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Offset Area Management Plan

for

KEMMIS II PROJECT

and

MULGRAVE RESOURCE ACCESS PROJECT

Document Number:			
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Document History			
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1.0	25/06/2015	Draft for comment	T Smalley
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3.1	16/11/2015	Amend photopoint monitoring timing	T. Smalley
3.2	14/03/2016	Correct Biannual and Biennial monitoring terms	J. Bermingham

Contents

1.0 Introduction

The purpose of this management plan is to identify the management objectives and outcomes, and the actions necessary to fulfil a statutory requirement for the provision of an offset under the *Queensland Environmental Offsets Policy 2014 Version 1.1* and the *Environment Protection & Biodiversity Conservation Act 1999 (Cwth).*

The offsets required and described in this Offset Area Management Plan (OAMP) are a result of the approval process for two projects on BHP Billiton Mitsui (BMC) South Walker Coal Mine (SWC). The projects are referred to as Kemmis II (K2) and Mulgrave Resource Access (MRA). Both the K2 and MRA projects were referred to the Department of the Environment (DotE) and approved with conditions. All relevant information about the projects can be found on the DotE website for the following reference numbers:

- EPBC 2013/7025 (K2)
- EPBC 2014/7272 (MRA)

This document should be read in conjunction with the Biodiversity Offset Management Plan (BOMP) for Kemmis II and Mulgrave Resource Access Projects (BMC, 2015).

2.0 Summary Information

2.1 Departmental Reference Details

Departmental Reference Details for application that triggers offset	
Departmental Reference Number and Case Name: Offset reference number (if applicable):	EPBC Reference 2013/7025 and EPBC Reference 2014/7272
Tenure: Land Lease – Mining Lease 4750 (ML4750) Environmental Authority MIN 100552107	Primary Local Government Area: Isaac Regional Council

Offset Triggers and Values	
Offset Trigger	**Values requiring to be offset**
☐ Regional Vegetation Management Code ☐ Part P ☐ Part S ☐ Part Xa ☐ Part Xb ☐ Material Change of Use / Reconfiguration of a lot Policies (Table F1) ☒ *Environment Protection and Biodiversity Conservation Act 1999* (Cth)	☒ EPBC TEC and/or Protected Spp. ☐ Assessable vegetation adjacent to a wetland, significant wetland ☐ Assessable vegetation adjacent to a watercourse ☐ Connectivity ☐ Endangered regional ecosystem ☐ Of concern regional ecosystem ☐ Threshold regional ecosystem ☐ Critically limited regional ecosystem ☐ Essential habitat ☐ Essential habitat for koalas in SEQ ☐ Values within a highly vegetated bioregion

2.2 Offset Area Details

Landholder Details	
Register Owner/Lessee (s) on Title: BHP Billiton Mitsui Coal Pty Ltd (BMC)	
Business/Company name: BHP Billiton Mitsui Coal Pty Ltd (BMC)	
ABN/ACN: 34 009 713 875	
Phone number: (07) 3226 0475	Mobile phone:
Facsimile number:	Contact person (if required): Manager Environment
Email: rod.hailstone@bhpbilliton.com	
Postal Address: GPO Box 1389. Brisbane Qld 4001	

Property Details	
Property name: Dabin Holdings (Eastern Section)	
Real property description (lot on Plan/s): Lot 2 SP 214117	
Tenure: Leasehold	Primary Local Government Area: Isaac Regional Council
Planning Scheme Zone: Rural	Property area (ha): 10,300 Offset Area (ha): 207
Landzone / geology	Landzone 3 - Recent Quaternary alluvial systems, including closed depressions, paleo-estuarine deposits currently under freshwater influence, inland lakes and associated wave built lunettes. Landzone 9 - Fine grained sedimentary rocks, generally with little or no deformation and usually forming undulating landscapes.
Soils	Includes a diverse range of fine textured soils of moderate to high fertility, predominantly Vertosols and Sodosols.
Pre-clear regional ecosystem (V.)	11.3.1/11.3.2/11.3.25/11.9.5/11.8.11/11.8.5
Existing vegetation	11.10.3/11.3.1/11.3.25/11.8.11/11.8.5/11.9.10/11.9.2/11.9.5/11.9.7
Estimated age of vegetation	Varies between remnant, non-remnant and regrowth

Is there a PMAV currently over all or part of the property, Please detail	Yes – PMAV – 2012/003187
Legally Binding Mechanism	
☒ Voluntary Declaration (*Vegetation Management Act 1999*) Reference Number:	☐ Covenant (*Land Act 1994*/ *Land Title Act 1994*) Reference Number:
☐ Nature Refuge (*Nature Conservation Act 1992*) Reference Number:	☐ Other Reference Number:

3.0 Location and boundaries of Offset Areas

For the offset area to be afforded long term protection, as required in EPBC approval conditions, the Queensland Government require that the OAMP include:

"a clear definition of the location and boundaries of the offset areas, through maps and/or textual descriptions as well as an accompanying shapefile".

This is provided in Appendix 1 – Detailed Mapping.

4.0 Project impact and offset area summary

4.1 Project Impact

Both the MRA and K2 projects were referred to the DotE for assessment and declared a "controlled action" under the *Environment Protection and Biodiversity Conservation Act 1999* **(EPBC Act)**. The controlling provisions for both projects were potential impacts on listed threatened species and ecological communities. The assessment processes resulted in a quantified residual impact to threatened ecological communities (TECs) or threatened species as summarised below in Table 1.

Table 1. Summary of MNES impact

Project	Threatened species or ecological community	EPBC status	Area disturbed
K2	Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	13.2ha
	Natural grasslands of the Queensland Central Highlands and northern Fitzroy Basin	Endangered	31.7ha
MRA	Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	59ha
	Ornamental Snake (*Denisonia maculata*) *	Vulnerable	17.5ha

Note: * The offset for the Ornamental Snake will be provided in accordance with a separate Biodiversity Offset Management Plan.

4.2 Offset Area

The eastern section of Dabin Holdings has been identified as being able to satisfy all of the offset relevant conditions for both MRA and K2 with the exception of Ornamental Snake.

The Poitrel Mine Offset Area has already been established on Dabin Holdings through legally binding mechanisms. The remaining offset requirements are proposed to be placed on Dabin Holdings as detailed in Table 2 below and shown Appendix 1 – Detailed Mapping. Of particular interest is the staging of offsets for Brigalow TEC for the K2 Project.

The K2 project will be undertaken in a staged manner. Stage 1 will only impact the Brigalow TEC, while Stage 2 will impact Brigalow and Natural Grassland TEC. Given the staged approach to the K2 project, the Offset Area for Brigalow TEC will be provided and legally secured also in a staged approach. As calculated, the 13.2ha impact area is equivalently offset by 17ha of Brigalow TEC at Dabin. Given Stage 1 will only impact up to 18.9% of the 13.2ha (or 2.5ha over two patches), the equivalent offset area for Stage 1 is 3.2ha. The remaining 13.8ha Offset Area will be legally secured within 2 years of commencement of Stage 2 which is dependent upon BMC receiving approval for Surface Areas 6, 7 and 8. The offset areas are graphically represented in Appendix 1 – Detailed Mapping, while the K2 staged areas are represented in Figure 3 of the BOMP.

Table 2. Summary of Offset Areas to be placed on Dabin Holdings.

Project	Threatened species or ecological community	Offset area required		Timing of legal mechanism
Poitrel	Brigalow (*Acacia harpophylla* dominant and co-dominant)	337.5ha		Established
Kemmis II	Brigalow (*Acacia harpophylla* dominant and co-dominant)	17ha	3.2ha	Within 2 years of Stage 1 commencement
			13.8ha	Within 2 years of Stage 2 commencement
	Natural grasslands of the Queensland Central Highlands and northern Fitzroy Basin	65ha		Within 2 years of Stage 2 commencement
MRA	Brigalow (*Acacia harpophylla* dominant and co-dominant)	125ha		Within 2 years of commencement

4.2.1 Offset area equivalency

To ascertain the equivalency of the proposed offset areas, equivalency calculations were undertaken in accordance with the EPBC Act Environmental Offsets Policy and associated Offsets Assessment Guide using the EPBC Offset Calculator. Table 3 below presents a summary of the equivalency calculations, with the final column showing the proposed offsets directly offset over 100 per cent of the impact.

The full details of the calculations can be found in the BOMP (BMC, 2015). The proposed "future quality with offsets" scores used in the EPBC Offset Calculator are considered to be the offset specific management outcomes as discussed in section 5.2 below.

Table 3. Offset equivalency.

Project	Threatened species or ecological community	Impact area	Quantified impact score	Offset area	Offset %
K2	Brigalow (*Acacia harpophylla* dominant and co-dominant)	13.2ha	2.64	17ha	188.63%
	Natural grasslands of the Queensland Central Highlands and northern Fitzroy Basin	31.7ha	22.19	65ha	100.54%
MRA	Brigalow (*Acacia harpophylla* dominant and co-dominant)	59ha	35.4	125ha	103.5%
	Ornamental Snake (*Denisonia maculata*) *	Not part of this management plan			

5.0 Offset Area Management

5.1 Management Area objective

The management objective of the environmental offsets for MRA and K2 is:

To conserve and enhance the environmental values of the threatened ecological communities over the long term, by working to increase the extent of both remnant and regrowth vegetation and improving its condition and management.

The management area objective is estimated to be achieved within 20 years, but ecological benefit is expected to occur within 5-10 years. It is recognised that the timeframes are subject to natural environmental and climatic conditions while unexpected events and other potential risks are also identified in Section 7.0; Risks and Risk Management.

5.2 Offset Area Specific Management Outcomes

During the EPBC approval process (for both projects) the EPBC Offset Assessment Guide was used to define an equivalent offset for the residual significant impacts. This included use of the EPBC Impact Calculator and EPBC Offset Calculator, whereby the known condition of ecosystems (impact and offset) was represented as an attribute score, through use of Biocondition Assessment data and adoption of the *Qld Guide to Determining Terrestrial Habitat Quality* (currently version 1.1). The input scores and rationale used in those calculators and the Preliminary Documentation were approved by DotE.

The scores used in the 'Future Condition with offsets' section of the Offset Calculator have been adopted as the Specific Management Outcomes for the Offset Areas.

The management objective will be considered to have been delivered if the Specific Management Outcomes have been achieved.

During the course of the offset, ongoing monitoring and reporting will include measurements of Biocondition indices which will be translated into the EPBC Offset Calculator inputs through repeated adoption of the *Qld Guide to Determining Terrestrial Habitat Quality* (currently version 1.1). Upon such time as the EPBC Offset Calculator output provides the same or greater offset percentage as that stated in the final column of Table 3 then the offset will be deemed to have been delivered.

The future condition inputs as per the approval process are provided in Table 4 and Table 5.

Table 4. Specific management outcomes for Brigalow TEC areas

Attribute	Value/Score	Rationale
Future quality with offsets		
Site context	8	Increased connectivity to surrounding vegetation. Improved active management of weed and cattle grazing in conjunction with other combined offset areas.
Site condition	7	Reduction of grazing pressure will allow saplings and suckers to regenerate. Less trampling and increased woodier debris will provide more potential shelter habitat for reptiles.
Species stocking rate	7	Assumed density would increase due to the increase in habitat and feed items, plus reduction of predators (dogs and pigs) and cattle disturbance.
Average of above three quality component scores.	7.33	
Score	7	As per Offset Assessment Guide calculations.

Table 5. Specific management outcomes for Natural Grassland TEC areas

Attribute	Value/Score	Rationale
Future quality with offsets		
Site context	8	Continued connectivity to surrounding vegetation. Ongoing management of weed and cattle grazing in conjunction with combined offset area to the south.
Site condition	8	Reduction of grazing pressure will allow native forbs and grasses to improve in density and abundance. Active management of weeds will lead to an improvement in condition
Species stocking rate	8	Assumed density and extent would increase due to the reduction in grazing pressure and competition from weed species.
Average of above three quality component scores.	8	
Score	8	As per Offset Assessment Guide calculations.

