



**NSW
Resources
Regulator**

FWP0001024

GALONG LIMESTONE MINE FORWARD PROGRAM

Wednesday 16 November 2022 to Saturday
15 November 2025

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Summary

DETAIL

Mine	Galong Limestone Mine
Reference	FWP0001024
Forward program commencement date	Wednesday 16 November 2022
Forward program end date	Saturday 15 November 2025
Forward program revision (if applicable)	
Contact	Carolay Guarin
Mining leases	ML 1496 (1992), ML 1745 (1992)
Project location	GRAYMONT (NSW) PTY LTD
Date of submission	Wednesday 27 July 2022

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 major features of the Galong limestone mine include an open-cut mine with an active overburden and low-grade materials emplacement to the west of the open-cut mine. A topsoil stockpile is located on the western margin of the open-cut mine. A processing plant area comprises an infeed and four milling circuits, one coal mill for the kiln and the other three produce superfine ag limes and ag limes. There is a large workshop and store shed and fuel and oils distribution tanks, and up to six transportable offices and storage buildings.

There are dispatch weighbridges and silos for quicklime and Ag lime storage and distribution, large fire water storage tanks, truck wash-down facility and various silt/stormwater sediment basins. The limestone kiln and associated infrastructure include a hydration plant, material transfer equipment, storage silos, bagging plant and feed silo, packaging equipment and weighbridge. A 1MW solar farm has been installed at the south of the infrastructure area.

Description of surface disturbance activities

Exploration activities

There are no expected exploration activities within the forward program period.

Construction activities

- Construction of new fixed crusher within the existing disturbed footprint north of the office buildings.
- Extension to existing workshop and a construction of new workshop within the existing infrastructure area

Mining schedule

Mining development method and sequencing and general mine features.

Extraction of raw limestone from the open-cut mine involving conventional drill & blast methods, in pit mobile crushing and screening equipment, with a combination of mobile and fixed plant crushing. In the next three years, load, haul and stockpile activities will be conducted continuously during the term of this Forward Program.

The Galong Limestone Mine uses conventional open-cut hard rock techniques that involves the following:

- Removal of any available topsoil and subsoil. However, in the areas where limestone outcrops it is difficult to salvage the shallow and sporadic areas of topsoil and subsoil.
- An overburden and topsoil stripping campaign is proposed to the north of the existing pit, to enable pit development to the north. Topsoil is to be stored in a new topsoil stockpile to the northwest of the pit.
- Drilling and blasting of the overburden material to expose the underlying limestone resource. A significant proportion of the overburden materials which comprise a mixture of clay and unsuitable/low grade limestone, is transported to the active overburden emplacement for disposal.
- Drilling and blasting of limestone. Blasting of the overburden and limestone is undertaken approximately once a month.
- Limestone excavation and transportation either directly to the crusher or to a back-up stockpile on the upper bench. Limestone excavation and transport is undertaken either by front-end loader or off-road haul track.

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

The overburden material and waste rock is placed into the existing emplacement areas, commencing on the north-western dump face, and continuing the emplacement to the North and South as required.

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

Oversize limestone from each blast is stockpiled and subsequently reduced in size using a hydraulic hammer attached to an excavator. The site contains crushing equipment, lime kiln and hydrator for further processing of limestone into quicklime and hydrated lime products.

Waste disposal and materials handling operations.

Waste disposal and material handling includes the following:

- Waste oils and greases are stored within a designated waste oil containment area whilst awaiting collection for disposal
- In the event of a spill/leak, hydrocarbon spill clean-up stations are located across the site
- Coal feed is stored inside an enclosed building with sealed and bunded floors and waste dust with residual coal ash is stored in a silo, prior to placement in a designated area on the overburden/waste emplacement area.
- Quicklime and hydrated lime products are contained in designated silos
- No explosives are stored on-site

- General waste is contained in designated waste bins and regularly removed from site
- Redundant equipment is stored in designated lay down area for subsequent parts removal or dispatch to scrap metal recyclers
- Mobile plant and equipment maintained regularly according to service schedule and undertaken in a designated area

