shall be undertaken in accordance with the Marine Plant Permit issued by the DPI&F.	

Performance Indicators	If turbidity levels exceed a 10% increase over levels at seagrass control sites, dredging shall cease immediately. If there is a 20% loss (or more) in seagrass density in areas downstream of the dredging site, remediation actions shall be undertaken. In the event of a 50% increase in one or a few species within benthic communities, and / or a 50% reduction in species richness at any one site, which can be linked to dredging activities, dredging activities should cease immediately and remediation mechanisms should be implemented. All construction activities shall cease if turbidity exceeds 10% ambient levels at coral reef impact sites. Monitoring of seagrass beds and coral reefs and monitoring of water quality shall indicate of changes in habitat quality of marine mammals and reptiles. Monitoring of seagrass beds, benthic communities and coral reefs shall indicate changes in fish habitat quality.
Corrective Actions	<u>Seagrasses</u> Remediation of impacts on seagrasses shall include: Reactive monitoring of seagrass density and species composition at the impacted sites, until a statistically significant increase is measured. Implementation of methods to stimulate seagrass growth, such as the addition of iron to sediments surrounding the active root zones of seagrasses, in the case of seagrass density losses of over 50%. <u>Benthic Communities</u> Development activities should cease immediately and reactive monitoring of benthic communities and associated sediments be undertaken if an impact is detected. Reactive monitoring should include sampling at the sites where an impact is detected.

	Coral Reefs Reactive monitoring shall be conducted monthly at impact and control sites in the event of an impact. Construction activities shall cease if statistically significant declines in coral cover and / or obvious signs of stress (e.g. bleaching, partial mortality, coral disease, excessive production of mucus) are detected at impact sites and remediation actions be undertaken. Remediation actions shall include: The application of mechanical flushing in the area of impact; Removal of excess macroalgal growth in the event of a macroalgal bloom caused by excess nutrients as a result of development activities. Fish Communities Remediation of impacts on fish communities will primarily involve remediation of key habitats including seagrass beds, benthic communities and coral reefs. Marine Mammals and Reptiles Remediation of impacts on marine mammals and reptiles involves primarily the remediation of their habitats and food resources such as seagrasses and coral reefs and maintenance of water quality. Birds Remediation of impacts on birds involves primarily the remediation of their habitats and food resources (see sections on remediation of Intertidal and Fish Communities). Specific remediation activities for birds include: Direct intervention, i.e. the cleaning and nursing birds affected by oil or chemical spills; and The rehabilitation of damaged habitat, e.g. replanting of vegetation, cleaning of intertidal habitats. Intertidal Communities Reactive monitoring of intertidal communities in the event of an impact (e.g. accidental spill, contamination of water or sediment), with sampling at impacted site and appropriate control sites. Remediation of impacts on intertidal communities caused by low water quality or the tidal and wave transport of contaminated sediments shall be carried out by ceasing all dredging and construction activities causing the water or sediment contamination. Spill Response Active remediation measures to be undertaken in the event of a spill, include: The containment of the spill at sea if possible, to prevent it washing onto intertidal areas; The use of currently accepted, biodegradable dispersants; Direct washing of affected sediments; The removal, rescue, cleaning and / or care for affected fauna, and subsequent reintroduction to the rehabilitated habitat.

CEMP Element 8	Weed Control	
Environmental Objectives	To prevent entry of pest and weed species to the site and prevent spread of such species to adjacent sensitive environments. To prevent proliferation of pest and weed species within the site during construction.	
Environmental Values	The integrity of adjacent aquatic ecosystems and associated species and communities including mangrove, seagrass and saltcouch communities shall be protected from invasion by pest and weed species.	
Control Measures		Responsibility
A vehicle washdown facility shall be provided at the site entry to be used by all plant and equipment to remove residual soil and weed propagules.		Contractor
Ensure that soils delivered to the site do not contain pest species or weed propagules. Collect certification from suppliers as required.		Contractor
Ensure that materials used for mulching in landscaping do not contain pest species or weed propagules. Collect certification from suppliers as required.		Contractor
Inspect plant and equipment entering the site to ensure it is free of soil, weeds and pest species.		Contractor
Weed growth shall be controlled during construction by hand or mechanical removal. Herbicides shall not be used within 20m of drains or waterways or within 100m of wetland areas.		Contractor
Monitoring		Responsibility
Routine inspection of the construction site and eradication of weeds shall be undertaken by non-chemical methods, ensuring propagules are disposed of in an appropriate manner.		Contractor
Reporting		Responsibility
No specific reporting is required in relation to Weed Control. Reporting shall be provided in accordance with the Landscaping Element of this EMP.		Contractor
Performance Indicators	Weed species are not introduced to the site and are not allowed to establish within newly formed land platforms.	
Corrective Actions	Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register.	

CEMP Element 9	Acid Sulfate Soils (ASS)	
Environmental Objectives	To prevent acid leachate to groundwater resources To prevent acidification of adjacent surface waters	
Environmental Values	The water quality of Cleveland Bay, Ross Creek and surrounding waterways The quality of existing Groundwater aquifers	
Control Measures		Responsibility
As field and laboratory testing has indicated low potential acidity, specific management measures are not required for all soils. However, measures will be adopted to deal with "incidental" acid generation where ooze materials are excavated, drained or dewatered for periods of greater than 24 hours.		Contractor
Stockpiles of Potential ASS material shall be minimised and contained in an adequately bunded containment area for treatment with lime as required.		Contractor
Surface water infiltration to groundwater shall be prevented from passing through Potential ASS. Where required lime material shall be placed to intercept infiltration.		Contractor
Dewatering activities during site reclamation and earthworks shall be undertaken in a controlled manner to prevent acid leachate to waterways.		Contractor
Any acid leachate detected during reclamation and earthworks shall be treated by liming at required doses prior to disposal or use on site as engineered fill.		Contractor
Monitoring		Responsibility
Stormwater runoff discharged from the site shall be monitored at discharge locations for pH, salinity, suspended solids, turbidity, nutrients and heavy metals.		Contractor
Groundwater resources potentially affected by construction activities shall be monitored for pH, salinity, suspended solids, turbidity, nutrients and heavy metals.		Contractor
Surface marine waters shall be monitored during construction for pH, suspended solids, turbidity, heavy metals and organo-tins.		Contractor
Reporting and Recording		Responsibility
The Contractor shall document any encounter of Potential and Actual ASS and report any such occurrence to the Proponent		Contractor
Performance Indicators	The pH of waters collected on-site shall be maintained between 6.5 and 8.5.	
Corrective Actions	Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register.	

CEMP Element 10	Cultural Heritage	
Environmental Objectives	To prevent damage to places and objects of cultural heritage significance. To comply with the "duty of care" requirements of the *Aboriginal Cultural Heritage Act 2003*	
Environmental Values	Cleveland Bay, Ross Creek and Ross River are of cultural heritage value to Traditional Owners. The area is identified by the Traditional Owners as a 'dreaming place' and as important fishing and hunting grounds.	
Control Measures		Responsibility
The Traditional Owners shall be provided with the opportunity to review and provide feedback on environmental reports compiled as part of the EIS process.		Proponent
Traditional Owners shall be consulted regarding the timing and duration of proposed construction activities and the proposal for cultural heritage monitoring.		Proponent
All personnel working on the site shall attend a site induction briefing, which will include information relating to the Cultural Heritage Management Plan (CHMP).		Proponent and Contractor
Personnel shall be provided with information on the types of cultural heritage values likely to be found within the project site, and shall be informed of protocols to be followed in the event of the discovery of archaeological finds.		Proponent and Contractor
Personnel shall be fully informed of their 'duty of care' under the *Aboriginal Cultural Heritage Act 2003*.		Proponent and Contractor
The Traditional Owners shall nominate cultural heritage monitors to be present at the project site during all earthworks undertaken during construction.		Proponent / Contractor / Traditional Owners
A cultural monitoring/site inspection program for the lower clay deposits shall be implemented following dewatering of the site.		Proponent /Contractor / Traditional Owners
In the event that any sites, materials or cultural heritage values are discovered during construction, the following protocol shall be implemented: • All construction work and other activities at the site of the find shall cease and a thorough inspection by Traditional Owner representatives shall be arranged. • The find shall be demarcated with pegs or flagging tape and protected from any potential impacts with appropriate temporary barriers. • A reasonable buffer area shall be maintained around the find to be determined by the Contractor or other appropriate personnel. • Development work may continue outside the demarcated buffer area. • Traditional Owners shall provide advice on appropriate management action following inspection of the find. • Depending on the cultural significance of the find, the Proponent shall seek technical advice from the project archaeologist and the Cultural Heritage Coordination Unit, Department of Natural Resources and Water. • Development work at the location of the find shall not recommence until appropriate cultural heritage management action has been implemented to the satisfaction of all stakeholders.		Proponent/ Contractor / Traditional Owners
In the event that human skeletal material is discovered during construction works, the following protocol shall be implemented:		Proponent/ Contractor / Traditional Owners

