

5. Environmental Management Plan

5.1 Introduction

The following draft Environmental Management Plan (EMP) details the measures to be adopted to address identified impacts during the construction and operational phases of the Project. The EMP details:

- » Environmental elements – the environmental aspects requiring management consideration;
- » Potential impacts – potential impacts identified in the EIS;
- » Performance objective – the target or strategy to be achieved through management;
- » Management actions – the actions to be undertaken to achieve the performance objective, including any necessary approvals, applications, and consultation;
- » Performance indicators – criteria against which the implementation of the actions and the level of achievement of the performance objectives will be measured;
- » Monitoring – the intended monitoring program and the process of measuring actual performance;
- » Responsibility – responsibility for carrying out each action is assigned to a relevant person/organisation;
- » Reporting – the process and responsibility for reporting monitoring results; and
- » Corrective action – the action to be implemented in the case of non-compliance and the person/organisation responsible for action.

5.2 Overview

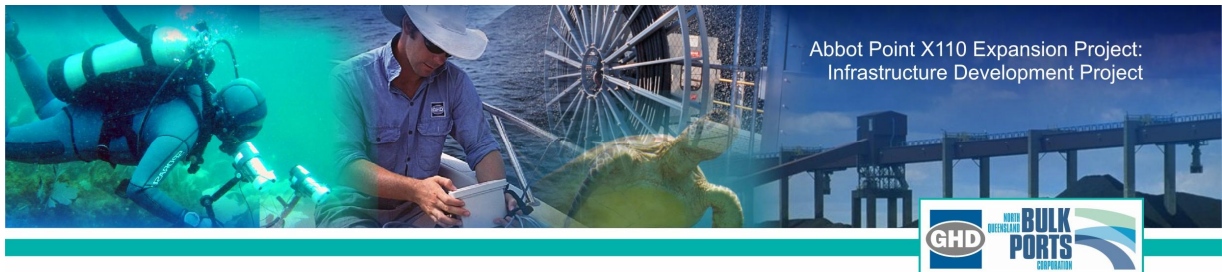
NQBP targets the achievement of high environmental standards and strives to ensure that activities within the Port are ecologically sustainable and have minimal impact on the natural environment. NQBP has an Environmental Management System in place which is externally certified to AS/NZS ISO 14001-2004.

The management measures and site monitoring required to ensure that potential impacts are identified and minimised are presented in this draft EMP. This plan is specific to the construction and operation of the Project and will be finalised following completion of the VEA and the issuing of development conditions for the Project. The VEA provides a prerequisite for the EMP, as it identifies the nature and magnitude of the potential impacts to be managed.

5.3 Objectives of the Environmental Management Plan

This EMP has been prepared as supporting documentation to accompany the VEA. The EMP is to provide:

- » NQBP with a practical framework for establishing best practice environmental management standards and guidelines to mitigate potential environmental harm for each activity undertaken;
- » A mechanism to assist managers, supervisors and construction crews to comply with current legislation;



- » A means of identifying environmental issues and to provide general procedures which must be considered when undertaking construction activities;
- » A mechanism to reduce the potential impacts of the construction and operation of the facility; and
- » A basis for establishing environmental due diligence during the construction and operational phases.

In essence, the EMP is to provide NQBP and contractors with a practical guide to measure compliance by all parties with the environmental requirements. The EMP achieves this by providing a framework for comprehensive monitoring and control of construction and operation of the facility. The aim is to minimise the potential for negative environmental impact.

The EMP identifies corrective actions if monitoring indicates that the performance requirements have not been met.

5.4 Structure of the Environmental Management Plan

Each EMP component is comprised of a number of elements, each with an overall associated management policy, mechanism of policy implementation, proposed monitoring program/s and potential corrective actions as described in Table 5-1.

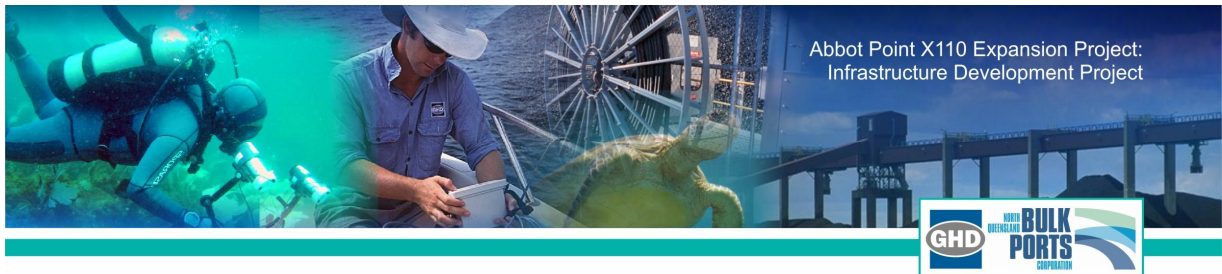
Table 5-1 Structure of environmental management plan

EMP Element Component	Description of Content
Element	The aspect of construction or operation requiring management consideration.
Policy	The guiding operational policy that applies to the element.
Policy Implementation	The mechanisms and actions through which the policy will be achieved.
Performance Requirements	The criteria by which the success of the implementation of the policy will be determined.
Monitoring and Reporting	The process of measuring actual performance, or how well the policy has been achieved, including the format, timing and responsibility for reporting and auditing of the monitoring results.
Corrective Action	The action to be implemented and by whom, in the case where a performance requirement is not met.

5.5 Environmental Training

NQBP will make sure that all employees and subcontractors involved with the Project receive environmental instruction in relation to the EMP.

Each person will be made aware and have an understanding of their obligations and duties detailed in this EMP.



5.6 Monitoring Responsibility

The primary responsibility for monitoring the potential impacts of the construction and operation of the Project will be with the Project Proponent. However, the Proponent may contract a third party (e.g. a consultant) to undertake any independent monitoring required.

The construction contractor will be responsible for the implementation of the construction EMP.

5.7 Auditing

The EMP and its inherent procedures and controls should be audited in the early and mid stages of development and on completion of the Project.

A suitably qualified auditor will carry out auditing of the EMP. Appropriate action shall be taken to ameliorate any deficiency in implementation of the EMP and any elements that prove to be unworkable.

5.8 Management Responsibility

A number of parties have responsibilities in relation to the implementation of the EMP. All project staff have a responsibility under the General Duty of Care of the *Environmental Protection Act 1994* and must adhere to the procedures outlined in the EMP at all times.

Specific management responsibilities are summarised in Table 5-2.

Table 5-2 Management responsibilities

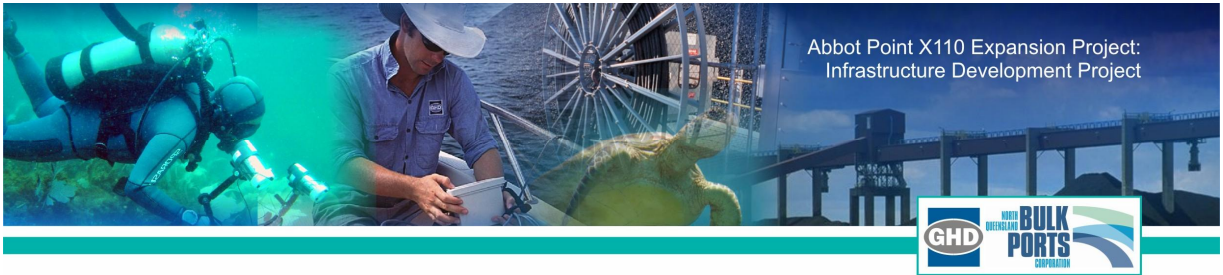
Role	Responsibilities
Principal – NQBP	<ul style="list-style-type: none"> » Implementation and monitoring of the EMP. » Provide all supervisory and management staff with an awareness and understanding of their responsibilities under this EMP. » Provide appropriate and adequate resources are allocated to allow for the effective implementation and maintenance of the EMP. » Conduct periodic reviews of environmental performance are conducted. » Report any major environmental incidents that may have a significant impact on the surrounding environment. » Provide employees and contractors with the relevant environmental instruction in relation to the EMP and awareness and understanding of their obligations and duties.



