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Bringelly Brickworks Rehabilitation Management Plan

GLOSSARY AND ABBREVIATIONS

BMP	Biodiversity Management Plant
BOA	Biodiversity Offset Area
CoA	Conditions of Approval for SSD_5684
CPW	Cumberland Plain Woodland
CSR	CSR Limited
DPIE	Department of Planning, Industry & Environment
EIS	Bringelly Brickworks Quarry Extension Environmental Impact Statement (Hyder Consulting, 5 September 2013)
EMS	Environmental Management Strategy
ENV	Existing Native Vegetation
BC Act	*Biodiversity Conservation Act 2016*
EP&A Act	*Environmental Planning and Assessment Act 1979*
FM Act	*Fisheries Management Act 1994*
OEH	NSW Office of Environment & Heritage
PGH	PGH Bricks and Pavers Pty Ltd
PIRMP	Pollution Incident Response Management Plan
POEO Act	*Protection of the Environment Operations Act 1997*
RBM	Relevant biodiversity measures
RMP	Rehabilitation Management Plan
RR	Resources Regulator
RVH	Remnant Vegetation and Habitat
Secretary	The Secretary of the DPIE
SSD	State Significant Development
SWGC	South West Growth Centre
TSC Act	*Threatened Species and Conservation Act 1995*
WMS	Work method statements

Revision:

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1	Dec 2021	PGH_Bringelly_RMP-R4_F2	Initial Submission
2	28 June 2022	PGH_Bringelly_RMP_28062022	Revision based on DPIE feedback

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1 INTRODUCTION

1.1 Context

This Rehabilitation Management Plan (RMP or Plan) forms part of the Environmental Management Strategy (EMS) for Bringelly Brickworks (the facility). The Plan has been prepared following the approval of the Bringelly Brickworks Extension Project (the project, SSD_5684-Mod 1) in October 2016.

This RMP has been prepared to address the requirements of the Conditions of Approval (CoA), the mitigation measures listed in the *Bringelly Brickworks Quarry Extension Environmental Impact Statement* (EIS) (Hyder Consulting, 5 September 2013) and applicable legislation identified in this Plan.

The focus of this RMP is the management of rehabilitation and the implementation of the Rehabilitation Management Strategy.

1.2 Background

Bringelly Brickworks (the facility) is a clay/shale quarry and brick making facility located at 60 Greendale Road, Bringelly, on Lot 11 in DP 1125892 and comprises an area of approximately 385.55 hectares in the Camden Local Government Area. The facility has been in operation since 1968, and in its original form it had the capacity to process approximately 51,500 tonnes of bricks per annum.

In Mod 1 the extraction quantity was set to 200,000 tonnes per annum and the annual brick production increased to 263,500 tonnes, equating to approximately 87.8 million bricks.

1.3 Environmental Management Document System

The environmental management document system is described in the EMS and this RMP forms part of that system.

Management measures identified in this RMP will be addressed in relevant work method statements, environmental procedures, and sensitive area plans.

Work Method Statements (WMS) are approved by the Plant Manager. Operational personnel are required to undertake works in accordance with the safeguards identified in WMS.

The compliance management, review and improvement processes for this RMP are described in Sections 10 and 11.

1.4 RMP Approval

The RMP is to be prepared in consultation with NSW Department of Planning, Industry and Environment (DPIE), NSW Resources Regulator (RR) NSW Department of Planning, Industry and Environment: Water (DPIE Water) and Camden Council.

This RMP must be endorsed by the Plant Manager and National Workplace Health, Safety and Environmental Manager prior to submission to the Secretary of the Department of Planning, Industry and Environment (DPIE)

The RMP will be submitted to the Secretary of the DPIE for approval prior to undertaking quarrying operations in the extension area, unless the Secretary agrees otherwise. No quarrying will commence until approval of this plan is received from DPIE.

1.5 Consultation

As outlined in the CoA, this Plan has been prepared in consultation with DPIE, RR, DPIE Water and Camden Council. A version of this Plan was provided to the following authorities and stakeholders on 23rd August 2016 for comment with responses summarised below.

Table 1. ***Comments on Draft RMP***

Authority	Date Submitted	Response
DPIE Water	23/8/2016	Minor changes to cadastral descriptions Areas not impacted through construction activities are indicated on all plans and signposted to prevent damage.
OEH (Conservation Planning)	23/8/2016	OEH had no comment of the draft plan.
RR- ESU	23/8/2016	Plan to be updated with any updates to the FLUOP. Specific design of final void will require much greater level of detail in future versions of RMP. *Section 7.1.2- Monitoring* *DRE [RR] considers the 'Safety' and 'Landform Stability' visual inspection frequency of 6 months to be too long. A greater frequency should be proposed.*
Bringelly Public School	23/8/2016	No comment received
Liverpool Council	23/8/2016	No comment received
Camden Council	23/8/2016	No comment received on the RMP
RMS	23/8/2016	No comment received
EPA	23/8/2016	No comment received

Further to the above Camden Council, DRE, OEH, DPIE Water were advised that there had been a delay in progress and PGH intended to activate the SSD and commence works in a letter dated 24 Jan 2020.

Subsequently Camden Council requested that management plans be submitted for their

records. This will be done upon approval of the documents.

The Resource Regulator also made comments on this advice and also commented on the submitted Final Land Form Options Plan that was developed as a separate document at the request of DPIE. (see Appendix B). No comments received required changes to either plan.

2 PURPOSE AND OBJECTIVES

2.1 Purpose

This RMP aims to provide guidance in the achievement of the objectives of the rehabilitation strategy for the site based upon the final landform shown conceptually in Appendix 4 of the COA. The Plan describes the short, medium and long-term measures that would be implemented to facilitate progressive rehabilitation of the quarry pit, manage remnant vegetation and habitat on-site and ensure compliance with the rehabilitation obligations in the COA.

This document does not represent the Final Land Use Options Plan (FLUOP) for the site as required by Condition 25 of the COA. The FLUOP has been prepared separately as a standalone document in consultation with the RR and Camden Council, and Rev 1, 23/02/2022 was approved by DPE representatives on 3/06/2022.

Following any update of the FLUOP this Plan will be reviewed and updated, if necessary, as described in *Section 11.*

2.2 Objectives

The rehabilitation measures presented in this Plan have been developed to meet of the rehabilitation objectives outlined in the COA, as reproduced in *Table 2* immediately below.

PGH will meet the conditions of consent in SSD 5684, to the satisfaction of the Secretary, particularly Table 8, as it pertains to rehabilitation. The key elements for addressing the consent from a biodiversity perspective have been summarised in Table 3 below, with references to the BMP document where the condition is addressed.

Table 2. ***Rehabilitation Objectives from the COA***

Feature	Objective
Site (as a whole)	Safe, stable and non-polluting; and Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of local native species and habitat.
Surface infrastructure	To be decommissioned and removed (unless the Secretary agrees otherwise).
Final void	Minimise the size, depth and slope of the batters of the final void; and Minimise the drainage catchment of the final void.
Quarry pit floor	Landscaped and revegetated using native flora species, above the anticipated final void water level.
Community	Ensure public safety.

3 ENVIRONMENTAL REQUIREMENTS

3.1 Relevant Legislation and Guidelines

3.1.1 Legislation

Legislation relevant to rehabilitation management includes:

- Environmental Planning and Assessment Act 1979 (EP&A Act);
- Protection of the Environment Operations Act 1997 (POEO Act)
- Mining Act 1992, including Mining Regulation 2016 and Mining Amendment (Standard Conditions of Mining Lease – Rehabilitation) Regulation 2021 ;
- National Parks and Wildlife Act 1974 (NPW Act);
- Fisheries Management Act 1994 (FM Act);
- Biodiversity Certification Order for the Sydney Region Growth Centres; and
- Biodiversity Conservation Act 2016 (Commonwealth) (BC Act).

3.1.2 Guidelines and References

Guidelines and reference documents relevant to this Plan include:

- State Environmental Planning Policy (SEPP) (Mining, Petroleum Production and Extractive Industries) 2021;
- Managing Urban Stormwater, Soils and Construction, Volume 2E Mines and quarries (DECC, 2008);
- Eco Logical Australia Pty Ltd 2013. *Local Biodiversity Strategy Camden Local Government Area*;
- Eco Logical Australia Pty Ltd. 2007 *Growth Centres Conservation Plan Exhibition Draft*;
- OEH 2019. *Translocation Operational Policy*;

3.2 Minister's Conditions of Approval

The CoA relevant to this RMP are listed in *Table 3*. A cross reference is also included to indicate where the condition is addressed in this RMP or other environmental management documents.

Table 3. ***Conditions of Approval Relevant to the RMP***

CoA No.	Requirement	Reference
Schedule 2 Condition 1,	In addition to meeting the specific performance criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the development.	
Schedule 2, Condition 14, ***Updating and staging strategies, plans or programs***	With the approval of the Secretary, the Applicant may submit any strategies, plans or programs required by this consent on a progressive basis.	
Schedule 3, Condition 8 ***Operating Conditions***	The Applicant must: (b) minimise surface disturbance and maximise progressive rehabilitation	
Schedule 3, Condition 23 Rehabilitation Objectives	The Applicant shall rehabilitate the site to the satisfaction of the Secretary. Rehabilitation must:	-
	a) comply with the objectives in Table 8; and	This Report Section 2.2
	b) be generally consistent with the proposed rehabilitation strategy in the EIS, and the final landform shown conceptually in Appendix 4 (unless modified by the Final Land Use Options Plan, prepared in accordance with condition 25 of this consent). *Table 8: Rehabilitation Objectives* *Feature* / *Objective* Site (as a whole): • Safe, stable and non-polluting • Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of local native species and habitat	This Report Section 2.2 Table 2
Schedule 3, Condition 24 Progressive Rehabilitation	The Applicant shall rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilisation measures must be implemented where reasonable and feasible to control dust emissions in disturbed areas that are not active and which are not ready for final rehabilitation.	Section 7
Schedule 3, Condition 25 Final Land Use Options Plan	The Applicant shall prepare a Final Land Use Options Plan for the site to the satisfaction of the Secretary. This plan must:	Final Landuse Options Plan
	a) be prepared in consultation with DRE [RR] and Camden Council;	
	b) be submitted to the Secretary for approval within 2 years of the date of this consent, unless the Secretary agrees otherwise;	
	c) provide details of the conceptual final landform and associated final land uses for the site;	
	d) ensure that the conceptual final landform is compatible with surrounding land uses, and is consistent with the rehabilitation	

CoA No.	Requirement	Reference
	objectives in Table 8 and the objectives of the Growth Centres SEPP for the South West Growth Centre;	
	e) inform the Rehabilitation Management Plan (prepared in accordance with condition 26 of this consent); and	
	f) be reviewed every 7 years to account for applicable land use priorities, and if necessary updated.	
Schedule 3, Condition 26 Rehabilitation Management Plan	The Applicant shall prepare and implement a Rehabilitation Management Plan for the project to the satisfaction of the Secretary. This plan must:	This Plan
	a) be prepared in consultation with OEH, DRE [RR], NOW and Camden Council;	Section 0, Table 1 and Appendix B
	b) be submitted to the Secretary for approval prior to undertaking quarrying operations in the extension area, unless the Secretary agrees otherwise;	Section 1.4
	c) provide details of the conceptual final landform and associated land uses for the site (which must be consistent with the Final Land Use Options Plan under condition 25 of this consent);	Section & Final Landuse Options Plan
	d) describe the short-, medium- and long-term measures that would be implemented to: • manage remnant vegetation and habitat on-site; and • ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this consent;	Section 8.2 Section 10
	e) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, including triggers for any necessary remedial action;	Section 8 & Section 9 Table 19 Table 20
	f) include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria; and	Section 10 & Section 11 Table 19
	g) include details of who would be responsible for monitoring, reviewing, and implementing the plan. Note: The Rehabilitation Management Plan must be reviewed, and if necessary updated, following any update of the Final Land Use Options Plan.	Section 10 & Section 11 Table 19
Schedule 5, Condition 2 Adaptive Management	The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation. Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity: (a) take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur; (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing	Section 10 & 11

CoA No.	Requirement	Reference
	those options and any preferred remediation measures or other course of action; and c) implement remediation measures as directed by the Secretary; to the satisfaction of the Secretary.)	
Schedule 5, Condition 3 Management Plan Requirements	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; (b) a description of: - the relevant statutory requirements (including any relevant approval, licence or lease conditions); - any relevant limits or performance measures/criteria; and - 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; c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria; d) a program to monitor and report on the: - impacts and environmental performance of the development; and - effectiveness of any management measures (see (c) above); e) a contingency plan to manage any unpredicted impacts and their consequences; f) a program to investigate and implement ways to improve the environmental performance of the development over time; 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 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.	a) Section 5 b) Section 3 c) Section 7 d) Table 19 and Section 10 e) Section 9 f) Section 11 g) Section 10 h) Section 11
Schedule 5, Condition 4 Annual Review	By the end of September each year, the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must: a) describe the development (including rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year; b) include a comprehensive review of the monitoring results and complaints records of the development over the previous financial year, which includes a comparison of these results against: - the relevant statutory requirements, limits or performance measures/criteria; - the monitoring results of previous years; and - the relevant predictions in the documents in condition 2(a) of Schedule 2; c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; d) identify any trends in the monitoring data over the life of the development; e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	Section 10&11

CoA No.	Requirement	Reference
	f) describe what measures will be implemented over the current financial year to improve the environmental performance of the development.	
Schedule 5 Condition 5 **Revision of Strategies, Plans and Programs**	Within 3 months of the submission of an: (a) Annual Review under condition 4 above; (b) incident report under condition 7 below; (c) audit report under condition 9 below; and (d) any modifications to this consent, the Applicant must review the strategies, plans and programs required under this consent, to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the Secretary. Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the development.	Section 11
Schedule 5, Condition 7 **Incident Reporting**	The Applicant must immediately notify the Secretary and any other relevant agencies of any incident. Within 7 days of the date of the incident, the Applicant must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.	Section 10&11
Schedule 5 Condition 8 **Regular Reporting**	The Applicant must provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.	Section 10
Schedule 5, Condition 9 **Independent Environmental Audit**	Within a year of commencing development under this consent, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. This audit must: (a) be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary; (b) include consultation with the relevant agencies; (c) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent and any relevant EPL and/or Water Licence (including any assessment, plan or program required under these approvals); (d) review the adequacy of any approved strategy, plan or program required under these approvals; (e) recommend measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under these approvals; and be conducted and reported to the satisfaction of the Secretary. *Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Secretary.*	Section 10
Schedule 5, Condition 10	Within 12 weeks of commencing this audit, unless the Secretary agrees otherwise, the Applicant must submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report,	Section 10

CoA No.	Requirement	Reference
Independent Environmental Audit	including a timetable for the implementation of any measures proposed to address the recommendations in the audit report. If the Applicant intends to defer the implementation of a recommendation, reasons must be documented. Within 7 days of commencing the audit, the Applicant must notify the Department in writing of the commencement of the audit.	
Schedule 5, Condition 11 **Access to Information**	Within 6 months of commencing development under this consent, the Applicant must: (a) make copies of the following publicly available on its website: the documents in condition 2(a) of Schedule 2; - current statutory approvals for the development; approved strategies, plans and programs required under the conditions of this consent; - a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; - a complaints register, which is to be updated monthly; - minutes of CCC meetings; - the annual reviews of the development (for the last 5 years); - any independent environmental audit of the development, and the Applicant's response to the recommendations in any audit; - any other matter required by the Secretary; and (b) keep this information up-to-date, to the satisfaction of the Secretary.	Section 10

4 LICENCES AND PERMITS

4.1 Environmental Protection Licence

Environment Protection Licence (EPL) No. 1808 as issued under the *Protection of the Environment Operations Act 1997* (POEO Act) is currently held for the site. There are no specific conditions in the licence that relate to rehabilitation.

4.2 Mine Lease

Mine Lease ML1731 (Act 1992) has been issued by the RR on 6 March 2016. The mining lease was varied on the 17th October 2022 and no longer contains conditions relating to rehabilitation beyond the rights and duties prescribed by the Mining Act 1992 and the Mining Regulation 2016.

The site obligations under the Mining Act are addressed specifically with the Resources Regulator, in the Form and Way required under the relevant legislation. This report specifically addresses the requirements of the DPE and the approval conditions outlined in Section 3.2.

This RMP will be appended to the relevant documents required by the Resources Regulator.

5 EXISTING ENVIRONMENT

The following sections is reproduced from Biodiversity Management Plan (BMP). This section will require updating following any update of the BMP.

5.1 Flora

5.1.1 Vegetation communities

During the ecological assessment of the EIS, seven vegetation communities were identified within the ecological study area as illustrated in Figure ***2*** and summarised in *Table 4*.

Table 4. ***Summary of Vegetation Communities within the EIS study area***

Vegetation Community		Extent in Study Area
Native Vegetation	Moderate Condition Cumberland Plain Woodland	15.12
	Poor Condition Cumberland Plain Woodland	6.58
	Derived Grassland Cumberland Plain Woodland	0.97
	Poor Condition Riparian Woodland	8.22
Exotic Vegetation	Exotic Grassland	14.80
	Mixed Exotic/Planted Native	2.58
	Olive Dominant Woodland	9.02
Total		**57.29**

A description of the vegetation communities as described in the EIS is reproduced in the following sections.

5.1.1.1 Moderate Condition Cumberland Plain Woodland

Areas of Moderate Condition Cumberland Plain Woodland (CPW) had a canopy of regrowth *Eucalyptus moluccana* (Grey Box) and *E. tereticornis* (Forest Red Gum) to approximately 10 to 14 metres in height with an average diameter at breast height of 20 to 30 centimetres. The understorey in these areas consisted of patchy cover of *Olea europaea* subsp. *cuspidata* (African Olive) with other native shrubs such as *Acacia implexa* (Hickory Wattle), *Bursaria spinosa* (Blackthorn) and *Melaleuca styphelioides* (Prickly Paperbark) occasionally present. The ground layer varied from sparse native grasses and herbs with high leaf litter to dense native and exotic grasses, including *Themeda australis* (Kangaroo Grass), *Aristida ramosa* (Wiregrass), *Austrostipa scabra* (Speargrass), *Microlaena stipoides* (Weeping Grass) and *Eragrostis curvula* (African Lovegrass). Good cryptogam cover was observed in some of these areas. Understorey vegetation in the northeast section of Cell D was particularly weedy, containing exotic species such as *Eragrostis curvula*, *Bryophyllum delagoense* (Mother-of-millions) and *Chloris gayana* (Rhodes Grass). This area was not dominated by *Olea europaea* subsp. *cuspidata* in the understorey and therefore was not considered to constitute Poor Condition CPW.