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil <small>(if applicable)</small>	(m ³)	11,000	0	0
Rock/overburden	(m ³)	400,000	100,000	100,000
Ore	(Mt)	0.41	0.47	0.47
Reject material¹	(Mt)	0.01	0.01	0.01
Product	(Mt)	0.32	0.36	0.36

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

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

The Galong site will include a set of activities to review and ensure that the proposed rehabilitation milestones are achieved. The Forward Program process will drive annual review of the rehabilitation progress of the mine. This process will evaluate past rehabilitation processes and activities with the aim to incorporate lessons learned for ongoing and future rehabilitation.

In addition to annual rehabilitation reviews the following activities will be carried out:

- Maintenance of a topsoil inventory to document stripped, stockpiled and re-spread resources and review the material balance to make plans to create soil material, if needed.
- Monthly inspections to identify soil and land erosion and adequacy of soil, erosion and drainage controls
- Weed management inspections for rehabilitated areas, keeping records of inspections and creating action plans if needed.
- Landform and water drainage structures design.
- Inspections to record the progression of the intended landform.
- Rehabilitation monitoring inspections of areas in the ecosystem establishment phase to be undertaken every six months by a specialist to allow early identification of any emerging threats to rehabilitation.

Stakeholder consultation

No stakeholder consultation is planned to be carried out at this stage.

Rehabilitation studies, risk assessments and/or design work

Inspection by an agronomist to advise on preferred plant species mix for rehabilitation areas to be returned to a final land use of agricultural – grazing. The agronomist would also advise on seeding methodologies and management of emerging threats including control of invasive species.

Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
RRT0001007	Revegetation Methods	Identify the most appropriate revegetation methods for the Galong site.	Trialling different cover crop applications and various native and improved pasture species in consultation with an agronomist and incorporating native trees and shrubs at low density to improve habitat value.	31 Dec 2025	Not started

Rehabilitation maintenance and corrective actions

No significant maintenance or corrective action activities are proposed.

Areas within and surrounding the mine lease do possess invasive species (weeds) that could impact performance of future rehabilitation. Management of undesirable species will be scheduled, undertaken and monitored to control species that may have an adverse impact in achieving the final land use. A weed management plan will be developed and will include the following:

- Identification of the weed species of concern
- Assessment and accurate mapping of the distribution and density of the weed species; and
- Identification of an appropriate weed management techniques and a program for active control.

Rehabilitation schedule

Rehabilitation schedule year 1:

- Rehabilitation areas internally identified as R1 to R6 are in the Ecosystem and Land Use Development phase. Routine monitoring to be undertaken to identify any emerging threats.
- Overburden Emplacement area internally identified as OEA_F1 (Western Batter 1) will commence Landform Establishment.

Rehabilitation schedule year 2

- Rehabilitation areas internally identified as R1 to R6 are in the Ecosystem and Land Use Development phase. Routine monitoring to be undertaken to identify any emerging threats.
- Overburden Emplacement area internally identified as OEA_F1 (Western Batter 1) will progress to Growth Medium Development.
- Overburden Emplacement Area internally identified as OEA_F2 (Western Batter 2) will commence Landform Establishment.

Rehabilitation schedule year 3

- Rehabilitation areas internally identified as R1 to R6 are in the Ecosystem and Land Use Development phase. Routine monitoring to be undertaken to identify any emerging threats.
- Overburden Emplacement area internally identified as OEA_F1 (Western Batter 1) will progress to Ecosystem and Land Use Establishment.
- Overburden Emplacement Area internally identified as OEA_F2 (Western Batter 2) will progress to Growth Medium Development.

- Overburden Emplacement Area internally identified as OEA_F3 (Western Batter 3) will commence Landform Establishment.

Subsidence remediation for underground operations

Not applicable. There are no underground operations on site.