5.3 Specific Management Actions

The Specific Management Outcome and Offset objective will be achieved through implementation of a range of specific management actions to be performed by the Landholder (or lessees), including vegetation regeneration, weed control, fire management, erosion and sediment control, management of livestock, and restrictions on access within the offset area.

Notwithstanding this OAMP specifically refers to, and is written for, management of clearly defined Offset Areas on Dabin Holdings (eastern section), the outcome and general contextual improvement will be achieved through the management of the broader property lot as a whole. This will reduce the likelihood of edge effects, weed invasion and provides security to the habitat connectivity in place.

With improved and active management of the Offset Areas it is anticipated that an improvement in both the condition and the context attributes of the Offset Areas can be achieved in a relatively short timeframe (5+ years).

The specific management actions consist of a range of on-ground management regimes which involve differing components to match the two types of threatened ecosystem communities as described below.

5.3.1 Brigalow

The management actions are designed to be consistent with the national recovery plan for the listed Brigalow ecological community (Butler 2007), which identifies the following on-ground activities that are likely to assist the recovery of the TEC:

- limiting disturbance (e.g. clearing for, or maintenance of, fence lines and roads) in or adjacent to remnants to minimise weed incursion (Butler 2007),
- making regular checks and carrying out appropriate treatment to avoid weed invasion (especially by exotic grasses) (Butler 2007),
- managing grass fuel loads and maintaining fire breaks to avoid hot fires in remnants (Butler 2007),
- managing grazing by domestic and native herbivores in a way that enables recruitment of native plant species and maintains a good cover of litter and woody debris including logs and fallen tree limbs (Queensland Parks and Wildlife Service 2000; Butler 2007),
- avoiding the use of the Brigalow ecological community for stock feed during droughts (Queensland Parks and Wildlife Service 2000), and
- avoiding damage to Brigalow and other native plants from aerial application of herbicides to control crop weeds (e.g. by using ground rig technology for herbicide application) (Queensland Parks and Wildlife Service 2000).

The specific management actions for the Brigalow offset areas are discussed over the following sub-sections while Table 6 below outlines the performance objectives, timing and responsible party for delivering the actions.

Limiting disturbance

The value of the Brigalow offset area in its remnant state is to be recognised and no disturbance to the vegetation community will be allowed during the term of this OAMP. This includes:

- No clearing of the vegetation except in the case of emergency. Maintenance of vegetation extent for existing roads, firebreaks, easements and fencing is permissible. Any new firebreaks or fencing should be installed outside of the perimeter of the Brigalow community.
- Thinning of Brigalow to manage dense Brigalow regrowth (to promote rapid recovery of stunted Brigalow stands) may occur where canopy is >70%, stem count is >10,000 / ha, and recommended by a qualified ecologist.
- No ground disturbance (i.e ploughing)
- No removal of ground cover and organic litter
- Minimisation of vehicle and machinery movement through the community
- No deliberate introduction of non-endemic species
- No use of fertiliser at locations where it could move into the offset area

Managing grazing by domestic and native herbivores

Grazing management requires a balanced approach in order to deliver positive improvement outcomes. As such, grazing in the Brigalow offset areas will continue but stocking densities and frequencies will be managed to avoid overgrazing and damage to microhabitats whilst also managing fuel load for fires. Management activities will be focussed on stock rotation and appropriate grazing pressure.

A controlled grazing regime will be introduced which will be based on local conditions and knowledge and conform to the published science on grazing in native woodlands and grasslands, as has been documented in (Lunt 2005) including the following considerations;

- agricultural stock grazing may be implemented for biodiversity conservation of native grasslands and savannah woodlands
- extremely low or excessively high stocking levels should be avoided.
- where possible stock should be removed from high quality remnants in spring and early summer to enable native plants to flower and set seed.
- stock will be excluded from the Brigalow offset area during periods of drought.

In addition to managing stock on the property, native herbivores will also be managed to avoid plague proportions becoming established or moving through the offset area. Ideally native species will be encouraged to disperse and move away from the offset area through use of noise, movement and other nuisance activities.

Management efforts discussed above in regards to grazing and pasture management are expected to have the side benefit of adjusting rates of erosion towards those naturally experienced in the region. Having an appropriate groundcover and species distribution should protect the soil from the various types of erosion forces, while the species diversity will also aid in improving soil condition to increase resilience to those forces.

Management actions will include:

- Provision of off-stream watering points for stock
- If the landowner notices that the land is eroding, then the Landowner is to exclude or remove the stock from the affected area until such time as the conditions are more desirable to enable grazing stock to return to the area without adversely impacting on the ground.

Pest animal and weed management

From a pest and weed perspective, the dominant risk to improving the condition of the Brigalow TEC is that of Buffel grass or Parthenium infestation, and soil disturbance by pigs. These key risks will be managed by:

- An initial herbicide spraying program (using appropriate techniques for the target weed/s species and distribution) in areas that are within or adjacent to the offset areas. It is noted that aerial application of herbicides within the offset area is not permitted.
- Subsequent inspections for the presence of weed species will occur at regular intervals not exceeding 6 months. Further application of herbicides will be used to control developing infestations of weed species.
- Implementation of a pig eradication program at times when pig presence and abundance is considered to have an impact upon the Offset Areas.
- Minimise the introduction of pest animals and control of existing populations of pest animals within the Offset Area in accordance with the Land Protection (Pest and Stock Route Management) Act 2002.

Wild dogs may also reduce the rate of TEC condition improvement through impacts to ecological processes and balances. If wild dogs are noticed on the property a baiting program will be implemented.

Fire regime management

Fire management is important in the Brigalow TEC because of its susceptibility to hot burns.

To the extent practicable, fire is to be excluded from the Brigalow TEC Offset Area, except for ecological burns. This will be achieved by:

- maintaining effective and appropriate firebreaks relative to the Offset Area;
- firebreaks are co-located with existing roads and fence lines on the property wherever practicable;
- using an appropriate grazing intensity to minimise the fuel load during peak fire season;
- fire is not used as a tool for regrowth management on the property and the risk of wildfire is managed in cooperation with neighbours; and
- an ecological, low intensity fire may be used at intervals greater than 7 years if recommended by a qualified ecologist.

5.3.2 Grassland

Currently, a recovery plan for the Natural Grassland of the Central Queensland Highlands community does not exist, however the *Approved Conservation Advice for Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin* (Approved 2008) provides some priority threat abatement and recovery actions, examples of which are as follows:

- Identify occurrences of high conservation priority.
- Investigate and implement formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure.
- Monitor known occurrences to identify key threats or the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Develop and implement management plans for the eradication of weeds such as Parthenium (*Parthenium hysterophorus*), Parkinsonia (*Parkinsonia aculeata*), Prickly Acacia (*Acacia nilotica* subsp. *indica*) and Buffel Grass (*Cenchrus ciliaris*).
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on the ecological community.
- Observe appropriate State protocols to avoid the spread of weeds. Implement good hygiene measures for mowing and grading equipment and take appropriate steps to avoid dispersing seeds when moving stock.
- Maintaining a good cover of native perennial grasses and spelling the grasslands from grazing are reliable methods of managing the risk of weed invasion.
- Grazing management should focus on maintaining a good cover of perennial grasses and legumes, especially the most palatable species and carrying vegetation cover through the driest years.
- Manage known sites on private property to ensure appropriate cattle and sheep grazing regimes are conducted outside the growing season, i.e. when plants are not fertile.
- Where possible, use an intermittent grazing regime in preference to burning. Avoid burning (or grazing or slashing) during peak flowering season (spring to summer).

As shown above, many of the recovery activities are generally not ‘on-ground’ based, and indeed the research and survey work done to date, along with the involvement with the land manager and the establishment of a

conservation mechanism over the Grassland Offset at Dabin delivers many of the recovery activities. However this OAMP provides for specific on-ground management activities to assist with recovery of the Natural Grassland TEC to which it applies. These are discussed over the following sub-sections while Table 7 below outlines the performance objectives, timing and responsible party for delivering the actions.

Managing grazing by domestic and native herbivores

Grazing management is critical to the improvement of the Natural Grassland offset area. The area will continue to be used for commercial production of cattle, however stocking densities and frequencies will be altered to avoid overgrazing and allow native grass seed to set naturally whilst minimising the likelihood of weed infestation. Using existing fence arrangements, a controlled grazing regime will be introduced which will be based on local conditions and knowledge and conform to the published science on grazing in native woodlands and grasslands, as has been documented in (Lunt 2005) including the following considerations;

- agricultural stock grazing may be implemented for biodiversity conservation of native grasslands and savannah woodlands
- extremely low or excessively high stocking levels should be avoided.
- where possible stock should be removed from high quality remnants in spring and early summer to enable native plants to flower and set seed.
- stock will be excluded from the Grassland offset area during periods of drought.

In addition to managing domestic stock on the property, native herbivores will also be managed to avoid plague proportions becoming established or moving through the offset area. Ideally native species will be encouraged to disperse and move away from the offset area through use of noise, movement and other nuisance activities.

Further, the use of fertilisers for pasture improvement will not be allowed.

Management efforts discussed above in regards to grazing and pasture management are expected to have the side benefit of adjusting rates of erosion towards those naturally experienced in the region. Having an appropriate groundcover and species distribution should protect the soil from the various types of erosion forces, while the species diversity will also aid in improving soil condition to increase resilience to those forces. Management actions will include:

- Provision of off-stream watering points for stock
- If the landowner notices that the land is eroding, then the Landowner is to exclude or remove the stock from the affected area until such time as the conditions are more desirable to enable grazing stock to return to the area without adversely impacting on the ground.

Weed and pest animal management

From a weed and pest animal perspective, the dominant risk to improving the condition of the Natural Grassland TEC is that of Buffel grass infestation or further establishment. This key risk will be managed by:

- An initial herbicide spraying program (using appropriate techniques for the weed distribution and proximity to grassland species) in known areas of Buffel grass infestations that are within or adjacent to offset areas. Spraying will be by a methodology to limit exposure of the grassland to any herbicide (ie, not aerial spraying).
- Subsequent inspections for the presence of weed species will occur at regular intervals as part of the quarterly monitoring checklist.
- Subsequent herbicide spraying programs will be performed at intervals suited to regermination of Buffel grass and seasonal timing and conditions pending the findings of the regular inspections.
- Minimise the introduction of pest animals and control of existing populations of pest animals within the Offset Area in accordance with the Land Protection (Pest and Stock Route Management) Act 2002.

Limiting disturbance

The value of the Grassland offset area in its remnant state is to be recognised and disturbance to the vegetation community is to be minimised as much as practically possible during the term of this OAMP. This includes:

- No further ground disturbance or clearing of the vegetation (i.e ploughing) except :
  - in areas of Buffel grass infestation where turning of the soil may assist in weed management.
  - for maintenance of existing roads, fences, firebreaks and easements
- Minimisation of vehicle and machinery movement through the community
- The construction of new firebreaks and fences is permitted provided that the new construction does not reduce the extent of the Grassland offset.
- No deliberate introduction of non-endemic species
- No use of fertiliser at locations where it could move into the offset area

Fire regime management

To the extent practicable, fire is to be excluded from the Grassland TEC Offset Area, except for ecological burns. This will be achieved by:

- maintaining effective and appropriate firebreaks relative to the Offset Area;
- firebreaks are co-located with existing roads and fence lines on the property wherever practicable;
- fire is not used as a tool for regrowth management on the property and the risk of wildfire is managed in cooperation with neighbours; and
- an ecological, low intensity fire may be used at intervals recommended by a qualified ecologist.

Table 6. Brigalow Offset Area Management Actions.