5.1.1.2 Poor Condition Cumberland Plain Woodland

Poor Condition CPW consisted of areas of remnant and regrowth *E. moluccana* and *E. tereticornis* over a dense midlayer of *Olea europaea* subsp. *cuspidata*. In most parts of this community, the *O. europaea* subsp. *cuspidata* is greater than 50 per cent cover and ground layer vegetation is absent, supports *Olea* seedlings and leaf litter or has been reduced to very sparse cover of native and exotic grasses. These areas only very loosely meet the criteria for CPW and are considered unlikely to be viable in the long term.

5.1.1.3 Derived Grassland Cumberland Plain Woodland

South of the existing quarry, the stands of tree-dominated vegetation were interspersed with patches of

grassland. The grasslands were dominated by native species such as *Themeda australis, Microlaena stipoides, Aristida ramosa and Chloris truncata* (Windmill Grass), with the cosmopolitan native pasture grass *Cynodon dactylon* (Couch) and exotic species such as *Eragrostis curvula, Chloris gayana* (Rhodes Grass) and *Briza subaristata* also present and dominant in patches. Areas of derived grassland are included in the definition of CPW.

5.1.1.4 Poor Condition Riparian Woodland

Poor Condition Riparian Woodland occurred along Thompsons Creek to the east of the existing quarry. These areas supported scattered large trees of *Eucalyptus tereticornis* with an understorey of scattered *Olea europaea* subsp. *cuspidata* and *Bursaria spinosa* in the south and a denser midlayer of *Melaleuca styphelioides* and *Ligustrum sinense* (Small-leaved Privet) in the north. All areas of Poor Condition Riparian Woodland were in certified areas. This vegetation is in poor condition and loosely meets the criteria for the EEC River-flat Eucalypt Forest.

5.1.1.5 Olive Dominant Woodland

Areas of Olive dominant woodland support a canopy of *Olea europaea* subsp. *cuspidata* with only occasional eucalypt occurrence. The ground layer is generally absent or supports Olea seedlings and leaf litter, although there are small patches of native and exotic grasses where there are canopy gaps. These areas are not considered to meet the criteria for CPW.

5.1.2 Priority Weeds

The legislative framework for managing noxious weeds in NSW has changed with the introduction of the *Biosecurity Act 2015* which came into effect on 1 July 2017 replacing the *Noxious Weeds Act 1993*. Under The Act the term "noxious weed" is no longer used and previous noxious weed classes have been abolished. These have been replaced with new term of "priority weeds". Priority weeds in the Sydney region are specified in the *Greater Sydney Regional Strategic Weed Management Plan 2017 – 2022*. Priority weeds that are listed as "State Priority Weeds" and "Regional Priority Weeds" have specific measures for the control of individual weed species no matter of the land ownership or location meaning treatment is to be undertaken on both government and private lands. The relevant objectives of these State and Regional weeds found on site in the plan are summarised below.

- **State Priority Weed Objective – ASSET PROTECTION (Whole of State)**: These weeds are widely distributed in some areas of the State. As Weeds of National Significance, their spread must be minimised to protect priority assets.
- **Regional Priority Weeds Objective – CONTAINMENT:** These weeds are widely distributed in the region. While broad scale elimination is not practicable, minimisation of the biosecurity risk posed by these weeds is reasonably practicable.
- **Other Weeds of Regional Concern-** species known to occur in the Greater Sydney region as well as species not currently known to occur but at risk of moving into the region in the future. The species may warrant resources for control or management programs, or occur in neighbouring regions and are a priority to keep out of the region.

Table 5. ***State Priority Weeds on Site***

Scientific Name	Common Name	Biosecurity Act 2015 requirements & Strategic Response in the region
Senecio madagascariensis	Fireweed	**Mandatory Measure (Division 8, Clause 33, Biosecurity Regulation 2017):** A person must not import into the State or sell. **Regional Strategic Response:** Identify priority assets for targeted management.

Table 6. ***Regional Priority Weeds on Site***

Scientific Name	Common Name	Land Description	Requirements to Demonstrate Compliance with GBD
Olea europaea subsp. *cuspidata*	African Olive	Core Infestation	Land managers prevent spread from their land where feasible. Land managers reduce the impact on priority assets.

Table 7. ***Other Weeds of Regional Concern***

Scientific Name	Common Name	Asset/ Value at Risk
Ligustrum sinense	Small-leaved Privet	Environment, Human Health

Control of weeds on Site is undertaken in accordance with the Resource Regulator approved Weed Management Plan (2019). In summary, the site has been divided into Management Units and the level of infestation of each unit has been assigned in order to prioritise control measures. The primary methods of control to be employed on the site include:

- Unmanned Aerial Vehicle (UAV) –Used to apply herbicides efficiently particularly over large and dense infestations, in areas that are not safe or practical to access on the ground (e.g. steep areas, aquatic area, dense infestations).
- High Volume Spraying – is generally a vehicle mounted spray unit with a large tank (400-600L) with hose reels. This technique is generally used to treat large weed populations which can be foliar sprayed. It is used in situations where the UAV can't access or is not economical to use. It is also suited to more scattered weed populations.
- Basal Bark Spraying – This technique is generally used on particularly woody stemmed weeds to chemically ring bark them. This method is best suited to specific species and application on isolated plants or plants that cannot be foliar sprayed with herbicide.
- Direct Application (Cut and Paint, Stem Injection) – This involves cutting woody weeds down at the base or drilling into or scraping the stem at the base and then applying high concentration herbicide. This technique may be used where the risk is too high or when foliar application may not be effective. This technique may be used in similar circumstances to basal bark spraying.
- Mechanical – involves the use of machinery such as slashers, scrub mulchers, dozers and the like, to remove the above ground biomass of the plant, and in some cases the roots as well. This is best used where there is a large monoculture of one species, such as African olive, to remove large sections of biomass as well as to create access through these areas for other weed control works.

In areas treated by mechanical means, follow up chemical control is generally required to treat regrowth. There is also a requirement to introduce other desirable vegetation to protect the soil and reduce the potential for erosion as well as invasion with other weed species.

All spraying of weeds will be undertaken by a licenced contractor and a report will be provided to PGH by the contractor summarising the works undertaken. Bi-Annual inspections will be undertaken to monitor the progress of weed control measures and the results of monitoring and management activities will be included in the annual review.

5.1.3 Threatened Flora Species

Native flora habitat in the ecological study area is poor, with stands of *Olea europaea* subsp. *cuspidata* shading out habitat across most of the ecological study area.

Based on database and literature review completed during the EIS, 20 plant species listed under the EPBC and/or TSC Acts are either recorded or have the potential to occur within 10 kilometres of the ecological study area (refer *Table 8*). No threatened flora species were recorded/identified during the detailed field surveys of the EIS. Most of the threatened plant species identified in the database searches during the EIS were considered to have a low likelihood of occurring in the ecological study area, based on potential habitat and the proximity and number of records of these species in the locality.

Table 8. ***Threatened flora occurring within 10 kilometres of the ecological study area***

Scientific name	Common name	EPBC Act status	TSC Act status
Acacia pubescens	Downy Wattle	Vulnerable	Vulnerable
Allocasuarina glareicola	-	Endangered	Endangered
Cryptostylis hunteriana	Leafless Tongue-orchid	Vulnerable	Vulnerable
Cynanchum elegans	White-flowered Wax Plant	Endangered	Endangered
Dillwynia tenuifolia	-	Vulnerable	Vulnerable
Eucalyptus benthamii	Camden White Gum	Vulnerable	Vulnerable
Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	-	Vulnerable
Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Vulnerable	Vulnerable
Lepidium hyssopifolium	Basalt Pepper-cress	Endangered	Endangered
Marsdenia viridiflora subsp. viridiflora	Marsdenia viridiflora R. Br. subsp. viridiflora population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith LGAs	-	Endangered population

Pelargonium sp. Striatellum (G.W. Carr 10345)	Omeo Stork's-bill	Endangered	Endangered
Persoonia nutans	Nodding Geebung	Endangered	Endangered
Pimelea curviflora var. curviflora	-	Vulnerable	Vulnerable
Pimelea spicata	Spiked Rice-flower	Endangered	Endangered
Pomaderris brunnea	Rufous Pomaderris	Vulnerable	Vulnerable
Pterostylis saxicola	Sydney Plains Greenhood	Endangered	Endangered
Pultenaea parviflora	Sydney Bush-pea	Vulnerable	Endangered
Streblus pendulinus	Siah's Backbone	Endangered	-
Syzygium paniculatum	Magenta Lilly Pilly	Vulnerable	Endangered
Thelymitra sp. Kangaloon	Kangaloon Sun-orchid	Critically Endangered	Critically Endangered

5.1.4 Existing Native Vegetation

The Growth Centres SEPP, which establishes a broad framework for the development of current and future Growth Centres in the Sydney region, was gazetted in July 2006 and is effective until 30 June 2025.
In December 2007 an order conferring biodiversity certification under the Growth Centres SEPP was made by the Minister for the Environment. In July 2008, the Minister's biodiversity certification was validated by the *Threatened Species Conservation Amendment (Special Provisions) Act 2008*.
The relevant biodiversity measures (RBM's) applying to the certification have remained unaltered since gazettal of the original order. Under the RBM's of the Growth Centres SEPP biodiversity certification, clearing of any Existing Native Vegetation (ENV) in the non-certified areas must be offset elsewhere in the Growth Centres. ENV is defined as areas of indigenous trees (including any sapling) that had 10 per cent or greater over-storey canopy cover present, were equal to or greater than 0.5 hectares in area, and were identified as "vegetation" on maps 4 and 5 of the draft Growth Centres Conservation Plan (Eco Logical Australia, February 2007) at the time the biodiversity certification order took effect. Vegetation communities to be cleared within areas of ENV in non-certified areas is summarised in *Table 9*.

Table 9. ***Mapped vegetation communities to be cleared within areas of ENV in non-certified areas***

Vegetation Community		**ENV in non-certified areas within the approved disturbance area (Ha)**
Native vegetation	Moderate Condition Cumberland Plain Woodland	0.00
	Poor Condition Cumberland Plain Woodland	0.26
	Derived Grassland Cumberland Plain Woodland	0.09
	Poor Condition Riparian Woodland	0.00
Exotic vegetation	Exotic Grassland	0.39
	Cleared land	0.39
	Olive Dominant Woodland	0.03
Total		**1.16**

5.1.5 Threatened Ecological Communities

CPW within the approved disturbance area does not meet the criteria for a Threatened Ecological Community under the BC Act.

5.1.6 Groundwater Dependent Ecosystems

The EIS did not identify any high priority Groundwater Dependent Ecosystems (GDE's), subterranean GDE's, river base flows, karst or cave ecosystems, or known springs that are fed by groundwater in the ecological study area and surrounds.

5.2 Fauna

5.2.1 Terrestrial Fauna Habitat

During the ecological assessment of the EIS, three broad terrestrial fauna habitat types were identified in the ecological study area, namely: woodland, riparian and aquatic habitats and cleared/disturbed grassland. These habitats are briefly summarised in the following sections.

5.2.1.1 Woodland

Woodland habitat occurs across most of the ecological study area, with the largest continuous patches occurring in the southern extent of the site on non-certified land. Woodland habitat varied in condition from a moderate

structure and diversity of flora species to poor quality woodland and woodland dominated by *O. europaea* subsp. *cuspidata*.

Hollow-bearing trees were observed in woodland and were in highest concentration in Cell G at the south-eastern boundary of the quarry operations. Hollow-bearing tree locations were recorded if they occurred within the areas proposed for vegetation clearance. Thirteen hollow-bearing trees as well as several potential hollow-bearing trees (with no visible hollows) were recorded. A nest box program will be prepared and implemented in woodland habitat in areas with a naturally occurring low abundance of hollows to mitigate impacts to hollow-dependent threatened species potentially occurring at the site. The program would identify the target quantities and nest types and provide a protocol for installation, maintenance and monitoring. It will be developed and implemented prior to clearing the identified hollow bearing trees as identified in the EIS. The Nest Box Program will be appended to this report and updated as required.

5.2.1.2 Riparian and aquatic habitat values for terrestrial fauna

5.2.1.2.1 Dams

Four dams were recorded within the ecological study area that provide habitat for terrestrial fauna. Dams contained emergent vegetation and soft, muddy substrates, which would provide foraging and breeding habitat for frogs and wading birds. The dams also provide foraging opportunities for microchiropteran bats.

5.2.1.2.2 Thompsons Creek and Associated Dam

Thompsons Creek dam contained emergent vegetation, which would provide nesting habitat and shelter for waterbirds. The dam is also a foraging resource for waterbirds. The dam and Thompsons Creek also provide a freshwater resource for most local fauna including exotic species.

It was noted during the ecological assessment site survey that the southern section of Thompsons Creek became dry and void of aquatic vegetation as the creek progressed upstream from Thompsons Creek dam. Stagnant pools of water in this section of the creek would provide habitat for frogs. The northern section of Thompsons Creek (downstream of the dam) contained emergent vegetation, which would provide habitat for frogs and waterbirds. Gully erosion was common along the creek banks, particularly in the south and some vegetation overhangs the banks, which could provide shelter for fauna.

5.2.1.3 Cleared and Disturbed Grassland

Grassland at the site was mostly heavily grazed and disturbed by feral herbivores and farm animals (e.g. cattle). Rabbits (*Oryctolagus cuniculus*) and/or their scats and warrens were observed in every grassy habitat within the ecological study area. Native grasses occurred in some areas of the site and would provide a food source for native birds and macropods and shelter for reptiles. Other fauna resources within grasslands included fallen timber, loose rock and ant mounds, which would provide habitat and/or food for reptiles, birds and mammals.

5.2.2 Aquatic Fauna Habitat

During the EIS aquatic fauna habitat assessments were undertaken at four locations along Thompsons Creek, Thompsons Creek dam and four other dams within the property boundary (outside of the approved disturbance area). Thompsons Creek comprised intermittently wet channels and pools. The channel was narrow at times and undefined in some locations, particularly in the east. There was severe disturbance by cows trampling through the creek line on the east and severe bank erosion in the south west. Thompsons Creek is mapped as Key Fish Habitat by Department of Primary Industries (DPI) and would be considered Class 3 fish habitat using the Fairfull and Witheridge (2003) fish habitat classification system.

5.2.3 Threatened Fauna Species

Based on database and literature review completed during the EIS, 46 animal species listed under the BC and FM Acts are either known or have the potential to occur within 10 kilometres of the Study Area (refer *Table 10*).

No threatened fauna species were recorded/identified during the detailed field surveys of the EIS. The probability of each of the locally recorded threatened and migratory fauna species to occur within the ecological study area was assessed in the EIS using knowledge of each species' habitat and lifecycle requirements with regard to the habitat present within the ecological study area. It was concluded in the EIS that several threatened fauna species identified in the database searches were considered to have a moderate to high likelihood of occurring in the ecological study area based on potential habitat and the proximity and number of records of these species in the locality. This included waterbirds that could occur in Thompsons Creek dam, woodland birds that could utilise woodland habitats and native grassland and microbats that could forage at waterbodies and within woodland and utilise hollow-bearing trees for roosting.

