

Mt Weld Mining Pty Limited Surface Water Management Plan

Plan MTW-EN-PLA-0009_2 February 2023



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Version History

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Version	Description	Author	Approved by	Date
9	Project EMP	KASA Consulting	OEPA (AC05-2015-0044)	15/09/16
MTW-EN-PLA-0009_2	Updated to current EPA Guidance	Carmel Sullivan Jade Pitman	Adam Cargill	07/03/23

Executive Summary

Mt Weld Mining Pty Limited (MWM), a wholly owned subsidiary of Lynas made a referral for its Life of Mine Expansion (the Project) under Section 38 of *the Environmental Protection Act, 1986 (EP Act)*, 16 August 2022. The EPA determined the level of assessment for the Proposal would be "Assessment on Referral Information – with Additional Information Requested", and issued a Notice Requiring Information for Assessment, under Section 40(2)(a) of the EP Act, dated 14 November 2022.

This Surface Water Management Plan (SWMP) forms part of additional information requested by EPA Services to progress assessment of the proposal. The purpose of this SWMP plan is to provide a framework which describes how MWM will address, manage, monitor and mitigate potential impacts to surface water and receiving environments during construction and, operations and decommissioning, with a primary focus on key environmental factors of relevance to the EPA's assessment of the Project.

Project Name:	Mt Weld Rare Earths Project – Life of Mine Proposal			
Proponent Name:	Mt Weld Mining Pty Limited			
Ministerial Statement No.:	MS 476			
EPA Assessment Number:	2350 (Life of Mine Expansion)			
Purpose of Management Plan:	To provide a framework which describes how MWM will manage, monitor, and mitigate potential impacts to surface water values during the construction and operation phases of the Project.			
Key Environmental Factor:	Primary: Inland Waters – Surface Water Secondary: Terrestrial Flora and Vegetation			
Key Environmental Objectives:	 To maintain the hydrological regimes and quality of surface water so that environmental values are protected. Minimising alteration of local and regional hydrology; Minimising ground disturbance and other direct and indirect potential environmental impacts on significant vegetation; Preventing leaks or spills of chemicals and other contaminants (sediment) from entering surface water; and Minimising erosion and sediment loss from the Project. 			
Key Components in the Management Plan:	 Project description. Receiving Environment and Assessment of Potential Impacts. Management Plan Objectives and Actions. Monitoring and Reporting. Adaptive Management and Review of this Plan. 			
Proposed Construction Date:	July 2023			
Required Pre-Construction:	🖾 Yes 🗌 No			

Table 1: Management Plan Summary

Glossary

Term	Definition
AER	Annual Environmental Report
DMP	Department of Mines and Petroleum
ЕМР	Environmental Management Programme
EMS	Environmental Management System
EP Act	Environmental Protection Act, 1986
EPA	Environmental Protection Authority
На	Hectares
HDPE	High Density Polyethylene
Km	kilometres
LOM	Life of Mine
Lynas	Lynas Rare Earths Limited
Mining Act	Mining Act, 1978
MVVM	Mt Weld Mining Pty Ltd
OEPA	Office of the Environmental Protection Authority
RE	Rare Earth
ROM	Run of Mine
SRE	Short-range Endemic
the Project	Mt Weld Rare Earths Project
TSF	Tailings Storage Facility

1. Context, Scope and Rationale

Lynas Rare Earths Limited (Lynas) is a publicly listed company incorporated in Australia and headquartered in Perth, Western Australia. Lynas was established as an ethical and environmentally responsible producer of rare earth (RE) materials, and today, the company is the world's only significant producer of separated RE materials outside of China.

The materials Lynas produces are essential inputs to future-facing technologies designed to lower carbon emissions and reduce energy consumption, as well as improve the efficiency, performance, speed, durability, and thermal stability of these emerging technologies. This includes permanent magnet motors for technologies such as electric vehicles and wind turbines.

Mt Weld Mining Pty Limited (MWM) is a wholly owned subsidiary of Lynas, and currently operates the Mt Weld Rare Earths Project (the Project).

The Project was originally assessed, approved and currently operates under the:

- WA Environmental Protection Act 1986 (EP Act) (Part IV and Part V); and
- WA Mining Act 1978 (Mining Act).

MWM referred its Life of Mine Expansion Project (the Proposal) under Section 38 of *the Environmental Protection Act, 1986 (EP Act)* on 16 August 2022. The Environmental Protection Authority (EPA) determined the level of assessment for the Proposal would be "Assessment on Referral Information – with Additional Information Requested", and issued a Notice Requiring Information for Assessment, under Section 40(2)(a) of the EP Act, dated 14 November 2022. Additional Information requests received from the EPA Services Division on 15 February 2023 included a request for an updated Surface Water Management Plan in order to progress assessment of the proposal.

1.1 Purpose of Surface Water Management Plan

The purpose of this SWMP plan is to provide a framework which describes how MWM will address, manage, monitor and mitigate impacts to surface water and receiving environment during construction and operation of the Proposal. The SWMP incorporates relevant management actions originally assessed by EPA in the 2015 Mt Weld Environmental Management Programme Version 9 (KASA, 2015).

1.2 Project Description

1.2.1 Current Project

MWM operates the Mt Weld Rare Earths Project (the Project), which is located 35 kilometres (km) south-east of Laverton in the Northern Goldfields Region of Western Australia. The beneficiation plant has been operating for over ten years with four mining campaigns completed in that period.

Major components of Mt Weld Rare Earths Project are:

- A Rare Earths (RE) open pit mine;
- Groundwater extraction bores;
- Beneficiation plant, including power generation and water treatment;
- Tailings Storage Facilities (TSFs);
- Evaporation ponds; and
- Waste / low grade ore stockpiles.

The location of the Project is shown in Figure 1.

Figure 1. Regional Location of Mt Weld Rare Earths Project.

1.2.2 Proposed Life of Mine Expansion

MWM proposes to increase production to meet the growing global demand for RE products. This will entail expansion of its West Australian operations with the construction of the Rare Earth Processing Facility (REPF) in Kalgoorlie and expansion of the Mt Weld operations (mining, processing and ancillary activities) to a life of mine (LOM) extent.