Management activity	Performance objectives	Where, when and how will the activity be carried out	Who will be carrying out the activity	Monitoring method	Reporting
Limiting disturbance	The extent and condition of Brigalow TEC will be maintained or increased between each successive BioCondition assessment.	Disturbance to vegetation within the offset is not permitted, except for maintenance of vegetation for: • existing roads, firebreaks, easements and fencing. New firebreaks or fencing if required should be installed outside of the perimeter of the Brigalow community. Thinning of Brigalow to manage dense Brigalow regrowth (to promote rapid recovery of stunted Brigalow stands) may occur where canopy is >70%, stem count is >10,000 / ha, and recommended by a qualified ecologist Ground disturbance (i.e ploughing) is not permitted. Removal of groundcover and organic litter is not permitted. Vehicle and machinery movement through the offset area is to be minimised. Deliberate introduction of non-endemic species is not permitted. The use of fertilisers on the property at locations where it could move into the offset area is to be avoided.	Landowner / Land manager	All activities will be monitored through • routine inspections by the landholder and or agistee. • Landowner to develop a basic checklist for observations or actions relevant to managing the offset, including o weather conditions, o grazing intensity and stock rotation o pasture management activities such as seeding or fertilising, o pest and weed occurrence/intensity and management activities, o erosion issues and any control works, o incidents of fire and description o general property management activities such as fencing • checklist to be completed quarterly by land manager. • ongoing interactions between BMC & the landholder including landholder records and anecdotal discussions. Biannual photopoint monitoring for first 2 years, then annually for next 5 years, then biennially for remaining duration of offset.	Biocondition reporting to be undertaken ever 5 years. A detailed report will be submitted to the administering Government department at an interval not exceeding 5 years. The detailed report will compile and make an assessment of: • quarterly checklist data • photopoint monitoring data • Biocondition results The summary report will undertake recalculation of the Offset Area score (as per EPBC calculator) to determine condition trajectory and ascertain if the Offset Area has achieved the outcome.
Grazing management	An improvement in the site condition and species stocking rate scores between each successive BioCondition assessment. Natural regeneration of Brigalow species will be recorded at each Biocondition Assessment.	The Landowner may graze stock in the Brigalow area in the following manner: • to occur primarily for the purpose of minimising the fuel load and risk of hot fire burn. • stock are to be carried at similar stocking densities to that historically carried on the property, however the duration of grazing within the Brigalow areas is to be reduced commensurate with fuel load present, such that grazing may be more intense if the Brigalow stem count exceeds 10,000/ha. • grazing intensity should be reduced during the wet season. • cattle should not be moved into the Brigalow area if they have come from a grazing area known to contain weed species that are seeding, until the fodder has passed through their systems. • stock will be excluded from the Brigalow offset area during periods of drought. The grazing regime is to be carried out for the life of the Offset Area Management Plan.	Landowner / Land manager		

		The presence and abundance of native herbivores will be noted by the land manager and if abundance is deemed to be excessive then the landowner will encourage those species to move to other non-offset areas via noise, human activity or other nuisances.	• 5 yearly Biocondition monitoring
Weed management	Keep weed cover at or below baseline levels as determined by BioCondition surveys.	An initial weed spraying program will occur within the first 6 months of offset establishment. This will specifically target any small populations of Buffel grass or Parthenium that may be present. Thereafter the Landowner will undertake regular assessments for weed development. Should any weeds become established then additional weed control will be undertaken as early as practicable considering climatic conditions. The presence of foreign perennial weeds will be kept below 5% ground cover. Cattle should not be moved into the Brigalow area if they have come from a grazing area known to contain weed species that are seeding, until the fodder has passed through their systems.	
Pest animal management	Occurrence of pest animals is at or below levels estimated at commencement through baseline assessments.	Wild pigs pose the greatest risk to the improvement of the Brigalow offset area. Should the presence of pigs be noticed during the quarterly checklist, a pig eradication program shall be implemented within the Offset Area in accordance with the Land Protection (Pest and Stock Route Management) Act 2002. A similar program could be implemented if other pest animals become a noticeable problem. Where possible, native pest animals should be encouraged to move outside of the offset area through disturbance and nuisance activities such as noise and human presence. Anecdotal evidence (eg photos, written records) of pest animal presence and abundance should be collected.	
Fire management	Maintenance of appropriate controls to enhance biodiversity and reduce fuel loads. The occurrence of any fire in the offset area will be recorded. Biocondition assessments will make a determination of impact resulting from any fire. Allow the accumulation of fallen timber/debris and the establishment of natural undergrowth. Biocondition Assessments will be used to measure this.	Fire management is a key item in the threat abatement plan. To the extent practicable, fire is to be excluded from the Brigalow TEC Offset Area, except for ecological burns. A low intensity fire may be permitted at intervals greater than 7 years for ecological purposes if recommended by a qualified ecologist. Within 12 months from the date of this Offset Area Management Plan coming into effect a member of the Rural Fire Service Brigade (RFSB) inspect the offset area to assess the suitability of the current and proposed firebreaks. Any recommendation for improvement will be implemented within 6 months from receipt of those recommendations, provided they do not contradict this OAMP. Stock may be grazed in the Offset Area to assist in fuel reduction.	

Table 7. Natural Grassland Offset Area Management Actions.

Management activity	Performance objectives	Where, when and how will the activity be carried out	Who will be carrying out the activity	Monitoring method	Reporting
Grazing management	An increase in the density and abundance of indicator species in the Grassland TEC between each successive BioCondition assessment. An improvement in the site condition and species stocking rate scores between each successive BioCondition assessment. The presence of at least 4 indicator native grasses, and an average of 10,800 tussocks per ha.	The Landowner may graze stock in the grassland offset area in the following manner: • focus on maintaining a good cover of perennial grasses and legumes and encourage regrowth of TEC indicator species. • Maintain a minimum of 50% ground cover at the end of the dry season. • grazing should be avoided during peak flowering and seed set period (Oct – Dec inclusive). • cattle should not be moved into the Grassland area if they have come from a grazing area known to contain weed species that are seeding, until the fodder has passed through their systems. • Stock will be excluded from the Grassland offset area during periods of drought. Existing fencing will be maintained to enable stock management in the grassland offset area. Any new water points are to be located outside the offset area where possible. Relocation of existing water points will be investigated if these are considered to have an impact upon community recovery. The grazing regime is to be carried out for the life of the Offset Area Management Plan.	Landowner / Land manager	All activities will be monitored through • routine inspections by the landholder and or agistee. • Landowner to develop a basic checklist for observations or actions relevant to managing the offset, including o weather conditions, o grazing intensity and stock rotation o pasture management activities such as seeding or fertilising, o pest and weed occurrence/intensity and management activities, o erosion issues and any control works, o incidents of fire and description o general property management activities such as fencing • checklist to be completed quarterly by land manager. • ongoing interactions between BMC & the landholder including landholder records and anecdotal discussions.. Biannual (May and November) photopoint monitoring for first 2 years, then annually (April/May) for next 5 years, then biennially	Biocondition reporting to be undertaken ever 5 years. A detailed report will be submitted to the administering Government department at an interval not exceeding 5 years. The detailed report will compile and make an assessment of: • quarterly checklist data • photopoint monitoring data • Biocondition results The summary report will undertake recalculation of the Offset Area score (as per EPBC calculator) to determine condition trajectory and ascertain if the Offset Area has achieved the outcome.
Weed management	The known and mapped Buffel grass infestation will be reduced or eradicated within 5 years of commencement. No new weed infestations will develop during the course of the offset. The presence of foreign perennial weeds to below 5%,	An initial weed spraying program will occur within the first 6 months of offset establishment with a secondary follow up to occur prior to any regrowth allowed to set seed. Thereafter the Landowner will undertake regular assessments for weed infestations as part of the routine quarterly checklist. If the presence of foreign perennial weeds exceeds 5% ground cover, then: • Subsequent herbicide spraying programs will be performed at intervals suited to regermination of Buffel grass and seasonal timing and conditions pending the findings of the regular inspections. Should the Buffel grass persist, additional targeted herbicide spraying will occur as soon as reasonably practicable until such point as the natural grassland species are able to outcompete the Buffel grass. If it becomes apparent that a large seed bank is present then the land manager may choose to plough the soil (only in the areas of Buffel grass) to promote germination so that herbicides are more effective longer term.			

		Grazing in accordance with the regime described above will encourage selective consumption of Buffel grass above other grass species. As such grazing should also be used as a tool to manage weeds. Cattle should not be moved into the Grassland area if they have come from a grazing area known to contain weed species that are seeding, until the fodder has passed through their systems. The land manager will be responsible for removing any new weed species that may occur within 6 months of first being recorded.	(April/May) for remaining duration of offset. • 5 yearly Biocondition monitoring
Pest animal management	Occurrence of pest animals remains at or below levels estimated through baseline biodiversity assessments.	Native herbivores may pose a risk to the improvement of the Grassland offset area should they reach plague proportions. Control of pest animals within the Offset Area shall be undertaken in accordance with the Land Protection (Pest and Stock Route Management) Act 2002. When required, pest animals should be encouraged to move outside of the offset area through disturbance and nuisance activities such as noise and human presence. Anecdotal evidence (eg photos, written records) of pest animal presence and abundance should be collected.	
Limiting disturbance	The extent and condition of Natural Grassland TEC will be maintained or increased between each successive BioCondition assessment. The presence of at least 4 indicator native grasses, and an average of 10,800 tussocks per ha.	Disturbance of the vegetation and soil in the offset area is to be limited to that necessary to encourage improvement in condition and extent for the duration of the offset. This will be achieved by: • No further ground disturbance or clearing of the vegetation (i.e ploughing) except : o for maintenance of existing fire breaks and fencing o in areas of Buffel grass infestation where turning of the soil may assist in weed management by speeding up seed germination to then be eradicated. o for maintenance for existing roads and easements • Avoidance of pasture improvement activities • Minimisation of vehicle and machinery movement through the community • New firebreaks and fences may be installed provided that the new construction does not reduce the extent of the Grassland offset. • No deliberate introduction of non-endemic species • No use of fertiliser at locations where it could move into the offset area	
Fire management	Maintenance of appropriate controls to enhance biodiversity and reduce fuel loads. The occurrence of any fire in the offset area will be recorded.	To the extent practicable, fire is to be excluded from the Grassland TEC Offset Area, except for ecological burns. A low intensity fire may be permitted at intervals recommended by a qualified ecologist. Within 12 months from the date of this Offset Area Management Plan	

Biocondition assessments will make a determination of impact resulting from any fire.	coming into effect a member of the Rural Fire Service Brigade (RFSB) inspect the offset area to assess the suitability of the current and proposed firebreaks. Any recommendation for improvement will be implemented within 6 months from receipt of those recommendations, provided they do not contradict this OAMP. Stock may be grazed in the Offset Area to assist in fuel reduction.	

6.0 Monitoring, evaluation, reporting and adaptive management

6.1 Monitoring program

Condition 6c.vi of the Kemmis II and MRA approvals requires, as part of the plan to improve the baseline condition, a monitoring plan to be developed to assess the success of management activities. The monitoring must be statistically robust and must be able to quantify change in the condition of the TECs. This should include, but not be limited to, control sites and periodic ecological surveys to be undertaken by a qualified ecologist.

The monitoring program includes the items listed below and presented in Table 6 and Table 7.

- Quarterly checklist completed by Land manger
- Photo point monitoring to be conducted at intervals described below
- BioCondition assessment(s)

6.1.1 Quarterly checklist

The quarterly checklist is a basic approach to capturing the observations and general farm management practices that occur, but are only limited to the offset areas. It is expected that much of this information is collected as part of standard farm management practices by the land manger. The types of data that will be sought includes:

- weather conditions,
- grazing intensity and stock rotation
- pasture management activities such as seeding or fertilising,
- pest and weed occurrence/intensity and management activities,
- erosion issues and any control works,
- incidents of fire and description
- general property management activities such as fencing
- general observations

6.1.2 Photopoint monitoring

Photopoint monitoring has already commenced on the property as part of establishing baseline conditions. This type of monitoring will continue to occur biannually for the first 2 years (May and November), then annually (April/May) for the next 5 years and then biennially (April/May) for the remaining duration of the offset. This monitoring will be performed at the Biocondition sites in a North, East, South and West direction by the landholder or land manager at the already established locations (and others if deemed necessary).