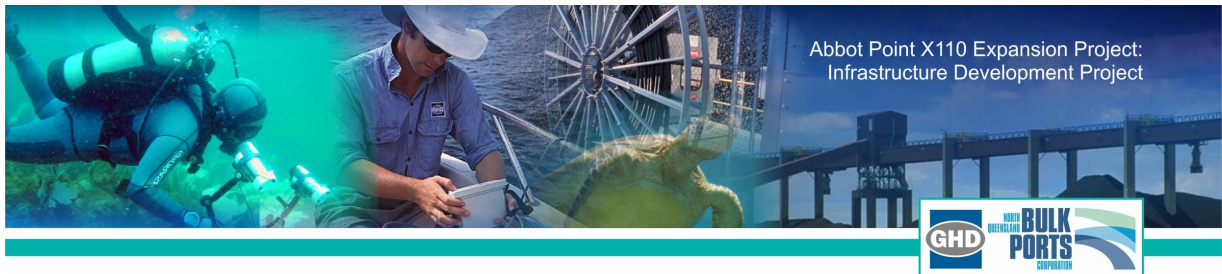
Role	Responsibilities
Construction Contractor	<ul style="list-style-type: none"> » Be aware of and understand the contents of and the reason for implementing the elements of the EMP and ensure all personnel including subcontractors adhere to these requirements. » Provide adequate training in the elements of the EMP to all personnel, including contractors. » Provide personnel involved in the project, including subcontractors and visitors, with the appropriate environmental training required to provide them with awareness and understanding of their responsibilities under the EMP as well as understanding of the environmental approvals that adhere to the strategies outlined in the EMP. » Carry out all work in accordance with the procedures outlined in the EMP. » Make sure that all environmental safeguards and precautions are in place and adhered to at all times at the site and activity. » Regularly inspect and monitor all activities for adherence to proper environmental safeguards. » Ensure that all equipment used is properly serviced and that all precautions are in place to prevent the likelihood of an environmental incident occurring. » Report all environmental incidents to the Superintendent's Representative as soon as practicable, but within 24 hours of them occurring.
Superintendent's Representative	<ul style="list-style-type: none"> » Be aware and understand the contents of, and the reason for, implementing the elements of the EMP.
All employees and sub-contractors	<ul style="list-style-type: none"> » Exercise environmental due diligence and achieve compliance with the EMP. » Report all environmental incidents to the Principal as soon as practicable, but within 24 hours of them occurring.

The elements included within this EMP are:

- » Element 1: Terrestrial Ecology
- » Element 2: Water Quality
- » Element 3: Groundwater Water Quality
- » Element 4: Aquatic Ecology
- » Element 5: Storage and Handling of Hazardous Substances
- » Element 6: Waste Management
- » Element 7: Noise
- » Element 8: Air Quality
- » Element 9: Environmental Emergency Procedures



- » Element 10: Traffic and Site Access Security
- » Element 11: Management and Staff Responsibilities
- » Element 12: Staff Environmental Training
- » Element 13: Cultural Heritage



5.9 Environmental Management Plan

5.9.1 Element 1: Terrestrial Ecology

Potential Impacts

Potential impacts from construction and operational activities on the terrestrial fauna and flora include:

- » Clearing of vegetation;
- » Habitat reduction; and
- » Reduction in water quality from erosion and sediment migration.

Policy

To limit the negative impacts on flora and fauna communities potentially affected by the project.

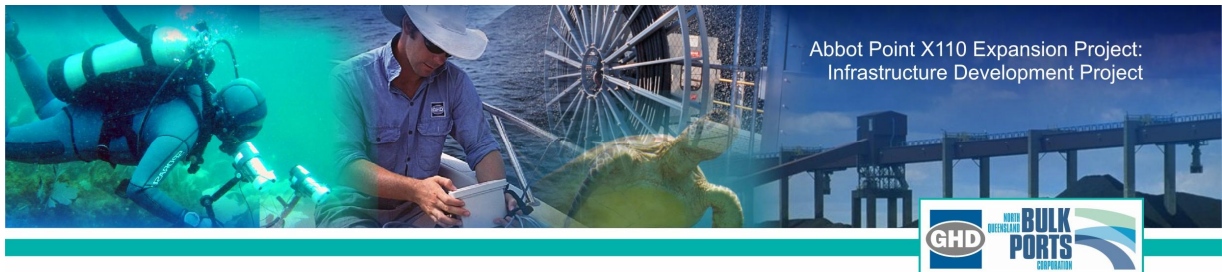
Policy Implementation

Pre-construction

- » Ensure all necessary permits and approvals are gained prior to the commencement of construction;
- » Induct all works personnel on the environmental sensitivity of the surrounding habitats;
- » Minimise vegetation clearing and habitat disturbance by clearly identifying clearing boundaries in the field, high visibility tape, barricade webbing or similar should be utilised;
- » Develop Erosion and Sediment Control Plan prior to commencement of Construction; and
- » Install sediment control fencing, in accordance with approved Erosion and Sediment Control Plan, around the perimeter of cleared land to protect the surrounding native vegetation from potential sediment runoff.

Construction

- » Regular auditing of the Project's environmental performance;
- » Conduct clearing and disturbance of wetland areas only during the dry season (May-October);
- » Maintain sediment control fencing, especially in the wet season when surrounding habitats are most at risk of disturbance;
- » Install permanent sediment control structures and measures;
- » Implement water quality controls and monitoring for the Caley Valley Wetlands. This may include the development and implementation of an ongoing water quality monitoring program and installation of permanent water quality meters, (refer Element 2: Water Quality);
- » Relocate hollow bearing trees and trees containing large nests where possible;
- » Retain large hollow logs and cleared hollow bearing trees where possible to use in suitable rehabilitation activities;
- » Ensure all native fauna is protected (including snakes) and not intentionally harmed as a result of construction works or worker actions (worker education would play a significant role);



- » Employ a fauna spotter/catcher to be present on site before habitat clearing commences, to remove any fauna from areas to be cleared and relocate any individuals to the closest suitable habitat before clearing starts;
- » Take care to avoid incidents of fauna fatalities from construction vehicles and machinery;
- » Erect and maintain suitable barrier fencing to restrict access for wildlife to construction areas;
- » A weed management strategy will be developed, to assist in preventing the introduction of weeds to the site and will include a program of weed eradication areas as appropriate;
- » All machinery must be thoroughly washed down to accepted industry standards before movement onto the site and before being moved to another site (using the nearest washdown facility);
- » Adaptive weed management strategies to be conducted where required, on the advice of a DERM and qualified personnel; and
- » Construction personnel are to be instructed to appropriately dispose of waste on site to discourage the migration of exotic predators such as foxes, cats and dogs into the area.