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)	60.19	60.19	60.19
B Total active disturbance	(ha)	52.2	52.2	52.2
C Land prepared for rehabilitation	(ha)	0.61	1.71	3.01
D Ecosystem and land use establishment	(ha)	0	0	0.61

Rehabilitation key performance indicators (KPIs)

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O Total new active disturbance area	(ha)	5.15		
P Area proposed for active rehabilitation	(ha)	0.61	1.1	1.91
Q Annual rehabilitation to disturbance ratio		0.12		

Attachment 1 – Reporting Definitions

REPORTING CATEGORY	DEFINITION
<p>A Total disturbance footprint – surface disturbance</p>	<p>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.</p> <p>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).</p> <p>Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.</p>
<p>B Total active disturbance</p>	<p>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).</p>
<p>C Rehabilitation – land preparation</p>	<p>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.</p> <p>Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.</p>
<p>D Ecosystem and land use establishment</p>	<p>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.</p> <p>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.</p>

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	<p>An area that has been disturbed and that requires rehabilitation.</p> <p>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).</p>
Domain	<p>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.</p>
Ecosystem and Land Use Development	<p>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.</p> <p>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.</p> <p>This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.</p>
Ecosystem and Land Use Establishment	<p>This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform.</p> <p>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.</p>
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	<p>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).</p> <p>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.</p>
Habitat	Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (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 <i>Mining Act 1992</i> .
Landform Establishment	<p>This phase of rehabilitation consists of the processes and activities required to construct the final landform.</p> <p>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).</p>
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	<p>Means the NSW Resources Regulator’s online portal that lease holders must use (via a registered account) to:</p> <ul style="list-style-type: none"> ■ 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. <p>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.</p>
Mining area	As defined in the <i>Mining Act 1992</i> .
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 <i>Mining Act 1992</i> .
Native vegetation	Has the same meaning as that term under section 60B of the <i>Local Land Services Act 2013</i> .
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	<p>The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are:</p> <ul style="list-style-type: none"> ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development.
Progressive rehabilitation	<p>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.</p>
Rehabilitation Completion	<p>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 <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> application by the lease holder.</p>
Rehabilitation Completion criteria	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation cost estimate	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation management plan	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation objectives	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation risk assessment	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation schedule	<p>The defined timeframes for progressive rehabilitation set out in the forward program.</p>

WORD	DEFINITION
Relevant stakeholders	<p>Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes:</p> <ul style="list-style-type: none"> ■ 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 <i>Protection of the Environment Operations Act 1997</i> .

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

Attachment 3 – Plans

Plan 2A.pdf

Plan 2B.pdf

Plan 2C.pdf

Forward Program (LARGE MINE) v2.1

Plan 2A Mining and Rehabilitation – Year 1



Legend

- Forecast Data Year1**
-  Forecast Disturbance
 -  Forecast Land Prepared for Rehabilitation
 -  Ecosystem and Land Use Establishment
-  Project Approval Boundary
- World Imagery**
- Low Resolution 15m Imagery
 - High Resolution 60cm Imagery
 - High Resolution 30cm Imagery
- Citations

Notes

Rehabilitation Portal Submission Numbers
Forecast Data Year 1: 2001

917.2 0 458.62 917.2 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere
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Plan 2B Mining and Rehabilitation – Year 2



Legend

- Forecast Data Year2**
- Forecast Disturbance
 - Forecast Land Prepared for Rehabilitation
 - Ecosystem and Land Use Establishment
- Project Approval Boundary
- World Imagery**
- Low Resolution 15m Imagery
 - High Resolution 60cm Imagery
 - High Resolution 30cm Imagery
- Citations

Notes

Rehabilitation Portal Submission Numbers
Forecast Data Year 2: 2002

917.2 0 458.62 917.2 Meters

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Plan 2C Mining and Rehabilitation – Year 3



Legend

- Forecast Data Year3**
- Forecast Disturbance
 - Forecast Land Prepared for Rehabilitation
 - Ecosystem and Land Use Establishment
- Project Approval Boundary
- World Imagery**
- Low Resolution 15m Imagery
 - High Resolution 60cm Imagery
 - High Resolution 30cm Imagery
- Citations

Notes

Rehabilitation Portal Submission Numbers
Forecast Data Year 3: 2003

917.2 0 458.62 917.2 Meters

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