6.1.3 Biocondition

BioCondition monitoring will be performed by a qualified Ecologist and occur at an interval not exceeding 5 years, although additional monitoring may be carried out if climatic conditions or other events are expected to have had a significant impact. The monitoring will follow the prescriptive methodology and occur at the same monitoring locations each time. An evaluation of the Biocondition data will be made at the time of monitoring to again inform and recommend modification to management regimes if required.

6.2 Evaluation, reporting and adaptive management

Condition 6c.viii of the Kemmis II and MRA approvals requires, as part of the plan to improve the baseline condition, a process to report to the DotE the progress of management activities undertaken in the offset areas and the outcome of those activities, including identifying any need for improved management and activities to undertake such improvement.

Accordingly, evaluation and reporting on the monitoring activities discussed above will occur at intervals not exceeding 5 years and will be provided to the Department upon completion.

The evaluation of the quarterly checklist and photopoint monitoring will be performed by the Land Owner and occur at intervals not exceeding 5 years. That evaluation will include an assessment of the condition of the ecosystems in terms of vegetation cover and health and recommendations for modified management practices provided to the Land Manager. Reporting for photopoint monitoring will form part of the Biocondition monitoring report.

A formal reporting process on the Biocondition monitoring will occur immediately following each Biocondition monitoring event which will not exceed a 5 yearly interval. This reporting process will include an evaluation of all data collected during the preceding 5 years and make a comparison to earlier report findings including baseline conditions. Importantly this reporting process will re-calculate the condition of the offset areas using the Offset Calculator (DotE) and make a determination regarding achievement of the Specific Management Outcomes and any recommendations for adaptive management required. The evaluation will enable a determination of trajectory for the longer term condition of the TECs, and if not on an appropriate trajectory then modifications to management actions can be applied. Should recommended management actions vary

drastically from those detailed in this OAMP then the DotE will be informed as part of normal reporting processes. The report will be submitted to the administering authority.

7.0 Risks and risk management

A risk analysis has been performed to identify current threats and potential risks to achieving the specific management outcomes, and to identify the management actions required to minimise those risks. The highest risks to the Offset Areas are exotic weed invasions, over grazing and uncontrolled fire. However, these threats will be effectively managed by the management actions above. The risk analysis is provided below in Table 8.

Table 8. Risk analysis.

Risk Event	Unmitigated risk level	Proposed actions to minimise risk	Proposed actions if risk event occurs
Pest Plant invasion (and further spread)	**High**	Undertake an initial weed spraying program (focussed on Buffel grass) within 6 months of offset establishment, and a subsequent follow up spraying program within the following 12 months. Thereafter use of cattle grazing during non-flowering periods for native grasses. Spot spraying should occur on an as needed basis for small outbreaks.	If the initial spraying program (x2 events) is unsuccessful or inadequate, a third spraying program should occur within 3 years of offset establishment. If after 3 spraying attempts the weed infestation remains, the infected area and soil may be disturbed (i.e ploughed or turned) to promote seed germination of remaining seed stock with subsequent spraying prior to flowering. The entire process may then be repeated if necessary.
Over grazing	**Moderate**	Grazing of domestic livestock may occur on Dabin Holdings (including the Offset Area) under the following conditions: • avoid the native grassland offset area during the peak flowering and seed set season; • "grazing in the Brigalow area for fuel reduction purposes only. • rotate stock at rates appropriate to achieve 30% cover at the end of the dry season. Fencing will be checked as part of normal management responsibilities for a grazing property. This is an ongoing and continuous process by the land manager. The quarterly inspection checklist includes monitoring of fencing.	Stock removed from offset area until ground cover has improved or flowering season has finished. Any entry points due to fencing breaks etc. to be repaired to a stock proof condition within a 5 day period.
Fire Outbreak	**Moderate**	Fire to be excluded wherever possible from the offset area with low intensity fires >20year intervals. Seek advice from local RFSB to develop appropriate fire break plan. Install and maintain firebreaks at appropriate widths to prevent fires on adjoining properties from impacting on the offset area. Manage fuel loads through controlled grazing. *Force Majeure* events are acknowledged being separate from general fire use practices. Fire control lines to be checked annually for condition and adequacy.	Destock the offset area, re-establish fire breaks and control lines and if appropriate, widen fire control lines and reassess fuel load reduction practices.
Pest Animals	**Low**	Maintain annual baiting program on the property.	If an increase in pig or wild dog activity is noted during monthly checklist then a program of baiting and or pig trapping is to be instigated until the population and occurrence of these pests is reduced. This will have a greater impact if control measures are

			integrated with neighbouring properties.
Erosion	**Low**	Maintaining grass cover at a minimum of 30% at the end of the dry season. This, in conjunction with other forms of groundcover (fallen woody debris, organic matter etc.), will minimise the risk of erosion.	Further reduction of grazing levels and checking on the cause of any point source erosion (such as illegal vehicle access) and rectifying access if this is the cause.
Drought	**Low**	Manage grazing levels according to the amount of dry matter available for grazing. Maintain fire control lines as detailed above.	Allow Offset Area to recover post drought/fire, particularly through the control of weeds. Maintain a minimum of 30% grass cover at the end of the dry season.
Alternative Landuse	**Low**	Training and awareness of offset requirements for Land Manager. Forestry and Native Timber Harvesting are **excluded** from the offset area.	No clearing of native trees are to occur within the offset area, except for safety purposes. Reassess access protocols for any lessees etc., signage and general access.

8.0 Conclusion

The Offset Areas to be managed by implementation of this Offset Area Management Plan are:

- 3.2ha of "Brigalow (*Acacia harpophylla* dominant and co-dominant) Threatened Ecological Community"(stage 1 Kemmis 2 project)
- 13.8ha of "Brigalow (*Acacia harpophylla* dominant and co-dominant) Threatened Ecological Community" (stage 2 Kemmis 2 project)
- 125ha of "Brigalow (*Acacia harpophylla* dominant and co-dominant) Threatened Ecological Community"
- 65ha of "Natural grasslands of the Queensland Central Highlands and northern Fitzroy Basin Threatened Ecological Community"

The proposed Brigalow and Natural Grassland TEC offset areas for MRA, K2 stage 1 and K2 stage 2 will be legally secured via a Voluntary Declaration under the Queensland Vegetation Management Act 1999 (VMA) within 2 years of commencement of construction of the relevant Project or stage of Project. Upon such time as the offset areas reach remnant status and the offset outcomes have been achieved, the ecosystem condition information will be provided to the Queensland Herbarium for remapping to provide long term protection. At this same time, the BOMP and this OAMP will no longer apply.

9.0 Consent

Administering authority

SIGNED by the (enter name of the delegate of the Chief Executive Officer and the relevant delegation) to indicate approval of the offset area management plan.

Name:……. Position:……..

Signature:……..

Date…….....

Landholder

The landowner agrees:

1. Any non-compliance with the requirements of this offset area management plan shall constitute a breach of the terms and conditions of the legally binding mechanism entered into.
2. To notify the State in writing of an Event, or the likelihood of the occurrence of an Event.
   Event means any agreement or understanding entered into or accepted by and or circumstance permitted or suffered by the landholder which effects a change of ownership, control or use of the offset area, the exercise of power of sale under any Mortgage, the granting of a Mortgage, the appointment of a receiver, the death of a landholder or any other circumstance which may allow or permit a person, other than the Landholder to own, control or use the offset area.
   In notifying the State of an Event, the landholder will notify the State of the nature of the change, or potential change of ownership, control or use result from the Event, and the name and address of any person who may own, control or use the offset area as a result of the Event.
3. That if, at the time of execution of this offset area management plan, there exists a Property Map of Assessable Vegetation (PMAV) over the offset area or a part of it, the landholder hereby agrees, where the management plan area is identified as Category X on the PMAV, to the replacement of the PMAV by the State to reflect the offset area as Category A.
4. To take all necessary steps as may be required to accomplish the obligations contained in this offset area management plan.

The landowner acknowledges:

5. That before the State will agree to the release this offset area management plan the State must be satisfied that the objectives and activities contained in the offset area management plan have been achieved.

The landowner notes:

6. All reports, notices or requests for amendment in relation to this offset area management plan must be in writing and delivered to the administering authority at the following address:
   <Insert departmental name>
   <Insert postal address and telephone number>

SIGNED by BHP Billiton Mitsui Coal Pty Ltd being the current owner/s of the abovementioned property to indicate that the terms of this offset area management plan including responsibilities under the offset area management plan, have been read, understood and accepted.

Name:……. Signature:……..

Witness name:……. Signature:……..

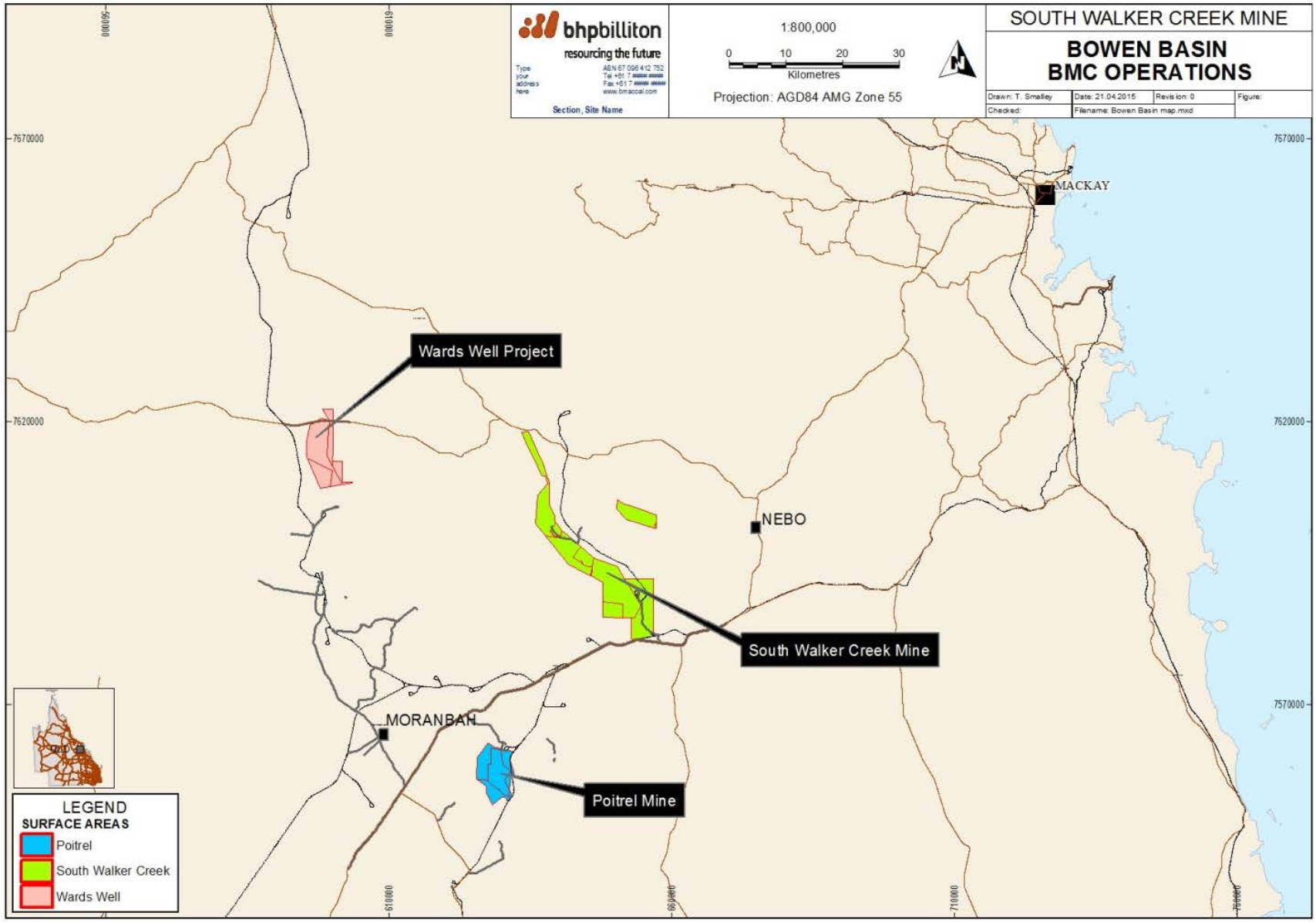
Date…….....

