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Mr Klay Marchant
Environmental Representative
MACH Energy Australia Pty Ltd
GPO Box 94
BRISBANE QLD 4001

Email: klay.marchant@machenergyaustralia.com.au

Dear Mr Marchant,

Mount Pleasant Operation (DA 92/97)
Biodiversity Management Plan

I refer to your email dated 15 October 2018, submitting the revised Biodiversity Management Plan for approval.

The Department has reviewed this plan and considers that it meets condition 32 of Schedule 3 of DA 92/97. Consequently, the Secretary has approved this plan.

Please ensure a finalised copy of this plan is made available on the company's website.

Should you have any enquiries in relation to this matter, please contact Jack Murphy at the details above.

Yours sincerely,

19/10/18

Megan Dawson
A/Director
Resource Assessments
As nominee of the Secretary

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MOUNT PLEASANT OPERATION

BIODIVERSITY MANAGEMENT PLAN

Document ID:	MP001-0000-ENV-PLN-0012		
Company:	MACH Energy Australia Pty Ltd		
Effective Date:	19/10/2018	**Status:**	Issued for Use
Endorsed By:	Klay Marchant	**Revision Number:**	00

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1 INTRODUCTION

The Mount Pleasant Operation (MPO) area is located in the Upper Hunter Valley of New South Wales (NSW), north-west of Muswellbrook and approximately 50 kilometres (km) north-west of Singleton (Figure 1). The villages of Aberdeen and Kayuga are located approximately 5 km north-northeast and 1 km north of the MPO boundary, respectively.

The proponent of the MPO is MACH Energy Australia Pty Ltd (MACH Energy), who purchased the MPO from Coal & Allied Operations Pty Ltd (Coal & Allied) on 26 January 2016 and the acquisition was completed in August 2016.

The initial development application for the MPO was made in 1997. This was supported by an Environmental Impact Statement (EIS) prepared by Environmental Resources Management (ERM) Mitchell McCotter (ERM Mitchell McCotter, 1997). On 22 December 1999, the then Minister for Urban Affairs and Planning granted Development Consent DA 92/97 to Coal & Allied. This allowed for the "Construction and operation of an open cut coal mine, coal preparation plant, transport and rail loading facilities and associated facilities" at the MPO. The consent allowed for operations 24 hours per day seven days per week and the extraction of 197 million tonnes (Mt) of run-of-mine (ROM) coal over a 21 year period, at a rate of up to 10.5 Mt of ROM coal per year.

The MPO Modification (MOD 1) was submitted for approval on 19 May 2010 with a supporting Environmental Assessment (EA) prepared by EMGA Mitchell McLennan (EMGA Mitchell McLennan, 2010), with the following changes proposed:

- The provision of an infrastructure envelope for siting the mine infrastructure.
- The provision of an optional conveyor/service corridor linking the MPO facilities with the Muswellbrook-Ulan Rail Line.
- Modification of the existing Development Consent DA 92/97 boundaries to accommodate the optional conveyor/service corridor and minor administrative boundary changes.

MOD 1 was approved on 19 September 2011.

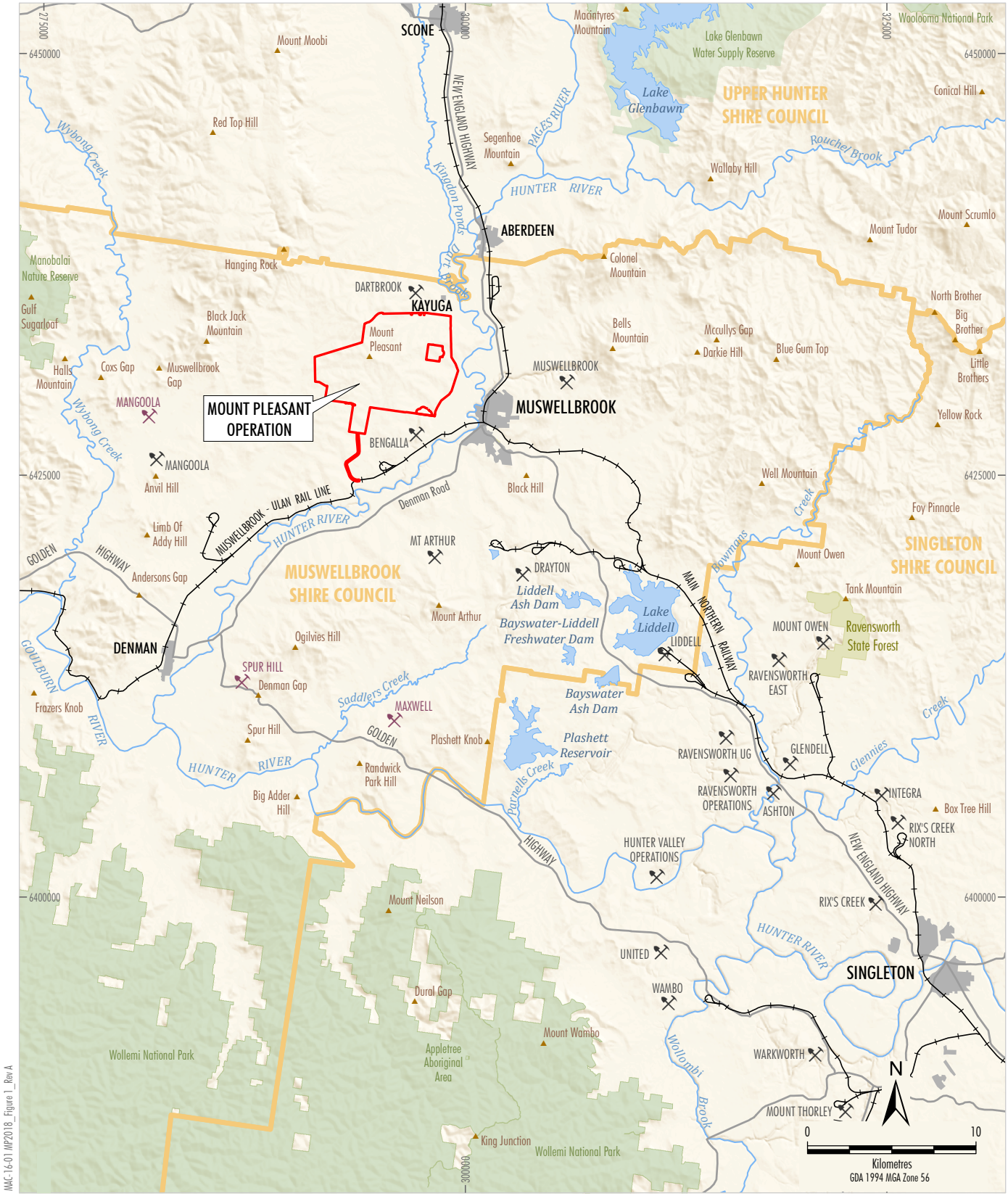
The MPO South Pit Haul Road Modification (MOD 2) was submitted for approval on 30 January 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017a). MOD 2 proposed to realign an internal haul road to enable more efficient access to the South Pit open cut, with no other material changes to the approved MPO. MOD 2 was approved on 29 March 2017.

The MPO Mine Optimisation Modification (MOD 3) was submitted for approval on 31 May 2017 with a supporting EA prepared by MACH Energy (MACH Energy, 2017b). MOD 3 proposed the following key changes:

- Extension to the time limit on mining operations from 22 December 2020 to 22 December 2026.
- Extensions to the South Pit Eastern Out of Pit Emplacement to better align with the underlying topography.

MOD 3 was approved by the NSW Independent Planning Commission on 24 August 2018.

Appendix 2 of Development Consent DA 92/97 contains the Conceptual Project Layout Plan of the MPO at 2021 and 2025, the Approved Surface Disturbance Plan and the Conceptual Final Landform (Attachment 1).



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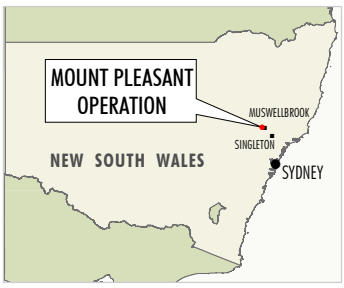

LEGEND

- Mining Operation
- Proposed Mining Operations (Application Lodged)
- Mining Lease Boundary (Mount Pleasant)
- Railway
- Local Government Boundary
- State Forest
- National Parks and Wildlife Estate

Source: Geoscience Australia (2006); NSW Division of Resources & Geoscience (2017); Office of Environment and Heritage NSW (2017); Land and Property Information (2017)

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MOUNT PLEASANT OPERATION

Project Location

Figure 1

1.1 PURPOSE AND SCOPE

This Biodiversity Management Plan (BioMP) has been prepared by MACH Energy to satisfy the requirements under Development Consent DA 92/97 and specifically Schedule 3, Condition 32.

The BioMP applies to all employees and contractors at the MPO and covers all areas within the MPO boundary. The BioMP applies to the life of the MPO, including (but not limited to) the period of mining operations specified in Development Consent DA 92/97, which currently permits mining until 22 December 2026. As required by Condition 5, Schedule 2 of Development Consent DA 92/97, the BioMP will continue to apply (excluding mining operations) beyond 22 December 2026, as required, until the rehabilitation and any additional undertakings (required by the Secretary of the NSW Department of Planning and Environment [DPE], or the Division of Resources and Geoscience [DRG] within the DPE) have been carried out satisfactorily.

This BioMP has been prepared to manage biodiversity impacts associated with construction and operation of the MPO, including for example, initial establishment and development, open cut mining, operation of the coal handling and preparation plant (CHPP), construction and operation of the rail spur/loop, construction and operation of the Fines Emplacement Area, rehabilitation and the supply of water to the MPO operations.

1.1.1 Previous Versions

A previous version of the BioMP was submitted as a joint Biodiversity and Rehabilitation Strategy Management Plan by Coal & Allied. DPE approved the biodiversity portion of the plan on 23 July 2012.

1.1.2 Current Version

This version of the BioMP has been prepared to replace the BioMP described in Section 1.1.1 and to provide a contemporary outline of MACH Energy's proposed biodiversity management measures for the MPO. This version has also been prepared to reflect the approval of MOD 3.

As required by Condition 32, Schedule 3 of Development Consent DA 92/97, a draft version of this BioMP was submitted to the NSW Office of Environment and Heritage (OEH) and the Muswellbrook Shire Council (MSC) for the purposes of consultation.

1.2 STRUCTURE OF THE BIOMP

The remainder of the BioMP is structured as follows:

- Section 2: Outlines the statutory obligations relevant to this BioMP.
- Section 3: Describes the existing environment at the MPO in relation to biodiversity values.
- Section 4: Outlines the vegetation clearance protocol used at the MPO.
- Section 5: Provides a description of the seed collection program and seed/tubestock planting activities at the MPO.
- Section 6: Outlines the strategies to manage remnant vegetation on-site.
- Section 7: Describes the additional biodiversity management measures undertaken across the MPO area.
- Section 8: Provides a description of the biodiversity monitoring program relevant to biodiversity measures undertaken.
- Section 9: Describes the key risks to rehabilitation and the contingency measures which will be undertaken.
- Section 10: Outlines the personnel at the MPO responsible for monitoring, reviewing and implementing the plan.
- Section 11: Provides a list of references used in the BioMP.

2 STATUTORY OBLIGATIONS

MACH Energy's statutory obligations relevant to biodiversity are contained in the conditions of Development Consent DA 92/97 (as modified), as outlined in Section 2.1 below.

2.1 DEVELOPMENT CONSENT DA 92/97

The conditions of Development Consent DA 92/97 relevant to the content and structure of this BioMP are described in Sections 2.1.1 and 2.1.2 below.

2.1.1 BioMP Requirements

Condition 32, Schedule 3 of Development Consent DA 92/97 outlines the biodiversity management required at the MPO, including the preparation of a BioMP (refer Table 1).

Table 1
Biodiversity Management Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 3	Section where addressed in this BioMP document
32. The Applicant must prepare a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:	
(a) be prepared in consultation with OEH and Council, and be submitted to the Secretary for approval prior to carrying out any development on site;	Section 1.1.2
(b) include:	
• *a description of the short, medium, and long term measures that would be implemented to:*	
○ *manage the remnant vegetation and habitat on the site and in the offset area/s (if and when applicable); and*	Sections 6, 7 & 8[1]
○ *implement the offset strategy (if and when applicable), including detailed performance and completion criteria;*	N/A[1]
• *a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:*	
○ *implementing revegetation and regeneration within the disturbance areas and offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;*	Sections 6 & 7[1]
○ *maximising salvage and beneficial use of resources in areas that are to be impacted, including vegetative, soil and cultural heritage resources;*	Sections 4, 5, 6 & 7
○ *protecting vegetation and soil outside the disturbance areas;*	Sections 4, 6 & 7
○ *rehabilitating creeks and drainage lines on the site, to minimise net loss of streamlength and aquatic habitat;*	Section 7.1.1
○ *managing salinity;*	Section 7.8
○ *conserving and reusing topsoil;*	Section 7.4
○ *undertaking pre-clearance surveys;*	Section 4
○ *managing impacts on fauna;*	Sections 4 & 7
○ *landscaping the site and along public roads to minimise visual and lighting impacts;*	Section 7.9
○ *collecting and propagating seed;*	Section 5

Table 1 (Continued)
Biodiversity Management Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 3	Section where addressed in this BioMP document
○ *salvaging and reusing material from the site for habitat enhancement;*	Sections 4, 5 & 7
○ *salvaging, transplanting and/or propagating threatened flora and native grassland;*	Sections 4 & 5
○ *controlling weeds and feral pests;*	Section 7.2
○ *managing grazing and agriculture on site;*	Section 7.5
○ *controlling access; and*	Section 7.6
○ *bushfire management;*	Section 7.7
• *a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;*	Section 8
• *a description of the potential risks to successful revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and*	Section 9
• *details of who would be responsible for monitoring, reviewing, and implementing the plan.*	Section 10
The Applicant must implement the approved management plan as approved from time to time by the Secretary.	

[1] Conditions relating to offset areas are not applicable as, in accordance with Condition 29, Schedule 3 of Development Consent DA 92/97, MACH Energy has not carried out development within the conveyor/service corridor and therefore does not require an offset under DA 92/97.

2.1.2 Management Plan (General) Requirements

Condition 2, Schedule 5 of Development Consent DA 92/97 outlines general management plan requirements. Table 2 presents these requirements and indicates where each is addressed within this BioMP.

Table 2
General Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 5	Section where addressed in this BioMP document
2. *The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:*	
(a) detailed baseline data;	Section 3
(b) a description of:	
• *the relevant statutory requirements (including any relevant consent, licence or lease conditions);*	Section 2
• *any relevant limits or performance measures/criteria;*	N/A
• *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;*	N/A
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 4 - 12

Table 2 (Continued)
General Development Consent DA 92/97 Conditions

MPO Development Consent DA 92/97 Schedule 5	Section where addressed in this BioMP document
(d) a program to monitor and report on the: • *impacts and environmental performance of the development;* • *effectiveness of any management measures (see c above);*	Sections 8 & 11
(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 9
(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 11
(g) a protocol for managing and reporting any: • *incidents;* • *complaints;* • *non-compliances with statutory requirements; and* • *exceedances of the impact assessment criteria and/or performance criteria; and*	Section 12
(h) a protocol for periodic review of the plan. *Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	Section 11

3 EXISTING ENVIRONMENT

The MPO area sits on predominantly undulating hills on the western side of the Hunter River and consists of a mosaic of land previously cleared for agriculture and scattered areas of regrowth vegetation. Where vegetation is present it typically represents recent regeneration and scattered remnant trees in grasslands. Several small ephemeral drainage lines are scattered throughout the MPO area and ultimately drain to the Hunter River.