• All construction operations shall cease immediately within 100 m of the remains. • The remains shall be demarcated with pegs or flagging tape and protected from any potential impacts by appropriate temporary barriers. • The Queensland Police, Cultural Heritage Coordination Unit of the Department of Natural Resources and Water, as well as Traditional Owner representatives shall be contacted as a matter of urgency. • Minimal disturbance to the remains shall be ensured and advice shall be sought from Traditional Owners on procedures for handling the material in a culturally appropriate and sensitive manner.	
If the material is determined to be human remains the Proponent shall report the find to the Queensland Police.	Proponent
If material of potential valuable minerals, fossils, anthropological, archaeological or the like is found when cultural heritage monitoring is not occurring, the Contractor's machine operators will immediately stop work at the find site and take precautions to prevent their removal or damage and notify the Proponent who will contact the Traditional Owner to attend the site of the find or discovery.	Contractor
Monitoring	Responsibility
Monitoring shall be undertaken by cultural heritage monitors throughout earthworks.	Traditional Owners
Monitoring shall be undertaken continuously by contractors and staff during all construction activities.	Contractor
Reporting	Responsibility
The Contractor shall report to relevant parties in accordance with the required protocols listed under Control Measures project cultural heritage protocol.	Contractor
Performance Indicators	No disturbance to any sites or objects of cultural heritage significance.
Corrective Actions	The construction of the project shall be modified as required and the appropriate cultural heritage protocol be implemented to take into account sites or objects of cultural heritage significance identified during the construction phase.

CEMP Element 11	Visual Amenity	
Environmental Objectives	To protect visual character of existing landscapes To prevent visual impacts on residences from the Port of Townsville	
Environmental Values	View-lines, landscape character and residential amenity shall be maintained	
Control Measures		Responsibility
Landscaping shall provide a continuous 'green edge' to coastlines to continue the character of the Strand foreshore.		Landscape Contractor
The acoustic barrier berm shall be densely planted with tropical foliage and tall trees to increasing screening height and break up view lines vessels berthed at the terminal.		Landscape Contractor
5 storey buildings shall be landscaped with clumps of large dense trees to 'tie' the built form to the surrounding ground level and soften their contrast with the low linear landform.		Landscape Contractor
Residences shall not have balconies on the side facing the Port and shall be part-screened by tall trees. This requirement shall be incorporated into the Port Protection Code for the Breakwater Cove Precinct.		Body Corporate
A 'sculpture wall' or landscaped screen is recommended between the main access road and Ross Creek, to act as a partial screen and alternative visual focus to the industrial Port facilities beyond.		Project Architect
The TOT precinct lighting shall be controlled and ameliorated by selective directional lighting.		Project Architect
Appropriate lighting design, building orientation and landscape screening that will contribute to light filtering and softening shall be incorporated without impacting on the safe navigation and operations of the Port and the TOT.		Project Architect
Lighting within the Breakwater Cove Precinct shall include lighting fixtures that direct light down-wards to minimise glare and light spill impacts.		Project Architect
Monitoring		Responsibility
Monitoring of landscaped plantings shall be undertaken in accordance with the approved Landscape Plans for the project.		Landscape Contractor
Reporting		Responsibility
The condition of landscaped plants shall be reported to the relevant authority for the TOT project.		Landscape Contractor
Performance Indicators	Landscaping plants are maintained in good condition so as to provide adequate screening of visually intrusive elements.	
Corrective Actions	Landscape plants that fail to thrive shall be replaced as required by the approved Landscape Plan.	

CEMP Element 12	Landscaping and Open Space
Environmental Objectives	To provide continuous public access between the Strand and Breakwater Cove open space areas
Environmental Values	The amenity of public open space, community facilities, streetscapes and residential areas shall be maintained.

Control Measures	Responsibility
Landscaping and revegetation works are to be completed as soon as possible following completion of construction activities.	Landscape Contractor
Adequate access to open space shall be provided for local residents and other users including maintenance and emergency vehicles.	Landscape Contractor
All landscaping works shall be undertaken in accordance with the approved Landscape Plan.	Landscape Contractor
Sediment control measures shall be installed and shall remain in place until all landscape vegetation is established.	Landscape Contractor
Soils and fill used in landscaping and revegetation works are to be free from weeds and propagules.	Landscape Contractor
The Landscape Contractor shall undertake a 12-week program of contractual maintenance on practical completion of all landscaping works.	Landscape Contractor
A weed-free zone shall be maintained around landscape trees until establishment.	Landscape Contractor
Weed control shall be achieved by hand removal of top growth roots, rhizomes and stolons of unwanted vegetation in order to maintain a weed free planting bed until groundcover canopy is continuous.	Landscape Contractor
Any plants that die, fail to thrive, are damaged or stolen, shall be replaced with plants of the same species, size and quality.	Landscape Contractor
On completion of the landscaping maintenance period, the open space area shall be further maintained for an “On Maintenance” period of twelve (12) months or for a period agreed between the proponent and Council.	Proponent
Following acceptance of works in public owned areas as “Off Maintenance”, Council will undertake all Open Space maintenance tasks/actions with the exception being the proponent (and relevant Body Corporate) shall maintain all public open space areas where an agreement to maintain has been entered into with the Council.	Proponent
Monitoring	Responsibility
The landscaped and revegetated areas shall be inspected routinely (weekly for the first month, then monthly thereafter for twelve (12) months) to monitor health and survival of landscape vegetation.	Landscape Contractor
A suitably qualified person shall monitor the health of retained and planted trees. Survival and condition of native plants shall be assessed monthly and tree health rated according to vegetation assessment criteria.	Landscape Contractor
Routine inspection and eradication of weeds shall be undertaken by non-chemical methods, ensuring propagules are disposed of in an appropriate manner.	Landscape Contractor
Reporting	Responsibility
A monthly report shall be provided to the Contractor detailing the health and establishment of landscape vegetation.	Landscape Contractor

<table>
<tr><td>Performance Indicators</td><td>Not greater than 5% of landscape vegetation shall be assessed as being in “poor” condition according to the following criteria.

<table><tr><td>Condition</td><td>Criteria</td></tr><tr><td>Healthy</td><td>Leaves green, no abnormal leaf loss</td></tr><tr><td>Fair</td><td>Most leaves green, some leaves yellowing (< 20% of canopy affected)</td></tr><tr><td>Poor</td><td>Many leaves yellow or brown (> 20% of canopy affected)</td></tr></table></td></tr>
<tr><td>Corrective Actions</td><td>Where inspection reveals that sediment and erosion control devices are damaged, these shall be repaired and reinstated.

Where existing vegetation shows signs of poor health, an investigation shall be undertaken to identify likely causes and measures to mitigate vegetation impacts shall be implemented.

Where landscaping species fail to thrive, supplementary planting shall be undertaken.

Where appropriate, specialist advice should be sought on modification of landscape design identified as necessary.

Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR’s shall be included in the non-conformance register.</td></tr>
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CEMP Element 13	Waste Minimisation (Solid Waste)
Environmental Objectives	To minimise waste generated at the site to reduce the volume of waste requiring disposal to landfill. To prevent dispersal of waste from the site to receiving environments. To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Waste Management) Policy 2000* (EPP Waste).
Environmental Values	The environmental values identified by the EPP Waste include: • "life health and well-being of people; and • diversity of ecological processes and associated ecosystems; and • land use capability having regard to economic considerations."