Operational Phase

- » Develop and maintain an ongoing monitoring program to monitor the condition of surrounding native vegetation, to ensure that areas of remaining or adjacent remnant vegetation are not impacted during the coal terminal operations and implement adaptive management measures when required;
- » Rehabilitate disturbed areas where possible, particularly around wetland environments and habitats of moderate/high value; and
- » Prepare and implement an adaptive weed management plan to control declared pest plant species.

Monitoring

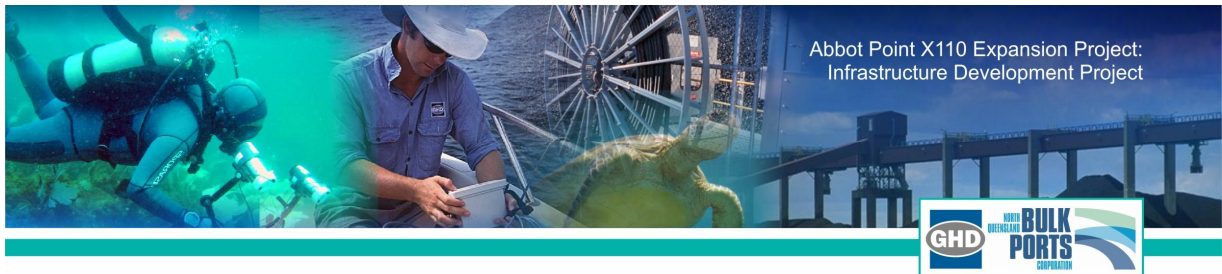
- » For areas of the site that are to be rehabilitated, a photographic record will be prepared by the contractor prior to construction commencing. This will be used as a baseline against which to measure the success of rehabilitation;
- » Conduct three monthly audits of the weed management plan for a period of twelve months and recommend adaptive management for weed invasions in habitats adjacent to the Project area; and
- » On completion of the construction works, monthly visual inspections of the rehabilitated areas will be carried out for a period of 12 months.

Reporting

- » Ensure any fauna injury or mortality is reported to the Project Superintendent and the Proponent's Representative immediately;
- » The Proponent's Representative will ensure that the relevant regulatory agencies (particularly DERM) are informed as soon as possible of the incident but within 24 hours, of the incident occurring; and
- » The Project Superintendent is responsible for implementing site controls.

Corrective Action

- » Review of the management actions.



5.9.2 Element 2: Water Quality

Potential Impacts

Construction of the land based components of the project has the potential to impact on surface-water quality off-site if contaminants such as those listed below are accidentally released and are not sufficiently contained:

- » Fuel and hydraulic fluid from plant and equipment, fuel storage and refuelling areas;
- » Chemicals such as paint;
- » Liquid wastes; and
- » Sediment-laden run-off from construction work sites.

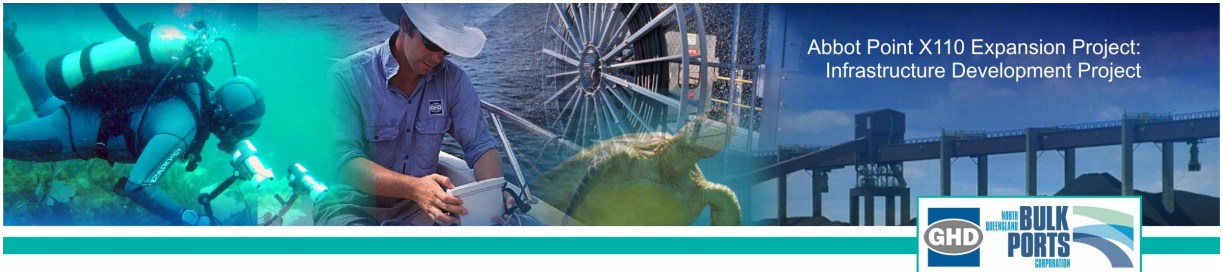
Policy

Prevent the discharge of contaminated surface-water to the surrounding environment.

Policy Implementation

Construction

- » All potentially contaminated water must be collected and treated on site prior to discharge, or removed from site in the event that treatment is not effective;
- » All working areas will be designed to meet surface-water quality criteria that will be agreed with DERM as part of the Construction EMP;
- » As a minimum, design of working areas will include:
 - Dedicated fuel and chemical storage areas that meet the requirements of AS 1940 and are appropriately signed with content and volume. The storage areas will be sited in locations that pose low risk to surrounding waters. All storage areas will be bunded and all associated infrastructure (that is, hoses, pipework, etc) will be contained within the bund. All bunds will contain an oily water interceptor and sump;
 - Spill kits will be available at all fuel and chemical storage areas and will include response equipment specific to the intended purpose. Personnel will be trained in the use of spill kits and in general emergency response;
 - Refuelling of plant, equipment and vehicles will take place in designated areas only (signed, bunded and provided with an interceptor) and in accordance with the documented refuelling procedure. All personnel will receive training on the correct refuelling procedure;
 - All fixed plant will be equipped with drip trays. Drip trays will be checked after significant rainfall events and any oily water will be collected and disposed of in such a way that prevents contamination of surface waters; and
 - All plant and machinery (particularly hydraulic hoses, fuel lines, etc) will be inspected daily and any defaults or signs of wear and tear reported to the Site Foreman for repair as part of a preventative maintenance program;
 - Sewerage and grey water will be managed through the existing WWTP onsite.
- » All oily water collected from sumps, interceptors and drip trays will be disposed at a suitably licensed waste disposal facility;



- » As part of the EMP (Construction), the contractor will develop a Stormwater Management Plan prior to construction commencing;
- » The minimum requirements for the Stormwater Management Plan are outlined below:
 - As far as reasonably practicable, uncontaminated stormwater will be diverted and/or segregated from work area runoff;
 - Stormwater detention basins will be constructed to collect site runoff and minimise the direct release of stormwater from the site;
 - Excavated soil will be stockpiled in such a way as to minimise release of sediment. There will be no stockpiling in close proximity to watercourses;
 - Pre-construction drainage will be required to divert excess water away from excavations and working areas to minimise sediment-laden run-off; and
 - Any water pumped or drained from excavations will be filtered through a suitable medium (straw bales, break tank, geotextile membrane, or settling pond) prior to being disposed of to vegetated land. There will be no direct discharge of silty water to watercourses.

Operation

- » All stormwater will be collected and managed on-site in the designed Primary and Secondary Sedimentation Ponds;
- » Water will be pumped from the two secondary sedimentation ponds to the storm water return dam prior to and after the wet season;
- » Water quality within the sedimentation ponds and adjacent Caley Valley wetland will be monitored in accordance with requirements from DERM;
- » Licensed waste disposal contractors will be used and tracking of wastes will be undertaken where required; and
- » Adequate storage and bunding of fuels and oils will be undertaken.

Performance Requirements

- » No visible water contamination; and
- » Surface water monitoring indicates no significant impacts to surface-water quality based on the monitoring results.

Monitoring

- » All monitoring will be in accordance with DERM requirements; and
- » During construction, daily visual site inspections will be carried out to determine if there is any turbid run-off from the site. Any matters identified will be addressed as required by site staff.