The MPO is located to the north of and adjacent to Bengalla Mine and south of the township of Kayuga (Figure 1). The MPO is generally bounded by the Muswellbrook – Ulan Rail Line in the south, Kayuga Road in the east, Dorset Road in the north and Sandy Creek in the west.

Land use in the vicinity of the MPO is generally characterised by coal mining operations and agriculture.

Various flora and fauna studies have been undertaken at the MPO, including:

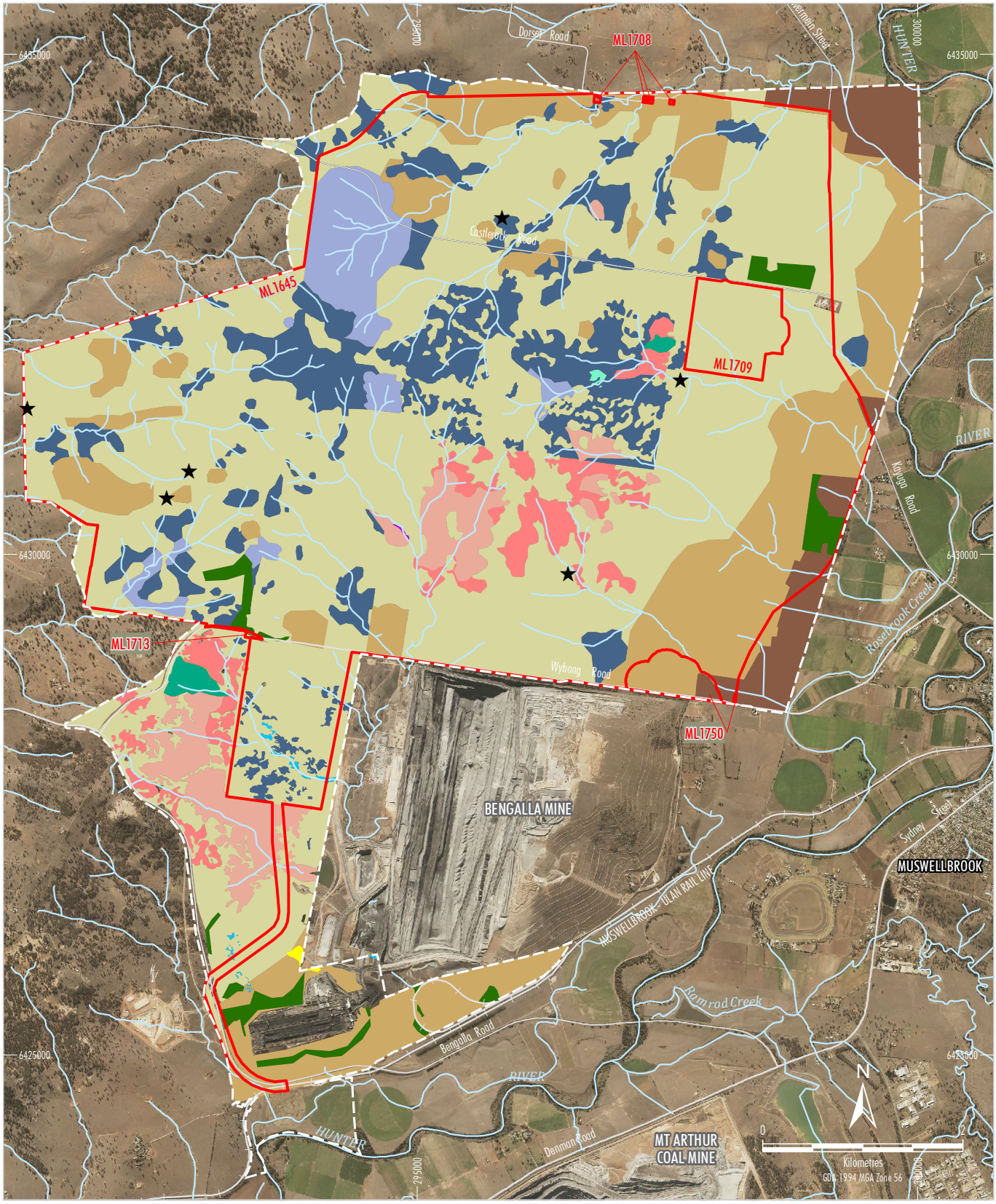
- *Mount Pleasant Mine Environmental Impact Statement* (ERM Mitchell McCotter, 1997).
- *Mount Pleasant Project Modification Environmental Assessment Report* (EMGA Mitchell McLennan, 2010).
- *Mount Pleasant Project Mount Pleasant Project Referral of Proposed Action - EPBC No 2011/5795* (Coal & Allied, 2010).
- *Mount Pleasant Project Public Environment Report* (Coal & Allied, 2011).
- *Mount Pleasant Upper Hunter Strategic Assessment BCAM Project Biodiversity Assessment Report* (Cumberland Ecology, 2015).
- *Mount Pleasant Operation (DA 92/97) – South Pit Haul Road Modification* (MACH Energy, 2017a).
- *Mount Pleasant Operation – Mine Optimisation Modification Environmental Assessment (*MACH Energy, 2017b).
- *Mount Pleasant Operation – Rail Modification Environmental Assessment* (MACH Energy, 2017c).

Based on these studies, vegetation across the MPO area is a combination of exotic pastures, derived grassland, previous plantings (both native and exotic), scattered mature trees and patches of woodland. There has been significant disturbance of natural communities from agricultural practices with some areas, particularly in the east, sufficiently disturbed to be identified as non-native vegetation.

A consolidated vegetation map of the majority of the Development Consent Boundary was prepared as part of the *Mount Pleasant Project Public Environment Report* (Coal & Allied, 2011). This mapping is provided on Figure 2. A more detailed vegetation map is currently being prepared as part of a State Significant Development application. Once complete, Figure 2 will be updated. Notwithstanding, the 2011 mapping provides sufficient detail to inform management described in this BioMP.

The following vegetation communities have been surveyed within the MPO area (Figure 2):

- Central Hunter Bulloak Forest Regeneration.
- Central Hunter Ironbark – Spotted Gum Forest.
- Grey Box/White Box Integrade – Spotted Gum Grassy Woodland.



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LEGEND

- Mining Lease Boundary (Mount Pleasant)
- Development Consent Boundary

VEGETATION MAPPING (Coal & Allied, 2011)

- Central Hunter Bulloak Forest Regeneration
- Central Hunter Ironbark - Spotted Gum Forest
- Grey Box/White Box Integrade - Spotted Gum Grassy Woodland
- Grey Box/White Box Integrade Grassy Woodland
- Hunter Floodplain Red Gum Woodland Complex
- Narrabeen Footslopes Slaty Box Woodland
- Spotted Gum Forest
- Upper Hunter Hills Exposed Ironbark Woodland
- Upper Hunter White Box - Ironbark Grassy Woodland
- Derived Native Grassland
- Low Diversity Derived Native Grassland and Exotic Pasture
- Exotic Grassland
- Tree and Shrub Plantations
- Tiger Orchid Record

Source: NSW Land & Property Information (2017); NSW Division Resources & Energy (2017); Department of Planning and Environment (2016)
Orthophoto: MACH Energy (July 2018)

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Vegetation Communities

Figure 2

- Grey Box/White Box Integrade Grassy Woodland.
- Hunter Floodplain Red Gum Woodland Complex.
- Narrabeen Footslopes Slaty Box Woodland.
- Spotted Gum Forest.
- Upper Hunter Hills Exposed Ironbark Woodland.
- Upper Hunter White Box – Ironbark Grassy Woodland.
- Derived Native Grassland.
- Low Diversity Derived Native Grassland and Exotic Pasture.
- Exotic Grassland.
- Tree and Shrub Plantations.

Of the native vegetation at the MPO, some communities represent Threatened Ecological Communities (TECs) listed under the NSW *Biodiversity Conservation Act, 2016* (BC Act). The vegetation communities which correspond with TECs are listed in Table 3 below.

Table 3
Threatened Ecological Communities

Threatened Ecological Communities (BC Act)	Existing Vegetation Communities
Central Hunter Ironbark - Spotted Gum - Grey Box Forest in the New South Wales North Coast and Sydney Basin Bioregions	• Central Hunter Ironbark – Spotted Gum Forest.
Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	• Hunter Floodplain Red Gum Woodland Complex.
White Box Yellow Box Blakely's Red Gum Woodland	• Grey Box/White Box Integrade – Spotted Gum Grassy Woodland. • Grey Box/White Box Integrade Grassy Woodland. • Upper Hunter White Box – Ironbark Grassy Woodland. • Derived Native Grassland.
Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion	• Narrabeen Footslopes Slaty Box Woodland.

Associations with TECs presented in Table 3 are based on desktop analysis only and are currently being reviewed as part of the vegetation mapping work being undertaken across the site. As described above, the vegetation mapping presented in this BioMP will be updated once the mapping is complete. This will also include a more detailed analysis of TECs present.

Fauna habitat across the MPO area has been impacted by agricultural practices. Notwithstanding, some fauna habitat values remain, mostly within woodland areas and where mature trees are present.

The threatened species and populations which have been previously recorded within the MPO area from past surveys are summarised in Table 4.

Table 4
Threatened Species and Populations Recorded within MPO Area

Threatened Species/Populations/Communities	BC Act	EPBC Act
Fauna Species		
Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*)	V	-
Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*)	V	-
Speckled Warbler (*Chthonicola sagittata*)	V	-
Black-chinned Honeyeater (eastern subspecies) (*Melithreptus gularis gularis*)	V	-
Squirrel Glider (*Petaurus norfolcensis*)	V	-
Eastern Freetail-bat (*Mormopterus norfolkensis*)	V	-
Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*)	V	-
Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*)	V	-
Diamond Firetail (*Stagonopleura guttata*)	V	-
Varied Sittella (*Daphoenositta chrysoptera*)	V	-
Spotted-tailed Quoll (*Dasyurus maculatus*)	V	E
Grey-headed Flying-fox (*Pteropus poliocephalus*)	V	V
Eastern False Pipistrelle (*Falsistrellus tasmaniensis*)	V	-
Southern Myotis (*Myotis macropus*)	V	-
Greater Broad-nosed Bat (*Scoteanax rueppellii*)	V	-
Eastern Cave Bat (*Vespadelus troughtoni*)	V	-
Populations		
Tiger Orchid (*Cymbidium canaliculatum*) – Endangered Population in the Hunter Catchment	E	-

Source: *Mount Pleasant Operation Mining Operations Plan and Rehabilitation Management Plan* (MACH Energy, 2018) & *Mount Pleasant Operation – Rail Modification Environmental Assessment* (MACH Energy, 2017c).

V – Vulnerable.

E – Endangered.

BC Act = NSW *Biodiversity Conservation Act, 2016*.

EPBC Act = *Environment Protection and Biodiversity Conservation Act, 1999.*

4 VEGETATION CLEARANCE PROTOCOL

A Vegetation Clearance Protocol (VCP) has been implemented to minimise impacts on threatened species during native vegetation clearing at the MPO. The VCP has been developed in consideration of the Roads and Traffic Authority (2011) guideline titled *Biodiversity Guidelines – Protecting and Managing Biodiversity on RTA Projects*. Key components of the VCP are outlined below.

A flow diagram showing a graphical representation of the VCP is provided on Figure 3.

4.1 DELINEATION OF AREAS TO BE CLEARED

Delineation of approved native vegetation clearing areas will be achieved via a two-step process:

- Step 1 – approved disturbance boundaries will be digitally captured and displayed within the site survey and GIS databases. This data will be made available either digitally or in map format to inform and guide mine planning, vegetation clearing, land preparation and mine rehabilitation activities.
- Step 2 – where native vegetation clearing at the MPO is to be carried out on a campaign basis, then prior to each clearing campaign the area to be cleared will be identified and marked out.

Digital and or map data will be provided to relevant site personnel and contractors to inform the required (campaign) clearing extents for pre-clearance survey, fauna management, habitat salvage, topsoil and weed and pest management.

4.2 PRE-CLEARING PROCEDURE

4.2.1 Ground Disturbance Permit

MACH Energy has implemented a Ground Disturbance Permit (GDP) process that must be completed prior to any ground disturbance activities being carried out on-site. The GDP provides an internal check against all relevant approvals and management actions that may be required to be obtained and/or implemented prior to carrying out the clearing or ground disturbance activities. A copy of the current GDP form is provided in Attachment 2 (note the internal GDP form may be amended from time to time as required).

The purpose of the GDP is to:

- clearly identify the area to be disturbed;
- identify any environmentally (or other) sensitive feature(s) (refer to Parts 4, 5 and 6 of the GDP [Attachment 2]) within or adjacent to the area to be disturbed;
- initiate appropriate actions where special management measures may be required for those identified environmentally (or other) sensitive feature(s), such as pre-clearance surveys or fauna impact mitigation actions;
- check that all appropriate approvals and management actions are in place prior to carrying out the disturbance; and
- provide an auditable record of actions undertaken to allow disturbance to proceed.

A GDP will be completed by the relevant Project Manager and approved by MACH Energy's Environmental Superintendent prior to any clearing activities (including for each clearing campaign) commencing at the MPO.

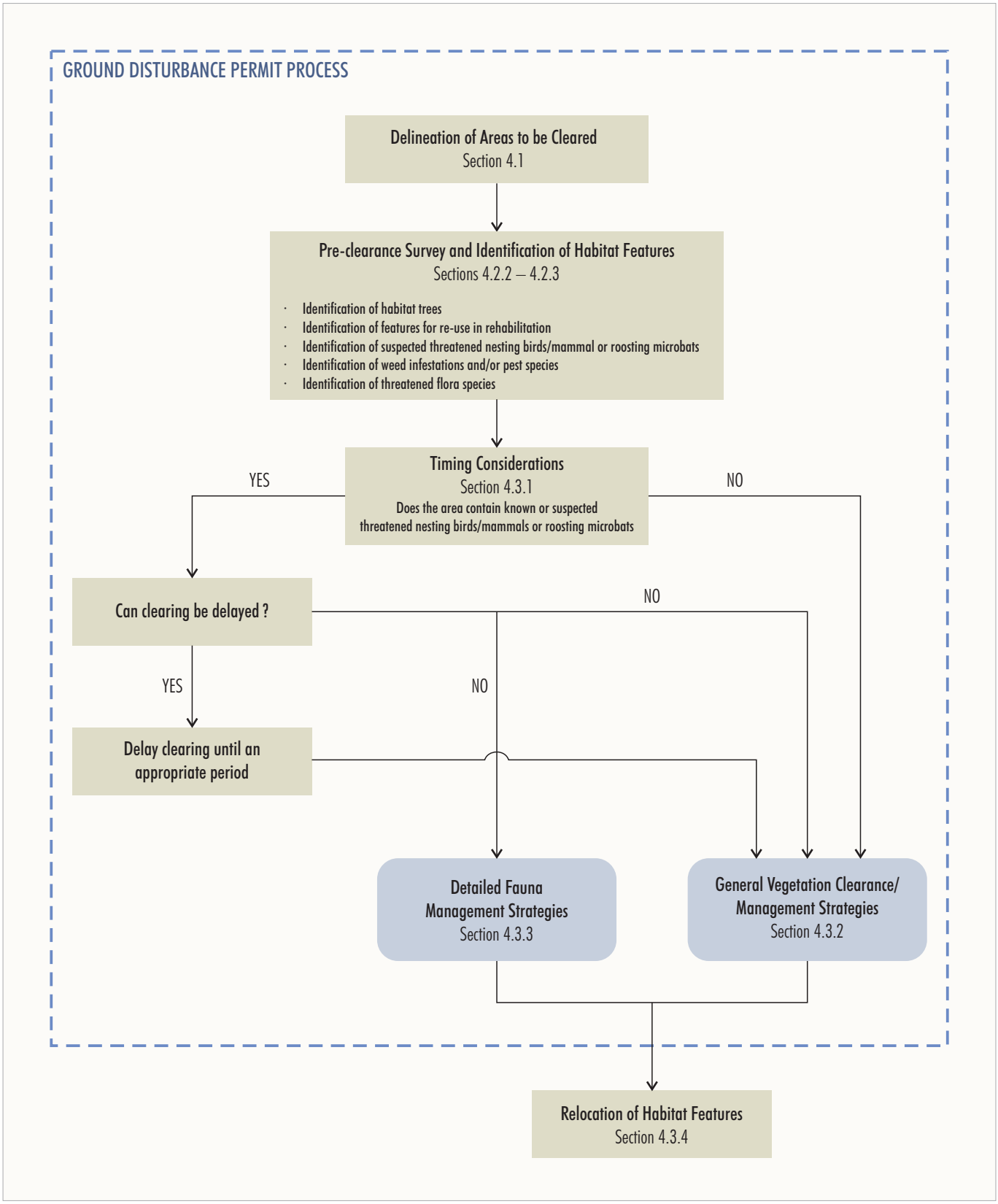

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Figure 3

All contractors undertaking works at the MPO will be made aware of the GDP process through various mechanisms including site inductions and toolbox meetings.

