

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN — R&D FACILITY

34 Mill Street, Mossman 4873

For CocoNutz Australia Pty Ltd
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W O L T E R
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1. GLOSSARY & DEFINITIONS

Abbreviation	Description
ARI	Average Recurrence Interval
AS	Australian Standard
ASS	Acid Sulfate Soils
BioA	Biosecurity Act 2014
CEMP	Construction Environmental Management Plan
CPESC	Certified Practitioner of Erosion and Sediment Control
CLR	Contaminated Land Register
dB	Decibels
dBA	A-weighted decibels
DEE	Department of Environment and Energy
DES	Department of Environment and Science
DAFF	Department of Agriculture Forestry and Fisheries (QLD)
DBH	Diameter at Breast Height
DSC	Douglas Shire Council
EA	Environmental Authority
EPAct	Environmental Protection Act 1994 (QLD)

Abbreviation	Description
EIS	Environmental Impact Statement
EMR	Environmental Management Register
EMP	Environmental Management Plan
EP	Equivalent Person
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (C'wealth)
ERA	Environmentally Relevant Activity
ESA	Environmentally Sensitive Area
ESC	Erosion and Sediment Control
ESCP	Erosion and Sediment Control Plan
EVNT	Endangered, Vulnerable and Near Threatened
GIS	Geographic information system
km	Kilometre
LA _{eq,adj,15min}	A-weighted SPL of a continuous steady sound, adjusted for tonal character that within any 15 minute period has the same square sound pressure as a sound level that varies with time
LGA	Local Government Area
m	Metre
MCU	Material Change of Use

Abbreviation	Description
MNES	Matter of National Environmental Significance
MSES	Matter of State Environmental Significance
MLES	Matter of Local Environmental Significance
NATA	National Association of Testing Authorities
NCA	Nature Conservation Act 1992 (QLD)
PASS	Potential Acid Sulfate Soils
QLD	Queensland
R&D	Research and Design
RE	Regional Ecosystem
RoL / RaL	Reconfiguration of a Lot
ROW	Right of Way
SDS	Safety Data Sheets
SPL	Sound Pressure Level
TPZ	Tree Protection Zone
VMA	Vegetation Management Act 1999 (QLD)
WONs	Weed of National Significance

Term	Description
The Activity	Operation of the research and design facility and all associated aspects
Administering Authority	Unless otherwise defined the Local Government authority responsible for the geographic region in which the project is located
Authorised Person	A person holding office under an appointment pursuant to the Environmental Protection Act 1994.
Background Noise Level	The A-weighted sound pressure level exceeded for 90% of the time period (15 minutes or greater) using fast response.
Clearing	<p>In reference to Grass Scrub or Bush: Removal of vegetation by disturbing root systems and exposing underlying soil (including burning), but does not include</p> <ul style="list-style-type: none"> i. Flattening or compaction by vehicles if the vegetation remains living ii. Slashing or mowing of vegetation to facilitate access tracks iii. Weed removal <p>In reference to Trees: Cutting down, ringbarking, pushing over, poisoning or destroying in any way.</p>

Term	Description
Commercial Place	A place used as an office or business or commercial purposes
Construction Foreman	The principal contractors site representative
Consultant	The person or team the principle employs with respect to environmental issues and administration of the EMP
Contaminant	A gas, liquid or solid or an odour or an organism (including a virus) or energy sources including noise, heat radioactivity and electromagnetic radiation.
Contamination	The release (whether by act or emission) of a contaminant into the environment.
Contractor (Major, Major Civil)	Party or company performing civil construction works on the site (including employees and sub-contractors)
Environment	<ul style="list-style-type: none"> a) Ecosystems and their constituent parts including people communities; and b) All natural and physical resources; and c) The qualities and characteristics of locations and places however large or small that contribute to their

Term	Description
	<p>biological diversity and integrity, intrinsic or attributed scientific value, or interest amenity/harmony/sense of community; and</p> <p>d) The social, economic, aesthetic and cultural conditions that affect or are affected by the things mentioned in a) to c).</p>
Environmental Incident	Any occurrence that has resulted in or has the potential to result in adverse consequences to the environment, including air, water, land, natural resources, flora, fauna, habitats, ecosystems and/or biodiversity.
Environmental Harm	Any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an Environmental Value.
Environmental Nuisance	The unreasonable interference or likely interference with an environmental value.
Environmental Value	<ul style="list-style-type: none"> a) A quality or physical characteristic of the environment that is conducive to ecological health, public amenity or safety; or b) Another quality of the environment identified and declared to be an

Term	Description
	environmental value under an environmental protection policy or regulation.
Land	Land excluding waters and the atmosphere
$LA_{eq, adj, 15min}$	A-weighted SPL of a continuous steady sound, adjusted for tonal character that within any 15 minute period has the same square sound pressure as a sound level that varies with time
Material Environmental Harm	<p>Environmental Harm other than environmental nuisance:</p> <ul style="list-style-type: none"> a) That is not trivial or negligible in nature, extent or context; or b) That causes actual or potential loss or damage to property of an amount of, or amounts totalling more than the threshold amount but less than the maximum amount; or c) That results in costs of more than the threshold amount but less than the maximum amount being incurred in taking appropriate action to: <ul style="list-style-type: none"> i. Prevent or minimise the harm; and ii. Rehabilitate or restore the environment to its

Term	Description
	condition before the harm
Noise Sensitive Place	<p>Any of the following places:</p> <ul style="list-style-type: none"> a) A dwelling; b) A library, child-care centre, kindergarten, school, college, university or other educational institution; c) A hospital, surgery or other medical institution; d) A protected area, or an area identified under a conservation plan as a critical habitat or an area of major interest pursuant to the Nature Conservation Act 1992 e) A Marine Park f) A park or garden that is open to the public for use other than for sport or organised entertainment.
Noxious	Harmful or injurious to health or well-being
Site Manager	The Developer's site representative
Proponent, Principle or Developer	The entity responsible for overall control and responsibility of the project (i.e. CocoNutz Australia Pty Ltd).

Term	Description
Regulated Waste	Non-domestic waste mentioned in Schedule 8 of the Environmental Protection Regulation 2008
Serious Environmental Harm	<p>Environmental Harm other than environmental nuisance:</p> <ul style="list-style-type: none"> a) That causes actual or potential harm to environmental values that is irreversible, of a high impact, or widespread; or b) That causes actual or potential harm to environmental values of an area of high conservation value or special significance; or c) That causes actual or potential loss or damage to property or damage to property of an amount of, or amounts totalling more than the threshold amount; or d) That results in costs of more than the threshold amount being incurred in taking appropriate action to: <ul style="list-style-type: none"> i. Prevent or minimise the harm; and ii. Rehabilitate or restore the environment to its

Term	Description
	condition before the harm
Study Area	The area surrounding the study site in which the EMP and associated environmental aspects have been investigated.
Subject Site (the site)	The footprint in which the facility and activity will be undertaken
Waste	Gas, liquid, solid or energy (or combination of any) that is surplus to or unwanted from any industrial, commercial, domestic or other activity, whether or not of value.
Waters	Includes the bed and/or banks of any water(s) stormwater runoff and any part of a stream, river, lake, lagoon, pond, dam, swamp, wetland, unconfined surface water, underground water, natural and artificial watercourse, stormwater channel, stormwater drain or roadside gutter.
Watercourse	As defined in section 5 of the Water Act 2000 (QLD) and includes the bed and banks and any other element of a river, creek or stream confining or containing water.
Waterway	As defined under the Fisheries Act 1994 (QLD) and marked on the spatial data layer Queensland Waterways for Waterway Barrier Works

Term	Description
Weeds	Inclusive of all Weeds of National Significance, and all classes of locally defined species and species declared as prohibited or restricted as per the Biosecurity Act 2014

2. INTRODUCTION

2.1. BACKGROUND

Wolter Consulting Group (WCG) was engaged by Cococutz Australia Pty Ltd (CAPL, hereafter referred to as 'the principle') to prepare an Environmental Management Plan (EMP) to provide a framework to manage the cumulative environmental impacts potentially resulting from the process of manufacturing product at a R&D facility located within the existing Mossman Sugar Mill.

The Mossman Sugar Mill is located at 34 Mill Road, Mossman and the R & D facility which is the subject of this EMP is located within the greater mill facility (owned and operated by Far Northern Milling Pty Ltd). The facility will operate under a five (5) year lease agreement between the Principal and Far North Milling Pty Ltd and will utilise some aspects of the mill infrastructure.

This Environmental Management Plan (EMP) has been prepared to provide a framework to achieve compliance with relevant environmental regulations and legislation and to inform management of the activities associated with the production stream.

2.2. SITE LOCATION AND CHARACTERISTICS

In definition of this plan, the overall study area will represent the area associated with the greater sugar mill activities whilst the subject site (or the site) will be represented

by the structures, machinery and immediate surrounds in which the activity will be conducted (i.e. the propose R&D facility).

Relevant features and characteristics of the study area include:

- Road access suitable for heavy vehicles.
- Existing storage and processing of mill mud and cane fibre (bagasse).
- Housing nearby is owned by Far Northern Milling.
- Far North Milling Pty Ltd Mossman sugar mill. Operational 24/7 during the cane processing season (June-November), and weekday work outside of this for maintenance activities.

The subject site (i.e. location of the facility) is represented by area to the north west of the greater mill property containing two (2) existing but un-used structures that will house the R&D facility, internal road networks and office spaces.

Refer to **Figure 1** for aerial image of the Study Area and Subject Site.

2.3. PROJECT & PROCESS DESCRIPTION

The principle is a food technology company that specialises and holds patents for fermentation biotechnology to produce natural flavours and aromas to be used in foodstuffs and condiments. Specifically, it has been realised that sourcing a major ingredient (coconut sugar) in the product Kecap Manis requires highly intensive and dangerous procedures that are non-sustainable with the growing demand for the product.

Figure 1: Aerial image of the site and contextual detail

The principle proposes to construct an R&D facility to evaluate utilising bio-technology to replace the coconut sugar with a natural sugar alternative at a scale which will confirm if the process can be commercialised. This evaluation has been estimated to produce 3,000T of Kecap Manis using 10,700T of sugar cane over the first year of operation. Operations are to be conducted 24 hours a day with certain aspects of the production train being limited to daytime hours.

The activity will be required to operate under ERA 28 Sugar milling and refining and is proposed to operate under two (2) distinct operational phases due to constraints associated with operational noise impacts. Refer **Section 4.5** for further details regarding noise impacts.

The process consists four (4) broad stages summarised as follows.