Responsibility

- » The Project Superintendent is responsible for ensuring the monitoring programs are implemented. The Project Superintendent may subcontract a specialist sub-consultant to undertake the monitoring program.



Reporting

- » Reporting will be in accordance with agency requirements.

Corrective Action

- » Should any parameters monitored fall outside of the stated water quality standards, the EMP (Construction) will be reviewed and amended as necessary.

5.9.3 Element 3: Groundwater Water Quality

Policy

To ensure protection of groundwater systems proximate to the development area.

Policy Implementation

Construction

- » All storage areas, stockyards and workshops should have appropriate contamination collection points for spills and surface water runoff collection points large enough for large storm events. This will allow monitoring of collected water prior to release and reduce the chance of contamination infiltrating into the groundwater;
- » Spills clean up procedures and kits are required to be on hand in park up areas, workshops and other areas where spills may occur. These procedures should comply with relevant standards and be backed by an appropriate environmental management system;
- » Stormwater management processes (refer Element 2: Water Quality) should be in place to ensure uncontaminated runoff cannot seep into the shallow water-bearing strata; and
- » All chemicals and potential contaminants (including oils) must be kept in designated storage area designed to relevant standards.

Operation

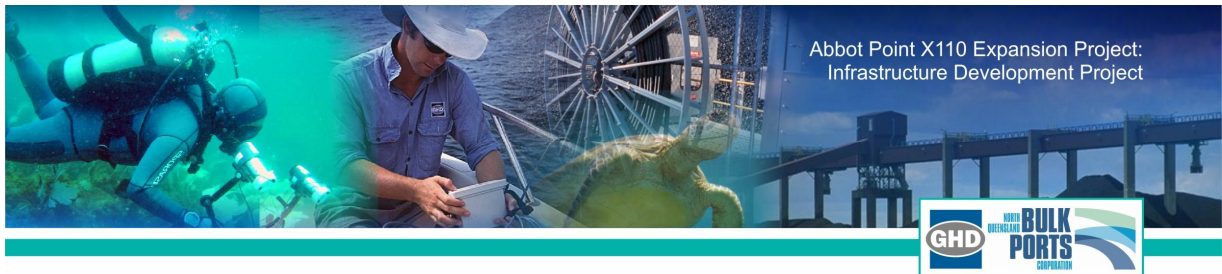
- » Develop and implement a groundwater monitoring program in consultation with DERM, which includes the installation of a groundwater monitoring bore network around the settlement ponds and effluent ponds to allow level and quality monitoring on a regular basis;
- » Implement a groundwater monitoring program; and
- » Conduct regular monitoring and assessment of groundwater level and quality.

Performance Requirements

- » No negative impact to existing groundwater levels and quality.

Monitoring

- » Develop and implement a groundwater monitoring program in consultation with DERM, to be conducted on a quarterly basis throughout the operational phase of the Project. The program is to monitor depth of groundwater, field analysis for salinity and pH and the collection of samples for laboratory analysis for the following parameters, which were monitored as part of the APCT X50 expansion:



- pH;
- Electrical conductivity;
- Total dissolved salts;
- Sulphate;
- Aluminium;
- Chromium;
- Copper;
- Cadmium;
- Arsenic;
- Iron;
- Lead;
- Manganese;
- Mercury;
- Nickel; and
- Zinc.

Responsibility

- » The Principal is responsible for ensuring the monitoring programs are implemented. The Project Superintendent may subcontract a specialist sub-consultant to undertake the monitoring program.

Reporting

- » Annual report based on quarterly analysis.

Corrective Action

- » Identify point source of negative impact and develop management plan in cooperation with DERM.

5.9.4 Element 4: Marine Ecology

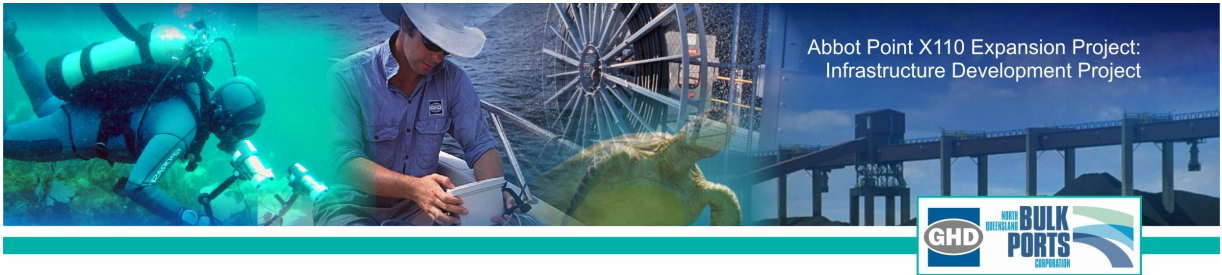
Potential Impacts

Potential impacts from construction and operational activities on the marine fauna and flora include:

- » Pile driving can remove benthic habitats and the associated species;
- » Removal of or direct physical injury to fauna through activities associated with in-water construction or vessel movement;
- » Lighting sources influencing turtle nesting of adjacent beaches; and
- » Increased operational risk associated with pollution discharges from the changed use of the area.

Performance Objective

To ensure marine and intertidal fauna and flora is not adversely impacted by construction or operation of the offshore infrastructure.



Policy Implementation

Construction

- » Implementation of design measures recommended in Section 4.11 in relation to lighting requirements to minimise impacts on marine turtles;
- » Cease offshore piling activities when marine mega fauna are observed within 50 m of operations and / or impact to fauna health is imminent; and
- » Ensure vessels comply with regulatory requirements for invasive marine species management.

Operation

- » Minimise external light sources; and
- » Utilise low sulphur lighting.

Performance Indicators

- » No fauna mortalities or injuries occur during the construction of offshore infrastructure.

Monitoring

- » No specific monitoring programs required.

Responsibility

- » The Project Superintendent is responsible for ensuring compliance.

Reporting

- » Ensure any fauna injury or mortality is reported to the Project Superintendent and the Principal immediately; and
- » The Principal will ensure that the relevant regulatory agencies are informed of the incident within 24 hours, including the Queensland Parks and Wildlife Service by phoning the Marine Stranding and Injury Hotline (1300 360 898).

Corrective Action

- » Review monitoring procedures should a mortality of injury to mega fauna occur; and
- » Liaise with Biosecurity Queensland where a marine pest threat is identified.

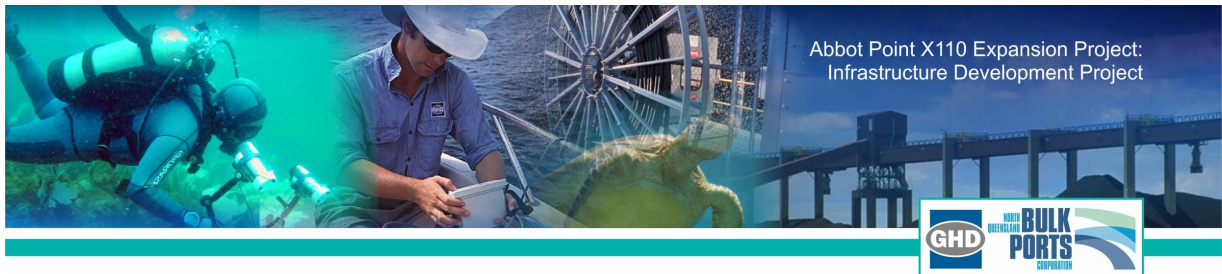
5.9.5 Element 5: Storage and Handling of Hazardous Substances

Potential impacts

Incorrect storage and handling of hazardous substances may result in environmental harm.

