MINE CLOSURE PLAN

LAKE WELLS POTASH PROJECT

Document ID: LWMCP Version: 1.0

PREPARED FOR:

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DMIRS MINE CLOSURE PLAN CHECKLIST

Q No	Mine Closure Plan (MCP) checklist	Y / N / NA	Page No.	Comments	Changes from previous version (Y/N)	Page No.	Summary
1	Has the Checklist been endorsed by a senior representative within the tenement holder/operating company? (See bottom of checklist.)	Y	N/A		N/A		
Public Availability							
2	Are you aware that from 2015 all MCPs will be made publicly available?	Y	N/A				
3	Is there any information in this MCP that should not be publicly available?	N/A	N/A				
4	If "Yes" to Q3, has confidential information been submitted in a separate document/ section?	N/A	N/A				
Cover Page, Table of Contents							
5	Does the MCP cover page include:						
	project Title	Y	N/A		N/A	N/A	N/A
	Company name	Y	N/A		N/A	N/A	N/A
	Contact Details (including telephone numbers and email addresses)	Y	N/A		N/A	N/A	N/A
	Document ID and version number	Y	N/A		N/A	N/A	N/A
	Date of submission (needs to match the date of this checklist)	Y	N/A		N/A	N/A	N/A
Scope and Purpose							
6	State why the MCP is submitted (e.g. as part of a Mining Proposal, a reviewed MCP or to fulfil other legal requirements).	Y	1	Section 1	N/A	N/A	N/A
Project Overview							
7	Does the project summary include:						
	Land ownership details (include any land management agency responsible for the land/reserve and the purpose for which the land/reserve [including	Y	3	Section 2.1	N/A	N/A	N/A

Q No	Mine Closure Plan (MCP) checklist	Y / N / NA	Page No.	Comments	Changes from previous version (Y/N)	Page No.	Summary
	surrounding land] is being managed).						
	Location of the project.	Y	3	Section 2.1	N/A	N/A	N/A
	Comprehensive site plan(s).	Y	6	Section 2.3	N/A	N/A	N/A
	Background information on the history and status of the project.	Y	1	Section 1	N/A	N/A	N/A
Legal Obligations and Commitments							
8	Does the MCP include a consolidated summary or register of closure obligations and commitments?	Y	20	Section 3	N/A	N/A	N/A
Stakeholder Engagement							
9	Have all stakeholders involved in closure been identified?	Y	25	Section 4	N/A	N/A	N/A
10	Does the MCP include a summary or register of historic stakeholder engagement with details on who has been consulted and the outcomes?	Y	29	Section 4.2	N/A	N/A	N/A
11	Does the MCP include a stakeholder consultation strategy to be implemented in the future?	Y	28	Section 4	N/A	N/A	N/A
Post-Mining Land Use(s) and Closure Objectives`							
12	Does the MCP include agreed post-mining land use(s), closure objectives and conceptual landform design diagram?	Y	31	Section 5	N/A	N/A	N/A
13	Does the MCP identify all potential (or pre-existing) environmental legacies, which may restrict the post mining land use (including contaminated sites)?	Y	61	Section 8	N/A	N/A	N/A
14	Has any soil or groundwater contamination that occurred, or is suspected to have occurred, during the operation of the mine, been reported to DER as required under the *Contaminated Sites Act 2003*?	N/A	N/A	N/A	N/A	N/A	N/A
Development of Completion Criteria							
15	Does the MCP include an appropriate set of specific	Y	32	Section 6	N/A	N/A	N/A

Q No	Mine Closure Plan (MCP) checklist	Y / N / NA	Page No.	Comments	Changes from previous version (Y/N)	Page No.	Summary
	completion criteria and closure performance indicators?						
Collection and Analysis of Closure Data							
16	Does the MCP include baseline data (including pre-mining studies and environmental data)?	Y	37	Section 7	N/A	N/A	N/A
17	Has materials characterisation been carried out consistent with applicable standards and guidelines (e.g. GARD Guide)?	Y	48	Section 0	N/A	N/A	N/A
18	Does the MCP identify applicable closure learnings from benchmarking against other comparable mine sites?	N	NA	Conceptual plan; similar sites to be determined.	N/A	N/A	N/A
19	Does the MCP identify all key issues impacting mine closure objectives and outcomes (including potential contamination impacts)?	Y	61	Section 8	N/A	N/A	N/A
20	Does the MCP include information relevant to mine closure for each domain or feature?	Y	65	Section 9	N/A	N/A	N/A
Identification and Management of Closure Issues							
21	Does the MCP include a gap analysis/risk assessment to determine if further information is required in relation to closure of each domain or feature?	Y	61	Section 8	N/A	N/A	N/A
22	Does the MCP include the process, methodology, and has the rationale been provided to justify identification and management of the issues?	Y	61	Section 8	N/A	N/A	N/A
Closure Implementation							
23	Does the MCP include a summary of closure implementation strategies and activities for the proposed operations or for the whole site?	Y	63	Section 9	N/A	N/A	N/A
24	Does the MCP include a closure work program for each domain or feature?	Y	67	Section 9.5	N/A	N/A	N/A

Q No	Mine Closure Plan (MCP) checklist	Y / N / NA	Page No.	Comments	Changes from previous version (Y/N)	Page No.	Summary
25	Does the MCP contain site layout plans to clearly show each type of disturbance as defined in Schedule 1 of the MRF Regulations?	Y	7	Section 2.3	N/A	N/A	N/A
26	Does the MCP contain a schedule of research and trial activities?	Y	63	Section 9	N/A	N/A	N/A
27	Does the MCP contain a schedule of progressive rehabilitation activities?	Y	63	Section 9	N/A	N/A	N/A
28	Does the MCP include details of how unexpected closure and care and maintenance will be handled?	Y	70	Section 9.1.3 and 9.1.4	N/A	N/A	N/A
29	Does the MCP contain a schedule of decommissioning activities?	Y	67	Section 9.6	N/A	N/A	N/A
30	Does the MCP contain a schedule of closure performance monitoring and maintenance activities?	Y	72	Section 10	N/A	N/A	N/A
Closure Monitoring and Maintenance							
31	Does the MCP contain a framework, including methodology, quality control and remedial strategy for closure performance monitoring including post-closure monitoring and maintenance?	Y	72	Section 10	N/A	N/A	N/A
Financial Provisioning for Closure							
32	Does the MCP include costing methodology, assumptions and financial provision to resource closure implementation and monitoring?	Y	75	Section 11	N/A	N/A	N/A
33	Does the MCP include a process for regular review of the financial provision?	Y	76	Section 11.2	N/A	N/A	N/A
Management of Information and Data							
34	Does the MCP contain a description of management strategies including systems and processes for the retention of mine records?	Y	78	Section 12	N/A	N/A	N/A

Corporate Endorsement:

I hereby certify that, to the best of my knowledge, the information within this Mine Closure Plan and checklist is true and correct and addresses all the requirements of the Guidelines for the Preparation of a Mine Closure Plan approved by the Director General of the Department of Mines Industry Regulation and Safety.

Name: _____ Signed: _____

Position: _____ Date: _____

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FIGURES

CHARTS

APPENDICES

1. SCOPE AND PURPOSE

The Lake Wells Potash Project (the Project) is a greenfields Sulphate of Potash (SOP) development, owned by Australian Potash Limited (APC). The site is located approximately 160 km north northeast of Laverton, in the north eastern Goldfields region of Western Australia. The current life of mine is expected to be 30+ years.

This Mine Closure Plan (MCP) has been prepared for submission in support of applications to develop the Project under:

- The *Environmental Protection Act 1986* (*EP Act*) Part IV, through an Environmental Review Document (ERD) document, submitted to the Environmental Protection Authority (EPA).
- The *Mining Act 1978* (*Mining Act*), through Mining Proposals submitted to the Department of Mines Industry Regulation and Safety (DMIRS).

This MCP addresses the planned closure and rehabilitation of the project, including all disturbed areas, mining landforms, plant and other built infrastructure within the project tenements. It also addresses contingencies for temporary suspension of operations and unplanned closure. This MCP is conceptual in nature, reflecting the status of the Project.

This MCP has been prepared according to the joint DMP/EPA *Guidelines for Preparing Mine Closure Plans* (May 2015 revision) (DMP/EPA 2015).

A MCP is a dynamic document that recognises that both the project and industry closure requirements are constantly evolving. As such, this MCP will be revised on a regular basis with detailed rehabilitation outcomes and relinquishment criteria developed progressively, in consultation with stakeholders, over the life of Project. The MCP will be updated as required to ensure the working document captures all facets of the project as approved. The detailed MCP will be developed during the operational phase of the Project to reflect the greater understanding and detail of specific mining activities. The final step is the evolution of the MCP into a Decommissioning Plan for final implementation of project closure activities, culminating in submission of a Relinquishment Report.

The scope and structure of this MCP is as follows:

Section 1: Scope and Purpose - outlines the scope and purpose of the MCP.

Section 2: Project Overview - provides an overview of the project, including land ownership, tenure, location, planned operations and main mine components.

Section 3: Identification of Closure Obligations and Commitments - summarises the legal obligations and specific legally binding closure commitments relating to the project.

Section 4 Stakeholder Engagement - describes the process used to identify stakeholders relevant to mine closure, lists the stakeholders identified, and provides a summary of how each has been, and will continue to be, consulted in relation to mine closure.

Section 5: Post-Mining Land Use and Closure Objectives - identifies post-mining land use and closure objectives based on the proposed land use.

Section 6: Development of Completion Criteria - describes the development of site specific completion criteria by which success of closure will be measured.

Section 7: Collection and Analysis of Closure Data - provides environmental data relevant to closure, including a summary of baseline studies completed prior to project commencement and how these aspects impact on closure of the project.

Section 8: Identification and Management of Closure Issues - outlines the risk assessment process for identifying the key closure issues, and provides a summary of key risks and management measures.

Section 9: Closure Implementation - provides a closure implementation plan that includes planned closure, suspension, and early closure.

Section 10 Closure Monitoring and Maintenance - describes the proposed environmental monitoring program and maintenance response requirements.

Section 11: Financial Provision for Closure - describes the process used to estimate the closure financial provision, including the internal calculations and third-party review.

Section 12: Management of Information and Data - provides a description of how relevant information and data will be managed during ongoing closure planning and implementation.

Closure planning progress will be reported annually as part of the Annual Environmental Report (AER). This MCP will be updated and submitted to DMIRS for review every three years, or as required by project approval and tenement conditions.

2. PROJECT OVERVIEW

2.1 LOCATION AND TENURE

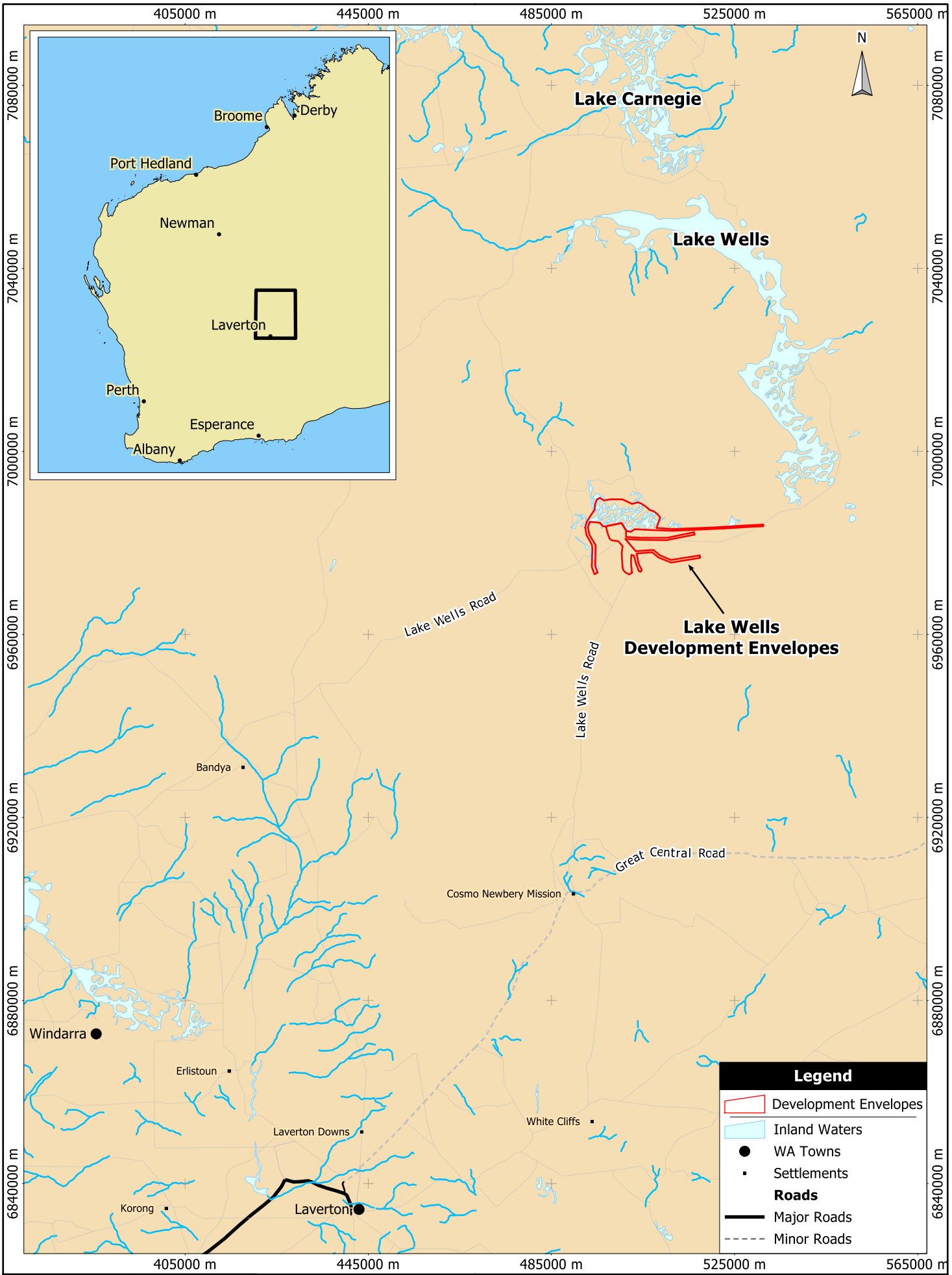
The Project occupies an area of palaeo-valley and salt lake (or 'playa') terrain at Lake Wells in the north east part of the Yilgarn Craton, approximately 160 km north east of Laverton in Western Australia (Figure 1). The Project is located on Vacant Crown Land (VCL) and the Lake Wells Pastoral Lease (PL NO50056), an operating cattle station in the Mount Margaret mineral field. In late 2018 the Waturta lodged a claim over a wide area, including the Development Envelopes. The nearest Aboriginal settlements, Cosmo Newberry and Mulga Queen, are located approximately 85 km south and 100 km southwest of the Project area respectively.

Access to the Project will be via Laverton along the Great Central Road (about 80 km) and then via Lake Wells Road. Minor upgrades will be required for the 85 km Lake Wells Road portion of the access road. Lake Wells Road is owned, managed and maintained by the Shire of Laverton. Bulk SOP products will be transported by road haulage from the Project to Geraldton for export.

APC currently holds Mining Leases M38/1274, M38/1275 and M38/1276 as summarised in Table 1 and illustrated in Figure 2. In addition, six Exploration Licences are held (Table 1).

Table 1: Project Tenements

Tenement	Area (ha)	Grant Date	Expiry Date
M38/1274	13,366.4	11/09/2018	10/09/2039
M38/1275	8,771.9	11/09/2018	10/09/2039
M38/1276	6,188.3	11/09/2018	10/09/2039
E38/2113	7,934.6	29/08/2008	28/08/2020
E38/2742	34,749.6	10/07/2013	09/07/2023
E38/2988	16,163.2	31/03/2015	30/03/2020
E38/3021	298.2	09/07/2015	08/07/2020
E38/3028	1,218.6	06/07/2015	05/07/2020
E38/3224	6,395.9	06/10/2017	05/10/2022
Unallocated Crown Land	2,820.5	N/A	N/A



Scale: 1:1100000
Original Size: A4
Grid: MGA94(51)

0 40 km

Australian Potash
Lake Wells
Mine Closure Plan

Figure 1

Proposal Location

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2.2 CONTACT DETAILS

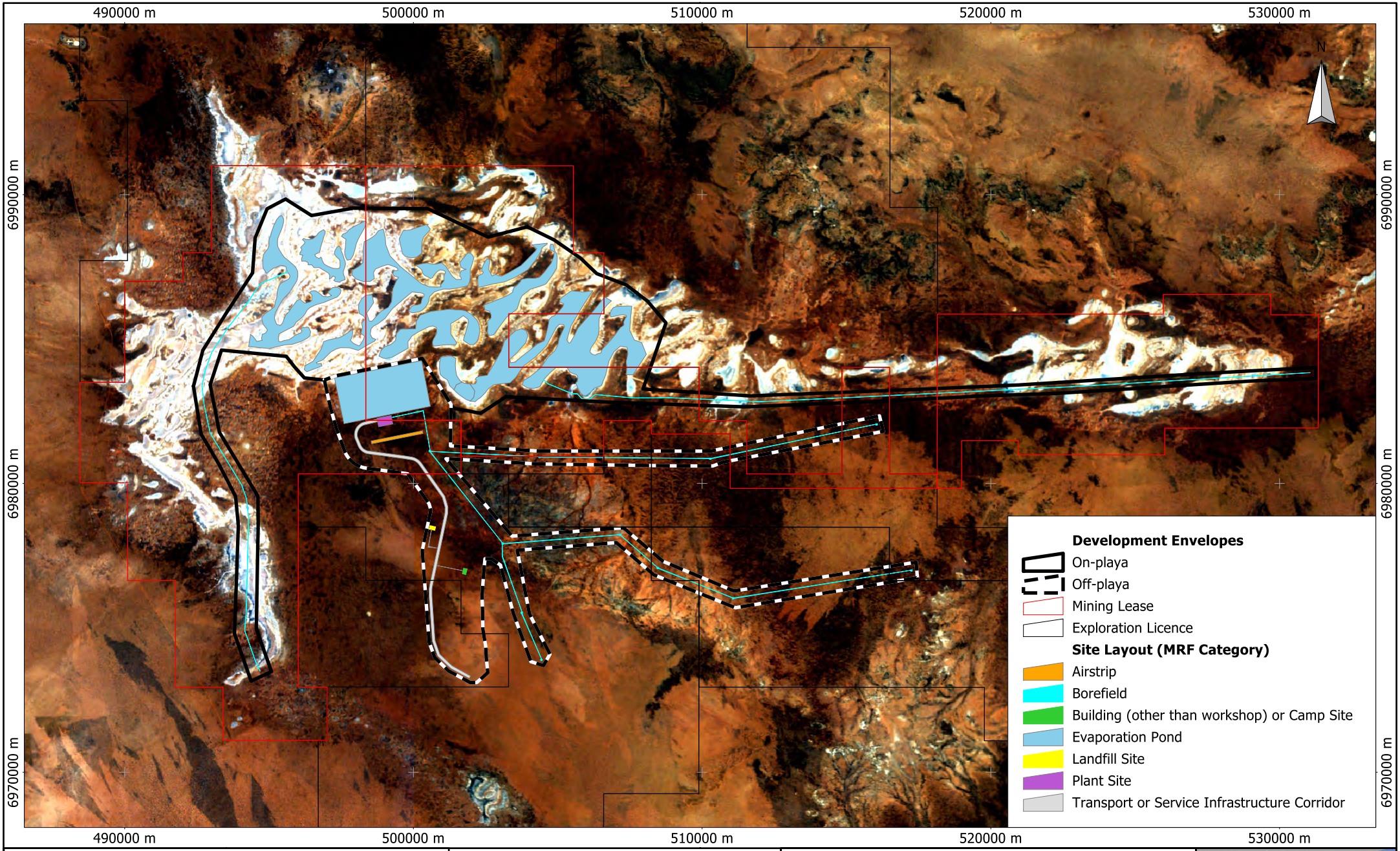
The Project will be developed by Australian Potash Limited (APC) (ABN 58 149 390 394). APC is mineral exploration company, headquartered in Perth, Western Australia. It is listed on the Australian Securities Exchange (ASX). APC is the owner of all tenements associated with the project.