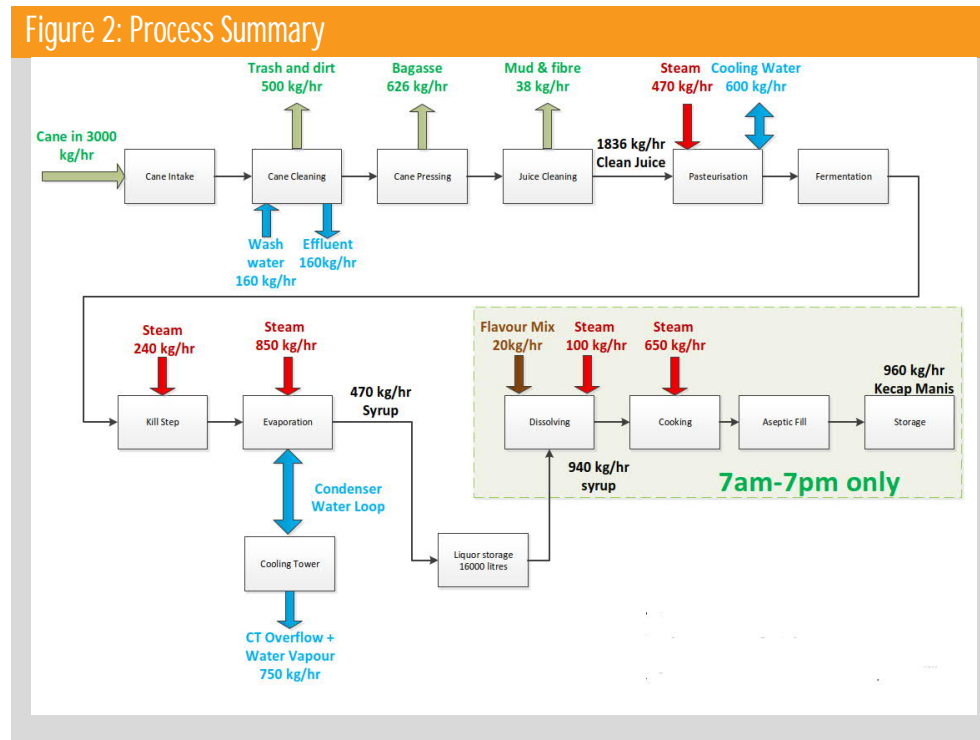
1. **Cane supply, cleaning and juice extraction.** Green harvested sugar cane will be transported from cane sidings to site by road using a multi-lift and deposited on a concrete pad at the Eastern side of the facility. The anticipated production rate of the facility is based on a throughput of three (3) tonnes per hour of cane billets. This is equivalent to 72 tonnes per day of cane billets, approximately three (3) loads on a multi-lift. Based on 70% efficiency and 150 operating days per season, the annual billet consumption is 10,700 tonnes per year. Billet storage of 12 hours is required for overnight operations which is equivalent to a cane storage requirement of around 100m³. Extraneous matter delivered with the cane billets will be removed in two (2) stages of cane cleaning. The waste material removed will be added to Far Northern Milling's (FNM) biomass stockpile. Tramp iron will be removed using an

electromagnet on a cane conveyor. Juice will be extracted from the cane using a twin tandem of mills. Exhausted cane fibre will be added to FNM's biomass stockpile. The cane juice will be filtered, decanted and centrifuged to remove suspended solids. The solids will be added to FNM's mill mud stockpile.

2. **Fermentation and Pasteurisation.** Clean juice is pasteurised to prevent natural microbes in cane juice from impacting the fermentation process. Four fermenters are used for the biocatalytic transformation of the cane juice. The temperature is controlled using a chiller unit. To ensure no microbes remain in the juice, a "kill-step" heats the juice up to a temperature high enough to sterilise the juice.
3. **Evaporation.** The hot juice is thickened into a syrup using four (4) evaporation stages. An initial 3-body evaporation uses the vapour generated at each stage to heat the following stage and evaporates 90% of the required water. A final stirred evaporation stage provides the fine control to get the product to the required water content. A condenser is used to extract the final vapour from the evaporators, and the energy from this is removed in the cooling tower. Evaporated syrup has a high sugar content and low water activity, giving it a long shelf life and can be packed and used at a later stage for final processing into Kecap Manis. The syrup is stored in a heated buffer tank where it will be processed further during day working hours.
4. **Cooking and packaging.** Dry ingredients are added to the syrup to create the desired flavour profile. It is then cooked at boiling point to finalise the flavour

in stirred, heated vessels. The product then passes through a cooler and is aseptically packed into bags and stored in plastic drums on pallets. The product will be loaded onto semis and shipped overseas.

The process is summarised on **Figure 2** below with relevant inputs and outputs included.



2.4. STATUTORY REQUIREMENTS

This EMP aims to generally comply with the relevant requirements of the Environmental Protection Act 1994 (EPA), Local Authority Policy and Local Laws,

Environmental Management Plan, Research and Design Facility – CocoNutz Australia Pty Ltd

and stated requirements of the Local Authority. All persons associated with this project are to read and understand their Environmental Duty under the EPA.

This EMP generally complies with the relevant requirements of:

- Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).
- Environmental Protection Act 1994 (Qld).
- Environmental Protection (Air) Policy 2019 (Qld).
- Environmental Protection (Water) Policy 2009 (Qld).
- Ecoaccess Guideline Noise – Planning for noise control.
- Environmental Protection (Waste Management) Policy 2000 (Qld); and
- Nature Conservation Act 1992 (Qld).

2.5. AIMS & OBJECTIVES OF THE EMP

The objectives of this EMP are:

- To provide a framework to inform relevant stakeholders of the minimum environmental management requirements that must be met or exceeded during the activities on site.
- To provide achievable management systems to generally comply with the requirements of the EPA and regulatory Local Authority Policy / requirements.

- The identification and details, roles and responsibility of all site staff with respect to compliance with the minimum environmental management requirements.
- To provide evidence of practical and achievable plans for the management of the site to ensure vegetation clearing is conducted in a transparent and responsible manner. This is achieved by producing an integrated framework for comprehensive management, monitoring and control of operational phase impacts. Specific commitments to strategies and design standards are also provided.
- To provide Local, State and Commonwealth Authorities, and Management with a framework to confirm compliance with policies and conditions.
- To provide the community with evidence that the management of the site is occurring in an environmentally acceptable manner; and
- To provide a framework for management with an effective tool to accomplish the above.

2.6. FUNCTIONS OF THE EMP

This EMP provides for the following functions:

- The monitoring of releases of contaminants into the environment.
- The corrective actions to be implemented in the event of accidental release of contaminants beyond that considered acceptable.
- The relevant training of those associated with the development's construction to competent levels in the following (at a minimum):

- Relevant environmental conservation objectives and targets.
- Control procedures of day to day operational activities to prevent or minimize environmental harm.
- Contingency plans and emergency procedures to deal with unforeseeable risks and hazards to the environment.
- Organisational structure and responsibility to ensure that roles are appropriately defined to manage environmental issues.
- Effective communication of environmental matters; and
- Documentation systems to ensure that record keeping is effective and intuitive and achieves the goal of demonstrating environmental commitments.

2.7. OTHER REQUIREMENTS

A current version of this EMP must be kept on site during the operational phase of the activity.

The Principal is not to implement this EMP, nor amend this EMP, where such implementation or amendment would result in a contravention of any condition imposed under the EPAct or Local / State Government Policy / Approvals, unless otherwise approved by the Administering Authority.

The Principal must submit details of any proposed amendment to this EMP to the Administering Authority.

2.8. EMP STRUCTURE

Specific management systems have been provided to assist the project to comply with the requirements detailed above. As part of the management, monitoring, auditing and reporting functions; data sheets, check lists and record sheets have been included in the Appendices of this report.

The EMP is structured as follows:

- An introduction providing an overview of the proposal and details of the EMP.
- Program and contractual obligations of relevant stakeholders.
- Assessment of the current environmental significance of the study area and surrounds and identification of potential sensitive receivers.
- Discussion and evaluation of the potential environmental impacts resulting from the development.
- Details of the proposed Environmental Management Systems / Procedures.
- Training Requirements.
- EMP implementation and relationship to Quality Assurance Systems.
- Continual Improvement Requirements.
- Conclusion and recommendations

Each significant environmental issue is addressed by an 'Environmental Procedure' (EP) that encompasses the following details.

Table A: Environmental Procedure Content

EP Section	Description
Objectives	The performance requirements for the element
Management Strategy	The strategies that will be implemented to achieve the objectives.
Actions	Mechanisms proposed to achieve management strategy including monitoring requirements.
Performance Criteria/Indicators	Demonstration of implementation of Management Strategies and Monitoring
Reporting/Responsibility	The format, timing and responsibility for reporting and auditing of the results of monitoring and
Corrective Action	The action to be implemented if the performance objective is not achieved and identification of the relevant stakeholder responsible for the non-conformance

Refer **Appendix A** for Environmental Procedures.

2.9. CONTINUAL IMPROVEMENT

This EMP is to be periodically reviewed and updated by the Principal to reflect knowledge gained during the course of operational phase activities, and to reflect new knowledge, or future best practices as they become available. Changes to the EMP will be developed, and implemented, in consultation with the administering authority.

It is recommended that such reviews be undertaken:

- At regular time frames annually.
- When new practices are undertaken on the site outside those covered by this EMP.

- If the production process is modified.
- When new knowledge on existing processes becomes available.

2.10. EMP LIFESPAN

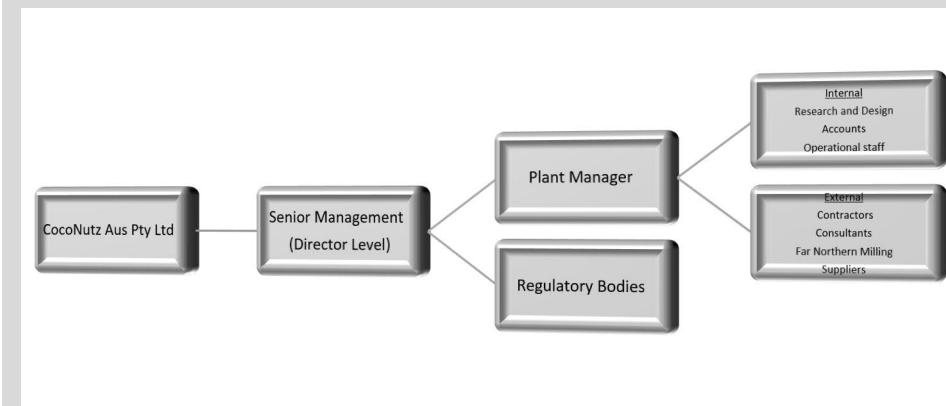
The requirements of this document (and future revisions) will remain in force for the lifespan of the activity.

3. PREAMBLE

3.1. ORGANISATIONAL CHART

The following organisational chart describes the general framework with respect to environmental management issues to be implemented/adopted during the activity and production process.

Figure 3: Organisational Chart



Unless otherwise stated under contract, and with consideration that the principle (i.e. CAPL) will be responsible for the site, the principle is generally nominated pursuant to this EMP as the entity responsible for environmental management.

The principle may at their discretion, delegate responsibility to relevant sub-contractors where the delegation is agreed upon in writing and/or contractual agreement. This may be relevant for construction phase activities or other scenarios where delegation of authority is required.

3.2. PROGRAM & CONTRACTUAL OBLIGATIONS

The principle is required to provide monitoring from commencement of the works and activity for the operational lifespan of the activity. Refer Definitions in **Section 1.0**. Although the Principal may hold ultimate responsibility to ensure that the proposed activity complies with relevant environmental legislation, such as the Environmental Protection Act (EPAct) 1994, where duties are subordinated to a Contractor, this EMP should be treated as a condition of contract.

It should be noted that the Environmental Protection Act places a duty on any person, undertaking any activity, to report any incident/s that may cause environmental harm (i.e. General Environmental Duty).

3.3. CORRECTIVE ACTION

The Principal (or principles delegate) or the Contractor is required to complete Corrective Action Request (CAR) forms where non-compliance with the procedures in this document is identified. The Principal (or principles delegate) or the Contractor are also required to maintain a register of CARs that shall demonstrate that all required remediation/monitoring measures have been completed.

In some instances, further investigation or monitoring will be required to establish whether the Contractor has adequately implemented the EMP or is in compliance with relevant legislation, guidelines and statutes. If it is established that the cause for complaint has arisen from the Contractor's actions or omissions, then the costs of the monitoring may be deducted from payments to the Contractor, to offset Consultant costs.

3.4. DISPLAY OF THIS EMP

A copy of this EMP is to be kept on site in a location readily accessible to personnel carrying out activities at the site.

3.5. RECORD KEEPING

Any records or documents which are to be retained as part of this EMP are to be held for a period of no less than three (3) years. Records are to be available for examination by an authorised person upon request.

3.6. ALTERATIONS

No change, replacement or new operation is permitted if the change, replacement or new operation increases, or is likely to substantially increase, the risk of environmental harm above that which is expressly provided by this EMP.

An example of a substantial increase in the risk of environmental harm is an increase of 10% or more in the quantity of a contaminant to be released into the environment.