Table 10. ***Threatened fauna potentially occurring within 10 kilometres of the ecological study area***

Scientific name	Common name	Status under EPBC Act	Status under TSC Act	Status under FM Act
Anthochaera phrygia	*Regent Honeyeater*	*Endangered,*	*Critically*	-

Scientific name	Common name	Status under EPBC Act	Status under TSC Act	Status under FM Act
		Migratory	*endangered*	
Apus pacificus	*Fork-tailed Swift*	*Migratory*		-
Ardea alba	*Great Egret*	*Migratory*		-
Ardea ibis	*Cattle Egret*	*Migratory*		-
Botaurus poiciloptilus	*Australasian Bittern*	*Endangered*	*Endangered*	-
Burhinus grallarius	*Bush Stone-curlew*	-	*Endangered*	-
Callocephalon fimbriatum	*Gang-gang Cockatoo*	-	*Vulnerable*	-
Chalinolobus dwyeri	*Large-eared Pied Bat*	*Vulnerable*	*Vulnerable*	-
Chthonicola sagittata	*Speckled Warbler*	-	*Vulnerable*	-
Daphoenositta chrysoptera	*Varied Sittella*	-	*Vulnerable*	-
Dasyurus maculatus maculatus	*Spotted-tailed Quoll*	*Endangered*	*Endangered*	-
Ephippiorhynchus asiaticus	*Black-necked Stork*	-	*Endangered*	-
Erythrotriorchis radiatus	*Red Goshawk*	*Vulnerable*		-
Falsistrellus tasmaniensis	*Eastern False Pipistrelle*	-	*Vulnerable*	-
Gallinago hardwickii	*Latham's Snipe*	*Migratory*		
Glossopsitta pusilla	*Little Lorikeet*	-	*Vulnerable*	-
Haliaeetus leucogaster	*White-bellied Sea- Eagle*	*Migratory*		-
Heleioporus australiacus	*Giant Burrowing Frog*	*Vulnerable*	*Vulnerable*	-
Hieraaetus morphnoides	*Little Eagle*	-	*Vulnerable*	-
Hirundapus caudacutus	*White-throated Needletail*	*Migratory*		-
Hoplocephalus bungaroides	*Broad-headed Snake*	*Vulnerable*	*Endangered*	-
Lathamus discolour	*Swift Parrot*	*Endangered*	*Endangered*	-
Litoria aurea	*Green and Golden Bell Frog*	*Vulnerable*	*Endangered*	-
Litoria raniformis	*Growling Grass Frog*	*Vulnerable*	*Endangered*	-
Macquaria australasica	*Macquarie Perch*	*Endangered*	-	*Endangered*
Melanodryas cucullata cucullata	*Hooded Robin (south-eastern form)*	-	*Vulnerable*	-
Meridolum corneovirens	*Cumberland Plain Land Snail*	-	*Endangered*	-
Merops ornatus	*Rainbow Bee-eater*	*Migratory*		-
Miniopterus schreibersii oceanensis	*Eastern Bent-wing bat*	-	*Vulnerable*	-
Monarcha melanopsis	*Black-faced Monarch*	*Migratory*		-
Mormopterus norfolkensis	*Eastern Free-tail bat*	-	*Vulnerable*	-
Myiagra cyanoleuca	*Satin Flycatcher*	*Migratory*		-
Myotis macropus	*Southern Myotis*	-	*Vulnerable*	-
Ninox strenua	*Powerful Owl*	-	*Vulnerable*	-
Oxyura australis	*Blue-billed Duck*	-	*Vulnerable*	
Petrogale penicillata	*Brush-tailed Rock- wallaby*	*Vulnerable*		-
Petroica boodang	*Scarlet Robin*	-	*Vulnerable*	-
Petroica phoenicea	*Flame Robin*	*Marine*	*Vulnerable*	-
Phascolarctos cinereus	*Koala*	*Vulnerable (combined populations of QLD, NSW and the ACT)*	*Vulnerable*	
Potorous tridactylus tridactylus	*Long-nosed Potoroo (SE mainland)*	*Vulnerable*		
Prototroctes maraena	*Australian Grayling*	*Vulnerable*		*Protected*
Pseudomys novaehollandiae	*New Holland Mouse*	*Vulnerable*		
Pteropus poliocephalus	*Grey-headed Flying- fox*	*Vulnerable*	*Vulnerable*	
Rhipidura rufifrons	*Rufous Fantail*	*Migratory*		

Scientific name	Common name	Status under EPBC Act	Status under TSC Act	Status under FM Act
Rostratula australis	*Australian Painted Snipe*	*Vulnerable, Migratory*	*Endangered*	
Scoteanax rueppellii	*Greater Broad-nosed Bat*	-	*Vulnerable*	
Stagonopleura guttata	*Diamond Firetail*	-	*Vulnerable*	

6 CONCEPTUAL FINAL LANDFORM AND ASSOCIATED LAND USES

6.1 Site Overview

The project site is currently used for quarrying, brick production and associated activities. The brickmaking facility along with various administration buildings, a finished bricks storage yard, staff car park and internal road network is generally contained within the northern part of the project site and is set back approximately 200 metres from Greendale Road. The southern portion of the project site, adjacent to Thompsons Creek, is leased for the agistment of stock and grazing.

The underlying topography of the operational footprint on the project site is relatively flat, and the land generally slopes to the south and east toward Thompsons Creek. Existing quarrying activities in the northern portion of the site have substantially altered the natural landform, with various voids and elevated stockpiles present in the active, north-western part of the project site. Current active quarry areas have involved removing material below ground level from RL86 down to RL66. Other significant landforms on the site include the raw material stockpiles to the south of the buildings and manufacturing plants, unusable material stockpiles along the western boundary of the existing quarry pit and various stormwater management structures (sediment basins and dams).

The end-of-life land use for the project site is yet to be determined and may be influenced by a number of factors including future demand for bricks and surrounding land development progress. As outlined in *Section 2.1*, a FLUOP has been prepared for the site in accordance with Condition 25 of the CoA. Following any update of the FLUOP, this Plan will be reviewed and updated if necessary. (FLUOP V1 approved by DPIE 3 June 2022)

6.2 Future Land Use Options

In determining the future land use options for the project site, consideration was given to the applicable planning policy framework as well as the surrounding land use and environmental and market conditions at the time.

There are a number of potential future land use options that are being considered for the project site given the existing site status, surrounding land use and future strategic planning and development being considered for adjacent areas. Potential suitable future land uses for the project site that have been discussed in detail in the FLUOP include:

- Landfill;
- Industrial or commercial;
- Residential, as per the Growth Centres SEPP; and
- Continued quarrying and brickworks activities.

6.3 Conceptual Final Landform

As outlined in Condition 23 of the COA, the site must be rehabilitated generally consistent with the final landform shown conceptually in Appendix 4 of the COA. The conceptual final landform specified in the CoA consists of:

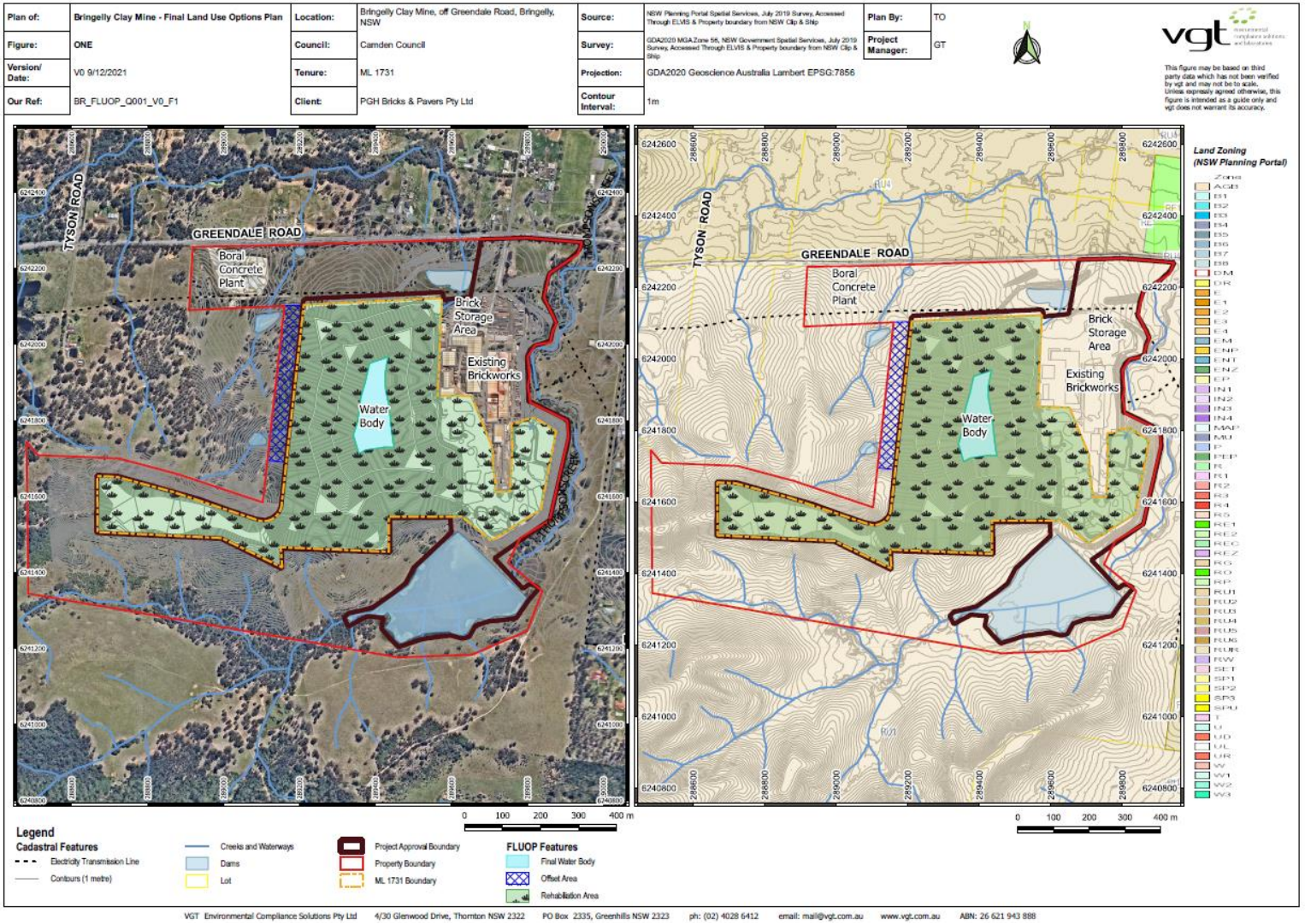
- A potential quarry void comprising of Cells C, D and E;
- A backfilled area comprising of Cells A and B;
- A quarry void comprising of Cells F, G, H and I; and
- An area where surface infrastructure has been decommissioned and removed and the area restored.

The retention of voids on the site will not sterilise or preclude land from being redeveloped, in line with future land use planning and policy.

Future land use and development will be best determined closer to quarry closure when market conditions, surrounding land use and development and relevant policy has been assessed and considered to establish the most appropriate future use of the land. As such, the final landform is conceptual only and will be reviewed and further considered in accordance with the FLUOP.

The Conceptual Final Landuse Options Plan from the FLUOP V1 is shown on the following page.

Figure 1 - Conceptual Final Land Use Options Plan



7 REHABILITATION

7.1 Key Principles of Rehabilitation

The facility has adopted the following three key principles when considering rehabilitation management measures:

- Least possible disturbance;
- Erosion and sediment control; and
- Progressive rehabilitation.

7.1.1 Least Possible Disturbance

- Quarrying activities will be staged in accordance with the EIS and Forward Plan to minimise the extent of the disturbance footprint at any one time;
- All reasonable and feasible measures will be undertaken to minimise the total area exposed for dust generation at any time;
- Extracted and imported raw material will be restricted to the designated stockpile areas;
- As quarry stages are completed, unusable material will be backfilled in the quarry pits in accordance with the FLUOP; and
- The perimeter (disturbance footprint) of each quarry stage will be delineated prior to the commencement of extraction activities in that stage. All contractors responsible for undertaking quarrying campaigns will be informed of the requirement to restrict extraction activities to within the approved extraction area and restrict associated stockpiling activities to designated stockpile areas.

7.1.2 Erosion and Sediment Control

Erosion and Sediment control measures shall be undertaken, progressively where practicable, in accordance with the approved Water Management Plan and key measures are summarised below.

- Stormwater pollution will be prevented through landform stabilisation, stormwater runoff management and erosion control, rather than relying on the treatment of captured stormwater runoff only;
- Groundcover will be established through re-vegetation with appropriate, locally occurring species;
- Erosion and sediment controls will be established and maintained, such as silt fencing, bunding, diversion structures, catch drains and sedimentation basins;
- Clean water runoff will be diverted around the quarry site wherever possible by the installation of clean water divergence structures; and
- Stormwater runoff within the facility will be managed by a stormwater management system that will reduce sediment loads and release water to the downstream system that meets EPL requirements.

7.1.3 Progressive rehabilitation

Progressive rehabilitation of final benches in each quarry pit (cell) will be undertaken by PGH where practicable. This has been found to reduce long-term rehabilitation liability and is usually more cost-effective than large scale rehabilitation following quarry closure. Mine Staging, including rehabilitation is outlined in *Section 7.3.12*.

All measure outlined in this report will be undertaken progressively if practicable.

7.2 Conceptual Rehabilitation Objectives from the EIS

Conceptual objectives of rehabilitation activities from the EIS are presented in *Table 11* below and have been considered on the development of performance and completion criteria (see *Section 8*).

Table 11. ***Conceptual Rehabilitation Objectives and Targets from the EIS***

Feature	Objective	Target
Safety	Significant hazards removed, controlled or contained	At completion of rehabilitation, no reasonably preventable hazards or reported incidents on site for 12 months.
Land Use	Provide for a combination of sustainable open woodland and grass land.	Rehabilitate mine to provide: • A mixture of grassland and woodland. • A suitable water body for possible stock grazing and/or recreation purposes. • Retain access road for future lifestyle and controlled grazing uses
Landform	Provide a geotechnically stable landform.	Geotechnical assessment based on site specific review and, if required, computer modelling determines that the retained slopes are not likely to actively erode or 'slip' to an extent requiring earthworks and profiling.
	Provide a non-polluting landform	Water quality monitoring results show that the landform is non-polluting within the meaning of Section 120 of the Protection of the Environment Operations Act 1997. In particular, 'downstream' water quality monitoring will record total suspended solids <50mg/L or within 10% of 'upstream' levels (whichever is the greater).
Biodiversity	Revegetated areas provide a vegetation community with maintenance requirements no greater than adjoining vegetation not disturbed by mining activities.	Rehabilitation monitoring confirms that the established vegetation communities are self-sustaining (refer to 8.3 for detailed criteria).
	Revegetated areas contain species consistent with surrounding vegetation communities.	Rehabilitation monitoring confirms the non-native and non-target species (weeds) represent less than 10% of projected foliage cover or equivalent to surrounding vegetation not disturbed by mining activities.
Tenement Relinquishment	Allow for the relinquishment of the mining lease and the return of the security lodged over the Mining Lease within a reasonable time after the end of the mine life.	5 years after final rehabilitation.

7.3 Rehabilitation Management

PGH is committed to implementing a program of progressive rehabilitation of disturbed areas as they become available for rehabilitation.

The PGH rehabilitation program will be monitored and reviewed according to Section 10, and any changes or updates to the program will be facilitated in accordance with Section 11.

The PGH rehabilitation program will focus on rehabilitation of disturbed areas.

Strategies and measures for the rehabilitation of the site are discussed in more detail in the following sub-sections.

7.3.1 Land Clearing

Land clearing activities are to be constrained to approved disturbance areas only and the extent of vegetation clearing is to be clearly identified on construction and mining plans. Extent of clearing should be fenced with highly visible temporary fencing to ensure that clearing does not extend beyond the area necessary.

It is recommended that topsoil and plant material which is to be cleared is salvaged for re-use in rehabilitation works.

PGH will undertake a two-stage approach to clearing:

- Remove non-hollow bearing trees at least 48 hours before hollow-bearing trees are removed.
- Hollow bearing trees are to be knocked to encourage fauna to evacuate the tree immediately prior to felling. Felled trees would be left for a short period of time on the ground to give any fauna trapped in the trees an opportunity to escape.

Fauna microhabitat such as logs should be removed from areas to be cleared and relocated to suitable nearby bushland in the presence of an ecologist.

A 5-metre-wide strip (approximately) of Moderate Condition CPW is to be retained between the noise bund and the extraction pit. This area includes mature trees with a predominantly native grass and shrub understorey.

7.3.2 Dust Control

All measures described in the Air Quality Management Plan will be implemented at all stages on the site, including during progressive rehabilitation. The environmental management measures outlined in the AQMP are reproduced in Table 13 with further management measures in the Sections 7.3.3-5 below:

Table 12. ***Air Quality Impact Management Measures***

ID	Measure / Requirement	Reference	When to implement	Responsibility	Additional Resources Needed
AQ1.	Restrict ground disturbance to the minimum area practically possible, in accordance with the staging plan.	Section 7.5.4 EIS Volume 1	All stages	Plant Manager	
AQ2.	Progressively rehabilitate exhausted quarry pits.	Section 7.5.4 EIS Volume 1	All stages	Plant Manager	Rehabilitation Management Plan
AQ3.	Stockpiles are to be restricted to the designated raw material	Section 7.5.4 EIS Volume 1	All stages	Plant Manager	

ID	Measure / Requirement	Reference	When to implement	Responsibility	Additional Resources Needed
	stockpile area to the south of the brick making facility.				
AQ4.	Temporary topsoil stockpiles are to be located in previously disturbed areas (devoid of vegetation). The management of topsoil stockpiles is to be in accordance with the management strategies in Section 7.3.3.	Section 7.5.4 EIS Volume 1	All stages	Plant Manager	
AQ5.	Unsealed haul roads and manoeuvring areas are to be appropriately watered/dampened to minimise dust.	Section 7.5.4 EIS Volume 1	All stages	Plant Manager	
AQ6.	Inform employees and contractors of internal vehicle speed limits.	Section 7.5.4 EIS Volume 1	All stages	Plant Manager	Site Induction
AQ7.	Retain a 5 m strip of existing native vegetation along the northern boundary of quarry Cell D.	Section 7.5.4 EIS Volume 1	All stages	Plant Manager	
AQ8.	Establish dense vegetation cover on the 4.5 m high noise bunds to be established along the northern boundary of quarry Cell D and to the east of the realigned site access road.	Section 7.5.4 EIS Volume 1	All stages	Plant Manager	
AQ9	All internal paved/sealed roadways shall be maintained in a clean and dust free state to minimise dust from vehicle movement		All stages	Plant Manager	
AQ10	Roadways immediately beyond the site entrance shall be regularly inspected and swept to prevent build-up of material.		Construction	Plant Manager	
AQ11	During adverse weather conditions (e.g. wind speeds greater than 40 km/h), activities which generate dust emissions are to cease temporarily and dampening frequency of haul roads, stockpiles and other disturbed areas are to be increased until weather conditions improve.		All stages	Plant Manager	

7.3.3 Topsoil Stripping and Storage

Soil surveys will be undertaken prior to commencement of quarrying in new Cells to determine the condition of topsoils. The texture, thickness and quality of available topsoil will be described and mapped to inform ongoing rehabilitation activities on the project site.

Where topsoil is stripped for future use in rehabilitation, the duration of topsoil stockpiling should be minimised as far as possible, as periods longer than three months may cause structural degradation and death of seeds and micro-organisms. The following techniques will be used to prevent excessive soil deterioration:

- Weed control should be undertaken on land clearing areas prior clearing to minimise transfer of weeds;

- Topsoil will not be stripped during excessively wet or dry conditions;
- Where practical, stripped material will be placed directly onto reshaped overburden and spread immediately (if mining sequences, equipment scheduling and weather conditions permit) to avoid the requirement for stockpiling;
- As part of the planning process, sufficient area for stockpiling, placement or burial of topsoil will have been identified prior to stripping and these areas will be accessible;
- As part of the planning process, temporary drainage, erosion and sediment control measures will be employed to minimise erosion and pollution of waters if required;
- Where practicable, vegetation will be mulched and used as soil cover on rehabilitation areas;
- A record will be kept of the nature and quantities of salvaged bush rocks, timber etc. to ensure the salvage of these items is maximised;
- Where possible, topsoil stockpiles will be located in areas away from drainage lines. Drainage will be diverted around stockpiles to prevent erosion;
- Sediment controls will be installed downstream from stockpiles to prevent contamination of clean water;
- Topsoil stockpiles will be limited to a maximum height of 2 metres;
- More erodible materials will be placed on flatter areas to minimise the potential for erosion;
- Where necessary, the surface of soil stockpiles shall be contour scarified in order to promote infiltration and minimise erosion until vegetation is established; and
- Topsoil intended to be stockpiled for more than three months will be seeded with cover crops to protect the stockpile from raindrop splash erosion, aerate the soil to reduce anaerobic conditions, enhance organic carbon levels and suppress weeds.
- Dust suppression will be addressed by a water cart as conditions dictate to ensure no fugitive dust emissions from site.