The proponent can be contacted at:	Australian Potash Ltd 31 Ord Street West Perth WA 6005
The key contact for the project is:	Mr Stewart McCallion Project Manager Telephone: (08) 9322 1003 Email: s.mccallion@australianpotash.com.au

2.3 PROJECT DESCRIPTION

The Project consists of a brine production borefield within the Lake Wells palaeo-channel, solar evaporation ponds, harvest ponds, bitterns pond, an SOP processing plant and brackish and fresh water borefields.

The Project, including the works proposed under the construction and operation phases, is described in greater detail in the ERD document. The proposed site layout is shown in Figure 2 showing the MRF categories.



Scale: 1:170000
Original Size: A4
Grid: Australia MGA94 (51)

0 5 km

Australian Potash
Lake Wells
Mine Closure Plan

Figure 2

Proposed Site Layout and Tenement Plan

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W:\Australian Potash\Lake Wells Project\Approvals\ERD\MCP\GIS\MCP.map 23/10/2019 F2 Proposal Site Layout and Tenement Plan Layout

2.3.1 Brine Abstraction

The Lake Wells resource (brine) is contained within a palaeo-channel consisting of a low permeability, unconfined, surficial aquifer unit of alluvial/lacustrine sediments (0 to -60 m), and highly permeable upper sand and basal sand aquifer units (located at -60 m and between -150 and -170 m). The basal aquifer is confined below the upper aquifer by a clay and silt aquitard comprising puggy lacustrine clay with sandy interbeds (MBS Environmental 2017) (Figure 3).

Potassium-rich brine will be pumped to the surface from the upper sand and basal sand aquifer units (collectively called the production aquifers) via a network of bores positioned along the centre line of the palaeo-channel and transferred by pipeline to the evaporation ponds.

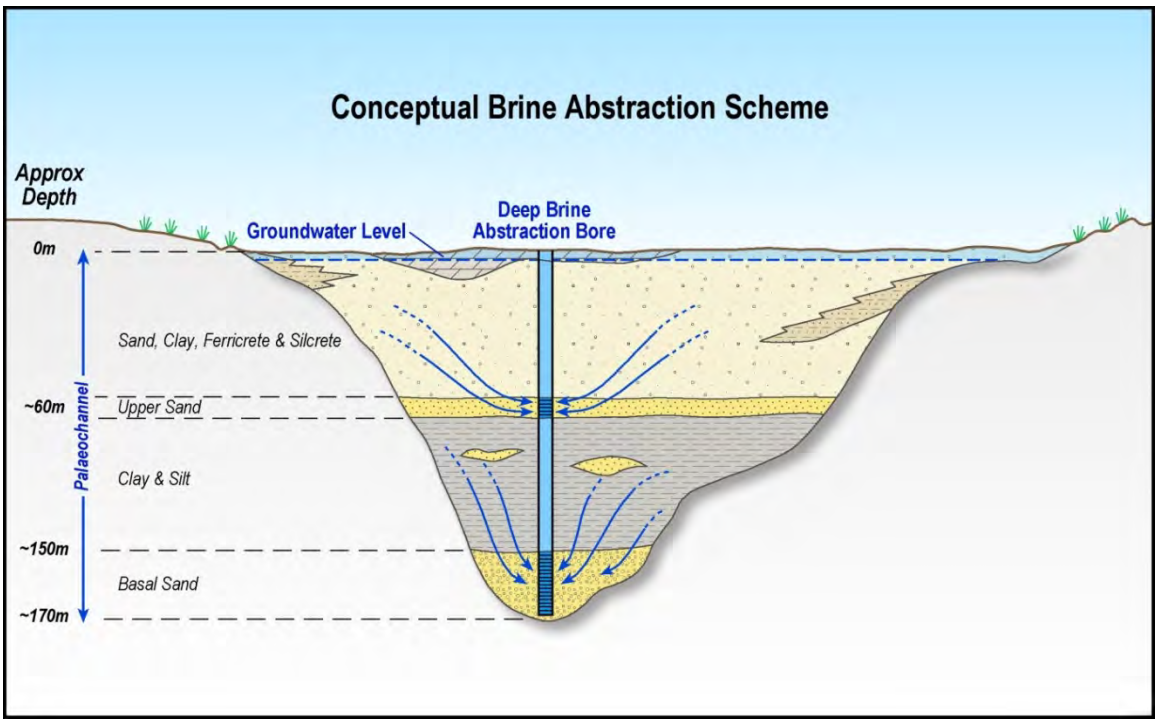

Figure 3: Conceptual Cross Section of the Lake Wells Palaeo-channel

2.3.2 Processing

The Process Plant will be located within the Off Playa Development Envelope adjacent to the Harvest Ponds (Figure 2). Figure 4 provides a flow diagram for brine processing, which shows the three stage process of producing SOP, involving processing through evaporation, separation, drying, sieving and compaction.

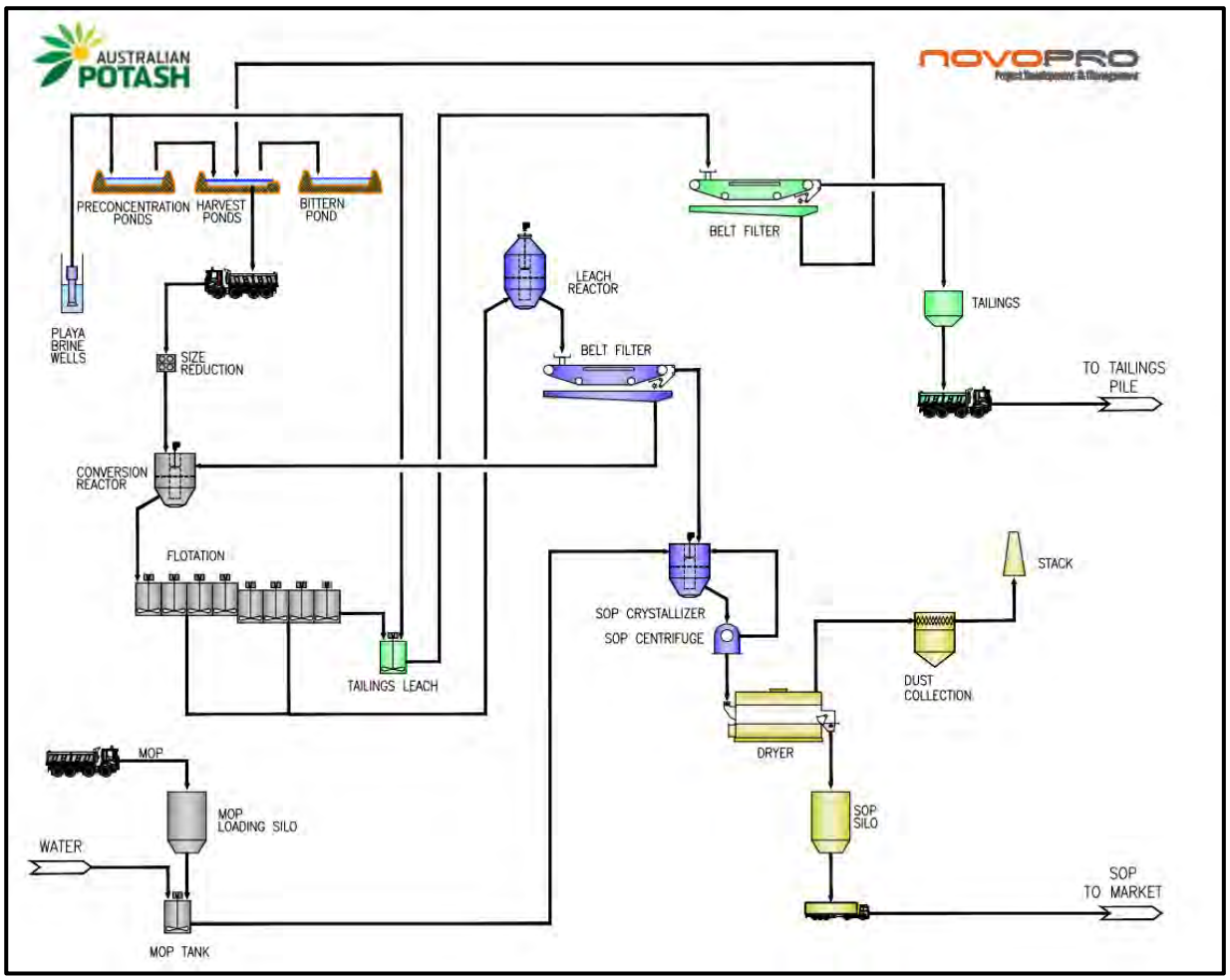

Figure 4: Potash Processing Flow Diagram

2.3.2.1 Process Residue Management

The Proposal will produce three types of process residues, namely:

- Halite solids (NaCl): This is produced in the Concentrator/Storage Ponds.
- Magnesium chloride brine: This is a purge brine rejected from the last Harvest Pond.
- Flotation solids: These are the process residue from the floatation cells and consist of non-potassium bearing salts (generally halite, NaCl).

Management of these waste streams is discussed in the sections below.

Halite Solids

Halite solids will be generated in the Concentrator/Storage Ponds, forming deposits in the base of the ponds. The halite will naturally precipitate from the brine solution as it is evaporated and concentrates through the concentration pond circuit. The halite will collect on the floor of each pond at a rate of approximately 0.25 m per year. It is expected that 2,300,000 tonnes per year of halite will be generated in the Concentrator/Storage Ponds and a total of 69,000,000 tonnes will be generated over the life of the Project.

As the depth of the halite on the floor of each of the Concentrator/Storage Ponds builds, the height of the pond walls will be raised to maintain the working capacity of the ponds. The embankment walls will be lifted about every five years to sustain pond capacity with three lifts expected over the life of project. At the end of project life, the

Concentrator/Storage Ponds will contain approximately 5 m depth of solid halite. The expected final height of the Concentrator/Storage Pond walls will be approximately 12 m.

Magnesium Chloride Brine

Magnesium chloride brine will be purged from the final Harvest Ponds. Approximately 1,020,000 t of magnesium chloride brine is anticipated to be produced per annum. Magnesium chloride brine will be pumped to an On Playa Bitterns Pond, with the On Playa location specifically chosen due to its higher permeability (Figure 2). The Bitterns Pond will have two cells. The first, relatively impermeable cell, will be used for temporary storage of brine purged from the Harvest Ponds. The impermeable cell will have a continuous overflow into a second, more permeable cell from which process brine will be disposed of via infiltration. The higher permeability of the second cell will allow brine to seep back into the surficial aquifer.

It is recognised that magnesium chloride brine is an effective dust reducing agent. APC intends to utilise magnesium chloride brine, harvested from the first, impermeable, cell, for dust suppression on haul roads and unsealed access roads within the On Playa Development Envelope. It is anticipated that approximately 50,000 t per annum of magnesium chloride brine will be used for this purpose.

Flotation Solids

Approximately 320,000 tpa of flotation solids will be generated each year. The flotation solids will be loaded into trucks and delivered to a 'Tailings' pond, adjacent to the Harvest Ponds, where they will be dry-tipped and spread with a front end loader.

2.3.3 Fresh Water

As well as brine abstracted from the Lake Wells production bore playa system, the project will require approximately 0.9 GL per annum of lower salinity water for ore processing and other ancillary uses such as potable water for the accommodation village.

Groundwater investigations identified a number of fractured rock aquifers adjacent to Lake Wells as potential sources of project water. Subsequent hydrogeological investigations have identified a proposed borefield south of Lake Wells. Nine bores have been installed to date with standing water levels ranging between 8.6 to 24.4 m below ground level (bgl).

2.3.4 Project Traffic and Access

Internal roads will be up to 12 m wide for two way traffic and will be constructed with v-drains on either side to allow for drainage.

Access to the Project will be via Laverton along the Great Central Road (about 80 km) and then via Lake Wells Road. Minor upgrades will be required for the 85 km Lake Wells Road portion of the access road. Lake Wells Road is owned, managed and maintained by the Shire of Laverton.

Bulk SOP products will be transported by road haulage from the Project site to Geraldton for export. A preliminary transport study investigated transport options for the product from site to both domestic and international destinations. Geraldton was identified as the preferred export port based on the concept of bulk-loading the product and transporting with quad road trains. The Port of Geraldton, which is closer to Lake Wells than Fremantle, is well suited to bulk exports.

2.3.5 Other Support Services

Support facilities at Lake Wells will include:

- Accommodation Village: A permanent accommodation village is proposed to support the long-term operation of Lake Wells. The accommodation village will consist of 100 motel style rooms with associated messing and recreational facilities.

- Airstrip: The existing Lake Wells airstrip will be upgraded by widening, lengthening and repairing the pavement to make it suitable for 20 seater aircraft. The airstrip will be upgraded in line with CASA standards using suitable materials.
- Buildings/Offices: A warehouse/stores building, medical facility and processing and administration office buildings will be required.
- Communications: Communications will include high speed wireless internet, satellite television, site SCADA radios for pump stations and plant and UHF radio network.
- Landfill: An onsite landfill will be required for disposal of putrescible waste. The landfill is proposed to be located to the south of the accommodation camp (Figure 2).
- Power: LNG power generating facilities will consist of a primary central power station powering the processing plant and a separate generator to power the accommodation village. The central power station will also power overhead power lines to the production borefield. Individual diesel generators will power pond transfer pumps and the potable and process water pumps.
- Fuel Facility: Fuel for the generators and ancillary fleet will be trucked to an onsite storage facility (up to approximately 50 kL).
- Washdown Facility: A washdown facility will be constructed consisting of light/heavy vehicle drive through areas with high pressure spray water for cleaning. Solids and dirty wash down water will drain to a primary settlement sump where the solids settle out. Oily water will overflow to an adjacent cell where oil will be separated using an oil skimmer and the oil will be pumped directly to a small waste oil tank.
- Wastewater (Sewage) Treatment: A wastewater treatment plant will be located near to the accommodation village and will process wastewater from ablution and shower facilities. Wastewater from these systems will either be recycled or disposed of via evaporation or discharge to land.
- Workshops/Laydowns: A heavy/light vehicle workshop and maintenance workshop are proposed on site.

2.3.6 Disturbance and Landforms at Completion

The only remaining landforms at closure will be the On Playa Ponds whose walls (depending on topography) will be approximately 12 m high. Approximate areas of these landforms remaining at closure are detailed in Table 2, and shown on Figure 2.

The ponds will be filled with solidified halite that has precipitated from solution and built up on the floor during the life of the Project. The final shape of the mounds will essentially fill in the valleys between the existing kopai dunes, largely merging into the existing landforms. They will remain uncovered and will adopt a water holding design to facilitate dissolution of salts and return to the host aquifer. Residual halite will dissolve in rain events and gradually flow back into the hypersaline playa groundwater system. At closure, all pumps, pipework and associated infrastructure in and around the Concentrator/Storage and Crystalliser Ponds will be removed. All other infrastructure will be decommissioned and removed.

Table 2: Mining Landforms Disturbance by Mine Rehabilitation Fund (MRF) Category at Closure

Landform	Footprint (ha)	MRF Category	MRF Class
On Playa Ponds (Concentrator and Crystalliser Ponds and Bitterns Pond)	2,440	Evaporation Pond	A

3. IDENTIFICATION OF CLOSURE OBLIGATIONS AND COMMITMENTS

3.1 OVERVIEW

DMIRS is the lead regulator and decision-making authority for mining projects in Western Australia under the *Mining Act,* and has particular responsibility for mine closure. However, where mining projects are of a scale or nature that is considered "significant", they are referred to the EPA for assessment under Part IV of the *EP Act,* in accordance with a Memorandum of Understanding (MoU) between the two agencies.

A brief summary of the principal relevant instruments and legislation, and current or expected obligations for closure of the Project, is provided in the sections below. A register of obligations relevant to project closure will be incorporated into future revisions of this MCP, once all regulatory approvals have been obtained.

3.2 NATIVE TITLE

In late 2018 the Waturta lodged a claim over a wide area, including the Development Envelopes (Native Title Claim WC2018/012 registered on 17/08/2018). APC is seeking an agreement with the Claimant Group.

3.3 ERD COMMITMENTS AND MINISTERIAL CONDITIONS

The Project was referred to the EPA by the proponent on 21 December 2017. On 5 February 2018, the level of assessment was set as Environmental Review – no public review. The ERD incorporates commitments and measures to protect the environment, including commitments to mine closure and rehabilitation.

3.4 TENEMENT CONDITIONS

Tenements for the Project are issued under the *Mining Act*, subject to conditions administered by the DMIRS Minerals Environment Branch. Conditions relevant to closure incorporate obligations to:

- Cap, fill, or otherwise make safe all exploration drillholes immediately after completion.
- Rehabilitate exploration disturbances within six months of completing the exploration program, except where otherwise authorised by DMIRS.
- Remove topsoil ahead of construction or mining, and stockpile for future use in rehabilitation.
- Except where otherwise authorised by DMIRS, at the completion of operations or progressively where possible:
  - Replace stockpiled topsoil.
  - Remove all wastes, equipment, structures, and installations.
  - Cover all wells and holes in the ground to a degree of safety approved by DMIRS.
  - Plant trees, shrubs or other plants on areas cleared of natural vegetation, to conform to the general pattern and type of natural vegetation in the area as directed by DMIRS, and maintain these areas until DMIRS advises that regrowth is self-supporting.

APC expects that at Project approval, DMIRS will also place conditions on the tenements requiring an AER to be submitted each year, detailing the extent of disturbance and rehabilitation (if any) on the tenements and progress on closure planning. Disturbance and rehabilitation on the Project tenements will also be subject to reporting and payment of contributions under the MRF (Section 3.7).

3.5 MINES SAFETY AND INSPECTION ACT

The *Mines Safety and Inspection Act 1994* (*MSIA*) and *Regulations 1995* (*MSIR*), administered by the DMIRS Resources Safety Branch, regulate mine worker and public safety at minesites, not only during construction and normal operations, but also during any suspension of operations, decommissioning and rehabilitation works, and following mine abandonment. While safety on mines is primarily regulated under the *MSIR*, operations are also subject to the broader *Occupational Health and Safety Regulations 1996* (*OHSR*).

Under *MSIA* s42, *MSIR* r3.14, and *MSIR* r3.16, APC will be required to notify DMIRS of any intention to suspend or abandon operations. APC must also prepare and submit a plan addressing how the site will be:

- Cared for and maintained during any period of suspension.
- Kept safe for any remaining workers, through maintenance of emergency and other services.
- Made safe for the public, by preventing unauthorised or inadvertent access to hazardous areas, preventing post-mining subsidence, and removing hazardous plant, equipment, and materials.

Suspension (care and maintenance) and unplanned closure are addressed in Section 9.

3.6 MINING PROPOSAL COMMITMENTS

On approval of a Mining Proposal, conformance to the measures set out in the Mining Proposal becomes a tenement condition. Since 2010, DMIRS has required that Mining Proposals are accompanied by an MCP (this document), to address measures related to closure and rehabilitation. While the details of closure and rehabilitation measures are left to the MCP, the Mining Proposal usually incorporates broad commitments related to closure, aligned with the MCP. This MCP has been written to accompany the ERD for submission to the DWER, and will require amendment to meet standards for submission to DMIRS under the Mining Proposal process.