Control Measures	Responsibility
The Contractor shall establish a Construction Waste Control Plan prior to commencing work, to manage the collection, storage and removal of all litter and waste within the site.	Contractor
The work area shall be designated and fenced before construction commences; and vehicles, plant and equipment shall not be operated outside the designated work area.	Contractor
Waste avoidance and reduction strategies shall be employed to eliminate waste at the source by reviewing construction activities and processes.	Contractor
Waste shall be assessed for its ability to be reused on-site or recycled to minimise the component of waste requiring disposal. The following measures shall be considered. • Clean plasterboard may be recycled for manufacture of new plasterboard or shredded and used in the remediation of soils. • Wood waste can be reprocessed for uses such as compost for soil improvement, mulch to control weeds and reduce evaporation, as wood chips for landscaping. • Metals, glass, plastics, paper and cardboard may be separated and stored for collection by Council's recycling service and treated at Visy's MRF. • Crushed concrete can potentially be used as aggregate for road bases, pipe bedding material, for kerb and guttering. • Asphalt can be recycled in new hot mix asphalt, hot-in-place or cold	Contractor
Disposal of waste shall be considered as the last option, when all other strategies in the hierarchy of waste minimisation have been considered.	Contractor
Cleared native vegetation shall be chipped/mulched and re-used in site landscaping or for stabilisation of exposed soils. Non-native vegetation shall not be chipped/mulched for re-use.	Contractor
Cleared vegetation that cannot be re-used on site shall be disposed of at the Vantassel Street Landfill green waste facility.	Contractor
Waste containers and recycling bins (for domestic wastes of construction employees) shall be provided in an area accessible to refuse collection vehicles and arrangements made for the collection of their contents.	Contractor
Waste collection and storage areas shall be located away from overland flow paths and be protected from stormwater by provision of diversion drains.	Contractor
All waste materials shall be disposed of at an approved facility, in accordance with Council by-laws and other statutory requirements.	Contractor
Regulated waste shall be collected by an EPA approved contractor licenced to convey such waste.	Contractor
All liquid waste shall be stored in sealed containers within in an adequately bunded containment area with stormwater excluded. Collection of these wastes shall be by licenced contractor.	Contractor

All litter and waste materials in storage or in transit from the site shall be covered or otherwise handled to prevent any spillage or any other nuisance to the community or adjacent residents.	Contractor
Quantities of materials required for construction shall be calculated to prevent over-ordering and minimise excess materials requiring disposal.	Contractor
Where practicable, formwork shall be re-used within the site.	Contractor
Off-cuts and excess materials shall be separated to facilitate re-use within the site or recycling.	Contractor
A bunded area for the servicing of heavy machinery (if required) is to be constructed to ensure that any accidental spillage of oils or grease is not dispersed in stormwater runoff or leached into the groundwater.	Contractor
Industry standard enclosed storage facilities are to be provided for oils, greases and solvents and industrial waste containers for the storage of industrial waste.	Contractor
Monitoring	Responsibility
All litter and waste materials shall be removed from the site on a regular (at least weekly) basis. The Contractor shall monitor the construction and record details of work areas, fencing and access roads.	Contractor
Weekly inspections of the site shall be conducted to verify locations and storage of litter and waste on the site.	Contractor
Reporting	Responsibility
Monthly reports shall be provided to the Proponent detailing non-conformances and reporting on all waste disposal activities and site monitoring. These reports will provide details of any changes from the approved Work Plan and record details of operations outside the designated work area and access roads.	Contractor
Performance Indicators	Visual inspection of on-site storage and service areas, temporary and permanent drains shall indicate compliance with required waste disposal methods.
Corrective Actions	Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register. The Contractor shall implement the following corrective action. Storage and removal of all litter and waste. Adequate delineation of working areas.

CEMP Element 14	Dangerous and Hazardous Substances (including Liquid Waste)	
Environmental Objectives	To ensure correct handling and storage of fuels, oils and other hazardous substances. To prevent release of potential contaminants to receiving environments.	
Environmental Values	Health and safety of workers on the site and the water quality values of Cleveland Bay shall be protected from impacts due to incorrect handling and storage of dangerous and hazardous substances.	
Control Measures		Responsibility
Any hazardous materials required to be transported to or from the project site during construction shall be appropriately handled to prevent release to receiving environments		Transport Contractor
Vehicles required to transport hazardous materials shall be appropriately licensed to carry such materials and shall display appropriate warning signs in accordance with relevant Australian Standards.		Transport Contractor
All hazardous materials shall be transported with a copy of the Material Safety Data Sheet (MSDS) provided by the product manufacturer and shall be appropriately labelled and accompanied by instructions for correct handling		Transport Contractor
All hazardous materials shall be transported in the original containers where possible. Where alternative containers are required for transport, these shall be compatible with the producers requirements, the product being transported and shall be appropriately labelled.		Transport Contractor
Persons handling and transporting hazardous materials shall be appropriately trained in handling the products and shall be made aware of the procedures required for clean-up of spills.		Contractor
All persons required to be in contact with hazardous materials shall be provided with appropriate protective clothing.		Contractor
A secured, bunded containment area shall be provided within the site for storage and handling of dangerous and hazardous substances (including oil, fuel, grease and hydraulic fluids).		Contractor
The containment area bunding shall be impervious and shall have sufficient capacity to prevent release of substances to the environment in the event of spills or leakages.		Contractor
The containment area shall be located away from overland flow paths and shall be constructed to prevent the entry of stormwater.		Contractor
Maintenance and refuelling of equipment within the site shall be undertaken within a designated bunded area designed to contain spillage and waste water.		
A register shall be maintained of all dangerous and hazardous substances to be kept on-site including the Material Safety Data Sheets (MSDS) for each substance.		Contractor
All dangerous and hazardous substances shall be stored and handled in accordance with the requirements of the MSDS for the substance.		Contractor
Incompatible substances shall not be stored together.		Contractor
All staff and sub-contractors shall be trained in the safe storage and handling requirements of dangerous and hazardous substances.		Contractor
A spill response kit (including appropriate absorbents and neutralising substances) shall be kept on site in a clearly marked location with clear instructions for spill clean-up procedures.		Contractor
Performance Indicators	Hazardous and dangerous substances do not cause environmental or health impacts.	
Monitoring	Weekly visual inspections of the containment area shall be undertaken by the Contractor to identify non-compliance with the requirements of this EMP. Weekly inspection of the contents of the spill response kit shall be undertaken by the Contractor to ensure adequate materials are available at all times.	

Reporting	The Contractor shall immediately report spills or leakages of hazardous and dangerous substances to the Proponent. The Proponent shall immediately report all significant spills or leakages that may result in environmental harm to the EPA and DPI&F.
Corrective Actions	In the event of a spill or leakage, appropriate clean-up procedures shall be implemented immediately. Spillages shall not be hosed or washed away. In the event a significant spill with potential for environmental harm, the EPA and DPI&F shall be immediately notified and where required remediation actions shall be undertaken in consultation with the EPA and DPI&F.

CEMP Element 15	Site Rehabilitation and Decommissioning	
Environmental Objectives	To ensure that the site is left in a condition suitable for the intended future use. To ensure remediation of any damage to property or environmental values caused as a result of construction works.	
Environmental Values		
Control Measures		Responsibility
All temporary works such as site sheds and temporary fencing shall be decommissioned and removed from the site on completion of all construction works.		Contractor
All stockpiles shall be removed and any excess material unsuitable for reuse shall be disposed of at a licensed disposal facility.		Contractor
Site decommissioning shall be completed within two weeks of the practical completion of all construction works.		Contractor
The Construction Project Manager shall supervise decommissioning and removal of all temporary structures and materials which will be undertaken within 2 weeks of completion of construction works.		Project Manager
Structures and materials will be either demobilised and returned to suppliers or manufacturers or reused within the site.		Contractor
Any structures or materials that cannot be reused will be removed to an approved recycling facility or landfill site for disposal as described in the Waste Management report.		Contractor
Progressive and final rehabilitation of all environmental values disturbed during the construction of the TOT project shall be undertaken in accordance with the methods provided in the Nature Conservation Report		Contractor
Rehabilitation of disturbed areas should incorporate, where appropriate, provision of nest hollows and ground litter.		Contractor
Performance Indicators		
Monitoring	The Project Manager and a suitably qualified engineer shall inspect the site on completion of all construction works and certify that the site is suitable for commissioning.	
	Monthly inspections shall be conducted by a suitably qualified professional of all site rehabilitation works.	
Reporting	A report shall be prepared to Council on completion of site works to provide details of the responsibility for ongoing site maintenance. A report shall be prepared to EPA and Council of any rehabilitation works providing details for required maintenance.	
Corrective Actions	Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register.	

CEMP Element 16	Capital Dredging
Environmental Objectives	To mitigate impacts on nearby noise-sensitive receptors. To minimise airborne transportation of pollutants from the dredging site. To protect the amenity of nearby residential areas. To protect amenity and minimise disruption to recreational and commercial marine vessel operators. To ensure compliance with the *Environment Protection Act 1994* and Environmental Protection Policies, the *Nature Conservation Act 1992*, the *Fisheries Act 1994* and the *Environment Protection and Biodiversity Conservation Act 1999*.
Environmental Values	• The wellbeing of the community and individuals • Recreational and residential amenity • The water quality of Cleveland Bay • The GBRMP, Fish Habitat Area and adjacent aquatic ecosystems including seagrass and mangrove communities, benthic communities, wetland communities, migratory and threatened species and recreational and visual amenity.