Policy

- » Minimise the potential for environmental harm from the release of hazardous substances to the surrounding marine, terrestrial or air environment; and
- » Adhere to applicable Australian and other recognised standards, applicable code of practises and relevant statutory provisions, especially the Dangerous Goods Safety Management Act 2004 and Workplace Health and Safety Act 1995.



Policy Implementation

- » Implement a Hazard and Operability Study (HAZOP) system during detailed design to identify all potential causes of chemical leakage and spillage or hazards to workers and ensure that appropriate protective systems are implemented.

Construction

- » Precautions should be taken by the construction staff to minimise the risk of spillage of pollutants, such as fuels, oils, greases and other chemicals associated with the development of the onshore and offshore infrastructure;
- » Petroleum product spillages will be immediately cleaned up with appropriate absorbent materials, along with remediation of the area if required. The used absorbent material will be kept in an appropriate container marked 'regulated waste' for a licensed waste contractor to remove;
- » Spill kits including containment and treatment equipment and materials for marine spills, will be provided at the site, near where equipment is being used. All personnel on the site will be familiar with the use of the clean up kit and dispose of waste in the prescribed manner;
- » Contain all wastes and hydrocarbon spillages and implement appropriate storage and disposal practices;
- » Implement Job Safety Analysis (JSA), safe work instructions, controlled laydown areas and provision of appropriate supervision to be undertaken during bund wall construction;
- » Hazardous substances handling is to be carried out by suitably trained personnel only;
- » Ensure training is provided for handling and storage of hazardous substances to all personnel working on site; and
- » Copies of MSDS for all hazardous materials to be maintained on-site.

Operation

- » Apply NQBP EMS procedures to the management of the coal terminal;
- » Develop a Safety Management System for operation of the facility;
- » Develop an Emergency Response Plan in conjunction with local authorities and emergency services; and
- » Maintain the hazardous goods storage area in a clean, safe and environmentally acceptable manner.

Performance Indicators

No hazardous materials are released into the surrounding environment.

Monitoring

- » The Construction Contractor shall regularly visually monitor the area around the construction site for hydrocarbon spillages; and
- » The Project Superintendent shall undertake regular monitoring of the performance of staff and contractors in terms of compliance with the Safety Management System.



Responsibility

The Construction Supervisor is responsible for monitoring the construction site for spills and initiating appropriate spill response and clean up measures as required.

Reporting

- » Weekly reports (as appropriate) will be completed on-site and reviewed by the Port Project Engineer for the duration of construction activity;
- » Immediately notify the Project Superintendent and DERM in the event of an uncontained spillage (to water or land);
- » In the event of a spill, the Construction Contractor is responsible for the preparation of an Environmental Incident Report and Corrective Action Report and for provision to the Principal's Environmental Officer; and
- » The Workplace Health and Safety representative will be responsible for enforcing all occupational and public health directives and keeping all related records and communications regarding this.

Corrective Action

In the event of an incident or failure to comply, a selection of the following actions will be undertaken as appropriate:

- » Investigate why the incident occurred and investigate and implement mitigating measures;
- » Ensure safety information provided is adequate and up-to-date and revise regularly as appropriate;
- » Ensure employees, contractors and visitors to the site are familiar with the procedures and policies relevant to their positions; and
- » Ensure safety directives and procedures are enforced and that safety documents are readily available to everyone on the site.

5.9.6 Element 6: Waste Management

Potential Impacts

Incorrect handling and storage of waste materials may introduce wastes into the environment.

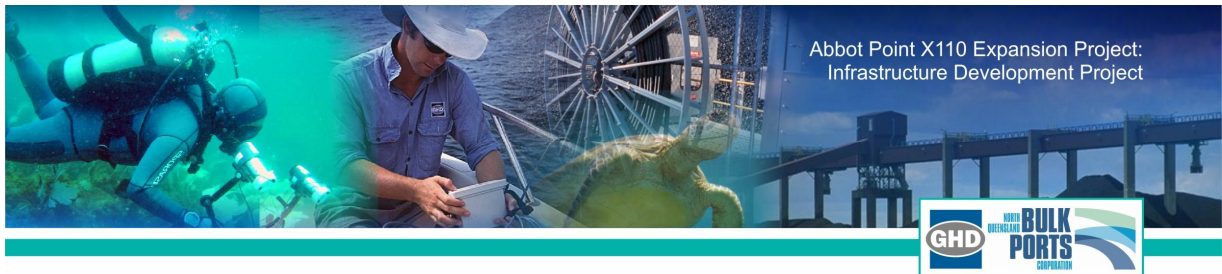
Policy

To ensure best practice management for the handling and storage of all waste materials on the construction site. No waste, other than treated wastewater is to be released into the surface, ground or marine waters.

Policy Implementation

Construction

- » Collection and disposal of waste from the construction site should be by a licensed contractor and disposed of at a licensed waste disposal facility; and
- » Ensure that all construction wastes and rubbish is contained in bins or other appropriate containers.



Operation

- » Quarantine wastes, from vessels entering the port will not be disposed of or managed onsite;
- » Receptacles for all types of waste received at the facility should be clearly labelled and sign posted. Furthermore, waste storage areas should be designed so that wind and pests including birds and other animals cannot spreading waste;
- » Information on the correct use of each facility should be displayed and readily visible on signs at the containers or receptacles; and
- » Additional facilities should be provided for recycling and/or reuse of suitable materials, including glass, aluminium, steel, paper, plastic and batteries.

Performance Indicators

- » All waste materials are handled and stored in a safe and appropriate manner; and
- » There is no environmental impact on, and disturbance to, the surrounding soil, groundwater or marine area from waste.

Monitoring

- » The Construction Contractor will monitor the storage of waste materials; and
- » The Principal will monitor the management and disposal of waste.

Responsibility

- » The Construction Contractor is responsible for ensuring the appropriate waste handling and storage procedures are implemented on the construction site; and
- » The Principal is responsible for ensuring the appropriate waste handling and storage procedures are implemented.

Reporting

- » In the event of the release of wastes into the environment, the Construction Contractor is to complete an Environmental Incident Report and Corrective Action Report and forward on to the Project Superintendent; and
- » The Principal is to immediately notify DERM in the event of an uncontained spillage.

Corrective Action

- » Implement appropriate management and preventative measures to reduce the potential for an environmental incident.

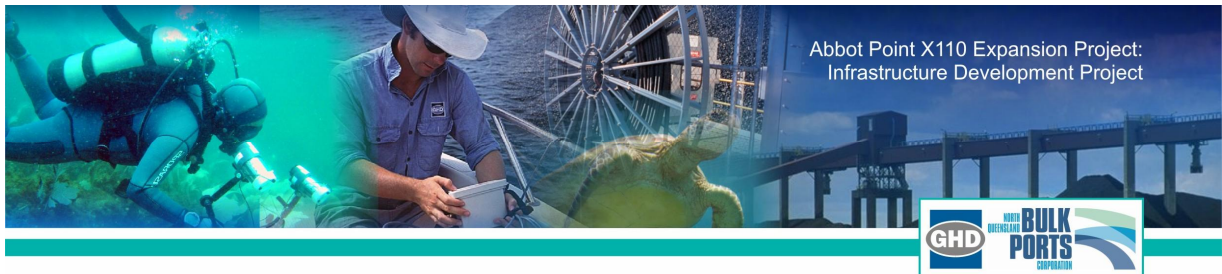
5.9.7 Element 7: Noise

Potential Impacts

Construction activities may result in increased noise levels at surrounding environmental receivers.