7.3.4 Topsoil Respreading

Prior to re-spreading stockpiled topsoil onto reshaped overburden, an assessment of weed infestation on stockpiles should be undertaken to determine if individual stockpiles require herbicide application and / or "scalping" of weed species prior to topsoil spreading. If insufficient on-site topsoil material is available, VENM may be imported to meet the shortfall.

Where topsoil resources allow, topsoil should be spread to a nominal depth of 100 mm on all re-graded subsoils. Subsoils will be emplaced first over the battered overburden material used to create the final landform. The depth of subsoils should aim to replicate that of the original soil profile.

Topsoil should be spread, treated with fertiliser and seeded in one consecutive operation, to reduce the potential for topsoil loss to wind and water erosion.

7.3.5 Seedbed Preparation

Thorough seedbed preparation should be undertaken to ensure optimum establishment and growth of vegetation. All topsoiled areas should be lightly contour ripped (after topsoil spreading) to create a "key" between the soil and the spoil. Ripping should be undertaken on the contour. Best results will be obtained by ripping when soil is moist and when undertaken immediately prior to sowing. The respread topsoil surface should be scarified prior to, or during

seeding, to reduce run-off and increase infiltration. This can be undertaken by contour tilling with a fine-tined plough or disc harrow.

7.3.6 Access Limitations

The soil erosion hazard on the site will be kept as low as practicable by minimising disturbance and progressively rehabilitating. Limiting access to certain areas of the operation during various stages is one way of reducing the erosion hazard and are outlined in *Table 13*.

Table 13. ***Limitations to Access***

Landuse	Access Limitations	Comments
Extraction	• Extraction will take place within a defined work area and materials will be transported only within the site for stockpiling or rehabilitation. • Entry to land not involved directly in the extraction process will be prohibited and will be managed as natural grassland.	All site workers should clearly recognise these areas and they should be clearly marked — suitable materials include barrier mesh, sediment fencing, etc. The project manager will determine their actual location on-site. They can vary in position to conserve existing vegetation best while being considerate of the needs of efficient works activities.
Access Roads	• Roads and tracks are limited to a width that are the minimum necessary to allow safe operation of heavy equipment. • Limit vehicular access to the site to that essential for extraction or rehabilitation work.	
Remaining Lands	Land disturbances are prohibited except for essential management works.	

7.3.7 Soil Stabilisation and Erosion Control

Soil stabilisation is primarily achieved through the progressive rehabilitation of exposed areas. Here, rehabilitation (either permanent, progressive or interim) means achieving a C-factor (Revised Universal Soil Loss Equation) of less than 0.1 (equivalent of 60% groundcover for recently disturbed soils) and the program that ensures it will drop permanently, by reducing the risk of erosion by vegetation, paving, armouring, etc. as soon as practicable after activities cease.

NOTE: The cover factor, C, is the ratio of soil loss from land under specified crop or mulch conditions to the corresponding loss from continuously tilled, bare soil. A C-factor of 1.0 corresponds to that of bare soil.

While C-factors are likely to rise to 1.0 during the life of the mine, they should not exceed those given in *Table 14* within the specified times.

Table 14. ***Maximum acceptable C-factors at nominated times during life of mine***

Lands	Maximum C-Factor	Remarks
Waterways and other areas subjected to concentrated flows, post construction.	0.05 (70% groundcover)	Applies after ten working days from completion of formation and before they are allowed to carry any concentrated flows. Flows are limited to those indicated in "Blue Book". Foot and vehicular traffic are prohibited in these areas.
Topsoil/ Subsoil/Overburden Stockpiles stored out of the pit	0.1 (60% groundcover)	Applies after ten working days from completion of formation.
All other lands outside of the extraction area	0.15 (50% groundcover)	Applies after 20 working days of inactivity, even though works might continue later.

Note: *working days* does not include public holidays, weekends or days when work is not possible due to wet weather.

The required C factors can be achieved in the short term (temporary protection for up to six months) with either:

- a suitable soil binder in areas of sheet flow, e.g. topsoil stockpiles; or
- anionic bitumen emulsion sprayed over hessian cloth (at 0.5 L/m2) in areas of concentrated flow, e.g. diversion banks and waterways; or
- a temporary vegetative cover.

Application of any soil binders employed should follow the manufacturer's instructions.

A suggested listing of suitable plant species is shown in *Table 15*. Before sowing, additional tests should be undertaken to assess the requirements of ameliorants such as lime to help plant growth. Final selection of suitable plant species will be made based on current best practice.

Table 15. ***Plant Species for Temporary Cover***

Sowing Season	Seed Mix
Autumn/Winter	Oats @ 40kg/Ha Japanese Millet @ 10kg/Ha
Spring/Summer	Oats @ 20kg/Ha Japanese Millet @ 20kg/Ha

While ever the C-factor is higher than 0.1, maintain the lands in a condition that resists removal by wind. This can be achieved by keeping the soil moist (not wet) by sprinkling with water or where practicable, leaving the surface in a cloddy state.

Notwithstanding the above, schedule works so that the duration from the conclusion of land shaping to completion of final stabilisation is less than:

- 10 days on slopes steeper than 30 per cent
- 20 days on slopes less steep than 30 per cent.

Where practicable, Lands planted recently with grass species will be watered regularly until an effective cover has properly established and plants are growing vigorously. Follow-up seed and

fertiliser will be applied as necessary in areas of minor soil erosion and/or inadequate vegetative protection.

All waterways, drains, spillways and outlets will be constructed to be stable in accordance with the "Blue Book" for soils with high erodibilities.

7.3.8 Revegetation

The timing for revegetation works to achieve adequate vegetative contact cover prior to the period of maximum erosion hazard (i.e. wettest and windiest months) is critical for reducing erosion during the establishment phase.

Revegetation activities should ideally be completed by early September each year to allow sufficient time for appropriate levels of vegetation to establish before the period of high erosion hazard from October to February. However, opportunistic revegetation may be undertaken outside these ideal periods if areas are ready for rehabilitation.

Revegetation plans will be prepared in advance of an area becoming available for rehabilitation, with reference to the BMP and in consultation with a suitably qualified ecologist, and will take the following into consideration:

- The ecologist will determine the preferred revegetation species and methodologies to be applied;
- Ensure that the Cumberland Plain Woodland vegetation community is enhanced and established.
- Where feasible, areas rehabilitated with native vegetation will be integrated with areas of undisturbed native vegetation, to provide connectivity and wildlife corridors;
- Native vegetation re-established at the site should be suitable for potential subsequent land use and as far as possible be compatible with the surrounding land fabric and land use requirements i.e. locally occurring, native plant species should be used in all revegetation; and
- Consideration should be given when re-establishing native vegetation to accommodating threatened flora and fauna where appropriate.

7.3.9 Cumberland Plain Woodland Species

Species that are consistent with comprise the Cumberland Plain Woodland (CPW) will be utilised in rehabilitation and enhancement of the Biodiversity Offset Area (BOA). The final landuse of the site has not been determined as discussed in *Section 6* however, the final vegetation assemblage in areas outside the BOA is likely to be sympathetic to the CPW. The CPW is characterised by the following assemblage of species as defined by the NSW Scientific Committee.

Table 16. ***Cumberland Plain Woodland Species Assemblage***

Species	
Acacia implexa	Ajuga australis
Aristida ramosa	Aristida vagans
Arthropodium milleflorum	Arthropodium minus
Asperula conferta	Austrodanthonia caespitosa
Austrodanthonia racemosa var. racemosa	Austrodanthonia tenuior
Bossiaea prostrata	Bothriochloa decipiens
Bothriochloa macra	Brunoniella australis
Bursaria spinosa	Carex inversa
Centaurium spicatum	Centella asiatica
Cheilanthes distans	Cheilanthes sieberi subsp. sieberi
Chloris truncata	Chloris ventricosa
Chorizema parviflorum	Chrysocephalum apiculatum
Clematis glycinoides var. glycinoides	Commelina cyanea
Crassula sieberiana	Cymbonotus lawsonianus
Cymbopogon refractus	Cyperus gracilis
Daucus glochidiatus	Daviesia ulicifolia
Desmodium brachypodium	Desmodium varians
Dianella longifolia	Dichanthium sericeum
Dichelachne micrantha	Dichelachne parva
Dichondra repens	Dichopogon fimbriatus
Dichopogon strictus	Digitaria diffusa
Dillwynia sieberi	Dodonaea viscosa subsp. cuneata
Echinopogon caespitosus var. caespitosus	Echinopogon ovatus
Einadia hastata	Einadia nutans
Einadia polygonoides	Einadia trigonos
Elymus scaber var. scaber	Eragrostis leptostachya
Eremophila debilis	Eriochloa pseudoacrotricha
Eucalyptus crebra	Eucalyptus eugenioides
Eucalyptus moluccana	Eucalyptus tereticornis
Euchiton sphaericus	Exocarpus cupressiformis
Fimbristylis dichotoma	Galium migrans
Galium propinquum	Geranium homeanum
Geranium solanderi var. solanderi	Glossogyne tannensis
Glycine clandestina	Glycine microphylla
Glycine tabacina	Goodenia hederacea subsp. hederacea
Hardenbergia violacea	Hypericum gramineum
Hypoxis hygrometrica	Hypoxis pratensis var. pratensis

Species	
Indigofera australis	Juncus usitatus
Lachnagrostis avenacea var. avenacea	Lomandra filiformis subsp. filiformis
Lomandra multiflora subsp. multiflora	Mentha diemenica
Microlaena stipoides var. stipoides	Opercularia diphylla
Oxalis perennans	Panicum effusum
Paspalidium distans	Phyllanthus virgatus
Plantago debilis>	Plantago gaudichaudii
Plectranthus parviflorus	Poa labillardieri var. labillardieri;
Pratia purpurascens	Pultenaea microphylla
Rubus parvifolius	Scleria mackaviensis
Scutellaria humilis	Senecio diaschides
Senecio hispidulus var. hispidulus	Sida corrugata
Solanum cinereum	Solanum prinophyllum
Sorghum leiocladum	Sporobolus creber
Sporobolus elongatus	Stackhousia viminea
Themeda australis	Tricoryne elatior
Vernonia cinerea var. cinerea	Veronica plebeia
Wahlenbergia gracilis	Wahlenbergia stricta subsp. stricta
Wurmbea dioica subsp. dioica	Zornia dyctiocarpa var. dyctiocarpa
Other tree species occurring less frequently in this community include:	
Angophora bakeri	Angophora floribunda
Angophora subvelutina	Corymbia maculata
Eucalyptus amplifolia	Eucalyptus baueriana
Eucalyptus bosistoana	Eucalyptus fibrosa
Eucalyptus globoidea	Eucalyptus longifolia
Eucalyptus paniculata	Eucalyptus punctata
Syncarpia glomulifera	

7.3.10 Weed Control

Weed control will be in accordance with mitigation strategies documented in the BMP and Weed Management Plan. Weed management practices on disturbed sites generally involve the following:

- Management of weeds in and adjacent to cleared areas will occur in accordance with the BMP and Weed Management Plan. These will include details relating to the eradication of weeds, disposal of green waste, and vehicle/plant weed wash down protocols if required;
- Equipment used for treating weed infestation will be cleaned prior to moving to a new area within the project site to minimise the likelihood of transferring any plant material and weed seeds in soil;

- Soil stripped and stockpiled from areas containing known weed infestations is to be stored separately and is not to be moved to areas free of weeds;
- Use of VENM only for any materials brought onto the site for rehabilitation purposes;
- Any vegetation removed from the site will be disposed of at an appropriately licensed waste facility where it cannot be reused locally; and
- The density of weeds on the rehabilitated site should be no greater than the surrounding area.

7.3.11 Construction Phase Rehabilitation

These works include construction involved with the brickworks facility, and road or access tracks to be formed, installation of noise bunds or similar items. During the construction phases of the project, the following rehabilitation strategies will be implemented:

- The construction disturbance footprint will be restricted to as small an area as possible;
- All disturbed areas not required for ongoing operational use will be rehabilitated in as timely a manner as possible;
- Areas to be rehabilitated, including road and earthworks batters, will be topsoiled and seeded with a cover crop and grass species;
- Sediment and erosion controls will be implemented in disturbed areas in accordance with the Water Management Plan until rehabilitation is complete; and
- Rehabilitated areas will be regularly watered and monitored during construction and remediation works will be undertaken as required.
- Noise bunds should be covered with a 100-150 mm deep layer of topsoil from previously cleared area. This topsoil may then be covered with a layer of coarsely mulched native vegetation. Additional planting of fast-growing local native shrubs such as Acacia spp. and Bursaria spinosa may assist in slope stabilisation. The bund should be monitored during revegetation to ensure that Olea europaea subsp. cuspidata does not establish.

7.3.12 Mine Rehabilitation Staging

Extraction of raw material from the quarry will generally be undertaken in accordance with the EIS and Forward Plan. Overburden, inter-burden and all unusable material from each subsequent stage will be placed in the preceding void when finished faces are available, facilitating sustainable re-use of unusable materials. This minimises the disturbance footprint as additional undisturbed land is generally not required for the stockpiling of unusable material and assists with progressive rehabilitation consistent with the FLUOP. Where finished faces are not available, overburden material may be stockpiled and temporarily revegetated to await final emplacement in rehabilitation areas.

PGH are proposing to use a benched quarry design to create a stable landform. Benches will be topsoiled and revegetated with the advice of an ecologist using a mixture of locally occurring native trees and shrubs. A bund will be created on the outer edge of the quarry pit to act as a safety barrier and to divert clean water where possible and ensure that the quarry voids are internally draining. The width and height of the benches will be determined closer to the time of rehabilitation in consultation with an appropriately qualified geotechnical engineer.

It should also be noted that concurrent mining and rehabilitation of the Cells is likely thus minor changes may be made due to practicality and safety issues and do not affect the overall rehabilitation goals.

7.3.13 Restoration of Surface Infrastructure Areas

Surface infrastructure areas (including the raw material stockpile area) will be the final areas to be rehabilitated at the end of quarry life, with the objective being to reduce potential dust sources but have flexibility for the final landform and use. Restoration of these areas will commence with the decommissioning and removal of infrastructure and hard-stand. It is assumed that these areas would be at or near ground level for the final landform. Rehabilitation will involve ripping the compacted surfaces, placement and spreading of topsoil and establishing suitable groundcover with the advice of an ecologist.

7.4 Rehabilitation Domain Selection

For the purposes of describing the rehabilitation progression, the site has been divided into Primary Domains (Operational) as listed in *Table 17* and illustrated on Figure 4 and Secondary Domains (Post Mining Land Use) as listed in *Table 18*.

Table 17. ***Operational Domain Codes***

Code	Primary Domains (Operational)
1	Infrastructure Area
3	Water Management Area
4	Overburden Emplacement Area
6	Void (open cut void)
9	Conservation and Biodiversity Offset Area

Table 18. ***Post Mining Land Use Domain Codes***

Code	Secondary Domains (Post Mining)
A	Infrastructure
B	Water Management Area
C	Rehabilitation Area- Grassland
E	Rehabilitation Area- Woodland
H	Relinquished Lands
J	Conservation and Biodiversity Offset Area

8 PERFORMANCE AND COMPLETION CRITERIA

The rehabilitation of a mine site is a dynamic process with various phases of rehabilitation being achieved at different times during the mine life. The following illustrates the progression of a Domain through the Rehabilitation Phases and the consideration of how monitoring of completion criteria correlates with short, medium- and long-term implementation measures to ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations of the COA.

8.1 Rehabilitation Phases and Implementation Measure Timing

Rehabilitation Phases	Implementation Measure Timing/ Completion Criteria
Active Mining Area ↓ Decommissioning ↓ Landform Establishment ↓ Growth Medium Development ↓ Ecosystem and Land Use Establishment ↓ Ecosystem and Land Use Sustainability ↓ Relinquished Lands	Short Term ↓ Medium Term ↓ Long Term

Note, the progression of the BOA (Domain J) through the rehabilitation phases is described in the BMP and the implementation measures are reproduced below. (as required in Condition 26, Schedule 3)

8.2 Biodiversity Offset Area and Remnant Vegetation Mitigation Measures

PGH will implement the mitigation measures described below

8.2.1 Fencing

- Short-term (within 1 year of BOA being established): Review the existing fencing and consider replacing or upgrading fencing to ensure the BOA is secure, excludes grazing animals and restricts unauthorised human access. Remove any redundant internal fencing within the BOA to reduce the risk of injury to native fauna.
- Medium-term (within 3 years of BOA being established): All fencing to be installed and maintained and will be of a rural character i.e. post and wire, and located around the BOA.
- Long-term (after 3 years): Fence line maintained and fit for purpose.

8.2.2 Weed and pest control

- Short-term (within 6 months of establishment of BOA): Undertake a baseline survey of weeds and pests to establish a baseline to monitor future improvement. Appoint a bush

regeneration specialist to undertake targeted weed and pest control measures in the BOA.

- Medium and Long-term (12 months post BOA establishment and ongoing): Management to be undertaken in accordance with the Weed Management Plan as approved by DPIE and available on request.

8.2.3 Fire management

No prescribed burning activities are planned for the BOA.

PGH bushfire policy does not permit staff to engage in firefighting activities or bushfire management. All firefighting is undertaken by the RFS. Hazard reduction is based on RFS advice and not undertaken by PGH.

PGH maintains fencing around the site to discourage trespassing and the risk of deliberately lit fires. Procedures and training exist for PGH personnel and contractors, within site Emergency Response Procedures for minimising fire risk and dealing with fires.