Control Measures	Responsibility
The Contractor shall establish a Dredging Management Plan to the satisfaction of the Proponent incorporating the control measures contained in this Element of the EMP.	Contractor
All noise generating equipment and processes shall be controlled to minimise noise emission in accordance with AS 2436.	Contractor
Noise control measures shall include fitting of effective exhaust silencers to all equipment and fitting of engin shielding.	Contractor
All dredging equipment shall be maintained in good condition in accordance with manufacturers' instructions.	Contractor
Dredging equipment shall be turned off when not in use.	Contractor
Noise generating equipment shall be sited away from noise-sensitive places to increase the distance between the source and receptors.	Contractor
All dredging equipment shall be operated in accordance with established operating procedures and maintained to minimise exhaust emissions.	Contractor
Emission controls shall be in place prior to commencement of dredging and maintained in good working order throughout dredging.	Contractor
All materials that generate fumes or odours shall be properly stored and used in accordance with approved procedures.	Contractor
The Contractor shall provide a notice to marine vessel operators of the dredging activities and the proposed dredging program.	Contractor
The Contractor shall notify and maintain contact with the Regional Harbour Master regarding potential disruption to marine vessel movements due to dredging activities.	Contractor
Monitoring of surface waters in Cleveland Bay shall be undertaken for 3 months prior to commencement of construction to establish baseline water quality conditions.	Contractor
Storage, handling and disposal of oils, fuel and grease shall be adequately contained to prevent spillage into receiving waterways.	Contractor
A spill clean-up kit and spill response procedure shall be maintained within the dredge at all times.	Contractor

Any spills shall be immediately reported to the Proponent and remediation actions undertaken in consultation with the EPA and DPI&F.	Contractor
Silt curtains shall be installed during dredging to control suspended solids and turbidity and to prevent dispersion of pollutants.	Contractor
Lighting used on dredge equipment shall be shielded or employ sodium vapour lamps.	Contractor
Dredging activities shall be timed to avoid marine species nesting periods.	Contractor
Dredging shall not occur during strong SE winds or strong wind-driven currents	Contractor
Turtle exclusion devices shall be fitted to dredging equipment and shall be fully operational prior to commencement of works.	Contractor
Water jets on the dredge suction head shall be activated to deter marine fauna.	Contractor
Wherever possible dredging should be timed to avoid turtle nesting periods.	Contractor
A fauna spotter/catcher shall be present during dredging activities to identify marine fauna in the dredge path.	Contractor
Where marine fauna is identified within proximity of dredging operations and capture or strike is likely, works shall cease until the animal moves on.	Contractor
Monitoring	Responsibility
Monitoring of surface water within Cleveland Bay shall be undertaken in accordance with the Water Quality Element of this EMP.	Contractor
Monitoring of suspended solids in dredge discharge water shall be undertaken daily at approximately 1 hour after commencement of dredging.	Contractor
Monitoring of turbidity plumes shall be undertaken to determine total suspended solids and turbidity levels. 5 monitoring locations shall be established at the north, south, east and west extents and at the centre of the plume. Sampling shall record the extent and duration of any plumes generated.	Contractor
Reporting and Recording	Responsibility
Monthly reports shall be provided to the Proponent (with copies provided to Council and EPA on request) on all monitoring activities, any visible emissions or complaints, control measures and corrective actions undertaken.	Contractor
Monthly reports shall be provided to the Proponent on the monitoring of control measures and corrective action taken.	Proponent

Performance Indicators	No damage caused to the marine fauna Water quality maintained to acceptable standards as referenced in the Water Quality Report. Sedimentation Plumes controlled and not disbursed. Compliance with all other relevant EMP elements.
Corrective Actions	Non-conformance with this plan shall be documented and a Corrective Action Request (CAR) issued. All CAR's shall be included in the non-conformance register.
	If there is a breach or infringement of conditions, action will be taken consistent with the nature and seriousness of the breach or infringement. Action may include: • issue of "stop work notice" • notice to comply pending reinspection of the dredging site.

CEMP Element 17	Safety and Hazard Management	
Environmental Objectives	To maintain site security and ensure public safety during the construction phase To store any hazardous material in accordance with the relevant Australian Standards	
Environmental Values	To prevent death, injury or illness being caused as a result of workplace activities. Promote public safety through incorporation of Crime Prevention through Environmental Design Principles (CPTED).	
Control Measures		Responsibility
The occupational health and safety of employees at the TOT project is regulated under the Queensland *Workplace Health and Safety Act 1995* (WH&S Act) and the *Workplace Health and Safety Regulation 1997.* The contractor is to establish all relevant Work Place Health and Safety protocols for the project site.		Contractor
Severe weather conditions can impact on the health and safety of the project workforce and may include events such as cyclones, severe storms, storm surge or high winds. The following are to be implemented during extreme weather events:		Contractor
Appoint a nominated emergency coordinator to be trained in emergency control and will be responsible for monitoring the whereabouts of all persons on site;		Contractor
All personnel to be trained in emergency evacuation procedures		Contractor
Periodic emergency evacuation procedure drills are to be conducted		Contractor
The site will be secured by fencing, hoarding or other suitable barrier to prevent unauthorised entry to the site. Security barriers will be constructed so as to prevent climbing.		Contractor
Adequate lighting, safety signage and traffic controls will be provided in accordance with Townsville City Council requirements and relevant Australian Standards.		Contractor
All temporary lighting or traffic control devices will be approved by Council prior to installation.		Contractor
Security lighting and surveillance systems will be in place to ensure security of the site when not in operation.		Contractor
All hazardous substances will be properly stored in secured locations and adequate signage installed to warn of the location of dangerous goods. Signage will also be erected on the site perimeter fence/hoarding to inform of any security measures and advise of a 24 hour contact name and number.		Contractor
Material Safety Data Sheets (MSDS) for all hazardous substances are to be maintained in a current format, accessible and keep in a prominent place.		Contractor
Storage areas are to be bunded to contain spills		Contractor
The contractor is to review all risk elements identified in the Hazard and Risk Assessment and have regard to any consequential risk to Workplace Health and Safety for the project. In addition the contractor is to note the designers identified Workplace Health and Safety advices that may be noted on drawings or reports associated with detailed design documentation to prevent any workplace injuries.		Contractor
Monitoring		Responsibility
Weekly inspections of storage areas. Monitoring of waters collected within the bunded areas to be carried out in accordance with the water quality report and management strategies contained in the EIS.		
Reporting		Responsibility
The contractor is to report any accident or emergency to the relevant emergency agency.		Contractor

The contractor is to report any non conformance with this EMP and any relevant standard or approval condition to the proponent. The proponent will report where necessary to the relevant agencies.	
Performance Indicators	All storage areas are to be provided in accordance with AS 1940 No serious injury caused by work place activities.
Corrective Actions	Non – conformance with this EMP shall be documented and s corrective action request (CAR) issued. All CAR's will be included in the non- conformance register.

Operation EMP – Breakwater Cove and Ocean Terminal

OEMP Element 1	Ecologically Sustainable Development Principles (To be provided to future landowners by Body Corporate)
Environmental Objectives	To promote landowner awareness and encourage the use of sustainable house design. To reduce the use of non-renewable water and energy resources. To facilitate reuse and recycling of waste materials and reduce the component of waste requiring disposal to landfill. To provide access to existing services including transport, cycling and pedestrian networks
Environmental Values	The environmental values of the operational project include community health and safety, natural resources and habitats and residential and recreational amenity.