The expansion relates to the proposed increase to the Development Envelope for the LOM from the currently approved 505 ha to 2,802 ha, to allow for expansion of sustainable infrastructure and activities including:

- A staged transition from diesel-fuelled power generation to gas hybrid renewable power generation, including solar and battery energy storage system, and future wind generation;
- A worker accommodation village;
- Additional borefield and tailings water recycling infrastructure to increase recycling rates from 50% to >90%;
- Tailings, residue and by-product storage facilities designed to allow reclaim and future re-processing of unrecovered REs;
- Larger mine, waste rock and by-product landforms designed for progressive rehabilitation;
- An expansion of the existing ROM Pad; and
- Surface water management to capture seasonal rain events and to divert surface water into managed aquifer / ground water recharge that also acts as flood protection infrastructure for climate change resilience.

At this stage of project development, the footprints for proposed activities and infrastructure have been generally defined. Additional detailed design will be completed in order to define their specific location and area within the 2,802 ha Proposal's Development Envelope. It is anticipated that proposed activities and infrastructure will be limited to a combined total Area of Disturbance extent of no more than 2,241.6 ha (which represents approximately 80% of proposed Development Envelope) (Figure 2).

Figure 2. Existing Infrastructure and LOM Proposal.

1.3 Key Environmental Factor

The key environmental factor to which this Management Plan relates is Inland Waters, specifically surface water.

The EPA's objective (EPA, 2018) for inland waters is:

"To maintain the hydrological regimes and quality of groundwater and surface water so the environmental values are protected".

Further guidance is contained in Environmental Factor Guideline: Inland Waters (EPA, 2018).

In the context of the Mt Weld LOM Proposal, the intended outcome is to minimise surface water impacts as far as reasonably practicable over the life of the Proposal.

As raised in the EPA/s additional information requests, the existing and proposed infrastructure including the management of surface water can have the potential to directly or indirectly alter the natural hydrology within and downstream of the proposed Development Envelope. This may result in drainage shadow impacts on existing flora and vegetation, and therefore a secondary Environmental Factor of relevance is Terrestrial Flora and Vegetation.

1.3.1 Environmental Objectives

Consistent with the EPA's environmental objectives for Inland Waters, this SWMP has the following performance objectives to prevent the unmanaged discharge of surface and process waters to the surrounding environment:

- Minimising ground disturbance and other environmental impacts on significant vegetation;
- Minimising the potential impacts associated with altered hydrological regimes;
- Preventing leaks or spills of chemicals and other contaminants (sediment) from entering surface water; and
- Preventing erosion and sediment loss from the project.

1.4 Rationale and Approach

As previously stated, this is a revision of the approved Version 9, EMP (KASA, 2015) relevant to MS476 Conditions. This revision is intended to:

- Address the additional information request received from EPA/s on 15 February 2023, in relation to altered hydrological regimes resulting from the proposal;
- Address guidance contained in Environmental Factor Guideline: Inland Waters EPA, 2018;
- Address Inland Water Environmental Factor identified by the EPA as one of the preliminary environmental factors requiring assessment into management during the construction and operation of the Project;
- Reflect the LOM expansion proposed;
- Define management and monitoring measures that are informed by detailed surface water management assessments; and
- Align the form and structure of the SWMP to be consistent with EPA Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (EPA, 2021).

This SWMP applies to the construction and operating phases of Mt Weld Rare Earths Project.

1.5 Receiving Environment

1.5.1 Regional Setting

The Mt Weld Project is located within the Northern Goldfields Region of Western Australia, approximately 23 km southwest of the township of Laverton (Figure 1). The landscape of the Northern Goldfields is generally low relief with undulating areas of sandplain and granite outcrops, and north-trending ridges influenced by the strike of greenstone belts. The local topography is generally below 500m AHD and is dominated by mulga and mixed eucalypt shrub.

1.5.2 Hydrology

The surface of the entire mine area is a level plain with an almost indiscernible but very consistent west-southwest slope of 1:300. The plain lies at the foot of a slightly steeper drainage gradient averaging 1:200 steadily rising to low escarpments 10 km to 13 km to the east of the project site, where perennial rainfall and run-off is actively eroding weathered granitic and mafic basement rocks. Topographically, the mine site falls from 436 m AHD in the north-east to 415 m AHD in the south-west, with local catchments draining into Lake Carey, a large playa lake surrounded by low-relief topography comprising aeolian dunes (Figure 3). The present-day plain is composed of highly oxidized, recently transported and deposited quartz and ironstone sand and gravel alluvium and has not developed a structured soil profile as usually occurs from in-situ weathering of underlying rocks and/or the effects of strong vegetation growth.

The Proposal area falls at an average gradient of 0.3%. There is a large catchment to the east of the Proposal in excess of 100 km² with the eastern-most portion of the catchment having undulating topography and run-off leaving the area via a system of natural channels. The lower portion of the catchment is much flatter and natural channels are poorly defined, indicating that surface run-off during extreme floods will occur as sheet flow, with fairly even covering of water over the ground flowing to the west. These ephemeral streams only flow occasionally, typically as a result of major rainfall events between December and April.

Catchments near the Mt Weld mine site are generally flat with rocky outcrops along the margins that act as drainage divides. Surface drainages are typically poorly defined with shallow branching watercourses in the upper portions of the catchments that generally flow for only a few days after rainfall. The local catchments all drain into Lake Carey, a large playa lake surrounded by low-relief topography comprising aeolian dunes.

1.5.2.1 Proposed TSF4 Design Report – Stormwater Management

MWM commissioned a stormwater study and engineering design of the proposed TSF4 and additional evaporation ponds (REE, 2023), A component of this assessment was to define the various catchments that contribute to surface water flows within and around the Proposal area such that appropriate stormwater management measures could be employed to maintain safe and dry working conditions, as well as to ensure that natural surface water hydrology was maintained downstream of the Proposal area such that those ecosystems were not compromised.

The study recommended the establishment of a diversion bund designed to divert overland flows from the north and northeast of the site and redirect it towards the southwest, away from TSF4 and other mining infrastructure. The study determined that there would still remain a catchment within the diversion that was influenced by incident rainfall.

Flood modelling conducted as part of the study predicted the fate and intensity of stormwater flows under extreme rainfall events. This information was used to inform recommendations on the design of the stormwater diversions, and the location and application of erosion protection for critical containment infrastructure to minimise the risk of erosion from higher velocity stormwater flows.

The study delineated the internal catchment influenced by incident rainfall within the process plant area such that these could be isolated in a manner to ensures potentially contaminated stormwater is retained within the Project area and treated, stored and/or evaporated.