3.7 MINE REHABILITATION FUND

The *Mining Rehabilitation Fund Act 2012* was passed to replace the system of bonds previously used in Western Australia. It requires tenement holders to report current areas of exploration and mining disturbance every year to the MRF, administered by DMIRS. DMIRS then invoices the tenement holder for a contribution to the MRF, based on rates set by the *Mining Rehabilitation Fund Regulations 2013,* reflecting expected typical closure costs for different types of disturbance (DMP 2013).

Disturbance areas on which rehabilitation works have been completed, and the completion criteria met, attract a much lower rate, providing an incentive for early or progressive rehabilitation. Once verified by DMIRS, such areas require no further contribution.

3.8 WORKS APPROVALS, LICENCES AND CLEARING PERMITS

APC will apply for a Works Approval and Environmental Licence to construct and operate infrastructure prescribed under Part V of the *EP Act*; which is administered by DWER. These instruments regulate the construction and operation of infrastructure to prevent or control discharges with the potential to cause pollution, and do not usually include specific conditions for closure.

Part V of the EP Act also allows DWER to issue a “closure notice” requiring ongoing management and monitoring of a licenced premises, even after operations cease and the licence is relinquished, if it believes that there are still potential hazards to human health or the environment from past activities.

3.9 CONTAMINATED SITES ACT 2003

APC is obliged to report any known or suspected contamination on its tenements that may present a material hazard to human health or the environment, as defined by the *Contaminated Sites Act 2003* (*Contaminated Sites Act*), to DWER. DWER may then require APC to investigate the contamination, and depending on the outcome of the investigation, complete remediation. If contamination does not present an immediate threat, remediation may often be left until closure, subject to consultation with DWER. Liability for any contamination under the *Contaminated Sites Act* is separate to obligations under the *Mining Act*, and can remain even after the site is relinquished and tenements extinguished.

The Lake Wells site is "greenfield" and existing contamination is unlikely. However, several aspects of the Project have potential to create liabilities under the *Contaminated Sites Act* if not properly managed. These include spills of fuels and other hydrocarbons. APC will manage these aspects during construction and operations through measures to prevent contamination such as standard work procedures, maintenance, spill reporting and cleanup, and monitoring.

3.10 GROUNDWATER LICENCES

Ground Water Licences (GWL) are issued under the *Rights in Water and Irrigation Act 1914* (*RIWI Act*) and administered by DWER.

No obligations directly related to closure and rehabilitation are typically imposed by such licences or permits, however APC is required to notify DWER of any significant changes to the approved Proposal water scheme, including decommissioning or transfer of water supply bores or related infrastructure at closure, or changes to tenure or ownership. DWER has adopted national standards for the decommissioning of water bores (NUDC 2012).

Water abstraction and use under the licence will be managed and monitored according to an approved Groundwater Operating Strategy to assure that environmental values including vegetation, subterranean fauna, and features of cultural significance are appropriately protected from the impacts of groundwater abstraction. Monitoring will incorporate abstraction volumes, levels and quality at the site and borefields, and while this is primarily for operational purposes, the data collected will be relevant to closure.

3.11 CORPORATIONS ACT AND AUSTRALIAN SECURITIES EXCHANGE RULES

APC, as a company registered in Australia and regulated under the *Corporations Act 2001* (Cth) (*Corporations Act*), is required to maintain accounts and prepare financial statements in accordance with the standards set by the Australian Accounting Standards Board (AASB). These standards require liabilities of uncertain timing or amount to be treated in the company's financial statement as "provisions"; and such liabilities are typically taken to include decommissioning and rehabilitation obligations. The *Corporations Act* is administered by the Australian Securities and Investments Commission. Provisions for closure obligations are discussed in Section 11. APC will adopt relevant aspects of the International Financial Reporting Standards for mine closure costs, where consistent with AASB standards.

In addition, as a public company limited by shares and listed on the ASX, APC is bound by periodic disclosure rules, including quarterly, half-yearly and annual reports to the market with financial statements listing all significant assets and liabilities according to AASB standards, as well as continuous reporting rules for changes in circumstance with a material effect on the expected value of the company; such circumstances may include suspension of operations, changes to the expected life of mine, or early closure.

3.12 OTHER INSTRUMENTS AND LEGISLATION

Other instruments or legislation with a bearing on the closure of the Project will include:

- *Land Administration Act 1997,* administered by the Department of Planning, Lands and Heritage (DPLH), and governing overall land tenure and access in Western Australia, including the management or transfer of Pastoral Leases. Proposed amendments to this Act may present opportunities for alternative post-closure land uses; however these amendments have yet to be passed in their current form.
- *Aboriginal Heritage Act 1972*, administered by the DPLH for the protection of sites, places and artefacts of significance to Aboriginal culture in Western Australia. Surveys to date indicate that no known Aboriginal sites of significance will be disturbed by the Project; however APC is required to report and take steps to protect any sites that come to light in the course of Project construction, operation, or closure.

APC will monitor changes in relevant legislation, and incorporate any new or changed obligations with a substantial bearing on closure into the obligations register and this MCP.

3.13 VOLUNTARY STANDARDS

3.13.1 Strategic Framework for Mine Closure

APC intends to adopt as far as practicable the principles for mine closure as set out in the *Strategic Framework for Mine Closure* (ANZMEC/MCE 2000) and recognised by DMIRS in the MCP guidelines. These broad principles state that closed mines should be left:

- *Safe*, with no substantial public risk remaining.
- *Stable*, with mining landforms resistant to mass movement like landslips, and surface erosion reduced to a practicable minimum.
- *Non-polluting,* with sources of pollution like metalliferous tailings or acid-forming waste rock appropriately contained.
- *Empathetic to the surrounding landscape*, with post-mining landforms blending in with the natural landscape.

In addition, the principles state that post-mining landforms should be *economic to construct* and *require minimal ongoing maintenance*, reducing closure costs while meeting regulatory obligations and standards. APC will consider these principles in setting closure objectives and developing completion criteria for the Project.

3.13.2 Human Resources Policies

APC will develop human resources policies for the Project, including policies to address the suspension or closure of the operations and mitigate the impact on its workforce. APC will as far as is practicable and reasonable:

- Keep project workers informed of any potential decision to suspend or close the operations before the expected end of Project life, and any changes to the expected life of Project schedule.
- Retain workers for decommissioning and rehabilitation works, although it is recognised that many may chose to leave for longer-term employment once the decision to close has been announced.
- Provide counselling, support and advice where appropriate on job-seeking, re-training and financial management.
- Advise workers on their rights and benefits payable under relevant employment legislation, contracts of employment, and APC policies.
- Minimise environmental impacts and ensure disturbed areas are rehabilitated in accordance with site specific plans, permits and regulations.

4. STAKEHOLDER ENGAGEMENT

4.1 PRINCIPLES

Consultation has involved all parties holding a significant stake in the closure and rehabilitation of the Project, so that these stakeholders are properly informed, and their concerns and interests properly addressed from as early as possible in the closure planning process. APC will maintain a list of stakeholders that will be periodically reviewed, to ensure that all relevant parties have been identified, and will consider all reasonable requests from other parties that declare an interest and ask to be consulted on matters related to the closure of the Project.

Details of the stakeholder consultation process are provided below, including consultation objectives, identification of key stakeholders, consultation held to date, and ongoing consultation.

4.2 ENGAGEMENT TO DATE

4.2.1 Overview

To date, engagement and consultation has focussed on the development of the Project, with little discussion of closure planning. As the Project matures, APC will undertake progressively more specific consultation on closure.

4.2.2 Native Title Holders and Traditional Owners

As discussed under Section 3.2, in late 2018 the Waturta lodged a claim over a wide area, including the Proposal (Native Title Claim WC2018/012 registered on 17/08/2018). APC is seeking an agreement with the Claimant Group.

4.2.3 Pastoralist

Numerous meetings and phone calls between July 2016 and 2019 to discuss the Project, survey and exploration works and a land access agreement. Letters issued to provide information on the Project, exploration programme and heritage surveys.

4.2.4 Department of Mines, Industry Regulation and Safety

Briefings and email correspondence between July 2016 and 2019 on the Project, the environmental approvals pathway, lodgement and discussion of Programme of Works (PoW) applications for trials.

4.2.5 Department of Water and Environmental Regulation

Meetings and discussions between July 2016 and 2019 including:

- Pre-referral meetings to provide an overview of the Project and identify potential key environmental factors.
- Identifying the likely level of assessment and information required for referral under Part IV of the EP Act.
- Submission of referral.
- Submission of Environmental Scoping Document (ESD).
- Discussions regarding specific environmental factors as identified in the Environmental Scoping Document.
- Status of negotiations with the Waturta.
- Meeting to discuss the outcomes of the flora and vegetation surveys.
- Applications for groundwater licences.

4.2.6 Other Stakeholders

Other stakeholders or potential stakeholders engaged or consulted by APC to date include:

- Shire of Laverton: including invitation to comment on the Proposal, identification of Shire approvals required, and consultation on the use of or changes to public roads.
- Department of Parks and Wildlife (DPaW) and Western Australian Museum: including applications for licences to take fauna for subterranean fauna surveys, and consultation on surveys for short range endemics (SREs).
- Main Roads: Utilisation of the road network to transport product to Geraldton Port, proposed upgrades to Great Central Road.
- Mid-West Ports Authority: Discussions regarding an access agreement.

5. POST MINING LAND USE AND CLOSURE OBJECTIVES

5.1 POST MINING LAND USE

The Project area, located within the Lake Wells Pastoral Station, is expected to be returned a condition to allow a pastoral post-closure land use. The On Playa areas do not currently support pastoral use and will not support pastoral use following closure.

5.2 CLOSURE OBJECTIVES

The broad closure objective for the Project, in line with the Australian and New Zealand Minerals and Energy Council (ANZMEC) / Minerals Council of Australia (MCA) principles, will be to close the Project in a cost-effective and efficient manner, and leave the site safe, stable, non-polluting, and capable of supporting the agreed post-closure landuse. APC intends to pursue closure outcomes that provide the greatest net benefit to all stakeholders, commensurate with the value of the land for the agreed post-closure use(s).

More specific objectives are to:

- Incorporate the concerns and interests of all relevant stakeholders into closure planning.
- Meet all legal obligations for closure; or where appropriate agree alternatives through stakeholder consultation.
- Ensure that adequate financial provision is in place for all current closure liabilities.
- Minimise the cost of meeting closure objectives through effective planning and management.
- Protect the health and safety of workers during suspensions of operations, decommissioning and rehabilitation.
- Protect public safety and livestock during suspensions, and leave the site free of hazards to the public or livestock after closure.
- Manage waste landforms, notably the On Playa Ponds, to ensure any runoff will not materially affect surface waters, vegetation, habitat, or heritage sites.
- Ensure that any seepage from the waste landforms will not materially affect groundwater resources, vegetation or habitat.
- Reinstate natural surface water flows as far as practicable.
- Confirm that any impacts of water abstraction will attenuate over time.
- Rehabilitate Off Playa disturbed areas to support, as far as practicable, self-sustaining vegetation and habitats similar to surrounding areas.
- Minimise the visual impact of post-closure landforms.
- Relinquish the site with no outstanding legal or social liability.

6. DEVELOPMENT OF COMPLETION CRITERIA

6.1 PRINCIPLES

Completion criteria are the basis for determining whether closure objectives have been met or are likely to be met. APC will adopt the DMIRS/EPA (2015) and ANZMEC/MCA (2000) principles for development of completion criteria, which state that such criteria, should be:

- Developed in consultation with key stakeholders.
- Specific enough to address the unique environmental, social and economic circumstances of each site.
- Achievable and realistic.
- Relevant to the closure objectives.
- Based on performance indicators that allow trends to be identified.
- Flexible enough to adapt to changing circumstances, while still meeting agreed objectives.
- Measured over appropriate timeframes and, where necessary, projected over a long term.
- Subject to periodic review, and where appropriate modified in light of improved knowledge, or changed circumstance.
- Developed from the commencement of project planning, and refined over the life of the Project.

6.2 INTERIM CRITERIA

Interim completion criteria to address closure objectives for the Project are summarised in Table 3. As the Project is, at the time of this revision, still at a planning stage, the criteria are considered indicative. Where detailed criteria have not been established, reference is made to broad standards for guidance. As further information becomes available, these criteria will be refined in later revisions of this MCP.

Table 3: Interim Closure Criteria

Objective / Completion Criteria	Standards or Targets (Interim)	Measurement Tools / Evidence
Incorporate the concerns and interests of all relevant stakeholders into mine closure planning		
All relevant and significant stakeholders identified, and all consultation obligations and commitments met.	ANZMEC/MCA 2000 (Framework for Mine Closure). DMIRS/EPA 2015 (Mine Closure Plans). Native Title Mining Agreement (NTMA) consultation obligations.	Stakeholder register. Obligations register. Stakeholder consultation register.
Meet all legal obligations for mine closure, or where appropriate; agree alternatives through stakeholder consultation		
All closure obligations and commitments complied with, or alternatives negotiated.	ANZMEC/MCA 2000 (Framework for Mine Closure). DMIRS/EPA 2015 (Mine Closure Plans).	Obligations register. Internal compliance inspections. Regulatory compliance inspections (DMIRS, EPA). Stakeholder consultation register.
Ensure that adequate financial provision is in place for all current closure liabilities		
Current closure provision addresses all current obligations and associated costs, including studies and monitoring, and includes appropriate risk provisions.	ANZMEC/MCA 2000 (Framework for Mine Closure). DMIRS/EPA 2015 (Mine Closure Plans).	Obligations register. Closure task register. Closure cost model. Competent persons' assurance review. External audit assurance.
Current closure provision reviewed at least every two years and as required in light of changes of circumstances; updated provisions disclosed and explained in financial statements.	ANZMEC/MCA 2000 (Framework for Mine Closure). Corporations Act / AASB 137. ASX Listing Rules.	Updated closure cost model. Periodic and special reports to ASX.
Expected accuracy of closure cost forecasts improves over life of operations towards ±15% within two years of closure.	ANZMEC/MCA 2000 (Framework for Mine Closure). DMIRS/EPA 2015 (Mine Closure Plans).	Independent review of closure cost model by competent closure cost estimator.
Minimise the cost of meeting closure objectives through effective planning and management		
Agreements in place to transfer assets and infrastructure to third parties as far as practicable by time of closure.	Site-specific targets to be determined.	Asset register. Stakeholder consultation register. Legal agreements and associated schedules.

Objective / Completion Criteria	Standards or Targets (Interim)	Measurement Tools / Evidence
		Permit / title transfer confirmations.
All economically salvageable / recyclable parts and materials taken from site at or before closure rather than disposed of.	Site-specific targets to be determined.	Asset register Auctioneers / valuer's assessments. Expressions of interest.
All rehabilitation works completed to specification.	Site-specific targets to be determined.	Surveyor's interim and final reports. "Punch lists" for completion of works and signoff.
All decommissioning works completed to specification.	Site-specific targets to be determined.	Final closure task register. Surveyor's interim and final reports. "Punch lists" for completion of works and signoff.
Protect worker health and safety during suspension, decommissioning and rehabilitation		
Lost-time injuries, high-potential incidents, or significant exposures minimised during suspensions, decommissioning or rehabilitation.	MSIR & OSHR. Various DMIRS-RSB / Worksafe WA guidelines.	Hazard and incident reports. Industrial hygiene and heath monitoring records.
No non-compliances with relevant occupational / mining health and safety regulations and standards, suspensions, decommissioning or rehabilitation.	MSIR & OHSR. Various DMIRS-RSB / Worksafe WA guidelines.	Internal OHS compliance inspections. Regulatory OHS compliance inspections (DMIRS)
Protect public safety and livestock during suspensions, and leave the site free of hazards to the public or livestock after closure		
All unused fixed and mobile plant made safe / isolated / immobilised during suspensions; access to hazardous areas prevented with temporary fences or bunds; warning signs in place	ANZMEC/MCA 2000 (Framework for Mine Closure). DMIRS/EPA 2015 (Mine Closure Plans). AS/NZS 1319 (Safety signs).	Mine plans. Electrical plans. Asset register. Care and maintenance inspections.
All unused structures demolished or made safe, all hazardous materials removed or made safe; all slopes pushed down to safe angle at closure.	ANZMEC/MCA 2000 (Framework for Mine Closure). DMIRS/EPA 2015 (Mine Closure Plans).	Mine plans. Electrical plans. Asset register. Hazardous materials register. Contaminated site register and reports. Post-closure inspections.

Objective / Completion Criteria	Standards or Targets (Interim)	Measurement Tools / Evidence
Leave waste landforms safe and ensure that any runoff will not materially affect surface waters, vegetation, habitat or heritage sites		
Rates and extent of erosion and deposition from Ponds expected to remain at or below acceptable threshold over long term.	Site-specific targets to be determined.	Stakeholder consultation register. Pre-closure landform monitoring. Studies, models and trials. Ecological risk assessment of sediment impacts. Final landform designs and earthworks contracts. As-built earthworks survey and acceptance. Post-closure landform monitoring.
Rates and extent of slumping, slipping, or deflation on On Playa Ponds to remain at or below acceptable threshold over long term.	Site-specific targets to be determined.	Stakeholder consultation register Pre-closure landform monitoring. Studies, models and trials. Final landform designs and earthworks contracts. As-built earthworks survey and acceptance. Post-closure landform monitoring.
Reinstate natural surface water flows and drainage lines as far as practicable		
Site drainage post-closure promotes natural drainage regimes and maintains flows to downstream environment to an acceptable extent.	Site-specific targets to be determined.	Post-closure drainage design. Stakeholder consultation register.
Rehabilitate disturbed areas to support, as far as practicable, self-sustaining vegetation and habitats similar to surrounding undisturbed areas		
Revegetation (excluding On Playa Ponds) has acceptable density, variety and structure of native species; expected to be self-sustaining over long term.	Site-specific targets to be determined.	Studies and trials. Post-closure revegetation monitoring. Stakeholder consultation register.
Relinquish the site with no outstanding legal or social liability		
All assets and infrastructure removed and adequately rehabilitated except where transferred to third party.	ANZMEC/MCA 2000 (Framework for Mine Closure). DMIRS/EPA 2015 (Mine Closure Plans). DMIRS 2015 (Annual Environmental Reports). DMIRS 2013 (Mining Rehabilitation Fund).	Stakeholder consultation register. Annual Environmental Reports. MRF reports and audits. DMIRS post-closure verification inspections.

Objective / Completion Criteria	Standards or Targets (Interim)	Measurement Tools / Evidence
Legally binding agreements in place to re-assign all liability for any assets or infrastructure transferred to third party.	ANZMEC/MCA 2000 (Framework for Mine Closure). DMIRS/EPA 2015 (Mine Closure Plans).	Stakeholder consultation register. Legal agreements and associated schedules for transfer. Permit / title transfer confirmations.
All contaminated sites remediated to extent required by expected final land use; certified under Contaminated Sites Act.	DWER Contaminated Sites guidelines.	Records of operational spills and clean-up. Contaminated sites investigations and reports. Ecological risk assessments, where required.

7. COLLECTION AND ANALYSIS OF CLOSURE DATA

7.1 BACKGROUND

In support of regulatory approvals for the Project, a number of environmental studies have been undertaken over the Development Envelopes, including soil and landform characterisation, flora and fauna (including subterranean fauna and short range endemic fauna) surveys and process residue characterisations. These studies are listed and described in detail in the ERD document, and discussed with regard to closure planning in the following sections.

7.2 REGIONAL SETTING

The Project lies within the southern fringe of the Great Victoria Desert (GVD) and within the Eremaean Province in a region known as the Helms Botanical District. The GVD region is further divided into four subregions (Shield, Central, Maralinga and Kintore) based on the Interim Biogeographic Regionalisation of Australia (IBRA); Lake Wells is located within the Shield (GVD1) subregion.