3.7. CALIBRATION

All instruments and devices used for the measurement or monitoring of any parameter required by this EMP must be calibrated, and appropriately operated and maintained in accordance with manufacturer's recommendations.

3.8. TECHNICAL TRAINING

All personnel involved in the undertaking of monitoring of environmental variables shall be suitably trained to undertake such monitoring and in the use of any instruments required to do so.

4. ENVIRONMENTAL ASSESSMENT

This section has been formulated to assess the study area's environmental values and potential impacts of the proposed activity. It provides a description of the ecological values identified based on desktop review assessing the environmental aspects within the study area and study site.

The EA identifies relevant features and potential sensitive receptors of the area based on the following categories:

- Land Management.
- Water Resources.
- Nature Conservation.
- Air Quality.
- Noise Emissions.
- Waste.
- Transport; and
- Cultural Heritage.

Each section will also provide assessment of the potential direct and indirect impacts that may result from the proposed activity.

4.1. LAND MANAGEMENT

4.1.1. LAND USE AND HUMAN ACTIVITIES

Mossman is considered as a regional centre and as such holds a variety of land uses designated under the Douglas Shire Council (DSC) planning scheme (DSCPS). Of particular relevance to this assessment is the identification of sensitive receivers. In relation to land use versus the proposed activity we would consider that areas nominated for residential usage to represent the most likely to be impacted from potential direct and indirect impacts. The closest residential properties to the subject site (aside from those owned by FNM to house mill staff) are located approximately 130m SSW (Lot 10 on RP706271).

4.1.2. SOIL MANAGEMENT

Subsurface soil conditions have been obtained from review of borelogs associated with the groundwater bore located on 32/SP176441 (immediately east of the study area).

In general, the subsurface environment is described as Mossman River Alluvium overlying the base weathered slate Hodgkinson Formation. The overlying alluvium is composed of 7.3m clay overlying sand and gravel to 20.7m depth. From 20.7m Grey clays dominate until the base slates occur at 30.5m. The occurrence of old timber at 24.4m reiterates the dominance of alluvial materials in the soil column with the predominant soil building process of deposition being typical of estuarine and riverine ecosystems.

4.1.3. ACID SULFATE SOIL

The majority of the study area is 5-20 AHD with the northern extent <5m AHD where soil excavation or compaction may expose ASS or PASS to reactive O².

4.1.4. DIRECT IMPACTS

The activity does not involve earthworks excavation nor filling activities and as such there will be no direct impacts on the environment resulting from the presence of subsurface ASS or PASS.

Additionally, the dominance of clay in the upper layers of the soil profile suggest that soils are stable and unlikely to be impacted by the operation of the facility.

4.1.5. INDIRECT IMPACTS

Given the interpreted stability of soils associated with the study area, indirect impacts are unlikely.

4.2. WATER RESOURCES

4.2.1. GROUNDWATER

The Environmental Protection (water) Policy identifies groundwater zones across QLD where similar groundwater characteristics can be categorised. The study area is nominated as Zone 9 Groundwater – Coastal and floodplain. The typical chemistry of

groundwater associated with this category describes high levels of salts (NaCl) with generally lower salinity levels.

In addition to the EPP groundwater zone classification, a groundwater bore is located in close proximity to the study area (on 32/SP176441). The bore has been monitored since 1975 and provides suitable data to extrapolate groundwater details within the study area.

The average depth to groundwater within the bore is -6.44m below natural surface with a max depth of -7.19m and a minimum depth of -4.52m below natural surface.

Water chemistry generally confirms the EPP categorisation with high levels of Sodium (Na) and Chlorine (Cl) observed throughout the reported monitoring period.

4.2.2. SURFACE WATER

The study area is located within the Mossman River Basin which contains 16.4km² of estuarine systems, 2.0km² of palustrine systems, 4.3km² of riverine systems and 0.2km² of lacustrine environments.

Regarding the study area, surface waters represented by the South Mossman River (2nd order) and Parker Creek (3rd order) closely adjoin the study areas northern and eastern boundaries. The South Mossman River is considered as a watercourse pursuant to the Water Act 2000 and Parker Creek as a Drainage line and both are tributaries to the Mossman River system located to the north of the study area. Both waterways represent sensitive receivers to potential impacts from the activity.

Review of 100Year ARI flood levels determined from Mossman flood studies indicate that the 1:100 flood ARI is likely to affect the study area, however the subject site is located to be immune. Substantial areas of the north-eastern extent of the greater mill site are likely to be inundated during significant flood events. We note these areas include land nominated as a release point under the greater mill EA (Ref: EPPR00920713).

4.2.3. DIRECT IMPACTS

Potential anthropogenic impacts to groundwater include industrial operations, leaking fuel tanks and runoff from roads. Interference with groundwater will not be required within the production line process however the release of surface waters has potential to impact the quality and chemical composition of both the groundwater and surface waters within the range of influence.

Whilst discharge of potentially polluted stormwater to the environment has substantial potential to cause environmental harm, it is understood that all surface water flows that occur within the subject site will be directed into the FNM mill stormwater treatment train. Given the area upon which the facility is located already represents sealed hardstand with buildings that are to be retro fitted, additional stormwater flows above that already experienced by the mill are not anticipated. Direction of stormwater into the greater mill treatment train will provide adequate management to prevent direct impacts from potentially polluted water flows. Additionally, any effects of groundwater recharge that may result from discharge

waters will be via the FNM mill stormwater treatment train and will be treated in accordance with the current Environmental Authority.

Interference with groundwater will not be required within the production line process.

4.2.4. INDIRECT IMPACTS

Potential alteration to the chemical composition and quality of both surface and groundwaters associated with the site may indirectly result in impacts to aquatic fauna and macroinvertebrate populations with flow on effects through the food chain. Adequate management of discharge waters is paramount to prevent long term impacts.

4.3. NATURE CONSERVATION

4.3.1. TERRESTRIAL FLORA

Given the study sites current usage, terrestrial flora is generally limited to individual retained trees and screening plantings. However, riparian vegetation associated with the South Mossman River and Parkers Creek is present at the eastern and north eastern boundaries of the greater mill site (i.e. the study area) with a substantial tongue extending from the north approximately 250m into the site.

The riparian vegetation is identified on the Queensland Herbariums Regional Ecosystem mapping as RE 7.3.23 Simple to complex semi-deciduous notophyll to mesophyll vine forest. Areas within the site are indicated as remnant vegetation however a mosaic of both remnant and high value regrowth is associated with the

riparian complex. RE 7.3.23 is considered as an Endangered community pursuant to the Vegetation Management Act 1999.

RE 7.3.10 (Simple-complex mesophyll to notophyll vine forest) is also present within the mosaic of riparian vegetation however the majority of this community is centred further to the east where the South Mossman River separates from Parker Creek.

Several protected plants have been recorded within the study area and the areas of riparian vegetation are designated as Protected Plant Survey Trigger Areas under the Nature Conservation Act 1994 and as Essential Habitat pursuant to the VMA 1999. Based on the vegetation communities associated with the site and study area adjoining the site, two (2) recorded EVNT flora species have potential to occur as follows:

- Orange Tamarind (*Toechima pterocarpum*) – Endangered; and
- *Dioclea hexandra* – Vulnerable.

The area housing the footprint of the R&D facility does not house any specific vegetation of conservation value.

4.3.2. TERRESTRIAL FAUNA

Interrogation of available fauna record databases suggests the potential presence of eight (8) amphibians, four (4) reptiles and four (4) mammals within a 2km radius that have a protected status of Endangered, Vulnerable or Near Threatened pursuant to the Nature Conservation Act 1992.

Notwithstanding the fauna holding elevated status under the act, all native species hold protection under the NC Act. Given the large waterway corridor of vegetation present within the greater mill area it is likely that a variety of transient fauna could occur in the study area and study site.

4.3.3. DIRECT IMPACTS

Given that the proposed activity is to adapt and upgrade existing infrastructure on the subject site it is anticipated that no direct impacts will threaten any of the identified EVNT fauna potentially occurring in the study area. No clearing of vegetation will be required to accommodate the proposal and as such EVNT flora and fauna potentially associated with the subject site will not be adversely affected.

4.3.4. INDIRECT IMPACTS

The increase and compositional alterations to the mill operations waste streams resulting from the activity are of a quantity that is not considered to potentially result in any adverse effects to the ecology of the subject site and study area. Management of potential pollutive waste streams (i.e. under the greater mill management systems) is expected to be of an adequate scale to mitigate impacts to a tolerable level.

4.4. AIR QUALITY

Wind roses interrogated as a component of the Air Quality Assessment (undertaken by Vipac 2021) from 9am and 3pm recorded data indicate that the key features of the winds typical to the subject site are:

- Winds are predominantly from the southeast with average wind speed of 2.5 m/s;
- The winds are largely consistent throughout the seasons with flows following the dominating terrain patterns to the east and west of the site.

The primary sources of air emissions in the region immediately surrounding the Project site are from the greater sugar mill activities and wind-blown dust primarily including PM₁₀ and PM_{2.5}.

Given the remoteness of the location, background levels of pollutants at the Project site are expected to be low except for those affected by the Sugar Mill operations and consequentially, there are no nearby Queensland Department of Environment and Science (DES) air quality monitoring stations currently operating. As such, the background emissions levels for the greater mill operations (representing the ambient air quality levels) have been sourced from the National Pollutant Inventory report 2018/2019 and the stack parameters based on the greater mills Environmental Authority (Ref: EPPR00920713). These are provided in **Table B** below.

Table B: Predicted Air Emissions

Emission	Source	Rate (g/s)
CO	Boiler	22.47
NO _x	Boiler	6.54
PM ₁₀	Boiler	6.46
PM _{2.5}	Boiler	3.74
SO ₂	Boiler	2.15
Ethanol	Fugitive VOC	0.34

Further information relating to air quality assessment and air quality is provided in the Air Quality Assessment prepared by VITEC dated 26 March 2021.

4.4.1. DIRECT IMPACTS

It has been determined that emissions from the proposed R&D facility are unlikely to provide concentrations of gases and particulates that exceed the ambient background levels at sensitive receivers (Vitec, 2021) and in fact for all gases and particulates (with the exception of CO) are significantly lower than those emitted by the mill.

4.4.2. INDIRECT IMPACTS

Given the low concentrations of emissions predicted to be created by the facility, indirect impacts on the surrounding environment or sensitive receivers are not anticipated.

4.5. NOISE

The existing noise related environment within the study area is substantially dominated by the existing mill operations that operates under ERA permits, but, is not encumbered with specific upper noise limits to adhere to. This is particularly evident during the crushing season (June-November).

During the crushing period noise modelling has adopted a conservative ambient background noise level of 40dBA (during night periods).

Periods where the greater mill is not undertaking crushing activities, background noise levels will be substantially lower with mill activities limited to general maintenance of plant, buildings and infrastructure.

4.5.1. DIRECT IMPACTS

Potential affected receivers are represented by nearby residences including those owned by Far Northern Milling and house mill staff. The nearest off-site residences are located approximately 130m from the proposed facility to the SSW.

A detailed noise impact assessment has been prepared to detail the ambient background noise levels at potential sensitive receivers, the noise emissions that are predicted from the proposed facility and the potential impacts of the proposed development on sensitive receivers (Acoustics RB Pty Ltd, 2021).

It has been identified that the proposed facility will comply with noise limits during the 2021 crush season with regard to emissions at the nearby sensitive receivers.

4.5.2. INDIRECT IMPACTS

Noise related emissions from point sources can accumulate over time and create what is known as 'background creep'. Background creep is an accumulation of numerous noise related sources that over time increase the ambient noise levels in any given area. As per the Acoustics RB Pty Ltd noise assessment relevant criteria to minimise potential impacts from noise related emissions have been drawn from Ecoaccess Guideline Noise – Planning for noise control.

