

8 Environmental Management Plans

This section directly addresses concerns raised in three comments by respondents.

8.1 Acid Sulphate management plan



Pacific Reef Fisheries Guthalungra Project
Acid Sulphate Soil – Environmental Management Plan

6.2.1 Objectives

The objectives of this EMP are:

- To recognise the potential for construction activities to disturb Potential Acid Sulphate Soils (PASS) and Actual Acid Sulfate Soils (AASS).
- To ensure that there are no adverse impacts to the environment as a result of acid sulfate generation and drainage
- To ensure that acid sulfate soils are detected and managed appropriately

6.2.2 Performance Criteria

- Compliance with the QASSIT guidelines and procedures relating to neutralising existing acidity and the prevention and protection against further generation of sulfuric acid
- Potential acid sulfate soils detected immediately are managed according to regulatory guidelines and the management strategies outlined in this Environmental Management Plan (EMP)
- No sulfuric acid drainage or leachate which occurs is to exit the freehold property
- Management of PASS material in accordance with the following legislation and guidelines:
 - Section 24 of the *Environmental Protection (Water) Policy 1997*;
 - Section 36 “General Environmental Duty” *Environmental Protection Act 1994* and;
 - Section 125 of the *Fisheries Act*.
 - Queensland Acid Sulfate Soil Technical Manual Soil Management Guidelines, Version 3.8.

6.2.3 Monitoring and Reporting

To ensure any adverse impacts are mitigated most site developments require detailed investigations prior to and during disturbance activities. The *Guidelines for Sampling and Analysis of Know Land*

Acid Sulfate Soils (ASS) in Queensland 1998 (QASSIT Guidelines) provides details for the basic requirement for PASS site investigations.

A Phase 1 investigation has been completed for this site. Phase 1 involved a staged investigation across the proposed development site based on ongoing preliminary testing results. Reported oxidisable sulphur (S%) levels were below action trigger levels as reported in these guidelines. To this effect the site has been categorised a Low Level of Treatment – Category L requiring minimal amounts of lime in any neutralising process.

Ongoing monitoring and reporting is to include the following:

- Inspections of earthworks will be undertaken every 50,000 m³ to ensure that any PASS material is not unnecessarily excavated and exposed to aerobic environments for any extended time period.
- Inspection of soils will involve:
 - Initially, site testing to be conducted by completion of a field peroxide test to determine field pH(f) and pH after oxidation (pH fox).
 - Visual inspections of soil quality shall be ongoing during all excavation work.
- A pH meter is to be used to monitor any ponded water or standing water directly related to earthworks and excavations or drainage formations.
- Any surface waters which come into contact with excavated PASS material will require to be monitored for pH levels (and treated with sodium bicarbonate if pH of the water is less than 6.5).

6.2.4 Corrective Action/Contingency Plan

- When potential acid sulfate soils (PASS) are detected at the treatment levels specified in the Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines, Version 3.8 then treatment should be carried out in accordance with those Guidelines. During excavations then work shall proceed by removing and stockpiling PASS material for either deep burial or lime treatment.
- When potential acid sulfate soils (PASS) are detected at the treatment levels specified in the Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines, Version 3.8 then treatment should be carried out in accordance with those Guidelines. Any identified excavated PASS material is to be treated as follows:
 - PASS material is to be immediately transported to a selected area onsite for deep burial or lime treatment. The selected management option is dependent on any field testing results and background soil investigation results for the specific area involved.
- Effective lime treatment is to include:
 - Placement of excavated PASS material in a bunded area approved by the Minister or his delegate for treatment
 - Use of lime to neutralise soil before any oxidation occurs
 - Adopt a safety factor of 1.5 when performing liming calculations under QASSIT treatment guidelines
 - Any lime added to soil should be adequately mixed preferably using mechanical mixing methods

- Ongoing testing of stockpiled material to address degree of treatment and the need for any further lime addition
- Successfully treated PASS material to be tested and following results that satisfy the Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines, Version 3.8, returned to the construction area for final use
- Placement in deep burial is to include:
 - immediate transport of excavated PASS material to a defined burial site approved by the minister or his delegate which may include incorporation into construction of pond walls.
 - coverage of material as soon as possible preferably within 16 hours of exposure based on sandy PASS material exposure time limit