Management of stormwater flows within the delineated catchment zones is discussed in Section 1.3.

Figure 3. Location of Mt Weld Rare Earths Project within larger catchment area.

1.5.3 Flora and Vegetation

The flora and vegetation of Mt Weld are typical of the region and are dominated by a mulga woodland with some localised mallee and spinifex communities. The area has historically suffered from overgrazing, primarily by cattle, rabbits, camels, horses, and disturbance by some exploration activities.

In 2020, MWM commissioned Stantec Australia Pty Ltd (Stantec), to undertake a two-phase detailed flora and vegetation survey within tenements associated with, and adjacent to, the Mt Weld mine site within a 3,254.6 ha survey area (Stantec, 2021). Eight vegetation types were described and mapped within the survey area. None of the eight vegetation types recorded in the survey area represent a Threatened Ecological Community (TEC) or Priority Ecological Community (PEC), noting there are no known TECs within the Murchison bioregion. Vegetation within the survey area was determined to be well represented at all levels (state-wide, bioregional and local), with >99% of the pre-European extent, as mapped by Beard (1975), remaining intact.

No significant flora was recorded during the survey. One Priority 3 species, *Goodenia lyrata* has previously been recorded within the survey area in 2011, in a location that has since been cleared. There is potential for *Goodenia lyrata* to occur following good seasonal rainfall given that this taxon is an opportunistic annual life form. However, given the extensive representation of the associated vegetation type and known occurrence of *Goodenia lyrata* within multiple bioregions across Western Australia, the potential for any impact on this taxon within the proposed development footprint is considered to be low. No other threatened or priority listed flora species are considered likely to occur within the survey area.

A total of 205 vascular flora taxa (including subspecies, varieties and forms), have been recorded within the Survey Area since 2011. There were 89 species fully identified during this detailed Survey, with another 16 recordings that could not be confirmed to species level, yet are considered likely to represent additional taxa to the suite of fully-identified species.

A total of 41 families and 100 genera have been recorded within the Survey Area since 2011, of which 31 families and 52 genera recorded during this Survey. The most represented family in this Survey was Fabaceae, while more diversity within the Chenopodiaceae family occurs when all records since 2011 are taken into account. The most represented genera during this Survey were Eremophila 12 taxa and Acacia with 11 confirmed taxa.

Eight vegetation types were described and delineated within the Survey Area (Appendix 1). Vegetation type mapping is presented in Figure 3. The most dominant and widespread vegetation type was AiAcaArrAtEma (1,762 ha; 54%), largely occurring surrounding the existing mine infrastructure areas.

The Survey Area broadly consists of clay-loam plains supporting mulga woodlands, with the smaller northwestern component of the Survey Area also containing occasional rocky outcrops and stony rises interspersed with low chenopod shrublands. These features are considered to be represented beyond the Survey Area in the East Murchison subregion and do not represent Commonwealth or State listed TECS or PECs, nor are they considered to be either locally or regionally significant. Broad sheet-flow drainage is a feature of the mulga dominated woodlands of the Survey Area. Within the north-west of the Survey Area. The landscape exhibits some small low-lying depressions, representing the upper reaches of drainage to Lake Carey, which is situated approximately 12 km south-west of the Survey Area. There was no indication of natural permanent surface water within the Survey Area.

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Figure 3. Vegetation Type Mapping and Significant Flora.

1.5.4 Summary of Vegetation Health Monitoring and Drainage Shadow Impacts

MWM has conducted qualitative assessments of vegetation health since 2007 using photographic monitoring at 17 locations facing north, east, south and west to create a 360° panoramic image. Monitoring locations are depicted in Figure 4. These images are used to provide a visual assessment of vegetation health using vegetation cover and foliage percentage to determine if Project operations are impacting on the local vegetation including as a result of potential drainage shadow effects caused by alterations in surface water hydrology.

A review of vegetation health monitoring data was undertaken for comparison against baseline conditions from 2007. The assessment confirms that despite the installation of various Project infrastructure as approved by EPA, DWER and DMIRS, no detrimental impact to the health of surrounding vegetation has been observed when compared to initial baseline images. Specifically, the monitoring confirms that since installation of the eastern Flood Control Drain, the Northern Cut-off Drain, the Stormwater Diversion Drain or the Managed Aquifer Recharge (MAR) project, no evidence of impact to the downstream mulga vegetation communities has been observed.

The 2020 Level 2 terrestrial flora and vegetation survey (Stantec, 2021) determined that over vegetation condition across the 3,254.8 ha, 90.15% of the survey area was mapped as 'Very Good'. For the proposed Development Envelope that intersects the survey area, 100% was rated as being in very good condition, 0.01 ha (<0.01%) was rated as completely degraded owing previous vegetation clearance and land disturbance for approved mining activities.

The survey coupled with the photographic monitoring results strongly supports the likelihood that vegetation health of existing vegetation is a function of localised meteorological conditions, incident rainfall and/or direct impacts.

Notwithstanding the above, It is anticipated that proposed activities and infrastructure will be limited to a combined total Area of Disturbance extent of no more than 2,241.6 ha (which represents approximately 80% of proposed Development Envelope).

Figure 4. Vegetation Health Monitoring Points.

1.5.5 Conservation Reserves and Environmentally Sensitive Areas

No conservation reserves or Environmentally Sensitive Areas (ESA) intersect the Proposal area. There are two National Parks within 150 km of the survey area. These are the De La Poer Nature Reserve, approximately 147 km to the north, and Goongarrie National Park, 135 km to the south-west. The De La Poer Range Nature Reserve (74,935 ha) was gazetted in 1974 (Barton and Cowan, 2001) and Goongarrie National Park (60,397 ha) in 1995; both are characterised by a range of woodlands and mulga shrubland.

In addition to Lake Marmion, Lake Ballard is 140 km south-east of the survey area and is listed as a Proposed Ramsar addition. Several other nature reserves, timber reserves and important wetlands occur within 250 km of the survey area.

1.5.6 Terrestrial Fauna

Concurrent with the flora and vegetation survey, MWM commissioned Stantec to undertake a two-phase terrestrial fauna survey within tenements associated with, and adjacent to, the Mt Weld mine site (2020). The survey comprised a desktop assessment and a two-phase survey (Level 2 and Targeted Terrestrial Fauna Survey) across the survey area (3,254.81 ha).

