NSW GOVERNMENT

NSW Resources Regulator

FWP0001202

AUSTRAL BRICK - LOT 2 BUNNYGALORE QUARRY FORWARD PROGRAM

Thursday 4 May 2023 to Sunday 3 May 2026

Contents

Summary

DETAIL	
Mine	Austral Brick - Lot 2 Bunnygalore Quarry
Reference	FWP0001202
Forward program commencement date	Thursday 4 May 2023
Forward program end date	Sunday 3 May 2026
Forward program revision (if applicable)	
Contact	Scott Hollamby
Mining leases	M(MO)L 8 (1992)
Project location	THE AUSTRAL BRICK CO PTY LTD
Date of submission	Wednesday 2 August 2023

Important

The department may make the information in your program and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your program to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

Three-year forecast – surface disturbance activities

Project description

The Austral Brick - Lot 2 Bunnygalore Quarry (the Quarry) is located on Lot 2 DP 630269 near Belanglo State Forest approximately 20km west of Bowral. The Quarry is owned and operated by The Austral Brick Company Pty Limited (Austral Bricks), under Mining (Mineral Owner) Lease 8 (M(MO)L8) and Development Application (DA) 325/90. It is noted that DA325/90 does not specify a project life or end date for extraction operations within the Quarry Site. Based on current production rates at the Quarry and the extent of known mineralisation, extraction operations at the Quarry are anticipated to be completed by 2028 following which final rehabilitation activities will be undertaken. However, the identification of further resources or modifications to the current production schedule may result in the actual completion date and therefore anticipated final rehabilitation and relinquishment being extended.

Description of surface disturbance activities

Exploration activities

Exploration activities for the Quarry will be limited to the preparation of a Resource Assessment following the previous exploration campaign at the Quarry.

Construction activities

No construction activities are anticipated to be undertaken during the remaining life of the Quarry.

Mining schedule

Mining development method and sequencing and general mine features.

Extraction during the next reporting period will involve recovery of shale with an overburden and production blast to be undertaken during Q3/Q4 of 2023 with further extraction activities during the next three years not currently planned.

Activities undertaken will consist of the following.

- Clearing of vegetation and soil using a bulldozer or similar, with the blade positioned just above the surface. These materials will be temporarily stockpiled adjacent to the extraction area for use in progressive rehabilitation activities.

• Drilling and blasting of overlying sandstone (overburden), placement within the previously disturbed areas, and shaping in accordance with the final landform plan.

• Drilling and blasting of white-firing shale.

• Stockpiling of raw materials within stockpiling areas.

• Progressive loading and transportation of raw materials to the Austral Bricks' brick and paver plants using a front-end loader and road-registered trucks.

In accordance with the requirements of DA325/90, production is limited to an average of 2 000t per month.

Areas identified for emplacements, the sequencing of emplacements, construction, and management.

Overlying sandstone / overburden material will be removed from the areas to be extracted prior to shale blasts being undertaken. The overburden will be placed into completed sections of the extraction area and shaped to form the final landform. Sandstone will preferentially be pushed using a bulldozer, however, load and haul will also be utilised, as required.

Processing infrastructure activities and the location of tailings facilities and schedule for emplacement

No shale processing occurs within the Quarry.

Waste disposal and materials handling operations.

Waste generated on site is principally limited to general waste generated by employees (e.g. food scraps, paper, cardboard, aluminium and steel cans). Minimal wastes from equipment maintenance is generated. Lunch waste and other general waste are removed each day by the contractor and disposed of off-site.

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m^3)	1,350	0	0
Rock/overburden	(m^3)	160,000	0	0
Ore	(Mt)	0.07	0	0
Reject material[1]	(Mt)	0	0	0
Product	(Mt)	0.07	0	0

[1] This includes coarse rejects, tailings and any other wastes resulting from beneficiation.

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

During the next reporting period rehabilitation planning activities will principally involve seeking additional specialist advice in relation to the plant community types / species that are to be targeted to achieve a suitable native vegetation community composition and to assist in defining appropriate rehabilitation completion criteria relating to composition, structure, and function of the native ecosystem domain.

Standard extraction campaign planning will also be undertaken to define the areas to be cleared, where vegetation and soil is to be stockpiled, overburden placed and shaped, and soil material re-spread.

Stakeholder consultation

Given the scale of the Quarry and consultation undertaken as part of the preparation of the RMP no further stakeholder consultation is currently planned or considered necessary during the next three year period beyond that required to establish approved rehabilitation objectives and completion criteria.

Rehabilitation studies, risk assessments and/or design work

No rehabilitation trials are currently taken within the Quarry Site as the rehabilitation techniques employed to date have proven successful.

Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
FWP0001202					

Rehabilitation maintenance and corrective actions

No rehabilitation performance issues or knowledge gaps were identified in the First Annual Rehabilitation Report that relate to performance issues. Current knowledge gaps principally relate to the information required to achieve approved rehabilitation objectives and criteria. These are to be addressed through engagement of specialist ecological and rehabilitation experts to review existing rehabilitation areas to establish criteria and provide input on suitable plant community types that are local and will provide a suitable selection of species. Advice in relation to suitable community structure and function will also be sought.

Rehabilitation schedule

Quarrying activities will be focused on the retained disturbance area using existing established access roads. Additional disturbance planned over the next three-year period is consistent with the approved extraction area. Progressive rehabilitation including landform shaping, spreading of growth medium and revegetation will be undertaken during the next year. The rehabilitation schedule is shown in Plans 2A, 2B and 2C.

Subsidence remediation for underground operations

As no underground operations are conducted as part of the Quarry's operations, no subsidence remediation is required.

Progressive mining and rehabilitation statistics

Three-yearly forecast cumulative disturbance and rehabilitation progression

	FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
A	**Total surface disturbance footprint**	(ha)	8.04	8.04	8.04
B	**Total active disturbance**	(ha)	4.13	4.13	4.13
P	**Total new area of land proposed for active rehabilitation**	(ha)	1.07	1.07	1.07

Rehabilitation key performance indicators (KPIs)

	FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O	**Total new active disturbance area**	(ha)	0.64		
P	**Total new area of land proposed for active rehabilitation during the reporting period**	(ha)	1.07		
Q	**Annual rehabilitation to disturbance ratio**		1.66		

Attachment 1 – Reporting Definitions

REPORTING CATEGORY		DEFINITION
A	Total disturbance footprint – surface disturbance	All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities. The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below). Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.
B	Total active disturbance	Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).
C	Rehabilitation – land preparation	Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation– decommissioning, landform establishment and growth medium development. Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.
D	Ecosystem and land use establishment	Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites. Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.

REPORTING CATEGORY	DEFINITION
O	The area of any new active disturbance that will be created during the next three years, as defined under definition A1 (definition A1 Table 5).
P	The sum of any new rehabilitation to be commenced in the next three years. These areas may be in the phases "Rehabilitation - Land Preparation" or the "Ecosystem & Land Use Establishment" (definitions C & D in Table 5).
Q	The rehabilitation to disturbance ratio (S / R) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the three years. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that period are the same.

Attachment 2 – Definitions

WORD	DEFINITION
Active	In the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
Analogue site	In the context of rehabilitation, an analogue site is a 'reference site' that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
Annual rehabilitation report and forward program	As described in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.
Closure	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning Phase of Rehabilitation	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or 'fit for purpose' built infrastructure to be retained for future use(s) following lease relinquishment.

WORD	DEFINITION
Department	The Department of Regional NSW.
Disturbance	See Surface Disturbance.
Disturbance area	An area that has been disturbed and that requires rehabilitation. This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).
Domain	An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.
Ecosystem and Land Use Development	This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria. For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile. This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.
Ecosystem and Land Use Establishment	This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.
Exploration	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

WORD	DEFINITION
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department's website.
Growth Medium Development	This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species. This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.
Habitat	Has the same meaning as that term under the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994* (as relevant).
Indicator	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
Land	As defined in the *Mining Act 1992.*
Landform Establishment	This phase of rehabilitation consists of the processes and activities required to construct the final landform. In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.

WORD	DEFINITION
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	Means the NSW Resources Regulator's online portal that lease holders must use (via a registered account) to: ■ upload rehabilitation geographical information system (GIS) spatial data ■ develop rehabilitation GIS spatial data (using online tracing functions) ■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities. Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.
Mining area	As defined in the *Mining Act 1992*.
Mining domain	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
Mining land	As defined in the *Mining Act 1992.*
Native vegetation	Has the same meaning as that term under section 60B of the *Local Land Services Act 2013.*
Overburden	Material overlying coal or a mineral deposit.
Performance indicator	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.

WORD	DEFINITION
Phases of rehabilitation	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development.
Progressive rehabilitation	The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.
Rehabilitation Completion	The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of *Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate* application by the lease holder.
Rehabilitation Completion criteria	As defined in the Mining Regulation 2016.
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.
Rehabilitation management plan	As defined in the Mining Regulation 2016.
Rehabilitation objectives	As defined in the Mining Regulation 2016.
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.

WORD	DEFINITION
Relevant stakeholders	Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: ■ the relevant development consent authority ■ the local council ■ the relevant landholder(s) ■ community consultative committee (if required under the development consent) or equivalent consultative group ■ affected land holder(s) ■ government agencies relevant to the final land use ■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) ■ local Aboriginal communities, and ■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).
Secretary	The Secretary of the Department.
Security deposit	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.
Tailings	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water[2].
Waste	Has the same meaning as that term under the *Protection of the Environment Operations Act 1997*.

[2] Commonwealth of Australia (DITR), 2007. *Tailings Management.*

Attachment 3 – Plans

Plan 2A.jpg

Plan 2B.jpg

Plan 2C.jpg