4.6. WASTE

The facility and associated production process will generate a variety of waste products including gases, waters and solids. The waste inventory from the process train includes:

- Cane cleaning effluent water (± 160 kg/hr).
- **Cane trash and dirt (± 500 kg/hr).**
- **Bagasse (± 626 kg/hr).**
- **Mud and Fibre (± 38 kg/hr).**
- **Pasteurization Cooling water (± 600 kg/hr).**
- **Cooling Tower overflow and water vapor (± 750 kg/hr).**
- Off specification product.

The waste streams identified in **bold** in the above list provide opportunity for re-use within the process train, thus, are not strictly waste products. These items are discussed further in **Section 5.7**.

Other general wastes likely to be generated from operation of the facility include;

- Spent cleaning agents (Sulphamic Acid and Sodium Hydroxide).
- Office waste.
- Laboratory chemical waste.
- Oils and fuels.
- Paper waste.
- Packaging waste.
- Litter.
- Putrescible food waste.

The various sources of waste-water identified above are considered as trade waste. Trade waste can only be disposed of via council infrastructure under a permit issued via council agreement.

It has also been identified that where cleaning agents (Sulphamic Acid and Sodium Hydroxide) utilized to sterilize food-graded process equipment cannot be recirculated or recycled disposal of diluted product will be required under a trade waste agreement.

4.6.1. DIRECT IMPACTS

The disposal of wastewater (trade waste) to council infrastructure may have substantial impacts on the operational viability of the Mossman wastewater treatment

plant. Uncontrolled trade waste released to the sewer system can negatively impact the biological processes within the treatment plant thus negatively affecting performance of the plant and requiring substantial resources to rectify. The flow on effect of this impact also has potential for council to breach their own licence with regard to uncontrolled releases to the environment.

In addition to the potential impact to microbial function of the plant, the volumes of potential trade waste released to council infrastructure may also exceed the known capacity of the plant and network in general.

4.7. TRANSPORT

4.7.1. ROAD

As access to the internal FNM mill rail network is not practical given the location of the facility, logistics movements at site will be via the Kid St entrance to Mossman Mill. The two (2) main access routes from the main road in Mossman are Williams Street, Ingless Street and Mill Street. All transport to and from site will be by road. Expected vehicle movements are listed below.

- Staff & visitor arrivals and departures via Kid St in cars (6am / 6pm).
- Multi-lift delivery of cane (3 deliveries a day).
- Semis delivering ingredients and consumables (1 every fortnight).
- Semis picking up drums of Kecap Manis for export (estimate 1 semi per day at full production).

- Company ute movements for picking up consumables and other minor tasks.

4.7.2. RAIL

Whilst rail networks are present within the existing mill operations, the proposed activity will not utilise them in any degree.

4.7.3. DIRECT IMPACTS

The slight increase to road usage associated with the activity is not expected to unduly affect functionality within the study area.

4.7.4. INDIRECT IMPACTS

No indirect impacts are anticipated.

4.8. CULTURAL HERITAGE

4.8.1. EUROPEAN

Mossman central mill is a place of local significance under Douglas planning scheme; however, the proposed location of the R&D facility is not known to be of cultural significance.

4.8.2. INDIGENOUS

Interrogation of the Aboriginal and Torres Strait Islander Cultural Heritage Database and Register indicates the subject site as being within an area designated as 'study area'. Given that the subject site is located within a previously disturbed area it is considered that indigenous cultural heritage significance of the site is in-determinate.

5. ENVIRONMENTAL MANAGEMENT REQUIREMENTS

With respect to the operational phase, the following Management Systems have been developed to adequately achieve the aims and objectives of this EMP, and to provide a framework for management of the identified environmental issues.

These management systems are achieved through the use and implementation of the following mechanisms:

1. Environmental Procedures.
2. Monitoring/inspection record data sheets; and
3. Auditing of the EMP requirements.

5.1. GENERAL ENVIRONMENTAL DUTY

A person must not carry out any activity that causes, or is likely to cause, environmental harm, unless the person takes all reasonable and practicable measures to prevent or minimise the harm ("general environmental duty").

Refer **Environmental Procedure EP001** in Appendix One for further details.

5.2. AIR QUALITY AND DUST CONTROL

Detailed assessment and modelling of the potential air emissions of the facility has identified that all modelled gases and particulates emitted from the facility are below those emitted from the greater mill operations. As such, no specific management

strategies are required to mitigate potential impacts. However, all plant and machinery associated with the facility are to be regularly maintained to endure efficient operation.

Notwithstanding, during daily operations there is potential to create indirect impacts with dust due to vehicle movements and general site movements. While these are minor and have been anticipated within the modelling report, site management should consider the potential and appropriate actions undertaken to ensure adverse impacts are rectified.

Refer **Environmental Procedure EP002** in Appendix One for further detail.

5.3. NOISE

During operational activities potential for excessive noise impacts on adjoining properties and noise sensitive receivers are to be duly considered.

The findings of the Acoustic RB Pty Ltd report suggest that nuisance can be avoided, however, there remains the possibility that minor and intermittent exceedances of the noise level limits may occur on occasions during Phase 1. The report therefore recommends that operation of the new facility should be permitted up to the end of the 2021 crush without requiring that any supplementary noise control measures, notably acoustic barriers, be introduced into the current proposal due to the inability to accurately assess potential impacts in the absence of the dominant noise source in the area being the mill crushing activities (inactive at the time of assessment).

Upon commencement of the 2021 crush, but before completion of commissioning of the new facility, monitoring of current ambient and background noise levels in the

community should be undertaken to establish with a degree of accuracy the actual background noise levels to be used for setting limits for acceptable levels of noise emission from the facility during the crush.

In the event that these further determinations establish that non-compliance with the relevant noise level limits is occurring, or may occur on occasions, remedial measures should be evaluated so that appropriate noise control measures can be developed and implemented prior to the commencement of the 2022 crush.

In addition to the crushing noise emissions, noise level limits for commencement of Phase 2 operations, (i.e. the 2022 off-season), are to be set by reference to the ambient and background noise levels measured during the 2021 off-season. If required, appropriate noise control measures should be developed in order that successful operation of the proposed new facility may be conducted during the remainder of the 2022 off-season and thereafter.

As a general strategy to reduce any unexpected noise emissions not catered for within planning documents, all plant and equipment utilised are to be maintained and operated with the overall aim of reducing and minimising excessive noise emissions.

Refer **Environmental Procedure EP003** in Appendix One for further detail.

5.4. VEGETATION MANAGEMENT

The location of the proposed R&D facility is not identified with vegetation communities that will require specific management to prevent impacts. Areas of regulated vegetation located outside of the facility footprint but within the study area have been identified as potentially impacted sensitive receivers. To prevent indirect impacts to

vegetation communities associated with the study area the following management strategies are to be undertaken:

- Where individual trees are located within the area of operation, they are to be protected and retained. In the event that interference to trees may be required during operation of the facility, advice from an AQF level 5 arborist is to be obtained with the aim of maximizing retention possibilities.
- All stormwater and overland flow are to be directed to the greater mill stormwater management system for appropriate treatment prior to release to the environment.
- Trade wastewater is not to be released to the environment.
- Weed management strategies provided within this EMP are to be implemented with particular attention to appropriate disposal being paramount.

Refer **Environmental Procedure EP004** in Appendix One for further detail.

5.5. FAUNA MANAGEMENT

The habitat value of the site is generally located outside of the facility footprint in and around the boundaries of the greater mill operation. Notwithstanding the presence of conservation significant species has been identified within the area and as such, potential for occurrence of fauna within the subject site cannot be disregarded.

Contractors and operational staff are to be mindful of the potential for native fauna to be present within the facility footprint and are to take care to avoid harming fauna during site activities. To achieve the following actions are to be implemented.

1. Minimise unnecessary vegetation removal during construction and operations.
2. In the event trees require removal all clearing activities are to be undertaken in the presence of suitably qualified (authorised with appropriate permits under DEHP approval) Fauna Spotter Catcher Fauna pre-clearance and post-clearance requirements.
3. Ongoing daily fauna management. In the event that fauna is observed within the facility or facility grounds, removal and relocation is to be undertaken by a suitably qualified (authorised with appropriate permits under DEHP approval) Fauna Spotter Catcher

Refer **Environmental Procedure EP005** in Appendix One for further detail.

5.6. WATER MANAGEMENT

During the construction and operational phases of the facility the pollutants listed in **Table C** below may be potentially generated and mobilised within any given water flows.

Table C: Typical Operational Phase Pollutants

Pollutant	Source
Sediment	Exposed soils, inadequately managed stockpiles, mill mud
Rubbish/Litter	Paper waste, packaging, litter, cane off-cuts etc
Hydrocarbons	Spills of fuel and oil, leaks from machinery, equipment failure.
Toxic materials	Solvents, cleaning agents, wash down waters etc.
pH altering substances	Wash waters, cleaning agents

Appropriate measures are to be implemented during works to minimise potential negative impacts from these (but not limited to) pollutants. The following measures are to be implemented at a minimum.

Operational phase management of water related pollutants will include the following.

- Billet loading areas are to be appropriately bunded and equipped with appropriate water sensitive urban design measures such as (but not limited to) gross pollutant traps (GPT).
- Chemical storage in dedicated areas that are capable of containing chemical spills to a capacity beyond that of the total chemical storage capacity. All chemical storage areas are to be provided with spill kits.
- All stormwater flows are to be directed to the greater mill stormwater treatment system enabling monitoring of chemical parameters and treatment / disposal as required to achieve the outcomes of the Environmental Protection (Water) Regulation prior to release.

- Process wastewater is to be managed via the requirements of trade waste agreements/permits to be obtained as part of the development application.
- Spill containment kits are to be provided at appropriate locations within the facility.
- Any cleaning of vehicles and/or equipment associated with the facility is only to be undertaken within dedicated areas possessing adequate bunding and treatment devices (e.g. First Flush Systems, GPT). Where washdown of equipment using hazardous chemicals is required it is only to be undertaken where collection of wastewater can be achieved and directed to trade waste if required.

Additionally, trade waste agreements for liquid waste are to be established specifying minimum standards for release to council infrastructure. Where operation is required prior to establishment of trade waste agreements, storage of trade waste will be required in an appropriate manner until such a time where specified limits of disposal are established. In the event that appropriate storage cannot be achieved, plant shut down will be necessary.

Refer **Environmental Procedure EP008** in Appendix One for further detail.

5.7. SITE CONTROL / WASTE MANAGEMENT

Waste Management during operations represents a significant management issue during site operation. Waste streams from the process are to be managed in accordance with all relevant permit and licence requirements with the particular aim of reducing waste volumes to the maximal possible extent. Where accumulation of

waste is unavoidable management is to be undertaken in accordance with the waste management hierarchy provided below (DEHP, 2018).



Figure 4: Waste Management Hierarchy (Source: DEHP)

Waste re-use opportunities are to be maximised during operations. Potential re-use opportunities include:

- Cooling tower overflow water. Recycle and return to FNM mill process.
- Pasteurisation cooling water. Recycle and return to FNM mill process.
- Bagasse, mud and fibres. Reuse in FNM mill process.
- Cane trash and dirt. Return to cane farmer for field fertilisation.
- Boiler blowdown water return to process.
- RO brine water return to process.
- Process wash water return to process.
- Off specification product reprocessing.

Where trade wastes generated by the process cannot be re-used and require disposal, release/disposal will be managed under the framework of Environmentally Relevant Activity (ERA) permits issued under the administration of the DES.

ERA licence 28 (Sugar milling and refining) will be required and the conditions specified within these permits are always to be adhered to. All trade wastes are to be pre-treated in order to achieve the minimum standards specified within the associated permits. Additionally, trade waste agreements for liquid waste are to be established specifying minimum standards for release to council infrastructure. Where operation is required prior to establishment of trade waste agreements, storage of trade waste will be required in an appropriate manner until such a time where specified limits of disposal are established. In the event that appropriate storage cannot be achieved, plant shut down will be necessary.