Policy

To reduce or minimise the impact of noise associated with the construction and operation of the facilities.



Policy Implementation

Construction

- » Ensure that all equipment is properly maintained and silencers are operational;
- » All plant and machinery will be turned off when not in use. Equipment found to be producing excessive noise will be taken out of use and repaired or removed from site; and
- » Employ a marine fauna spotter and cease off-shore piling operations where marine mega fauna are within close proximity of the operations.

Operation

- » Conduct regular checks and perform maintenance of equipment as necessary to ensure compliance with the EPP Noise.

Performance Requirements

- » Absence of complaints from people directly affected by construction and operation noise.

Monitoring

- » No specific monitoring requirements are necessary.

Responsibility

- » The Project Superintendent is responsible for logging and responding to all noise complaints during construction; and
- » The Principal is responsible for logging and responding to all noise complaints during operation.

Reporting

- » All construction phase complaints are to be reported to the Project Superintendent;
- » All operational phase complaints are to be reported to the Principal; and
- » Maintenance of a record of any noise complaints in a log book.

Corrective Action

- » All complaints are to be responded to within 24 hours of receiving the complaint; and
- » Maintain all equipment so that noise levels do not exceed specified guidelines.

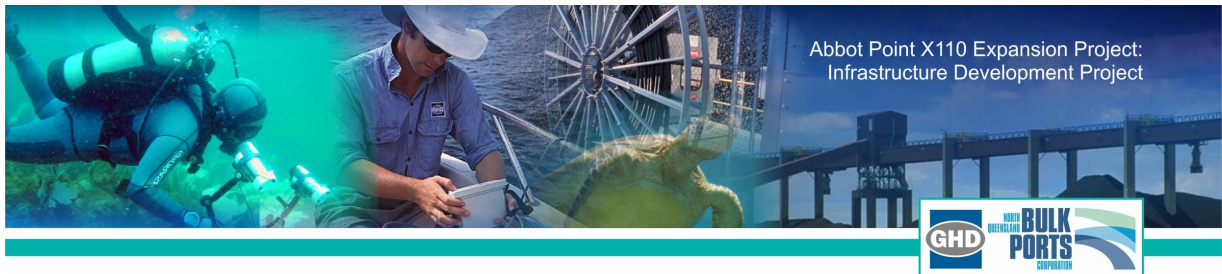
5.9.8 Element 8: Air Quality

Potential Impacts

Air emissions, including dust, will be generated on site during construction and could potentially impact on environmental receptors. Odour is not expected to be a concern for this project.

Policy

To minimise the air emissions produced during construction and operations of the coal terminal.



Policy Implementation

Construction

- » Limit the conduct of clearing and other significant dust generating activities to periods of suitable weather condition, ie: excluding period of high winds;
- » All plant and equipment will be regularly serviced and well maintained in order to reduce emissions of greenhouse gases;
- » Vehicular speeds will be limited to 20 km/h on areas of unconsolidated or unsealed soil associated with the immediate site works;
- » Water spraying will be utilised as required to dampen dust on working areas and/or access tracks; and

Operation

- » Implementation of recommended dust control measures as specified in Section 4.12 during detailed design and construction.

Performance Requirements

- » All local dust complaints are to be responded to within 12 hours; and
- » Mitigation measures implemented within 24 hours of receiving a verified dust complaint.

Monitoring

- » Visual inspections of working areas and access tracks will be carried out daily by Site Environmental Officer; and
- » Visible observations of dust moving off-site; especially during dry and/or windy weather.

Responsibility

- » The Project Superintendent is responsible for visual monitoring and control of emissions from the construction site.

Reporting

- » The Construction Contractor is to report any excessive emissions from the site to the Project Superintendent; and
- » A community complaints register will be maintained in order to identify areas where dust management is a significant problem.

Corrective Action

- » Cease dust generating activity; and
- » Implement measures to reduce dust generation



5.9.9 Element 9: Soil Management

Potential Impacts

Intrusive site investigations and laboratory analysis have confirmed the presence of ASS within the X110 Expansion area that exceeds the QASSIT guidelines *action criteria*. Any disturbance of these ASS will need to be managed appropriately to ensure that environmental harm does not occur.

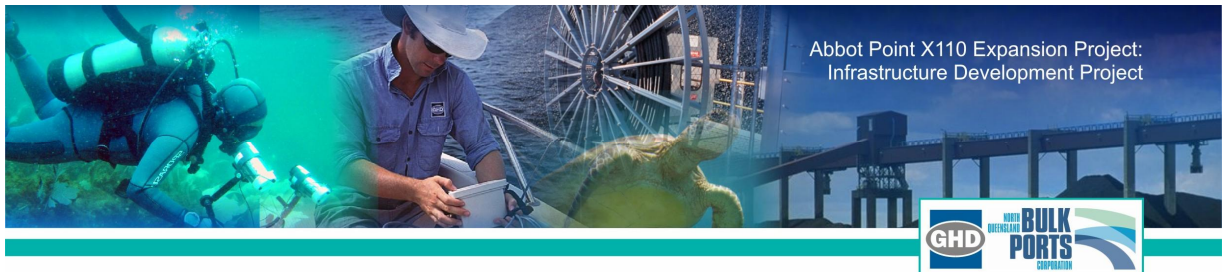
Policy

The Queensland Acid Sulfate Soil technical Manual – Soil Management Guidelines (QASSIT, 2002) applies to the management of ASS in Queensland and recommends the following management principles.

1. The disturbance of ASS should be avoided wherever possible.
2. Where disturbances of ASS is unavoidable, preferred management strategies are:
 - minimisation of disturbance;
 - neutralisation;
 - hydraulic separation of sulfides either on its own or in conjunction with dredging; and
 - strategic reburial (reinterment)⁴.

Other management measures may be considered but must not pose unacceptably high risks.

3. Works should be performed in accordance with *best practice environmental management* when it has been demonstrated that the potential impacts of works involving ASS are manageable to ensure that the potential short and long term environmental impacts are minimised.
4. The material being disturbed (including the *in situ* ASS) and any potentially contaminated waters associated with ASS disturbance, must be considered in developing a management plan for ASS and/or in complying with the *general environmental duty*.
5. Receiving marine, estuarine, brackish or fresh waters are not to be used as a primary means of diluting and/or neutralising ASS or associated contaminated waters.
6. Management of disturbed ASS is to occur if the ASS *action criteria* is reached or exceeded.
7. Stockpiling of untreated ASS above the permanent groundwater table with (or without) containment is not an acceptable long-term management strategy. For example, soils that are to be stockpiled, disposed of, used as fill, placed as temporary or permanent cover on land or in waterways, sold or exported off the treatment site or used in earth bunds, that exceed the ASS *action criteria* should be treated/managed.
8. The following issues should be considered when formulating ASS environmental management strategies:
 - the sensitivity and environmental values of the receiving environment. This includes the conservation, protected or other relevant status of the receiving environment (eg. Fish Habitat Area, Marine Park, Coastal Management District and protected wildlife);
 - whether groundwaters and/or surface waters are likely to be directly or indirectly affected;
 - the heterogeneity, geochemical and textural properties of soils on-site; and



- the management and planning strategies of Local Government and/or State Government, including Regional or Catchment Management Plans/Strategies and State and Regional Coastal Management Plans.