Name:……. Signature:……..

Witness name:……. Signature:……..

Date…….....

Appendix 1 – Detailed Mapping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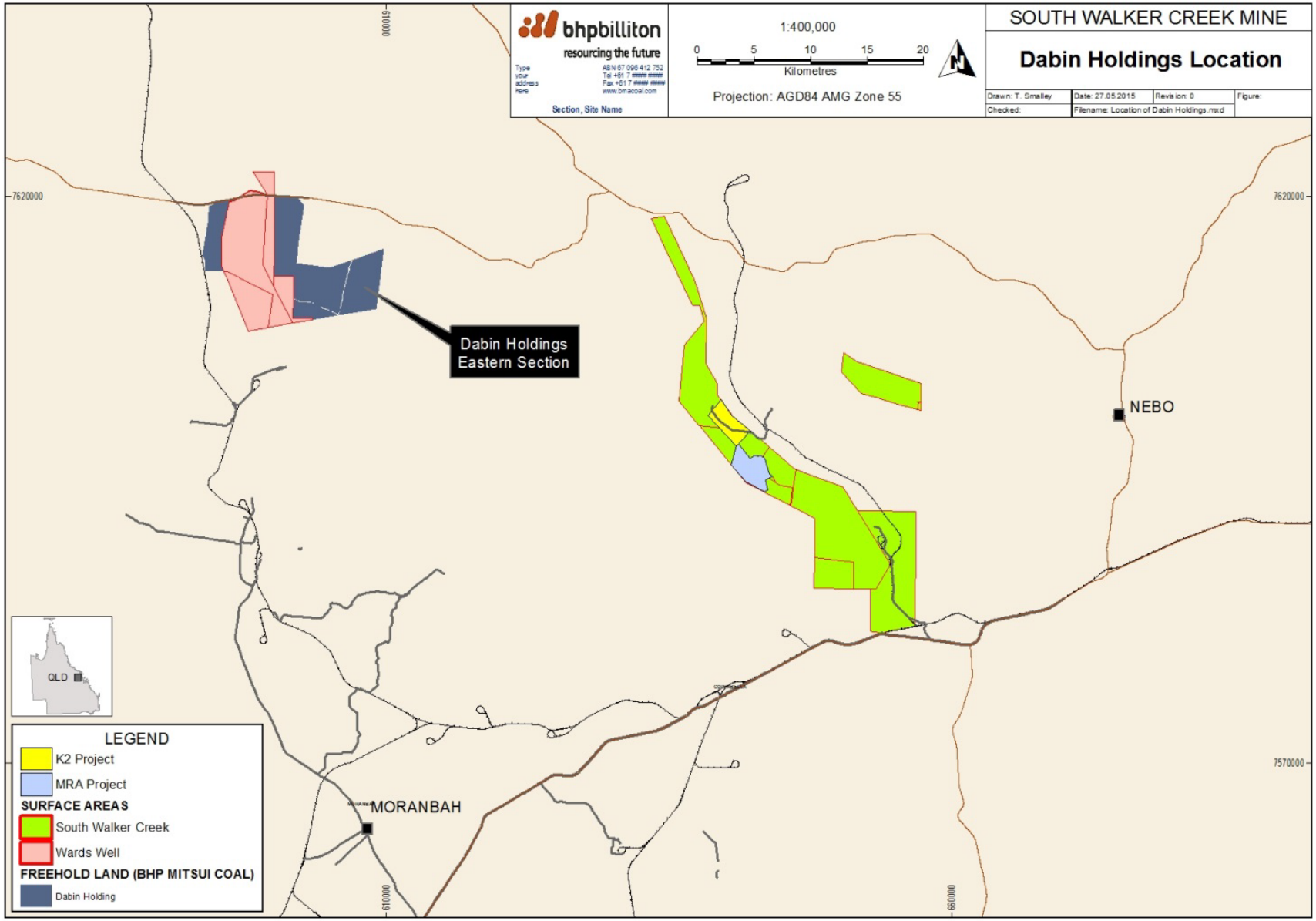
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Date: 27.05.2015
Revision: 0
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MORANBAH
QLD
LEGEND
K2 Project
MRA Project
SURFACE AREAS
South Walker Creek
Wards Well
FREEHOLD LAND (BHP MITSUI COAL)
Dabin Holding
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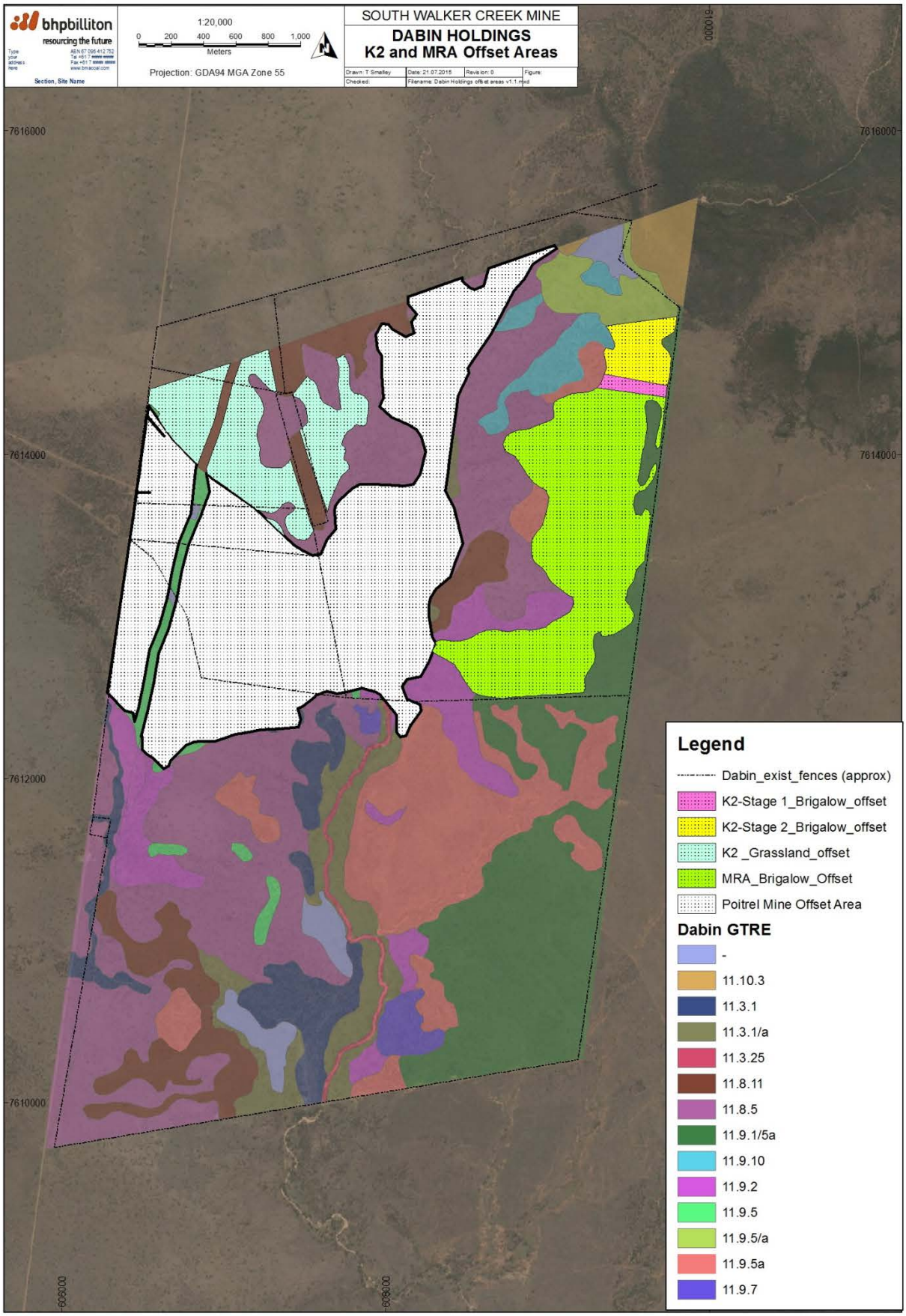
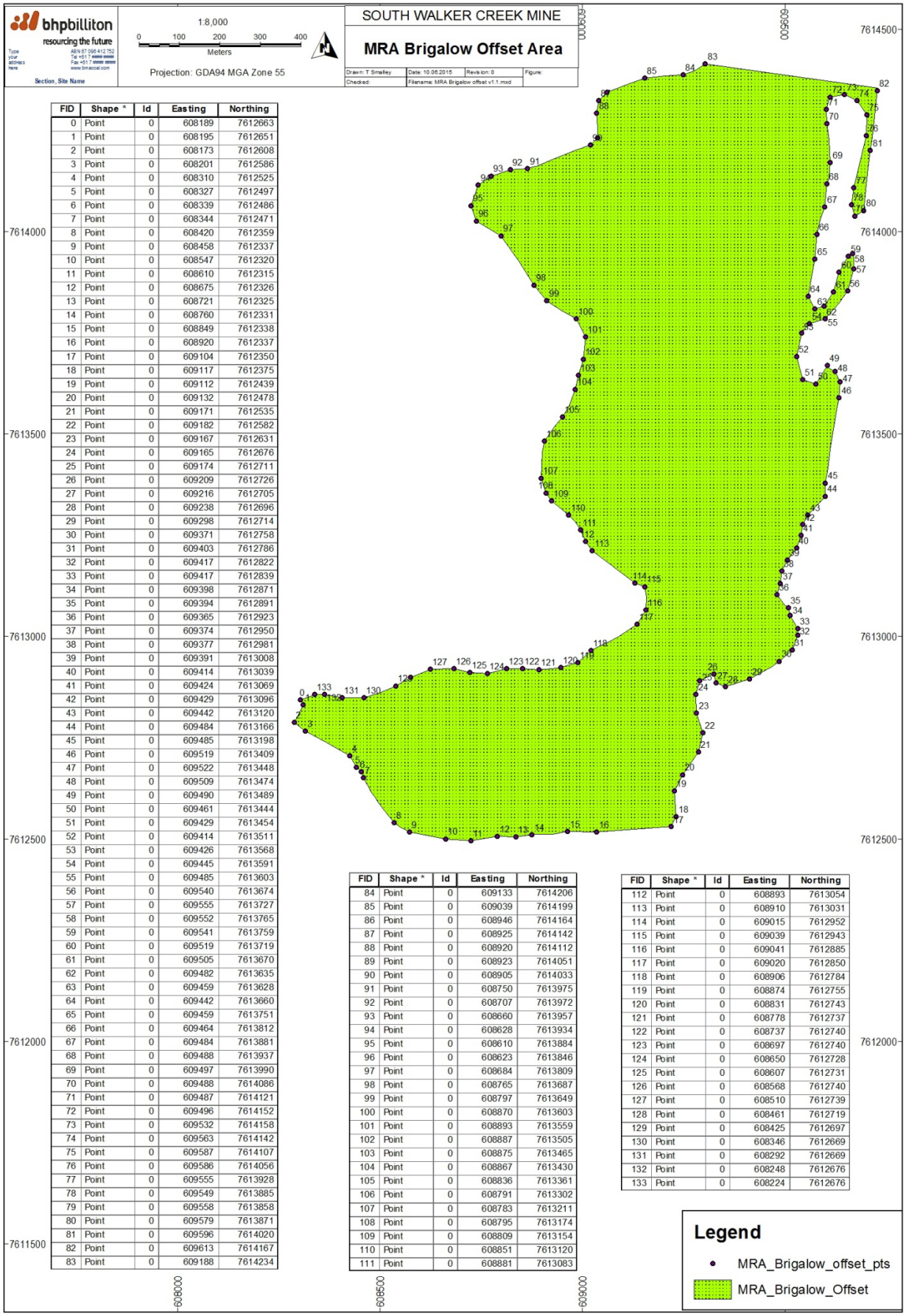
7570000
610000
660000