Non-regulated waste streams are to be treated in accordance with the waste management hierarchy detailed in **Figure 4**. Recycling and industrial refuse bins are to be provided in dedicated adequately bunded, waste disposal areas located generally in accordance with the provided site plan. Where practicable these bins are to be of plastic construction to minimise noise pollution.

Stockpiling of cane billets is to be located within dedicated storage areas provided with appropriate bunding and GPT stormwater controls and away from areas potentially subject to overland flow. Storage limits are to be minimised to the greatest extent possible to prevent storage area overload. A maximum storage time/volume limit is to be established based on a maximum 12 hour (i.e. overnight) limit.

Excessive storage/stockpiling of solid waste produced under the process is to be minimised as far as practically possible prior to transportation to the greater mill mud stockpile. Storage locations for waste mud are to be located away from areas subject to excessive overland flow, be appropriately bunded and provided with stormwater controls to prevent release of contaminated leachate entering the environment. As a final control, all leachate from stormwater drainage will be directed to the greater mill stormwater control processes and be subject to release requirements under the FNM processes.

Refer **Environmental Procedure EP011** in Appendix A for further detail.

5.8. WEED AND PEST MANAGEMENT

Weed propagules and reproductive material may be transported into the facility areas via machinery and vehicles associated with the operation. Weed management of the facility area is to be conducted in accordance with the general procedures provided in **EP009** located in **Appendix One**.

Pursuant to the Biosecurity Act 2014 it is an offence to release Category 3 and 4 restricted weed species in other areas and as such, it is the proponent's responsibility to ensure weed hygiene measures are enforced for all site activities. Refer **Environmental Procedure 009** in **Appendix One** for further details.

6. TRAINING REQUIREMENTS

The EMP Procedures are to be issued to relevant staff, agents or contractors as part of their site induction, and continuing training under the Contractor's Quality Assurance and Management Procedures. With respect to training of staff, agents and Contractors, the Procedures referenced above have been developed for direct issue to relevant staff, and/or incorporation by the principal into existing job-specific Task/Work Instructions, as part of existing Quality Assurance Procedures.

To ensure competency and knowledge is maintained through the business, CAPL shall:

- Develop and implement inductions, recruitment and ongoing training programmes to ensure that persons performing in specific roles have the necessary skills, knowledge, training or experience to perform competently in those roles.
- Inductions shall incorporate generalised content to provide awareness of the significant environmental aspects and impacts relevant to its activities and operations.
- Training and awareness programs will be developed and delivered to all persons performing tasks which have the potential to cause significant environmental impacts through toolbox meetings
- Programs will include training and awareness of the following topics:
- Significant environmental aspects and impacts of activities relevant to work areas and activities.

- Roles and responsibilities in achieving conformance; and the importance of conformance with the environmental policy, procedures and the EMS; and the consequences of departure from these.
- Environmentally relevant legal and compliance obligations and liabilities and the consequences for departure from these.
- New and or emerging environmental issues which impact on the organization.

7. COMPLIANCE AND MONITORING

7.1. SITE INSPECTIONS AND COMPLIANCE ASSESSMENT

The site manager and / or principal's representative are responsible for ensuring this EMP is complied with. Review of records and related documents demonstrating compliance with this EMP shall be completed at the time of inspection and provided to the administering authority in accordance with relevant license requirements.

7.2. MONITORING

The contractor is responsible for undertaking necessary site inspection and monitoring to demonstrate compliance with project environmental requirements (as stated in this EMP but not limited to) , as directed by the principal's environmental consultant and/or in accordance with relevant license requirements..

All monitoring activities are to be undertaken by a suitably qualified person.

All instruments, equipment and measuring devices must be calibrated, appropriately operated and maintained in accordance with the manufacturers specifications with records detailing such made available on request.

Any laboratory analyses and testing must be carried out by a NATA accredited laboratory.

All monitoring records must include:

- The date on which the sample was taken, or measurement was made.
- The time at which the sample was taken, or measurement was made; and
- The location at which the sample was taken, or measurement was made.

Additional monitoring requirements will be necessary in the event of emergency incidents (e.g. uncontrolled release of substance to environment).

Refer **Environmental Procedure 013** in Appendix One for details

8. RELATED DOCUMENTS

The principle is responsible for ensuring that all requirements relevant to operation of the facility outlined or included in the documents below are complied with at all times.

The principle is responsible for ensuring that its employees and sub-contractors understand the content and relevance of these documents.

The principal must ensure that works comply with the requirements outlined in the following documents:

- Acoustics RB Pty Ltd, 2021. Proposed Research and Technology Industry Facility 34 Mill Street, Mossman. Environmental Noise Assessment Report No. 21-1249.R01
- Vipac Engineers and Scientists Limited, 2021. CTP Mossman Sugar Mill AQ and noise assessment. Air Quality Assessment. 70B-20-0338-TRP-47306597-0 dated 26 March 2021.
- Environmental Authority EPPR00920713 issued to Far North Milling Pty Ltd.
- Far North Milling Pty Ltd, 2019. Stormwater Management Procedure. Doc number FNM-EV-0969.



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Appendix A

Environmental Management Procedures





ENVIRONMENTAL PROCEDURE EP001 – GENERAL ENVIRONMENTAL DUTY

Procedure – General Environmental Duty

Objective

- To comply with environmental duties pursuant to the Environmental Protection Act 1994.

Management Strategy

- Notwithstanding that which is written below, all persons associated with, or working on, the subject site are to familiarise themselves with their Environmental Duties under the EP Act. The following is a limited summary of the EP Act.
- A person must not carry out any activity that causes, or is likely to cause, environmental harm, unless the person takes all reasonable and practicable measures to prevent or minimise the harm ("general environmental duty").

Actions

- A person who, while carrying out an activity, becomes aware that serious, or material, environmental harm is caused (or potentially caused) by the person's, or someone else's, act or omission in carrying out the primary activity, or another activity being carried out in association with the activity.
- However, this does not apply if the harm is authorised to be caused under:
 - i) an environmental protection policy; or
 - ii) an environmental management program; or
 - iii) an environmental protection order; or
 - iv) an environmental authority; or
 - v) an emergency direction
- As soon as reasonably practicable after becoming aware of the event involving the harm, the person must if the person is carrying out the activity during the person's employment, or engagement by, or as the agent of, someone else (the "employer") –
 - i) tell the employer of the event, its nature and the circumstances in which it happened; or
 - ii) if the employer cannot be contacted - give written notice to the administering authority of the event, its nature and the circumstances in which it happened;
- Once the employer becomes aware of an event involving harm, the person must:
 - i) Give written notice to the administering authority of the event, its nature and the circumstances in which it happened;
- In accordance with the EP Act "Environment" includes:
 - i) ecosystems and their constituent parts including people, communities; and
 - ii) all natural and physical resources; and

Procedure – General Environmental Duty

- iii) the qualities and characteristics of locations, places and areas however large or small that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest amenity, harmony and sense of community; and
- iv) the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned in paragraphs (i) to (iii).
- “Environmental Harm” is any adverse effect or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value. Environmental Harm may be caused by an activity;
 - i) Whether the harm is a direct or indirect result of the activity; or
 - ii) Whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.

Performance Criteria / Indicators

- Environmental harm is not caused (or potentially caused) by the person’s, or someone else’s, act or omission in carrying out the primary activity, or another activity being carried out in association with the activity.
- All (if any) incidents resulting in environmental harm are dealt with in accordance with ‘Actions’ section of this Environmental Procedure.

Reporting / Responsibilities

- It is recommended that the person providing advice of an event causing environmental harm to record the details of the event and the details of the person(s) advised.
- The contractor is to maintain records of staff Induction and continuing training with reference to the above.

Corrective Action

- Non-conformance shall be documented and a Corrective Action Request (CAR) issued. All CARs shall be included in the project non-conformance register.
- The Contractor shall implement the corrective action as required within the agreed timeframe noted on the CAR.
- The Contractor shall advise the Project Manager after completion of the corrective action.

Relevant contacts

Company	Role	Contact	Phone
Wolter Consulting Group	Environmental Consultant	Stephen Hayes	07 3666 5200
Coconutz Australia	Principle Contractor	Lucas van der Walt	0402213269
Department of Environment & Science	Significant Pollution Hotline	NA	1300 130 372

Procedure – General Environmental Duty

Douglas Shire Council	Minor pollution / Environmental Nuisance matters	NA	1800 026 318
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ENVIRONMENTAL PROCEDURE EP002 – AIR QUALITY CONTROL

Procedure – Air Quality Control

Objective

- To minimise the impact on air quality and residential amenity during the operational phase

Management Strategy

- To comply with the Environmental Protection Act 1994, it's subordinate Environmental Protection (Air) Policy 2008, Local Authority Local Laws and Occupational Health and Safety requirements.
- To minimise reduction of air quality due to the creation of airborne dust and vehicle/chemical emissions to within acceptable limits.
- To achieve no visible dust emissions at the subject site boundary caused by earthworks and construction activities.

Actions

Emission Type - Fumes

- All equipment shall be efficient, operated in accordance with established operating procedures and maintained to minimise exhaust emissions. Engines shall not be left to idle without adequate reasoning.
- All vehicles and plant shall be properly maintained to ensure that emission levels are less than the limits defined by relevant administering authorities and associated Australian Design Rules.

Emission Type - Odours

- All materials and/or processes that generate fumes or odours shall be properly stored and/or used with efficient and appropriate equipment for the scale of the activity.

Emission Type - Dust

1. Dust Control – General Actions:

- Dust control measures are to be implemented wherever a site activity contributes to atmospheric dust concentrations.
- Windbreak screens shall be considered when necessary between dust sources and adjoining sensitive receivers.
- Emissions of dust and/or particulate matter resulting from the work-related activities that may cause an environmental nuisance must not be released beyond the boundaries of the subject site.
- Work related activities must be managed using all reasonable and practical measures to minimise the release of windblown dust to the atmosphere. Reasonable and practicable measures may include (but are not limited to):
 - i) Restriction of vehicular movements within the site to designated access routes;
 - ii) Minimisation of exposed surfaces to that within the current operational area;
 - iii) Rehabilitation and stabilisation of work areas identified as dust point sources;
 - iv) Transfer of materials whilst wet or moist;

Procedure – Air Quality Control

v) Sealing of trafficable areas

2. Dust Control – Stockpiles

- Stockpiles must be maintained using all reasonable and practical measures to minimise the release of windblown dust to the atmosphere. Reasonable and practicable measures may include (but are not limited to):
 - i) Operation of effective water spray systems during winds likely to generate a nuisance toward neighbouring sensitive receivers.
 - ii) Use of dust suppressant shielding.
 - iii) Orientation of stockpiles with respect to the direction of prevailing winds.
 - iv) Use of bunkers and/or tarpaulins to reduce entrainment.
 - v) Minimisation of stockpile sizes and stabilisation of stockpiles where anticipated to be in place for extended periods (seeding or mulching).
 - vi) Minimise the number of stockpiles required as far as practicable.
 - vii) Removal of surplus material as a preference to stockpiling.

3. Dust Control – Trafficable Areas

- Trafficable areas must be maintained using all reasonable and practical measures to minimise the release of windblown dust to the atmosphere. Reasonable and practicable measures may include (but are not limited to):
 - i) Trafficable surfaces to be kept clean and free of dirt as far as practicably possible.
 - ii) Sealing of trafficable surfaces.
 - iii) Use of water carts to douse trafficable surfaces regularly when conditions require.
 - iv) Reduction and enforcement of site speed restrictions; and
 - v) Using dust suppressants and wind breaks.
- Spills of materials onto sealed areas as a result of delivery or handling must be cleaned/rectified as soon as practicable.
- Restrict traffic movement from areas that are not designated as haul routes / site access.
- Loss of spoils from transport trucks is to be prevented via the use of trailer tarpaulin at all times.