4.2.2 Pre-clearance Survey

In conjunction with the GDP process and prior to native vegetation (i.e. excluding grassland and exotic pasture) clearing at the MPO, a pre-clearance survey will be conducted by an appropriately trained and suitably qualified ecologist. The objective of the pre-clearance survey is to identify:

- potential habitat features located within proposed disturbance areas (such as hollows [e.g. habitat for threatened birds, arboreal mammals and bats]) that may require special management during clearing and that can be salvaged (where practicable) for reuse in rehabilitation areas or in adjoining non-disturbed native vegetation areas (Section 4.2.3);
- actively nesting threatened birds or arboreal mammals and/or suspected active microbat roosts that may require active management prior to, or during, disturbance to minimise impacts on threatened fauna species (e.g. birds, arboreal mammals and hollow dwelling bats);
- presence of the threatened Tiger Orchid (*Cymbidium canaliculatum*) to be avoided/salvaged during disturbance activities (Section 4.3.5);
- flora in fruit which can be utilised for seed collection (Section 4.3.6);
- weed infestations adjacent to, or within, the proposed disturbance area that may need treatment prior to or during disturbance; and
- pest species that may require control prior to disturbance.

Where practicable, the surveys will be undertaken in consideration of seasonality. However, mine planning may not always allow for delays to clearing works due to waiting for ideal survey timing.

4.2.3 Habitat Features

Trees containing features with the potential to provide significant habitat (i.e. numerous suitable hollows) for nesting threatened birds or hollow dwelling bats and/or arboreal mammals (e.g. for the Squirrel Glider [*Petaurus norfolcensis*]) will be clearly marked as habitat trees and retained for reuse wherever practicable.

Where practical and feasible, habitat features such as large hollows and rock identified during the pre-clearance surveys will be salvaged and stockpiled for reuse in rehabilitation areas or relocated to adjoining areas of remnant vegetation. Remaining tree limbs, stumps, shrubs and other woody vegetation may be mulched or used in whole or in part in rehabilitation areas.

Salvaged habitat features will be reused in native vegetation rehabilitation areas, as follows:

- Stag trees – hollow bearing timber for vertical placement within rehabilitation for birds, arboreal mammals and hollow dwelling bats, and bark retained timber for microbats.
- Coarse Woody Debris – horizontal placement of hollow logs or small piles of timber and rocks creating cavities for habitat by small ground dwelling mammals and reptiles placed for inter-connectivity across rehabilitation areas.
- Habitat trees and non-habitat trees used generally as coarse woody debris.

4.3 CLEARING PROCEDURE AND MANAGEMENT STRATEGIES

A number of management strategies are available to MACH Energy to minimise impacts of ground disturbance on fauna during clearing activities.

Mine planning will consider the staging of clearing and scheduling of clearing works with consideration of impacts on threatened species (Section 4.3.1). The practicality of implementing each strategy is dependent on the characteristics of the habitat feature in question and will be determined by the Environmental Superintendent prior to, or during clearing. The implementation of specific management actions will be determined on a case-by-case basis by the Environmental Superintendent with input from suitably qualified and/or experienced person(s) where necessary. Examples of possible management strategies to be considered are provided below.

4.3.1 Timing Considerations

The timing for clearing areas of vegetation will be determined by the Environmental Superintendent in consultation with mine planners and with input from suitably qualified and/or experienced person(s). Timing will be determined on a case-by-case basis in consideration of:

- undertaking clearing on a progressive basis to minimise the active area of disturbance at any one time and to maximise direct placement of topsoil onto rehabilitation areas (where available);
- suitability of the area to be cleared for roosting threatened microbats or nesting threatened birds/arboreal mammals (i.e. whether it contains potential roosting or nesting habitat [at the time of proposed clearing] for relevant threatened birds, microbats and arboreal mammals);
- pre-clearance surveys identifying suspected roosting threatened microbats or nesting threatened birds/arboreal mammals;
- mine scheduling constraints that may not allow clearing to be delayed to avoid winter, spring and summer breeding/hibernating periods;
- outcomes of pre-clearance surveys and subsequent advice from appropriately qualified and/or experienced persons regarding development of appropriate management strategies for threatened flora and/or fauna relevant to the area to be cleared; and
- experience from past clearing campaigns.

If no threatened species are recorded or considered likely to be present at the time of the proposed clearing, then clearing will be undertaken in accordance with the general strategies described in Section 4.3.2. If suspected roosting threatened microbats or nesting threatened birds/arboreal mammals are recorded or considered likely to be present at the time of the proposed clearing and clearing cannot be delayed, then the management described in Section 4.3.3 will be implemented (in addition to the strategies described in Section 4.3.2). In either case, the relocation of habitat features (described in Section 4.2.3) will be undertaken.

4.3.2 General Vegetation Clearance/Management Strategies

In any area designated for clearing, non-habitat vegetation will be cleared first with identified habitat trees (i.e. containing numerous hollows suitable for nesting birds or roosting microbats) left standing to encourage the self-relocation of fauna that may be inhabiting the habitat tree. Where practical and feasible, habitat trees left standing will be shaken (under appropriate supervision) to encourage fauna (e.g. the Squirrel Glider) to relocate.

Habitat trees in a particular area will not be felled for at least 24 hours following the felling of surrounding non-habitat trees. Felling of habitat trees will be carried out under the supervision of a person suitably qualified and/or experienced in fauna handling (with the appropriate licences) and once felled will be left undisturbed (other than ensuring the hollow opening is not blocked) for a further 24 hours to enable fauna to relocate.

4.3.3 Detailed Fauna Management Strategies

Where threatened fauna is observed using a particular habitat feature during pre-clearance surveys (and where threat abatement is not possible) an attempt will be made to either promote self-relocation (e.g. gently shaking the tree to encourage threatened birds, bats and mammals to move to an alternate tree) or capturing and releasing the fauna species (e.g. in relation to bats and mammals) into a suitable proximal undisturbed area.

Some examples of fauna management strategies that will be considered (as appropriate) are described below. All management strategies that involve handling of fauna will be carried out under the supervision of the Environmental Superintendent by an appropriately qualified and/or experienced person(s) (who is also licensed) using accepted techniques and subject to safety considerations.

Nesting Birds

The following strategies will be employed in relation to habitat trees with confirmed nesting threatened birds:

- if the nest is active, the fledglings will be collected (where safe to do so) and cared for by a wildlife carer for subsequent release; or
- if the nest is inactive (i.e. no young are present):
  - the tree will be cleared within two weeks following the confirmation that the nest is inactive; or
  - the tree will be re-inspected immediately prior to clearing; or
  - the nest will be removed.

Arboreal Mammals

The following strategies will be employed in relation to habitat trees with confirmed nesting threatened arboreal mammals:

- habitat trees with confirmed or suspected nesting threatened mammals will be managed by:
  - shaking the tree with machinery prior to clearing to encourage arboreal mammals to move to an alternative site;
  - soft pushing the tree to the ground with the objective of causing minimal impact to the roost;
  - inspecting the felled tree to confirm whether mammals have exited the tree and relocate the fauna where appropriate; and
  - leaving the felled tree overnight to allow any remaining mammals time to exit.

Hibernating, Roosting and/or Breeding Microbats

The following strategies will be employed in relation to habitat trees with suspected or confirmed hibernating, roosting and/or nesting threatened microbats:

- habitat trees with suspected or confirmed bat roosts will be managed by:
  - shaking the tree with machinery prior to clearing to encourage bats to move to an alternative site;
  - soft pushing the tree to the ground with the objective of causing minimal impact to the roost;
  - preferentially positioning the tree on the ground so the entrance to the hollow faces upwards (i.e. so bats are able to exit);
  - inspecting the felled tree to confirm whether bats have exited the tree; and
  - leaving the felled tree overnight to allow any remaining bats time to exit.
- if a bat roost containing a maternity colony (young bats) or hibernating microbats is found during inspection of the felled tree, the following will be undertaken:
  - If the roost is located in a portion of the tree that is not able to be relocated, the bat fauna will be collected and temporarily stored in a cool location for release at night.
  - If the roost is located in a portion of the tree able to be relocated:
    - The cavity opening will be temporarily blocked with a piece of cloth.
    - The section of the tree will be removed.
    - Adults and young captured leaving the roost will be placed within the roost.
    - The ends of the extracted tree section and cavity openings will be temporarily blocked during transportation.
    - Collected roost and bat fauna will be temporarily stored in a cool location.
    - Prior to dusk the roost will be positioned within an appropriate release location above the ground with a freefall of approximately 1-3 metres (m).
    - The roost will be checked the following morning for success of adult retrieval of young.
    - In the case of unsuccessful adult retrieval of young then the juvenile bats will be assessed by a veterinarian or experienced wildlife carer.

4.3.4 Relocation of Habitat Features

Some threatened species are known to utilise a network of nests/roosts, rather than being fixed to one nest/roost. Hence there is potential to relocate known nests/roosts to proximal suitable habitat in non-disturbance areas (e.g. active rehabilitation areas or an appropriate release location) when the nest/roost is unoccupied by the threatened species. Where it is practical to relocate nests/roosts then this will be carried out under the supervision of the Environmental Superintendent by an appropriately qualified and/or experienced person(s) (who is also licensed) using accepted techniques.

4.3.5 Relocation of Threatened Flora

The Tiger Orchid (*Cymbidium canaliculatum*), which is endangered in the Hunter Catchment under the BC Act, has been previously identified in the MPO area (Table 4). Figure 2 shows the location of known occurrences. If a known occurrence is within a proposed disturbance area, MACH Energy will attempt to modify the disturbance to avoid the orchard. If disturbance cannot be modified, the orchid will be salvaged prior to disturbance and relocated to proximal, suitable habitats in non-disturbance areas. Relocation will be carried out under the supervision of the Environmental Superintendent by an appropriately qualified and/or experienced person(s) (who is also licensed) using accepted techniques.

4.3.6 Seed Collection

Flora which has been identified as being in fruit during pre-clearance surveys will be relayed to site environmental staff (Section 4.2.2). Where it is safe, viable and economical to collect seed from the identified flora, the following procedures will be undertaken:

- Seed collectors will be notified of the time of clearing and be present for seed collection during the clearing as required.
- Flora located at accessible heights to enable seed collection will be accessed with maximum harvesting of fruit/seed.
- Flora not located at accessible heights will be seeded in close liaison with earthmoving operators during felling.

Seed collected during clearance activities will be stored and managed as per the procedures outlined in Section 5.

4.4 ANCILLARY INFRASTRUCTURE

Where clearing is required for approved ancillary infrastructure (e.g. access tracks, water management structures, installation of monitoring equipment, etc.), the procedures described in Sections 4.1 to 4.3 will be applied. In addition, where threatened flora or habitat trees (Section 4.2.3) are present, the design and implementation of the ancillary works will consider:

- avoidance (i.e. if the location of the works is flexible);
- delaying works until the habitat tree is no longer in use (e.g. fledglings have left the nest or are old enough to be cared for by a wildlife carer); and
- implementing fauna management strategies (Section 4.3.3) if avoidance and/or delaying are not practicable.

5 COLLECTION AND USE OF LOCALLY SOURCED NATIVE SEEDS AND SUPPLEMENTARY TUBESTOCK PLANTING

5.1 NATIVE VEGETATION SEEDING

As described in the Mining Operations Plan/Rehabilitation Management Plan (MOP/RMP) and Rehabilitation Strategy, the rehabilitation of disturbed areas will be based on the use of local provenance seed, where practical and feasible. Various techniques exist for seeding and planting of rehabilitation areas (e.g. hand-broadcasting, brush-matting, hydro-mulching, spreading seed-bearing hay, direct seeding and air seeding) and will be investigated during the early years of rehabilitation at the MPO, with the best techniques being carried through for ongoing use. Consideration will be given to site conditions, including soil type and condition, landform, time of year, climate, water availability and vegetation community establishment outcomes and also the best methods of rehabilitation application.

A Seed Harvesting Facility has been established on-site, and is used for native seed harvesting operations on-site (Plates 1 and 2). MACH Energy currently undertakes ongoing seed collection programs on the MPO area. Seeds are stored in the Seed Harvesting Facility, or alternatively in a long-term seed storage facility, located off-site. Record sheets and GIS databases have been developed and will continue to be maintained to track the collection, storage and utilisation of the MPO seed resource.

Plates 1 and 2 - Seed Harvesting Facility

5.1.1 Seed Auditing

MACH Energy currently undertakes seed auditing of the mine path prior to disturbance of the mining areas, to identify seed available for collection on-site. Resultant data collected during audits are incorporated into the MPO GIS including:

- date;
- species; and
- location.

During the audits, the location of key trees and/or stands of plants are recorded on GIS and marked in the field for future detection and assessment.

5.1.2 Seed Management

A seed calendar will be developed for use on-site, which contains information relating to:

- species flowering time, which can be referenced in terms of habitat value;
- fruiting and seed collection time;
- additional information on collection; and
- data on viability of seed collection (where available).

The seed calendar will be used to inform the optimal timing for the collection of seeds for areas planned for disturbance.

Seed collection and propagation activities will continue to be undertaken with consideration of:

- Progressive collection of native seed to augment revegetation resources.
- Strategically timed and cost-effective seed collection utilising the seed collection calendar.
- Collection of fruit directly from the plant into collection bags for transfer to drying rooms.
- Maintenance of a seed inventory for the Seed Harvesting Facility which records the amount of seed collected, species type and treatment and propagation specifications.
- Collection of seed identified during pre-clearance surveys (Section 4.2.2) using the measures outlined in Section 4.3.6.
- Gaining consent of the land owner and/or manager where seed is required to be collected on land not owned or managed by MACH Energy.
- The use of Florabank Guidelines (Greening Australia, 2018), when seed collection is undertaken outside of clearance areas.

To avoid the spread of weeds and exotic species, seed collection will only be carried out for native species. The seedbank will be supplemented (e.g. from commercially available material from endemic native species).

Harvested seeds not used in direct sowing or production of tubestock will be stored for future use on rehabilitation areas, or shared with other seed harvesters/users. Storage and management of seed stocks will be undertaken according to best practice so as to maintain seed viability. This may include:

- Storage of seed in paper or calico bag.
- Labelling of seed collection and storage bags with relevant details (e.g. species and collection and storage dates).
- Maintenance of a seed inventory which will record the amount of seed collected, species type and treatment and propagation specifications.