Policy Implementation

For projects that disturb greater than 1000 tonnes of ASS that exceeds the QASSIT *action criteria* (0.03 %S or >18 mol H⁺/tonne equivalent acidity) a detailed acid sulfate soil management plan (ASSMP) and development consent will be required. One of the functions of the ASSMP is to identify the treatment categories for any disturbances of ASS. Treatment categories are risk-based according to acidity in the soil together with the volume of soil being disturbed. These range between *Low* (≤ 0.01 tonnes lime), *Medium* (≤ 0.01 to 1 tonne lime), *High* (<1 to 5 tonne lime), *Very High* (< 5 to 25 tonne lime), to *Extra High* (> 25 tonne lime). The level of controls required for ASS management is proportional to treatment category.

The primary disturbance for ASS will be that associated with filling earthworks for the X110 Expansion area and construction of the new Sedimentation Ponds. Hence these will need to be done in accordance with an ASS Management Plan that includes provision for filling over *in situ* ASS. Any other disturbances of ASS, such as excavations, borings, etc will also need to be conducted in accordance with the ASSMP.

Performance Requirements

- » No negative impact to existing surface or groundwater quality from ASS.

Monitoring

- » The Construction Contractor is responsible for ensuring the appropriate ASS procedures are implemented on the construction site in accordance with the ASS Management Plan.

Reporting

- » In the event of the observed release of ASS, or negative change in surface or groundwater, the Construction Contractor is to complete an Environmental Incident Report and Corrective Action Report and forward on to the Project Superintendent.

Corrective Action

- » Review existing management measures and procedures and investigate the cause of the incident.
- » Implement revised management and preventative measures to reduce the potential for an environmental incident.

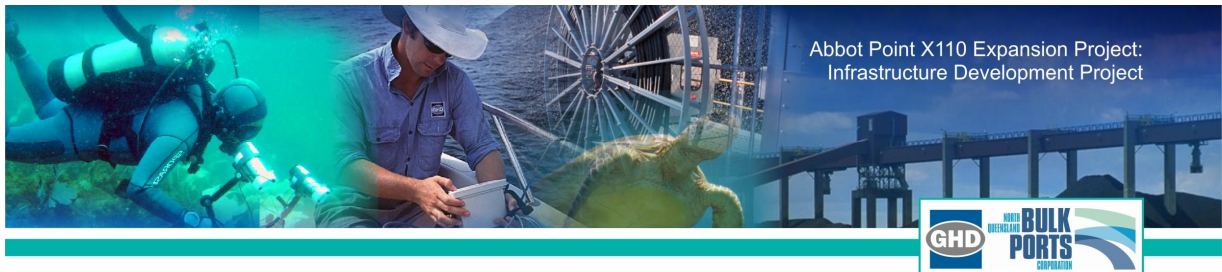
5.9.10 Element 10: Environmental Emergency Procedures

Potential Impacts

Environmental incidents have the potential to result in environmental harm during construction and operation of the facility.

Policy

- » To identify and reduce the potential for an environmental incident before it occurs, so as to prevent damage to the surrounding marine environment and the public; and



- » To respond quickly and effectively in the event of an emergency or environmental incident.

Policy Implementation

Construction

- » Prevent and reduce the potential for an environmental incident by ensuring the implementation of Best Practice Management throughout the construction operations and by implementing the EMP;
- » The Construction Contractors is to notify the Project Superintendent and relevant emergency response agencies immediately in the event of an environmental incident and initiate response and corrective action procedures pending the Project Superintendent and the proponent's directive; and
- » Identify any near miss incidents and put in place corrective actions to prevent reoccurrence.

Operation

- » A number of Emergency Response Plans will be prepared for the Project by the Principal to guide those responding to a variety of potential emergency situations. These include:
 - A Chemical and Fuel Spill Emergency Response Plan. This plan will detail the specific planning, training and response requirements for oil spill management.
 - A Fire/Explosion Emergency Response Plan.
 - A Total Power Outage Emergency Response Plan.
 - A Natural Hazard Emergency Response Plan.
- » The Principal will prepare a suitable spill containment and cleanup procedure for the Project.

Performance Requirements

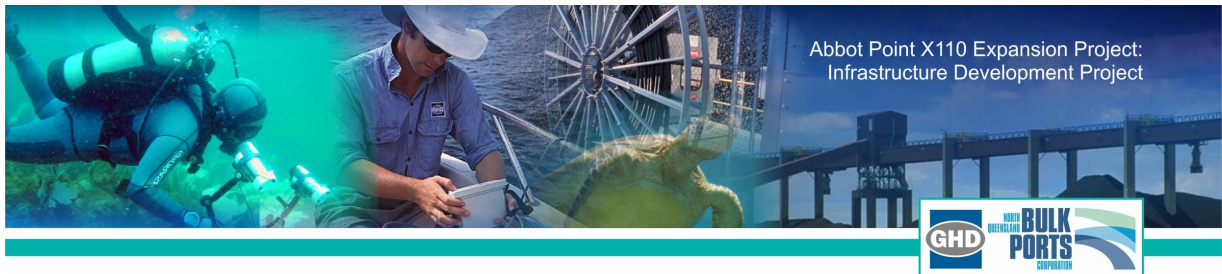
- » Maintain public and navigational safety;
- » Maintain the ecological integrity of the surrounding marine environment;
- » Minimise the potential for an environmental incident;
- » Correct storage of fuel or chemicals including updated MSDS;
- » Implementation of bunding, spill response training and spill response kits; and
- » Facilitate the timely and effective implementation of the appropriate emergency response procedures in the event of an environmental incident.

Monitoring

- » Monitor and record all unusual and inappropriate procedures and events; and
- » The Principal to undertake regular monitoring of the performance of staff and contractors in terms of compliance with the Emergency Response Plans.

Responsibility

- » The Construction Contractor is responsible for monitoring and immediate response to all environmental incidents under the direction of the Principal; and
- » The Principal is responsible for ensuring the implementation and monitoring of the Emergency Response Plan.



Reporting

- » The Construction Contractor will report environmental incidents to the Principal and relevant government agencies immediately.
- » In the event of an environmental incident, the Construction Contractor is to complete an Environmental Incident Report and Corrective Action Report and forward on to the Project Superintendent; and
- » Incident or non-compliance corrective action shall be closed out by the Principal according to an agreed responsibility and timescale.

Corrective Action

- » The Project Superintendent and/or Principal will determine the appropriate emergency response and corrective actions to be implemented depending on the type and magnitude of the event; and
- » Establish twenty four (24) hour contact details for the Project Superintendent (eg: mobile phone and pager).

5.9.11 Element 11: Traffic and Site Access and Security

Potential Impacts

Construction and operation traffic will not exceed road design capabilities for road interfaces with the external road network. Potential risks to safety if unauthorised vehicles or vessels are too close to the construction areas.