PGH will ensure that the facility is suitably equipped and access available to fight fires on site.

Site management will liaise with RFS to minimise fire risk as advised and is responsible for managing fire risk within policy guidelines.

PGH commits to work with RFS on any reasonable request to improve property risk profile. The site has suitable access and ongoing dialogue with RFS will ensure that the facility is accessible for fighting fires. In addition, dams on site will be made available for RFS as required in the event of fire.

In the event of a fire, on site or in the surrounding area, PGH will work as much as practical in co-operation with RFS, emergency services and National Parks and Wildlife Service. The presence of a bushfire in the area will activate the PIRMP.

8.2.4 Management of human access and disturbance

- Short-term (within 1 year of BOA being established):: Restrict access (e.g. locked gates) to prevent unauthorised access to the BOA and reduce the risk of introducing or spreading weed and pest species. Install signage in prominent locations to advise unauthorised personnel not to enter.

- Medium and Long-term (12 months post BOA establishment and ongoing): Maintain access restrictions and signage.

8.2.5 Retention or addition of habitat features

- Short-term (within 6 months of establishment of BOA): Retain all existing native vegetation within the BOA. No habitat features, such as fallen timber is to be removed from the BOA.

- Medium and Long-term (12 months post mine expansion) : Following clearing for mine expansion, habitat features e.g. logs and rocks will be transported and strategically placed within the BOA or in other rehabilitation areas, in consultation with a suitably qualified ecologist. Nest boxes are installed as appropriate.

8.2.6 Erosion control

Erosion control is to be undertaken as the need is identified during monthly environmental inspections, with a focus on areas of lower vegetation coverage, which present a higher erosion risk e.g. areas recently cleared of weeds and access tracks (as detailed in the Water Management

Plan and summarised here). Erosion controls measures to be undertaken will include the following as relevant to type of erosion and land type:

- Extraction will occur within a pre-defined area to limit the area of disturbance;
- Materials will be transported only within the site for processing;
- Entry to land not directly involved in the extraction or rehabilitation process will be prohibited;
- Land disturbance will not occur more than 2 months prior to an active extraction campaign;
- Roads and tracks are limited to a width that are the minimum necessary to allow safe operation of heavy equipment;
- Sediment fencing, jute mesh or geofabric, temporary vegetative cover (oats or Japanese millet) and/or barrier mesh will be installed in areas identified in the monthly environmental inspections.

8.2.7 Salvage of Soil and Vegetative Resources

Within the approved disturbance area, all salvageable vegetation and soil resources will be retained for reuse on areas to be prepared for rehabilitation. Areas to be disturbed will be marked ahead of clearing to ensure that activities do not occur beyond the area necessary. Locations for reusable vegetation and soils will be identified prior to disturbance. Soils stripped from areas of known weed infestations will be stored separately and not moved to areas free of weeds.

Fauna microhabitat, such as previously fallen trees or logs, or suitable bush rock, if present, will be relocated to areas previously marked for rehabilitation or other suitable bushland as identified by a suitably qualified person.

The existing topsoil and overburden are suitable for rehabilitation but may require some amelioration with lime to increase the soil pH, depending on the vegetation species selected. Soil testing will be undertaken prior to permanent revegetation and advice from a suitably qualified specialist will be sought. Soil ameliorants will be added if recommended by soil testing results to provide a suitable soil medium for the growth of the targeted species and ecosystems.

Consideration of the erosion potential of the soils will be made in the storage of the soils and the re-use of the soils in rehabilitation. If overburden or topsoil is unable to be re-used immediately on final faces, stockpiles will be created and stabilised with sterile vegetative cover as soon as practicable, and not more than 12 months after relocation.

Once final rehabilitation faces become available, they will be ripped using a dozer and the overburden material will be keyed into the surface. This will increase water retention and reduce erosion and slumping of the emplaced overburden. The organic topsoil layer will then be placed over the overburden in a similar manner up to a minimum depth of 5cm. Stored vegetative resources will then be placed over the topsoil. Rehabilitation procedures are detailed in the Section 7 (in detail 7.3) above.

8.2.8 Minimising Impacts of Clearing on Fauna

Pre-clearance surveys will be undertaken by a suitably qualified person at least 1 week prior to clearing activities are scheduled to commence. These will identify and mark any potential habitat including ground logs or hollow-bearing trees. Clearing will not be undertaken in rain events, and hollow bearing trees will only be cleared between March and May. A suitably qualified person will be present during the felling of hollow bearing trees. These will be knocked

prior to felling to encourage mobile fauna to evacuate. Felled trees will be inspected by a suitably qualified person for the presence of trapped fauna.

There are no tailings on the site as the mine is extracting clay/shale, not metalliferous or coal minerals, therefore fauna will not be impacted by tailings.

8.3 Performance and Completion Criteria

The formal monitoring program that will be used to assess the rehabilitation performance against completion criteria and trigger a TARP is detailed in the table below. Where the following completion criteria are not achieved, as indicated by the monitoring methodology and frequency described below, the action response plan described in Section 9 will be triggered and implemented by a suitably qualified person. In addition to monitoring and inspection measures, review and continuous improvement measures would be used to manage rehabilitation and remnant vegetation and habitat (as outlined in Section 10&11). This is explained further in the text of section 8 and table 20 below.

Table 19. ***Performance and Completion Criteria***

Decommissioning Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
Domain 1- Infrastructure					
All infrastructure and services not suitable for the final landuse will be removed.	Services not required for final landuse are disconnected.	Long term: Relevant services disconnected by qualified contractors	Report from qualified contractors	Upon decommissioning completion	EIS, Rehabilitation Management Plan
	Infrastructure not required for final land use is removed	Long term: Relevant infrastructure removed.	Relinquishment inspection and report	Upon decommissioning completion	EIS, Rehabilitation Management Plan
All roads and hardstand areas to be retained for the final landuse will be reduced in width/size to that suitable for the final landuse.	Roads not required for final landuse are removed.	Short term: Unsealed roads are sprayed with water to reduce dust. Medium and long term: Roads removed unless specified to be retained	Relinquishment inspection and report	Upon decommissioning completion	EIS, Rehabilitation Management Plan
	Roads required for final landuse are reduced in width (if required)	Short term: Unsealed roads are sprayed with water to reduce dust. Medium and long term: Roads removed unless specified to be retained	Relinquishment inspection and report	Upon decommissioning completion	EIS, Rehabilitation Management Plan
	Hardstand areas reduced to a size required for the final landuse	Long term: Hardstand areas reduced in size to that suitable for final landuse.	Relinquishment inspection and report	Upon decommissioning completion	EIS, Rehabilitation Management Plan

Decommissioning Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
Sediment runoff to be contained	Sediment retained in water management structures	Short term: Sediment Dams will be designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. Medium to Long term: All drains will be designed for the 1 in 10-year design storm event.	Inspection for capacity by mine manager.	On construction completion and 6-monthly until relinquishment.	EIS, Rehabilitation Management Plan, Water Management Plan
Domain free from hazardous materials	No hazardous material remains	Short term: All hazardous materials handled in accordance with legislative requirements. Long term: All hazardous material removed	Contamination report prepared by qualified person.	Following decommissioning with follow up validation testing as required.	EIS, Rehabilitation Management Plan
All remaining stockpiles will be removed and/or reused in the establishment of the final landform.	No remaining stockpiles	Short term: Unused stockpiles will be seeded with cover crop such as oats or millet. Long term: All remaining stockpiles are removed.	Relinquishment inspection and report	Upon decommissioning completion	EIS, Rehabilitation Management Plan
Domain 3- Water Management					
Sediment dams to be retained in the final landform are converted to clean water dams.	No sediment laden water enters the remaining clean water dam system.	Short term: Dams have been desilted to increase capacity and minimise sediment entrainment in discharged water. Medium to long term: The catchment areas for the remaining sediment dams are sufficiently rehabilitated so as to only contain clean water runoff.	Inspection for capacity by mine manager.	On construction completion and 6-monthly until relinquishment.	EIS, Rehabilitation Management Plan, Water Management Plan

Decommissioning Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
	Sediment dam discharge due to overtopping does not entrain sediment.	Short term: Sediment Dams are designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. Long term: All drains and spillways will be designed for the 1 in 10-year design storm event and do not re-entrain sediment.	Inspection for capacity by mine manager.	On construction completion and 6-monthly until relinquishment.	EIS, Rehabilitation Management Plan, Water Management Plan
Water discharged from the site is consistent with the baseline ecological, hydrological and geomorphic conditions of the surrounding environment	Water quality monitoring results show that the landform is non-polluting.	Short term: Water Quality meets the objective of Section 120 of the Protection of the Environment Operations Act 1997. In particular Monitoring Point 4 and 5 will record pH between 6.5 and 8.5, turbidity < 150 NTU, Oil & Grease < 10mg/L and total suspended solids <50mg/L or within 10% of 'upstream' levels (whichever is the greater). Point 4 conductivity will also be <700µS/cm.	Downstream water to be monitored for pH, EC, NTU, Oil & Grease and TSS prior to discharge. NATA laboratory	Prior to discharge	EPL 1808 EIS, Rehabilitation Management Plan, Water Management Plan
Domain 4- Overburden Emplacement Area					
All overburden will be removed and reused in the establishment of the final landform.	No remaining overburden stockpiles	Long term: All overburden stockpiles are removed and or incorporated into the final landform.	Relinquishment inspection and report	Upon decommissioning completion	EIS
Sediment runoff to be contained.	Sediment retained in water management structures	Short term: Sediment Dams are designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event.	Inspection for capacity by mine manager.	On construction completion and 6-monthly until relinquishment.	EIS, Rehabilitation Management Plan, Water Management Plan

Decommissioning Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
		Long term: All drains and spillways will be designed for the 1 in 10-year design storm event.			
Domain 6- Open Cut Void					
No activities within this domain are required during this phase					

Landform Establishment Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
Domain 1- Infrastructure					
Domain landform is safe, stable and non-polluting, fit for the purpose of the intended final land use	Final landform contours similar to pre-disturbance and surrounding contours.	Long term: Slopes are no greater than 3 horizontal to 1 vertical. Slope lengths shall not exceed 25m for a 3H:1V batter. Slope lengths shall not exceed 35m for a 4H:1V batter. Slope lengths shall not exceed 80m for batters <4H:1V.	Survey on completion by registered surveyor. Geotechnical assessment report.	Upon completion of landform establishment phase.	EIS, Rehabilitation Management Plan, Water Management Plan
	Suitable sediment and erosion controls in place	Short term: Sediment Dams are designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. Long term: All drains will be designed for the 1 in 10-year design storm event.	Inspection for capacity by mine manager.	On construction completion and 6-monthly until relinquishment.	EIS, Rehabilitation Management Plan, Water Management Plan
Domain 3- Water Management					

Landform Establishment Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
Water management structures to be retained. No landform establishment activities applicable to this domain.					
Domain 4- Overburden Emplacement Area					
Ensure overburden emplacement areas has been battered/shaped to the final landform.	Final landform contours similar to pre-disturbance and surrounding contours.	Long term: Slopes are no greater than 3 horizontal to 1 vertical. Slope lengths shall not exceed 25m for a 3H:1V batter. Slope lengths shall not exceed 35m for a 4H:1V batter. Slope lengths shall not exceed 80m for batters <4H:1V.	Survey on completion by registered surveyor. Geotechnical assessment report.	Upon completion of landform establishment phase.	EIS, Rehabilitation Management Plan, Water Management Plan
Sediment runoff to be contained.	Sediment retained in water management structures	Short term: Sediment Dams are designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. Long term: All drains will be designed for the 1 in 10-year design storm event.	Inspection for capacity by mine manager.	On construction completion and 6-monthly until relinquishment.	EIS, Rehabilitation Management Plan, Water Management Plan
Domain 6- Open Cut Void					
Domain landform is safe, stable and non-polluting, fit for the purpose of the intended post-mining land use(s)	Final landform contours similar to pre-disturbance and surrounding contours.	Long term: Slopes are no greater than 3 horizontal to 1 vertical. Slope lengths shall not exceed 25m for a 3H:1V batter. Slope lengths shall not exceed 35m for a 4H:1V batter. Slope lengths shall not exceed 80m for batters <4H:1V.	Survey on completion by registered surveyor. Geotechnical assessment report.	Upon completion of landform establishment phase.	EIS, Rehabilitation Management Plan, Water Management Plan

Landform Establishment Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
Domain landform is effectively drained and protected from erosion	Landform drains towards water management domain	Short term: Sediment Dams are designed to Best Practice according to the 'Blue Book' Criteria for a 5 day 90th percentile storm event. Long term: All drains will be designed for the 1 in 10-year design storm event.	Inspection for capacity by mine manager.	On construction completion and 6-monthly until relinquishment.	EIS, Rehabilitation Management Plan, Water Management Plan
Access tracks to be retained	Tracks suitable for private access or pedestrian usage	Short term: Slopes of major tracks are <10° or have cross drains/banks installed. Where unsuitable soils are present, tracks to be stabilised with crushed bricks, concrete, gravel or similar.	Survey on completion by registered surveyor. Stabilisation methods to be recorded and reported.	Upon completion of landform establishment phase.	EIS, Rehabilitation Management Plan, Water Management Plan
Materials (including topsoils of the disturbed areas) are recovered, appropriately managed and used efficiently as resource in the rehabilitation	Available topsoils are stockpiled appropriately and reused on the site	Short, medium and long term: Available topsoil is spread over final landform.	Suitably qualified Site contractor to record growth medium management procedures in Annual Reports. Records to include amounts stripped, locations and depths re-spread	Annually	EIS, Rehabilitation Management Plan

Growth Medium Development Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
Domain A- Infrastructure					
No revegetation is to occur in this domain, therefore no activities are required during this phase					
Domain B- Water Management					
No revegetation is to occur in this domain, therefore no activities are required during this phase					
Domain C and D- Rehabilitation Area- Grassland/Woodland					
Establish soil/growing medium suitable for establishment of grassland or woodland vegetation community	Short to medium term: Compacted surfaces deep ripped along contour	Photographs of ripped areas	Progress to reported by suitably qualified persons in Annual Review or relinquishment report	Following Deep ripping	EIS, Rehabilitation Management Plan
	Short to medium term: Minimum 50mm of topsoil spread unless rehabilitation trials indicate that an alternative thickness is acceptable.	Small 'test pits' dug and photographed to show final soil depth, report indicates required thicknesses achieved.	Photographs of test pits reported in Annual Review or relinquishment report	Following spreading of soil	EIS, Rehabilitation Management Plan
	Short to long term: Soil quality comparable to that in undisturbed areas	Analysis of soil samples record similar parameter for pH, EC, Dispersion percentage and organic content.	Soil analysis report included in CCR and RR or relinquishment report.	Following spreading of soil and annually for 5 years	EIS, Rehabilitation Management Plan

Ecosystem and Land Use Establishment Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
Domain A- Infrastructure					
No revegetation is to occur in this domain, therefore no activities are required during this phase					
Domain B- Water Management					
Wetlands water management structure to remain therefore no activities required during this phase					
Domain C and D- Rehabilitation Area- Grassland/Woodland					
Re-establishment of a grassland/woodland community with a similar composition to the pre-disturbance community.	Revegetation species mix applied as suggested in Rehabilitation Management Plan	Medium term: A target coverage factor of 70% will be subject to further refinement.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	6 monthly until completion criteria achieved	EIS, Rehabilitation Management Plan
	The rehabilitated area does not constitute an erosion hazard.	Long term: Total projected foliage cover is greater than or equal to 70%.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	6 monthly until completion criteria achieved	EIS, Rehabilitation Management Plan, Water Management Plan
	Weeds not preventing revegetation from establishing	Long term: Monitoring confirms that after 2 years the non-native/non-target species (weeds) represents less than 20%of projected foliage cover or equivalent to surrounding vegetation not disturbed by mining activities.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	6 monthly until completion criteria achieved	EIS, Rehabilitation Management Plan

Ecosystem and Land Use Establishment Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
	Grazing by native and domestic fauna not adversely impacting on ecosystem development.	Short term: Rural fences and gates installed around disturbed area to allow controlled grazing of domestic stock. Short term: Feral animal controls will be implemented if required. Long term: Monitoring reports indicate the level of grazing is appropriate.	Monitoring including photography to be conducted by suitably qualified person and reported annually.	6 monthly until completion criteria achieved.	EIS, Rehabilitation Management Plan

Ecosystem and Land Use Sustainability Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
Domain A- Infrastructure					
No activities are required during this phase.					
Domain B- Water Management					
No activities are required during this phase.					
Domain C and D- Rehabilitation Area- Grassland/Woodland					
Re-establishment of a grassland/woodland community with a similar composition to the pre-disturbance community.	Long term: Vegetation self-sustaining.	Monitoring confirms: • Evidence of new growth of endemic species. • Evidence of successive generations of endemic species • No further active weed control required (beyond that considered necessary at analogue sites).	Monitoring including photography to be conducted by suitably qualified person and reported annually.	6 monthly until completion criteria achieved.	EIS, Rehabilitation Management Plan

Relinquishment Phase					
Rehabilitation Objective	**Performance Indicator**	**Completion Criteria**	**Monitoring Methodology and Responsibility**	**Monitoring Frequency**	**Justification/Source**
All Domains					
Relinquishment	Demonstrated compliance with all completion criteria	Satisfaction of rehabilitation completion by the Minister.	Relinquishment Report to be prepared by suitably qualified person describing compliance with all criteria	Prior to relinquishment	-

9 RISKS AND TRIGGER ACTION RESPONSE PLAN

Potential risks to the successful implementation of the Rehabilitation Strategy are identified in the table below. Where performance criteria from *Table 19* are not met, actions to be implemented to mitigate the risk are outlined in the table below. Further to this, Section 10&11 describe management measures and protocols for handling deviations to the plan.