Native vegetation seed will be sown simultaneously with pasture species when appropriate. Sowing will occur as soon as possible after seedbed preparation to optimise the conditions for germination prior to surface crust development.

Native vegetation establishment relies on initial establishment of local pioneer species to condition the soil for successive plant regeneration. These include wattles and grass species known to occupy disturbed environments throughout the local area.

5.2 TUBESTOCK PLANTING

Native vegetation establishment in rehabilitation areas may be supplemented with tubestock, where required. Where practical and feasible, tubestock will be propagated in a local nursery from locally sourced seed. Tubestock planting will generally be undertaken in spring and autumn, when weather conditions are optimised for vegetation establishment, however opportunistic rehabilitation and assisted native regeneration will be undertaken in summer and winter months if areas become available and prevailing weather conditions are favourable. Depending upon the ground conditions, alternate planting methods will be considered (e.g. long stem tube stock for locations proximal to large watercourses).

Species selection will be designed to promote the development of forest and woodland with structured understorey, mid-storey and tree canopy coverage. This will increase overall biodiversity values and promote survival of these vegetation types in the post-mining landscape. In order to enhance vegetation connectivity, species of the target vegetation communities will be seeded and planted adjacent or close to similar vegetation communities where possible.

6 STRATEGIES TO MANAGE REMNANT VEGETATION ON-SITE

As described in Section 3, the vegetation across the MPO area typically represents recent regeneration and scattered remnant trees in grasslands. Vegetation is primarily composed of derived native grassland, exotic pasture, previous plantings, scattered mature trees and patches of woodland. Of the native vegetation at the MPO, some communities represent TECs under the BC Act.

MACH Energy currently undertakes management measures to maintain the remnant vegetation across the MPO area. These measures include:

- Weed control (Section 7.2.1).
- Pest control (Section 7.2.2).
- Opportunistic monitoring of erosion to inspect for high risk areas required for erosion control and, where required, the implementation of stabilisation and remediation works (Section 7.3).
- Control of stock to avoid overgrazing (Section 7.5).
- Management of human access and disturbance including installation of fencing, gates and signage where required, to prevent unauthorised entry/use (Section 7.6).
- Retaining dead timber in woodland areas (i.e. preventing fire wood collection).
- Avoidance of disturbance of areas outside the approved surface disturbance footprint through the:
  - effective demarcation of approved areas of disturbance, through the measures described in Section 4.1 and through use of the GDP process (Section 4.2.1); and
  - effective use of erosion and sediment controls to minimise disturbance on areas of remnant vegetation in proximity to/downstream of approved areas of disturbance (Section 7.3).
- Design of the Mine Infrastructure Area (MIA) to minimise the clearance of existing stands of trees and to utilise natural aesthetics as much as possible, in order to minimise the visual impact of the site (Section 7.9).

Further detail on the biodiversity management measures undertaken across the MPO area (including for the areas of remnant vegetation) is described in Section 7. Associated monitoring for these management measures is described in Section 8.

7 ADDITIONAL BIODIVERSITY MANAGEMENT MEASURES

In addition to the implementation of the VCP (Section 4) and seed collection program (Section 5), the management measures that will be implemented across the MPO area to minimise biodiversity disturbance are outlined below. Section 8 describes the biodiversity monitoring relevant to these management measures.

7.1 REHABILITATION OF DISTURBANCE AREAS

The MPO rehabilitation program has been designed to establish an appropriate ground strata, understorey, sub-canopy and canopy within areas of the MPO final landform. The program has been developed to:

- Re-use habitat features salvaged from site/surrounding areas, to provide fauna habitat resources.
- Undertake topsoil spreading, establishment and management (including application of soil ameliorants where required) to establish effective rehabilitation growth.
- Monitor weed and pest activity and undertake control measures where appropriate to ensure rehabilitation success.
- Maintain appropriate bushfire management measures to minimise rehabilitation failure due to bushfire risk.
- Target species composition to ensure rehabilitation areas are characteristic of surrounding native vegetation at analogue sites.
- Target vegetation structure which is characteristic of surrounding native vegetation at analogue sites.

Species selected for use in rehabilitation are based on existing native vegetation types within proximal areas and the final rehabilitation and land use objectives for the MPO. Native seed used in these areas is primarily of local provenance including seed collected on-site and in surrounding areas, where feasible (Section 5).

Rehabilitation of the MPO occurs progressively as areas become available. Temporary rehabilitation, including hyromulching and seeding of temporary landforms (e.g. mine access roads etc.), is undertaken across the site to mitigate visual impacts, dust impacts, as well as erosion and sediment management. Temporary rehabilitation is undertaken within 6 months of the areas becoming available.

Further detail on the rehabilitation program at the MPO is outlined in the MOP/RMP and Rehabilitation Strategy, including detailed performance and completion criteria. Scheduled rehabilitation (including the spatial extent, location and target rehabilitation phase) is defined by the Rehabilitation Strategy and the MOP/RMP.

A description of the potential risks to successful rehabilitation, including contingency measures that would be implemented to mitigate these risks are outlined in Section 9.

7.1.1 Rehabilitation of Drainage Lines

The main drainage feature within the vicinity of the MPO is the Hunter River which flows in a southerly direction approximately 1 km to the east of the MPO area (Figure 2). There are a number of ephemeral drainage lines which traverse the MPO area and drain into the Hunter River, however no perennial streams/creeks exist on-site.

As part of MOD 3, MACH Energy designed a conceptual final landform for the MPO area with drainage features that mimic more natural alignments and mitigate erosion potential by incorporating micro-relief. The conceptual final landform would be further refined over the life of the MPO to examine whether the development of further micro-relief could reasonably be incorporated to limit the need for bench drains on the outer batters of the Eastern Out of Pit Emplacement. In particular, MACH Energy would implement the following measures to increase the stability of the final landform:

- Establish bench drains where necessary to convey runoff from batter slopes to sub-catchment drainage lines.
- Maximise the number of sub-catchments to reduce the catchment area of individual constructed drainage lines.
- Establish meandering drainage lines that increase the total drainage length and therefore result in gentler stream bed gradients.
- Where practical, design drainage lines to generally produce a concave stream bed profile.
- Establish native tree cover on the outer face of the Eastern Out of Pit Emplacement and in final landform drainage features to promote stability of the final landform.

The final landform drainage lines would be designed to accommodate natural erosive processes. This would be achieved through consideration of key erosion and geomorphic characteristics such as nature of bed material (e.g. particle size), presence of rock outcrops, bed features (such as cascades, pool and riffle zones) as well as bed and bank vegetation.

Geomorphic features would be incorporated into the design of the relevant final landform drainages. This would also be informed by investigation into the physical characteristics of waste rock and soil materials at the MPO for provision of appropriate rock, sub-soil and topsoil material for use on outer batters and in drainage features.

The outcomes of this work would be reflected in future versions of the MOP/RMP.

7.2 WEED AND PEST CONTROL

The key weed and pest species in the MPO area include: African Boxthorn (*Lycium Ferocissimum*); St John's Wort (*Hypericum perforatum*); feral dogs (*Canis familiaris)*; foxes (*Vulpes vulpes*); and feral pigs (*Sus scrofa*). Ongoing management activities are undertaken to control the presence of these species, as outlined in the sections below.

7.2.1 Weed Control

A weed control program is implemented at the MPO to limit the spread and colonisation of both noxious and environmental weeds.

Weed management at the MPO is undertaken in accordance with advice from the Upper Hunter Weeds Authority, and in accordance with the *Biosecurity Act, 2015*. MACH Energy also has a weed management procedure which is implemented across the MPO area. This procedure provides additional management and control measures which will be implemented at the MPO. The procedure includes a description of the Weeds of National Significance, noxious and environmental weed species which pose a threat to the site.

Monitoring of weed presence, extent and other factors which may contribute to growth/decline of populations will occur regularly, as outlined in Section 8.

Weed control measures that will be undertaken at the MPO include (but are not limited to):

- Implementation of appropriate weed management measures on identified weeds in the MPO area, including:
  - physical removal (i.e. cultivation, slashing or mulching); and/or
  - chemical spraying using herbicides.
- Ensuring machinery hygiene protocols are implemented for all machinery working in/around the MPO area to control the spread of weeds.
- Management of cattle movement to mitigate the risks associated with the control of weeds in manure, around stockyards, and key access corridors.
- Use of erosion and sediment control measures to control nutrient/weed migration (Section 7.3).
- Consultation with neighbouring land owners and the relevant government stakeholders, such as the Upper Hunter Weeds Authority, regarding regional weed management strategies.
- Regular inspections and maintenance of topsoil stockpiles.
- Where chemical spraying is utilised, consideration of appropriate measures to ensure the safety and effectiveness of spraying will be undertaken (i.e. approval of an appropriate contractor and chemicals, timing of application during active growth, as well as consideration of surrounding land uses and prevailing weather conditions to reduce spread).
- Control of noxious weeds, or plants identified as key threatening processes and weeds of regional priority on MACH-owned land in accordance with the relevant NSW Department of Primary Industries control category and the *Hunter Regional Strategic Weed Management Plan 2017 - 2022* (Hunter Local Land Services, 2017).

Introduced plants have the potential to out-compete native species, to alter habitat and affect land use (agricultural or recreational). Under the NSW *Noxious Weeds Act, 1993*, MACH Energy has a statutory responsibility to prevent the spread of noxious weeds. The consideration of these species has been incorporated into the weed management procedure. MACH Energy will ensure maintenance staff in charge of weed inspections are knowledgeable regarding the identification of weed species prevalent in the Upper Hunter area, especially for weed species identified as noxious under the NSW *Noxious Weeds Act 1993,* and for weeds of national significance under the *Australian Weeds Strategy 2017 – 2027* (Commonwealth of Australia, 2017).

Weed control for the tree screening areas related to visual management of the MPO is outlined in the Landscape Management Plan (LMP). The outcomes of the above weed control measures are reported in the MPO Annual Review.

7.2.2 Pest Control

Pest control will be undertaken in consultation with the Hunter Local Land Services (in accordance with the requirements of the NSW *Local Land Services Act, 2013*), the Wybong Wild Dog Association and surrounding landowners as required. Activities undertaken at the MPO will include (but not necessarily limited to):

- Using a range of appropriate pest control measures to minimise collateral damage to native animals, depending upon the outcomes of pest monitoring (Section 8.2), for example:
  - destruction of habitat;
  - trapping;
  - targeted shooting programs; and
  - baiting.

- A focus on those species which are known to impact native flora and fauna. Key target species will include the feral dog, feral pig and fox (although pest monitoring will be undertaken for all pest species and pest control measures will be undertaken accordingly).

The outcomes of these pest management activities will continue to be reported in the MPO Annual Review.

7.3 EROSION AND SEDIMENT CONTROL

Erosion and migration of sediment from disturbance areas into adjacent vegetation has the potential to facilitate weed invasion through the introduction of weed seed and nutrients that favour weed species. In addition, migrated sediment has the potential to adversely affect surrounding natural watercourses.

A detailed Erosion and Sediment Control Plan (ESCP) for the MPO has been prepared consistent with Condition 28 (b), Schedule 3 of Development Consent DA 92/97. The following measures will be adhered to in all areas of the site where disturbance from construction and/or initial mining activities occurs:

- relevant internal approvals and permits will be obtained before commencement of surface disturbance in the construction stage (e.g. GDPs [Section 4.2.1]);
- the extent of disturbance (including trafficable areas) will be minimised and identified using appropriate pegging, barriers or signage;
- appropriate erosion and sediment controls will be approved and established prior to land disturbance and will remain in place until exposed areas are stabilised;
- clean water runoff from undisturbed catchments will be diverted around the disturbance areas via diversion drains and banks to discharge into natural watercourses, where practical;
- runoff from disturbed areas will be diverted into sediment dams;
- drains, diversion banks and channels will be stabilised and scour protection will be provided as necessary;
- temporary erosion and sediment control measures will be used on-site and may include silt fences, hay bales, jute mesh, check dams, cross banks, contour banks, armouring and straw mulching; and
- topsoil will be stockpiled for reuse and all stockpiles will be managed as described in Section 7.4.

Drainage considerations will be incorporated into the landform design plan to slow and direct water flow and minimise erosion. Diversion drains will be constructed as per MACH Energy design plans.

In addition to the above, MACH Energy undertakes routine visual inspections over the MPO area, including areas of remnant vegetation located outside active mining areas. Where active erosion or high-risk areas are identified, MACH Energy will undertake suitable stabilisation or remediation works.

7.4 TOPSOIL MANAGEMENT

Topsoil stripping and stockpiling or direct re-spreading of the soil resource will be undertaken in a progressive manner following the mine sequence. Topsoil is collected and stored on-site with an aim to stockpile sufficient topsoil to rehabilitate the entire final landform. Topsoil stripping activities will be undertaken in accordance with the ESCP, to minimise erosion potential. Topsoil will be stripped and salvaged to maximise its value for re-use in rehabilitation and will be guided by soil mapping and the suitability of soil stripping depths described below. Where practicable, soil will be stripped when moist (but not saturated).

Data from previous investigations demonstrates the suitability of the soils of the MPO area for use as growing media and the appropriate stripping depth. Table 5 summarises the characteristics of each soil type across the MPO area. The suitability of these soils for use as top dressing, and their stripping depth, is summarised in Table 6.

Table 5
Summary of Soil Types

Soil Types	Characteristics
Alluvial – Floodplain Soils	Uniform medium or fine textured clay profile, consisting of clay loams, silty clay loam or light clay topsoils. Slightly to highly dispersive.
Drainage Flat/Drainage Line Soils	Brown solonised soils and brown and yellow solidic soils. Slightly dispersible topsoils and highly dispersible subsoils.
Hillslope Soils	Topsoils are stable though occasionally highly dispersible. Subsoils are highly dispersible.
Sandy Hillslope Soils	Sandy parent material. Topsoil in two layers: • Light sandy clay loam, loam fine sandy or fine sandy clay loam. • Clayey sand, sandy loam or light to fine sandy clay loam. Subsoil is sandy to light medium clay – slightly to highly dispersible.
Volcanic Hillslope Soils	Uniform structured clay soils. Topsoil is fine sandy clay loam or light clay. Subsoils consist of silty to light medium clays. Slight to moderate dispersibility.

Source: ERM Mitchell McCotter (1997).

Table 6
Summary of Soil Suitability for Use in Rehabilitation

Soil Unit Type	Suitable Stripping Depth
Alluvial – Floodplain Soils	Approximately the top 0.5 m of this soil unit is suitable for topsoil, while all remaining material down to at least 2.5 m is suitable for subsoil.
Drainage Flat/Drainage Line Soils	Surface layer is suitable for topsoils. Stripping depth to 0.2 m – though this is dependent on site specific soil characteristics. Soil below these layers is unsuitable due to unsuitable pH, dispersion characteristics, and structure.
Hillslope Soils	Surface soil material can be stripped down to a pale coloured (A2) horizon or in places down to a brighter coloured subsoil clay layer.
Sandy Hillslope Soils	Surface layers are only suitable for topsoil, usually to a depth of 0.1 m. Some areas not suitable due to high sand, gravel content or sandy texture.
Volcanic Hillslope Soils	Topsoil suitable to depths of 0.2 m. Some areas not suited due to shallow soils or high content of gravel or rock.

Source: ERM Mitchell McCotter (1997).

Where possible, topsoil will be transported directly to rehabilitation areas. Where this is not possible, topsoil stockpiles will be established separate to the subsoil and away from active transport corridors. The stockpiles will be managed to maintain seed reserves and microbial soil associations. Topsoil stockpile management options which may be undertaken where necessary, are outlined in Table 7.