Overview of MRA and K2 (and Poitrel) Offset Areas on Dabin Holdings (eastern section)



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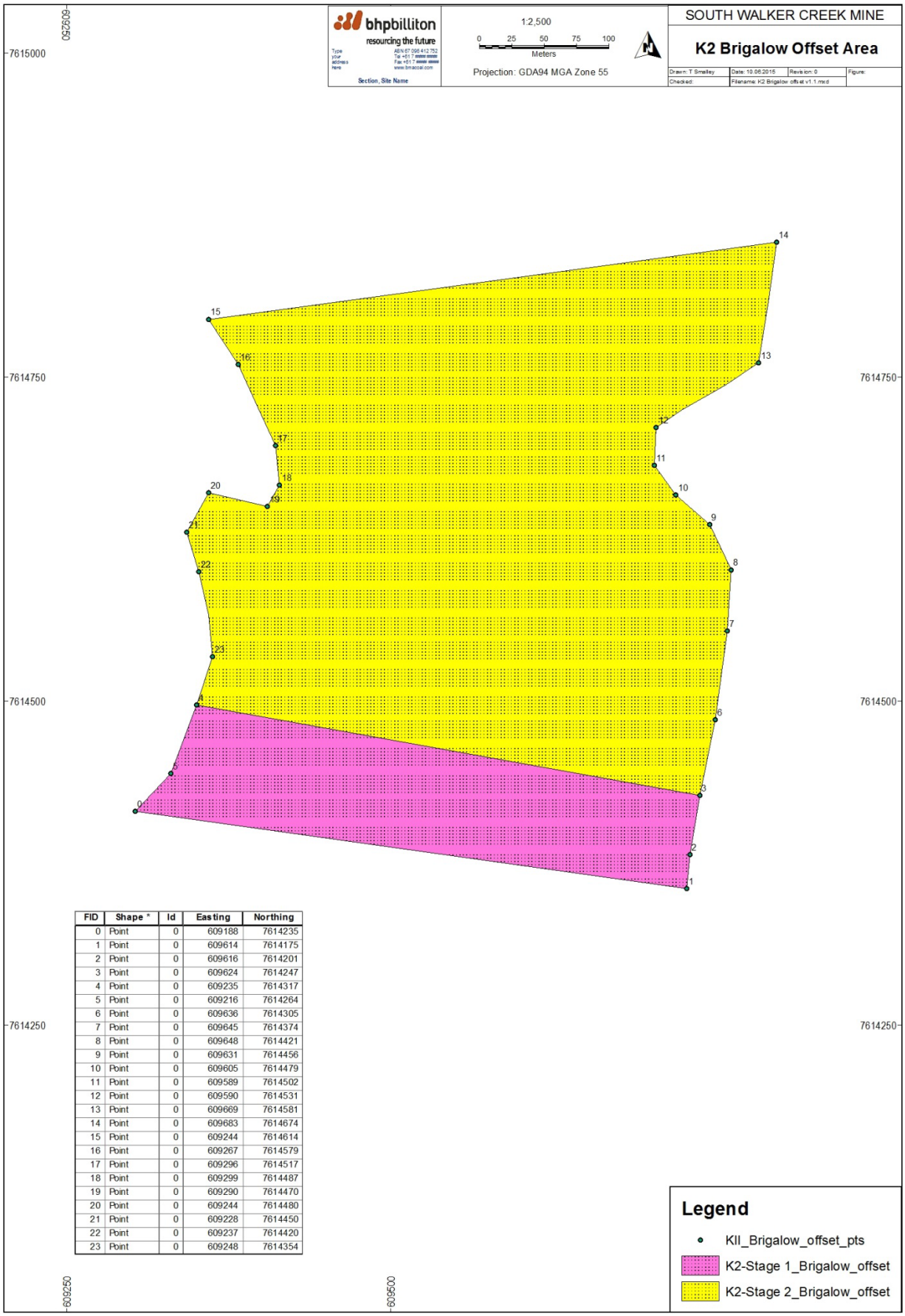
MRA Brigalow Offset Area and point coordinates



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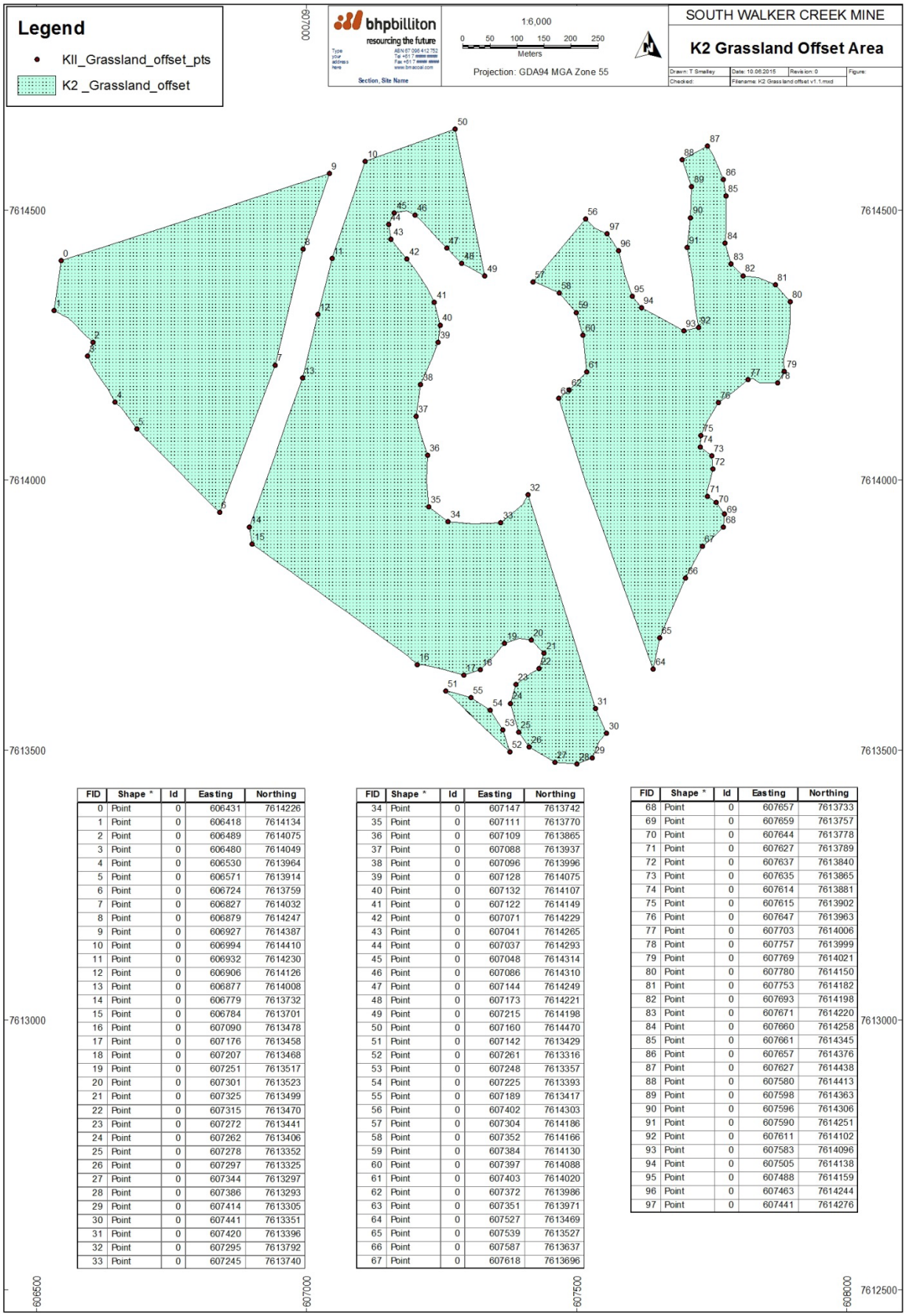
K2 Brigalow Offset Area(s) and point coordinates



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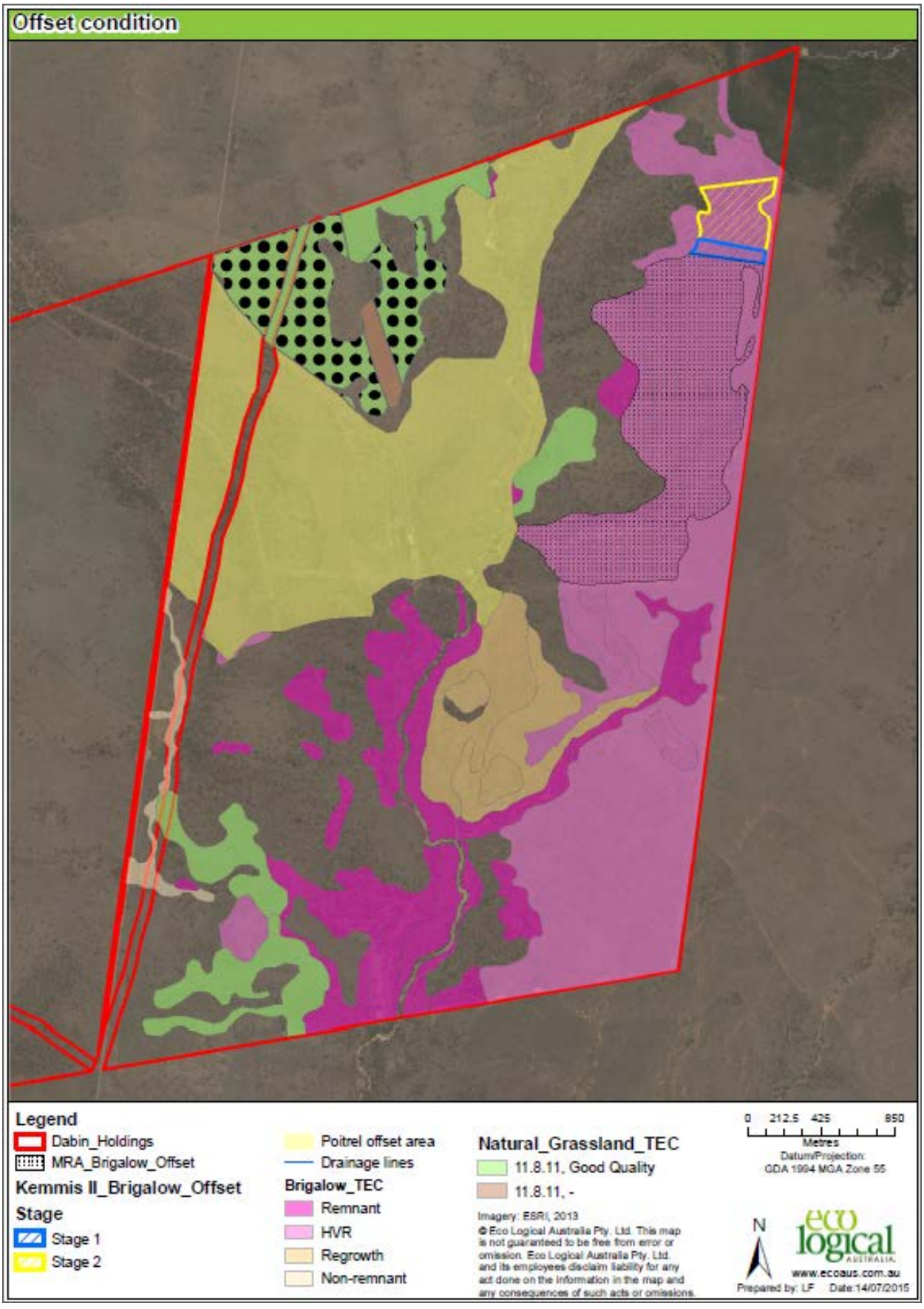
24	Point	0	607262	7613406
25	Point	0	607278	7613352
26	Point	0	607297	7613325
27	Point	0	607344	7613297
28	Point	0	607386	7613293
29	Point	0	607414	7613305
30	Point	0	607441	7613351
31	Point	0	607420	7613396
32	Point	0	607295	7613792
33	Point	0	607245	7613740