Table 20. ***Trigger Action Responses Plan***

Risk	Potential Adverse Outcomes	Trigger Level	Actions to be Implemented
Final landform does not conform to approved final landform.	Stockpiles not removed/used in the establishment of the final landform.	Inventory indicates stockpiles are not removed/reused. Slopes required by the final landform are not obtained due to material deficits.	Stockpile material is to be removed from the site or incorporated into the rehabilitation of the final landform.
	Overburden not used in the establishment of the final landform.	Inventory indicates stockpiles are not removed/reused. Slopes required by the final landform are not obtained due to material deficits.	Overburden material is to be removed from the site or incorporated into the rehabilitation of the final landform.
	Slopes too steep to be rehabilitated as planned.	Field slope measurements taken during land forming activities indicate slope do not meet the completion criteria.	Slopes to be reduced until all slopes meet approved final landform unless final landform considered stable by geotechnical review and vegetation establishment success meets completion criteria- subject to approval by DPIE.
Domain landform is not safe, stable and fit for the purpose of the intended final land use.	Geotechnical instability of the final open cut void.	Monitoring or final closure geotechnical assessment identities instability/unacceptable movement (actual or potential) in final face of open cut void.	Suitably qualified geotechnical engineer engaged to assess the instability and provide a range of recommendations to remediate the instability Recommendation to be implemented in consultation with the DPIE.

Risk	Potential Adverse Outcomes	Trigger Level	Actions to be Implemented
Domain landform is not properly protected from erosion.	Vegetation is unable to be established due to erosion.	Projected total foliage cover is less than 70%	Mine personnel identify site of erosion and remediate through additional earthworks, soil works including addition of ameliorants, supplementary revegetation or other stabilisation method. If the above is unsuccessful, a suitably qualified professional in sediment and erosion control will be engaged to prepare and assessment report and recommendations to be implemented.
	Final landform is a source of pollution.	Surface water monitoring records indicate that water quality levels are outside the completion criteria. Visual inspection indicates that the final landform is the source of unacceptable levels of sedimentation or is actively eroding.	Mine personnel identify site of erosion and remediate through additional earthworks, soil works including addition of ameliorants, supplementary revegetation or other stabilisation method. If the above is unsuccessful, a suitably qualified professional in sediment and erosion control will be engaged to prepare and assessment report and recommendations to be implemented.

Risk	Potential Adverse Outcomes	Trigger Level	Actions to be Implemented
Incorrect species established on final landform	Vegetation community does not become established on final landform affecting final land use and ecosystem.	Monitoring indicates that endemic species represent less than 80% of the total species number and projected foliage cover after 2 years from planting and less than 90% after 5 years from planting.	Suitably qualified ecologist or revegetation expert engaged to assess reasons for divergence of failure of endemic species establishment and recommend actions to ensure that the final vegetation community corresponds as closely as possible to the approved community. Additional actions may include: • Sowing of additional seed mix for targeted species or additional species endemic to the pre-disturbance community; • Use of Tubestock, seed and mulch mix or other application techniques; • Soil amelioration works such as addition of fertiliser; and • Additional weed control activities (mechanical and/or chemical).

Risk	Potential Adverse Outcomes	Trigger Level	Actions to be Implemented
Failure to establish soil/growing medium suitable for establishment of grassland or woodland vegetation community.	Insufficient soil available for rehabilitation.	Soil inventory prior to rehabilitation (particularly stockpile volumes) indicates a deficit of soil material.	• Suitable sources of additional soil material to be identified, including the need for importation of soils from off-site. • Investigation into measures that may be implemented to ameliorate other materials to make them suitable for use as a growth medium.
	Inadequate soil thickness applied to final landform	Test pits following placement of soil material identifies placed soil thickness not consistent with final approved soil thickness	Additional soil material spread on the final landform.
	Soil not capable of sustaining vegetation community	Topsoil parameters not within the identified criteria (see 8.3).	Suitably qualified agronomist or soil scientist engaged to prepare a report including a range of recommendations to ensure that the identified criteria are achieved/soil is suitable for sustaining the vegetation community.

Risk	Potential Adverse Outcomes	Trigger Level	Actions to be Implemented
Vegetation community is not self-sustaining	Final landform requires significantly more management than analogue sites.	Monitoring indicates that: • Established vegetation is not replacing itself through successive generations; or • Weed growth is increasing above a projected foliage cover of 10%	Suitably qualified ecologist or revegetation expert engaged to assess reasons for additional management requirements and recommend actions to align management required with that of the analogue sites. Additional actions (to be undertaken in targeted areas) may include: • Sowing of additional seed mix for targeted species or additional species endemic to the pre-disturbance community; • Use of Tubestock, seed and mulch mix or other application techniques; • Soil amelioration works such as addition of fertiliser; and • Additional weed control activities (mechanical and/or chemical) and/or pest management as required (especially of rabbits).
Vegetation community not receiving adequate rainfall to establish/self-sustain	Failure of vegetation community	Rainfall below the lowest 10% of records for greater than 3 months	Water cart to be utilised over revegetated areas.
Public access to open cut void possible	Damage to rehabilitation areas	Monitoring indicates evidence of trespassing and/or damage to rehabilitation areas.	Appropriate fencing, signage and bunding is to be repaired and maintained.

10 COMPLIANCE MANAGEMENT

10.1 Inspections and Monitoring

The Plant Manager (or delegate) will undertake at least Quarterly inspections of the site in accordance with Section 6 of the EMS to ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in the consent. During these inspections, the facility's condition, and environmental controls, will be observed and recorded. More specifically, observations and inspections of the implementation measures and objectives of the RMP cited in *Section 8* to be undertaken. Records will include details of any maintenance of controls required and an implementation priority. Site assessments will continue until such time as the completion criteria in *Section 8* have been achieved.

The monitoring will be undertaken by a suitably qualified person. This will be via consultation with qualified ecologists/bush regenerators where appropriate, but not exclusively.

The monitoring requirements of the CoA are listed in section 5.4 of the EMS and addressed in the relevant management plans. Any exceedances of environmental criteria will be immediately reported to the Secretary in accordance with section 12.6 of this plan and section 8.1 EMS.

All environmental monitoring equipment shall be maintained and calibrated according to the manufacturer's specifications and appropriate records kept.

A summary of all monitoring results will be available on the website as available, tabled at CCC meetings, and provided in the Annual Review.

10.2 Training

Employees and contractors working on-site will undergo site induction training, which will cover rehabilitation management, including:

- Location of the BOA;
- Access restrictions and disturbance limitations;
- Internal speed limits;
- Biodiversity management measures (see BMP);
- Emergency and spill response procedures; and
- Aspects of this plan and legislation relevant to the task.

Further details regarding competence, training and environmental awareness are outlined in Section 7 of the EMS.

10.3 Auditing and Reporting

Audits (both internal and external) and reporting will be undertaken to assess the effectiveness of rehabilitation management measures, performance criteria, compliance with CoA and other relevant approvals, licenses and guidelines. Audit requirements are detailed in Section 6.3 of the EMS. This includes internal and external audits. External audits will be in accordance with the consented conditions (every 3 years with reporting to DPIE)

Independent external auditing will be undertaken by an independent environment auditor in accordance with *ISO 19011:2003 - Guidelines for Quality and / or Environmental Management Systems Auditing,* as required by CoA Schedule 5, Condition 9. External auditing will be undertaken every three years, unless the Secretary directs otherwise, with the first audit being held within a year of commencing development under the SSD consent.

The audit will include consultation with the relevant agencies and will assess if all conditions of the consent are being met. It will also review adequacy of all management plans and form part of the program of improvement on the site.

Within 12 weeks of commencing the external audit, unless the Secretary agrees otherwise, PGH will submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report, including a timetable for the implementation of any measures proposed to address the recommendations in the audit report.

If PGH intends to defer the implementation of a recommendation, reasons will be documented.

Within 7 days of commencing the audit, PGH will notify the Department in writing of the commencement of the audit.

10.4 Annual Review

An Annual Review of the Environmental Performance of the Site will be undertaken and submitted to the Department for review to the satisfaction of the Secretary. In addition, the mine lease conditions require an Annual Rehabilitation Review be undertaken and submitted to DPIE for approval.

By the end of September each year, management reviews are undertaken as part of the continual improvement process required by CoA Schedule 5, Condition 4.

The Annual Review will involve the executive management team. This review will be held every 12 months, will cover the financial year period, and will include a review of:

- The facility's activities (including rehabilitation) for the past year and consideration of the developments activities (including rehabilitation) planned for the next year;
- Descriptions of environmental management and mitigation measures, and their effectiveness;
- Consideration of monitoring, inspection and audit results;
- Comparison of results against statutory requirements, limits, performance measures, previous monitoring and relevant predictions;
- A summary of complaints and feedback, and the resulting actions undertaken;
- Identification of any non-compliances during the report period, and the resulting actions undertaken;
- Identify any trends in the monitoring data over the life of the development;
- Identify any discrepancies between the predicted and actual impacts of the

development, and analyse the potential cause of any significant discrepancies;
- Describe what measures will be implemented over the current financial year to improve the environmental performance of the development;
- Annual quarry production data using a standard DRE form;
- Organisation changes; and
- Effectiveness of training and inductions.

The Annual Review will be submitted to the DPIE (in accordance with CoA Schedule 5, Condition 4), the DRE (in accordance with Condition 3 of ML1731), the Community Consultation Committee, and any other stakeholder that requests a copy.

10.5 Contingency Plans

Should an exceedance of any consent condition occur, immediate actions will be put in to place to mitigate or prevent any material harm to the environment.

The key measure of concern here for Rehabilitation is risk to key on-site Biodiversity. Other short, medium and long term measures are outlined in Section 8. Contingency plans (TARP) for certain scenarios are outlined in Section 9.

Should exceedances or risks to biodiversity be discovered, they will be rectified immediately and corrective actions put in place to ensure that the risk of future transgressions are minimized.

Any other impacts on environmental measures will also trigger contingency plans to minimise current impacts and prevent future occurrence.

10.6 Reporting of Non Compliance and Incidents

Non Conformances and incidents can be identified via monitoring, inspection, audit or complaints.

PGH will report and manage all incidents and non compliances in accordance with Section 8 of the EMS.

Depending on the nature of the incident or non compliance, appropriate reporting will be undertaken.

All breaches of consent conditions will be reported to DPIE immediately and a detailed report submitted within 7 days Schedule 5, Condition 7.

For non compliances / incidents relating to council, EPA or other authority reporting will be undertaken as required.

Where non compliances relate to a receiver or neighbour, these persons will be advised and informed in corrective actions to be undertaken,

Incidents and non compliances will be presented in the CCC meeting.

The site manager in conjunction with the National Environmental manager, is responsible for managing and reporting incidents.

10.7 Complaints

Complaints will be managed as per Section 8.2 of the Environmental Management Strategy.

A 24hr phone line is available and any complaints received by the site will be displayed on the external website.

Complaints will be logged and reported on the PGH external website, to the CCC meetings and in the Annual Review. CCC meeting minutes will be available on the website.

10.8 Adaptive Management

Extensive risk assessment and management have been undertaken. In addition to the management of incidents, complaints, exceedances or non compliances outlined above, PGH will at the earliest opportunity take all and reasonable and feasible measures to ensure that the exceedance ceases and does not recur.

Further to the above when remediation is required, PGH will, where relevant, submit a report to the DPIE outlining reasonable and feasible options for rectifying the deviation.

All directions from DPIE regarding reasonable and feasible remediation measures will be implemented.

10.9 Communication

As per the EMS section 8, and specifically Section 8.5, any information, documents, monitoring, or reports pertaining to this SSD and environmental performance will be published on the PGH external website. It will be updated as changes occur or as new reports/data is available.

Included on the external website will be:
current statutory approvals for the development; approved strategies, plans and programs required under the conditions of this consent;

- a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
- a complaints register, which is to be updated monthly or when complaints are received or updated;
- minutes of CCC meetings;
- the annual reviews of the development (for the last 5 years);
- any independent environmental audit of the development, and the Applicant's response to the recommendations in any audit;
- any other matter required by the Secretary;

It is the site manager, with the National Environmental manager, that is responsible for keeping this site up to date to the satisfaction of the DPIE. This will be in place within 6 months of commencement.

11 REVIEW AND IMPROVEMENT

11.1 Continuous Improvement

Continuous improvement of this RMP will be achieved in accordance with Section 10 of the EMS, through the ongoing evaluation of environmental management performance against environmental policies, objectives and targets. As outlined in the EMS, the site manager, in conjunction with national WHSE resources, are responsible for implementing the plan, monitoring progress, managing the continuous improvement process and the revision of management plans.The continuous improvement process is designed to:

- identify areas of opportunity for improvement of environmental management and performance;
- determine the cause or causes of non-conformances and deficiencies;
- develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies;
- verify the effectiveness of the corrective and preventative actions;
- document any changes in procedures resulting from process improvement; and
- make comparisons with objectives and targets.
- Update the RMP in line with outcomes from above.

11.2 RMP Update and Amendment

The processes described in Sections 10 and 11 of the EMS may result in the need to update or revise this Plan. The approval of updates or revisions to the RMP will need to be considered in accordance with Section 11.2 of the EMS.

Notwithstanding the above, the rehabilitation strategy will be reviewed every five years as stipulated in Section 5.3 of the EIS.

All strategies, plans and programs will be reviewed within 3 months of an:

(a) Annual Review;

(b) Incident report;

(c) Audit report; and

(d) Any modifications to the consent, licences or permits.

Where any review leads to revisions in any such document, then within 4 weeks of the review the revised document will be submitted for the approval of the Secretary, if required under clause 11.2 of the EMS.

Through this process of review, the assessment of changing performance in audits, regular site WHSE meetings, annual budgeting / planning cycles a program will be in place to maintain and improve environmental performance over time. It will drive a periodic review of plans.

Suitably qualified persons will be involved in the review process. Specialised resources will be consulted as required to ensure the plan is delivering against environmental measures.

12 REFERENCES

Ref. 1. Ecological Australia (2013) – *Local Biodiversity Strategy Camden Local Government Area*

Ref. 2. Hyder Consulting - Bringelly Brickworks and Quarry Expansion ENVIRONMENTAL IMPACT STATEMENT Volumes 1 & 2 -5 September 2013.

Ref. 3. NSW Department of Environmental and Conservation (2005)- *Recovering Bushland on the Cumberland Plain*

Ref. 4. NSW LLS Greater Sydney- Greater Sydney Regional Strategic Weed Management Plan 2017- 2022- Revised September 2019.

Ref. 5. NSW OEH (2014) *NSW Biodiversity Offsets Policy for Major Projects*

Ref. 6. NSW OEH (2014) *NSW Biodiversity Offsets Policy for Major Projects- Fact Sheet: Managing offset sites- information for landowners*

Ref. 7. NSW Minister for Climate Change, Environment and Water (2006) *Sydney Region Growth Centres Order for Biodiversity Conservation*

Ref. 8. PGH Bricks and Pavers Pty Ltd (2019)- *PGH Bricks and Pavers, Bringelly- Weeds Management Plan 2018-2023.*

Ref. 9. VGT Environmental Compliance Solutions Pty Ltd (2016) Mine Operations Plan for Bringelly Clay Mine.