Table 7
Topsoil Management Options

During Soil Stripping and Stockpiling	Stockpiled Soil Awaiting Use in Rehabilitation Works	During the Rehabilitation Program
• Minimisation of vegetation clearance. • Selective stockpiling of soil according to pre-disturbance vegetation communities, soil type and salinity. • Stockpiling of soils in a manner that does not compromise the long-term viability of the soil resource. • Vehicle movement will be kept to a minimum on the soils to be stripped. Traffic will be excluded from soils that are sensitive to structural degradation. • Construction of stockpiles with a "rough" surface condition to reduce erosion hazard, improve drainage and promote revegetation. • Stockpiles will be no more than 3 m in height in order to minimise problems with anaerobic conditions.	• Implementation of measures to provide for long-term viability of soil resources. • Stockpiles that are to remain inactive for extended periods are to be fertilised if required and seeded with appropriate seed mix to maintain soil structure, organic matter and microbial activity (stockpiles will be shaped prior to seeding). • Installation of silt fences around stockpiles to control potential loss of stockpiled soil through erosion prior to vegetative stabilisation. • Stockpiles may be deep-ripped to establish aerobic conditions, prior to reapplication of stockpiled soil for rehabilitation. • Where necessary, an appropriate soil ameliorant will be applied to dispersive soil stockpiles. • Implement appropriate weed control strategies, particularly for any noxious weeds, or plants identified as Key Threatening Processes. Immediate revegetation will provide vegetative competition to assist with control of undesirable plant species. • Stockpiles will be appropriately sign-posted to identify the area, the source of the soil (i.e. native vegetation community or pasture and minimise the potential for unauthorised use or disturbance). • Topsoil stockpiles will be located away from mining, traffic areas and watercourses. • Level or gently sloping areas where available will be selected as stockpile sites to minimise erosion and potential soil loss.	• Topsoil conditioning involving the addition of lime, gypsum or fertiliser will be used where required. • Soil ameliorants such as gypsum, wood and hay mulch, biosolids, municipal waste composts and other organic wastes are utilised based on availability of supply or *Waste Regulation 1996* guidelines and are incorporated by ripping, plough or rotating hoe. The use of soil ameliorants is designed to prevent surface crusting, increase moisture and organic content, and buffer surface temperatures to improve germination. • Compacted soil is ripped to a depth of 30 centimetres (cm) along the contour prior to the application of topsoil and rock raking. • Topsoil will not be respread when wet, to avoid excessive compaction. • At all times, topsoil respreading must be undertaken so that dust is managed. • Where possible, topsoil is dumped at the top of the slope and spread down slope to a depth of 10 cm. • Topsoil is to be used where available to promote species recruitment from direct soil return. • All contractor machinery used to handle and transport topsoil are to be cleaned down both prior to and at the completion of works to minimise the risk of transfer of weeds. • On completion of landform contouring, topsoiling and erosion and sediment control works, a vegetative cover will be applied as soon as practicable. Depending on the proposed post-mining landuse, this will involve direct seeding of selected shrub, grass and tree species.

7.5 MANAGEMENT OF GRAZING AND AGRICULTURE

Livestock will be excluded from active operational mining areas and rehabilitation areas (excluding rehabilitation areas which have a final land use of agricultural use). Grazing, cultivation and routine agricultural management activities may be undertaken on MACH Energy owned land by MACH Energy or other parties with prior approval (e.g. under licence). Grazing and agricultural practices will be undertaken so as to not overstock the property and to avoid overgrazing, having regard to seasonal conditions.

Any grazing or agricultural activities will be undertaken on existing suitably cleared farming land, and will not involve the additional clearing of remnant native vegetation.

7.6 ACCESS RESTRICTIONS

Vehicle access to the MPO area will be limited to authorised personnel only in order to avoid unnecessary disturbance of the mine site. Consistent with MACH Energy policy, speed limits will be imposed on all vehicles using the mine roads and tracks.

Vehicle access will be limited to haul roads, access roads and tracks wherever possible to avoid soil compaction (which can reduce the infiltration of water into the soil and restrict root growth, and consequently reduce natural regeneration), weed spread and vegetation disturbance. Signage, fencing and access security (i.e. locked gates) will be installed around particularly sensitive areas (e.g. rehabilitation areas) to denote authorised access only and thereby minimise vehicle access to the area.

7.7 BUSHFIRE MANAGEMENT

The main objectives of bushfire management are to minimise the risk of bushfires and to rapidly control any outbreaks that might occur. Control measures are in place to protect people, property, assets, places of heritage value, threatened flora and fauna and to minimise the potential spreading of bushfires in and around the MPO.

The control measures implemented to prevent and manage bushfires focus on adequate preparation for bushfire events, and minimising the amount of fuel available at the MPO and its surrounding land. These measures may include:

- Slashing of vegetation along roads and internal tracks which are used as fire trails and assist dividing the site into control zones.
- Controlled burns to be undertaken under the advice of the NSW Rural Fire Service, at intervals across the site to create a mosaic fire pattern and allow fauna refuge in unburnt vegetation.
- Establishing firebreaks where required around the MPO area to prevent the spread of bushfires onto, or from, adjacent properties.
- Ensuring fire bans, as determined by the NSW Rural Fire Service, are adhered to by all personnel and enforced by MACH Energy.
- Maintaining ready access for vehicles to engage in water extraction at dams on-site or at defined water fill points.
- Potential ignition sources such as those resulting from hot work practices including welding and cutting will be restricted where possible to workshop areas or within active parts of the mine where vegetation is non-existent. If this is not possible due to the remoteness of the location, all due care and caution will be employed to minimise the potential for fire ignition, including requiring appropriate fire control equipment to be on hand.

- Water carts with fire fighting equipment capable of extinguishing fire outbreaks shall be maintained on-site. This fire fighting equipment, together with graders and bulldozers used for mining, provide effective bushfire fighting capability.
- The use of livestock for rotational cattle grazing to reduce pasture based fuel loads.
- A network of water supply points to assist the NSW Rural Fire Service with logistical support.
- Any incident of unplanned bushfire will be reported directly to the General Manager who will initiate an emergency response. If required, the local Rural Fire Service will be notified.

In the event of a bushfire at the MPO, emergency response procedures will be enacted.

7.8 MANAGING SALINITY

Topsoil at the MPO is generally non-saline, and is not considered too saline to be used in the mine rehabilitation program. Notwithstanding, there are some instances of subsoils (especially at depth) which would be considered too saline for vegetation growth and would not be suitable for rehabilitation purposes (ERM Mitchell McCotter, 1997). In addition, the sampling program associated with Supplementary Report 1 of the EIS identified that some of the overburden and interburden materials sampled at the MPO produced leachate that is saline on weathering. This is known to produce adverse growing conditions for vegetative growth.

In order to understand the selective handling of materials, characterisation of soils and overburden will be undertaken throughout the development of the mine. Topsoil and subsoil characterisation will be undertaken in order to:

- identify any physical or chemical deficiencies or limiting factors (including salinity) which may affect vegetation establishment and landform stability; and
- develop selective placement strategies and/or develop suitable amelioration techniques.

Selective stockpiling of soils according to soil type/properties to ensure adequate rehabilitation growth is described in Section 7.4.

Overburden characterisation is important for similar reasons and more specifically to:

- identify material for use in the root zone which is capable of supporting sustainable vegetation establishment; and
- identify materials which limit plant growth or which may contaminate surface or ground water, and hence may require special handling, treatment or disposal.

Overburden and soil characterisation will be used to inform the rehabilitation of the site, as outlined in the MOP/RMP.

Erosion and sediment control methods outlined in the ESCP are summarised in Section 7.3 and will be undertaken to avoid the spread of saline discharge from disturbance areas.

7.9 VISUAL MANAGEMENT

Visual management at the MPO is undertaken in accordance with the LMP, developed under Condition 47, Schedule 3 of Development Consent DA 92/97. The LMP outlines the management measures to mitigate visual impacts from the MPO area, including:

- visual bunding/screen planting along key roads with viewpoints of the MPO area;
- progressive rehabilitation of the MPO Overburden Emplacement to shield views of the MPO area from the east (including from the township of Muswellbrook);
- screen planting along mine haul/access roads; and
- visual treatment of mine infrastructure and lighting.

The MIA, located in the south-west corner of the MPO area (Attachment 1), has been designed to minimise the clearance of existing stands of trees and to utilise natural aesthetics as much as possible from the surrounding environment. Planting of native trees will be interspersed through the MIA. This has been undertaken to assist in shielding the MIA from surrounding viewpoints and to reduce the visual impact of the MPO.

8 BIODIVERSITY MONITORING PROGRAM

The objective of biodiversity monitoring is to evaluate the vegetation and fauna habitat condition at the MPO (including recovery and or enhancement of native vegetation) and to identify appropriate management actions to be applied, where required.

Biodiversity monitoring includes noxious and environmental weed monitoring, vertebrate pest monitoring, monitoring of access and rehabilitation monitoring.

8.1 MONITORING OF NOXIOUS AND ENVIRONMENTAL WEEDS

Control of noxious and environmental weeds will be undertaken across the MPO, as described in Section 7.2.1. To inform control measures required monitoring would include:

- Routine visual inspections (at least bi-annually) across the MPO area to identify areas which require weed control measures.
- Visual follow-up inspections for areas where weed control measures have been undertaken. These inspections will assess the effectiveness of the weed management measures implemented and the requirement for any additional management measures.
- Regular visual inspections for weeds on topsoil stockpiles.
- Identification of weed infestations adjacent to, or within the proposed disturbance area during preclearance surveys (Section 4.2.2).

Monitoring for noxious and environmental weeds will also be undertaken opportunistically and will inform weed management measures. The results of weed monitoring are reported annually in the MPO Annual Review.

8.2 MONITORING OF VERTEBRATE PESTS

Monitoring of vertebrate pests will be undertaken across the MPO area and would include:

- Routine monitoring of the activity of pests at the MPO at least bi-annually, using various measures as suitable, including:
  - opportunistic sightings;
  - track counts on sand-pads; and
  - motion sensor cameras.
- Follow-up inspections on areas subject to vertebrate pest control to assess the effectiveness of control measures implemented and the requirement for any additional control measures.
- Identification of vertebrate pest infestations adjacent to or within the proposed disturbance area during preclearance surveys (Section 4.2.2).

The results of pest monitoring are reported annually in the MPO Annual Review.

8.3 MONITORING OF ACCESS

Monitoring of all fencing (including gates and locks) and signage would be undertaken annually as well as opportunistically, to ensure adequate site access restrictions. Maintenance would be undertaken as required. In addition, all rehabilitation areas will be regularly monitored during visual inspections for unauthorised access.

8.4 MONITORING OF REHABILITATION AREAS

Monitoring of rehabilitation areas at the MPO is described in detail in the MOP/RMP. Rehabilitation monitoring will be undertaken annually[1] and will utilise the principles of Ecosystem Function Analysis (EFA) and rapid visual assessments. Monitoring will inform the need for corrective actions (outlined in Section 9) where required.

8.4.1 Ecosystem Function Analysis

To undertake the EFA methodology, permanent transects will be established in rehabilitation areas and in relevant undisturbed areas to provide analogue/reference sites.

Using the EFA methodology, the soil landscape of rehabilitation areas will be analysed to determine whether the areas are trending toward a self-sustaining trajectory. Vegetation monitoring will also be undertaken on the woodland rehabilitation areas. This monitoring will assess woody species density, species richness and canopy cover to determine the available nutrients, soil stability and water infiltration available to rehabilitation areas.

Utilising the EFA method, scientifically robust data is provided on the rehabilitation sites, which when compared to the data collected from analogue sites, accurately reflects if the site is on a self-sustaining trajectory. The interpretation of this data will enable the development of land management recommendations to address those sites having lower EFA rankings.

8.4.2 Rapid Visual Assessment

In addition, annual[1] rapid visual assessments will be undertaken on all existing and recently completed rehabilitation areas on-site. This annual inspection will be undertaken by a visual monitoring technique. Visual monitoring is a field based rapid assessment tool that provides a quantitative assessment to various landscape contributors including:

- vegetation components (overstorey, understorey and ground cover where applicable);
- presence of exotic weed and feral animal species;
- surface stability and erosion issues;
- presence of available microhabitat; and
- disturbance factors (including unauthorised access, rubbish and physical disturbance such as fire or vandalism).

Each of these subcomponents is awarded a score to generate an overall result for each site. This allows comparison between different sites and over time. It also allows the identification of areas requiring remediation as indicated by low scores.

8.4.3 Research

As part of the rehabilitation program, MACH Energy will undertake research trials at the MPO. These research trials will focus on research and management practices that are designed to enhance the woodland communities established across the rehabilitated landscape. MACH Energy proposes to build on industry research results to re-establish woodland in rehabilitated areas. The outcomes of the rehabilitation trials will be used to refine the rehabilitation program at the MPO.

[1] Monitoring may be undertaken at an alternative frequency if a suitably qualified and experienced person considers that annual monitoring is not required for a particular area of rehabilitation. For example, very early or advanced rehabilitation may not progress sufficiently on an annual basis to warrant annual formal monitoring.

8.5 SUMMARY OF MONITORING

A summary of the biodiversity monitoring at the MPO, detailed in Sections 8.1 to 8.4, including required frequency, is outlined in Table 8 below.

Table 8
Summary of Biodiversity Monitoring

Monitoring	Parameter	Frequency[1]
Weed monitoring (Section 8.1)	• Routine visual inspections across the MPO area.	• Bi-annually.
	• Visual follow-up inspections where weed control measures have been undertaken.	
	• Regular visual inspections for weeds on topsoil stockpiles.	• Ongoing.
	• During preclearance surveys.	• Ongoing.
Pest monitoring (Section 8.2)	• Routine monitoring of pest activity across the MPO area.	• Bi-annually.
	• Follow up inspections on areas subject to pest control measures.	
	• During preclearance surveys.	• Ongoing.
Monitoring of access (Section 8.3)	• Inspections of all fencing and signage.	• Annually.
Monitoring of rehabilitation areas (Section 8.4)	• Rehabilitation monitoring incorporating EFA monitoring and rapid visual assessment.	• Annually.

[1] Note that the monitoring frequencies lists the *minimum* required monitoring to be undertaken by MACH Energy. Environmental monitoring personnel and MPO mine workers/contractors undertake frequent opportunistic monitoring of MPO areas (and rehabilitation areas) and report findings to the Environmental Superintendent accordingly.

9 CONTINGENCY PLAN

The key potential risks to rehabilitation at MPO are outlined in the MOP/RMP, including a likelihood rating, consequence rating and risk classification for each identified risk. Contingency strategies in the event of unexpected variations or impacts to rehabilitation outcomes are copied from the MOP/RMP in Table 9. Should the MOP/RMP be updated, the details in Table 9 would be superseded and updated accordingly.

Should rehabilitation monitoring (Section 8.4) conclude that a trigger has been reached, the contingency strategies will be implemented. Note that the frequency of monitoring outlined in Table 9 is outlined in Section 8.4.

Table 9
Contingency Measures

Threat to Rehabilitation Success	Trigger	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	How Impact will be Monitored	Notification Protocol
Inappropriate bushfire management regime leading to widespread failure of revegetation or continued sustainability of mine rehabilitation areas.	Occurrence of bushfire in rehabilitation area results in loss of revegetation.	Selection of fire-tolerant species for revegetation and rehabilitation and adoption of standard fire prevention measures. Mosaic burning and monitoring of areas following fires, with follow-up replanting/reseeding if indicated by monitoring results. Maintain contingency supplies of seed for key native species.	Regular visual inspection of rehabilitated areas and ongoing rehabilitation monitoring using Landscape Function Analysis (LFA) methodology.	Reporting in Mining Lease (ML) Rehabilitation Report and the Annual Review.
Major storm event resulting in flooding, geotechnical instability, major erosion and/or widespread damage to rehabilitated area.	Rehabilitation monitoring indicates widespread damage to rehabilitation area as a result of major storm event.	Design final landforms, structures and revegetation to cope with major storm events. Monitoring of rehabilitation areas following a major storm and replanting/reseeding as necessary.	Regular visual inspection of rehabilitated areas and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
Severe and/or prolonged drought leading to widespread failure of revegetation/rehabilitation.	Rehabilitation monitoring indicates revegetation species failure as a result of drought conditions.	Selection of drought-tolerant species within species mix for revegetation and rehabilitation. Monitoring of rehabilitation areas and replanting/ reseeding as necessary. Maintain contingency supplies of seed for key native species.	Regular visual inspection of rehabilitated areas and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.