Seven broad fauna habitat types were mapped within the survey area; the land systems in which these habitats occur were considered typical of the East Murchison subregion. Fauna habitats are shown in Figure 5.

Within the survey area, the 'mulga on clay loam' habitat was well represented occurring over 2,644.11 ha (or 81.24%) of the survey area. It is considered marginal habitat for the Malleefowl (*Leipoa ocellata;* vulnerable (EPBC Act)), however no Malleefowl or nesting mounds have been recorded within the survey area despite extensive targeted searches. It is therefore considered unlikely that Malleefowl may occur, and the impacts to this species associated with the Project are considered low. No other fauna of conservation significance are likely to rely on the 'mulga on clay loam' habitat within the wider survey area.

Within the survey area, the 'stony rise' and 'rocky ridge and outcropping' habitats are considered the most important habitats on a local scale and are important to the listed Long-tailed Dunnart. These habitats are of limited extent within the survey area, occurring over 108.13 ha (3.32%) and 6.61 ha (0.20%) respectively within the survey area. These habitats also supported microhabitats including rocky crevices and cracks, important for SRE taxa.

Three of the fauna habitats represented within the survey area (mulga on stony plain, shrub plain, and low mulga on clay loam) were determined to be unlikely to support significant fauna species, and therefore were rated as being of low conservation significance.

1.5.6.1 Conservation Significant Fauna

Desktop assessments identified 25 significant fauna species with the potential to occur within the survey area comprising six mammals, 18 birds and one reptile. Of these, three species were confirmed as occurring during the survey:

- Long-tailed Dunnart (P4);
- Wood Sandpiper (Mi; IA); and
- Common Sandpiper (Mi; IA).

Based on the desktop assessment and habitats identified within the survey area, an additional 11 species were assessed as possible and eight were assessed as unlikely to occur.

The Long-tailed Dunnart was recorded from nine locations within the survey area, within the 'stony rise' habitat in the L38/244 tenement area (i.e., not within the boundary of the proposed works). The species has been recorded at a total of 33 location within a 5 km radius of the survey area along the continuation of the preferred 'stony rise' and 'rocky ridge and outcropping' habitats which extend outside the survey area to the northwest and south. The Long-tailed Dunnart was also recorded at the 'rocky ridge and outcropping' habitat within the survey area.

The survey area was determined not to contain any important habitat nor support an ecologically significant proportion of the population of either the Wood Sandpiper or Common Sandpiper, due to limited aquatic habitat.

1.6 Key Assumptions and Uncertainties

This SWMP has been prepared on the basis of information provided in the environmental surveys completed in 2020 (Stantec, 2020) and 2021 (Stantec, 2021) and based upon knowledge gained through 12 years of operating Mt Weld. The key assumptions and uncertainties relevant to the LOM Proposal are:

- The relevant studies and surveys have been undertaken in accordance with the latest technical guidance issued by the EPA and accurately recorded the terrestrial environment and stormwater management requirements within the Proposal Area:
 - o Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016a);
 - Environmental Factor Guideline Flora and Vegetation (EPA, 2016b);
 - Environmental Factor Guideline Terrestrial Fauna (EPA, 2016c);
 - o Technical Guidance Sampling Methods for Terrestrial Vertebrate Fauna (EPA, 2016d);
 - Technical Guidance Terrestrial Fauna Surveys (EPA, 2016i); and
 - Technical Guidance Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020) (November 2020)
- Environmental survey reports have been independently verified. These surveys were undertaken by suitably qualified individuals experienced in terrestrial ecology and habitat identification and are therefore assumed to have accurately recorded the presence and locations of habitat.
- Significant direct and indirect impacts to surface water that may result from the Proposal have been identified;
- Infrastructure associated with the Project including diversion structures installed to maintain safe and dry operations have the potential to modify natural sheet flow within the Disturbance Envelope potentially creating drainage shadows within the footprint. Twelve years of vegetation health monitoring shows no discernible difference between controls points upstream of water diversion infrastructure and downstream. and
- Local surface water hydrological regime outside of the disturbance envelope is not anticipated to significantly impact on downstream terrestrial environment.
- No perennial surface water features are prevalent within the Proposal area.

1.7 Assessment of Potential Surface Water Related Impacts

The Proposal includes a total disturbance area of up to 2,241.6 ha with all areas except some access roads, mine void and other agreed infrastructure to be rehabilitated over the life of mine.

In general terms, the establishment of site hardstand surfaces, structures, ponds, dams, storage facilities, drains, culverts and pipes, may alter the natural and local hydrological regime and modify shallow overland flows during high rainfall events. Construction of the northern diversion bund (Figure 8) may result in temporary ponding at the bund wall and a drainage 'shadow' downstream within the mine expansion area. Similar effects could also be experienced in the vicinity of the Project area along roads that have been constructed across the main surface drainage flow and around the by-product landform. The potential risks associated with drainage shadow effects on downstream vegetation as a result of altered hydrological regimes was discussed in Section 1.1.7 where recent flora and vegetation surveys together with photographic monitoring of vegetation health sites by MWM have not identified evidence of impacts to vegetation as a result of alterations to hydrological regimes to date.

It is reasonable to assume that potential impacts to vegetation within or in proximity to the Proposal area are less a result of altered local or regional hydrology, but more so by incident rainfall at a localised level.

The effect of infrastructure proposed to be established to manage surface water flows and to ensure safe and dry working conditions has been modelled under significant rainfall events (REE, 2023). Figure 6 depicts modelled stormwater flows at a regional scale following construction of all elements of the Proposal. The image illustrates that despite the presence of infrastructure including existing and proposed drainage diversion structures, existing and proposed tailings facilities and evaporation ponds and the expanded mine and processing plant, the area affected by drainage shadows are minimal with limited impact on downstream hydrological regimes. Vegetated areas closer to the Project that are likely to be affected by drainage shadow effects are located within the Development Envelope and disturbance extent of the Proposal within which clearing of vegetation will be conducted in order to develop the Proposal.

Roads constructed parallel with the main drainage direction are potentially susceptible to localised scouring, but at the same time, low surface gradients restrict water flow velocity and erosive energy. Construction of the by-product storage landform may result in modified shallow overland flows, as well as sediment-laden run-off from the landform.

Construction activities may increase the sediment load of surface water run-off. This disturbance is not expected to have a significant impact on the surface hydrology of the area. During operations, surface water run-off from around the plant and vehicle servicing areas could contain substances such as hydrocarbons that may be harmful to the environment. Run-off from around the stockpiles may also contain levels of radiation slightly above background levels.