FID	Shape *	Id	Easting	Northing
34	Point	0	607147	7613742
35	Point	0	607111	7613770
36	Point	0	607109	7613865
37	Point	0	607088	7613937
38	Point	0	607096	7613996
39	Point	0	607128	7614075
40	Point	0	607132	7614107
41	Point	0	607122	7614149
42	Point	0	607071	7614229
43	Point	0	607041	7614265
44	Point	0	607037	7614293
45	Point	0	607048	7614314
46	Point	0	607086	7614310
47	Point	0	607144	7614249
48	Point	0	607173	7614221
49	Point	0	607215	7614198
50	Point	0	607160	7614470
51	Point	0	607142	7613429
52	Point	0	607261	7613316
53	Point	0	607248	7613357
54	Point	0	607225	7613393
55	Point	0	607189	7613417
56	Point	0	607402	7614303
57	Point	0	607304	7614186
58	Point	0	607352	7614166
59	Point	0	607384	7614130
60	Point	0	607397	7614088
61	Point	0	607403	7614020
62	Point	0	607372	7613986
63	Point	0	607351	7613971
64	Point	0	607527	7613469
65	Point	0	607539	7613527
66	Point	0	607587	7613637
67	Point	0	607618	7613696

FID	Shape *	Id	Easting	Northing
68	Point	0	607657	7613733
69	Point	0	607659	7613757
70	Point	0	607644	7613778
71	Point	0	607627	7613789
72	Point	0	607637	7613840
73	Point	0	607635	7613865
74	Point	0	607614	7613881
75	Point	0	607615	7613902
76	Point	0	607647	7613963
77	Point	0	607703	7614006
78	Point	0	607757	7613999
79	Point	0	607769	7614021
80	Point	0	607780	7614150
81	Point	0	607753	7614182
82	Point	0	607693	7614198
83	Point	0	607671	7614220
84	Point	0	607660	7614258
85	Point	0	607661	7614345
86	Point	0	607657	7614376
87	Point	0	607627	7614438
88	Point	0	607580	7614413
89	Point	0	607598	7614363
90	Point	0	607596	7614306
91	Point	0	607590	7614251
92	Point	0	607611	7614102
93	Point	0	607583	7614096
94	Point	0	607505	7614138
95	Point	0	607488	7614159
96	Point	0	607463	7614244
97	Point	0	607441	7614276

K2 Grassland Offset Area and point coordinates



Dabin Offset Condition

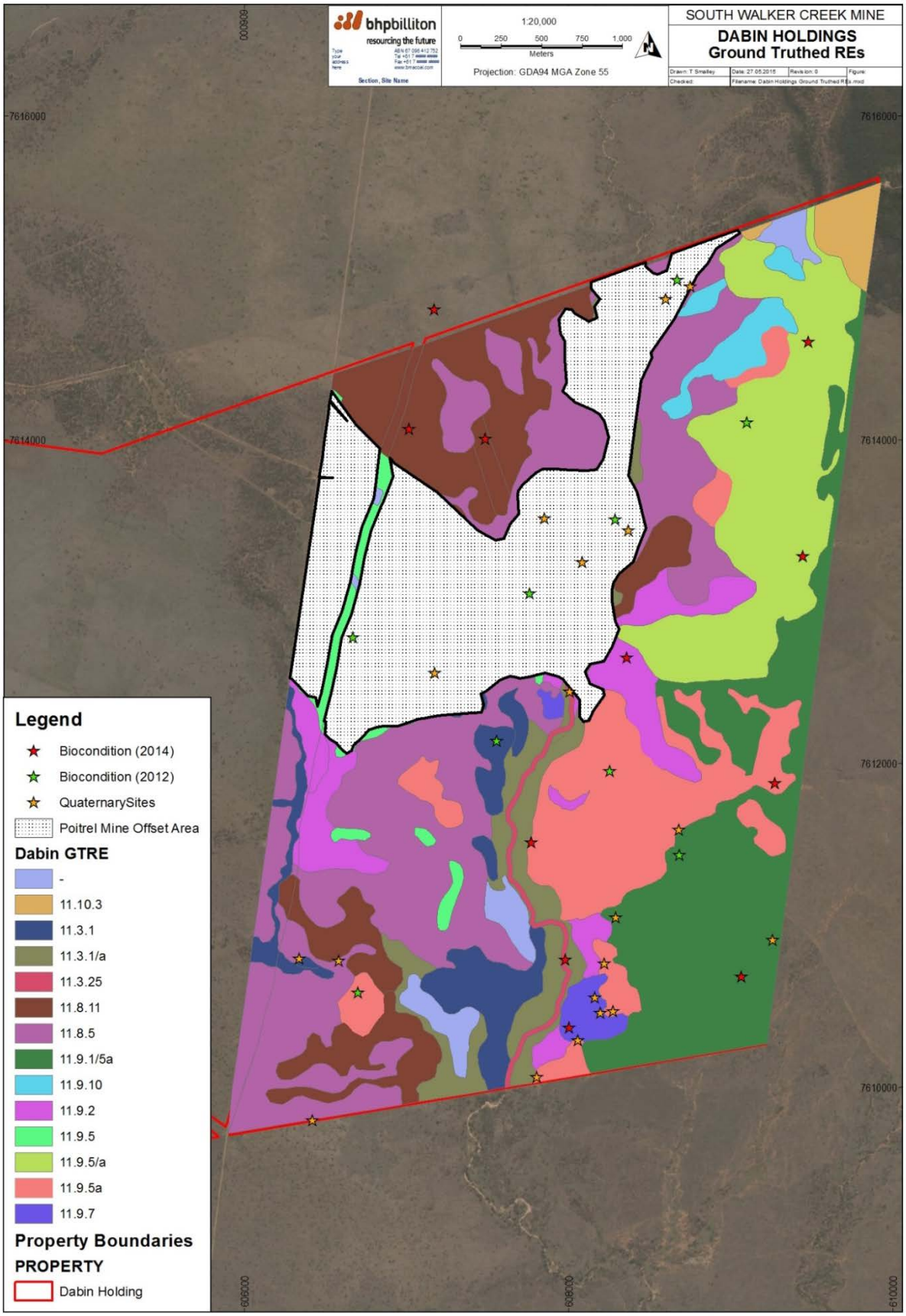
Appendix 2 – Baseline Data

Biocondition monitoring has been undertaken by two different ecologists on two different occasions creating a good geographic spread of monitoring points. A total of 20 Biocondition monitoring points have now been established in the eastern section of Dabin Holdings. The monitoring points are detailed below and graphically presented in the following map.

The 2014 field assessment for Dabin Holdings eastern section by EcoLogical (titled *Kemmis II MNES Offset Assessment Dabin Holdings, 2015*) is provided as a separate document. This includes all field sheets and site photos as well as detailed description of the ecosystems present and condition.

Biocondition sites on Dabin Holdings (MGA 1994 z55)

Biocondition Site ID	Year established	Easting	Northing
DHBC1	2012	606698	7610586
DHBC2	2012	607757	7613050
DHBC3	2012	608682	7611434
DHBC4	2012	608253	7611955
BHBC5	2012	609098	7614105
DHBC6	2012	608669	7614987
DHBC7	2012	608285	7613508
DHBC8	2012	606667	7612781
DHBC9	2012	607555	7612139
H2	2014	609272	7611878
H3	2014	609478	7614603
H4	2014	609443	7613282
H6	2014	607485	7614005
H7	2014	607013	7614064
H8	2014	607770	7611514
H10	2014	608358	7612654
H12	2014	609067	7610685
H13	2014	607980	7610790
H14	2014	608002	7610368
H15	2014	607169	7614804



Ground truthed ecosystems and ecological monitoring points

Dabin Holdings 2012 Biocondition survey results (STIRD, 2012)

Table 4.2 BioCondition results for RE11.9.5 >15 years

Indicators	DHBC1 11.9.5	Benchmark 11.9.5	Offset Site % of benchmark	Offset Site score	DHBC8 11.9.5	Benchmark 11.9.5	Offset Site % of benchmark	Offset Site score
Recruitment of woody perennial species	100%	100%	100%	5	100%	100%	100%	5
Native plant species richness-Tree	2	4	50%	2.5	7	4	175%	5
Native plant species richness-Shrub	3	5	60%	2.5	8	5	160%	5
Native plant species richness-Grass	5	5	100%	5	2	5	40%	2.5
Native plant species richness-Forbs & Others	2	10	20%	0	5	10	50%	2.5
Tree canopy cover (%)	47%	32%	147%	5	50%	32%	156%	5
Tree canopy height	7.5	8	94%	5	13	8	163%	5
Shrub canopy cover(%)	0	30	0%	0	14%	30%	47%	3
Native perennial grass cover	51	30	170%	5	16%	30%	53%	3
Organic litter cover	19.6	49	40%	3	54%	49%	110%	5
Large Trees(per hectare)	0	0	100%	15	75	0	>100%	15
Coarse woody debris	0	688	0%	0	490	688	71%	5
Weed cover	5%	-		5	25%	-		3
Patch size				10				10
Connectivity				5				5
Context				5				5
Sum of score				**73**				**84**

Table 4.3 BioCondition results for RE 11.3.1 > 15 years

Indicators	DHBC2 11.3.1	Benchmark 11.3.1	Offset Site % of benchmark	Offset Site score	DHBC6 11.3.1	Benchmark 11.3.1	Offset Site % of benchmark	Offset Site score
Recruitment of woody perennial species	100%	100%	100%	5	100%	100%	100%	5
Native plant species richness-Tree	5	3	167%	5	5	3	167%	5
Native plant species richness-Shrub		5	0%	0	5	5	100%	5
Native plant species richness-Grass	3	4	75%	2.5	6	4	150%	5
Native plant species richness-Forbs & Others	9	8	113%	5	5	8	63%	2.5
Tree canopy cover (%)	61%	29%	210%	3	32	29%	11034%	3
Tree canopy height	8	14	57%	3	8	14	57%	3
Shrub canopy cover(%)	5%	9%	56%	5	22%	9%	244%	3
Native perennial grass cover	52%	8%	650%	5	23	8%	28750%	5
Organic litter cover	33%	34%	97%	5	38%	34%	112%	5
Large Trees(per hectare)	58	170	34%	5	23	170	14%	5
Coarse woody debris	1160	1752	66%	5	627	1752	36%	2
Weed cover	20%			5	20%			5
Patch size				10				10
Connectivity				5				5
Context				5				4
Sum of score				**74**				**73**