Table 9 (Continued)
Contingency Measures

Threat to Rehabilitation Success	Trigger	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	How Impact will be Monitored	Notification Protocol
Inadequate or insufficient topsoil to create/enhance the desired ecological communities in mine rehabilitation areas.	Rehabilitation planning and review of topsoil inventory indicates insufficient topsoil resources to create/enhance the desired ecological communities.	Develop procedures for topsoil management, overburden and substrate management and soil testing. Soil type matched to enhanced or rehabilitated vegetation association. Subsoil material assessed for use as a suitable growing media. Identify soil ameliorants (e.g. biosolids) that could be used as a topsoil substitute.	Regular stocktake of topsoil inventory. Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
Inadequate weed and pest animal control leading to widespread failure of revegetation or continued sustainability of rehabilitation area ecosystems.	Rehabilitation monitoring indicates revegetation failure as a result of significant weed infestation and/or pest animals.	Targeted weed management and control program developed and implemented. Targeted pest management and control program developed and implemented. Educate persons undertaking weed control to the major weed threats on-site. Visual inspections/cleaning of vehicles entering sensitive areas to mitigate risk of weed dispersal.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
Insect attacks (e.g. locusts and beetles) leading to failure of rehabilitation or continued sustainability of mine rehabilitation area ecosystems.	Rehabilitation monitoring indicates failure as a result of significant insect attacks.	Planting to avoid insect prone periods. Use of endemic species which are suited to localised insect predation (where practical). Monitoring program results to identify if further plantings required.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.

Table 9 (Continued)
Contingency Measures

Threat to Rehabilitation Success	Trigger	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	How Impact will be Monitored	Notification Protocol
Inappropriate planting and/or direct seeding techniques resulting in a failure of rehabilitation.	Rehabilitation monitoring indicates die-back and/or poor growth.	Conduct site investigation and review active mining and rehabilitation methodology records for the area to determine possible contributing factors. Implement mitigation measures relevant to identified contributing factors/cause.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
Inappropriate fertiliser application (type and/or rate) leading to failure of revegetation or rehabilitation.	Rehabilitation monitoring indicates poor/slow growth and development of revegetation.	Review fertiliser application program consistent with revegetation requirements.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
Frost leads to high mortality rates of revegetation and rehabilitation.	Rehabilitation monitoring indicates high mortality rates of revegetation and rehabilitation as a result of frost.	Review monitoring program results to identify if further plantings required. Maintain contingency supplies of seed of key rehabilitation program species.	Regular visual inspection of remediated area and ongoing rehabilitation monitoring using LFA methodology.	Reporting in ML Rehabilitation Report and the Annual Review.
Incompatible neighbouring land owner practices (including interactions with the Bengalla Mine and adjoining private landholders) leading to failure of rehabilitation and revegetation works.	Rehabilitation monitoring indicates failure of rehabilitation and revegetation work likely as a result of neighbouring land owner practices.	Communicate the rehabilitation objectives and land use goals with neighbouring properties, the Community Consultative Committee (CCC) and local community.	Ongoing/follow-up communications with neighbouring land owners and the CCC.	Reporting in ML Rehabilitation Report and the Annual Review.
Planning - insufficient provision of financial, human and equipment resources leading to failure to meet completion criteria, including increased maintenance costs and timeframe.	Rehabilitation planning indicates insufficient resources to meet completion criteria.	Budgetary allocation sufficient to cover requirements with resources available to implement rehabilitation objectives.	Internal rehabilitation planning procedures.	Internal notification procedures.

Table 9 (Continued)
Contingency Measures

Threat to Rehabilitation Success	Trigger	Action/Response to Mitigate, Remediate and/or Compensate any Identified Impacts	How Impact will be Monitored	Notification Protocol
Inadequate or insufficient (incorrect species mix/quality) seed/seedlings for rehabilitation works.	Rehabilitation planning indicates potential for insufficient seed/seedling resources.	Identify suitable alternate seed/seedling sources from within the general locality. Identify the requirement to engage a suitably qualified ecologist/specialist to review species lists, based on resources available.	Ongoing rehabilitation planning procedures.	Reporting in ML Rehabilitation Report and the Annual Review.
Incorrect acid forming material management procedures results in rehabilitation failure.	Rehabilitation monitoring and/or geochemistry monitoring indicates acid forming material is close to the outer surface of the emplacement resulting in failure of rehabilitation area or revegetation.	Identify suitable non-acid forming material to adequately bury the potentially acid forming material. Consult with a specialist geologist and/or geochemist as required.	Ongoing rehabilitation planning procedures with input from a geologist and/or geochemist as required.	Reporting in ML Rehabilitation Report and the Annual Review.

10 ROLES AND RESPONSIBILITIES

The roles and responsibilities of MACH Energy personnel in implementing, reviewing and undertaking monitoring for this BioMP are outlined in Table 10 below.

Table 10
BioMP Responsibilities

Position	Responsibilities
General Manager Operations	• Take overall leadership and responsibility for compliance with environmental approvals. • Provide adequate resourcing (personnel and financial) to enable full implementation of the BioMP.
Environmental Superintendent	• Report any land related incidents in accordance with legal requirements. • Identify land management risks and budget for sufficient resources to effectively manage those risks. • Effectively implement and approve the GDP procedure. • Effectively implement and oversee any pre-clearance survey. • Provide training to all employees and contractors in environmental awareness, legal responsibilities and land management methods. • Restrict access to rehabilitation areas where necessary. • Oversee communication of conditions of approval to relevant site personnel and contractors. • Participate in site planning sessions so that adequate time is scheduled to implement pre-clearance surveys and the VCP. • Coordinate progressive site rehabilitation as final landforms become available. • Coordinate weed and pest control monitoring and control measures. • Coordinate native seed collection. • Oversee monitoring of rehabilitation areas. • Evaluate results of monitoring programs and where appropriate implement changes to management measures and controls. • Oversee implementation of the BioMP and regulatory reporting in relation to the BioMP. • Coordinate relevant reviews and revisions of the BioMP.
Mine Manager/Construction Manager	• Ensure provisions of the BioMP are adhered to during mining and construction activities. • Ensure the GDP process, pre-clearance surveys and VCP are adhered to in accordance with this BioMP, prior to mining or construction activities.
Project Manager	• Complete the GDP forms and seek approval from the Environmental Superintendent prior to disturbance. • Delineate areas to be cleared/disturbed. • Comply with all requirements of the GDP process. • Implement VCP procedure and GDP process. • Implement fauna habitat salvage strategies. • Implement topsoil management strategies.

11 REVIEW AND IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE

11.1 ANNUAL REVIEW

In accordance with Condition 3, Schedule 5 of Development Consent DA 92/97, MACH Energy will review and evaluate the environmental performance of the MPO by the end of March each year (for the preceding calendar year) (or other such timing as agreed by the Secretary of the DPE).

In relation to biodiversity, the Annual Review will:

- include a comprehensive review of the BioMP monitoring results relating to the MPO over the past year, which includes a comparison of these results to evaluate compliance against the:
  - relevant statutory requirements, limits or performance measures/criteria;
  - monitoring results of the previous years; and
  - relevant predictions in the EIS.
- identify any BioMP-related non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
- describe what BioMP-related management measures were undertaken during the past year;
- identify any trends in the BioMP monitoring data over the life of the MPO; and
- describe what BioMP-related measures will be implemented over the next year to improve the environmental performance of the MPO.

The Annual Review will be made publicly available on the MACH Energy website in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97.

11.2 BIODIVERSITY MANAGEMENT PLAN REVISION

In accordance with Condition 4, Schedule 5 of Development Consent DA 92/97, this BioMP will be reviewed, and if necessary revised (to the satisfaction of the Secretary of the DPE), within three months of the submission of:

- an Annual Review (Condition 3, Schedule 5);
- an incident report (Condition 7, Schedule 5);
- an Independent Environmental Audit (Condition 9, Schedule 5); and
- any modification to the conditions of Development Consent DA 92/97.

Within four weeks of conducting any such review, MACH Energy will advise the Secretary of the DPE of the outcomes of the review, and submit any revised documents to the Secretary of the DPE for approval.

In accordance with Condition 4A, Schedule 5 of Development Consent 92/97, MACH Energy may submit a revised BioMP for the approval of the Secretary at any time, and may also submit any revision to this BioMP required under Development Consent DA 92/97 on a staged basis.

If agreed with the Secretary of the DPE, a revision to this BioMP required under Development Consent DA 92/97 may be prepared without undertaking consultation with all parties nominated under the relevant Condition of Development Consent DA 92/97.

This BioMP will be made publicly available on the MACH Energy website, in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97.

11.3 INDEPENDENT ENVIRONMENTAL AUDIT

In accordance with Condition 9, Schedule 5 of Development Consent DA 92/97, an independent environmental audit of the MPO will be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary of the DPE.

The independent environmental audit will assess the environmental performance of the MPO and review the adequacy of this BioMP. If necessary, appropriate measures or actions to improve the environmental performance of the MPO or this BioMP will be recommended.

12 REPORTING PROCEDURES

In accordance with Condition 2, Schedule 5 of Development Consent DA 92/97, MACH Energy has developed protocols for managing and reporting the following:

- incidents;
- complaints;
- non-compliances with statutory requirements; and
- exceedances of the impact assessment criteria and/or performance criteria.

These protocols are described in detail in the Environmental Management Strategy (MACH Energy, 2017d).

In accordance with Condition 8, Schedule 5 of Development Consent DA 92/97, MACH Energy will provide regular reporting on the environmental performance of the MPO on the MACH Energy website.

12.1 INCIDENT REPORTING

An incident is defined as a set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in Development Consent DA 92/97.

In the event that review of monitoring data indicates that an incident associated with the MPO has occurred, which causes or threatens to cause material harm to the environment, the incident will be reported to the DPE and EPA immediately. The reporting of incidents will be conducted in accordance with Condition 7, Schedule 5 of Development Consent DA 92/97 and in accordance with the protocol for industry notification of pollution incidents under Part 5.7 of the NSW *Protection of the Environment Operations Act 1997*.

Within seven days of the date of the incident, MACH Energy will provide the Secretary of the DPE and any other relevant agencies with a detailed report on the incident. The report will:

- describe the date, time and nature of the exceedance/incident;
- identify the cause (or likely cause) of the exceedance/incident;
- describe what action has been taken to date; and
- describe the proposed measures to address the exceedance/incident.

MACH Energy will also provide regular monitoring results to the affected landowners and tenants until the results show that the MPO is complying with the relevant criteria.

12.2 COMPLAINTS

MACH Energy will maintain a Community Hotline (1800 886 889) that is dedicated to the receipt of community complaints, enquiries or information. The Community Hotline will be publicly advertised in a variety of MACH Energy's public communication tools and will be available during construction and operating hours, to receive any complaints or enquiries from neighbouring residents or other stakeholders.

MACH Energy has developed a procedure that outlines its commitment to receiving, responding to and maintaining a record of phone calls from the community. This procedure is supported by a Community and Stakeholder Engagement Database.
The following details will be recorded in the Community and Stakeholder Engagement Database:

- the date and time of the contact;
- the method by which engagement was made;
- any personal details provided or, if no such details were provided, a note to that effect;
- the nature of the contact;
- relevant monitoring results and meteorological data at the time of the contact;
- the actions taken by MACH Energy in relation to the contact, including any follow-up that is required with the person contacting the MPO; and
- if no action was taken by MACH Energy, the reasons why no action was taken.

In the event of a complaint, investigations will commence within 24 hours of contact to ensure the likely cause of the complaint is determined (e.g. considering meteorological conditions and nature of mining activities) and, where possible and/or required, mitigating actions are executed. This investigation will be used to develop appropriate mitigation measures which will be presented to the party who contacted the MPO. Consideration will also be given to how adjustments to existing management/operational approaches could be applied across the MPO.

In accordance with Condition 11, Schedule 5 of Development Consent DA 92/97, the Community and Stakeholder Engagement Database will be updated monthly and made available on the MACH Energy website.

12.3 NON-COMPLIANCES

Compliance with all approvals, plans and procedures will be the responsibility of all personnel (staff and contractors) employed on or in association with the MPO.

The Environmental Superintendent will undertake regular inspections, internal audits and initiate directions identifying any remediation/rectification work required, and areas of actual or potential non-compliance.

MACH Energy will notify the Secretary of the DPE and any other relevant agencies of any incident associated with the MPO that causes or threatens to cause material harm to the environment that is not trivial immediately after MACH Energy becomes aware of the incident. Within seven days of the date of the incident, MACH Energy will provide the Secretary of the DPE and any other relevant agencies with a detailed report on the incident.

In addition, within two weeks of obtaining monitoring results showing an exceedance of the criteria detailed in Development Consent DA 92/97 and completion of the protocol for determining if an exceedance is a non-compliance, MACH Energy shall, in accordance with Condition 2, Schedule 4 of Development Consent DA 92/97, notify affected landowners and tenants in writing of the exceedance, and provide regular monitoring results to each of these parties until the MPO is complying with the relevant criteria.

A review of the MPO's compliance with all conditions in Development Consent DA 92/97, MLs and all other approvals and licences will be undertaken prior to (and included within) each Annual Review. The Annual Review will be made publicly available on the MACH Energy website in accordance with Condition 11, Schedule 5 of Development Consent DA 92/97.

13 REFERENCES

Coal & Allied (2010) *Mount Pleasant Project Referral of Proposed Action - EPBC No 2011/5795.*

Coal & Allied (2011) *Mount Pleasant Project Public Environment Report.*

Commonwealth of Australia (2017) *Australian Weeds Strategy 2017 – 2027.* Invasive Plants and Animal Committee. Department of Agriculture and Water Resources.

Cumberland Ecology (2015) *Mount Pleasant Upper Hunter Strategic Assessment BCAM Project Biodiversity Assessment Report.*

EMGA Mitchell McLennan (2010) *Mount Pleasant Project Modification Environmental Assessment Report.* Prepared for Coal & Allied Operations Pty Limited.

Environmental Resources Management Mitchell McCotter (1997) *Mount Pleasant Mine Environmental Impact Statement.*

Greening Australia (2018) *Guidelines and Code of Practice.* Available at - http://www.florabank.org.au/default.asp?V_DOC_ID=755. Accessed 27 September 2018.

Hunter Local Land Services (2017) *Hunter Regional Strategic Weed Management Plan 2017 – 2022.*

MACH Energy (2017a) *Mount Pleasant Operation (DA 92/97) – South Pit Haul Road Modification*.