No.	Sustainable House Design	Responsibility
ESD1	The siting of buildings should consider solar orientation to reduce heat gain in summer and heat loss in winter.	Architect
ESD2	Energy efficient design measures should include, insulation of walls and ceilings, cross-ventilation of internal rooms, adequate eave overhangs on west and north facing walls, enhanced natural lighting, shutters or blinds on east and west facing windows.	Architect
ESD3	Consider specification of products that have low embodied energy. Evaluation of lifecycle energy of materials should consider the energy used during material production and transport and the longevity of materials.	Architect
ESD4	Consider specification of sustainable forestry and plantation products such as straw or bamboo as well as materials that are produced and/or recycled through a low energy, non-polluting process.	Architect
ESD5	Building design should incorporate measures to reduce peak load including specification of off-peak energy or timers for high energy uses.	Architect
ESD6	Consider water efficient fittings and fixtures such as AAA low flow dual flush toilets, low flow taps and shower heads, and installation of flow restrictors.	Landowner
ESD7	Consider energy efficient fittings such as professionally sized air conditioners with a minimum 4.5 star energy rating, energy efficient lighting and appliances, energy efficient water heating and installation of solar power.	Landowner
No.	Sustainable House Construction	Responsibility
ESD8	Consider the selection of construction materials that have a high recycled content or are from recycled or renewable resources.	Builder
ESD9	Consider selection of manufacturers and suppliers who produce materials from sustainable sources and have implemented cleaner production principles during production of materials such as reduction of water and energy used and by-products during production.	Builder
ESD10	Consider use of construction materials for framing and internal joinery, roofing, flooring, walls materials and building foundations from sustainable sources.	Builder
ESD11	Consider use of low-toxicity paints, floor coverings, sealants and adhesives to improve indoor air quality.	Builder

ESD12	Consider selection of manufacturers and suppliers that minimise and/or recycle materials packaging.	Builder
ESD13	Consider selection of local manufacturing and/or supply businesses to reduce fossil fuel usage in transport.	Builder
No.	Sustainable Household Practices	Responsibility
ESD14	Natural landscapes should be enhanced by use of locally native plant species in gardening and landscaping works and avoid use of invasive species.	Landowner
ESD15	Water efficient garden and landscape features should be used such as drought tolerant plants and sub-surface drip irrigation with soil moisture sensors.	Landowner
ESD16	Potable water use should be reduced through roofwater collection to supply garden and landscape irrigation water.	Landowner
ESD17	Gardeners should minimise the use of pesticides, herbicides and artificial fertilisers in gardening and landscaping.	Landowner
ESD18	Waste avoidance and reduction strategies should be employed to eliminate waste at the source by reviewing household practices.	Landowner
ESD19	Waste should be assessed for its ability to be reused or recycled to minimise the component of waste requiring disposal.	Landowner
ESD20	Disposal of waste should be considered as the last option, when all other waste minimisation practices have been considered.	Landowner
ESD21	Waste containers and recycling bins are to be provided in an area accessible to refuse collection vehicles and arrangements made for the collection of their contents.	Body Corporate
ESD22	All litter and waste materials in storage or in transit from the site are to be covered or otherwise handled to prevent any spillage or any other nuisance to the community or adjacent residents.	Body Corporate

OEMP Element 2	Noise Control	
Environmental Objectives	To mitigate impacts on nearby noise-sensitive receptors. To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Noise) Policy 1997* (EPP Noise).	
Environmental Values	The environmental values identified by the EPP Noise include: the wellbeing of the community (including social and economic amenity); and the wellbeing of the individual (including the opportunity to have sleep, relaxation and conversation).	
Control Measures		Responsibility
The operator of the TOT shall develop a Noise Management Plan to control noise levels within the precinct. In particular, ship horn operations at the TOT berth should be limited during night-time where safety is not compromised.		TOT Operator
The detailed design of the TOT Precinct and associated buildings and structures shall be reviewed by a qualified acoustic consultant during the design development phase to ensure that noise impacts are taken into consideration and minimised by use of appropriate building design, orientation and location of buildings/structures.		Body Corporate
Building design mitigation measures within the Breakwater Cove precinct shall be specified in the Community Management Statement and should include property boundary fences, upgraded glazing for exposed windows and doors and appropriate window/ door orientations.		Body Corporate
Signage shall be installed in internal waterways to inform site users of the presence of marine mammals and to restrict vessel speed within the site.		Body Corporate
Monitoring		Responsibility
Noise monitoring shall be undertaken by the Operator of the TOT Precinct at the nearest noise-sensitive receptors or at any complainant's property on receiving instructions from regulatory agencies.		TOT Operator
Reporting		Responsibility
Records shall be maintained of all noise-related complaints received with details of corrective actions undertaken.		TOT Operator
The TOT Operator shall make copies of all reports available to Council and EPA on request.		TOT Operator
Performance Indicators	No noise complaints are received in relation to on site construction works. In the event that noise monitoring is required by regulatory agencies, the daytime noise levels at noise-sensitive receptors shall not exceed the project objectives stated in the Noise and Vibration Assessment Report.	
Corrective Actions	Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register. The Contractor shall implement the following corrective action.	

OEMP Element 3	Air Quality (Dust and Greenhouse Gases)	
Environmental Objectives	To minimise airborne transportation of pollutants from the developed project site. To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Air) Policy 1997* (EPP Air).	
Environmental Values	The environmental values identified by the EPP Air are "the qualities of the air environment that are conducive to suitability for the life, health and well-being of humans".	
Control Measures – Breakwater Cove Precinct		Responsibility
The Body Corporate shall have prepared an Air Quality Control Plan to manage air quality control on the site in accordance with the requirements of this Element.		Body Corporate
All equipment shall be operated in accordance with established operating procedures and maintained to minimise exhaust emissions.		Body Corporate
All materials (e.g. paints) or processes (e.g. painting) that may generate fumes or odours shall be properly stored and used in accordance with approved procedures		Body Corporate
Dust control measures (e.g. water spraying, wood chip layers, wind breaks, etc) shall be used on all processes that may generate dust.		Body Corporate
Dust-generating activities shall not be undertaken during unfavourable weather conditions.		Body Corporate
New equipment purchased for construction shall be selected with regard for fuel and energy efficiency.		Body Corporate
Equipment shall be maintained to retain high levels of fuel and energy efficiency.		Body Corporate
Control Measures – TOT Precinct		
The TOT Operator shall prepare an Air Quality Control Plan to manage air quality control on the site in accordance with the requirements of this Element.		TOT Operator
All equipment shall be operated in accordance with established operating procedures and maintained to minimise exhaust emissions. Engines shall not be left idling needlessly.		TOT Operator
All materials (e.g. paints) or processes (e.g. painting) that may generate fumes or odours shall be properly stored and used in accordance with approved procedures		TOT Operator
Dust control measures (e.g. water spraying, wood chip layers, wind breaks, etc) shall be used on all processes that may generate dust.		TOT Operator
Dust-generating activities shall not be undertaken during unfavourable weather conditions.		TOT Operator
Monitoring		Responsibility
Weekly inspections of control measures shall be undertaken to record locations, types and integrity of measures in place.		Body Corporate and TOT Operator
Reporting		Responsibility
Reports shall be provided to the Townsville City Council and EPA where any agency air quality limits are exceeded.		Body Corporate and TOT Operator

<table>
<tr><td>Performance Indicators</td><td>Dust generated from maintenance construction activities shall comply with the following air quality targets.

<table><tr><th>Parameter</th><th>Maximum Acceptable Concentration</th></tr><tr><td>24 hour average dust concentration</td><td>150 µg/m^3</td></tr><tr><td>Annual, 24 hour averaged dust concentration</td><td>90 µg/m^3</td></tr><tr><td>Dust deposition rate</td><td>120 mg/m^2/day</td></tr></table>
No complaints are received from surrounding land users.</td></tr>
<tr><td>Corrective Actions</td><td>If air quality reduction occurs outside the site boundary, activities impacting adversely on air quality shall cease and additional control measures will be applied by the Body Corporate and the TOT Operator where relevant. A reduction in air quality will be defined when two (2) or more valid air quality complaints are received by the Body Corporate and the TOT Operator, from adjacent residents.

Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register.</td></tr>
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OEMP Element 4	Water Quality	
Environmental Objectives	To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Water) Policy 1997* (EPP Water).	
Environmental Values	The water quality of Cleveland Bay shall be maintained to prevent impacts on environmental values within the GBRMP and adjacent aquatic ecosystems including seagrass communities, benthic communities, wetland communities, migratory and threatened species and recreational and visual amenity.	
Control Measures		Responsibility
Silt curtains shall be used during maintenance dredging wherever practical.		Dredging Contractor
Dredging shall not occur during times of strong wind-driven currents in the direction of seagrass beds and coral reefs;		Dredging Contractor
Monitoring		Responsibility
Water quality shall be monitored on an event basis during dredging and other activities that are likely to increase turbidity. Permanent data loggers shall be placed at 3 locations including impact and control sites to monitor turbidity, pH and salinity during these events.		Dredging Contractor
Reporting		Responsibility
Water quality monitoring results shall be forwarded to an appropriately qualified professional appointed by the Proponent for interpretation and preparation of monthly reports to the Proponent who will provide to EPA and GBRMPA. The Contractor shall be responsible for rectifying the impacts.		Dredging Contractor
Performance Indicators	<u>Investigation Levels</u> Above 110% of relative turbidity values pH of <7.5 or >8.6 salinity below 90% or above 110% relative salinity value <u>Intervention Levels</u> Above 120% of relative turbidity values pH of <7.0 or >8.8 salinity below 5% or above 115% relative salinity value	
Corrective Actions	If Investigation levels are reached, further assessment must be undertaken to determine if water quality decline is a result of operational activities. If Intervention levels are reached, immediate action must be undertaken to assess the source of the contamination. If necessary, all dredging activities must cease and reactive monitoring must be initiated. Non-conformance with this plan shall be documented and a Corrective Action Request (CAR) issued. All CAR's shall be included in the non-conformance register.	