6.2.5 Management Strategies and Procedures

- Australian Height Datum (AHD) levels of the construction area shall be determined prior to commencement of excavation works.
- A bunded area will be used as required for any stockpiling and securing of PASS on site prior to deep burial or treatment with lime.
- The Site Manager (to be determined) responsible for construction activities will be aware of the location of PASS material on the site.
- Treatment and disposal should be in accordance with the Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines, Version 3.8, Environmental Protection Authority (licence, instructions), Department of Primary Industries (conditions of 'section 5 permit) or Department of Natural Resources (Water Resources Act approval).
- The PASS stockpiling area shall be inspected regularly to ensure that leachate is not reaching the surrounding environment and that the PASS is being properly contained.
- pH testing of any runoff water and leachate generated will be conducted on initial occurrence and then weekly. Corrective action (additional liming, improved bund security) shall be undertaken if pH_f <6.5.
- No PASS material to be relocated offsite.
- Records shall be kept of all PASS testing done on site. The site manager shall sign off these records.

8.2 Weed and pest management plan

Weed Management	
Issue	Weed management during operation.
Potential Impacts	Potential spread of weeds from vehicles entering and leaving the site. Increase in the extent and rate of weed infestation due to changes in groundcover.
Management Objectives	To meet the obligations of the <i>Rural Lands Protection Act 1985</i> To liaise with Bowen Shire Council and other appropriate organisations to determine best practice for weed management To ensure weed awareness training is included in staff and contractor induction processes prior to site access. To ensure vehicles and equipment is cleaned prior to movement from infested areas to non-infested areas. To preserve the conservation values of the area and, where possible, restore degraded ecosystems and the habitat of fauna species. To ensure the further spread of weeds are minimised and existing weeds are eventually removed.
Statutory and Other Requirements	<i>Rural Lands Protection Act 1985</i>

Weed Management				
Management Action	Performance Criteria	Monitoring	Reporting	Corrective Action
Identify and locate weed species.	<i>Rural Lands Protection Act 1985</i>	Prior to and during construction, assess potential for weed infestation, new outbreaks and possible impacts. Survey and map area.	Environmental Officer shall report to the Farm Manager and Noxious weeds officer – shire council. A permanent record of weeds will be generated during construction and kept at the farm office.	Review awareness training program.
Minimise the spread of existing weeds.	<i>Rural Lands Protection Act 1985</i> wash down requirements. New infestation of exotic weed species.	Log vehicle movements within weed infested areas of the property. Instigate machine wash-down weekly.	Environmental Officer shall report to the Farm Manager and Noxious weeds officer – shire council.	Review vehicle log data and implement weed management plan. Review awareness training program.
Minimise and reduce current weed	Visual assessment of halted or	Random site sample of population	Environmental Officer shall report to	Implementation of a weed



Weed Management				
Management Action	Performance Criteria	Monitoring	Reporting	Corrective Action
outbreaks/ population size.	reduced infestation of exotic weed species. <i>Rural Lands Protection Act 1985.</i>	status of declared weed species, and control/ reduction methods established.	the Farm Manager and Noxious weeds officer – shire council.	management plan. Review accepted practice implementation.



8.3 Mosquito management plan

Mosquito Management	
Issue	Mosquito management during operation.
Potential Impacts	Potential increase of mosquitoes from open water on-site.
Management Objectives	<p>To meet the obligations of the <i>Health Regulation 1996</i></p> <p>To liaise with Bowen Shire Council and other appropriate organisations to determine best practice for mosquito management</p> <p>To ensure mosquito awareness training is included in staff induction processes.</p> <p>To ensure artificial mosquito breeding areas are identified and removed.</p> <p><i>Health Regulation 1996</i></p>
Statutory and Other Requirements	<i>Health Regulation 1996</i>

Weed Management			
Management Action	Performance Criteria	Monitoring	Reporting
Identify and locate potential mosquito breeding sites.	<i>Health Regulation 1996</i>	Prior to and during construction, assess potential for mosquito infestation.	Environmental Officer shall report to the Farm Manager and Mosquito management officer – shire council.
Prevent or minimise the creation of artificial mosquito breeding sites.	<i>Health Regulation 1996</i> requirements. New infestation of mosquitoes.	Routine checking of site for mosquito breeding sites.	Environmental Officer shall report to the Farm Manager and Noxious weeds officer – shire council.
			<p>Review records and implement mosquito management plan.</p> <p>Review awareness training program.</p> <p>Review accepted practice implementation.</p>