Policy

To maintain functionality of the internal and external road network. Ensure that marine construction operations do not unduly interfere with vessel movements in the Port. Ensure that unauthorised personnel are prevented from entering construction areas.

Policy Implementation

Construction

- » Provide a notice to mariners advising the commencement of off-shore construction and expected duration of operations;
- » Marine Construction operator to liaise with the Regional Harbour Master regarding vessel movements;
- » Implement traffic management measures as required for the management of major traffic hazards;
- » Access to the site is controlled through installation of check points and maintenance of appropriate signage; and
- » Construction areas are fenced as necessary.

Operation

- » Implement NQBP security and site access policy.



Performance Requirements

- » All vessels remain well clear of the marine construction sites;
- » No complaints received about shipping access to and from the Port during construction; and
- » No complaints regarding road function within and leaving the Port.

Monitoring

- » Visual inspections of the construction area to ensure no unauthorised vessels or vehicles are within the area.

Responsibility

- » The Construction Contractor is responsible for liaising with the Harbour Master regarding vessel movements; and
- » The Construction Contractor is responsible for ensuring safe movement of vehicles and vessels to and within the construction site.

Reporting

- » MSQ are to advise the Project Superintendent of any complaints or incidents.

Corrective Action

- » Increase the number of signs/buoys and/or relocate them to ensure they are effective;
- » Contact boat owners who approach too close and explain the hazards; and
- » Review security policy as required.

5.9.12 Element 12: Management and Staff Responsibilities

Potential Impacts

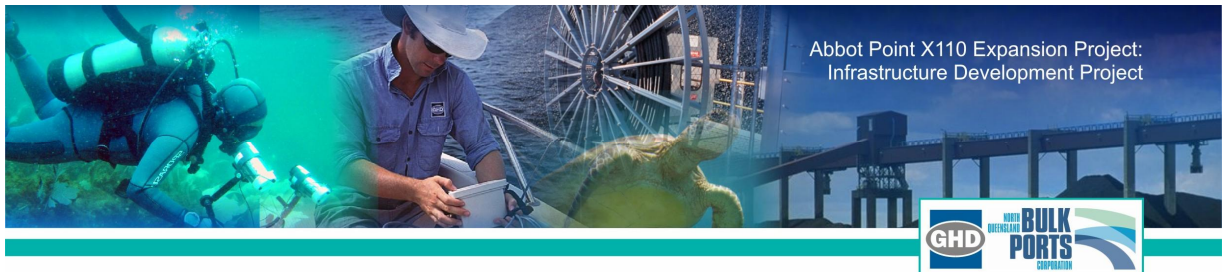
Ineffective or inadequate communication will restrict the management of environmental incidents and Port access during the construction, potentially placing the environment or people at risk.

Policy

To ensure that there is an identifiable chain of command and available procedures in place for communication and reporting of environmental issues.

Policy Implementation

- » A written chain of command indicating authority and responsibilities shall be available for both the Principal, the Construction Contractor. This is to be established with the Construction Contractor prior to the commencement of works;
- » The Principal is to be responsible for ensuring that all relevant staff and the Construction Contractor are familiar with reporting procedures and comply with the EMP and all approval and permit conditions;
- » The Construction Contractor is to inform the Project Superintendent of any environmental incident or a potential environmental incident, which has the potential to cause environmental harm as soon as possible;



- » On-site personnel (including the Principal, the construction contractors' crew, visitors, contractors, auditors and consultants) are responsible for reporting an incident or potential incident if he/she is the first to notice or cause an incident;
- » Report forms are to be available on-site at all times;
- » Report forms are to include:
 - a complaints register;
 - an environmental incident and corrective action report; and
 - a site inspection/progress report.

Performance Requirements

- » The Principal and the Construction Contractor know the procedures for communication of information between all relevant parties; and
- » The establishment and implementation of a practical framework for the reporting and amelioration of potential environmental incidents is in place.

Monitoring and Reporting

- » The Principal is responsible for ensuring that reporting and management procedures are being followed.

Responsibility

The Principal is responsible for ensuring that reporting and management procedures are being followed.

Corrective Action

The Principal is to modify reporting procedures as required in consultation with the relevant personnel, i.e. Regional Harbour Master, Construction Contractor etc.

5.9.13 Element 13: Staff Environmental Training

Potential Impacts

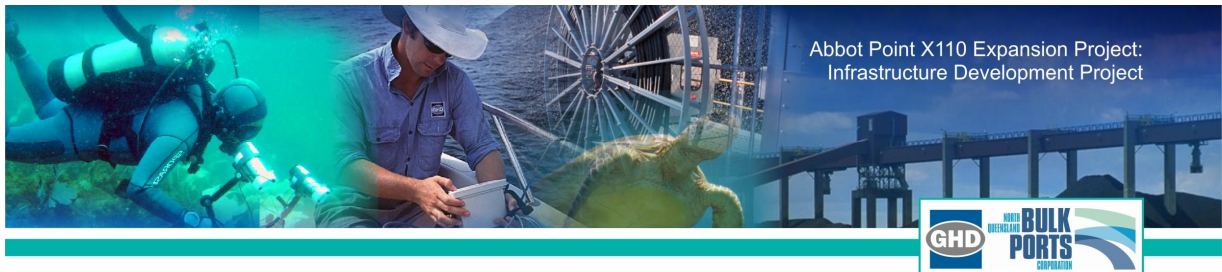
Inadequate training and awareness can result in environmental and safety impacts.

Policy

To ensure that relevant Principal and Contractor personnel are adequately trained in environmental awareness with regard to the Project.

Policy Implementation

- » The Principal is to ensure that environmental training is provided to all personnel under their jurisdiction (including sub contractors, visitors, auditors, regulatory personnel, consultants etc) that are involved in the construction and associated monitoring. Environmental training will include, as a minimum, instruction on the requirements of this EMP and where personnel may access details of this EMP; and
- » The Construction Contractor is to ensure that appropriate environmental training is given to all personnel under their jurisdiction (including crew, sub contractors, consultants etc) that are involved in



the construction and associated monitoring. Environmental training will include as a minimum instruction on the requirements of this EMP and where personnel may access details of this EMP.

Performance Requirements

All relevant Principal, Superintendent's Representative and Construction Contractor personnel understand the environmental issues associated with the proposed work.

Monitoring and Reporting

- » The Principal will ensure that all relevant personnel have been given adequate training in the areas outlined above and are familiar with the EMP and their environmental responsibilities; and
- » The Principal, Superintendent's Representative and the Construction Contractor will maintain records of all personnel who have undergone training in relation to the EMP and general environmental responsibilities.

Responsibility

- » The Principal is responsible for ensuring that all personnel under their jurisdiction have been given adequate training in the areas outlined above;
- » The Construction Contractor is responsible for ensuring that all personnel under their jurisdiction have been provided with adequate training in the areas outlined above; and
- » The Superintendent's Representative is responsible for ensuring that all personnel under their jurisdiction have been provided with adequate training in the areas outlined above.

Corrective Action

The Principal and Construction Contractor will ensure that anyone who appears to lack an understanding in the above areas undergoes adequate retraining.

5.9.14 Element 14: Cultural Heritage

A draft Cultural Heritage Management Plan (CHMP) will be finalised prior to the commencement of construction. The Principal is required to implement the CHMP in conjunction with Traditional Owners.