OEMP Element 5	Flora and Fauna
Environmental Objectives	To ensure compliance with the *Nature Conservation Act 1992*, the *Vegetation Management Act 1999* and the *Environment Protection & Biodiversity Conservation Act 1999*. To prevent significant damage to species and ecosystems in Cleveland Bay
Environmental Values	Valuable ecosystems and species known to occur within Cleveland Bay include seagrass beds, subtidal benthic communities, coral reefs within the Great Barrier Reef Marine Park, an abundant, fish communities, rare and/or protected marine mammals and reptiles, rare and vulnerable bird species and intertidal habitats.

Control Measures	Responsibility
All TOT Precinct personnel shall be instructed not to feed fauna species including birds within the project site.	TOT Operator
Marine plants such as seagrasses, saltcouch or mangrove species shall not be damaged or removed except under the authority of a Marine Plants Permit.	TOT Operator/ Marina Operators
Any authorised damage or removal shall be undertaken strictly in accordance with the conditions of the Marine Plants Permit.	TOT Operator/ Marina Operators
Any non-compliance with the conditions of the Marine Plant Permit shall be immediately notified to the DPI&F. Any required remediation works shall be undertaken in consultation with the DPI&F.	TOT Operator/ Marina Operators
Silt curtains shall be installed during maintenance dredging to control suspended solids and turbidity and to prevent dispersion of pollutants.	Dredging Contractor
Lighting used on dredge equipment shall be shielded or employ sodium vapour lamps.	Dredging Contractor
Maintenance dredging activities shall be timed to avoid marine species nesting periods.	Dredging Contractor
Maintenance dredging shall not occur during strong SE winds or strong wind-driven currents	Dredging Contractor
Turtle exclusion devices shall be fitted to dredging equipment and shall be fully operational prior to commencement of works.	Dredging Contractor
Water jets on the dredge suction head shall be activated to deter marine fauna.	Dredging Contractor
Wherever possible maintenance dredging should be timed to avoid turtle nesting periods.	Dredging Contractor
Where marine fauna is identified within proximity of maintenance dredging operations and capture or strike is likely, works shall cease until the animal moves on.	Dredging Contractor
Monitoring	Responsibility
A fauna spotter/catcher shall be present during maintenance dredging activities to identify marine fauna in the dredge path	Dredging Contractor
Water quality monitoring shall be undertaken during maintenance dredging in accordance with the Water Quality Element of this EMP.	Dredging Contractor
Reporting	Responsibility
Reporting shall be undertaken in accordance with the Marine Plant Permit issued by the DPI&F.	TOT Operator/ Marina Operators

Performance Indicators	If turbidity levels exceed a 10% increase over levels at control sites, maintenance dredging shall cease immediately.
Corrective Actions	Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register.

OEMP Element 6	Landscaping and Weed Control
Environmental Objectives	To maintain quality parkland and open space areas within the development site.
Environmental Values	The amenity of public open space, community facilities, streetscapes and residential areas shall be maintained.

Control Measures	Responsibility
Grassed areas shall be irrigated or manually watered to ensure active growth during the establishment period. Such watering regimes shall comply with Council water restrictions.	Landscape Contractor
Mowing of grassed areas shall maintain lawns at a height of between 25mm and 35mm.	Landscape Contractor
Litter control shall be achieved by regular inspection of open space zones and arrangement for regular collection from litter receptacles.	Landscape Contractor
A weed-free zone shall be maintained around landscape trees until establishment.	Landscape Contractor
Weed control shall be achieved by hand removal of top growth roots, rhizomes and stolons of unwanted vegetation in order to maintain a weed free planting bed until groundcover canopy is continuous.	Landscape Contractor
Shrubs shall be pruned in a manner that encourages their natural form.	Landscape Contractor
Trees shall be pruned to ensure satisfactory form and health. Tree pruning is to be undertaken in accordance with Australian Standard AS4373-1996.	Landscape Contractor
Any plants that die, fail to thrive, are damaged or stolen, shall be replaced with plants of the same species, size and quality.	Landscape Contractor
Monitoring	**Responsibility**
A suitably qualified person shall monitor the health of retained and planted trees. Survival and condition of native plants shall be assessed monthly and tree health rated according to vegetation assessment criteria.	Landscape Contractor
Routine inspection and eradication of weeds shall be undertaken by non-chemical methods, ensuring propagules are disposed of in an appropriate manner.	Landscape Contractor
Reporting	**Responsibility**
A monthly report shall be provided to the Body Corporate detailing the health and establishment of landscape vegetation.	Landscape Contractor

Performance Indicators

Not greater than 5% of landscape vegetation shall be assessed as being in "poor" condition according to the following criteria.

Condition	Criteria
Healthy	Leaves green, no abnormal leaf loss
Fair	Most leaves green, some leaves yellowing (< 20% of canopy affected)
Poor	Many leaves yellow or brown (> 20% of canopy affected)

Corrective Actions

Where inspection reveals that sediment and erosion control devices are damaged, these shall be repaired and reinstated.

Where existing vegetation shows signs of poor health, an investigation shall be undertaken to identify likely causes and measures to mitigate vegetation impacts shall be implemented.

Where landscaping species fail to thrive, supplementary planting shall be undertaken.

Where appropriate, specialist advice should be sought on modification of landscape design identified as necessary.

Non-conformance with this plan shall be documented and a corrective action request (CAR) issued. All CAR's shall be included in the non-conformance register.

OEMP Element 7	Stormwater Management	
Environmental Objectives	To maintain and protect the integrity of adjacent waterways. To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Water) Policy 1997* (EPP Water).	
Environmental Values	The water quality values of Cleveland Bay shall be protected from pollutants mobilised in stormwater runoff from the site.	
Control Measures		Responsibility
All leaf/litter baskets within residential lots shall be maintained by removal of trapped material by hand on a monthly basis in accordance with manufacturer's recommendations to prevent odour from organic material and resuspension of trapped material.		Individual Landowners
Rainwater tanks shall be inspected every six months for odour and sediment accumulation. Debris in trash racks shall be removed every three months and inspected for blockages after major storm events. The structural condition of rainwater tanks shall be inspected on an annual basis.		Individual Landowners
All gross pollutant traps (GPT) within roadways shall be maintained by removal of trapped material by hand or vacuum truck on a monthly basis in accordance with manufacturer's recommendations to prevent upstream flooding and decomposition of organic material. The structural integrity of GPTs shall be inspected every three months.		Body Corporate
The oil and grit separators within the wharf hardstand area shall be maintained by inspection/servicing for accumulation of coarse sediment and hydrocarbons every three months in accordance with manufacturer's recommendations. The structural condition of oil and grit separators shall be inspected on an annual basis.		TOT Operator
A trade waste approval shall be obtained from Townsville City Council to allow discharge of waste water from the oil and grit separators to the sewer. The TOT operator shall ensure that all conditions of the approval are met including: • maximum discharge quantity; • maximum rate of discharge; • waste water quality limits; and • treatment and management requirements.		TOT Operator
Discharge of trade waste to the sewer shall be separated from the domestic waste discharge line. The discharge location shall incorporate an inspection chamber located at ground level to allow for monitoring and sampling as required by Council.		TOT Operator
Regular cleaning and removal of accumulated oil and grease from the oil and grit separator shall be undertaken by an EPA-licensed contractor who will be responsible for waste tracking requirements. All trade waste shall be transported, treated and disposed of in accordance with the *Environmental Protection Regulation 1998* and the *Environmental Protection (Waste Management) Regulation 2000*.		TOT Operator / Licensed Contractor
Monitoring		Responsibility
Monitoring of the integrity of all stormwater devices shall be undertaken as specified above.		Individual Landowners / Body Corporate / TOT Operator
Reporting		Responsibility
In the event of a major spill or release of pollutants from the site, a report shall be prepared to the relevant regulatory authority.		Body Corporate / TOT Operator
Performance Indicators	Compliance with the *Environmental Protection (Water) Policy 1997* (EPP Water).	
Corrective Actions	Clean-up / remediation procedures shall be followed as directed by the relevant regulatory authority.	