MACH Energy (2017b) *Mount Pleasant Operation – Mine Optimisation Modification Environmental Assessment.*

MACH Energy (2017c) *Mount Pleasant Operation – Rail Modification Environmental Assessment.*

MACH Energy (2017d) *Mount Pleasant Operation Environmental Management Strategy.*

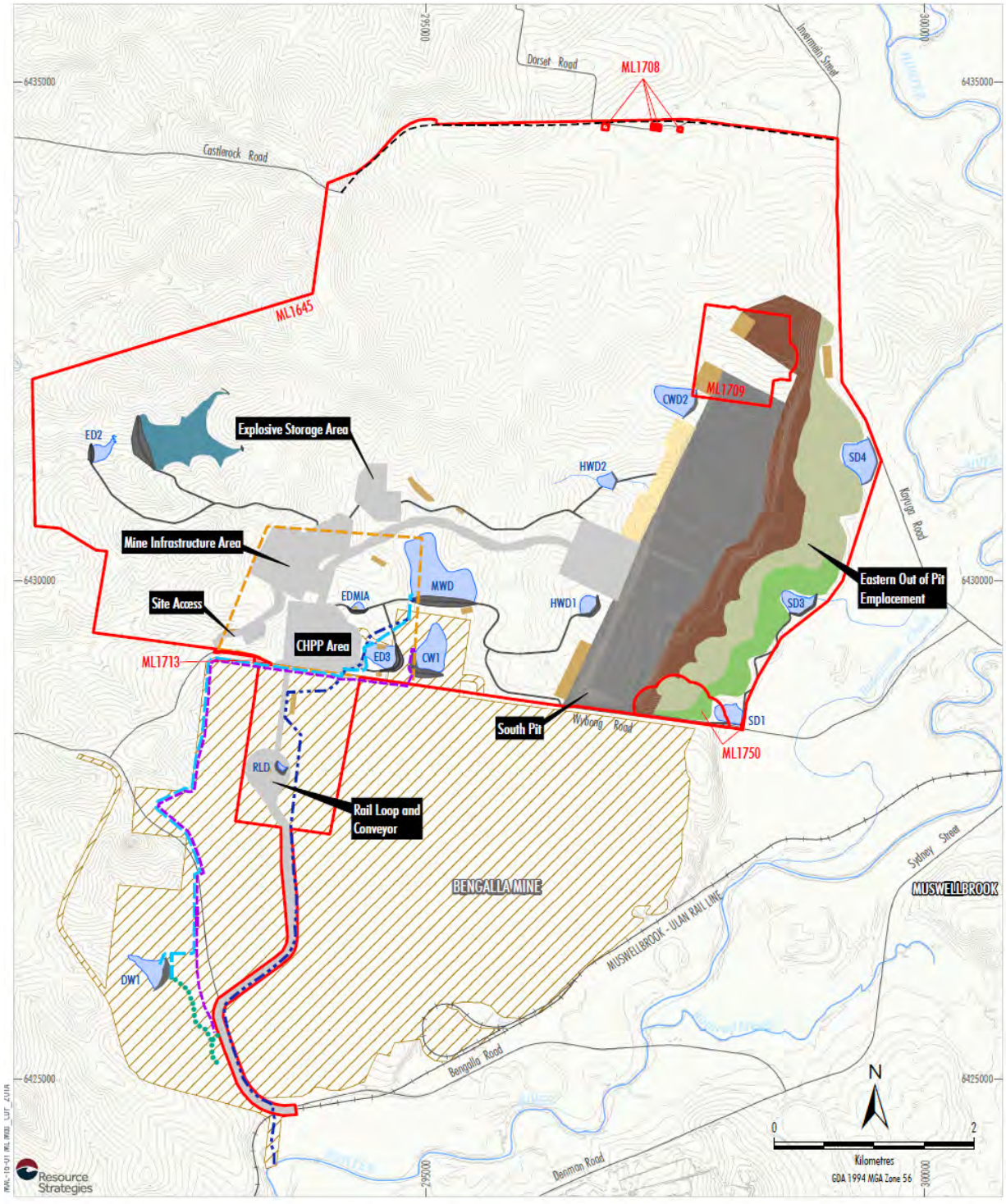
MACH Energy (2018) *Mount Pleasant Operation Mining Operations Plan and Rehabilitation Management Plan*.

Roads and Traffic Authority (2011) *Biodiversity Guidelines – Protecting and Managing Biodiversity on RTA Projects.*

ATTACHMENT 1

APPENDIX 2 OF DEVELOPMENT CONSENT DA 92/97

APPENDIX 2
FIGURE 1 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2021



LEGEND

- Mining Lease Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Infrastructure Area Envelope
- Active Stripping Area
- Active Mining Area
- Active Overburden Emplacement Area
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile Area
- Access Road
- Northern Link Road

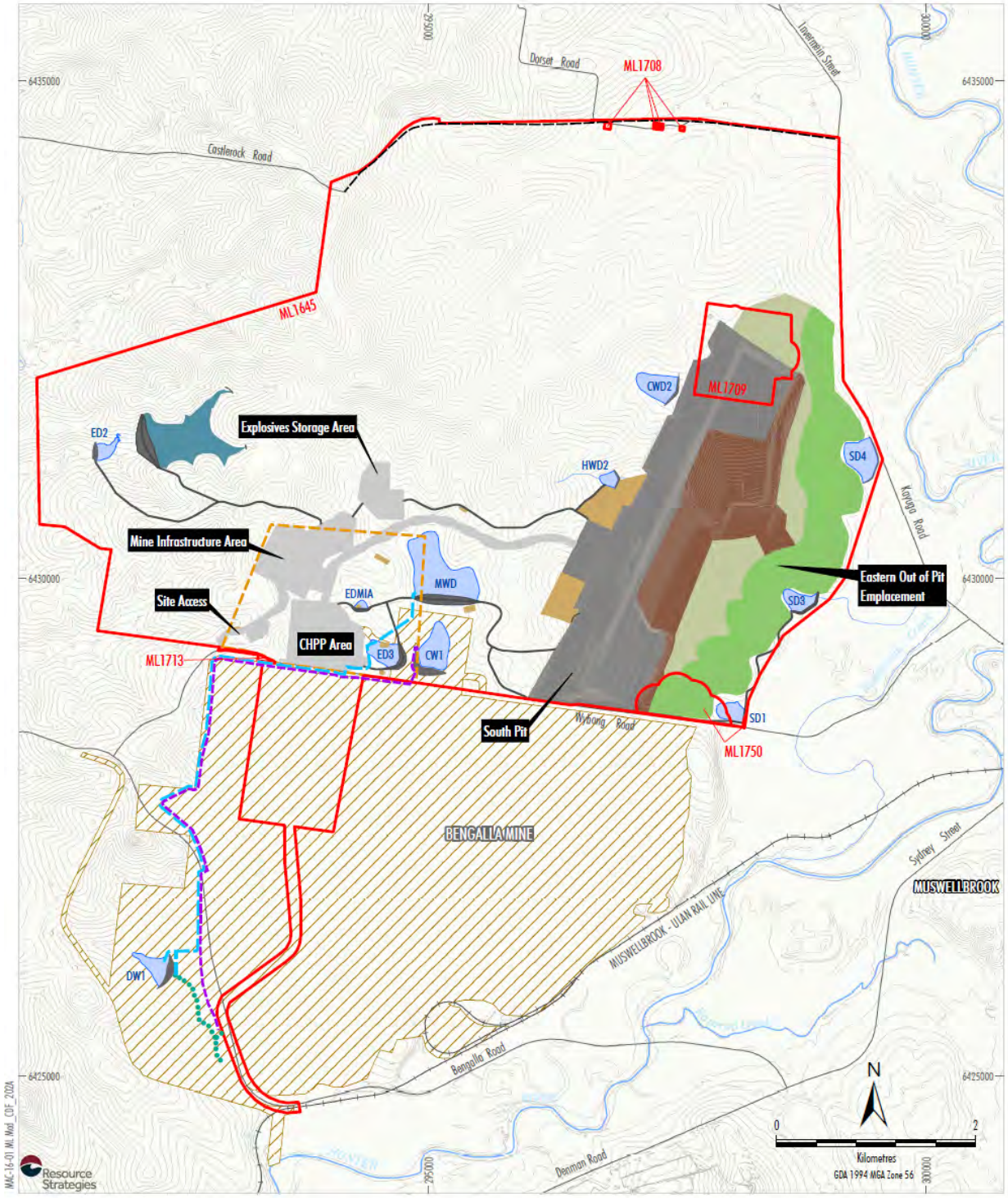
Indicative Water Pipeline Alignment

- MPO Hunter River Supply Pipeline
- MPO DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline
- Approximate Extent of Scour Protection
- Water Dam
- Fines Emplacement Area

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)

MACHEnergy
MOUNT PLEASANT OPERATION

FIGURE 2 - CONCEPTUAL PROJECT LAYOUT PLAN AT 2025



LEGEND

- Mining Lease Boundary
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)
- Infrastructure Area Envelope
- Active Mining Area
- Active Overburden Emplacement Area
- Topsoil Stockpile
- Initial Rehabilitation
- Established Rehabilitation
- Infrastructure and Borrow/Stockpile Area
- Access Road
- Northern Link Road

Indicative Water Pipeline Alignment

- MPO DW1 Pipeline (Bi-directional)
- Bengalla Mine CW1 Pipeline
- Approximate Extent of Scour Protection
- Water Dam
- Fines Emplacement Area

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); MACH Energy (2017)

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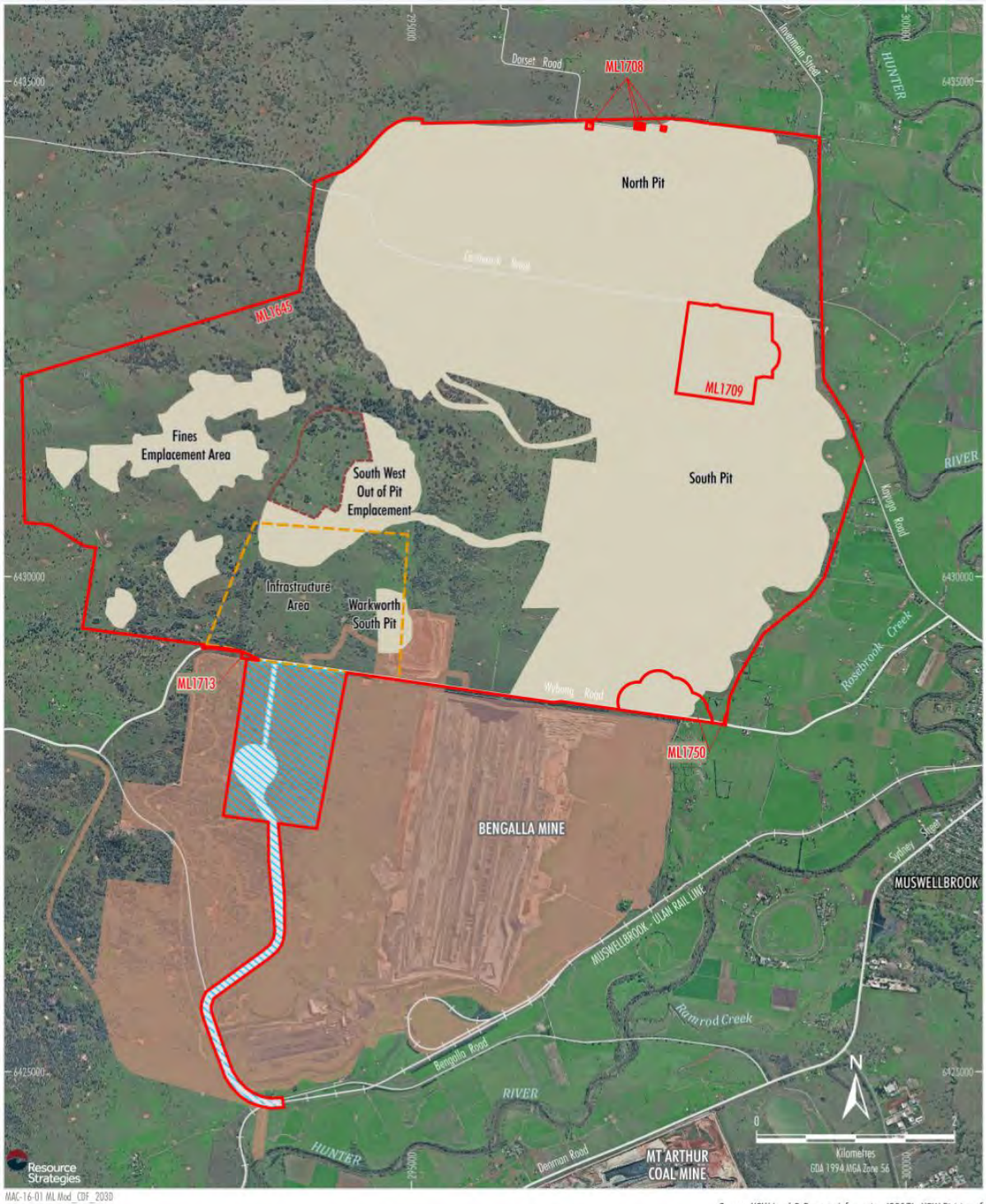
MOUNT PLEASANT OPERATION

FIGURE 3 - APPROVED SURFACE DISTURBANCE PLAN



MAC-16-01 ML Mod_CDF_2030

LEGEND

- Mining Lease Boundary
- Infrastructure Area Envelope
- Indicative Offsite Coal Transport Infrastructure
- Approximate Extent of Approved Surface Development (1997 EIS Year 20, as modified)*
- Area Relinquished for Overburden Emplacement and Major Infrastructure#
- Infrastructure to be removed under the Terms of Condition 37, Schedule 3
- Bengalla Mine Approved Disturbance Boundary (SSD-5170)

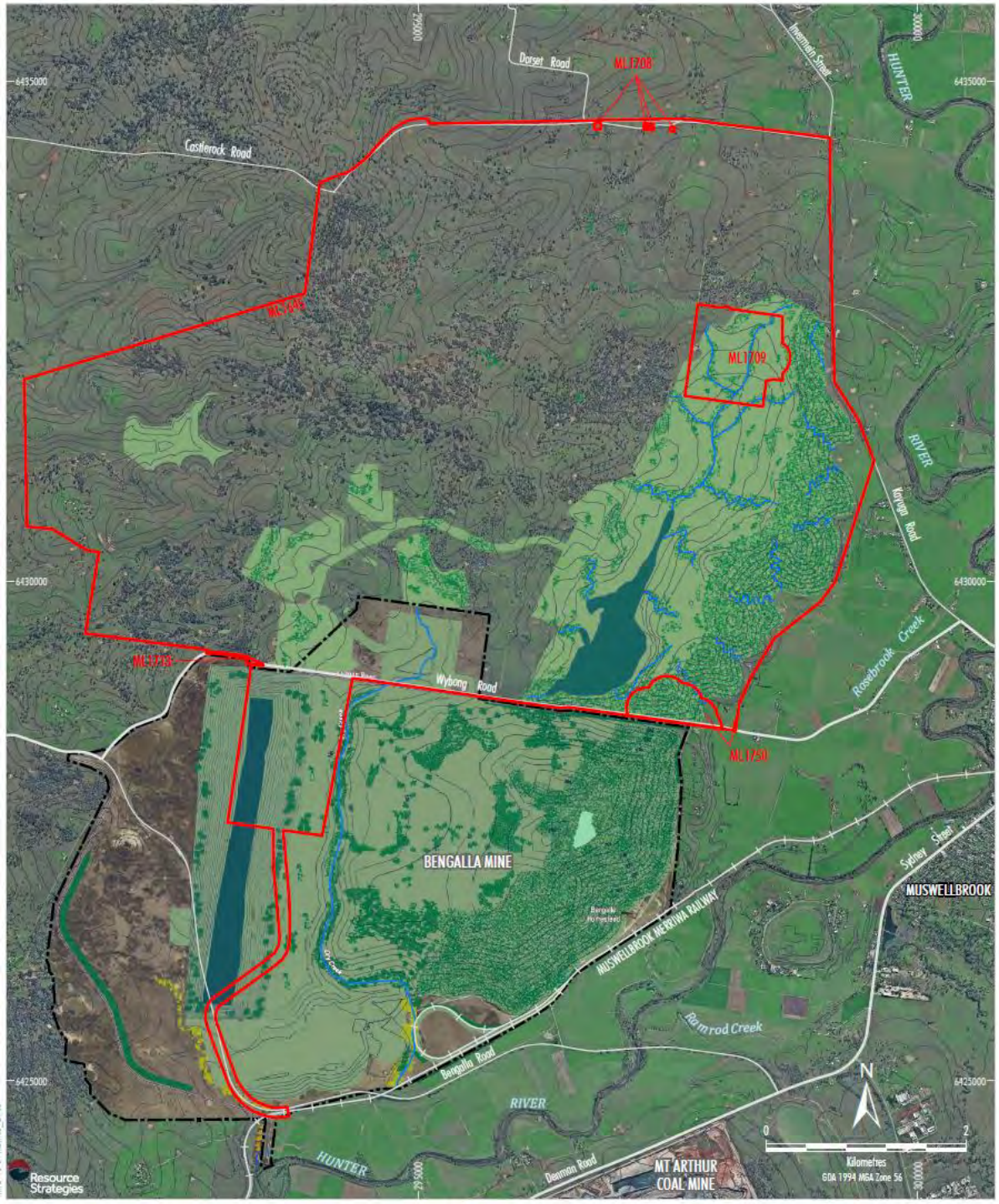
Notes: * Excludes some project components such as water management infrastructure, infrastructure within the Infrastructure Area Envelope, offsite coal transport infrastructure, road diversions, access tracks, topsoil stockpiles, power supply, temporary offices, other ancillary works and construction disturbance.