Performance Criteria / Indicators

- Weekly inspections by Principal Contractor (PC) of control measures in place and relative effectiveness of control measures.
- PC to maintain weekly averages of wind speed, direction and rainfall.
- Records of complaints received and associated investigation and corrective actions. Where more than three (3) complaints are received from the same or similar location the PC will implement air quality monitoring to quantitatively measure concentrations at the point of complaint. Corrective actions are to be implemented where the limits provided in the table below are exceeded.

Procedure – Air Quality Control

Air Quality Objectives as per *Environmental Protection (Air) Policy 2008*

Parameter	Maximum Concentration
Annual, 24hr averaged dust concentration as total suspended particulate	90µg/m ³
Annual, 24hr averaged dust concentration as PM10	50µg/m ³
24hr averaged dust concentration as PM10	150µg/m ³
Visibility	20km

Reporting / Responsibilities

- The site manager will be responsible to manage complaints. The site manager will be responsible for relevant forms to be completed and any implementing any actions identified
- The site manager shall submit monthly reports to the Principal summarising monitoring activities, control measures and corrective actions required.
- Non-conformance with this plan shall be recorded and a Corrective Action Request (CAR) issued. All CAR's shall be included in the Non-conformance register.
- The Site manager shall implement corrective actions.

Corrective Action

- Non-conformance shall be documented and a Corrective Action Request (CAR) issued. All CARs shall be included in the project non-conformance register.
- The Site manager shall implement the corrective action as required within the agreed timeframe noted on the CAR.
- The Site manager shall advise the Principal after completion of the corrective action.



NENVIRONMENTAL PROCEDURE EP003 – NOISE CONTROL

Procedure – Noise Control

Objective

- To control noise generated by the activity thus minimising the impact of noise to acceptable levels of amenity to adjoin sensitive receptors

Management Strategy

- To comply with the Environmental Protection Act 1994, it's subordinate Environmental Protection (Noise) Policy 2008, Local Authority Local Laws and Occupational Health and Safety requirements.
- To notify adjoining sensitive receptors if and when excessive noise is expected.

Actions

- Contractor to establish Noise Control strategies to minimise noise levels.
- Control strategies include (but are not limited to)
 - i) The fitting of exhaust silencers to all mobile plant;
 - ii) Use of exhaust silencers on compressed air machinery;
 - iii) The fitting of engine acoustic shields;
 - iv) The use of physical noise barriers;
 - v) Review of allowable hours when using noise excessive plant and equipment;
 - vi) Review of working hours.
- Lighting devices to be used in preference of noise emitters to control site operations (excepting for safety warnings).
- All vehicles operating on site shall comply with noise limitations detailed in the Federal Office of Road Safety Australian Design Rule ADR28/01-External Noise of Motor Vehicles
- Reversing alarms fitted to vehicles are to be of 'squawker' design as a preference over 'beeper' design.
- Working hours on site shall comply with relevant local and state laws and guidelines. The table below provides time restrictions detailed in Department of Transport and Main Roads Transport Noise Management Code of Practice Volume 2 – Construction Noise and Vibration.

Work Periods for Construction Activities

Work Period	General Construction & Construction Traffic
Standard Hours	Monday to Friday 7:00am to 6:00pm
	Saturday 8:00am to 1:00pm
Non-Standard Hours – day/evening	Monday to Friday 6:00pm to 10:00pm
	Saturday 1:00pm to 10:00pm
	Sunday 7:00am to 10:00pm

Procedure – Noise Control

Non-Standard Hours – night time	Monday to Sunday 10:00pm to 7:00am
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Performance Criteria / Indicators

- The contractor shall perform weekly inspections of all noise and vibration producing sources to assess compliance of noise control measures.
- Where complaints regarding noise are received, the Project Manager and Contractor will attend the complainant's locality during the noise emitting activity to ascertain what control measures may be required and the validity of the complaint.
- In the event of a dispute an independent party (such as the Consultant) shall undertake a noise monitoring / vibration assessment.
- The contractor is to keep written record of all complaints, monitoring results and corrective actions.
- Criteria for noise complaints are to conform with the Acoustic Quality Objectives specified pursuant to the Environmental Protection (Noise) Policy 2008 and the extracted table below (Department of Transport and Main Roads Transport Noise Management Code of Practice Volume 2 – Construction Noise and Vibration.)
- Persons affected by the noise shall be consulted with regard to suitable noise emission hours and advised of the agreed operations schedule

Table 3.2.1.1(a) External Construction Noise Criteria

Work Period		External Noise Level dB(A) $L_{Aeq,adj,15min}$	
		Lower Limit	Upper Limit
Standard Hours		RBL + 10	75 Where: RBL >55
			70 Where: 40 <RBL ≤55
			65 Where: RBL ≤40
Non -Standard Hours	Evening	RBL + 5	RBL + 5
	Night Time		

Where RBL = the pre-construction Rating Background Level

For further detail Refer Department of Transport and Main Roads Transport Noise Management Code of Practice Volume 2 – Construction Noise and Vibration.

Reporting / Responsibilities

Procedure – Noise Control

- The contractor shall perform weekly inspections of all noise and vibration producing sources to assess compliance of noise control measures.
- The Contractor shall submit monthly reports to the Project Manager summarising monitoring activities, control measures and corrective actions required.
- Non-conformance with this plan shall be recorded and a Corrective Action Request (CAR) issued. All CAR's shall be included in the Non-conformance register.
- The Contractor shall implement corrective actions.

Corrective Action

- Non-conformance shall be documented and a Corrective Action Request (CAR) issued. All CARs shall be included in the project non-conformance register.
- The Contractor shall implement the corrective action as required within the agreed timeframe noted on the CAR.
- The Contractor shall advise the Project Manager after completion of the corrective action.



ENVIRONMENTAL PROCEDURE EP004 – VEGETATION MANAGEMENT

Procedure – Vegetation Management

Objective

- To protect native vegetation, and to minimise the environmental impact of vegetation clearing activities on the preserved vegetation.
- To protect fauna from impacts resulting directly from the clearing of vegetation.
- To clear vegetation in a way which minimises harm to native fauna and allows for escape into neighbouring vegetation communities.

Management Strategy

- Maximise the retention of existing native vegetation, as far as is practicable and comply with the requirements of Local, State and Commonwealth Laws for Vegetation Management.
- Ensure native fauna that inhabit the vegetation to be cleared are protected as far as practicable.
- Vegetation to be preserved is to be clearly identified to prevent damage or disturbance.
- Construct protective fence where individual trees may be impacted by site activities.
- If native trees are identified within the clearance zone that may be retained with minor, practical modifications to the activity, such modifications shall be implemented, and the trees protected with fences and/or trunk girdles.
- Restricted weeds (Biosecurity Act 2014) shall be eradicated by nominated weed strategies.
- If mature trees (any tree having a diameter at the base greater than 150mm) are damaged that are not scheduled for clearance, steps shall be undertaken to re-establish the tree if possible, and to carry out relevant rehabilitation works if required.
- If disposal methods are not compliant with Local Authority Guidelines, necessary changes shall be made to correct the disposal procedures

Actions

- Individual trees identified are to be protected by a 1.2m (3 wire) high fence to be constructed within 500mm of any construction activity and are to include as much of the Primary Root Zone as is practicable.
- The Contractor shall provide temporary fences and/or trunk girdles (as described above) to prevent unintended physical damage to the root system, trunk or canopy of native vegetation identified for retention.
- All trees to be lopped or felled shall first be checked for wildlife (eg Koalas, Possums, and Cockatoos). If any wildlife is present, the tree shall not be lopped until the animal has left the tree. Refer Fauna Management Procedure EP005.
- All vegetation to be retained should be healthy and vigorous, with an expected lifespan of at least fifty (50) years. All individual trees and stands of vegetation will be subject to a risk assessment by a qualified Arborist if necessary.

Procedure – Vegetation Management

- Compaction around tree bases by heavy machinery is to be avoided where practicable. Vehicles should not drive or park under tree drip-lines. Stockpiling should not occur under drip-lines. Should work need to be undertaken under the drip-line, time / traffic should be limited, and a mulch layer (10cm depth) or a sufficient soil buffer should be used.
- Temporary protective measures, such as distinctive safety fencing around root zones of large trees will be used where necessary and practicable during construction activities.
- All imported fill material (if required during the construction or operational phases) is to be clean and free of vegetative matter.

Performance Criteria / Indicators

- No protected vegetation or trees are cleared or damaged
- Imported fill is visibly clear of vegetative matter

Reporting / Responsibilities

- The Site manager is responsible for monitoring, control measures and corrective actions.
- The Site manager shall implement corrective actions.

Corrective Action

- In the event that protected vegetation is cleared or damaged without prior approval, the Site manager shall advise the principle.
- Non-conformance shall be documented and a Corrective Action Request (CAR) issued. All CARs shall be included in the project non-conformance register.
- The Site manager shall implement the corrective action as required within the agreed timeframe noted on the CAR.
- The Site manager shall advise the Principal after completion of the corrective action.



ENVIRONMENTAL PROCEDURE EP005 – FAUNA MANAGEMENT

Procedure – Fauna Management

Objective

- To minimise the potential for site activities to cause damage to native fauna that may occur within the facility
- To identify the actions that are to be undertaken on any part of the subject site during clearing activities
- To provide the required scope of works of a suitably qualified Fauna Spotter/Catcher.

Management Strategy

- Minimise risk of harm to resident native fauna to within acceptable limits.
- Minimise the risk of injury/mortality of fauna within the limitations of Occupational Health and Safety (OH&S) Guidelines

Actions

- A DEHP Suitably Qualified Spotter-Catcher will be required during all tree removal works.
- Immediately after a tree is felled the Spotter-Catcher will thoroughly inspect each hollow (if present) for the presence of fauna. The Spotter-Catcher will utilise a torch to aid in this inspection and the mechanical manipulation and modification of some hollows may be required to ensure a thorough inspection is completed. All animals will be captured and removed from the hollows, monitored and relocated off site.
- Wood debris or other material stockpiles may need to be moved, mulched or otherwise disposed of during the course of daily operations. Due to the inherent habitat value of these features, a thorough inspection of each debris stockpile by the Spotter-Catcher on site is recommended prior to the movement or modification to ensure no fauna are injured. The Spotter-Catcher on site will determine the extent of inspection required dependent on the size, location and composition of the individual stockpiles
- Due to the threat and spread of Chytridiomycosis (*Batrachochytrium dendrobatidis*) throughout the native frog population of Australia, all frog handling and management is conducted in a manner to restrict the spread of this disease. All amphibians are handled wearing disposable gloves and held in individual bags when not captured in the same location. Frogs are kept moist until they can be released to avoid dehydration. Frogs are released in areas of moist substrate preferably adjacent to an established waterbody.
- All terrestrial fauna captured on site will be placed in clean calico catch bags until a suitable release time and location are found. These animals will be placed in a cool quiet place away from clearing activity and regularly monitored for signs of stress or injury. All healthy fauna will be relocated into the areas of similar vegetation composition to their natural habitat preferences.
- Detailed records will be made by the Spotter-Catcher with regard to all fauna interactions that occur onsite. The following details are recorded for each animal encountered;
 - a. Species
 - b. Age and Sex (if known)
 - c. Health status

Procedure – Fauna Management

- d. Time, Date and Location of interaction
- e. Release location and time
- f. Outcome of interaction
- g. Additional notes and comments

These records are to be maintained in a database by the site manager.

- In the event that Koala are located in trees to be felled, all works are to be ceased and not to re-commence until such a time that the individual has moved of its own accord.

Performance Criteria / Indicators

- All wildlife occurring in area to be cleared is removed and relocated by a suitably qualified Fauna Spotter/Catcher.
- No fauna in the area to be cleared is harmed as a result of site activities.
- Interaction reports are provided to the principal by the suitably qualified person (i.e. Fauna Spotter/Catcher).