OEMP Element 8	Waste Management
Environmental Objectives	To minimise waste generated at the site to reduce the volume of waste requiring disposal to landfill. To prevent dispersal of waste from the site to receiving environments. To ensure compliance with the *Environmental Protection Act 1994* and the *Environmental Protection (Waste Management) Policy 2000* (EPP Waste).
Environmental Values	The environmental values identified by the EPP Waste include: • "life health and well-being of people; and • diversity of ecological processes and associated ecosystems; and • land use capability having regard to economic considerations."

Control Measures	Responsibility
Breakwater Cove Precinct	
Each dwelling shall be provided with an on-site waste/recycling storage area which is able to store Council's waste.	Contractor
The Body Corporate shall consider provision of 120L Mobile Garbage Bins (MGB) to encourage recycling and minimise disposal.	Council
All on-site waste/ recycling areas shall be located and/or designed in a manner which reduces adverse impacts upon neighbouring properties.	Contractor
Between collection periods, all waste/recyclable materials generated upon the site shall be kept in enclosed bins with securely fitting lids so that the contents are not able to leak or over flow.	Contractor/residents
Multi-unit housing shall include communal waste/recycling storage facilities in the form of a waste/recycling enclosure.	Contractor
The size and layout of the waste/recycling storage enclosure shall be capable of accommodating future changes in use .	Contractor
Residents/Body Corporate shall take responsibility for the management of waste and recyclable materials generated at the site. Arrangements shall be in place in regards to the management, maintenance and cleaning of all waste/recycling management facilities.	Contractor/residents
All municipal waste materials shall be disposed of at an approved facility, in accordance with Council by-laws and other statutory requirements.	Contractor
Terminal Building	
Separate waste bins and recycling bins shall be provided within the terminal and associated facilities. Appropriate signage shall be displayed to inform personnel and visitors of waste disposal procedures and to encourage recycling.	Contractor
All quarantine waste (e.g. food waste from cruise ships) shall be securely stored on-site until collection by an EPA approved contractor	Contractor
Open Space Area	
Separate waste bins and recycling bins shall be provided within Open Space areas. Appropriate signage shall be displayed to inform residents and visitors of waste disposal procedures and to encourage recycling.	Contractor/council
Monitoring	Responsibility
Regular inspections of the site and shoreline shall be undertaken to evaluate the effectiveness of waste storage and collection practices.	Contractor

Performance Indicators	Visual inspection of on-site storage and permanent drains shall indicate compliance with required waste disposal methods.
Corrective Actions	Should extensive littering occur, a review of current waste management systems should be undertaken and appropriate measures (e.g. bin placement, education) shall be implemented.

OEMP Element 9	Dangerous and Hazardous Substances
Environmental Objectives	To ensure correct handling and storage of fuels, oils and other hazardous substances. To prevent release of potential contaminants to receiving environments.
Environmental Values	Health and safety of workers at the TOT Precinct and the water quality values of Cleveland Bay shall be protected from impacts due to incorrect handling and storage of dangerous and hazardous substances.

Control Measures	Responsibility
Any hazardous materials required to be transported to or from the TOT Precinct shall be appropriately handled to prevent release to receiving environments.	Vehicle Operator
Vehicles required to transport hazardous materials shall be appropriately licensed to carry such materials and shall display appropriate warning signs in accordance with relevant Australian Standards.	Vehicle Operator
All hazardous materials shall be transported with a copy of the Material Safety Data Sheet (MSDS) provided by the product manufacturer and shall be appropriately labelled and accompanied by instructions for correct handling	Vehicle Operator
All hazardous materials shall be transported in the original containers where possible. Where alternative containers are required for transport, these shall be compatible with the producers requirements, the product being transported and shall be appropriately labelled.	Vehicle Operator
Persons handling and transporting hazardous materials shall be appropriately trained in handling the products and shall be made aware of the procedures required for clean-up of spills.	TOT Operator
All persons required to be in contact with hazardous materials shall be provided with appropriate protective clothing.	TOT Operator
A secured, bunded containment area shall be provided within the TOT Precinct for storage and handling of dangerous and hazardous substances (including oil, fuel, grease and hydraulic fluids).	TOT Operator
The containment area bunding shall be impervious and shall have sufficient capacity to prevent release of substances to the environment in the event of spills or leakages.	TOT Operator
The containment area shall be located away from overland flow paths and shall be constructed to prevent the entry of stormwater.	TOT Operator
A register shall be maintained of all dangerous and hazardous substances to be kept on-site including the Material Safety Data Sheets (MSDS) for each substance.	TOT Operator /Staff
All dangerous and hazardous substances shall be stored and handled in accordance with the requirements of the MSDS for the substance.	TOT Operator /Staff
Incompatible substances shall not be stored together.	TOT Operator /Staff
All staff and sub-contractors shall be trained in the safe storage and handling requirements of dangerous and hazardous substances.	TOT Operator
A spill response kit (including appropriate absorbents and neutralising substances) shall be kept at the TOT in a clearly marked location with clear instructions for spill clean-up procedures.	TOT Operator
Monitoring	Responsibility
Weekly visual inspections of storage areas shall be undertaken to verify the integrity of control measures Monthly inspection of the contents of the spill response kit shall be undertaken to ensure adequate materials are available at all times.	TOT Operator

Reporting	Responsibility
The TOT Operator shall immediately report all significant spills or leakages that may result in environmental harm to the EPA and DPI&F.	
Performance Indicators	Hazardous and dangerous substances do not cause environmental or health impacts.
Corrective Actions	In the event of a spill or leakage, appropriate clean-up procedures shall be implemented immediately. Spillages shall not be hosed or washed away. In the event a significant spill with potential for environmental harm, the EPA and DPI&F shall be immediately notified and where required remediation actions shall be undertaken in consultation with the EPA and DPI&F.

OEMP Element 10	Hazard and Safety Management	
Environmental Objectives	To maintain site security and ensure public safety during the construction phase To store any hazardous material in accordance with the relevant Australian Standards	
Environmental Values	To prevent death, injury or illness being caused as a result of workplace activities associated with operational phase activities. Maintain public safety through incorporation of Crime Prevention through Environmental Design Principles (CPTED).	
Control Measures		Responsibility
Breakwater Cove Precinct		
The occupational health and safety of employees at the Breakwater Cove Precinct is regulated under the Queensland *Workplace Health and Safety Act 1995* (WH&S Act) and the *Workplace Health and Safety Regulation 1997.* The body corporate is to establish all relevant Work Place Health and Safety protocols for the community management scheme site.		Body Corporate
Severe weather conditions can impact on the health and safety of the residents, maintenance workforce and may include events such as cyclones, severe storms, storm surge or high winds. The following are to be implemented during extreme weather events:		Body Corporate
It is intended that a Disaster Action Plan be developed for the site to provide prevention and response measures for preservation of life and property in the event of a natural hazard such as a storm, flood or cyclone. The Disaster Action Plan will be based upon the intent of the main objects of the *Queensland Disaster Management Act 2003*.		Body Corporate
Appoint a nominated emergency coordinator to be trained in emergency control and will be responsible for monitoring the whereabouts of all persons on site;		Body Corporate
All personnel to be trained in emergency evacuation procedures		Body Corporate
Periodic emergency evacuation procedure drills are to be conducted		Body Corporate
Adequate lighting, safety signage and traffic controls will be maintained provided in accordance with Townsville City Council requirements and relevant Australian Standards.		Body Corporate
All hazardous substances will be properly stored in secured locations and adequate signage installed to warn of the location of dangerous goods. Signage will also be erected on the site perimeter fence/hoarding to inform of any security measures and advise of a 24 hour contact name and number.		Body Corporate
Material Safety Data Sheets (MSDS) for all hazardous substances are to be maintained in a current format, accessible and keep in a prominent place.		Body Corporate
Prepare a marina cyclone management plan for the Breakwater Cove precinct marinas		Body Corporate
Townsville Ocean Terminal Precinct		
The occupational health and safety of employees at the TOT Precinct is regulated under the Queensland *Workplace Health and Safety Act 1995* (WH&S Act) and the *Workplace Health and Safety Regulation 1997.* The TOT Operator is to establish all relevant Work Place Health and Safety protocols for the community management scheme site.		TOT Operator
Severe weather conditions can impact on the health and safety of the residents, maintenance workforce and may include events such as cyclones, severe storms, storm surge or high winds. The following are to be implemented during extreme weather events		TOT Operator
Appoint a nominated emergency coordinator to be trained in emergency control and will be responsible for monitoring the whereabouts of all persons on site;		TOT Operator