The potential impact to surface water and its quality may arise from:

- Potentially contaminated surface water and stormwater run-off;
- Failure of the integrity of TSFs, from dam breach, pipeline leakage or failure;
- Waste generation and disposal practices;
- Storage and handling of process reagents, fuels and chemicals associated with the Proposal

Figure 6. Modelled Surface Water Flows around the Proposal infrastructure under :100 Rainfall Event

2. Management Plan Components

2.1 Objective-based Management Plan

The key objectives of the SWMP are to:

- Define measures to manage potential impacts from project activities;
- Design management actions that are implementable and easily understood by site personnel;
- Develop mechanisms that enable adaptive management and continuous improvement throughout the life of the Project; and
- Facilitate evidence-based review and auditing to demonstrate compliance.

2.2 Surface Water Management Requirements

Surface water management is critical in ensuring safe and dry working conditions for site infrastructure. MWM has developed this SWMP to minimise potential surface water impacts associated with activities at the Mt Weld Rare Earths Project by:

- Identifying areas susceptible to erosion and defining proposed management strategies that can be implemented to mitigate associated impacts; and
- Identifying potential sources of contaminants that require appropriate controls and containment to prevent the risk of an uncontrolled release to the environment.

The SWMP also draws from the following information to achieve the abovementioned objectives:

- A project wide flood assessment which investigated regional catchments areas and local drainage;
- A detailed assessment of capacity of existing stormwater infrastructure to contain run-off from the processing plant, blended ore stockpiles, concentrate storage, tailings storage facilities and laydown areas;
- A surface water drainage map of the processing site showing contours and flow paths (Figure 8); and
- Provision of schedule for constructing additional infrastructure and/or implementing operational controls, if required.

Mt Weld adopts several principles when determining the appropriate management of erosion identified within the project area. In no particular order these include:

- Preserve (stockpile) laterite material during mining campaigns and used as final surface on landform batters;
- Control erosion before controlling sediment. Sediment is only generated when erosion occurs;
- Accept that erosion and sediment controls are an integral part of managing construction or maintenance activities;
- Minimise the extent and duration of disturbance;
- Control stormwater flows onto, through and from the site;
- Use erosion control to prevent on-site impacts;
- Use sediment controls to prevent off-site impacts;
- Control erosion and sediment at the source;
- Stabilise disturbed areas progressively; and
- Inspect and maintain control measures on a regular basis.

2.2.1 Regional Surface Water Management

As discussed in Section 1.1.5.1, the hydrological study (REE, 2023) determined that surface water management for the overall Proposal area is required to maintain safe and dry operating conditions. To this end, it is proposed that an stormwater diversion via construction of an overland flow bund is proposed to divert overland flows from the north and northeast of the site and redirect it towards the southwest, away from TSFs, processing plant and other mining infrastructure (Figure 7). The overland flow bund is designed to divert water around the Proposal area both in east and south west directions to re-join the natural sheet flow drainage towards Lake Carey.

The existing eastern diversion channel designed to prevent the surface run off originating from the large catchment area to the east entering the operational site will be incorporated into the northern overland flow bund. This diversion drain is considered adequate to protect the site from run-off originating from the east.

The management of incident rainfall run-off which falls within the diversion bund (south of bund) is considered local stormwater.

2.2.2 Localised Surface Water Management

Local surface water management within the Development Envelope includes diversion channels designed to control runoff from rainfall that occurs on the site itself, with potentially contaminated run-off being directed to several run-off ponds. The process plant surface water drainage network is shown in Figure 8 with drainage features for critical containment facilities which includes TSFs and Evaporation Ponds shown in Figure 9.

Several run-off ponds will be utilised to receive run off from process plant, ore stockpiles and by-product landform.

- Plant Run Off Pond;
- Turkeys Nest;
- Southwest Transfer Pond;
- Crusher Pad Run Off Pond; and
- By-product Landform Pond

The design strategy for the local stormwater management plan considers the following:

- Catchment to the north of the mine access road is diverted. There are works planned to the processing plant which include the extension and upgrade of the existing road. Run-off from this catchment is considered to be 'clean water' (as opposed to mine affected water) and will continue to be diverted to the northwest along the road, as it currently does. As the catchment is external to the plant, and the run-off does not come into contact with the plant or mingle with other mine affected water. Therefore, it is not required to be directed to run-off ponds.
- Diversion drain which runs to the east of the existing evaporation ponds is proposed to be redirected and extended along the east of the proposed new evaporation ponds.
- New diversion drain proposed running north to south at the eastern side of TSF4 (i.e. between TSF4 and the evaporation ponds will convey water south and south west.
- New diversion drain proposed running east to west along the northern side of TSF4 will convey water west.
- Rain which falls within the TSF or evaporation ponds remains contained within these structures, and becomes
 part of the TSF-plant water cycle.
- Rain which falls in the vicinity of the plant or which will be directed though the vicinity of the plant is considered mine affected water and potentially contaminated and will be directed to run-off ponds.

Figure 8. Local Stormwater Management at Processing Plant.

Figure 9. Local Stormwater Management at Critical Containment Facilities.

2.3 Roles and Responsibilities

During construction and operation, responsibility for implementing the Surface Water Management Plan will lie with Mt Weld Mining' personnel, whose roles have the potential to impact on fauna in the Project area.

Ultimate responsibility for implementing day to day inspections, demonstrating compliance with the Surface Water Management Plan and reporting will lie with the Senior Site Executive or delegate.

3. Management Provisions

Table 2 summarises the Objective based Management Actions to be implemented in order to meet the EPA's objectives for the Inland Waters – Surface Water key environmental factor, prepared in line with the EPA's *Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans* (EPA, 2021).

This SWMP should be read in conjunction with Flora and Vegetation Management Plan (MTW-EN-PLA-0015).

EPA factor and objective:

Inland Waters - To maintain the hydrological regimes and quality of surface water resources so that environmental values are protected.

Outcome: To minimise the effect of altered hydrological regimes as a result of Proposal infrastructure.

To minimise adverse effects of hydrocarbons on the Project Area and its surrounds as a result of the construction and operation of the Project as far as reasonably practicable, specifically:

- Reduce the risk of releases of hydrocarbons or hydrocarbon contaminated materials to the environment, either as a result of inadequate storage or handling practices.
- Ensure any spills are contained and contaminated materials treated and appropriately disposed of.