Vegetation of the Helms Botanical District (as described by Beard, 1990) comprises a mosaic of tree and shrub steppe between sand dunes and on sandplains, consisting of Marble Gum, Mallee and Spinifex (*Eucalyptus gongylocarpa* (9-12 m), *E. youngiana*, *Triodia basedowii*). Beard states that dunes in the west, are rather thinner, few and weak. *E. gongylocarpa* is comparatively scarce with *E. youngiana* replaced by *E. kingsmillii* and *Acacia aneura* and *A. linophylla* becoming frequent on the sandplain.

The Shield subregion contains Spinifex (*Triodia spp*.) and Mallee (*Eucalyptus kingsmillii, E. youngiana*) over hummock grassland dominated by *Triodia basedowii* on aeolian sand plains. Scattered Marble Gum (*E. gongylocarpa*) and native pine (*Callitris sp.)* occur on the deeper sands of the sand plains. Mulga and Acacia woodland occur mainly on the colluvial and residual soils. Halophytes such as Salt Bush (*Atriplex*), Bluebush (Kochia) and Samphire (*Arthrocnemum*) occur on the margins of salt lakes and in saline drainage areas (Barton and Cowan, 2001).

The western end of the Shield subregion is underlain by the Yilgarn Craton. Here there is a higher proportion of sandplains in comparison to the rest of the bioregion. To the east is an arid active sand-ridge desert of deep Quaternary Aeolian sands overlying Permian and Mesozoic strata of the Officer Basin. Landforms consist of salt lakes and major valley floors with lake derived dunes. The sandplains occur with patches of seif dunes running east-west and areas of moderate relief without-cropping and silcrete-capped mesas and plateaus (breakaways). The subregion contains a major paleo channel of Ponton Creek (Cowan, 2001).

Lake Wells is located within the Leemans Sandplain Zone of the Murchison Province (DPIRD 2017). The Leemans Sandplain Zone is characterised by sandplains (with some gravel plains, mesas and salt lakes) on granitic rocks of the Yilgarn Craton (Eastern Goldfields Superterrane). Soils are comprised of red sandy earths with red loamy earths and some red deep sands, red-brown hardpan shallow loams and Calcareous loamy earths. Vegetation is predominately Spinifex grasslands with Marble Gum, Mallee and Mulga shrublands (and some halophytic shrublands).

7.3 CLIMATE

7.3.1 Temperature, Evaporation and Humidity

The Project is located within the semi-arid zone of Western Australia, with mild winters and hot summers. The annual temperature regime is characterised by marked diurnal and seasonal fluctuations. The nearest Bureau of Meteorology (BoM) weather station to Lake Wells is located at Carnegie (Site Number 013015), approximately 120 km to the northwest. Mean monthly maximum temperatures (for years 1989 to 2019) range from 38.7 to 21.2°C, while mean monthly minimum temperatures range from 24 to 6°C; average annual rainfall (for years 1942 to 2019)

is 242.2 mm, with January, February and March receiving the highest monthly rainfalls (BoM 2019a). Mean monthly rainfall, maximum temperature and minimum temperature data is shown in Chart 1.

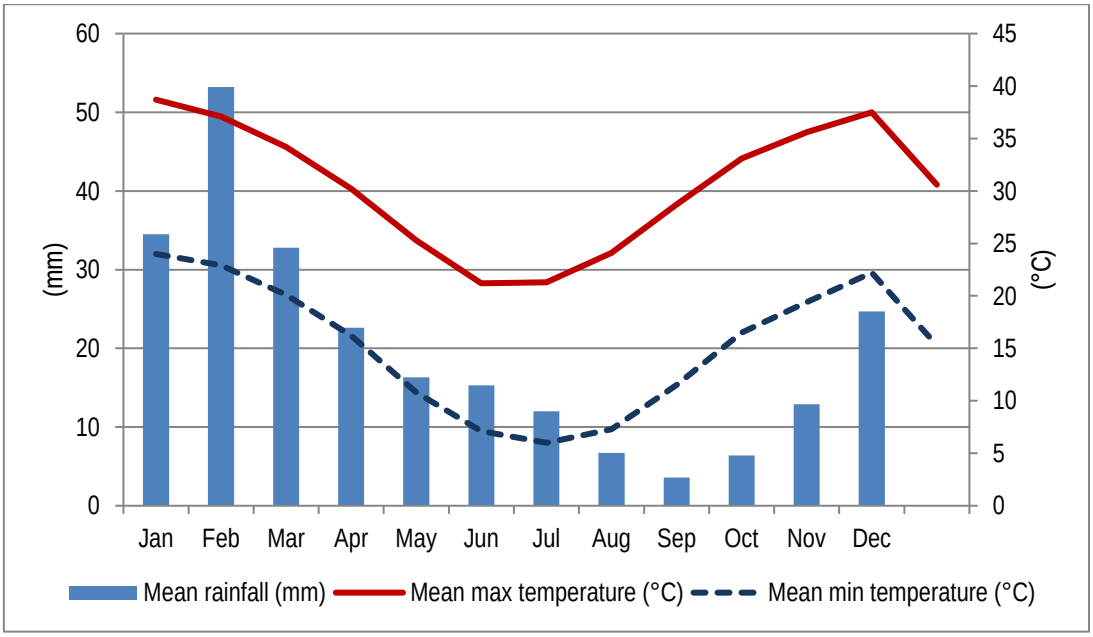

Chart 1: Climate Data for Carnegie (Station 013015; BoM 2019a)

The average annual evaporation rate for the Lake Wells area was calculated as 3,095 mm, with monthly evaporation rates increasing and decreasing in line with average monthly rainfalls (Golder Associates 2017).

Annual rainfall in the semi-arid zone is highly variable and the region is subject to drought periods. Rainfall is related both to locally generated thunderstorms and to dissipating tropical cyclones tracking southeast. Thunderstorm activity tends to be greatest between October and December when cool air flows from the south wedge beneath humid northwesterly winds.

7.3.2 Tropical Cyclones

Tropical cyclone activity in the area is relatively infrequent, with five tropical cyclones having passed within 100 km of Lake Wells between 1970 and 2017 (Figure 5). Remnant cyclonic activity is greatest between January and May, reflecting the tropical wet season in the north of WA. Rainfall tends to fall predominantly over the winter months.

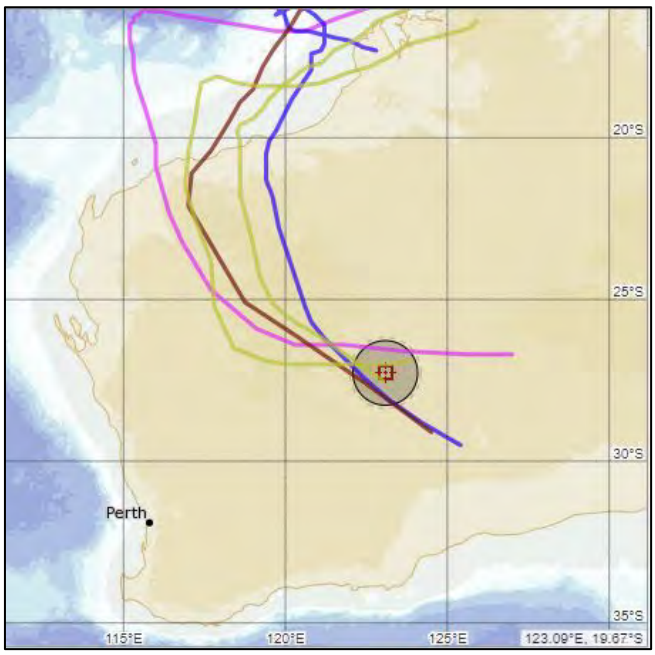

Figure 5: Lake Wells Tropical Cyclones 1970 – 2017 (BoM 2019b)

7.4 GEOLOGY

7.4.1 Regional Geology

The Project is located on the northeastern margin of the Archaean Yilgarn Craton with geology comprising weathered Archean basement overlain by depositional sediments. The Archaean basement, including basalt, granite, porphyry, felsic volcanoclastics and ultramafic schistose rocks, is concealed by Cainozoic (dominantly Quaternary) depositional-regime sediments of kopai dunes, aeolian sand dunes, sheetwash and playa lake sediments of the extensive Lake Wells playa lake system (GSWA THROSSELL 1: 250 000 Sheet (Bunting JA, 1978)).

Concentration of potassium (K) often occurs in salt lakes, where potassium-bearing salt solutions represent a primary potash deposit. The evolution of salt lake waters begins with the acquisition of solutes in dilute inflow, primarily through chemical weathering reactions and atmospheric input. The granitoid batholith rocks, which are enriched in potassium (relative to the average concentration in the earth's crust), predominate the basement lithology near Lake Wells.

The extensive linear Cenozoic palaeovalleys of the North-Eastern Goldfields are characterised by chains of salt lakes that have expanded over hundreds of kilometres of valley floors and contain shallow hypersaline groundwater. In these palaeovalleys, the basal palaeochannel aquifer is incised into Archean bedrock and is typically overlain by dense intervening clay. Both the basal sand and overlying materials within the palaeovalleys are saturated with hypersaline brine (Geoscience Australia, 2013). Basal sand and sand lenses are commonly utilised for process water supplies in the Eastern Goldfields, with palaeochannel sand aquifers providing significant groundwater supplies (S.L. Johnson *et al.*, 1999).

7.4.2 Local Geology

Sub-surface units beneath and adjacent to the Lake Wells playa comprise:

- A surficial aquifer unit of Pliocene – Quaternary silcrete/lacustrine sediments comprising clayey sands, calcrete, laterite and evaporate deposits. The hydraulic properties of this unit are highly variable, depending

on the mix of each sediment type. Overall, it is likely to form a low-permeability unconfined aquifer although locally, calcrete and evaporites may be very permeable.

- A Pliocene aquifer unit of predominantly sand. This sand-bed has been encountered at the base of surficial aquifer unit in 21 drill holes and will contribute to the ability to pump from the surficial aquifer unit.

  A Miocene clay aquitard comprising puggy lacustrine clay with sandy interbeds. This unit has been drilled extensively during the drilling programmes. While clay has a high porosity and this unit contains substantial volumes of brine, the recoverability of this brine will be limited. The clay unit acts as a confining layer for the underlying basal sand and provides a source of downward leakage during the pumping of the basal sand aquifer.

- An Eocene basal sand has been encountered in 10 drill holes located across the entire Proposal area. The presence of this sand is consistent with the geological description above and the palaeochannel thalweg as interpreted from the geophysical survey. The sand forms a permeable aquifer. It will have relatively high specific yield i.e. over 50% of the brine contained within the pore-space will be recoverable. Additionally, pumping from the sand will lower the hydrostatic pressure within this unit, facilitating drainage of brine from the overlying clay aquitard.

A conceptual illustration of a Lake Wells paleochannel is illustrated in Figure 3.

7.5 LAND SYSTEMS, LANDFORMS AND SOILS

7.5.1 Land Systems and Soils

Eight land systems have been identified within the Leemans Sandplain Zone of Development Envelopes (Botanica Consulting 2019a):

- AB49 land system.
- AB 50 land system.
- Bullimore land system.
- Carnegie land system.
- Darlot land system.
- Desdemona land system.
- Fa7 land system.
- Mileura land system.

Summaries of geomorphology and vegetation characteristics of these land systems and their location in relation to each Development Envelope and Proposal infrastructure are presented in Table 4. The land systems are generally not prone to degradation or erosion by pastoral activities, provided grazing pressure is controlled and frequency of burning is maintained.

The Leemans Sandplain Zone is described by Tille (2006) as sandplains (with some gravel plains, mesas and salt lakes) on granitic rocks of the Yilgarn Craton. Soils are generally red sandy earths with red loamy earths and some red deep sands, red-brown hardpan shallow loams and calcareous loamy earths.

Table 4: Soil Landscape Systems

Zone	Landscape System/ Mapping Unit	Description	Proposal Location and Infrastructure
Leemans Sandplain Zone (274)	AB49	Plains with a variable proportion of longitudinal sand dunes and scattered residuals of hard sedimentary rocks and laterites	Very small area at eastern edge of On Playa Development Envelope.
	AB50	Plains with scattered dunes and small breakaways of unit BY7	Off Playa northern borefields
	Bullimore System	Gently undulating sandplain with occasional linear dunes and stripped surfaces supporting spinifex grasslands with mallees and acacia shrubs.	Off Playa Processing Plant, Borefields
	Carnegie System	Salt lakes with fringing saline alluvial plains, kopi dunes and sandy banks, supporting halophytic shrublands and acacia tall shrublands.	On Playa Ponds and Infrastructure
	Darlot System	Salt lakes, fringing saline alluvial plains, regularly arranged sandy banks and numerous claypans and swamps, supporting halophytic shrublands and spinifex and wanderrie grasslands.	Off Playa southern tip of Access Road/Borefields
	Desdemona System	Plains with deep sandy or loamy soils supporting mulga tall shrublands and wanderrie grasses.	Off Playa northern borefields
	Fa7	Green stone hills and ranges with some slate and basalt	Off Playa southern borefields
	Mileura System	Saline and non-saline calcreted river plains with flood plains and calcrete platforms supporting variable tall shrublands, mixed halophytic shrublands and shrubby grasslands.	On Playa Ponds and Borefields

7.5.2 Acid Sulfate Soils

Findings from an ASS investigation (Galt 2016 and MBS Environmental 2019) demonstrate the potential for acid formation by disturbance of ASS material in Lake Wells soil and lakebed sediments is low. This conclusion is based on the following key findings:

- No ASS materials were identified in the preliminary ASS assessment (Galt 2016).
- The pH values of shallow trench sediment samples measured in this study did not indicate acid formation, which would have been expected if the samples contained ASS materials as a consequence of extended storage under oxidising conditions.
- Analysis of 75 (0 to 4 metres) soil and sediment samples in this study indicated that most of the sulphur was likely to be present as calcium sulphate minerals, in which the sulphur is fully oxidised and therefore unlikely to generate acid when disturbed.

- All trench samples from this assessment and the previous ASS (Galt 2016) assessment recorded ANC values ranging from 1.5 to 112 kg H_2SO_4/t. The presence of appreciable ANC in lakebed sediments suggests they have significant pH buffering capacity and therefore expected to remain circum-neutral to slightly alkaline should trace amounts of any ASS materials be disturbed by proposed operations.

7.6 WASTE CHARACTERISATION

The Proposal will produce three types of process residues, namely:

- Halite solids (NaCl): This is produced in the Concentrator/Storage Ponds.
- Magnesium Chloride brine: This is a purge brine rejected from the last Harvest Pond.
- Flotation Solids: These are the process residue from the floatation cells and consist of non-potassium bearing salts.

All process residues are salts and the composition of each is discussed in the sections below.

7.6.1 Halite Solids

The On Playa Ponds are used to concentrate the extracted brine up to potassium saturation. As water evaporates from the brine, the potassium concentration increases and large amounts of halite (NaCl) are precipitated. Appreciable amounts of bloedite (Na2SO4.MgSO4.4H2O) are also precipitated, with trace amounts of gypsum (CaSO4.2H2O) and polyhalite (K2Ca2Mg(SO4)4.2H2O) also expected. These minerals accumulate in the ponds throughout the life of the operations.

7.6.2 Magnesium Chloride

The composition of the magnesium chloride brine is provided in Table 5.

Table 5: Magnesium Chloride Brine Composition

Compound	Composition (%w/w)
H_2O (water)	65.4%
$MgCl_2$	30.5%
$MgSO_4$ (epsom salts)	3.3%
NaCl (halite)	0.6%
KCl	0.2%

7.6.3 Flotation Solids

The composition of the flotation solids is provided in Table 6. The solids will consist primarily of halite with minor traces of flotation reagents.

Table 6: Flotation Solids Composition

Compound	Composition (%w/w)
Halite (NaCl)	62%
Epsomite ($MgSO_4$)	18%
Polyhalite (mixed K, Na, Mg chlorides)	0.8%
Brine (similar composition to magnesium chloride brine)	19.2%

7.7 HYDROGEOLOGY

7.7.1 Setting

The Northern Goldfields area is underlain by weathered and fractured Archaean bedrock, which forms the northern portion of the Yilgarn Goldfields fractured-rock groundwater province. Approximately 400 km of structures exist in the vicinity of the Proposal area which may contain groundwater. Aquifers in this region occur within the Archaean basement, including dolerite, basalt, granite, porphyry, felsic volcaniclastics and ultramafic schistose rocks adjacent to the playa system. Depths to water levels varied between 10 to 40 m below ground level.

Depth to water within the On Playa Development Envelope ranges between 0.12 and 5 mbgl; with the latter depth occurring where dunes overlie the playa floor. Hydrogeological units include (MBS Environmental 2017):

- A surficial aquifer unit of Pliocene–Quaternary mixed alluvial/lacustrine sediments comprising clayey sands, laterite and evaporate deposits. The hydraulic properties of this unit are highly variable, depending on the mix of each sediment type. Overall, it is likely to form a low-permeability unconfined aquifer.
- A Pliocene aquifer unit of predominantly sand encountered at the base of surficial aquifer unit at depths ranging between 29 and 65 mbgl in the western part of the Proposal area, and between 68 and 77 mbgl in the east of the Proposal area, with thicknesses varying from 1 to 15 m. This upper sand unit has reasonable permeability and specific yield, representing approximately 70% of the porosity, suggesting nearly three-quarters of the brine contained in this unit could potentially drain over time.
- A Miocene clay aquitard comprising puggy lacustrine clay with sandy interbeds. This clay has a high porosity and contains substantial volumes of brine. The clay unit would be expected to drain into the underlying sand when depressurised by pumping, therefore acting as a confining layer for the underlying basal sand and providing a source of downward leakage during pumping of the basal sand aquifer.
- An Eocene basal sand has been encountered in 10 drill holes located across the entire Proposal area. The presence of this sand is consistent with the regional geological description and the palaeochannel thalweg as interpreted from the geophysical survey. The sand forms a permeable aquifer with relatively high specific yield (i.e. over 50% of the brine contained within the pore-space will be recoverable).

7.7.2 Brine Aquifer

The Lake Wells system is characterised by chains of salt lakes containing hypersaline groundwater within sediments which have been deposited in palaeovalleys incised into Archean bedrock. These sediments typically consist of a basal sand unit overlain by a mixture of materials including clay, silt, sand, ferricrete and silcrete. Both the basal sand and overlying materials within the palaeovalleys are saturated with hypersaline brine.

Total thickness of valley sediments is between 150 to 170 metres below ground level (mbgl), with depth to water ranging between 0.12 and 5 mbgl; with the latter occurring where dunes overlie the lake floor. Groundwater quality of the proposed production bores in the brine aquifer has been extensively analysed. Groundwater is saline to hypersaline and is potassium rich compared to other elements.

Seven hydrostratigraphic units (refer Figure 5) have been identified comprising (AQ2 2019):

- An extensive surficial unit of mixed alluvial/lacustrine sediments comprising:
  - Approximately 15 m of sandy loam, including local laterite and evaporite deposits, overlying the entire lake area.
  - An upper, low permeability, clay-rich unit with minor sand horizons extending across the entire lake area.
  - Local areas of permeable calcrete and / or silcrete.
- An upper sand aquifer unit at the base of the surficial unit, occurring at depths ranging between 35 and 70 m, with thicknesses varying between 1 and 12 m and anticipated to be continuous both along the length and across the width of the palaeochannel.
- A lower clay aquitard comprising puggy lacustrine clay with minor sandy interbeds. The clay unit will act as a confining layer for the underlying basal sand and provide a source of downward leakage during the pumping of the basal sand aquifer.
- A mixed aquifer unit comprising interbedded sand and clay. Pumping from this moderately permeable aquifer and underlying basal sand aquifer will lower the hydrostatic pressure within these units, facilitating drainage of brine from the overlying clay aquitard.
- A basal sand aquifer located along the length of the paleochannel.