It is intended that a Disaster Action Plan will be developed for the site to provide prevention and response measures for preservation of life and property in the event of a natural hazard such as a storm, flood or cyclone. The Disaster Action Plan will be based upon the intent of the main objects of the *Queensland Disaster Management Act 2003*.	TOT Operator
All personnel to be trained in emergency evacuation procedures	TOT Operator
Periodic emergency evacuation procedure drills are to be conducted	TOT Operator
Adequate lighting, safety signage and traffic controls will be maintained provided in accordance with Townsville City Council requirements and relevant Australian Standards.	TOT Operator
All hazardous substances will be properly stored in secured locations and adequate signage installed to warn of the location of dangerous goods. Signage will also be erected on the site perimeter fence/hoarding to inform of any security measures and advise of a 24 hour contact name and number.	TOT Operator
Material Safety Data Sheets (MSDS) for all hazardous substances are to be maintained in a current format, accessible and keep in a prominent place.	TOT Operator
An emergency response plan shall be prepared in consultation with local emergency services prior to the commencement of operation of the TOT.	TOT Operator
Monitoring	
Weekly inspections of storage areas. Monitoring of emergency agency protocols on an annual basis to update any emergency response requirements or evacuation plans.	Responsibility Body Corporate and TOT Operator
Reporting	
The Body Corporate or the TOT Operator where relevant is to report any accident or emergency to the relevant emergency agency. The Body Corporate or the TOT Operator where relevant is to report any non conformance with this EMP and any relevant standard or approval condition to the relevant agencies.	
Performance Indicators	All storage areas are to be provided in accordance with AS 1940 No serious injury caused by maintenance work place activities. No person injured during an extreme weather event.
Corrective Actions	Non – conformance with this EMP shall be documented and corrective action request (CAR) issued. All CAR's will be included in the non- conformance register. Liaison with the Queensland Police Service and relevant emergency service agencies will be undertaken from time to time in relation to crime prevention.

OEMP Element 11	Maintenance Dredging
Environmental Objectives	To mitigate impacts on nearby noise-sensitive receptors. To minimise airborne transportation of pollutants from the dredging site. To protect the amenity of nearby residential areas. To protect amenity and minimise disruption to recreational and commercial marine vessel operators. To ensure compliance with the *Environment Protection Act 1994* and Environmental Protection Policies, the *Nature Conservation Act 1992*, the *Fisheries Act 1994* and the *Environment Protection and Biodiversity Conservation Act 1999*.
Environmental Values	The wellbeing of the community and individuals The water quality of Cleveland Bay shall be maintained to prevent impacts on environmental values within the GBRMP, Fish Habitat Area and adjacent aquatic ecosystems including seagrass and mangrove communities, benthic communities, wetland communities, migratory and threatened species and recreational and visual amenity. Valuable ecosystems and species known to occur within Cleveland Bay include seagrass beds, subtidal benthic communities, coral reefs within the Great Barrier Reef Marine Park, an abundant, fish communities, rare and/or protected marine mammals and reptiles, rare and vulnerable bird species and intertidal habitats.

Control Measures	Responsibility
The Contractor shall establish a Noise Control Plan to the satisfaction of the Proponent, to prevent noise levels that would be an annoyance to the community.	Contractor
The Contractor shall establish a complaint telephone line to receive public complaints relating to dredging activities.	Contractor
All noise generating equipment and processes shall be controlled to minimise noise emission in accordance with AS 2436.	Contractor
Noise control measures shall include fitting of effective exhaust silencers to all equipment and fitting of engin shielding.	Contractor
All dredging equipment shall be maintained in good condition in accordance with manufacturers' instructions.	Contractor
Dredging equipment shall be turned off when not in use.	Contractor
Maintenance works shall be undertaken during daylight hours.	Contractor
Activities that may cause noise impacts shall not be undertaken during early morning or late afternoon.	Contractor
Noise generating equipment shall be sited away from noise-sensitive places to increase the distance between the source and receptors.	Contractor
All dredging equipment shall be operated in accordance with established operating procedures and maintained to minimise exhaust emissions.	Contractor
Emission controls shall be in place prior to commencement of dredging and maintained in good working order throughout dredging.	
All materials that generate fumes or odours shall be properly stored and used in accordance with approved procedures.	Contractor
Occupants of all residences located within 200 metres of the sand source site shall be informed of the extent and nature of the proposed dredging activities and the proposed dredging program.	Proponent
The Proponent shall place a public notice at the site and in local newspapers to inform residents and marine vessel operators of the dredging works prior to commencement.	Proponent
Residents shall be advised at least 24 hours in advance of dredging activities that may impact upon them.	Contractor

A system to receive and record complaints and comments from and to seek the cooperation and assistance of the community shall be established.	Contractor
Signs shall be placed around the dredging site to inform and protect the residents and public; the signs shall include 24 hour contact telephone numbers and details of a representative of the Dredging Contractor.	Contractor
The Contractor shall provide a notice to marine vessel operators of the dredging activities and the proposed dredging program.	Contractor
The Contractor shall notify and maintain contact with the Regional Harbour Master regarding potential disruption to marine vessel movements due to dredging activities.	Contractor
Surface water sampling locations shall be established within the Ross River and Cleveland Bay at upstream and downstream monitoring locations.	Contractor
Storage, handling and disposal of oils, fuel and grease shall be adequately contained to prevent spillage into receiving waterways.	Contractor
A spill clean-up kit and spill response procedure shall be maintained within the dredge at all times.	Contractor
Any spills shall be immediately reported to the Proponent and remediation actions undertaken in consultation with the EPA and DPI&F.	Contractor
Silt curtains shall be installed during dredging to control suspended solids and turbidity and to prevent dispersion of pollutants.	Contractor
Lighting used on dredge equipment shall be shielded or employ sodium vapour lamps.	Contractor
Dredging activities shall be timed to avoid marine species nesting periods.	Contractor
Dredging shall not occur during strong SE winds or strong wind-driven currents	Contractor
Turtle exclusion devices shall be fitted to dredging equipment and shall be fully operational prior to commencement of works.	Contractor
Water jets on the dredge suction head shall be activated to deter marine fauna.	Contractor
Wherever possible dredging should be timed to avoid turtle nesting periods.	Contractor
A fauna spotter/catcher shall be present during dredging activities to identify marine fauna in the dredge path.	Contractor
Where marine fauna is identified within proximity of dredging operations and capture or strike is likely, works shall cease until the animal moves on.	Contractor
Monitoring	Responsibility
Monitoring of surface water within Cleveland Bay shall be undertaken on a weekly basis during dredging to allow early identification of changes in baseline water quality conditions. Monitoring parameters shall include: pH, suspended solids / turbidity, electrical conductivity, phosphorous, nitrogen, iron and aluminium.	Contractor
Monitoring of suspended solids in dredge discharge water shall be undertaken daily at approximately 1 hour after commencement of dredging.	Contractor
Monitoring of turbidity plumes shall be undertaken to determine total suspended solids and turbidity levels. 5 monitoring locations shall be established at the north, south, east and west extents and at the centre of the plume. Sampling shall record the extent and duration of any plumes generated.	Contractor
Reporting and Recording	Responsibility
Monthly reports shall be provided to the Proponent (with copies provided to Council and EPA on request) on all monitoring activities, any visible emissions or complaints, control measures and corrective actions undertaken.	Contractor

Monthly reports shall be provided to the Proponent on the monitoring of control measures and corrective action taken.	The Body Corporate or Townsville Port Authority.
Performance Indicators	No damage caused to the marine fauna. Water quality maintained to acceptable standards as referenced in the Water Quality Report. Sedimentation Plumes controlled and not disbursed. Compliance with all other relevant EMP elements.
Corrective Actions	Non-conformance with this plan shall be documented and a Corrective Action Request (CAR) issued. All CAR's shall be included in the non-conformance register.
	If there is a breach or infringement of conditions, action will be taken consistent with the nature and seriousness of the breach or infringement. Action may include: • issue of "stop work notice" • notice to comply pending reinspection of the dredging site.