Appendix A: Figures

Figure 1

Conceptual Final Land Use Options Plan

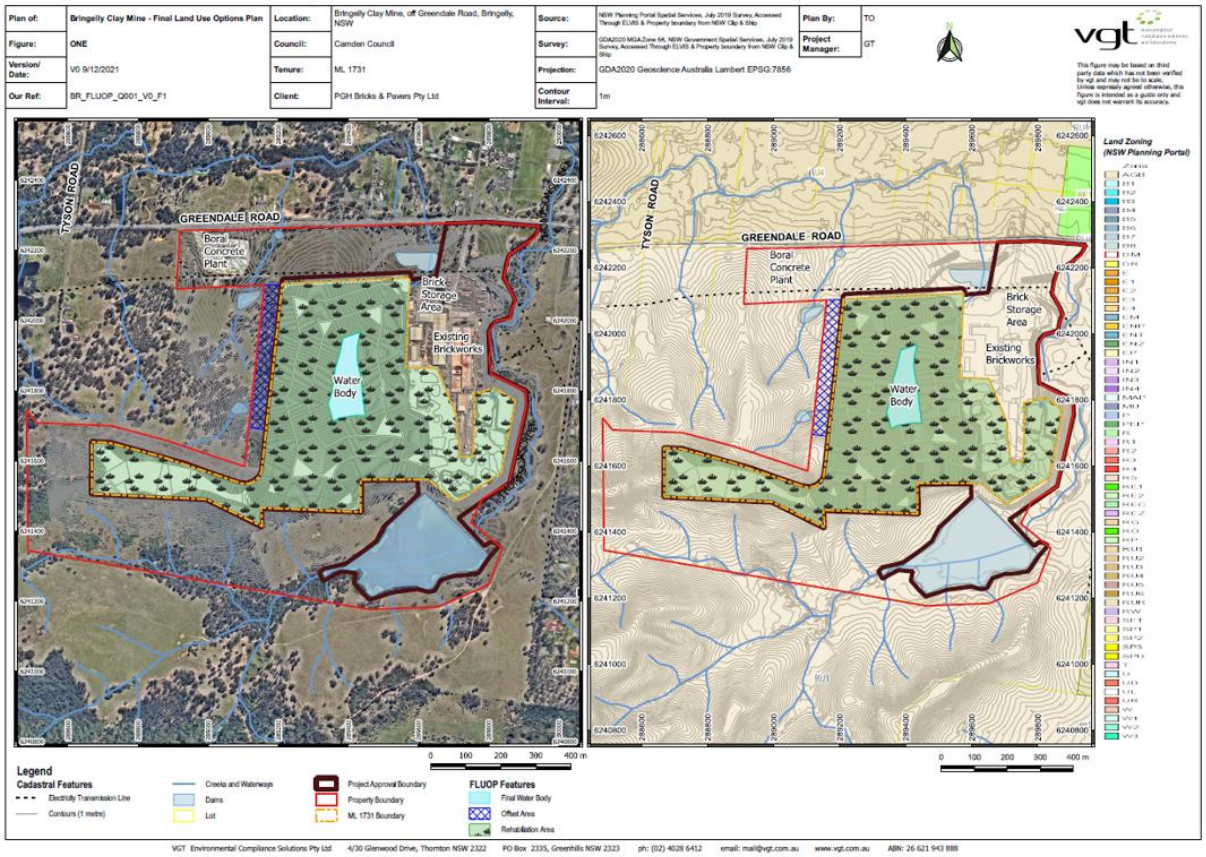


Figure 2

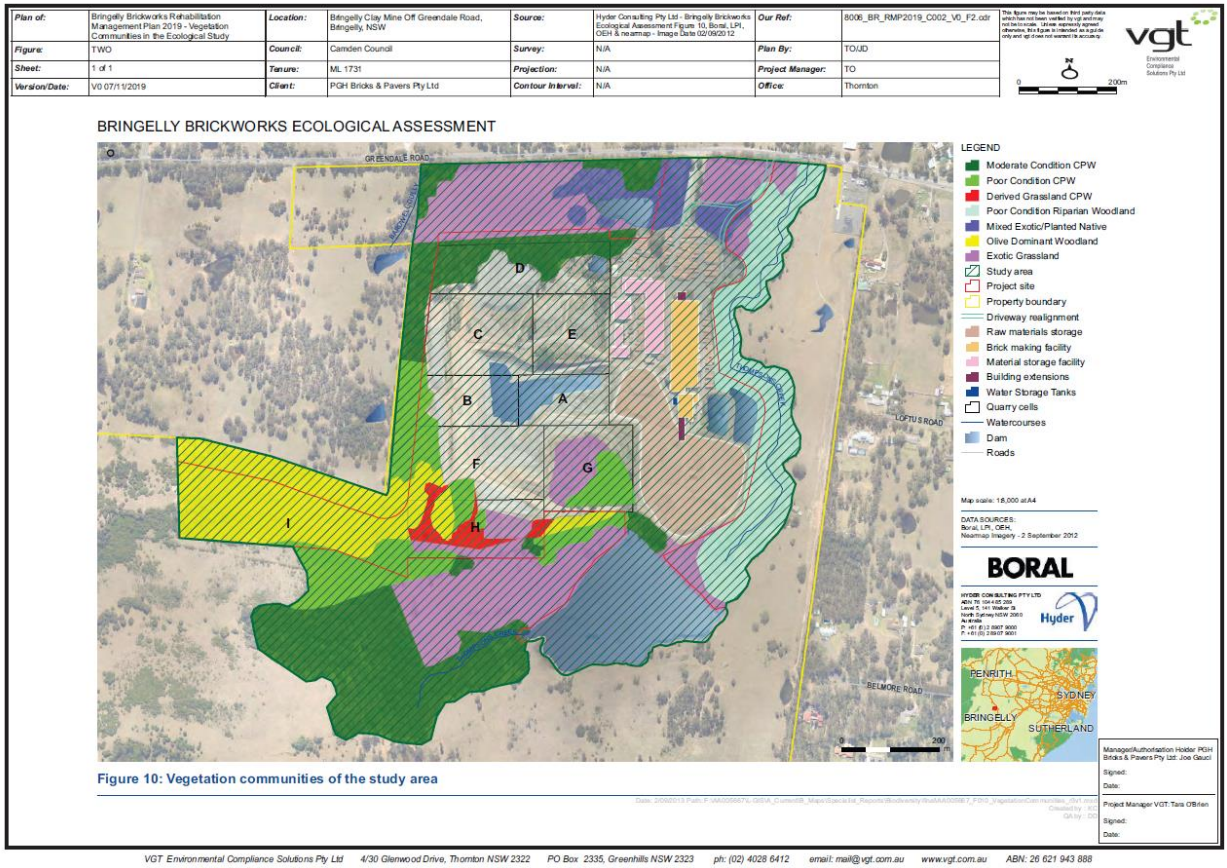


Figure 3

Plan of:	Bringelly Brickworks Rehabilitation Management Plan 2019 - Representative Cross Section of Rehabilitated Quarry Benches	**Location:**	Bringelly Clay Mine Off Greendale Road, Bringelly, NSW	**Source:**	Hyder Consulting Pty Ltd - Bringelly Brickworks Rehabilitation Strategy Figure 4 & (Umwelt 2011)	**Our Ref:**	8006_BR_RMP2019_C003_V0_F3.cdr
Figure:	THREE	**Council:**	Camden Council	**Survey:**	N/A	**Plan By:**	TO/JD
Sheet:	1 of 1	**Tenure:**	ML 1731	**Projection:**	N/A	**Project Manager:**	TO
Version/Date:	V0 12/11/2019	**Client:**	PGH Bricks & Pavers Pty Ltd	**Contour Interval:**	N/A	**Office:**	Thornton

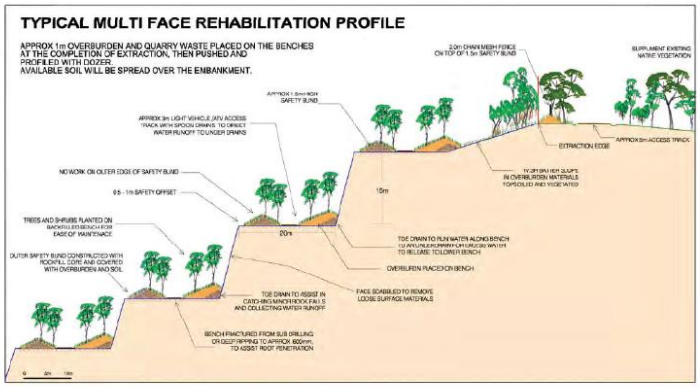
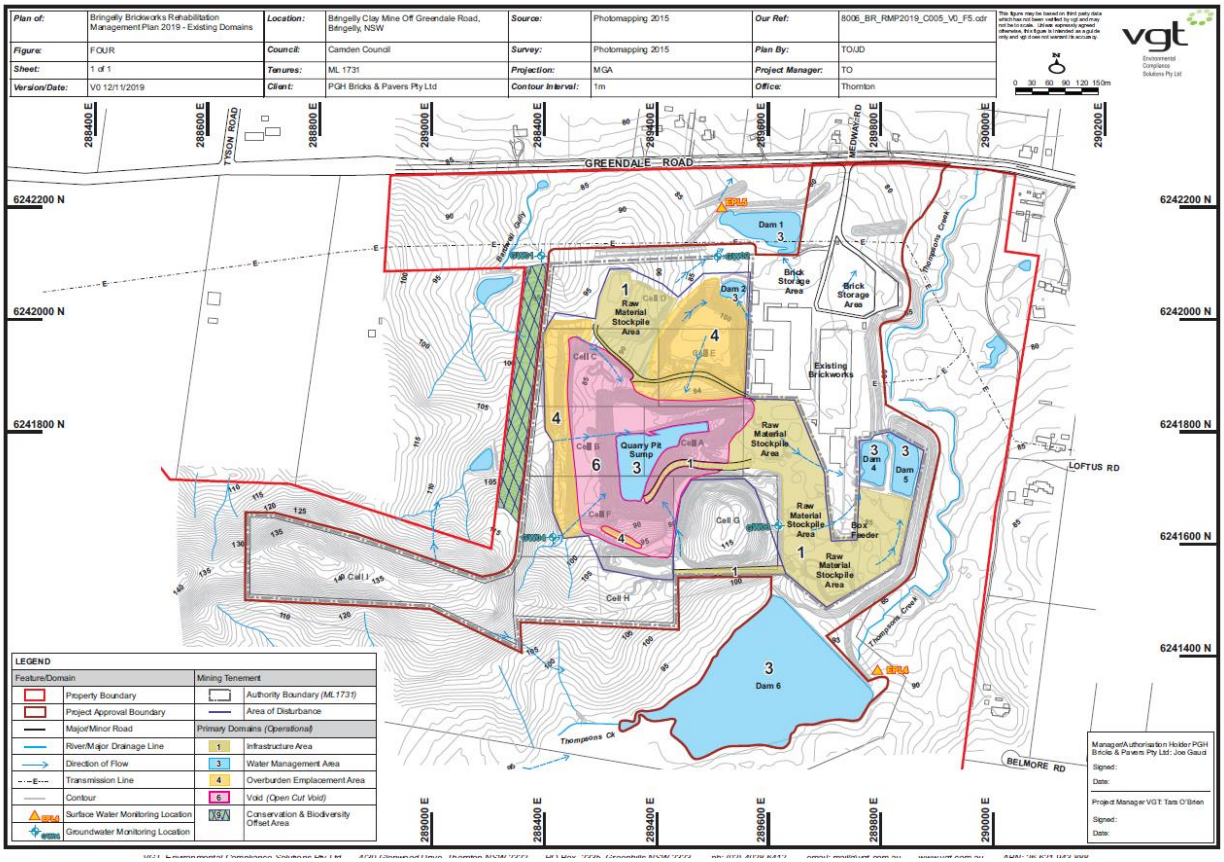


Figure 4: Representative cross-section of rehabilitated quarry benches (Umwelt 2011)

Figure 4

Plan of:	Bringelly Brickworks Rehabilitation Management Plan 2019 - Existing Domains	**Location:**	Bringelly Clay Mine Off Greendale Road, Bringelly, NSW	**Source:**	Photomapping 2015	**Our Ref:**	8006_BR_RMP2019_C005_V0_F5.cdr
Figure:	FOUR	**Council:**	Camden Council	**Survey:**	Photomapping 2015	**Plan By:**	TO/JD
Sheet:	1 of 1	**Tenures:**	ML 1731	**Projection:**	MGA	**Project Manager:**	TO
Version/Date:	V0 12/11/2019	**Client:**	PGH Bricks & Pavers Pty Ltd	**Contour Interval:**	1m	**Office:**	Thornton



Appendix B: Consultation

Camden Council
70 Central Avenue, Oran Park NSW 2570 DX 25807
PO Box 183, Camden 2570 ABN: 31 117 341 764
Telephone: 02 4654 7777 Fax: 02 4654 7829
Email: mail@camden.nsw.gov.au

30 September 2016

Darren Green – Senior Environmental Consultant
Element Environment
PO Box 1563
WARRIEWOOD NSW 2102

Dear Darren,

RE: Bringelly Brickworks Project (SSD_5684)

SITE DESCRIPTION: 60 Greendale Road, Bringelly
LOT: 100 DP: 1203966

I refer to the above State Significant development application (DA) approved by the Department of Planning and Environment on 3 March 2015, and the associated draft management plans submitted to Camden Council for comment, which include:

- Transport Management Plan;
- Biodiversity Management Plan; and
- Rehabilitation Management Plan

It is understood several conditions of the approved consent require Boral CSR Bricks to consult with Camden Council in preparation of the final management plans.

Council officers have reviewed the draft management plans and submits that several issues require further information and consideration before the plans are finalised.

Transport Management Plan

The following comments are provided by Council's Traffic Engineer:

1. An analysis of the Greendale Road and The Northern Road intersection must be undertaken using computer analysis software by SIDRA Intersection. The Transport Management Plan (TMP) must be informed by this analysis and the accompanying data submitted as part of the TMP. The analysis must also consider potential traffic impacts from the proposed mobile concrete batching plant on the same site (proposed via DA 578/2016).

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2. The TMP must address how heavy vehicle movements will be mitigated during peak school pick up and drop off periods.

3. The TMP must include swept path analysis demonstrating the following:

   - The largest design vehicle turning left from Greendale Road to travel north along The Northern Road; and

   - The largest vehicle entering and exiting the site in a forward direction.

4. The TMP must address employee parking, and how this will be accommodated and managed on site.

5. The TMP must demonstrate compliance with relevant Australian standards for any external road upgrades.

Biodiversity Management Plan and Rehabilitation Management Plan

The following comments are provided by Council's Natural Resources Officer:

1. The Biodiversity Management Plan (BMP) must detail the volume of vegetative, soil and cultural heritage resources to be salvaged within the approved disturbance area for re-use in biodiversity or rehabilitation areas.

2. The BMP must detail conservation measures over the next 3 years, which include:

   - The location and type of fencing to be removed and installed;

   - The location and type of access control;

   - A survey of weeds, and the staged program and methodology for their removal; and

   - The location of current areas of erosion and the measures to implement erosion control.

3. The BMP must detail long term bushfire management of the site.

4. Pre-clearance fauna surveys must be undertaken. If fauna (particularly roosting and breeding fauna) are discovered, the proposed measures for their relocation must be identified within the BMP.

5. Additional risks to the implementation of the BMP such as drought, heavy rainfall events causing erosion, and bushfires must be identified and assessed.

Contingency plans and resources (including financial) must be provided to deal with identified risks.

6. The inspection, monitoring, reviewing and implementation of the BMP must be undertaken by a qualified ecologist / bush regenerator(s).

7. The determination of the conservation bond for the Biodiversity Offset Site (BOS) must be undertaken by a qualified ecologist / bush regenerator.

Additional Information Required

Council requires revised management plans for further review that address each of the concerns listed above. A response to this letter with an explanation as to how each item is addressed must also be provided. Once Council staff has reviewed the revised management plans, further comments will be provided.

Should you have any enquiries in relation to this matter, please do not hesitate to contact Kate Drinan, Manager Statutory Planning on (02) 4654 7777.

Yours sincerely,

Kate Drinan
MANAGER STATUATORY PLANNING
(Planning and Environmental Services)

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Department of Industry

OUT16/34013

Mr Darren Green
Element Environment Pty Ltd
PO Box 1563
WARRIEWOOD NSW 2102

Dear Darren

Bringelly Brickworks (SSD_5684) – Draft Rehabilitation Management Plan Preparation and Consultation

I refer to your letter dated 23 August 2016 and attached draft "Bringelly Brickworks Rehabilitation Management Plan", Version 0.

The Department of Industry, Division of Resources and Energy (DRE) Environmental Sustainability Unit has reviewed the draft Bringelly Brickworks Rehabilitation Management Plan (RMP).

DRE notes that the RMP will be reviewed and updated, if necessary, following any update of the Final Land Use Options Plan (FLUOP). DRE considers this is essential and the current lack of a FLUOP makes the RMP a very general and conceptual document only at this stage.

The retention of a final void is not confirmed as the most appropriate post mining landform and the specific design of any final void will require a much greater level of detail in a future version of the RMP and any other applicable rehabilitation documents. This will include the DRE approved Mining Operations Plan or equivalent document.

The following specific comment on the draft RMP is provided:

Section 7.1.2 – Monitoring
DRE considers the 'Safety' and 'Landform Stability' visual inspection frequency of 6 months to be too long. A greater frequency should be proposed.

If you require further information on this issue please contact me directly on (02) 4222 8304.

Yours sincerely

Greg Kininmonth
Manager & Principal Inspector Environment (Southern)
Environmental Sustainability Unit
19 September 2016

Copy to – Joe Gauci, Boral CSR Bricks Pty Ltd (via email)
Chris Schultz, Department of Planning and Environment (via email)

PO Box 674, Wollongong NSW 2500, Australia
Level 1, Block H, State Office Block, 84 Crown Street, Wollongong NSW 2500, Australia,
Tel: +612 4222 8333 Fax: +612 4226 3851 www.industry.nsw.gov.au ABN: 72 189 919 072

From: Cook, Debbie
To: Lisa Thomson
Subject: FW: Bringelly Brickworks (SSD_5684): Management Plan Consultation
Date: Monday, 9 September 2019 1:09:17 PM
Attachments: image002.png

Consultation OEH- biodiversity, rehabilitation and heritage plan

From: Darren Green <darren@elementenvironment.com.au>
Sent: Tuesday, 6 September 2016 1:26 PM
To: Cook, Debbie <DECOOK@pghbricks.com.au>
Cc: Neville Hattingh <neville@elementenvironment.com.au>; PR32 <SMO-PR32@elementenvironment.com.au>
Subject: FW: Bringelly Brickworks (SSD_5684): Management Plan Consultation

Debbie,

Comments from OEH regarding the Biodiversity, Rehabilitation and Heritage Management Plans. There's nothing in the comments which is substantial. We possibly need to just clarify the nest box procedure/program matter. Other than that it's another good outcome.

Darren Green
Senior Environmental Consultant

m 0418 969 624
e darren@elementenvironment.com.au
w www.elementenvironment.com.au

PO Box 1563, Warriewood, NSW, 2102

From: Richard Bonner [mailto:Richard.Bonner@environment.nsw.gov.au]
Sent: Tuesday, 6 September 2016 1:07 PM
To: Darren Green <darren@elementenvironment.com.au>
Cc: Elle.Donnelley@planning.nsw.gov.au
Subject: RE: Bringelly Brickworks (SSD_5684): Management Plan Consultation

Hello Darren,

Further to your recent conversation with Marnie Stewart, OEH provides the following comments on the draft Biodiversity Management Plan and draft Heritage Management Plan . OEH has no comments to make on the draft Rehabilitation Management Plan.

Draft Biodiversity Management Plan

- p.2, Glossary and Abbreviations – Typo, replace *'Plant'* in BMP abbreviation meaning with *'Plan'*

p.16 & 17, 4.2.1 Terrestrial Fauna Habitat, Woodland – Reference is made to a *'nest box procedure would be prepared and implemented in woodland habitat …'*. It is unclear if this is referring to an action that will be implemented. If so, clarification is required on where and when it will be developed and how will it be incorporated within the BMP?