7.7.3 Fresh Water Aquifer

A fresh water supply for potable use and processing operations will be sourced from a fractured rock aquifer. Fractured-rock aquifers comprise greenstones, granitoids and minor intrusive rocks that are characterised by secondary porosity and permeability which may also be enhanced by chemical dissolution along fracture lines. Allen (1996) noted that large supplies of groundwater may be obtained from bores to 100 m depth, particularly where these intersect fractured chert and banded iron-formations, regional structural features, fault and shear zones.

Structures are recharged by rainfall and consequently less saline than the On Playa groundwater resource. Measured water quality in the fractured rock aquifer was fresh to brackish with some more saline exceptions. Water quality analysis shows slightly elevated concentrations of metals are present, however these are below livestock drinking water guidelines (ANZECC 2000).

A total of nine freshwater production bores have been constructed to date, with the salinities (as TDS) ranging from 950 to 211,800 mg/L (Australian Potash 2019).

7.8 HYDROLOGY

Runoff currently flows into the playa from the areas to the north and south of the playa along two drainage lines. These drainage lines converge adjacent to the western end of the Lake Wells playa with the drainage line then heading east. This drainage line continues some 25 km eastwards to a larger playa system which, although still part of Lake Wells, is aligned south north (Figure 6) (Golder Associates 2017). Based on a review of the larger regional drainage system and catchment boundaries, the overall playa network at Lake Wells and downstream appears to form part of a much larger internally draining system draining towards Lake Carnegie some 100 km to the north of Lake Wells.

The Playa is characterised by a series of depressions separated by slightly elevated ridges, with an extremely low surface gradient from west to east across the system. This results in very low flow velocities within the Playa, even for larger floods such as an 0.01 AEP (1 in 100 year) event. Flow velocities under a 0.01 AEP are typically less than 0.7m/s (Golder Associates 2017).

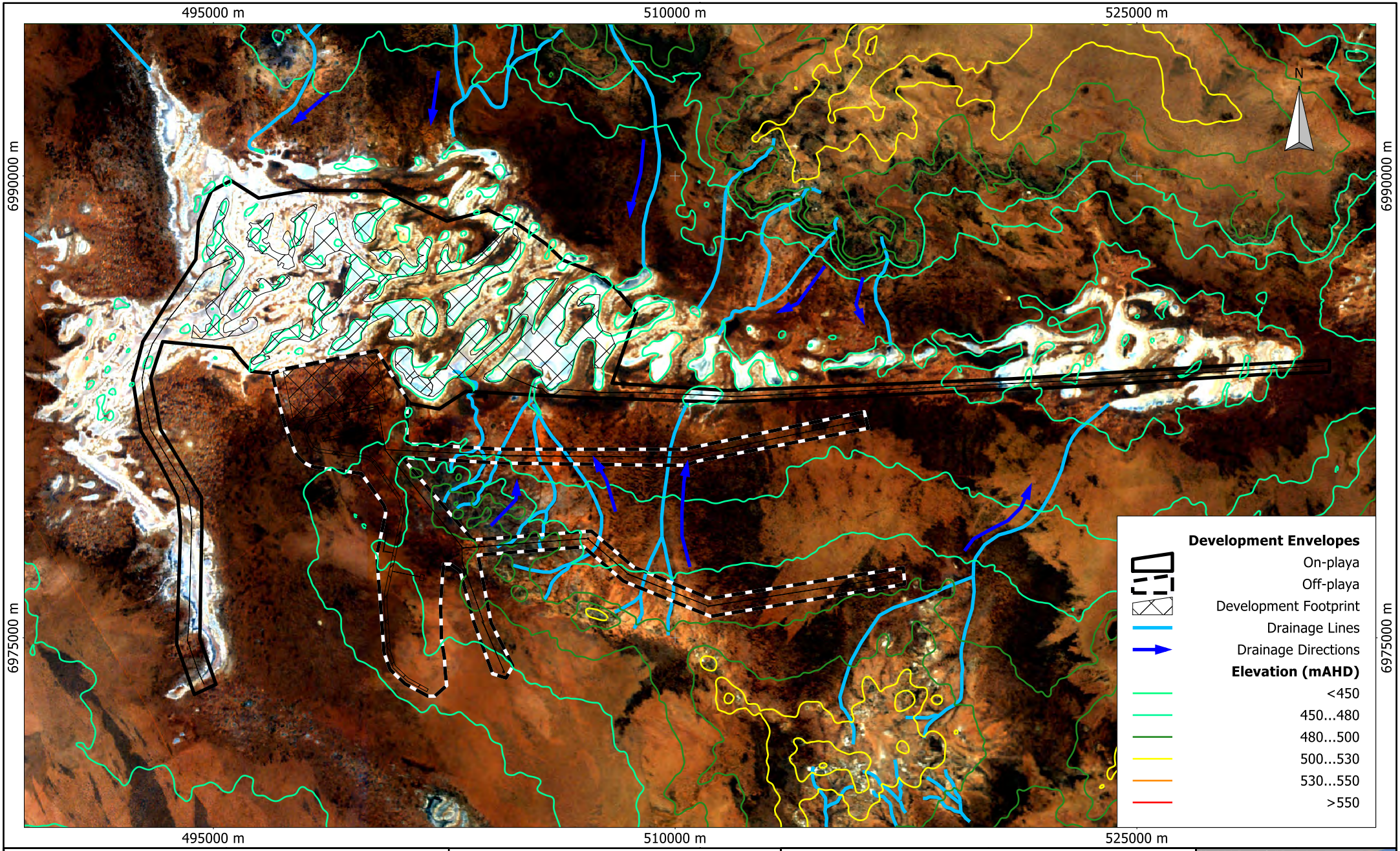

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Figure 6

Proposal Hydrology

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7.9 FLORA AND VEGETATION

A total of 17 vegetation types were identified within the survey areas, comprising five major vegetation groups, which were represented by a total of 45 Families, 128 Genera and 288 Taxa (including 60 annual taxa) (Botanica Consulting, 2017). Six vegetation types were rated as 'good' and the remaining eleven vegetation types were rated as 'very good'. Five introduced species were identified within the survey area; *Bidens bipinnata* (Spanish needles), *Citrullus lanatus* (Pie Melon), *Cucumis myriocarpus* (Prickly Paddy Melon), *Sonchus oleraceus* (Common Sowthistle), *Tribulus terrestris* (Caltrop).

No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were recorded within the Development Envelopes. Three Priority Flora taxa as listed by the Department of Biodiversity, Conservation and Attractions (DBCA) were identified within the survey area; *Lepidium xylodes* (P1), *Melaleuca apostiba* (P3) and *Tecticornia willisii* (P1). One potentially distinct taxon, *Tecticornia* aff. *undulata*, was also identified.

Those areas that will require rehabilitation post decommissioning occur within Off Playa vegetation communities. The SD-AFW1 (Low woodland of *Acacia caesaneura*/ *A. incurvaneura* over tall open shrubland of *Eremophila* spp./ *Senna* spp./ *Melaleuca* interioris and low open hummock grassland of *Triodia basedowii*/ low open tussock grassland of *Eragrostis eriopoda* in dunefield) and CLP-AFW1 (Low open forest of *Acacia incurvaneura* over mid shrubland of *Eremophila margarethae* and low open tussock grassland of *Eriachne mucronata*/ *Eragrostis eriopoda* on clay loam plain) communities were considered most representative of the Off Playa Development Envelope, accounting for 41 and 34% of the disturbance footprints respectively.

7.9.1.1 Groundwater Dependent Ecosystems

An assessment of the potential for ecosystems within the Development Envelope and surrounds to be dependent on groundwater (i.e. represent a Groundwater Dependent Ecosystem or 'GDE') was conducted by Hydrobiology (2017). It was considered, taking into account the outcomes of the GDE study, combined with knowledge of the underlying geology, groundwater and floristics of the vegetation communities, that vegetation surrounding the playa may opportunistically access stored rainfall within shallow (approximately 1 – 5 m) alluvial and colluvial soil profiles, but it is unlikely that they represent true GDEs (Hydrobiology 2017), therefore it is not anticipated that drawdown within freshwater aquifers will have any long term impact on vegetation post closure.

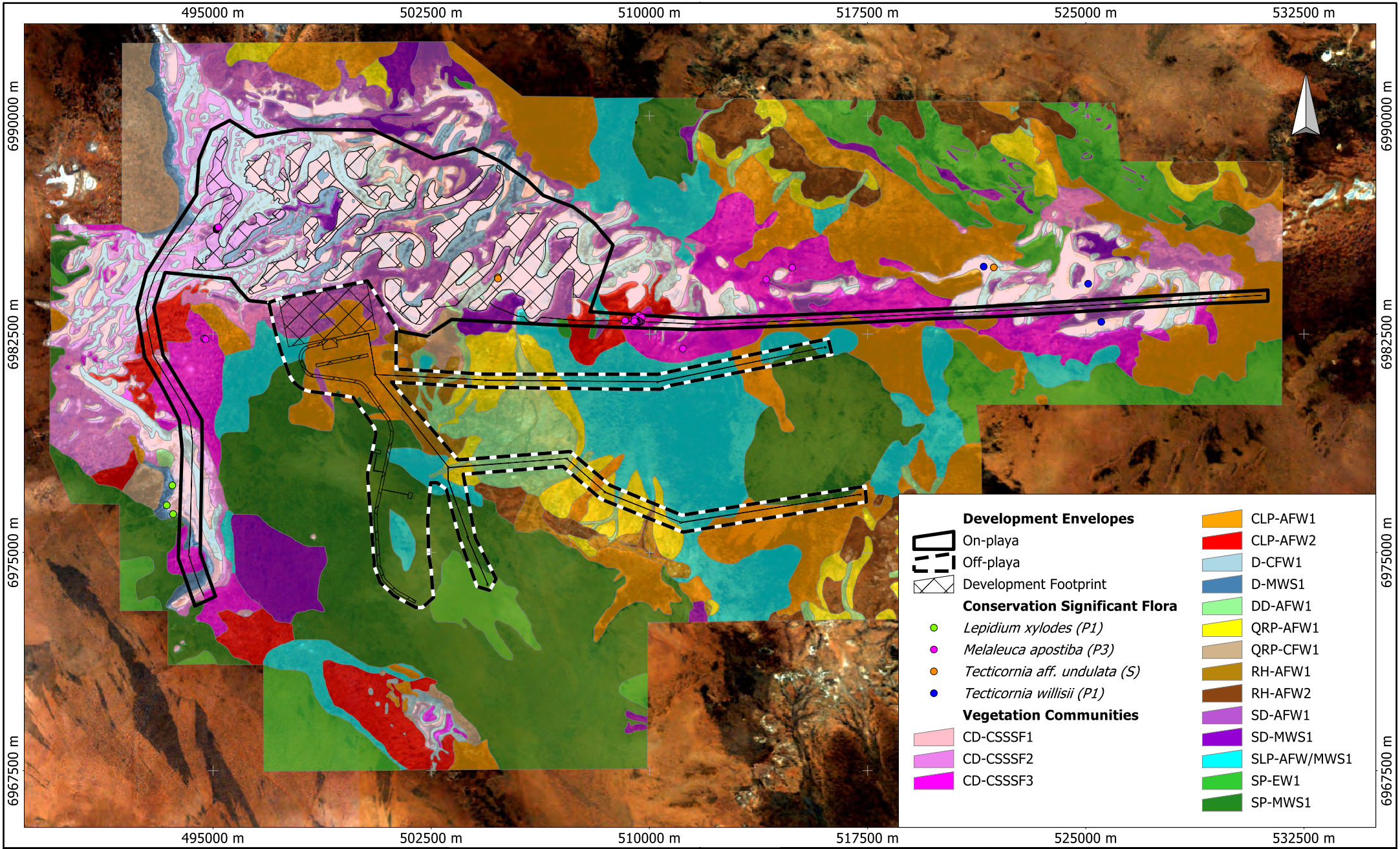

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Figure 7

Vegetation Communities and Conservation Significant Fauna

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7.10 FAUNA AND FAUNA HABITATS

Nine fauna habitats have been identified and described in the wider Project area (Figure 8). The dominant habitat types are Sandplain and Mulga Woodland which account for 38,100 ha or 51.1% of the total surveyed area.

Surveys of the Project area recorded 192 native and nine introduced vertebrate fauna species. Native species included 5 amphibians, 70 reptiles, 92 birds and 25 mammals (Western Wildlife 2019). One listed threatened species, the Great Desert Skink (*Liopholis kintorei*) (Vulnerable) and two Priority fauna species, the Brush-tailed Mulgara (*Dasycercus blythi*) (P4) and the Long-tailed Dunnart (*Sminthopsis longicaudata*) (P4) were recorded during survey in 2018. A single individual of a listed migratory bird species, the Marsh Sandpiper (*Tringa stanatilis*) (Migratory) was recorded in a large freshwater lake located in the far north west of the Proposal area during the 2016/2017 surveys (Harewood 2017).

The Central Long Eared Bat (*Nyctophilus major*) (P3) was not positively identified, however the calls are difficult to distinguish from other species of *Nyctophilus.* Therefore, the Long Eared Bat may potentially occur in the Project area (Western Wildlife 2019).

Given the predominance across the Off Playa Development Envelope of the Sandplain and Mulga woodland habitats and their importance for habitat for conservation significant fauna, rehabilitation of these habitats during closure will be prioritised where disturbed.

7.10.1 Aquatic Invertebrates

Aquatic invertebrate sampling yielded 1,528 specimens from at least 64 species throughout the Lake Wells playa system. Groups included flatworms, rotifers, roundworms, crustaceans and insects. Crustaceans and insects were the most diverse groups (21 species and 24 species respectively).

One species, the tiger beetle (*Megacephalini sp*) has the potential to be a conservation significant species, as many species of the genus seem to be range restricted. This species was found outside (to the south of) the On Playa Development Envelope (Bennelongia 2017).

Three species, the clam shrimp *Eocyzicus* sp. B01 and the ostracods *Bennelongia nr koendersae* and *Bennelongia* sp. BOS833 (nimala lineage) are currently known only from Lake Wells (likely a reflection of low survey intensity in the region), although all three were recorded outside of the On Playa Development Envelope and are expected to be more widely distributed than the Lake Wells system alone. The other species recorded are all widespread (Bennelongia 2017).

7.10.2 Short Range Endemics

No confirmed SRE species were recorded from the Proposal area. Eight potential SRE species were recorded within the Development Envelopes (including three species (*Idiosoma* sp. B45, *Cheiridiidae* sp. B02 and *Chernetidae* sp. B15) only recorded from within the proposed Development Footprint (Bennelongia 2018). The extent of the mapped SRE habitats and species life histories suggests that all species are likely to have ranges extending beyond the Project area, making it unlikely that the conservation status of any of the species will be threatened by the Project (Bennelongia 2018).

7.11 SUBTERRANEAN FAUNA

A subterranean fauna survey programme has been underway within the Proposal area since 2017. A total of 103 stygofauna samples have been recovered to date from 56 sites (including exploration bores, production and monitoring bores, and pastoral bores and wells) (Bennelongia 2018). Five troglofauna species were recorded at Lake Wells including three isopods, a dipluran and a troglophilic bug. The low yield in terms of both abundance and richness is considered to represent a depauperate community, reflecting limited habitat prospectivity (Bennelongia 2018).

A total of 26 of the 56 sites (46%) produced stygofauna, with 40 species, represented by oligochaete worms, rotifers, nematodes, amphipods, syncarids, cyclopoid and harpacticoid copepods, and ostracods, recorded. Syncarids (eight species) and harpacticoid copepods (17 species) appear to be particularly diverse in the Proposal area. Twenty-nine of the 40 stygofauna species recorded are only known from the Proposal area (Bennelongia 2018). Stygofauna were collected mostly from salinities in the range of 600–26,000 µS cm^{-1}, however ostracod valves were collected from bore LWFRM014 at a salinity of 68,200 µS cm^{-1} (or approximately 34,100 mg/L TDS). A small number of stygofauna specimens were recorded from two brine production bores PLAC018 and PLAC026, however it considered that these animals were contaminates from bores sampled previously. No subterranean fauna are expected to occur within the brine borefield area due to the high salinity of the groundwater (>150,000 mg/L TDS) (Bennelongia 2018).

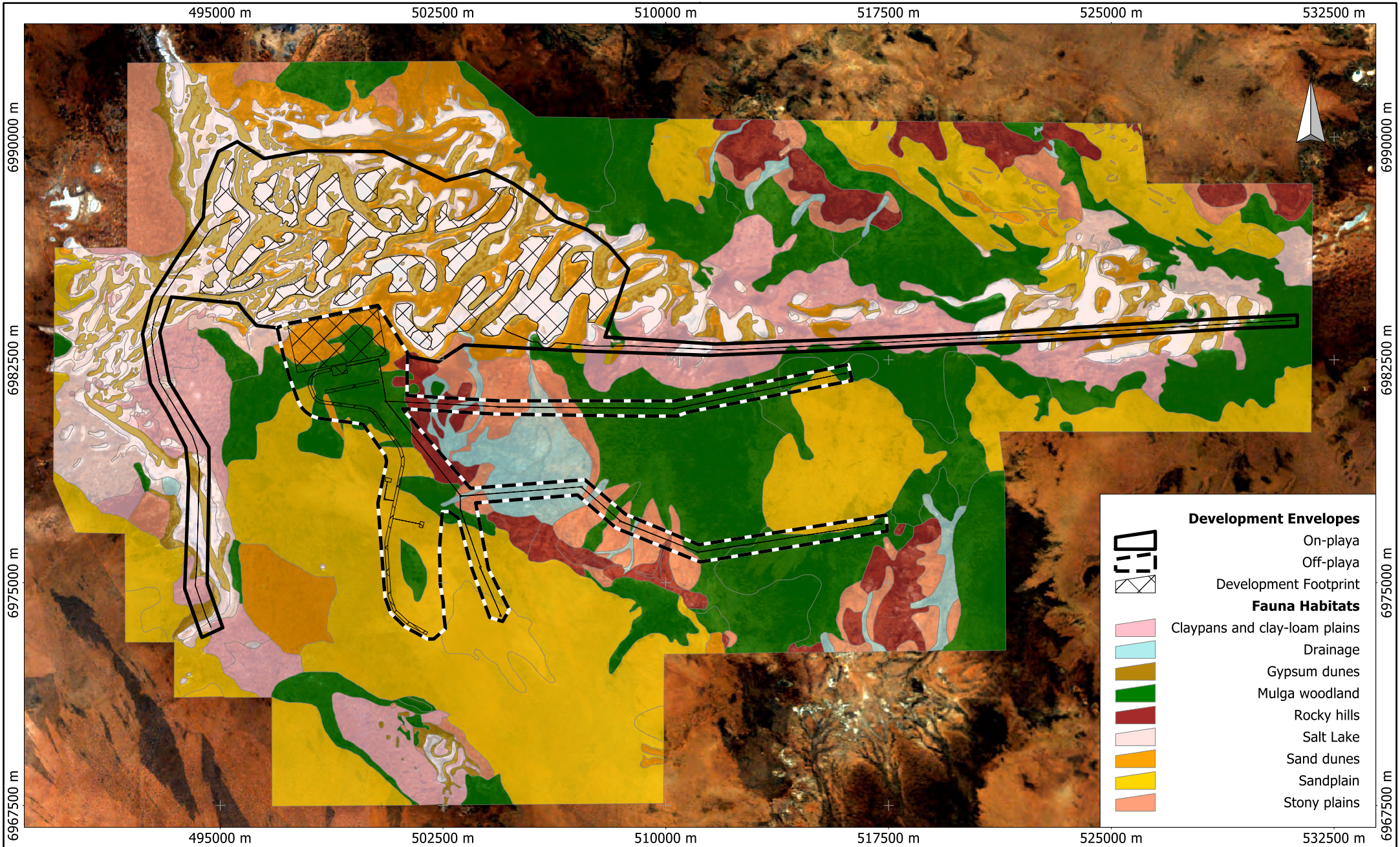

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Figure 8

Fauna Habitats of the Proposal Area

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7.12 HERITAGE

A search of the Project area was undertaken using the Department of Aboriginal Affairs 'Aboriginal Heritage Inquiry System' to identify:

- Aboriginal Heritage Surveys over or near the Mine Site Development Envelope.
- Registered Heritage Places within or near the Mine Site Development Envelope.
- Other Heritage Places within or near the Mine Site Development Envelope.