Table 4.4 BioCondition results for RE 11.3.1 >15 years

Indicators	DHBC7 11.3.1	Benchmark 11.3.1	Offset Site % of benchmark	Offset Site score	DHBC9 11.3.1	Benchmark 11.3.1	Offset Site % of benchmark	Offset Site score
Recruitment of woody perennial species	100%	100%	100%	5	100%	100%	100%	5
Native plant species richness-Tree	2	3	67%	2.5	3	3	100%	5
Native plant species richness-Shrub	3	5	60%	2.5	4	5	80%	2.5
Native plant species richness-Grass	6	4	150%	5	5	4	125%	5
Native plant species richness-Forbs & Others	5	8	63%	2.5	6	8	75%	2.5
Tree canopy cover (%)	18%	29%	62%	5	48.20%	29%	166%	5
Tree canopy height	4	14	29%	3	6.5	14	46%	3
Shrub canopy cover(%)	0%	9%	0%	0	3.40%	9%	38%	3
Native perennial grass cover	68%	8%	850%	5	15%	8%	188%	5
Organic litter cover	0.40%	34%	1%	0	13%	34%	38%	3
Large Trees(per hectare)	0	170	0%	0	0	170	0%	0
Coarse woody debris	440	1752	25%	2	455	1752	26%	2
Weed cover	20%			5	5%			5
Patch size				10				10
Connectivity				5				5
Context				5				5
Sum of score				**58**				**66**

Table 4.5 BioCondition results for RE 11.9.5 < 15 years

Indicators	DHBC3 11.9.5	Benchmark 11.9.5	Offset Site % of benchmark	Offset Site score	DHBC4 11.9.5	Benchmark 11.9.5	Offset Site % of benchmark	Offset Site score	DHBC5 11.9.5	Benchmark 11.9.5	Offset Site % of benchmark	Offset Site score
Recruitment of woody perennial species	100%	100%	100%	5	100%	100%	100%	5	100%	100%	100%	5
Native plant species richness- Tree	2	4	50%	2.5	4	4	100%	5	3	4	75%	2.5
Native plant species richness-Shrub	4	5	80%	2.5	3	5	60%	2.5	3	5	60%	2.5
Native plant species richness-Grass	4	5	80%	2.5	2	5	40%	2.5	1	5	20%	0
Native plant species richness-Forbs & Others	1	10	10%	0	1	10	10%	0	1	10	10%	0
Tree canopy cover (%)	16%	32%	50%	5	29	32	91%	5	13%	32%	41%	2
Tree canopy height	2.5	8	31%	3	3.5	8	44%	3	4.5	8	56%	3
Shrub canopy cover(%)	6	30	20%	3	6.4	30	21%	3	6%	30	0%	0
Native perennial grass cover	0	30	0%	0	0.6	30	2%	0	0	30	0%	0
Organic litter cover	1%	49	0%	0	23	49	47%	3	31	49	63%	5
Large Trees(per hectare)	0	0	100%	15	0	0	100%	15	0	0	100%	15
Coarse woody debris	0	688	0%	0	0	688	0%	0	212	688	31%	2
weed cover	50%	-		0	40%	-		3	50%	-		0
Patch size				10				10				10
Connectivity				2				2				2
Context				4				4				4
Sum of score				55				63				53

Table 4.6 BioCondition special features results for offset site

Indicators	DHBC1 11.9.5	DHBC8 11.9.5	DHBC2 11.3.1	DHBC6 11.3.1	DHBC7 11.3.1	DHBC9 11.3.1	DHBC3 11.9.5	DHBC4 11.9.5	DHBC5 11.9.5
1.Centre of endemism	0	0	0	0	0	0	0	0	0
2.Wildlife refugia	20	20	20	20	0	20	20	20	0
3.Disjunct populations	0	0	0	0	0	0	0	0	0
4.Taxa at limits of geographic range	0	0	0	0	0	0	0	0	0
5.High species richness	0	0	0	0	0	0	0	0	0
6.Relictual populations	0	0	0	0	0	0	0	0	0
7.Regional ecosystems with distinct variation in species associated with geomorphic and other environmental variables	0	0	0	0	0	0	0	0	0
8.Artifical waterbody of ecological significance	0	0	0	0	0	0	0	0	0
9.High density hollow bearing trees	0	0	0	0	0	0	0	0	0
10.Breeding or roosting areas used by significant numbers of individuals	0	0	0	0	0	0	0	0	0
11.Strategic ecological corridor	0	0	0	20	20	0	0	0	20
12.Priority species within bioregion	0	0	0	0	0	0	0	0	0
13.Significance of patch within a 1km buffer	0	0	0	0	0	0	2.5	0	2.5
14.Protected area estate buffer	0	0	0	0	0	0	0	0	0
Sum of scores	20	20	20	40	20	20	22.5	20	22.5

Dabin Holdings 2014 Biocondition survey results (Eco Logical, 2015)

Habitat Quality Scoring Sheet Vegetation	RE 11.9.5a remnant		RE 11.9.5/11.9.5a mature regrowth		Brigalow offset area		RE 11.8.11 non-remnant		RE 11.8.11 remnant		RE 11.3.1 remnant	
	Site H2		Site H3		Site H4		Site H6		Site H7		Site H8	
Site Condition	**Raw site value**	**Condition score**	**Raw site value**	**Condition score**	**Raw site value**	**Condition score**	**Raw site value**	**Condition score**	**Raw site value**	**Condition score**	**Raw site value**	**Condition score**
Recruitment of woody perennial species	67	3	38	3	100	5	N/A	N/A	N/A	N/A	63	3
Native tree species richness	7	5	8	5	5	5	N/A	N/A	N/A	N/A	8	5
Native shrub species richness	7	5	9	5	8	5	N/A	N/A	N/A	N/A	9	5
Native grass species richness	2	3	3	3	5	5	3	3	4	3	2	3
Native forb species richness	6	3	3	3	2	2.5	1	2.5	4	2.5	5	3
Tree canopy height	11	5	11	5	9	3	N/A	N/A	N/A	N/A	13	5
Tree canopy cover	25.5	5	12.9	2	15.1	2	N/A	N/A	N/A	N/A	40.5	5
Shrub canopy cover	8.2	5	7.8	3	7.8	3	N/A	N/A	N/A	N/A	5.2	3
Native perennial grass cover	14.6	5	0	0	30	5	3	0	36%	3	0	0
Organic litter cover	27	5	57	5	50.4	5	18.4	5	10.6 %	5	57	5
Large trees	6	5	2	5	2	5	N/A	N/A	N/A	N/A	10	10
Coarse woody debris	657	2	450	5	10m/ha	0	N/A	N/A	N/A	N/A	850	5
Weed cover	40	3	70	0	25	5	45	3	10%	5	60	0
Total site condition score	52		44		50.5		13.5		18.5		54	
Fragmented - Patch size	>200	10	>200	10	>200	10	>200	10	>200	10	>200	10
Fragmented - Connectivity	70	4	50	5	50	2	100	5	>75	5	5	0
Fragmented - Context	60	4	76	5	76.4	5	74	4	89.7	5	34	5
Total site context score	15		20		17		19		20		18	
Maximum BioCondition scores	100		100		100		50		50		100	
Total BioCondition score	0.67		0.64		0.675		0.65		0.77		0.72	
BioCondition class	2		2		2		2		2		2	

Habitat Quality Scoring Sheet Vegetation	RE 11.9.2 remnant (BVG17b)		11.9.5a Non-remnant / young regrowth		RE 11.3.25 remnant (BVG16a)		RE 11.9.7 remnant			
	Site H10		Site H12		Site H13		Site H14		Site H15	
Site Condition	**Raw site value**	**Condition score**	**Raw site value**	**Condition score**	**Raw site value**	**Condition score**	**Raw site value**	**Condition score**	**Raw site value**	**Condition score**
Recruitment of woody perennial species	63	3	67	3	75	3	100	5	N/A	N/A
Native tree species richness	8	5	3	3	9	5	6	5	N/A	N/A
Native shrub species richness	12	5	7	5	11	5	6	5	N/A	N/A
Native grass species richness	4	3	2	3	5	3	4	3	3	3
Native forb species richness	6	3	2	2.5	11	3	8	3	2	2.5
Tree canopy height	16	5	4	3	17	5	20	5	N/A	N/A
Tree canopy cover	13	5	1.8	0	16.8	5	34.7	5	N/A	N/A
Shrub canopy cover	8.9	5	9.4	3	10.8	3	1.9	5	N/A	N/A
Native perennial grass cover	47.4	5	0	0	31	5	35.6	5	46.6	5
Organic litter cover	41.2	5	15	3	42.6	3	39	3	20.6	5
Large trees	4	5	0	0	8	5	32	15	N/A	N/A
Coarse woody debris	310	5	20	0	370	5	707	5	N/A	N/A
Weed cover	15	5	70	0	15	5	30	3	7	5
Total site condition score	64		25.5		67		55		20.5	
Fragmented - Patch size	>200	10	>200	10	>200	10	>200	10	>200	10
Fragmented - Connectivity	30	2	25	2	70	4	90	5	>75	5
Fragmented - Context	41	4	38	4	41	4	75	4	89.7	5
Total site context score	16		16		19		18		20	
Maximum BioCondition scores	100		100		100		100		50	
Total BioCondition score	0.8		0.42		0.86		0.73		0.81	
BioCondition class	2		3		1		2		2	

Appendix 3 – Wildlilfe Online extract

See separate document.

Appendix 4 – Land manager's monitoring guide

The Land managers monitoring guide includes an overview of property level monitoring, a template for developing a monitoring plan and a list of possible indicators. It is a tool to assist land managers to

- improve property management, planning and long-term sustainability
- implement an environmental farm management system
- monitor progress on agreed management strategies and outcomes in land management agreements required by Queensland law
- support the activities of local Landcare groups or regional natural resource management bodies.

The guide is available from the DSITIA website at the following link :

https://www.business.qld.gov.au/industry/agriculture/agriculture/tools-software

or Email science.products@dsitia.qld.gov.au or phone (07) 3170 5759 to order a copy.

Appendix 5 – Weed and pest animal fact sheets

Fact sheets have been produced by Biosecurity Queensland for weeds and pest animals. Hard copies are available from all Biosecurity Queensland offices or downloadable from the link below. Fact sheets are not to be manipulated.

https://www.daf.qld.gov.au/plants/weeds-pest-animals-ants/educational-resources-and-careers/publications/fact-sheets

Appendix 6 - MNES Offset Assessment report

See separate document.

Appendix 7 – Land manager quarterly checklist

Background

In accordance with the approved Offset Area Management Plan for the Kemmis II and MRA Projects at South Walker Creek Mine, three offset areas have been placed on Dabin Holdings. One management action was for quarterly inspection and completion of this checklist to be undertaken by the land manager. All questions are to be answered in terms of the last 3 months within the offset areas only (please circle where relevant).

Date: Recorder:

Have weather conditions been approximately average or as expected ?	**Yes**	**No**
If no, describe the difference (eg, wetter, drier, cloudier, etc)		

Have stock been rotated through an offset area ?	**Yes**	**No**
If yes, what was the duration cattle were in the offset areas?		

Has there been an increase, decrease, or no change to grazing intensity in the offset area ?	**Increase**	**No change**	**Decrease**
If a change has occurred, quantify the change.			

Have any pasture management activities occurred ? e.g fertilising, seeding, soil treatment.	**Yes**	**No**
If yes, describe and quantify the activity.		

Has there been an increased evidence/sighting of pest animals ?	**Yes**	**No**
If yes, which pest animal and describe the location and estimate the number of individuals.		

Have any pest animal management activities been carried out ?	Yes	No
If yes, describe the activity (quantified where possible).		

Has there been a change in weed abundance or distribution	Yes	No
If yes, describe the change (e.g reduction/increase/species).		

Have any weed management activities been carried out ?	Yes	No
If yes, describe the activity (quantified where possible).		

Has there been an increase in erosion ?	Yes	No
If yes, describe the erosion (type of erosion, location and extent).		

Has there been any occurrence of fire ?	Yes	No
If yes, describe the fire (type of fire (burn off, ecological, wild), location and extent).		

Describe any general property management measures that may have an impact upon the offset areas (e.g new fencing or repairs to fencing, change in management practices,

This checklist is to be provided to the BMC Offset Manager within 2 weeks of completion.