- p.24, Measure B1 – Based on the description of the measure shouldn't the *'when to implement'* response be *'prior to commencement of construction'*?
- p.24, Measure B2 – How are *'rain events'* defined?
- p.24, Measure B4 – The location of stockpiles and appropriateness of erosion and sediment controls should be in accordance with the required Surface Water Management Plan (although it is unclear how this relates to the Sensitive Area Plans). Alternatively, more objective measures could be included eg those in the relevant volume of the Managing Urban Stormwater best practice guidelines (Blue book).
- p.25, Measure B10 – Should be rewritten as a measure (i.e. not a recommendation).
- p.25, Measure B11 – Should be rewritten as a measure (i.e. not optional – replace *'should'* and *'may'* with *'will'*)
- p.26, Measure B13 – Further to comment above for p.16 & 17, has a *'nest box program'* been developed? Is this the same as the *'Nest Box Procedure'*? Is the area with a *'naturally occurring low abundance of hollows'* the proposed offset area?
- p.26, Measure B14 – Is the area of *'suitable nearby bushland'* the proposed offset area? Replace *'should'* with *'will'*.
- p.26, Measure B15 – Replace *'should'* with *'will'*.
- p.26, Measure B16 – Is the three (not two) stage process based on best practice guidelines? The logic and practicality of removing non hollow-bearing trees 48 hours before hollow-bearing trees is unclear.
- p.27, Measure B20 – Replace *'… BMP and Rehabilitation strategy'* with *'Rehabilitation Management Plan'*.
- p.29 (note: pages not numbered from page 28), 8. Biodiversity Offset Strategy.
  - Recommend the 4th paragraph be amended as follows (insert red text, delete strikethrough text): *The BOA will conserve CPW in a certified area to offset the clearing of ENV in a non-certified area in accordance with RMB 8 of the Biodiversity Conservation Order. ~~and would maintain the minimum area of ENV to be retained and protected in the Growth Centre, as specified in RBM 6 of the Biodiversity Certification Order~~.*
  - Recommend the 2nd last paragraph be amended as follows: *BCB proposes to manage and enhance the biodiversity values of ~~minimise impacts to~~ the BOA through ~~with the implementation of~~ the environmental management measures cited in **Table 7**, and ~~manage and enhance the existing vegetation of the BOA~~ in accordance with the guidelines for managing remnant CPW described in Recovering Bushland on the Cumberland Plain: Best practice guidelines for the management and restoration of bushland (DEC, 2005) (refer **Appendix C**).*
- pp.31-33, 8.1 Implementation measures, 8.2 Performance Criteria and 8.4 Completion Criteria – Suggest combining as one table using existing sub-headings.
- p.31, 8.1.5 Retention or addition of habitat features, Medium and Long-term – Recommend replacing *'… clearing for mine development or approved thinning, …'* with *'… clearing for quarry expansion, …'*.

Heritage Management Plan

- p.11, 5.1.1 Confirmed Aboriginal Site Records, Table 2 Summary of Survey Findings – Recommend this include the findings of the test excavation to reflect the assessment as a whole not just the initial survey. It should also be noted that the significance of BB OS2 was determined by the test excavation.
- p.15, 6.2.3 Discovery of suspected human remains - This section contains inappropriate instructions. Any reference to salvage, recording and reburial of human remains should be removed. It is recommended the text in this section be replaced with the following: *If any human remains are discovered the following actions must be taken:*
  a. *immediately cease all work at the particular location;*
  b. *secure the area so as to avoid further harm;*
  c. *notify the local police and OEH's Environment Line on 131 555 as soon as practicable and provide any available details of the remains and their location, and*
  d. *work cannot recommence at the particular location unless authorised by OEH in writing.*

Regards

Richard Bonner
Conservation Planning Officer
Greater Sydney Region
Regional Operations Group
Office of Environment and Heritage
T: 02 9995 6917

---------- Original Message ----------
From: Darren Green [darren@elementenvironment.com.au]
Sent: 23/08/2016 17:02
To: info@environment.nsw.gov.au
Cc: smo-pr32@elementenvironment.com.au
Subject: Bringelly Brickworks (SSD_5684): Management Plan Consultation

To whom it may concern,
Following the commencement of a State Significant Development application (SSD_5684) in December 2012 for a proposed expansion to Bringelly Brickworks at 60 Greendale Road, Bringelly, Development Consent was issued on 3 March 2015 by the Department of Planning and Environment (DP&E).
In accordance with this Development Consent, several conditions require Boral CSR Bricks, the owner of Bringelly Brickworks, to consult with OEH in the preparation of several of the development's management plans. More specifically, Conditions 21, 26 and 27 of Schedule 3 of the Development Consent requires Boral CSR Bricks to prepare a Biodiversity Management Plan, Rehabilitation Management Plan and Heritage Management Plan in consultation with OEH.
Therefore on behalf of Boral CSR Bricks, please find attached a covering letter and several draft management plans for review.
If you have any questions please don't hesitate to give me a call.

Regards,

Darren Green
Senior Environmental Consultant

[Inline image name : image001.png]

m 0418 969 624
e darren@elementenvironment.com.au
w www.elementenvironment.com.au

PO Box 1563, Warriewood, NSW, 2102

From: Cook, Debbie
To: Lisa Thomson
Subject: FW: Bringelly Management Plans Update
Date: Monday, 9 September 2019 2:28:21 PM
Attachments: image002.png

FYI

From: Darren Green <darren@elementenvironment.com.au>
Sent: Monday, 19 September 2016 1:38 PM
To: Cook, Debbie <DECOOK@pghbricks.com.au>
Cc: PR32 <SMO-PR32@elementenvironment.com.au>; Neville Hattingh <neville@elementenvironment.com.au>
Subject: Bringelly Management Plans Update

Hi Debbie,

As you may be aware, the consultation period for the draft management plans concluded on 7 September. During this period we received responses from Office of Environment & Heritage and DPI: Water. Today we received a response from DPI: DRE. We have not received comments from: Bringelly Public School, Liverpool and Camden Council, RMS and EPA. EPA did acknowledge receipt of notification and I've followed up to confirm whether they actually intend on submitting comments or not.

The comments have been minor and do not necessitate significant amendments.

Because the consultation period has concluded we are in a position to commence with finalising the plans and preparing them for submission to DP&E. I'm aware of some correspondence between DP&E and Boral CSR Bricks regarding Bringelly's Conditions of Approval. Are you OK with us commencing the finalisation of these plans?

Regards,

Darren Green
Senior Environmental Consultant

m 0418 969 624
e darren@elementenvironment.com.au
w www.elementenvironment.com.au

PO Box 1563, Warriewood, NSW, 2102

Department of Primary Industries Water

Contact John Galea
Phone 02 8838 7520
Fax 02 8838 7554
Email john.galea@dpi.nsw.gov.au

Our ref V15/3875-2#1; INT16/107531
Your ref

Darren Green
Senior Environmental Consultant
Phone: 0418 969 624
PO Box 1563,
Warriewood, NSW, 2102

Email: darren@elementenvironment.com.au

Dear Mr Green

BRINGELLY BRICKWORKS (SSD_5684)
Comment on the Environmental Management Plan Preparation and Consultation

I refer to your emailed letter dated 23 August 2016 to the Department of Primary Industries – Water (DPI Water) in respect to the above matter.

DPI Water makes the following recommendations:

- The property description in Section 1.2 Background; should be amended to correctly reflect the current cadastre of the property which is Lot 100 DP 1203966.
- It is suggested that all areas that are not impacted through construction activities are clearly indicated on all plans and signposted to prevent any damage through construction activities.

For further information please contact John Galea, Acting Senior Water Regulation Officer, Parramatta, 8838 7520, john.galea@dpi.nsw.gov.au

Yours sincerely

Richard Nevill
Acting Regional Manager – Metro
Water Regulation Operations
2 September 2016

24 January 2020

Attn: Kate Drinan
Manager Statutory Planning
Camden City Council

PO Box 183
Camden
NSW 2570

PO Box 1563
Warriewood
NSW 2012

ABN 45 162 835 083

Dear Kate

Bringelly Brickworks (SSD 5684): management plan consultation

In August 2016, Element Environment Pty Ltd (Element) on behalf of PGH Bricks, sought comment for the transport, biodiversity and rehabilitation management plans for Bringelly Brickworks as required by SSD 5684.

Camden Council (CC) forwarded comments on 30 September 2016. At the time of receiving comments from CC, PGH Bricks were not able to take up SSD 5684 and therefore no immediate response was provided to CC.

A period has passed and Element, on behalf of PGH Bricks, wishes to notify CC that PGH Bricks are now able to take up SSD 5684 and wish to commence works approved therein.

The management plans have been updated accordingly to address CC comments and PGH Bricks has submitted these plans to the Department of Planning, Industry and Environment for approval.

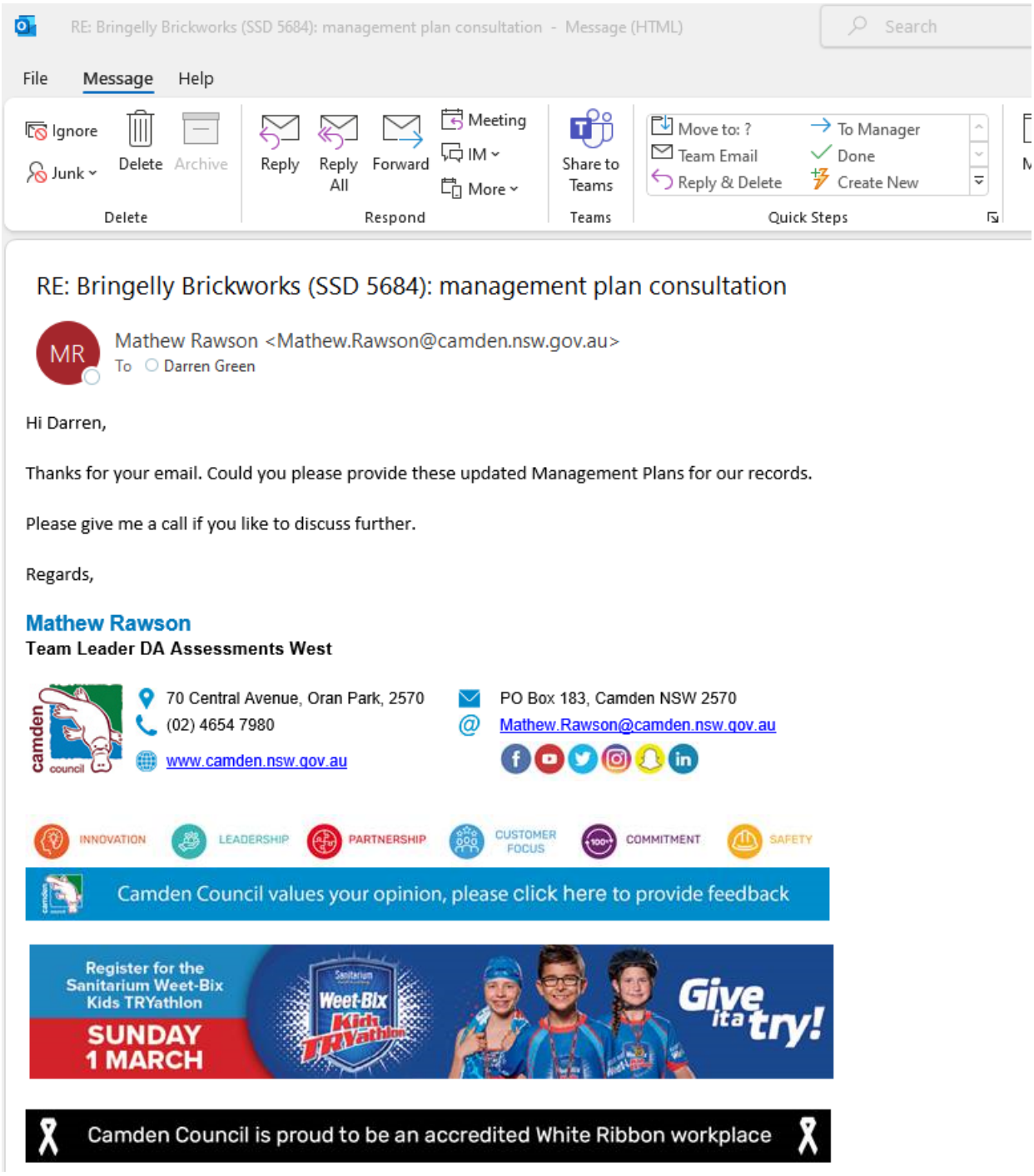
The updated management plans are available upon request should CC wish to review the latest versions.

We trust the above provides clarification around the matter and the delay in responding to previous correspondence. Should you have any queries on the above, please don't hesitate to contact me.

Kind regards,

Darren Green
Associate

0418 969 624
darren@elementenvironment.com.au



RE: Bringelly Brickworks (SSD 5684): management plan consultation - Message (HTML)

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RE: Bringelly Brickworks (SSD 5684): management plan consultation

MR

Mathew Rawson <Mathew.Rawson@camden.nsw.gov.au>
To Darren Green

Hi Darren,

Thanks for your email. Could you please provide these updated Management Plans for our records.

Please give me a call if you like to discuss further.

Regards,

Mathew Rawson
Team Leader DA Assessments West

camden council

70 Central Avenue, Oran Park, 2570
(02) 4654 7980
www.camden.nsw.gov.au

PO Box 183, Camden NSW 2570
Mathew.Rawson@camden.nsw.gov.au

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24 January 2020

Attn: Greg Kininmonth
Manager & Principal Inspector Environment (South)
Environmental Sustainability Unit

PO Box 674
Wollongong
NSW 2500

PO Box 1563
Warriewood
NSW 2012

ABN 45 162 835 083

Dear Greg

Bringelly Brickworks (SSD 5684): management plan consultation

In August 2016, Element Environment Pty Ltd (Element) on behalf of PGH Bricks, sought comment for the rehabilitation management plan for Bringelly Brickworks as required by SSD 5684.

Department of Planning, Industry and Environment – Resources Regulator (Resources Regulator) forwarded comments on 19 September 2016. At the time of receiving comments from the Resources Regulator, PGH Bricks were not able to take up SSD 5684 and therefore no immediate response was provided.

A period has passed and Element, on behalf of PGH Bricks, wishes to notify the Resources Regulator that PGH Bricks are now able to take up SSD 5684 and wish to commence works approved therein.

The rehabilitation management plan has been updated accordingly to address the Resources Regulator comments and PGH Bricks has submitted the plan to the Department of Planning, Industry and Environment for approval.

The updated management plan is available upon request should the Resources Regulator wish to review the latest version.

We trust the above provides clarification around the matter and the delay in responding to previous correspondence. Should you have any queries on the above, please don't hesitate to contact me.

Kind regards,

Darren Green
Associate

0418 969 624
darren@elementenvironment.com.au

AREQ0006123 | Bringelly Brickworks (SSD 5684): management plan consultation

Resources Regulator <nswresourcesregulator@service-now.com>
To darren@elementenvironment.com.au
Cc greg.kininmonth@planning.nsw.gov.au

Reply | Reply All | Forward
Wed 29/01/2020 4:50 PM

Dear Darren

I refer to your email and letter "Bringelly Brickworks (SSD 5684): Management Plan Consultation", both dated 24 January 2020.

I note that the Rehabilitation Management Plan for Bringelly Clay Mine has been updated, incorporating Resources Regulator comments, and has been submitted to the Department of Planning, Industry and Environment for approval.

The current Mining Operations Plan for Mining Lease ML 1731 – Bringelly Clay Mine is dated November 2019 and was approved on 25 November 2019 (Our Reference: MAAG0004972) and remains in force.

It is our generally our preference that the Mining Operations Plan required by Mining Title Conditions and the Rehabilitation Management Plan (RMP) required by Development Consent Conditions should be addressed by a single document, reducing duplication.

If the Rehabilitation Management Plan is approved by the Secretary of DPIE, and is prepared as a separate document to the Mining Operations Plan (MOP), then a subsequent revision to the Bringelly Clay Mine MOP may be required to ensure consistency.

The Resources Regulator will assess in detail any submitted new or amended Mining Operations Plan for ML1731 - Bringelly Clay Mine.

Can you please submit a copy of the updated Rehabilitation Management Plan to the Resources Regulator for our information. Please submit this via email to nswresourcesregulator@service-now.com at your earliest convenience and preferably include "Bringelly Clay Mine - ML1731 - Rehabilitation Management Plan (for information)" in the subject heading.

Feel free to contact me by phone or return email if you require further information regarding this issue.

Regards,

Greg Kininmonth
Manager Environmental Operations
Regulatory Compliance - Team 1 | Resources Regulator
T 02 42767428 M 0429 168 021

resourcesregulator.nsw.gov.au

YouTube

NSW GOVERNMENT | Planning, Industry & Environment

Subscribe to our information alerts

Fwd: AREQ0025305 | Submission of Final land Use Option Plan for the Bringelly Clay Mine ML1717 From: tara@vgt.com.au

Tara O'Brien <Tara@vgt.com.au>
To Travers, Michael

Reply | Reply All | Forward
Tue 22/02/2022 10:45 PM

You replied to this message on 23/02/2022 7:52 AM.

Date: 22 February 2022 at 4:48:31 pm AEDT
To: Tara O'Brien <Tara@vgt.com.au>
Cc: greg.kininmonth@planning.nsw.gov.au
Subject: AREQ0025305 | Submission of Final land Use Option Plan for the Bringelly Clay Mine ML1717 From: tara@vgt.com.au
Reply-To: Resources Regulator <nswresourcesregulator@service-now.com>

Dear Tara O'Brien,

The NSW Resources Regulator received the "PGH Bricks and Pavers, Bringelly Brickworks, Final Land Use Options Plan (Version: V1)" dated February 2022 ("FLUOP") on 11 February 2022.

The Regulator notes that this FLUOP is due for submission to the Department of Planning, Industry and Environment by 24 February 2022.

Nonetheless, the Regulator has had an opportunity to review the FLUOP and wishes to make the following comments:

- The FLUOP appears to address items (a) to (f) under Clause 25, Schedule 3 of SSD_6584;
- The FLUOP acknowledges the ongoing growth and development occuring within the Camden LGA and South West Growth Centre which is likely to have a significant effect on the final land use outcome for this site. This is particularly likely given the current consent extends the mine life to approximately 2045. It is for this reason that the Regulator considers flexibility in final land use selection be a key consideration as the development proceeds; and
- The FLUOP does not appear to significantly differ from the currently approved final land use outcomes contained in the Mining Operations Plan (MOP) for the Bringelly Clay/Shale Mine.

The Regulator notes that transitional arrangements are currently in place for the Operational Rehabilitation Reforms and that the Bringelly Clay/Shale Mine will need to comply with the new regulation by 2 July 2022. It would be expected that consistency be maintained at all times between the FLUOP document and the new Rehabilitation Management Plan and Annual Forward Program requirements of these reforms.

If you have any further questions, please contact me on the details provided below.

Regards,

Craig Campbell
Snr Inspector Environment
MAI - Team 1 | Resources Regulator
M 0428 254 994