One Registered Aboriginal Heritage Site was found during the search (Daniel de Gand and Associates 2016a). The site (Site ID 3156), Lalagu/Taralgudara is recorded as a 'Mythological, Quarry, Other' site type. The site is located outside of the Development Envelopes and will not be impacted by the Project.

Aboriginal heritage assessment of Goldphyre Resources' Lakes Wells Proposal area by members of the Western Desert Communities confirmed the location of a registered site (ID 3156) on tenement E38/2742. No sites were recorded on tenements E38/3021, E38/1903 or E38/2114.

Aboriginal heritage assessment of Anglo Anglogold Ashanti's Strawbridge project area by members of the Western Desert Communities confirmed the location of two registered sites on tenements E38/3044 and E38/3032. No sites were recorded on tenements E38/2988, E38/3028, E38/2991 or E38/2992. Painting, scatter and story sites were recorded on tenements E38/2986, E38/3042, E38/3018.

A search of the inHerit Western Australia (Heritage Council 2018) database did not record any Heritage Sites or Other Heritage Listings within the Development Envelopes. Due to the remoteness of the Lake Wells area, land use is limited to activities associated with the operation of the Lake Wells Station pastoral lease. The station is owned by Les Smith and occupies an area of 237,989 ha and was stocked (in 2013) with 1,000 head of cattle.

No direct impacts to heritage are expected from construction, operation or closure of the Project.

8. IDENTIFICATION AND MANAGEMENT OF CLOSURE ISSUES

8.1 PRINCIPALS

A preliminary assessment of the principal closure risks identified for the Project, and mitigations or management measures in place or proposed for each risk, is provided in Appendix 1. The risk assessment is based on principles set out in AS/NZS ISO 31000:2009 *Risk Management - Principles and Guidelines*, and adopts definitions of likelihood and consequence that have been used to evaluate each risk as it stands, and determine whether it is tolerable (requiring no further management), or requires further management.

The risk assessment considers how, and to what extent, the aspects discussed in Section 4 threaten the objectives and post-mining land uses discussed in Section 5, and the obligations discussed in Section 3, and considers what controls or mitigations are already present. The risk of each hazard is determined by identifying the worst realistic consequence (for health, safety, environment, cost, or reputation) and the likelihood of that consequence. The risk is then classified according to a risk classification matrix, included in Appendix 1.

Where a risk is not considered tolerable, additional controls are proposed, and the residual risk after these additional controls is evaluated and classified according to the same method. These controls are integrated into implementation plans (Section 9), schedules of studies, monitoring and maintenance (Section 10) and accounted for in financial provisioning (Section 11). Where a risk relates to uncertainty or lack of information, it is identified as a knowledge gap, and incorporated into implementation plans for the relevant closure area (Section 9). Risk provisions will be made to allow for residual risks or uncertainty after control (Section 11).

As the Project is at a planning stage and its organisational structure is yet to be confirmed, responsibilities for closure risk management measures have not been assigned to particular positions, and only very broad timeframes set. More specific responsibilities and timeframes will be established in subsequent revisions of this MCP.

8.2 PRINCIPAL RISKS

The most significant current risks identified for closure of the Project are:

- Closure obligations prove impractical and cannot be met. Principal controls include studies, stakeholder consultation and engagement, and re-negotiation of closure obligations and criteria over the life of the operations. The risk is considered “low” after controls.
- Premature closure, potentially leading to incomplete decommissioning and closure of the Project. This risk and proposed mitigations are addressed further in Section 9.
- Injury or illness caused to workers in the course of decommissioning and rehabilitation work. Principal controls include provision for and maintenance of adequate OHS management and emergency response services following operational closure. The risk is considered “medium” after control, but as low as reasonably practicable (ALARP).
- Injury caused to a member of the public, from accessing unsafe or unstable On Playa areas. Principal controls include safety windrows and restricted access (during operations), and signage and rehabilitation of the access road (post-closure). The risk is considered “low” after implementation of controls.
- Inadequate water management On Playa Ponds, leading to instability and/or erosion, sediment and saline water transport over the long term. Principal controls include development of a final landform design incorporating surface water controls, and diversion/containment structures (where deemed necessary) for runoff and sediment. The risk is considered “medium” after implementation of controls, but ALARP.

- Failure to stockpile sufficient topsoil and growth medium to support revegetation objectives. Principal controls include preparing and implementing a plan to harvest identified topsoil and growth medium resources from the disturbance footprint. The risk is considered "low" after implementation of controls.
- A legacy of contaminated sites, accumulated from spills over the life of mine. Principal controls include spill prevention, cleanup and remediation over the course of operations, and validation of cleanup according to Contaminated Sites guidelines (progressively or at closure). The risk is considered "low" after implementation of controls.

9. CLOSURE IMPLEMENTATION

This section details closure implementation activities, which include research and field trials to assist in refining the proposed closure and decommissioning tasks for each closure group and landform feature.

9.1 PLANNING FOR CLOSURE

Rehabilitation and closure outcomes are heavily influenced by actions and decisions made early in the mine life. To ensure that successful closure and rehabilitation outcomes are achieved, APC will ensure that:

- Planning shall identify post-mining land uses and aim to ensure that the rehabilitated mine site post-mining management can be integrated into the surrounding areas.
- Adequate resources (topsoil, capping material for landforms, seed and vegetative material) are identified and available for successful rehabilitation of Off Playa areas.
- Studies and research trials are undertaken early in the mine life to ensure rehabilitation processes are based on sound science.
- The life of Project plan is updated annually and integrated with rehabilitation requirements, annual landform and rehabilitation plans are prepared, monitoring and research results are reviewed and incorporated into rehabilitation procedures.

Planning for closure is considered for three phases or conditions:

- Planned Closure, where the Project Plan runs to fruition and closure implementation follows a project schedule outlined in a final Decommissioning Plan, submitted at least six months prior to cessation of all mining and mineral processing activities.
- Unplanned Closure, where an unplanned event (e.g. mine flooding or geotechnical safety concerns etc.) forces the sudden closure of the mine, without an extended planning period.
- Care and Maintenance, where operations are suspended temporarily usually caused by fluctuating economic conditions or change of ownership, and can result in uncertainty about the project's future that might extend for months and even years.

In all of these, closure occurs in two distinct stages. The first stage, decommissioning, involves removing and appropriately disposing of all infrastructure and contaminated material. The second, rehabilitation, includes undertaking specific earthworks to create appropriate landforms followed by subsequent revegetation of those landforms. These closure activities are then subject to post-closure performance monitoring for several years.

The Sections 9.1.2, 9.1.3 and 9.1.4 outline the general activities that would ideally be completed during these stages. Section 9.2 outlines the closure strategy, that is, the broad closure prescriptions that would occur during decommissioning and rehabilitation. Section 9.3 outlines the conceptual landform designs for the major post closure landforms. Work plans detailing how the general prescriptions are applied for each domain during planned closure will be developed and provided as the Project progresses towards closure. Additionally, closure tasks will be implemented following a project schedule outlined in a final Decommissioning Plan (a transformed MCP). A conceptual closure schedule is outlined in Section 9.6.

9.1.1 Planned Closure

Currently the planned life of the Project is over 30 years. When the operation reaches the end of its planned life, processing will likely extend for a period after brine abstraction ceases to allow for concentration and processing of solutions within the established ponds. This will allow for bores to be decommissioned in a staged manner. Once processing ceases, all related infrastructure (process plant, power station, workshops, stores, administration and support buildings, etc.) will be decontaminated prior to the dismantling and removal of all salvageable machinery/structures/plant. All remaining infrastructure will be demolished and either sold for scrap or buried on

site. Any contaminated soils or groundwater will be identified, assessed and, if necessary, remediated. All contamination works, if required, will be done in consultation with the relevant Government authorities and effectiveness audited by a certified external consultant. All disturbed areas (including service corridors) are to be re-contoured to blend with the surrounding environment to ensure unrestricted surface drainage.

Any waste landforms (Concentrator/Crystalliser Ponds) are to be re-shaped to manage drainage and left uncovered. The intent is to encourage dissolution and seepage of saline water back to the originating aquifer. Drainage off the landforms will be managed to avoid hypersaline runoff entering the wider environment. Covering of the landforms with capping and rehabilitation materials is not considered viable due to the extreme salinity of the materials inhibiting vegetation growth.

All other disturbed surfaces (i.e. excluding the On Playa Ponds) are to be rehabilitated and seeded with appropriated seed stock. Rehabilitation performance monitoring will continue until such time as closure criteria have been met and the final Rehabilitation Report is accepted by Government.

9.1.2 Care and Maintenance

Temporary closure and the placing of a project into care and maintenance, is frequently a forerunner of early closure of the operation. Temporary closure is usually caused by fluctuating economic conditions or change of ownership, and can result in uncertainty about a project's future that might extend for months and even years. Regulatory authorities would be immediately engaged if a temporary closure was implemented. In such circumstances, APC will provide the DMIRS with a Care and Maintenance Plan (C&MP). Compliance with existing tenement conditions and licences would be paramount during the development and implementation of a C&MP. The preparation of a draft conceptual C&MP is therefore industry best practice as it facilitates the timely preparation and submission of a detailed C&MP to DMIRS within the required three months of formal notification to regulators.

In the event of a temporary closure, the priority would be to secure the site, ensuring the safety of remaining staff and preventing any future environmental harm. A program for maintenance of the Processing Plant, infrastructure and other necessary equipment would be implemented. A greatly reduced workforce would remain on site, with services such as power and water suitably reduced to reflect requirements. Monitoring activities would continue in line with regulatory requirements. A brief summary of the key activities that would occur in temporary closure would include:

- Brine abstraction activity would cease.
- Landforms and infrastructure would be made safe and secure.
- A care and maintenance plan would be developed.
- Key stakeholders would be informed immediately.
- Key staff would be identified and tasked with ongoing maintenance.
- Regulatory reporting will continue as normal.

9.1.3 Unplanned Closure

In the event of sudden or unplanned closure, an accelerated closure process would be implemented which includes the immediate preparation and implementation of the Decommissioning Plan based on the latest version of the MCP. The closure strategy used in the Decommissioning Plan would employ similar rehabilitation techniques, as outlined in this MCP, including decommissioning, rehabilitating and remediating with consideration given to ensure there is no sterilisation of the remaining resource. The major difference would be the final landform footprint at the time of closure and the compressed timeframe for implementation of closure activities. Mineral processing activities are likely to cease simultaneously to brine production possibly resulting in the closure team having to deal with remaining contents of the Harvest Ponds. This may impact on the closure provision, which would need to be considered as part of the decision making process for sudden unplanned closure.

Following unplanned closure, basic services may need to be maintained until decommissioning and rehabilitation activities are initiated. The cost of maintaining services while a closure crew decommissions the Project is now borne by the Closure Provision. It is also likely that research gaps could still exist resulting in an increased monitoring and post-closure management program would be necessary prior to relinquishment of tenements.

Immediate engagement with regulatory authorities would occur if an unexpected closure scenario were to be implemented. Compliance with existing ministerial statements, tenement conditions and licences would be paramount during development and implementation of a decommissioning plan. A brief summary of key activities in an unexpected closure is listed below:

- Brine abstraction activity would cease.
- Processing plant and non-essential infrastructure operations would cease.
- Landforms and infrastructure would be made safe and secure.
- A decommissioning plan would be developed.
- Key stakeholders would be engaged immediately.
- Key staff would be identified and tasked with implementing the decommissioning plan.

9.2 DECOMMISSIONING

The planned closure of the Project will occur in two distinct stages:

- Decommissioning involving removing and appropriately disposing of all infrastructure and any contaminated material.
- Rehabilitation including undertaking specific earthworks to create appropriate landforms followed by subsequent revegetation of those landforms.

Decommissioning will impact three key areas within the Off Playa Development Envelope – harvest ponds, processing plant and supporting infrastructure. Decommissioning of infrastructure related to brine abstraction and transfer will be also decommissioned within the On Playa Development Envelope. Processing will generally continue for a period after brine abstraction stops while the brine evaporates and the evaporite products are processed. During this time, production bores will be progressively decommissioned. All operational services will be maintained and shut off in an orderly fashion. Freshwater borefields will continue abstraction to meet process water and potable water demands. A detailed Decommissioning Plan will be developed at least 12 months prior to the planned end of Project life, which will outline the specific infrastructure required to support rehabilitation activities including power and water services, accommodation and workshops.

The following sections describe in detail the activities that occur during decommissioning; demolition and remediation.

9.2.1 Demolition

Once brine abstraction and processing has been completed, decommissioning of equipment and facilities will begin. Where appropriate, process circuits and storage vessels will be emptied, electrical distributions will be de-energised and stocks will be run down before decommissioning commences. Equipment and facilities will be dismantled for reuse, resale or demolition. The final approach will depend on economic conditions at the time of closure. While the majority of decommissioning activities will occur after processing operations cease, some infrastructure will be retained to support employees and contractors during closure works.

Demolition prescriptions incorporate two options: (a) the on-site burial of all site infrastructure; and (b) the salvage and sale/offsite disposal of whatever is possible within a given time period. The final Decommissioning Plan, to be completed prior to closure, will clearly establish what infrastructure and plant is considered of salvage value. It will

also specify what equipment/plant/infrastructure is to be removed by operational crews as they demobilise (withdraw) and what will remain for the closure project team to do.

All demolition works shall be undertaken by suitably qualified personnel, with plans certified by adequately qualified professionals and all liabilities agreed to prior to the works commencing.

9.2.1.1 Surface Infrastructure

- All power and water services are to be disconnected and certified as safe prior to commencement of any demolition works.
- All fittings, fixtures and equipment within buildings are to be dismantled and removed to temporary disposal yards.
- All salvageable buildings and mine related structures are to be dismantled and removed to the designated temporary salvage yards.
- All fuel facilities and pipelines are to be removed.
- All above-ground electrical, gas, water and other service infrastructure and equipment are to be removed and placed in disposal pits or the designated temporary salvage yards.
- All pond liners are to be ripped (if to be buried in situ) and/or removed for disposal in designated landfills.
- Electrical, water and other services that are more than 0.4 m below ground surface to remain. The invert (openings) of all pipes and structures are to be sealed to prevent possible ingress and ponding of water.
- Concrete slabs and footings are to be removed to a depth of 0.5 m below ground surface. The concrete (and metal) is to be broken up and disposed of in-situ or on-site.
- All concrete below 0.5 m depth to remain buried with the invert of all structures broken/sealed to prevent possible ingress and ponding of water.
- All subsurface cavities, such as reinforced concrete tunnels under stockpiles and septic tanks, to have all concrete arches/tops broken and the void back filled.
- All excavations resulting from demolition of plant, buildings, roads, conveyor platforms, etc., and earth structures are to be left in a safe manner (sides slopes battered to 1(V):2(H) or fenced off) pending further contamination clean-up and reclamation works.
- All telecommunication towers and dishes are to be dismantled and removed.
- Any infrastructure (buildings) designated to remain behind for post mining use shall meet Corporate OHS standards prior to handover. These will only be retained if all required ownership (i.e. liability) has been legally signed-off by the appropriate authorities.

9.2.1.2 Roads, Laydown and Parking Areas

- Removal of all signage, fencing, shade structures, traffic barriers, etc.
- All 'hard top' surfaces are to be ripped and any culverts and concrete structures are to be removed.
- Where possible, existing native vegetation (i.e. native plants that may currently be incorporated in parking areas) will be preserved.
- All concrete lined drainage channels and sumps are to be broken up and removed.
- All potentially contaminated soils are to be identified and demarcated for remediation.

9.2.1.3 Road Facilities

- Where possible, site management to consult with the Local Authority for potential regional infrastructure use.

- Remove all buildings, fuel storage facilities, power and water supplies, and fences.
- Identify any hydrocarbon soil contamination for remediation works.
- Breakup any concrete or bitumen areas.
- All concrete-lined drainage channels and sumps are to be broken up and removed.
- Where facilities are to be taken over by other users, these are to be in an operational status at the time of handover and include formal status certification.

9.2.1.4 Water Supply Borefields

- The water supply borefield represents a valuable regional water resource and will be preserved for potential future use, where appropriate. The Laverton Shire and any local pastoral or mining operators are to be consulted.
- All production bores/wells, if not handed over to other users, are to be decommissioned with the removal of pumps and sealing-off and capping of the casing at least 300 mm below natural ground level. The ground surface above the casing is to be domed to accommodate any subsequent subsidence.
- All pipelines and holding tanks are to be dismantled and removed.
- The power source and any telemetry equipment are to be removed if no longer required.
- Monitoring bores (if no longer required) are to be decommissioned prior to final lease relinquishment, with the upper section of the bore casing sealed-off (mechanically restricted) at least 300 mm below ground level).
- The GPS positions of all decommissioned production bores to be provided to DWER.

9.2.1.5 Remediation

Remediation will take place in two phases, prior to and post-demolition of the infrastructure. Work done prior to demolition relates to the general cleaning of equipment, plant and workings to ensure safe working conditions during demolition and the dismantling of plant and infrastructure. Following demolition, remediation activities involve the cleaning up of any contaminated soils.

Potentially contaminated areas will be identified as part of ongoing closure planning. The assessment and management of these areas will be conducted in accordance with the Contaminated Sites Act, and remediation and recovery of contaminated soils will be verified through a validation sampling and analysis program, as per DWER Guidelines.

Hydrocarbon Contamination

- All stored hydrocarbons (liquid fuels, oils, etc.) are to be removed from site to be either re-processed or disposed of in an acceptable and approved waste facility.
- All tanks, pipes and sumps containing hydrocarbons are to be flushed to ensure no hydrocarbon residue remains. Contaminated solution is to be treated on site or disposed of in an acceptable and approved waste facility.
- All soil that is contaminated with hydrocarbons is to be identified and excavated (if required) to at least 0.2 m below the contaminated zone, removed from the site and disposed of at the mine bioremediation facility for treatment or in a suitable off-site waste disposal facility.

Chemical Contamination

- Detailed investigations are required to determine areas of chemical contamination (if any).

- All tanks, sumps and pipes containing non-biodegradable chemicals (liquid, solid or gas) are to be flushed or emptied to ensure no chemical residue remains. Contaminated material is to be taken to a suitable on-site waste facility or off site to be disposed of in an acceptable manner.
- Liquid storage tanks (including septic tanks) are to be emptied, the structure demolished, and sub-surface holes filled.
- All equipment and plant in which chemicals have been stored or transported are to be cleaned and disposed of in a suitable disposal facility.

9.2.1.6 Disposal Sites

Where possible, APC will utilise the existing on site landfill site. Where required, further permits will be sought to dispose of waste types generated from decommissioning and closure.

Temporary yards are to be established on existing cleared areas for the disposal of mobile equipment, structural steel and mechanical equipment. It may be necessary, for security reasons, to fence temporary disposal yards. All material within disposal yards is to be removed during the closure phase and the site fully rehabilitated.