Key environmental value: Protection of an ecosystem health condition (s.3(1) EP Act).

Key impacts and risks: Direct or indirect impacts on inland surface waters as a result of deviation from this Management Plan

Management Objective	Risk	Management Action	Monitoring	Frequency of Monitoring	Reporting
To maintain the hydrol	ogical regimes and quality of s	urface water so that environmental values are protected.			
Minimise the potential to alter surface hydrology as a result of Proposal infrastructure	Infrastructure associated with the Proposal including diversion structures installed to maintain safe and dry operations can modify natural sheet flow within the Disturbance Envelope potentially creating drainage shadows within the footprint.	 Surface water regimes outside of disturbance envelope are not significantly altered with the installation of overland flow bunds and drains. Note: Twelve years of vegetation health monitoring shows no discernible difference between controls points upstream of water diversion infrastructure and downstream. and Local surface water hydrological regime outside of the disturbance envelope is not anticipated to significantly impact on downstream terrestrial environment. Clearing No clearing is to be undertaken unless it complies with the Proposal's approval conditions. All clearing shall be minimised through design, and only be undertaken to the extent required to safely and efficiently complete the works. All clearing shall follow the Mt Weld Clearing and Disturbance Procedure (MTW-EN-PRO-0017) controls and be limited to the battery limits defined in the relevant Clearing and Disturbance Certificate (CDC) issued for works to which it applies. Undertake post-clearing inspections to verify clearing within internal and external approval conditions. Extend the existing photographic monitoring of vegetation health condition to continue to monitor potential changes in vegetation health as a result of drainage shadow impacts. Avoid Clearing of vegetation within watercourses on G38/34 where possible. Minimise Design overland flow bunds to divert surface water flows around the project to maintain safe and dry operations. Prior to any clearing to retain vegetation between Project components during construction to reduce erosion and undertake clearing on a staged basis and incrementally torminmise the amount of exposed land area; Prior to any clearing voltation progressively and incrementally during operations. Ensure areas to be cleared are clearly demarcated.<!--</td--><td>Area of vegetation cleared and under rehabilitation via Area of Disturbance Table. Extension of existing photographic monitoring of vegetation health condition.</td><td>Prior to any disturbance Annually</td><td>Annual Environmental Report</td>	Area of vegetation cleared and under rehabilitation via Area of Disturbance Table. Extension of existing photographic monitoring of vegetation health condition.	Prior to any disturbance Annually	Annual Environmental Report

Management Objective	Risk	Management Action	Monitoring	Frequency of Monitoring	Reporting
		 Rehabilitate Attempt to reinstate valuable vegetation habitat elements to the landscape via progressive rehabilitation of area no longer suitable for ongoings operations. 			
		 Progressive rehabilitation of disturbed areas to encourage the return of vegetation. 			
		 Topsoil, rootstock, log debris and leaf litter should be removed for future use in rehabilitation programmes. If possible, stockpiled topsoil should be directly replaced on disturbed areas as this increases the success of seedling establishment and propagule regeneration. 			
		 Undertake rehabilitation trials to research appropriate soil preparation, drainage works, seed mixes and any other methods used to promote revegetation. 			
Minimise ground disturbance and other environmental impacts on significant vegetation.	Clearing of vegetation can lead to direct loss of vegetation leading to increase erosion and sedimentation downstream. Construction of overland flow bunds and drains changes hydrological regimes for vegetation within development envelope.	 Clearing No clearing is to be undertaken unless it complies with the Proposal's approval conditions. All clearing shall be minimised and only be undertaken to the extent required to safely and efficiently complete the works. All clearing shall follow the Mt Weld Clearing and Disturbance Procedure (MTW-EN-PRO-0017) controls and be limited to the battery limits defined in the relevant Clearing and Disturbance Certificate (CDC) issued for works to which it applies. Avoid Significant habitat within L38/224 for the Long-tailed Dunnart north of the main site access road has been excluded from the Development Envelope. Minimise Design clearing to retain vegetation where possible, such as around stockpiles, landforms, infrastructure, and landscaped areas. Prior to any clearing, a CDC is required to be approved by the Mt Weld Environmental Advisor. Where practicable retain vegetation between Project components during construction to reduce erosion and undertake clearing on a staged basis and incrementally to minimise the amount of exposed land area; 	Area of vegetation cleared and under rehabilitation via Area of Disturbance Table. Extension of existing visual monitoring of vegetation health condition	Prior to any disturbance Annually	Annual Environmental Report
		 Land clearing will be undertaken progressively and incrementally during operations. Rehabilitate Progressive rehabilitation of disturbed areas that are of areas no longer utilised for engoing operations. 			
Prevent leaks or spills of chemicals and other contaminants from entering surface water.	Loss of containment for hazardous substances causes contamination of downstream environmental values.	 Avoid Storing hazardous substances outside of containment infrastructure. Servicing mobile equipment outside designated areas. Potentially contaminated stormwater (eg: run-off which contains hydrocarbons) will not be discharged into the environment. Minimise Locate pipelines within bunded corridors, and/or install telemetry systems and pressure sensors to allow detection of leaks and failures; Locate new processing infrastructure (flotation cells; reagent storage) within bunded hardstand areas. Direct potentially contaminated stormwater run-off within the operational areas of the processing plant to the Plant Run-Off Pond for settling of solids and evaporation of water. Identify areas susceptible to erosion and sedimentation which will require regular inspection and management. Continue to store chemical reagents in the designated reagent storage area in accordance with MWM's Dangerous Goods Licence (DGS021014) and Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007. Amendments to the Dangerous Goods Licence will be undertaken as required; 	Project wide surface water inspection. Visual inspections for areas which store hazardous substances to ensure compliance with this management plan.	Quarterly or after significant rainfall event (<i>defined as</i> 50mm of rain in a 24 hour period or 100mm of rain in a 72 hour period)	Inspection findings and any actions will be recorded in the sites online management system. Annual Environmental Report End of Month Environmental Report.
		 Ensure sufficient freeboard is maintained in each TSF and Evaporation Pond as per applicable regulatory conditions; Between the plant site and the TSFs, contain tailings pipeline and water lines within a bunded corridor and/or install telemetry systems and pressure sensors to allow detection of leaks and failures; 			