Reporting / Responsibilities

- The Site manager is to keep records of death/injury of animals resulting from operation of the development.
- If an injury to wildlife occurs the Site manager must record all details and inform DES in their specified “return of operations” reporting period or in accordance with their permit conditions.

Corrective Action

- In the event that trees are cleared not supervised by the fauna spotter/catcher, the Site manager shall advise the Principal
- Non-conformance with this plan shall be documented and a Corrective Action Request (CAR) issued. All CARs shall be included in the non-conformance register.
- The Site manager shall implement the corrective action as required within the agreed timeframe noted on the CAR.
- The Site manager shall advise the Principal after completion of the corrective action.



ENVIRONMENTAL PROCEDURE EP008 – STORMWATER QUALITY

Procedure – STORMWATER QUALITY

Objective

- To minimise the impact of activities on water quality in water bodies, external to the site, to within acceptable limits

Management Strategy

- To avoid detrimental impact on water quality and the aquatic environment of downstream water bodies as a result of discharge of uncontrolled, contaminated stormwater runoff from the site.
- To comply with the Environmental Protection Act 1994 and the subordinate Environment Protection (Water) Policy 2009
- To undertake a water quality monitoring program

Actions

- Materials stockpiles stored on site shall be located in a suitably prepared location so as to limit the potential for suspended solids to be entrained and transported from the site. Existing overland flow pathways are to be diverted from laydown/storage areas and bunds/fences shall be provided to retain material within the designated storage location.
- Fuels and oils shall be stored in safe locations (bunded as required by relevant standards and guidelines) where stormwater inundation is likely to occur.
- All spills are to be cleaned and rectified immediately to prevent transport via overland flow.
- All stormwater and overland flow is to be directed into the FNM mill stormwater management system for appropriate monitoring and treatment (where required) in accordance with the FNM stormwater management procedure FNM-EV-0969
- Stockpile and waste disposal areas are to be provided with suitable bunding and stormwater treatment measures to reduce excessive loads on the mill treatment systems.
- Pursuant to the Environmental Protection (Water) Policy 2009 the Principal (or representative) will not deposit or release any of the following into, or in a place where it is likely to wash into a waterway, a roadside gutter or a stormwater drain:
 - a. Sand
 - b. Silt
 - c. Mud
 - d. Rubbish
 - e. Building Waste
 - f. Sawdust
 - g. Waste Water
 - h. Cement / Concrete

Procedure – STORMWATER QUALITY

- i. Solvents
- j. Oils / fuels
- k. Insecticides
- l. Herbicides
- m. Fungicides or biocides

Performance Criteria / Indicators

- Stormwater quality control infrastructure and mechanisms are to be monitored by the Site manager to ensure satisfactory performance weekly after major rainfall events.
- No water is to be released from site without conformation that site specific water quality parameters have been achieved.
- In the absence of site specific Water Quality Objectives, relevant water quality objectives defined under the Environment Protection (Water) Policy 2009 are to be adopted.

Reporting / Responsibilities

- It is the principals (or principals' representative) responsibility to liaise with Far North Milling to ensure stormwater management procedures are effective.
- It is the principals (or principals' representative) responsibility to liaise with Far North Milling to ensure stormwater monitoring is conducted and that all releases to the environment can continue to achieve the requirements of the FNM Environmental Authority release criteria with additional loads from the facility.
- Stormwater Quality control infrastructure and mechanisms are to be monitored on a daily basis by the Site manager to ensure satisfactory performance and immediately after rainfall events
- The Site manager is to provide monthly reports on monitoring events to the Principal including all corrective actions taken to achieve the performance criteria.
- Non-conformance with this plan shall be recorded and a Corrective Action Request (CAR) issued. All CAR's shall be included in the Non-conformance register.

Corrective Action

- Non-conformance shall be documented and a Corrective Action Request (CAR) issued. All CARs shall be included in the project non-conformance register.
- The Site manager shall implement the corrective action as required within the agreed timeframe noted on the CAR.
- The Site manager shall advise the Principal after completion of the corrective action.



ENVIRONMENTAL PROCEDURE EP009 – WEED MANAGEMENT

Procedure – Weed Management

Objective

- To comply with legal obligations pursuant to the Biosecurity Act 2014;
- To prevent the spread of Prohibited and Restricted weed species as a result of site activities.

Management Strategy

- Removal and ongoing control of weed species.
- Compliance with the Biosecurity Act 2014.
- Compliance with Local Authority Laws, policies and guidelines relevant to the control of weed species.

Actions

- Identify existing weed distribution and density on the site.
- Design a staged weed eradication program that forms a part of ongoing site management strategies.
- Regularly inspect the site to identify and control weed species.
- Implementation of weed management strategies must adhere to the following guidelines:
 - i. Reduce the extent of disturbed areas associated with the facility. Disturbed areas encourage weed germination.
 - ii. Weed management to be undertaken in three stages, Primary Control, Follow-up Control and On-going Maintenance
 - iii. Treatment of infestations to use appropriate methods of manual, mechanical or chemical control (refer below)
 - iv. Weed Hygiene measures are to be implemented where Prohibited or Restricted weed species are identified on-site.
 - v. Weed management and associated works is to be undertaken utilising advice from a trained, experienced contractor with suitable qualifications (i.e. current holder of Ground Distribution Contractors Licence and Agricultural Chemical Distribution Certificate (ACDC)).
 - vi. All companies involved with the distribution of herbicides must hold a current Commercial Operators Licence issued under the Agricultural Chemicals Distribution Control Act 1966
- Weed control methodology is to comply with the implementation of the methods described in the table below:

Weed Control Methods

Manual Methods

Name	Description
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Procedure – Weed Management

Hand Removal	Appropriate for small numbers of plants in isolated areas. Low impact method. Weed is manually pulled from the soil or where a deep tap root is present a trowel or knife can be used to loosen soil enabling removal of the entire plant. Bag and remove from site.
Crowning	Used on weeds with growth points located at or below ground level (e.g. Asparagus spp). Above ground components of the plant are trimmed at near to ground level. A knife (or similar) is then inserted close to the base of the plant at an angle ensuring the knife tip is well under the root system. Roots are then severed close to the base of the plant. The crown must be removed from site and disposed of in an appropriate manner.
Mechanical Methods	
Name	Description
Brushcutting	Use of brush cutters to reduce the dominance of larger areas of herbaceous species and grasses. Chemical treatment can be used in association (prior to brush cutting or during active regrowth stage).
Chainsaw	Use of chainsaw to fell species that can then be chemically treated to reduce regrowth potential.
Slashing	Slashing and mowing to reduce weed growth and restrict flowering at critical weed lifecycle periods
Mulching	Mulching and smothering using large and small machinery specifically designed to mulch trees and woody vegetation in-situ. The use of the mulch on-site can assist in suppressing weed growth but should be utilised cautiously as some weed species have characteristic propagative capabilities where vegetative germination is possible.
Blade Ploughing	The use of a dozer blade to push over woody weeds and destroy root systems. Should only be utilised where sensitive weeds removal techniques are not required.
Chemical Methods	
Name	Description
Cut / Paint (Cut/Stump)	Preferred method for woody weeds, trees and some vines (e.g. groundsel, Camphor Laurel). The plant trunk is cut horizontally near to ground level with herbicide applied immediately to the exposed internal structures with a spray bottle or paint brush. Can be utilised during periods of light rain where spray methods are rendered useless.
Frilling	Appropriate for tree sized woody weeds (<100mm diameter). An axe or chainsaw is used to slice sections of the trunk at 100mm intervals around the entire circumference of the tree. These incisions are made at an angle of approx. 45 degrees ensuring the Cambrian layer is not exceeded with the incision. Herbicide (neat or 2:1) is then painted or sprayed into the hole within 7 seconds of the wound being made. Utilise only where public safety issues or not relevant as treated tree specimens are likely to drop branches as the tree dies.
Scrape / Paint	Similar to cut/stump but more useful on vine species particularly where it is necessary or preferable to retain the vine structure intact (e.g. aerial tubers on Madeira vine). Propagules are initially removed (where appropriate) before scraping the plant tissue away on one side of the stem for up to 100cm before leaving a small

Procedure – Weed Management

	gap and repeating on the other side of the stem. Undiluted herbicide is then applied to the exposed xylem tissue within 7 seconds of exposure.
Spot/Foliar Spray	Low volume distribution of herbicide via the use of knapsack or hand held pneumatic spray packs (can include 12V battery operated ute/quad mounted units). Appropriate for a wide range of herbaceous weed species. Less efficient when dealing with high abundance woody weeds.
Splatter Gun/Gas Gun	Utilises a gas gun (fan shaped nozzle = Gas Gun Treatment and Nozzle delivering solid stream of large droplets = Splatter Gun) to treat hard to access or high abundance areas of herbaceous and/or woody weeds. Applies a low volume of concentrated herbicide to the target species reaching potential distances of up 10m away. Non-target damage is minimised given the high concentration and minimal contact area required to treat target species. Particularly effective on large Lantana thickets. Gas gun method (i.e. Fan shaped nozzle providing uniform coverage of 4-5m ²) is utilised in areas where water access is limited and is generally useful for smaller isolated weed occurrences.
Stem Inject	Applies to all larger woody weeds and trees (greater than 100mm trunk diameter). A battery powered drill is used to excavate a hole placed at an angle of approximately 45 degrees into the xylem tissue of the trunk. Care must be taken to ensure the hole is located within the xylem and not into deadwood in the centre of the trunk. Herbicide (neat or 2:1) is then injected directly into the hole within 7 seconds. This process is repeated around the entire circumference of the trunk at approximately 100mm intervals. Utilise only where public safety issues or not relevant as treated tree specimens are likely to drop branches as the tree dies.
High Volume Foliar Distribution	Distribution of chemical mix (generally low concentration) via the use of petrol driven pump, tank, retractable hose and hand gun under high pressure. Effective for where large areas of treatment are required. An additional benefit is that units can be mounted on 4WD or other vehicles to enable access to remote locations or where access to water may be limited (i.e. chemical mix can be prepared and transported to site).
Over spray method	Useful where large dense infestations of weeds species occur. Herbicide is sprayed over the top of the infestation canopy at recommended rates using the weed canopy as shelter for regenerating plants underneath. Sprayed plants are left intact to prevent erosion, protect native seedlings, retain habitat and discourage human access.
Basal Barking	Herbicide is mixed with Diesel to assist bark penetration. The herbicide mix is sprayed onto the trunk to a height of 30cm and for the entire circumference of the target specimen. Do not utilise this method where the bark is corky, wet or charred.

- The use of herbicides and associated chemicals on the site must adhere to manufacturers specifications and associated label directions or under the permit prescriptions when utilised under an Off-Label permit as issued under the Agricultural Chemicals Distribution Control Act 1966.
- Regular monitoring (monthly intervals) of the site for new infestations of weeds is to be implemented.

Procedure – Weed Management

Performance Criteria / Indicators

- The site is 100% free (and persists as so) of all Prohibited and Restricted weeds pursuant to the Biosecurity Act 2014.
- Monitoring indicates no new infestations of Prohibited and Restricted weeds pursuant to the Biosecurity Act 2014

Reporting / Responsibilities

- The Site manager is responsible for monitoring, control measures and corrective actions.
- The Site manager shall implement corrective actions.

Corrective Action

- Non-conformance shall be documented and a Corrective Action Request (CAR) issued. All CARs shall be included in the project non-conformance register.
- The Site manager shall implement the corrective action as required within the agreed timeframe noted on the CAR.
- The Site manager shall advise the Principal after completion of the corrective action.



ENVIRONMENTAL PROCEDURE EP011 – WASTE MANAGEMENT

Procedure – Waste Management

Objective

- To maintain the site in a manner so that potential for environmental nuisance or harm is minimised to within acceptable limits.
- To store and handle hazardous wastes in an appropriate manner.