\# Relinquishment excludes more flexible and relatively minor infrastructure such as light vehicle roads, disturbance associated with monitoring, water management structures and other ancillary infrastructure.

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); Department of Planning and Environment (2016); MACH Energy (2017)
Orthophoto: MACH Energy (Aug 2016)

MACHEnergy
MOUNT PLEASANT OPERATION

FIGURE 4 - CONCEPTUAL FINAL LANDFORM



LEGEND

- Mt Pleasant Mining Lease Boundary
- Final Void
- Final Rehabilitation

Bengalla Mine Conceptual Final Landform *

- Project Boundary (Appendix 2 of Development Consent SSD-5170) (Dated 23 December 2016)
- Dry Creek
- Final Void Lake
- Rehabilitation
- Rehabilitation Class III
- Indicative Tree Screens (or equivalent)
- Treed Rehabilitation
- Indicative Restorative Area

* Digitised from Appendix 9 of Development Consent (SSD-5170) and amended in the Mount Pleasant Operation CHPP area.

Source: NSW Land & Property Information (2017); NSW Division of Resources & Energy (2017); Department of Planning and Environment (2016); MACH Energy (2017)
Orthophoto: MACH Energy (Aug 2016)

MACHEnergy

MOUNT PLEASANT OPERATION

Conceptual Final Landform (2026)

Figure 32

ATTACHMENT 2

MOUNT PLEASANT OPERATION GROUND DISTURBANCE PERMIT

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GROUND DISTURBANCE PERMIT

Permit to be completed with reference to Ground Disturbance Permit Procedure MP001- 0000-ENV-PRO-0002

Permit Criteria

This permit must be completed for all surface disturbance work including slashing, fencing, tree clearing, removal of topsoil, demolition and access to rehabilitation areas

Part 1 – Task Details *(to be completed by the person requesting the permit)*

Site		Permit ID Number:	**GDP -**
		Permit number format included permit name, date and time: GDP -YY-MM-DD	
Company Name:		Date:	
Permit Holder:		Plan provided?	☐Yes ☐No

Note

A plan must be provided, unless otherwise agreed to with the Environmental Superintendent, which includes the entire area to be disturbed, access areas and park-up areas, for approval of this permit. Where applicable erosion and sediment control, and stockpile and rehabilitation information must also be included. A change in the conditions of this Permit may require a reassessment of this Permit.

Proposed start date		Expected duration:		(weeks)	
Job location:					
Job description:	☐ Slashing	☐ Vegetation clearing	☐ Topsoil removal	☐ Demolition	☐ Other
Details of activities: *Include summary of task, reason, purpose, size of disturbance (ha), boundaries and the expected duration, including rehabilitation*					

Is demarcation or pegging of the work area required? *(Demarcation is mandatory except for routine slashing)*	☐No	☐Yes -	Entire area is to be clearly demarcated Demarcation to be confirmed by pre-clearing survey *- Part 9 to be completed*
Is the task area within approval boundaries? *(Where demarcation of an external approval boundary is required it must be performed by a qualified surveyor – Part 10 to be completed)*	☐No	☐Yes -	Describe below how boundaries are identified?
Is the specific task permitted under any existing approvals?	☐No	☐Yes -	If no, additional approval required, discuss with the Environmental Superintendent.
Will infrastructure be removed or decommissioned as part of this Permit? *Includes fences, powerlines, pipelines, cables and similar, houses, yards etc.*	☐No	☐Yes -	List affected infrastructure
Will topsoil and/or vegetation be removed, relocated or stockpiled as part of this Permit?	☐No	☐Yes -	Pre-disturbance survey required – *Part 5 & 6 to be completed.* Clearing & Stockpiles required – *Part 7 to be completed*
Are water courses located within or near work area? *Includes designated water courses, creeks, tributaries or drainage lines*	☐No	☐Yes -	Erosion and sediment control required Details must be included on plan For designated water courses, additional approval is required – consult with Environmental Superintendent
Is erosion and sediment control required for this task?	☐No	☐Yes -	E&S controls required – *Part 3 to be completed*
Will the works impact on any statutory environmental points? *Includes potential impacts on air quality monitoring equipment and discharge points etc.*	☐No	☐Yes -	Include details in comments below

Part 1 – Task Details *(continued)*			
Is drilling or excavation required as part of this task?	☐No	☐Yes -	Additional permits maybe required – discuss requirements with Environmental Superintendent
Is the disturbance to be conducted on land owned by the operation?	☐No	☐Yes -	If No, seek guidance from the Environmental Superintendent to confirm if further approvals are required
Are access tracks required to the area and included in this disturbance permit?	☐No	☐Yes -	Include details in comments below

Part 2 – Environmental Superintendent Work Area Visit *(mandatory for all permits)*

Environmental Superintendent – Initial inspection
I have physically visited the proposed disturbance work area and I am aware of the scope and requirements of the proposed work.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Part 3 – Erosion and Sediment Control *(to be completed by the person requesting the permit)* ☐ Required ☐ Not Required

Only applicable if Erosion and Sediment control is required from Part 1, to be completed by the Permit Holder

Note

All erosion and sediment plan requirements must be completed prior to any disturbance activity commencing

Erosion and sediment plan	☐ Not Required ☐ Required – *all elements below must be completed* Sediment and erosion control plans attached Scale map of affected areas and details included on site plan
Sediment dam(s)	☐ Not Required ☐ Required – *all elements below must be completed* Calculations to be completed in table below, if the project includes sediment basins. Attach all relevant ESC plans and calculations to this permit Calculations verified by Environmental Superintendent *Initials* ……. Authority to proceed required – complete Part 9

Sediment dam calculations

Area (ha) (Total catchment area)	*Setting zone vol (m^3)*	*Sediment storage vol (m^3)*	*Total basin vol (m^3)*	*Flocculant (if required)*

Controls *List all required controls to manage erosion and sediment for permit approval.* *Specific Permit Conditions must be listed in Part 8*	

Part 4 – Community Interaction *(to be completed by the Environmental Superintendent)*			
Is the proposed area within 2km of sensitive receivers?	☐No – go to Part 5	☐Yes -	List details and include on final plan
Does any member of the public need to be contacted?	☐No	☐Yes -	List contact details
Are there any additional requirements from public contact?	☐No	☐Yes -	List Specific Permit Conditions in Part 8
Controls *Details of any procedures, operating hour limits or contact information. Specific Permit Conditions must be listed in Part 8.*			

Part 5 – Cultural/European Heritage *(to be completed by the Environmental Superintendent)*		
If any response is unknown, complete required level of due diligence to enable a response.		
Has a Cultural Heritage/European clearance been obtained within the proposed disturbance area?	☐Yes	Verify location on plan and provide details, list any controls below
	☐No	Conduct due diligence of proposed disturbance area
Are Cultural/European Heritage sites located within the disturbance area, including access tracks?	☐Yes	Identify all known European or Cultural Heritage sites on plan, list any controls below
	☐No	Verify against existing site data
Controls *List all required controls to manage Cultural/European heritage for Permit approval. Specific Permit Conditions must be listed in Part 8.*		

Part 6 – Ecology *(to be completed by the Environmental Superintendent)*		
If any response is unknown, complete required level of due diligence to enable a response.		
Is any significant flora or fauna located in the area to be disturbed?	☐Yes	List controls below
	☐No	No further action required?
Are any sensitive wildlife habitats located in the area to be disturbed?	☐Yes	List controls below
	☐No	No further action required?
Are there any site specific ecology requirements for the area to be disturbed? *Includes tree or habitat clearing restrictions etc. Wildlife spotter / catcher required*	☐Yes	List controls below
	☐No	No further action required?
Controls *List all required controls to manage ecology for permit approval. Specific Permit Conditions must be listed in Part 8.*		

Part 7 – Clearing and Stockpiles *(to be completed by the person requesting the permit)*	☐ Required	☐ Not Required
Is vegetation to be cleared and/or topsoil to be stripped?	☐Yes	Complete relevant section(s) below
	☐No	This part not applicable, go to Part 8
Topsoil management *(only applicable if stripping topsoil)*		
Is topsoil strip depth known?	☐Yes	Enter strip depth: millimetres
	☐No	Confirm strip depth with Environmental Superintendent
Can topsoil be directly placed on rehabilitation areas?	☐Yes	Include location details on plan and Specific Permit Requirements in Part 8
	☐No	

Part 7 – Clearing and Stockpiles *(continued)*		
Topsoil stockpiles *(only applicable if stockpiling topsoil)*		
Maximum topsoil stockpile height permitted:	Maximum Height:	Metres(<3metres)
Is the topsoil stockpile(s) location included on the plan?	☐Yes	Confirm correct location details on plan
	☐No	Update plan to include details
Is stockpile drainage adequate?	☐Yes	Environmental Superintendent to confirm erosion and sediment plan
	☐No	Update erosion and sediment plan to include topsoil stockpile
Are there site specific conditions / requirements for topsoil stockpiles?	☐Yes	Update Specific Permit Conditions in Part 8
	☐No	No further action
Vegetation management *(only applicable if clearing vegetation)*		
Can vegetation be directly placed on rehabilitation areas?	☐Yes	Include location details on plan and Specific Permit Requirements in Part 8
	☐No	Complete vegetation stockpile sub-section below
Vegetation stockpiles *(only applicable if stockpiling vegetation)*		
Maximum vegetation stockpile height permitted:	Maximum Height:	Metres(<3metres)
Is the vegetation stockpile(s) location included on the plan?	☐Yes	Confirm correct location details on plan
	☐No	Update plan to include details
Is stockpile drainage adequate?	☐Yes	Environmental Superintendent to confirm erosion and sediment plan
	☐No	Update erosion and sediment plan to include vegetation stockpile
Are there site specific conditions / requirements for vegetation stockpiles?	☐Yes	Update Specific Permit Conditions in Part 8
	☐No	No further action
Controls *List all required stockpile controls for permit approval. Specific Permit Conditions must be listed in Part 8.*		

Part 8 – Specific Permit Conditions *(to be completed by the Environmental Superintendent)*	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Part 9 – Survey (Boundary Check) Signoff *(to be completed by the person requesting the permit)*

Approval Boundaries Check: ☐

Survey Inspection
The proposed disturbance area is within approved disturbance limits and has been clearly demarcated, relevant to the tasks, and clearly identifies required boundaries to meet the requirements of this permit.
A survey has been completed, for the requirements detailed above and confirmed that demarcation and construction of controls identified in Part 3 have been constructed to design.

Date	*Time*	*Contact number (mobile)*	*Name (must be qualified surveyor)*	*Signature*

Part 10 – Permit Approval

Environmental Superintendent Approval

I have reviewed the contents of this Permit and confirm that all information, where applicable, is correct and has been completed to site requirements.
I have inspected the work area and pre-disturbance controls and all pre-disturbance activities, where applicable, have been completed to the Permit requirements.
The Permit Issuer is aware of the approved scope, all Part 8 – Specific Permit Conditions and any other aspects for completion of work related to this Permit
I Authorise approval of this Permit to the defined scope, and additional conditions listed in Part 8 – Specific Permit

Pre-Clearance inspection completed including the following:	☐ Erosion and sediment controls (not confirmed by survey)are installed ☐ Habitat trees have been identified and any controls specified are in place ☐ Area is adequately demarcated ☐ Access to the site is adequate and where applicable covered by the permit ☐ Any site specific controls (where identified) have been installed
Comments:	

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Caution

No further on the ground works can proceed until Part 10 is completed. All pre-disturbance controls must be in place.

Permit Holder

I am authorised to perform the role of Permit Holder for this Permit.
I have read and understood the contents and conditions of this permit and any related procedures, and I agree to abide by these requirements. I have communicated the requirements of this permit to those working under the approval of this permit.
Any proposed change to the scope or conditions of this permit will be discussed with the Environmental Superintendent first. I will comply with all requirements, including reporting requirements.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Part 11 – Attachments *(to be completed by the person requesting the permit)*

All attached documents, directly related to this Permit, are to be listed below. These will include a risk assessment and an Erosion and Sediment Control Plan at a minimum.

Date	*Reference number*	*Title*

Part 12 – Task Monitoring and Inspections *(includes Permit Holder, Environmental Superintendent etc.)*

Record of planned and unplanned task monitoring and inspections

Date	*Time*	*Name (printed)*	*Signature*	*Comments*

Part 13 – Worker Sign-on – Review and Re-sign Weekly *(to be completed by the person requesting the permit)*

Date	*Time*	*Name (printed)*	*Signature*	*Comments*

Part 14 – Post-Disturbance Assessment *(completed by the Environmental Superintendent on permit completion/cancellation, if required)*	☐ Required	☐ Not Required

Post-Disturbance Assessment completed including:	☐ All rubbish removed from work area(s) ☐ All pegs and flagging tape removed ☐ All plant and equipment removed from the work area(s) ☐ Erosion and sediment controls completed to plan ☐ All rehabilitation work completed to requirements *(including access tracks)* ☐ Landholder satisfied with rehab works *(where applicable)* ☐ Stockpiles constructed to requirements *(where applicable)* ☐ Site plan updated to reflect any changes *(stockpiles, dams etc. where applicable)* ☐ Has clearing been completed in accordance with the permit? ☐ Has survey completed an "as constructed pick up"?
Comments *Instructions or requirements relevant to post-disturbance inspections.*	

Environmental Superintendent Post Disturbance Assessment

A post-disturbance assessment has been completed for the area of disturbance authorised by this Permit. All works have been inspected, as noted above, and have been completed to site requirements. This Permit can now be completed/cancelled.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Permit Holder Post Disturbance Assessment

A post-disturbance assessment has been completed for the area of disturbance authorised by this permit. All works have been inspected, as noted above, and have been completed to site requirements. This permit can now be completed/cancelled.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Part 15 – Permit Completion / Cancellation *(all signatures required)*	
☐ Permit Complete	☐ Permit Cancelled *(comments required)*

The task activities authorised by this permit are complete, or no longer required. All required inspections have been completed
No further work is permitted under the authority of this permit

Comments *Cancellation must include reasons.*	

Environmental Superintendent

All Environmental aspects of this permit have been completed (including cancelled) to site requirements.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*

Permit Holder

All work has been completed (or cancelled) to satisfy the requirements of this permit.

Date	*Time*	*Contact number (mobile)*	*Name (printed)*	*Signature*