Management Objective	Risk	Management Action	Monitoring	Frequency of Monitoring	Reporting
Objective		 Maintain concrete hardstand and bunding associated with all proposed infrastructure to ensure potentially contaminated stormwater is segregated from clean run-off; Maintain a high standard of housekeeping and ensure spills are contained and cleaned up promptly and disposed of correctly (e.g. to the approved bioremediation facility, or a licensed contractor if hazardous). Equipment for containing and cleaning up spills provided in readily accessible areas where spill risk is high (i.e. transfer points). All personnel are required to record and report any loss of containment via incident reporting system. Conduct inspections for erosion and sedimentation for areas potentially being affected by the Project and associated infrastructure (MTW-EN-SOP-0003 – Surface Water Monitoring Inspection Procedure); Ensure that relevant staff and contractors are trained and informed of: Measures to identify and manage or report spills (MTW-SH-PRO-0021 – Incident Reporting and Investigation Procedure); and Measures to prevent and manage surface water impacts and incidents. If triggered, implement Emergency Response Management Plan (MTW-SH-PLA-0001) for major loss of containment, internal event investigation (MTW-SH-PRO-0021) and/or Spill Response Plan (MTW-EN-BRO 0012) for mapor points. 	Report loss of containment incidents.	Wontoring Within 24- hours of incident being identified.	Incident Register
Prevent erosion and sediment loss from the project	Sedimentation from erosion has potential to impact on vegetation health and environmental values.	 Mt Weld have implemented an Erosion and Sediment management Plan (MTW-EN-PLA-0012) provides erosion and sediment control strategies for approved activities to be undertaken throughout the life of the Project (ie. construction and operations). The primary objectives of these strategies are to control the movement of sediment from areas disturbed by mining and construction activities. Avoid Any disturbance of watercourses during wet periods. Disturbance should be completed during dry, nonflow periods. Minimise Maintain existing drainage patterns as far as practicable; Surface water run-off ponds will be added to drainage lines as necessary. Ponds will be designed relative to the catchment and likely flow levels for higher rainfall events. External water flows entering the Project's battery limits will be diverted around the construction footprint, using surface water structures such as drains and bunds (Figure 11). Surface water diversion structures will be designed, installed and managed to enable uncontaminated water to be directed around disturbed and construction areas. Dispersion systems at discharge points of diversion drains will be designed to reintroduce sheet flow minimising the impact on the downstream environment. Regularly inspect stormwater surface water and sediment control structures to ensure hydraulic integrity and erosion and pollution control effectiveness; Stockpiles including overburden, clean fill and topsoil are to be established to minimise erosion and prevent movement of material outside the stockpile footprint; Establish access routes for site vehicles and deliveries to minimise disturbance of cleared areas; All run off ponds will be regularly inspected so that their effective volume is maintained; Cleaning of drains and the Run-Off Ponds to remove excessive silt sediment build-up; To minimise the potential for soil erosion, rehabilitation of disturbe	Inspections to observe and record any scouring/erosion, any sediment transfer beyond the disturbance envelope.	Quarterly or after significant rainfall event (<i>defined as</i> 50mm of rain in a 24 hour period or 100mm of rain in a 72 hour period)	Inspection findings and any actions will be recorded in the sites online management system. Annual Environmental Report

3.1 Incidents and Corrective Actions

Environmental incidents are defined as non-adherences to objectives and procedures applied to the Project and described in this SWMP. Consistent with Mt Weld's Environmental Management System, environmental incidents are to be reported to the Environmental Department by the person responsible for the incident or the first person at the site of the incident following the Mt Weld Incident Reporting and Investigation Procedure (MTW-SH-PRO-0021).

The Environmental Department will assess the type and severity of the incident, in accordance with the Mt Weld's EMS procedures.

3.2 Monitoring

Regular inspections and audits are required to assure the environmental protection outcomes outlined in this SWMP. Site inspections will assess the effectiveness of all sediment, erosion and pollution controls and will raise corrective actions where required.

Inspections will also be initiated following a significant rainfall event¹ to ensure drainage features and containment facilities remain functional and areas of significant erosion and sedimentation are identified. Inspections will be undertaken when road conditions allow it to be completed safely.

Photographic monitoring of vegetation health across the site is addressed in the Vegetation Health Monitoring Procedure (MTW-EN-PRO-0015).

3.3 Reporting

A Consolidated Annual Environmental Report will be prepared in accordance with project regulatory instrument compliance obligations. The Consolidated AER will include general conformance, new risks and hazards identified, corrective actions implemented, sampling results and incident and investigation reports.

¹ At Mt Weld this will be defined as 50mm of rain in a 24 hour period or 100mm of rain in a 72 hour period.

4. Adaptive Management and Review

4.1 Review

Revision of this SWMP will be undertaken on an as-needs basis following the annual review and reporting process.

4.2 Continuous Improvement

This SWMP will be subject to internal reviews annually or as part of any major Project modification that could impact on the Management Plan provisions. The internal review will consider the effectiveness of proposed measures and maintain relevance to current works or operations. Should performance controls be deemed inadequate then the measures will be updated to achieve performance objectives. The need to submit any update to this Management Plan to the WA EPA will be subject to MWM's consideration of the significance of the changes conducted to surface water management and residual risks.

4.3 Change Management

MWM have implemented a Management of Change Procedure (MTW-SH-PRO-0008) to identify and communicate and consult proposed changes to all potentially affected areas; and mitigate potential threats to operational objectives associated with implementing the change with appropriate departmental area involvement.

4.4 Training and Induction

Mt Weld will ensure that all personnel undertaking works, including visitors, have undertaken a site induction training program, or are escorted to the site. Mt Weld will evaluate all personnel undertaking the site induction training program through a written test to ensure that all personnel have an understanding of the environmental requirements for the Proposal. Where it is identified that personnel have not undertaken the works in accordance with the environmental requirements for the Proposal, Mt Weld will require such personnel to repeat the site induction training program including surface water management provisions.

5. Stakeholder Consultation

MWM is committed to an open, transparent and comprehensive engagement programme for the Mt Weld Rare Earths Project and LOM Proposal at all key stages. MWM's process for stakeholder engagement includes the identification of key stakeholders that MWM would engage with from Federal, State and Local Government, key agencies and regulatory authorities, and the community and of interest groups.

The scope and scale of the stakeholder engagement to date has considered the nature and significance of potential environmental factors for the Project, particularly any real or perceived community concerns about activities specific to Mt Weld's operations to date. In light of this, MWM considers that the focus of engagement associated with the proposed LOM should be commensurate with that view and should be at local community level and with key DMAs.