9.2.2 Rehabilitation

Once decommissioning is complete, disturbed areas (with the exception of the On Playa Ponds) will be rehabilitated to return the land to a stable, productive and self-sustaining condition in consideration of beneficial land uses. Harsh climatic conditions coupled with grazing pressure makes the achievement of high levels of vegetation cover and biodiversity difficult. Drainage design will be based on a 1:10 year 24 hour storm event. In WA, regional rainfall records show several occurrences of daily rainfalls ranging between 75 and 100 mm, and more than 200 mm over 48 hours, as a result of cyclonic activity.

Rehabilitation of disturbed areas will broadly include:

- Reshaping landforms (reclamation) to produce safe and geotechnically stable slopes.
- Reinstating natural drainage pathways where possible, and constructing self-sustaining water management structures.
- Where appropriate rock armouring of final surfaces to increase surface stability.
- Applying topsoil, subject to material availability.
- Ripping to break soil compaction and increase water infiltration ability.
- Seeding/planting as required (revegetation).

Reclamation

- All external batters to On Playa drainage diversion are to be constructed (profiled) to ensure long term (>300 year) stability and erosion control.
- Surface expression of seepage discharge and sediment deposition should not extend beyond the immediate footprint of the On Playa Ponds.
- Surface drainage structures are to be designed to meet 1:10 year 24 hour storm conditions.
- Disturbed areas will be reshaped and contoured to replicate the local topography prior to contour ripping in preparation for revegetation.

Revegetation

- Excluding the On Playa Ponds, the objective is the establishment of sustainable endemic vegetation communities consistent with the reconstructed landforms, surrounding vegetation and suitable for the support of pastoralism.

- Any available timber mulch stockpiles are to be spread over rehabilitated areas prior to ripping.
- All areas designated for revegetation are to be seeded with appropriate species based on local experience and, where possible, local provenance seed is to be used.

9.3 DESIGN OF POST CLOSURE MINE LANDFORMS

9.3.1 Closure Designs

9.3.1.1 Concentrator/Storage, Crystalliser and Bitterns Ponds

At the end of Project life the maximum height of the Concentrator/Storage and Crystalliser Ponds will be approximately 12 m high. The ponds will be filled with solidified halite that has precipitated from solution and built up on the floor during the life of the Proposal. The final shape of the mounds will essentially fill in the valleys between the existing kopai dunes, largely merging into the existing landforms. They will remain uncovered and will adopt a water holding design to facilitate dissolution of the salts and return to the host aquifer. Residual halite will dissolve in rain events and gradually flow back into the hypersaline playa groundwater system.

At closure, all pumps, pipework and associated infrastructure in and around the Concentrator/Storage and Crystalliser Ponds will be removed. Any exposed HDPE liner will be removed and buried within the base of the ponds. Armouring will be applied to external drainage embankments to ensure long term erosion and flood protection.

9.3.1.2 Harvest Ponds

The Harvest Ponds will be fully decommissioned. All remaining pavement salts will be removed and disposed within the On Playa Ponds where it will slowly dissolve and permeate back into the palaeo-channel aquifer. The exposed Harvest Pond area (including the liner, which will be perforated) will be covered by pushing down and spreading out the pond embankments and the original topsoil which was stockpiled during construction. This area will then be scarified and seeded to encourage revegetation.

9.4 MANAGEMENT OF TOPSOIL AND GROWTH MEDIUM

During Project development, vegetation and topsoil resources will be stripped from Off Playa infrastructure areas and appropriately stockpiled to minimise rehandling costs at closure. It is not intended to strip and stockpile any material from the On Playa salt lake areas due to the inherent salinity of the material. On Playa areas, such as borefield corridors and other infrastructure which occur on dunes or other material which may be suitable for rehabilitation will be stripped and stockpiled for later use in rehabilitation of these areas. It is anticipated that the Off Playa areas will contain sufficient material to enable rehabilitation once decommissioning and demolition has occurred.

Generally, topsoil resources will be placed at the periphery of the areas from which they were stripped, or close to where they will be finally deployed. These resources will be protected from use, disturbance, contamination or erosion over the life of the operations. Topsoil stockpiles will be stockpiled no more than 2 m deep, to preserve inherent nutrients and seed bank.

9.5 CLOSURE TASK REGISTER

Further into Project development the Closure Tasks, as broadly outlined in Section 9.2, will be broken down into Work Programmes for closure domains. Work programmes will be developed and provided in future iterations of the MCP and will cover the following information for each closure domain:

- Overview and status of the domain – summary of components, operational status, predicted closure date, key information, and assessment details.
- Detailed description – more in-depth account of components, landforms, geometry and identified closure issues. This section provides a description of the components within each domain. At this stage, the description has been obtained from approval documents, AER's the previous closure plan, and a brief site assessment if infrastructure.
- Knowledge base – relevant information and gaps relating to materials characterisation, materials balance, water balance and drainage, geotechnical investigations, rehabilitation trials, monitoring programmes and other identified studies or trials relevant to specific domains.
- Work programme – works that are proposed such that the domain will meet closure prescriptions.
- Performance monitoring and maintenance – proposed schedule and responsibilities for the completion of works to fill knowledge gaps, and for completion of decommissioning, reclamation, monitoring, and maintenance works post-closure.

9.6 MINE CLOSURE SCHEDULE

Mine closure is not an "end of mine life process" but is rather integral to "whole of mine life" (ANZMEC and MCA, 2000). Both planning and implementation takes place throughout the mine life and follows a continual improvement cycle (Figure 9).

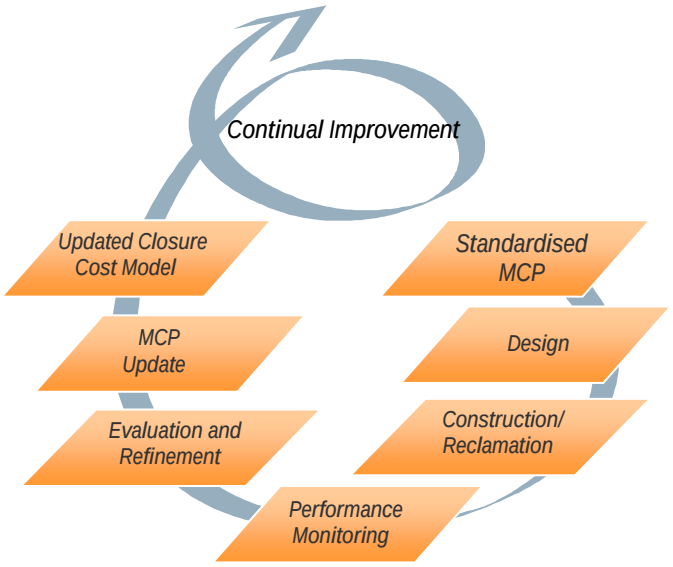

Figure 9: The Mine Closure Continual Improvement Cycle

Figure 10 provides a conceptual closure planning schedule for "planned closure". Key closure planning milestones are:

- Development of a Mine Closure Plan.
- Corporate approval of the Mine Closure Provision.
- Development and Government acceptance of the Decommissioning Plan.
- Development and Government acceptance of the Relinquishment Plan.
- Mining Lease relinquishment.

Final relinquishment will depend on Government stakeholders being comfortable that rehabilitation will not fail at some time after mine closure and that rehabilitation performance meets the agreed criteria across the entire lease area. To successfully achieve this, in an environment of increasing regulatory and stakeholder expectations, requires strict adherence to the continual improvement cycle.

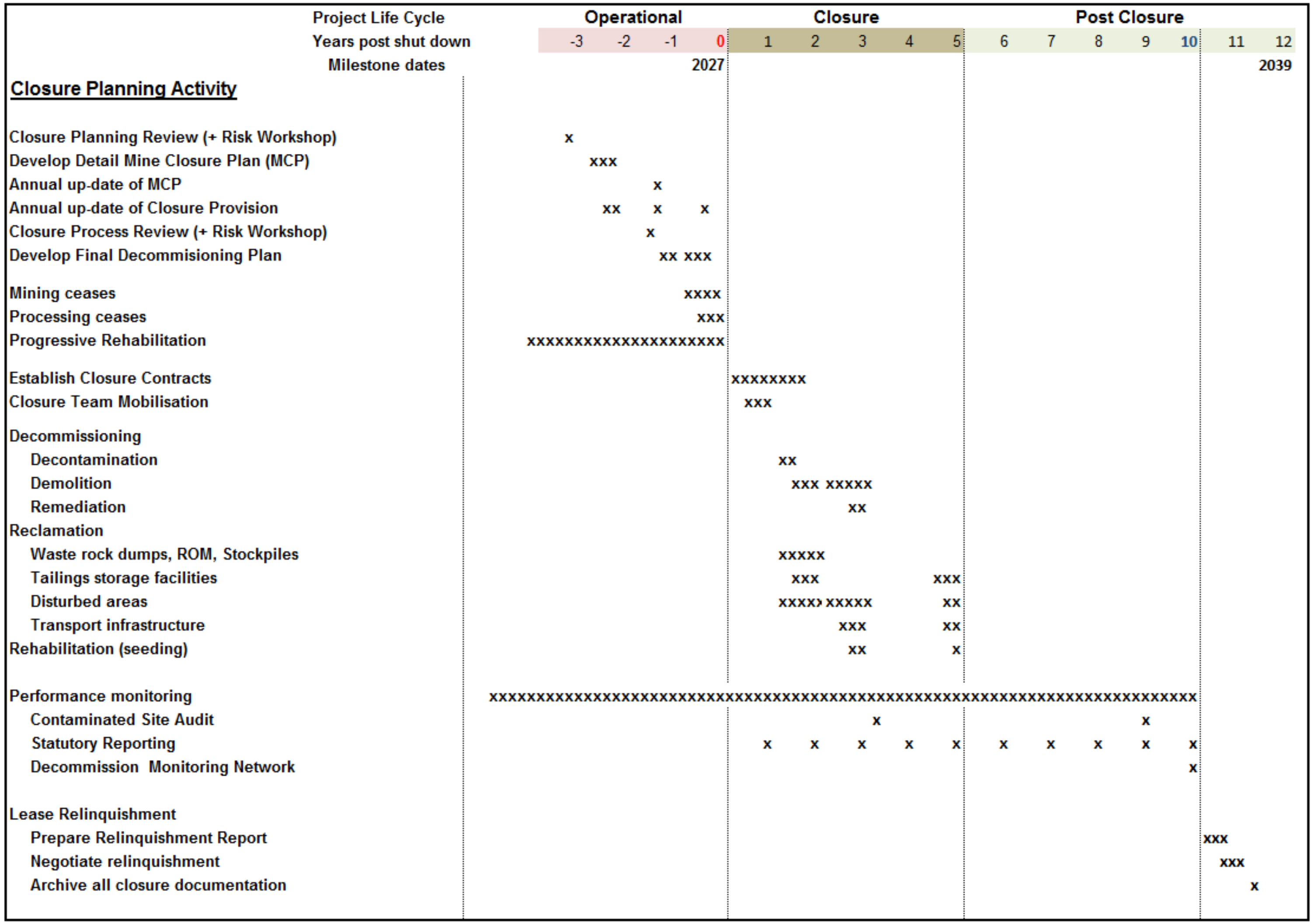

Figure 10: Example Conceptual Closure Planning Schedule

9.7 CLOSURE MANAGEMENT – ROLES AND RESPONSIBILITIES

At this early stage of Project planning, conceptual roles and responsibilities have been developed, which will be reviewed and revised during Project implementation and operations.

Site Closure Manager/Coordinator

- A Site Closure Manager or Co-ordinator will be appointed to manage implementation of the Mine Closure Plan to include ensuring proper staffing & training, satisfactory qualifications/work execution by contractors, and compliance with APC's EHS standards and regulatory requirements.
- Update the Closure Obligation Register whenever there are material changes due to final regulatory approvals of closure plans required by regulatory agencies and/or closure permits.
- Review the Environmental Obligations Register and include any closure-related issues from these sources.
- Periodically review and update the material/environment database. Identify and implement any monitoring changes necessitated by the changes in agency-required closure plans, closure permits or other circumstances. Ensure that all additional characterisation and monitoring meet APC guidelines where applicable.
- Implement post-closure monitoring as necessary when mine facilities have satisfactorily undergone all necessary closure work and rehabilitation including regulatory approvals where required.
- Update the closure risk assessment when there are material changes to closure requirements or significant unanticipated monitoring results. The closure risk assessment should comply with APC risk assessment guidelines.
- Respond to material changes to requirements for agency-required plans and permits or other new external obligations.
- Implement change management for closure activities due to unacceptable material/environment monitoring data or risk assessment results.
- Manage improvements from efforts by mine staff to reduce the tenure/liability obligations for relinquishment.
- Track actual costs of closure in accordance with all APC Corporate requirements and maintain an updated data base for unit costs of closure activities/equipment, external costs, and associated indirect costs.
- Annually update the mine closure/post-closure cost estimates and Provision for Environmental Rehabilitation by reviewing all modifications to closure/post-closure plans and any changes to the updated cost data bases.

General Manager

- Ensure site management oversight of all closure activities necessary to control costs, reduce time requirements, and ensure satisfactory results that fully address all APC liabilities, exposures and legal/regulatory requirements.
- Review and approve closure plan revisions and closure cost estimates.
- Engaging in meetings and other activities with stakeholders.
- Managing the implementation of a Closure Execution Plan to include contractor overview, inspections, compliance with APC EHS/EMS requirements, cost tracking, interaction with and reporting to regulatory agencies, etc.
- Maintaining and documenting an on-going effort to investigate and develop means to reduce closure costs/timeframes and improve property relinquishment liability/obligation status and objectives.
- Ensure proper Corporate oversight of all closure activities necessary to control costs, reduce time requirements, and ensure satisfactory results that fully address all APC liabilities, exposures and legal/regulatory requirements.

10. CLOSURE MONITORING AND MAINTENANCE

10.1 OVERVIEW

APC will conduct post-closure monitoring to address the risks identified in Section 6, and confirm that the objectives and criteria set out in Sections 5 and 6 are being met. An important function of this monitoring is to identify any need for remedial or maintenance works as early as possible, so that they can be carried out in a timely, well-organised, and cost-effective manner, before problems become worse and more difficult and expensive to correct.

For closure budgeting, it is generally accepted that key rehabilitation indicators will be monitored for at least 10 years after closure, except where sufficient progress toward completion criteria is demonstrated sooner, and it is agreed with the appropriate regulator that the relevant monitoring can be reduced or discontinued. The frequency of post-closure monitoring will generally decrease over time, once trends have been confirmed.

10.2 PUBLIC AND LIVESTOCK SAFETY

Post-closure monitoring for public and livestock safety will primarily comprise annual inspections to check that signs preventing access remain in place and in good repair. Contingency maintenance or remedial actions may include repairing fences and re-installing signs.

10.3 LANDFORM STABILITY

Techniques to monitor landform stability after closure are expected to include:

- Annual landform inspections for:
  - Signs of instability such as deflation, water ponding, slumping and erosion, with qualitative assessment of severity, and determination of causes.
  - Failures of surface water management structures, including internal and crest bunds, rip lines, drains etc.
  - Rate of dissolution of the salt landforms within the On Playa Ponds.
- If considered appropriate and cost-effective, use of remote or automated sensing techniques such as photogrammetry or LiDAR, to periodically detect changes in the On Playa Ponds such as gully formation, and sediment deposition, as complementary or alternative to ground-based surveys.

Contingency maintenance or remedial actions, if indicated by monitoring, may include:

- Filling in and/or bunding off low points to prevent unwanted water ponding, especially at the periphery of landforms.
- Repairing, protecting or armouring bunds, drains, berms and other surface drainage and sediment controls.

10.4 REVEGETATION

Post-closure revegetation monitoring is expected to comprise assessment of aspects such as:

- Vegetation density, cover, structure, diversity and disturbance, with reference to standard indices.
- Presence of regulatory listed weeds and their abundance.
- Factors affecting revegetation performance.

Revegetation monitoring on relevant post-mining landforms (i.e. excluding On Playa Ponds) will generally be combined with landform stability monitoring. Inspections will also confirm that bunds and signs protecting revegetated areas remain in place and in good repair.

Revegetation will be assessed with reference to suitable local undisturbed analogue sites, to control for regional effects such as fire, drought, grazing, and weeds. For the post-mining landforms it may be difficult to find local or regional analogues, in which case the most similar local analogues or nearest regional analogues will be used, in so far as the analogy is reasonable.

Contingency maintenance or remedial actions may include:

- Where poor revegetation is due to erosion, landform instability, or poor control of drainage, maintenance or remedial actions as set out in Section 10.3.
- Supplementary seeding with appropriate local native species, and application of fertiliser, if appropriate.
- Treatment of weeds.
- Fencing to prevent grazing until stable vegetation established.

10.5 GROUNDWATER

Post-closure groundwater monitoring is expected to essentially be an extension of monitoring conducted during operations, but with progressively reduced frequencies once operations cease. Monitoring will incorporate water levels and quality around landforms and will be used to demonstrate when water levels rebound (the recovery of the groundwater abstraction cone of depression) following cessation of abstraction and continuation of seepage from the On Playa Ponds.

10.6 QUALITY ASSURANCE

All post-closure monitoring will be carried out by competent persons, following documented monitoring procedures. Monitoring data will be checked, reviewed and reported on by suitably qualified persons following appropriate QA/QC procedures. Inspections and monitoring rounds will typically include photographs from established points to verify reports and build up a photographic record over time.

All water or soil samples taken for pre and post-closure monitoring will be collected, preserved, stored, handled and transported in accordance with relevant Australian standards, and submitted to an appropriately accredited laboratory for analysis. Monitoring data and supporting laboratory certificates will be maintained in a well-organised database.

10.7 REPORTING

APC will report any monitoring and remedial or maintenance works associated with this MCP to DMIRS, in the AER for the Project tenements and according to DMIRS (2015) guidelines, until the tenements are relinquished. Any post-closure reporting obligations to the EPA under the Ministerial Statement will be also be addressed. Disturbed areas will also be reported in annual submissions to the MRF, until signed off by DMIRS as meeting completion criteria.

APC will continue to report any monitoring required under the Operating Licence until the licence is surrendered or transferred; reporting may continue if DWER imposes a Closure Notice at relinquishment, although this is considered highly unlikely if relevant management measures are taken and licence conditions are fulfilled. APC will continue to report any monitoring required under the Licences to Take Water to DWER, until the licences are surrendered or transferred. Any outstanding contaminated sites investigations and remediation efforts will be reported to DWER, until the sites are formally classified consistent with the ongoing post-closure land use.

10.8 FINANCIAL SUPPORT

Appropriate provision for monitoring will be included in the closure provision as discussed in Section 11, allowing for a post-closure acceptance period of at least 10 years, and including all labour, equipment, travel consultancy, laboratory and reporting costs. Appropriate risk provision will be made for maintenance contingencies; including mobilisation, accommodation, management, and other support costs for equipment and people should substantial remedial works be required.

As the site is remote, maintenance or remedial actions such as earthworks requiring substantial mobilisation of resources will generally not be carried out piecemeal as and when the need is identified, but as part of a scheduled campaign of work, unless considered urgent. If a substantial campaign of works is required, temporary facilities such as fuel storage, ablutions and an office may be established at the site.

11. FINANCIAL PROVISION FOR CLOSURE

11.1 PRINCIPLES

As part of its financial risk management, APC intends to always have sufficient liquidity to meet its obligations as they fall due, under both normal and stressed conditions, and without incurring unacceptable losses or damaging the company's reputation, by monitoring its cash reserves and forecast spending.

The financial provisioning will incorporate all obligations related to closure of the Project arising as a result of its development. APC has determined the likely cost and likely timing of all closure obligations, for evaluation of net present value and cashflow forecasting as part of feasibility studies for the Project.