Management Strategy

- The facility to be maintained in a safe and tidy condition
- Compliance with relevant Local Authority Policies and Local Laws including Councils Trade Waste Policy

Actions

Plant and Equipment Management

- The Contractor is to:
 - i. Maintain and operate all plant and equipment in a suitable and efficient condition;
 - ii. Dispose of waste products in a suitable and efficient manner
- “Plant and equipment” refers to:
 - i. Any plant and equipment used to prevent and / or minimise the likelihood of environmental harm being caused;
 - ii. Any devices and structures to contain foreseeable escapes of contaminants and waste;
 - iii. Any vehicles used to transport waste;
 - iv. Any device or structure used to store, handle, treat or dispose of waste; and
 - v. Any monitoring equipment and associated alarms.

Litter and Waste Control Plan

- Within the facility, the Site manager shall establish a Litter and Waste Control Plan. This will detail management of the collection, storage and removal of all litter and waste on the site.
 - i. Listed in order of preference, manage work in accordance with the following principles: Avoid, Reduce, Reuse, Recycle, Waste- to-Energy (WTE) Recovery and Landfill.
- All Litter and waste, including pre-existing materials, construction wastes, human waste, used oils and any other surplus materials shall not be disposed of, nor burnt, on site.
- Trade wastes are to be handled and disposed of in accordance with the requirements of Douglas Shire Council’s relevant trade waste permit issued to the facility; and
- The site is to be kept free from all wastes, especially those that may be exported from the site via wind or water.

Waste Storage

Procedure – Waste Management

- Specific areas shall be set aside for the storage of construction materials. In particular, a safe storage location for fuels, oils, solvents and other dangerous goods utilised in the production process shall be provided in accordance with NOHSC 2017 (2001) “Storage and Handling of Workplace Dangerous Goods”. This area shall be banded in compliance with the Code of Practice and relevant authority requirements.
- Waste storage areas, or bins, are to be provided for the storage of waste materials including construction waste, builders waste and vegetation waste.
- All hazardous wastes shall be stored and disposed in accordance with the Safety Data Sheet (SDS).
- All hazardous material SDS’s shall be kept on site at all times; and
- An emergency response plan will be prepared, and site personnel inducted in its application. Spill response equipment and protective clothing is to be kept on site at all times.

Waste Disposal

- Wastes (excluding hazardous wastes) generated during construction, and from the proposed use of the site, may be disposed of to an approved waste disposal facility either directly or via an approved waste receptacle and collection service.
- All hazardous waste will be disposed in accordance with the relevant SDS.
- Under no circumstances shall fires be lit for the disposal of solid waste refuse or waste be used as fill or buried on site.
- Should an alternate disposal method be proposed, council approval will be required before implementation begins.
- Where practical, operations that produce waste are to be avoided, reduced, re-used or recycled.

Performance Criteria / Indicators

- Weekly inspections by Site manager to verify compliance with the site-based Litter and Waste Control Plan once established.
- The facility operations will be monitored and have details recorded pertaining to work areas, fencing, storage locations, access roads and disposal methods. If altered at any time all associated plans will be altered accordingly.

Reporting / Responsibilities

- The Site manager shall submit monthly reports to the Principal summarising monitoring activities, control measures and corrective actions required.
- Non-conformance with this plan shall be recorded and a Corrective Action Request (CAR) issued. All CAR’s shall be included in the Non-Conformance Register.
- The Site manager shall implement corrective actions.

Corrective Action

Procedure – Waste Management

- Non-conformance shall be documented and a Corrective Action Request (CAR) issued. All CARs shall be included in the project non-conformance register.
- The Site manager shall implement the corrective action as required within the agreed timeframe noted on the CAR.
- The Site manager shall advise the Princippal after completion of the corrective action.



ENVIRONMENTAL PROCEDURE EP013 – MONITORING, RECORDING AND NOTIFICATION

Procedure – Monitoring, Recording and Notification

Objective

- To regulate response protocols to incidents and emergencies during the life of the project.
- To mitigate and reduce environmental impacts of emergencies and incidents.

Management Strategy

- The site to be maintained in a safe and tidy condition.
- Compliance with all relevant operational procedures, Local Authority requirements and government guidelines.

Actions

Rainfall Induced Contaminant Releases

- All complaints received by the Site manager relating to releases of contaminants from operations at the site must be recorded and kept in a log with the following details:
 - i. Time, date and nature of complaint.
 - ii. Type of communication (telephone, letter, personal etc.).
 - iii. Name, contact and contact telephone number of complainant (Note: if the complainant wishes to remain anonymous, record as “Not Identified”).
 - iv. Response and investigation undertaken as a result of the complaint.
 - v. Name and qualification of person responsible for investigating complaint; and
 - vi. Action taken as a result of the complaint investigation and signature of responsible person.
- The Complaint Record must be maintained for no less than three (3) years.

Incident Recording

- A record of events must be maintained. These events include, but are not limited to:
 - i. Any fire at the site.
 - ii. Any release of leachate or stormwater runoff which has been in contact with any raw materials, wastes and contaminants used for, and / or resulting from, carrying out any activity on the licensed place to the receiving waters. This includes releases from the system managed by FNM.
 - iii. Detection by the environmental monitoring program of any release of contaminants not likely to be in accordance with the conditions of this environmental authority; and
 - iv. Incidents which have adverse public health consequences and / or cause nuisance (include time, date, duration and nature of incident).

Procedure – Monitoring, Recording and Notification

Emergency and Incident Notification

- As soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance with the conditions of this environmental authority. The holder of the environmental authority must notify the Administering Authority of the release by telephone and email.
- The notification of emergencies or incidents as required above must include, but are not limited to:
 - i. The location of the emergency or incident.
 - ii. The name and telephone number of the designated contact person.
 - iii. The time of the incident.
 - iv. The time the incident was discovered.
 - v. The suspected cause of the incident.
 - vi. The environmental harm and / or environmental nuisance, caused threatened or suspected to be caused by the incident.
 - vii. Actions taken to prevent any further relapse and mitigate any environmental harm, and / or environmental nuisance caused by the release.
- Not more than 14 days following the initial notification of an emergency or incident, the holder of the environmental authority must provide written advice of the information in accordance with the above, in addition to:
 - i. Proposed actions to prevent a recurrence of the emergency or incident.
 - ii. Outcomes of actions taken at the time to prevent or minimise environmental harm and / or environmental nuisance; and
 - iii. The results of any environmental monitoring performed.

Water Quality Determinations

- All determinations of the quality of contaminates released to waters must be made in accordance with method prescribed in Queensland Government's "Monitoring and Sampling Manual 2018", published by Department of Environment and Science, or more recent editions or supplements to that document as such become available.
- All determinations of the quality of contaminants released must be performed by a person, or body, possessing appropriate experience and training to perform the required measurements.
- All stormwater management infrastructure (under control of the Principal) must be inspected following every rainfall event. In addition, to ensure the integrity of the works, monthly inspections must be undertaken during dry weather periods. Inspection dates observed condition of control works and any corrective measures completed must be recorded.
- The records required above must include:
 - i. Dates of rainfall events.
 - ii. Rainfall in millimetres.

Procedure – Monitoring, Recording and Notification

- iii. Application of any flocculate or any other substance to any sedimentation pond or equivalent; and
- iv. The results of site and equipment inspections and corrective measures undertaken.

Noise Monitoring

- When investigating any complaint of intrusive noise and for checking compliance with the Australian Standard AS2436 “Guide to noise and vibration control on construction, demolition and maintenance sites” (2010). Monitoring of noise levels from the environmentally relevant activities must be undertaken during construction activities for the following descriptors, characteristics and conditions:
 - i. L_{Amax} , adj T;
 - ii. L_{A90} , T;
 - iii. L_{AN} , T (Where N equals statistical levels of 1, 10, 50, 90 and 99);
 - iv. L_{Aeq} ;
 - v. The level and frequency of occurrence of impulsive or tonal noise measured.
 - vi. Atmospheric conditions including temperature, relative humidity and wind speed and direction.
 - vii. Effects due to extraneous factors, such as traffic noise; and
 - viii. Location, date and time of recording.
- Noise monitoring must be undertaken to investigate any complaint of noise nuisance upon receipt of a request from the administering authority to carry out such monitoring.
- The measurement and reporting of noise levels must be undertaken by a person or body possessing appropriate experience and qualification to perform the required measurements.
- The method of measurement and reporting of noise levels must comply with the Department of Environment and Heritage Protection “Noise Measurement Manual” Version 4, August 2013, or more recent additions or supplements to that document as they become available.

Ambient Particulate Monitoring

- Ensure compliance with the environmental procedure- “Air Quality Control”, and in order to investigate a complaint about dust that the administering authority considers as more than vexatious and constitutes an unreasonable release, than at the written request of the administering authority, the Contractor must develop and implement a particulate monitoring program.
- The particulate monitoring program must have provisions for (as relevant):
 - i. Monitoring of ambient particulate matter (insoluble analysis and particulate matter deposition rate in milligrams / square metre / day) at no less than two (2) locations sited at approximate even spacing around the licensed place in the proximity of an affected dust sensitive place. To investigate any complaint alleging dust nuisance that is reasonably likely to have emanated from the licensed place, upon receipt of written request from administering authority, monitoring must be conducted over a period of at least three consecutive thirty (30) day periods; and

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- ii. To investigate any complaint alleging that an environmental nuisance is caused by dust and particulate matter that is reasonably likely to have emanated from the licensed place, upon receipt of written request from the administering authority to carry out such monitoring. Monitoring of the 24-hour concentration average of particulate matter with an aerodynamic diameter less than 10 micrometre (μm) (PM10) suspended in the atmosphere downwind and beyond the boundary of the licensed place. The average concentration must be calculated from a minimum of eight (8) samples obtained over a one (1) month period.
- Samples taken for the particulate monitoring program must be collected and analysed in accordance with the requirements of the Department of Environment “Air Quality Sampling Manual”, first edition, November 1997, or more recent editions or supplements to that document as published by the Environmental Protection Agency.
- All determinations of particulate monitoring must be performed by a person or body possessing appropriate experience or qualifications to perform the required determinations.
- Records must be kept of all monitoring of particulate matter (dust) deposition rates and monitoring of the 24-hour concentration average of particulate matter with an aerodynamic diameter less than 10 micrometer (μm) (PM10) suspended in the atmosphere.
- Other potential air emissions (such as CO, SO and Ethanol) are also to be subject to a monitoring program should the need arise.

Performance Criteria / Indicators

- Refer to the aforementioned activities for performance criteria and indicators.

Reporting / Responsibilities

- The Principal must notify the administering authority in writing of any monitoring result that indicates an exceedance of, or non-compliance with, any EMP limit within 28 days of completion of analysis. The written notification is required to detail:
 - i. The full analysis results;
 - ii. Details of investigation or corrective actions taken; and
 - iii. Any subsequent analysis.
- Where requested, the Project Manager is to prepare an environmental compliance monthly monitoring report for submission to administering authority (in hard copy and digital form). Report must detail:
 - i. Table of monitoring results (in Excel);
 - ii. Individual charts of results
 - iii. Brief discussion with recommendations- highlighting any non-standard results;
 - iv. Incidents;
 - v. Corrective actions; and

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vi. Any EMP revisions.

- The Principal (or delegated authority) is to prepare annual audit reports for submission to council. Report is to document water quality test results, staff requirements, plant requirements, minor and special equipment used. This report shall contain an audit of site activities and compliance with this EMP.
- Records of all performed monitoring results are kept in accordance with this environmental authority and other information required to be recorded in conjunction with such monitoring for a period of at least three (3) years. The Project Manager, or delegate, is to keep records of the above.

Corrective Action

- Non-conformance shall be documented and a Corrective Action Request (CAR) issued. All CARs shall be included in the project non-conformance register.
- The Site manager shall implement the corrective action as required within the agreed timeframe noted on the CAR.
- The Site manager shall advise the Principal after completion of the corrective action.



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