Additional details on the range and content and outcomes of stakeholder engagement conducted to date on the Proposal is presented in the ERD for the LoM Expansion (KASA Consulting, 2023).

Specific to this SWMP, this updated plan has been developed to address regulatory stakeholder feedback on the draft ERD as discussed in Section 1.1.

During the assessment process for the Proposal, Mt Weld will continue to engage with, and build support from, stakeholders in the Laverton surrounds and liaise with members of Nyalpa Pirniku to ensure objectives within the Social Cultural Heritage Management Plan can be achieved.

6. Document Revision History

The review, revision and change control of this Management Plan is recorded in Table 6 below.

Table 6: Management Plan Change Control

Complexity of changes	Minor revisions		Moderate revisions		Major revisions	
Number of key environmental factors:	🖂 One		2 to 3		□ > more than 3	
Date revision submitted to EPA:	[Publish Date]		<revision brief="" description=""></revision>			
Proponent's operational requirement timeframe for approval of revision:	<pre> < one month</pre>	_ <	< six months \square > six months \square Normalized Normalize		🛛 None	
Reason for timeframe:	Existing EMP v9 (KASA, 2015) covers approved site activities. Timeframe tie Assessment under Part IV.		neframe tied to EPA			

ltem	Section	Page	Summary of Change	Reason for Change
Whole of Document Update			SWMP within EMP v9 (KASA, 2015) and approved management provisions within MTW-EN-PLA- 0009 (L8141/2007/2 – IR1) merged into a single document aligned to EPA, 2021.	Amalgamates two documents into a single management plan supplied as additional information for Mt Weld LOM Assessment, Environmental Review Document.

7. References

- EPA. (2016a). Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment.
- EPA. (2016b). Environmental Factor Guideline Flora and Vegetation, EPA, Western Australia.
- EPA. (2016c). Environmental Factor Guideline Terrestrial Fauna.
- EPA. (2016d). Technical Guidance Sampling Methods for Terrestrial Vertebrate Fauna.
- EPA. (2016i). Technical Guidance Terrestrial Fauna Surveys.
- EPA. (2018). Environmental Factor Guideline: Inland Waters. Perth: Environmental Protection Authority.
- EPA. (2021). Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans. Environmental Protection Authority, Western Australia, October 2021.
- REE. (2023). *Mt Weld TSF4 Detailed Design Report Appendix F Stormwater Management Plan.* Perth: Red Earth Engineering.
- Stantec. (2020). Mt Weld Rare Earth Project Level 2 and Targeted Terrestrial Fauna Survey. Prepared for Mt Weld.
- Stantec. (2021). Mt Weld Rare Earths Project: Detailed Flora and Vegetation Survey Phase 2.
- Stantec. (November 2020). *Mt Weld Rare Earth Project Level 2 and Targeted Terrestrial Fauna Survey.* Prepared for Mt Weld.

Appendices

Table A1: Dominant families and genera recorded since 2011.

Family	Total number of native species recorded within the Survey Area (all surveys)
Fabaceae	23
Chenopodiaceae	29
Scrophulariaceae	17
Poaceae	23

Genus	Total number of native species recorded within the Survey Area (all surveys)
Eremophila	17
Acacia	13
Senna	9
Ptilotus	9

Vegetation Type Code	Vegetation Type Description and Associated Species	Vegetation Condition	Representative Photograph
Clay loam plains sup	porting Mulga		
• AiAcaArrAtEma	Acacia incurvaneura and Acacia caesaneura low woodland over Acacia ramulosa subsp. ramulosa and Acacia tetragonophylla tall open shrubland over Eremophila margarethae open shrubland to low open shrubland. Associated species: Acacia mulganeura, Eragrostis pergracilis, Eremophila latrobei subsp. filiformis	Very Good	<image/>
 AiAcAaptAtArrEgr 	Acacia incurvaneura, Acacia caesaneura and Acacia aptaneura low open forest to low woodland over Acacia tetragonophylla and Acacia ramulosa subsp. ramulosa tall open shrubland over Eremophila granitica low open shrubland. Associated species: Eragrostis pergracilis, Ptilotus obovatus, Eremophila margarethae	Excellent - Ver	

Low stony rise

Ve Co	getation Type de	Vegetation Type Description and Associated Species	Vegetation Condition	Representative Photograph			
Minor, broad drainage supporting Mulga							
•	AcAaptAanAtSsP	Acacia caesaneura, Acacia aptaneura and Acacia aneura low open forest over Acacia tetragonophylla and Santalum spicatum tall open shrubland over Ptilotus obovatus scattered low shrubs Associated species: Eremophila youngii subsp. youngii, Rhodanthe charsleyae, Ptilotus obovatus, Eragrostis pergracilis	Very Good	<image/>			
Chenopod-dominated clay plain							
•	НрМрЕуу	Hakea preissii scattered tall shrubs to tall open shrubland over Maireana pyramidata and Eremophila youngii subsp. youngii open shrubland to low open shrubland Associated species: Maireana sp., Eremophila sp., Tecticornia sp.	Very Good	<image/>			

Stony plain supporting Mulga

		Hakea
•	HpAapMtPo	woodl
		obova

Vegetation Type Code	Vegetation Type Description and Associated Species	Vegetation Condition	Representative Photograph					
Rocky ridge and outcropping								
 AptAaptPsMsp.Es p. 	Acacia pteraneura and Acacia aptaneura low woodland over Ptilotus schwartzii, Maireana sp. And Eremophila sp. low open shrubland Associated species: Acacia ayersiana Acacia minyura, Acacia incurvaneura Acacia ?quadrimarginea, Santalum lanceolatum, Eremophila latrobei subsp. latrobei, Ptilotus obovatus Senna sp. Meekatharra (E. Bailey 1- 26)and Senna artemisioides subsp. ?helmsii	Very Good	<image/>					
Minor, broad depression of clay soils supporting Mulga								

AcAptAaptAIRCSs *Pr* Acapita depression of clay sols supported and or Acacia *peraneuralAcacia aptaneura* low open woodland over Acacia tetragonophylla scattered shrubs over *Rhodanthe charlseyae* and *Scierolaena* spp. Open herbland Associated species: *Erempohla seruitals*, Senna charlesiana, Senna *artemisioides* subsp. xartemisioides

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