Once the Project commences, APC will maintain financial provisions (liabilities of uncertain timing or amount) sufficient to cover incurred closure obligations, in a manner consistent with Australian Accounting Standards Board (AASB) Standard 137 *Provisions, Contingent Liabilities and Contingent Assets*. The closure provisions will be shown on the companies' financial statement, disclosed as a requirement of its public listing.

Such provisions will address all probable closure obligations arising from the development and operation of the Project, including:

- Decommissioning and removal of built infrastructure.
- Investigation and, where necessary, remediation of contaminated sites.
- Rehabilitation earthworks and restoration of natural drainage.
- Mobilisation, accommodation and maintenance of decommissioning and rehabilitation crews and equipment.
- Closure studies and stakeholder consultation.
- Seed collection and distribution (if required).
- Alteration or servicing of infrastructure, if required as part of any agreement for handover.
- Post-closure monitoring and reporting.
- Project management, consultancy and legal fees.

In addition, the provisions will incorporate appropriate risk adjustment (risk provision or contingency) for:

- Uncertainty in closure obligations, criteria, designs and methods.
- Care and maintenance, and unplanned closure.
- Potential delays or setbacks to decommissioning and rehabilitation works, due to unpredictable events.
- Post-closure maintenance or repairs.

Financial statements will disclose the nature of the closure obligations provided for, the expected timing of expenditure (for the most part, at or shortly after the end of the life of mine), and any significant uncertainties or assumptions in the cost estimates. Provisions will be set in "today's" dollars, based on current estimated closure costs.

Any expected gains on disposal of assets at closure will be recognised separately in accordance with AASB standards, and will not be used to offset closure provisions. No gains from the sale of assets, salvage, or scrap at closure will be assumed, until a binding agreement for sale has been reached. APC will not assume that any infrastructure can be left in place, until a binding agreement for transfer of liability has been reached, and necessary approvals obtained.

APC will account for MRF contributions as an annual operating expense, separate to the closure provision, and contributions will not be used to offset the provision. Accrued redundancy, leave and termination liabilities, that may become payable for a variety of reasons including mine closure or suspension, will be recognised separately from closure provisions in the company statements, in accordance with separate AASB standards.

11.2 REVIEW

The APC will be responsible for commissioning an annual review of current closure obligations and cost estimates for provisioning on the company financial statements. As part of this, the closure task register (Section 9) will be reviewed and updated to consider any changes to:

- The site, including any increase in disturbance, accumulation of processing wastes, new infrastructure, or new (suspected or actual) contaminated sites.
- Closure obligations and criteria, arising from studies and consultation that may affect the decommissioning and rehabilitation works required.

The review of the task register will also consider any completed closure obligations, including:

- Topsoil, vegetation and growth medium stockpiled.
- Studies completed.
- Contaminated sites remediated or shown to be safe.
- Progressive rehabilitation earthworks completed.
- Agreements reached for transfer of infrastructure and associated closure liabilities.

APC will also determine whether since the last review there have been any substantial changes to:

- Applicable rates for any of the closure tasks, and if necessary, recalculate the cost of the affected tasks.
- Uncertainty in closure obligations, criteria, designs or methods, and if necessary, adjust risk provisions correspondingly.

The total cost of outstanding closure tasks and risk adjustments on the register will be used to set the current closure provision. The movement in provision for each reporting period, and any expenditures set against the provision for closure tasks, will be given in financial statements. Only expenditures for closure tasks included in the closure provision will be set against it; the provision will not be used for expenditures unrelated to closure obligations. The provision and underlying cost estimates will be subject to annual external assurance as part of public listing requirements.

APC will periodically review the expected timing of closure obligations as part of cashflow forecasting; obligations that will be incurred by planned future development of the Project will also be considered in forecasting, although most of the footprint will be developed, and most closure obligations incurred, progressively throughout the life of the Project.

11.3 COST ESTIMATION METHODOLOGY

The closure task register will become progressively more detailed over the life of the operations, to allow more detailed and accurate closure cost estimates to be developed. Preliminary estimates for rehabilitation earthworks may initially be based (like MRF relative liability estimates) on typical aggregate dollar cost per hectare rates for similar works, where such rates can be supported by adequate, recent data from other sites or quotes from earthworks contractors.

As closure planning progresses, closure tasks will be broken down into sub-tasks that can be costed individually. Costs for earthworks tasks that are primarily a factor of area, such as grading and ripping, may be estimated from typical flat dollars-per-hectare rates. Costs that are primarily a factor of volume, such as loading, hauling, and dumping rock and growth medium, may be estimated from typical flat dollars-per-cubic-metre rates.

As planning progresses further, earthworks cost estimates initially based on flat rates for areas or volumes can be refined with estimates that consider:

- Selection of the optimum fleet and labour force for the work, which may incorporate elements of the existing mining fleet to minimise mobilisation costs.
- Development of an optimum schedule for the work, including load-haul-dump movements.
- Site-specific material and landform properties such as densities, gradients and slope lengths, affecting production rates, such as grading and bulk dozer pushing.
- Separate mobilisation, hire, maintenance, fuel, labour, accommodation, management and other cost factors for the selected fleet and labour force.

APC will collect data (time taken, resources used, and expenses incurred) on earthworks completed over the life of the operations relevant to rehabilitation, to verify and refine rehabilitation estimates. In line with International Financial Reporting Standards, estimates will generally assume that all closure works will be done by a third party at current local rates for labour and equipment hire, and not assume that any work will be done in-house.

As the site approaches closure, APC may engage specialist decommissioning and mining / earthworks engineers to assist with refining final closure cost estimates. While a relatively small part of total closure costs, APC will also seek advice from relevant practitioners on costs for closure studies, contaminated site investigation, and post-closure monitoring and reporting.

12. MANAGEMENT OF INFORMATION AND DATA

APC will maintain, within a suitable document/data management system, a library of documents relevant to the closure of the Project, including:

- This MCP and each of its revisions.
- Technical reports from baseline and closure studies, including materials characterisations.
- Annual environmental and monitoring reports to regulators.
- Correspondence, minutes of meetings, and other records of engagement and consultation with regulators and other stakeholders.
- Decommissioning and closure works cost estimates, and (when developed) schedules.
- Site plans and landform designs.
- Life of mine schedules and current mine plans.
- Plans of electrical, water, gas, and other buried services.
- Contaminated sites investigations and reports, if any.
- Journal papers, conference proceedings and other publications with relevant lessons learned at other sites.

APC will also maintain, within suitable information management systems, datasets relevant to the closure of the Project, including:

- Aerial photographs.
- Areas of disturbance.
- Inventories of rehabilitation materials available, required and used.
- Records of significant spills, and details of clean-up.
- Data from baseline studies, operations monitoring, closure studies, contaminated sites investigations, and post-closure monitoring, including laboratory certificates where relevant.
- Photographs from pre- and post-closure inspections and monitoring rounds.

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APPENDICES

APPENDIX 1: CLOSURE RISK ASSESSMENT

Location		Scenario				Impacted Area Consequence									Impacted Area Consequence							
Closure Area	Domain	Risk Description	Potential Cause	Potential Consequence	Current (Operational) Controls	Likelihood	Financial	Health & Safety	Environmental	Community Relations	Company Reputation	Security	Legal Compliance	Inherent Risk	Proposed Closure Controls	Likelihood	Financial	Health & Safety	Environmental	Community Relations	Company Reputation	Security	Legal Compliance	Residual Risk
On Playa	Process Water Ponds	Mine drainage (Acid/Metalliferous/Saline) adverse effects on surrounding environment	- Overtopping of landforms during storm events - Failure of pond embankments, releasing high concentrations of salts into wider environment - Lateral seepage of salts into dune neighbouring dunes	- Vegetation death (unauthorised clearing) - Permanently altered elevated salt concentrations within extended surrounding lake ecosystem beyond landforms, disrupting ecological processes. - Groundwater is hypersaline so no contamination there.	- Engineered drainage management (external embankments) - Ponds lined along dunes - Monitoring and maintenance of pond containment to recover product.	C	2	N/A	4	N/A	2	N/A	3	High	- Rock armouring of external constructed embankments. - Exposed HDPE liner to be removed, but majority to be left in situ to minimise lateral movement of salts within dune system - Further hydrological study as needed to inform closure design of final embankments. - Salt will eventually dissolve and height of embankments will be reduced.	D	2	N/A	4	N/A	2	N/A	3	Medium
On Playa	Process Water Ponds	Adverse visual impact of landforms	- Elevated landforms post closure (maximum 8m). - Remote location with little amenity or access to public.	- Adverse visual amenity within immediate area of the Playa.	- Minimal site access or amenity to the public during operations - Remote location - Gradual increase in height of landforms	E	N/A	N/A	N/A	1	1	N/A	N/A	Very Low	- Remote location with little amenity or access to public.	E	N/A	N/A	N/A	1	1	N/A	N/A	Very Low
On Playa	Process Water Ponds	Dusting from Completed Rehabilitation	- Landforms remain uncovered post closure - Disturbance of protective salt crust by vehicle movement	Migration of salts into the wider environment	- Ponds are wet during operations minimising dust generation risk.	E	N/A	N/A	3	N/A	N/A	N/A	2	Very Low	- Prolonged exposure to wet/dry cycles will form protective salt crust - Remote location will ensure minimal vehicle movement over landforms - Signage to deter vehicle movement within pond area where appropriate.	E	N/A	N/A	3	N/A	N/A	N/A	2	Very Low
On Playa	Process Water Ponds	Geotechnical instability - slumping, collapse	- Ponding of water on surface leading to uneven dissolving of salts and an uneven surface forming - Erosion and failure of external embankments	- Tunnels/holes in surface leading to safety hazard - Erosion and release of saline runoff to wider environment.	- Management of salt levels within ponds to maximise product recovery.	C	N/A	2	3	N/A	N/A	N/A	2	Medium	- Minimal environmental impacts from uneven upper surface. - Signage installed at project to warn of uneven, boggy ground in some areas. - Armouring of external embankments and avoidance of ponding against crest. - Shaping of ponds to be water holding i.e. fall into the	D	N/A	2	3	N/A	N/A	N/A	2	Low
On Playa	All	Inadvertent or deliberate public access	Ineffective restriction of or deterent to public access to infrastructure and landforms	Public injury and/or health impacts.	- Safety windrows. - Main access (security gate) restricts access to authorised personnel.	C	N/A	2	3	N/A	N/A	N/A	2	Medium	- Initial signage (not to be maintained post closure). - Access roads rehabilitated, restricting access.	D	N/A	2	3	N/A	N/A	N/A	2	Low
On Playa	Process Water Ponds	Incomplete decommissioning and/or rehabilitation	- Insufficient funds to close infrastructure - Insufficient planning and incomplete implementation of closure plan	- Inability to meet closure criteria. - Increased costs associated with unplanned works.	- Closure provision - Closure plan	C	4	N/A	N/A	N/A	N/A	N/A	3	High	- Development of detailed Decommissioning Plan. - Closure provision - Closure plan	E	4	N/A	3	3	2	N/A	3	Low
All	All	Non compliance with legal and other requirements	- Insufficient knowledge of requirements - Insufficient planning and incorrect implementation of approved closure plan	- Fines - Lost reputation with regulator - Non compliance with closure criteria and inability to relinquish site. - Increased costs associated with potential addional unplanned works.	- Training and awareness of environmental and closure requirements for staff. - Periodic review of closure plan and provision with review of legal requirements during operations	C	3	N/A	N/A	N/A	3	N/A	3	Medium	- Periodic review of closure plan and provision with review of legal requirements during operations	D	3	N/A	N/A	N/A	3	N/A	3	Low
On Playa	Process Water Ponds	Rehabilitation designs not suited to site materials and/or poor implementation of design	- Inadequate closure planning - Inappropriate materials used as a result of poor planning or knowledge of closure planning	- Saline contamination of topsoil resource and loss of resource for use elsewhere. - Erosion protection compromised for external embankments. - Erosion, sedimentation and potential salinisation of downstream environment.	- Testing and appropriate use of materials for construction of infrastructure. - Regular review of closure plan and closure designs.	E	2	N/A	3	N/A	2	N/A	3	Very Low	- No growth media to be placed on salt stockpiles as per closure plan. - Confirmation of materials to be used in erosion protection of external embankments during operational iteration of closure plan and development of detailed designs.	E	2	N/A	3	N/A	2	N/A	3	Very Low
All	All	Uncontrolled equipment movement during closure activities	- Operators not competant. - Geotechnical instability in landforms	- Injury to workers - Equipment damage	- Trained and competant operators	C	3	4	N/A	2	2	N/A	3	High	- Detailed design for closure works taking into account geotechnical stability	D	3	4	N/A	2	2	N/A	3	Medium
All	All	Changing stakeholder expectations over life of project	- Ineffectual stakeholder consultation. - Unrealistic community expectations.	- Community concern and detrimental financial ramifications.	- An established stakeholder consultation program and register.	C	3	N/A	N/A	3	3	N/A	3	Medium	- Implementation of Stakeholder Engagement plan - Annual review of Stakeholder consultation register to ensure closure aspects are adequately covered and responded on with information and outcomes feeding back into MCP.	D	3	N/A	N/A	3	3	N/A	3	Low
All	All	Theft of equipment or vandalism	Uncontrolled access by public to site during closure activities.	- Loss of equipment. - Downtime during closure.	- Controlled access to site during operations - Locked and secured buildings.	D	3	N/A	N/A	N/A	N/A	3	N/A	Low	- Fencing of active decommissioning and salvage areas. - Security protocols as during operations	D	3	N/A	N/A	N/A	N/A	3	N/A	Low
All	All	Stakeholders retract earlier undertakings or agreements to take over certain	Poor planning or lack of agreements between stakeholders.	- Legal, financial and corporate image ramifications. - Prolonged closure period. - Increased costs.	- Consultation and communication plan within MCP	C	2	N/A	N/A	2	2	N/A	3	Medium	- Approved MCP. - Review and implementation of closure stakeholder consultation and communication plan.	D	2	N/A	N/A	2	2	N/A	3	Low
All	All	Underestimation of costing of closure; Closure budget not well managed	Inadequate closure provision estimation	Legal, financial and corporate image ramifications.	- Mine Closure Plan. - Closure provision.	D	5	N/A	N/A	3	2	N/A	3	High	- Approved Mine Closure Plan. - Closure provision. - Ongoing consultation with regulators on practical and acheivable closure criteria.	E	5	N/A	N/A	3	2	N/A	3	Medium
On Playa	Process Water Ponds	Operational decisions and activities compromise closure outcomes	- Poor maintenance of drainage structures during operations. - Overtopping or failure of structures during operations	- Extended impact of project and increased closure costs to repair. - Extended works to repair and make fit for closure drainage structures.	- Monitoring and maintenance of drainage diversion/embankments during operations to maintain product pond integrity.	C	2	N/A	3	N/A	N/A	N/A	3	Medium	- Integration of closure planning with operations during life of project	D	2	N/A	3	N/A	N/A	N/A	3	Low
Off Playa	Processing Plant & Infrastructure Area	Incomplete decommissioning and/or rehabilitation	- Insufficient funds to close infrastructure - Insufficient planning and incomplete implementation of closure plan	- Inability to meet closure criteria. - Increased costs associated with unplanned works.	- Closure provision - Closure plan	D	4	N/A	N/A	N/A	N/A	N/A	3	Medium	- Development of detailed Decommissioning Plan. - Closure provision - Closure plan	E	4	N/A	N/A	N/A	N/A	N/A	3	Low

Off Playa	Processing Plant & Infrastructure Area	Contaminated soils and aquifers remain undetected and are not rehabilitated	- Areas not reported as per Contaminated Sites requirements due to lack of awareness. - Incomplete sampling and measurement of potential contamination.	- Non-compliance with legal requirements. - Contamination of local environment.	- Management of contaminating substances during operations (secondary containment and bunding, spill management and clean up).	C	2	1	2	N/A	N/A	N/A	3	Medium	- Investigation and remediation of any potentially contaminated areas as part of Closure Implementation Plans. - Minimal areas that could become contaminated across site and will be monitored over life of project.	E	2	1	2	N/A	N/A	N/A	3	Very Low
Off Playa	Processing Plant & Infrastructure Area	Rehabilitation designs not suited to site materials and/or poor implementation of design	- Inadequate closure planning - Inappropriate materials used (saline etc) as a result of inadequate testing during closure planning	- Poor vegetation growth - Inability to meet closure criteria.	- Soil testing during contruction of infrastructure. - Spill prevention and management. - Management of topsoil resource.	D	N/A	N/A	3	N/A	N/A	N/A	3	Low	- Avoid use of visually salt impacted soils if possible, or burial of these soils at base of pond structure. - Avoid salt contamination of topsoil resource during closure implementation. - Closure implementation design to be completed by trained and competent operators.	E	N/A	N/A	3	N/A	N/A	N/A	3	Very Low
Off Playa	All	Introduction, spread or lack of control of weed populations	- Lack of plant and equipment hygiene.	- Inability to meet closure criteria.	- Weed management during operations	D	N/A	N/A	3	N/A	N/A	N/A	3	Low	- Post closure monitoring and maintenance. - Plant and equipment hygiene during closure activities.	E	N/A	N/A	3	N/A	N/A	N/A	3	Very Low
Off Playa	Service Corridors	Incomplete decommissioning and/or rehabilitation	- Insufficient funds to close borefields and associated service corridors - Insufficient planning and incomplete implementation of closure plan	- Inability to meet closure criteria. - Increased costs associated with unplanned works.	- Closure provision - Closure plan	C	3	N/A	N/A	N/A	N/A	N/A	3	Medium	- Development of detailed Decommissioning Plan. - Closure provision - Closure plan	E	3	N/A	N/A	N/A	N/A	N/A	3	Very Low
Off Playa	Support Infrastructure	Introduction or inadvertant encouragement of feral animal populations	Incomplete rehab and burial of landfill	- Increased feral animal numbers leading to native animal decline.	- Fenced and managed landfill with progressive burial regime.	D	N/A	N/A	2	N/A	N/A	N/A	N/A	Very Low	-Landfill to be completely buried at closure and rehabilitated.	D	N/A	N/A	2	N/A	N/A	N/A	N/A	Very Low
On Playa	Process Water Ponds	Contamination of surrounding environment	- Inappropriate disposal of exposed liners during closure. - Partial removal of pond lining	- Pond liner becomes exposed and mobile and pollutes local environment.	- Anchored and maintained liner for operations	C	N/A	N/A	3	N/A	N/A	N/A	3	Medium	- Partial removal of exposed liner at end of project life. - Burial within base of salt stockpiles (below ground). - Further Removal and disposal options as needed to be investigated during LOM pending detailed design.	D	N/A	N/A	3	N/A	N/A	N/A	3	Low
Off Playa	Process Water Ponds	Contamination of surrounding environment	- Inappropriate disposal of exposed liners during closure. - Incomplete removal of pond liner	- Pond liner becomes exposed and mobile and pollutes local environment. - Water ponds on liner leading to unsuccessful rehab	- Anchored and maintained liner for operations	C	N/A	N/A	3	N/A	N/A	N/A	3	Medium	- Rip liner and cover with 0.5m of topsoil/ embankment material for rehab - Burial of liner within	D	N/A	N/A	3	N/A	N/A	N/A	3	Low
All	All	Failure to meet closure criteria	- Closure obligations are impractical and cannot be met.	- Unable to relinquish tenements. - Financial implications of extended closure period.	- Closure provision - Closure plan - Stakeholder Engagement	D	4	N/A	N/A	N/A	3	N/A	3	Medium	- Closure provision - Closure plan - Stakeholder Engagement	E	4	N/A	N/A	N/A	3	N/A	3	Low